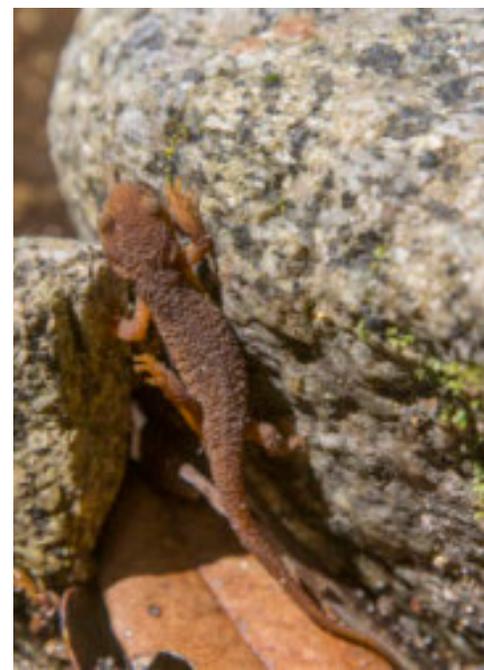
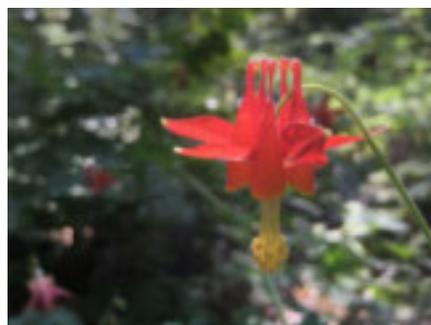
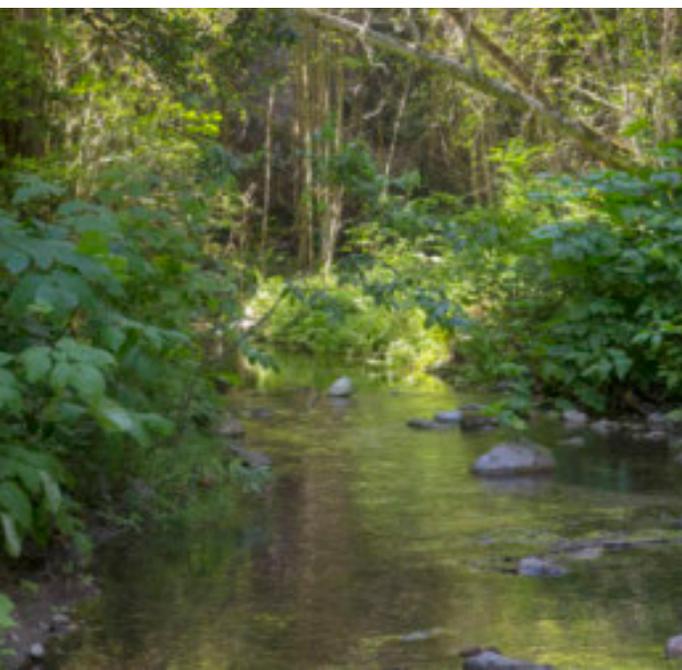




# SAN VICENTE REDWOODS PUBLIC ACCESS PLAN

**FINAL**  
DECEMBER 2019





# SAN VICENTE REDWOODS PUBLIC ACCESS PLAN

FINAL

**December 2019**

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Cover photos courtesy of Ian Bornarth  
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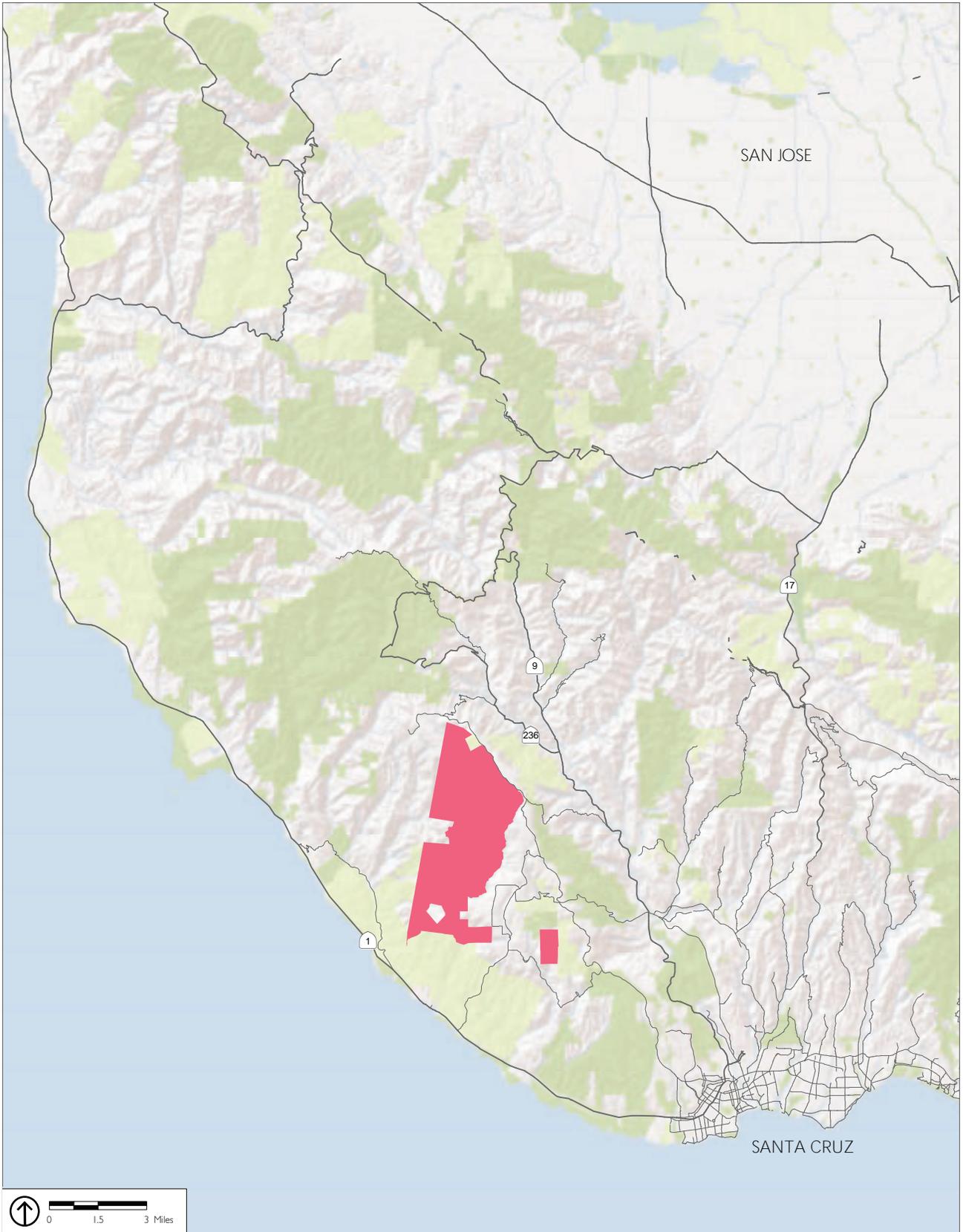
# 1 INTRODUCTION



The San Vicente Redwoods is generally located in the Santa Cruz Mountains between the Davenport and Bonny Doon communities. As shown in Figure 1-1, San Vicente Redwoods is a contiguous 8,160-acre property with the exception of the 373-acre area located to the southeast of the main property that is referred to as San Vicente Redwoods: Laguna Tract. Combined, the main property and the Laguna Tract total 8,533 acres.

The purchase of the property by the Peninsula Open Space Trust (POST), Sempervirens Fund, Save the Redwoods League (SRL), and the Land Trust of Santa Cruz County (Land Trust) in December 2011 resulted in the creation of approximately 27,500 acres of contiguous protected land, as it fills a long standing gap between the numerous protected lands that surround it. Although San Vicente Redwoods is currently owned by POST and Sempervirens Fund, the ongoing protection of the San Vicente Redwoods is due to the successful collaboration between these organizations and the Land Trust and SRL, with additional financial assistance from other organizations. The two owners are currently responsible for the protection and management of the property, the Land Trust is responsible for implementing the San Vicente Public Access Plan as the Public Access Manager, and the SRL will provide Conservation Easement monitoring and enforcement. These four organizations are collectively referred to as the Conservation Partners, and their roles and responsibilities are further described in Chapter 6, Implementing the Plan.

**LAND TRUST OF SANTA CRUZ**  
**SAN VICENTE REDWOODS PUBLIC ACCESS PLAN**



- SV Redwoods Boundary
- Public Lands - Open Access
- Public Lands - Restricted Access
- State Highways
- Major Roads

**FIGURE 1-1**  
**REGIONAL CONTEXT**

The land uses and activities envisioned for the San Vicente Redwoods property are both as complementary and diverse as the stakeholders that have come together towards the property's protection. The Conservation Vision (completed in 2011) for the property envisions integration of preservation, restoration, and sustainable timber harvesting with research, education, and recreation. Recreation, education, and research activities at the property provide unique opportunities to further the property's Conservation Values, which contribute to the property's on-going protection. Recreation and education increases public exposure to and therefore understanding of these unique ecosystems and natural processes, and research can inform successful management of San Vicente Redwoods and other properties. Together, such uses have the potential to make a substantial impact towards the conservation goals for San Vicente Redwoods.

## PURPOSE OF THE PUBLIC ACCESS PLAN

The provision of access for the purposes of recreation, research, and education is a core component of the Conservation Vision, and allowing for public access is a requirement of the Conservation Easement that protects the property. The San Vicente Redwoods Public Access Plan defines the vision for providing this access as well as the tools that will be necessary to establish initial access and maintain appropriate access into the future.

The Public Access Plan includes a Recreational Access Plan and a Research and Education Access Plan, though the focus of the Public Access Plan is recreational access and regional trail connections. While all research and educational activities are not necessarily open to the public, they are included as part of the Public Access Plan because of the education potential and because research and education will be supported by the same trails and access features required for recreational access. Research access will be managed by the owners, while educational and special use will be managed by the Land Trust.

This Public Access Plan will be used by the Conservation Partners and any other partners to guide the management of public access on the property. Members of the organized groups and/or general public with an interest in public access at San Vicente Redwoods may use the Public Access Plan to understand opportunities for use and identify avenues for participation. The Public Access Plan is intended to guide the provision of access for at least 10 years, at which



point it may be revisited and updated as necessary, in accordance with the Conservation Easement. The Plan may also be revised if another entity assumes public access management responsibilities, as further discussed in Chapter 6. This Plan will remain the active plan until revised.

## THE PLANNING PROCESS

The development of the Public Access Plan included background and on-site research, coordination with related planning efforts, consultation with experts and Regulatory agencies, and extensive public outreach.

The Conservation Partners provided guidance throughout the planning process, with designated representatives of each Partner participating in the ‘Working Group.’ Working Group meetings were held almost every week from 2013 to 2017, and members engaged Conservation Partner leadership at quarterly meetings of the Living Landscape Initiative.

The outcomes of background research and field reconnaissance are summarized in Chapter 2, San Vicente Redwoods Overview. A summary of related planning efforts, consultation with experts and regulatory agencies, and the community engagement conducted as part of the planning process are provided below.



## RELATED PLANNING EFFORTS

Prior to the development of this Public Access Plan, substantial planning work was conducted for the San Vicente Redwoods property, including existing conditions analysis and the development of an strategy to conservation, the preparation of the Conservation Vision (2011), Conservation Easement (2014), and the first Timber Harvest Plan (2015). Timber harvest activities on the property are governed by Timber Harvest Plans, which further inform the development of the Public Access Plan and are summarized below as they pertain to public access.

## SAN VICENTE REDWOODS ANALYSIS AND CONSERVATION STRATEGY

The Conservation Partners have mapped and analyzed various features of the site, including aquatic, marbled murrelet, and mountain lion habitat; climate resilience based on stream buffers and topographic shading; vegetation communities; geology, soils, and erosion sensitivity; and road density, usage, steepness, and hydrologic connectivity. Relative Conservation Values were then

applied for each feature type to the 21 “Planning Watershed” units that were identified on the property. Based on the cumulative analysis, the “Planning Watersheds” were further grouped and delineated as two Preservation Reserves, three Restoration Reserves, and two Working Forest Reserves of various acreages. These management areas are the basis for the conservation strategies that the Conservation Partners will incorporate into all planning and management efforts. The management areas are described below.

- **Preservation Preserve.** Two areas were delineated as Preservation Reserves. These areas are to be managed to preserve and maintain existing old forest and other rare plant communities.
- **Restoration Reserve.** Three areas were delineated as Restoration Reserves. These areas are to be managed to allow limited timber harvesting primarily for the restoration and enhancement of native ecosystem values.
- **Working Forest.** Two areas were delineated as Working Forest. Working forests are areas to be managed to emphasize Sustainable Forest Management.

#### SAN VICENTE REDWOODS CONSERVATION EASEMENT

The general purpose of the Conservation Easement, executed December 2014, is to preserve and protect in perpetuity the natural, ecological, habitat, scenic, open space, and forestry resources located on the property, including management and maintenance by the Grantor (POST and Sempervirens Fund) and the Grantor’s successors. The Conservation Easement gives the SRL the right to allow public access. The Conservation Easement identifies seven Conservation Values and explains the role San Vicente Redwoods plays in providing each value. These are summarized in Chapter 2. The full text of the Conservation Values is provided in Appendix 1 (Conservation Values).

#### TIMBER HARVEST PLAN

Timber harvesting activities are governed by the California Forest Practice Rules and other relevant statutes, and Timber Harvest Plans describe individual harvest projects. The Timber Harvest Plan (THP# 1-14-117 SCR) for the first harvest at San Vicente Redwoods was approved by CAL FIRE in 2015. Subsequent timber harvest plans are anticipated for the property.



## CONSULTATION WITH EXPERTS AND REGULATORY AGENCIES

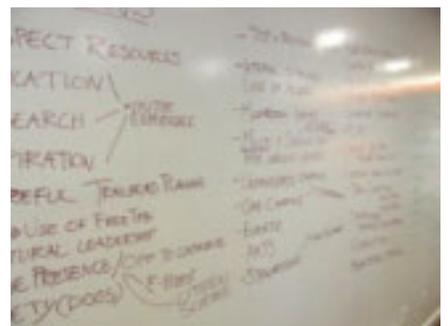
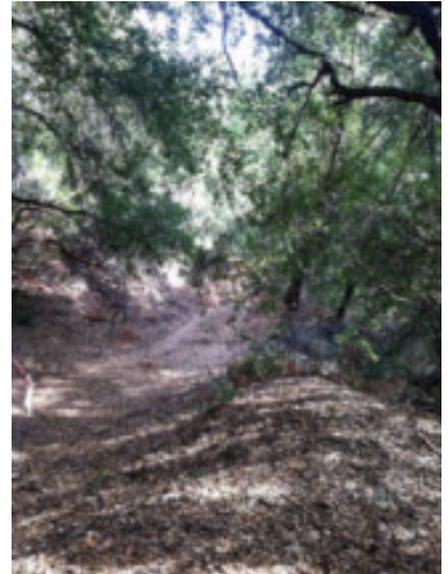
The Land Trust and the Conservation Partners solicited guidance from experts in the fields of conservation science, public access management, biological resources, cultural resources, and engineering. In addition, Regulatory Agency staff was consulted in an effort to minimize potential resource impacts through proactive planning and design. These efforts include but are not limited to:

- The Working Group consulted the University of California Santa Cruz Puma Project to understand the areas of the property that support mountain lion denning, movement and foraging, and supplemented their data with game camera data managed by the San Vicente Property Manager.
- Potential trail corridors and staging area were flagged on site by professional trail designers and builders; evaluated by the civil and environmental engineers for stability related to erosion and geotechnical considerations; and surveyed by biological and cultural resource experts. Through close coordination with technical experts, trail alignments were refined to minimize potential impacts to resources.
- Site visits were conducted with representatives from the County of Santa Cruz and the California Department of Fish and Wildlife (CDFW). In addition, the proposed project was presented to California Coastal Commission.

## PUBLIC OUTREACH AND ENGAGEMENT

Public outreach for the project consisted of interviews with key stakeholders, including the owners, partners, and potential buyers/leasers; two facilitated meetings, one with recreation stakeholders and the other with research/education stakeholders; a community meeting in March 2014, which built upon the initial public meeting held in May 2012; an online questionnaire open to the public; and additional neighborhood outreach. The public was notified of the opportunity to participate through extensive media coverage of the topic, including newspaper articles (five in the Santa Cruz Sentinel, one in the Contra Costa Times), television stories (one on KSBW, two on KION), and news websites (three stories on Hilltromper.com). Adjacent property owners and several government agencies were contacted by phone or email. Outreach efforts are summarized below.

- **Interviews.** A series of interviews and small meetings with interested parties was conducted by the Land Trust between October 2013 and July 2014. This effort focused on people and organizations that could be substantially affected by the project, such as: owners of adjacent lands, emergency service providers, water purveyors, utilities, law enforcement, and local community groups. Local experts and agencies were also consulted from the following fields: biology, geology, forestry, cultural resources, recreation, and education. Approximately 150 individuals and groups were identified and contacted. In total, such meetings were held with approximately 190 people. The meetings covered a range of topics typically set by the interviewee. Additional interviews were conducted between 2014 and 2017 as part of ongoing outreach by the Land Trust.
- **Stakeholder Meetings.** In addition to interviews, two small group meetings were held, one for education and research interests, and one for representatives of recreational user groups. Both meetings were facilitated by PlaceWorks and involved a short overview of the project, followed by a roundtable discussion about opportunities and constraints. Attendees of the education meeting included representatives from Swanton Pacific Ranch and University of California Santa Cruz. Attendees of the recreational meeting included hikers, mountain bikers, equestrians, dog-walkers, nature interpreters, representatives from the Sierra Club, the Mountain Bikers of Santa Cruz County, Bureau of Land Management, the Santa Cruz Bird Club, the 8 Shields Institute, and the Fungus Federation.
- **Questionnaire.** To gain a broad understanding of public concerns and interest in public access, an online questionnaire was hosted from November 2013 through April 2014 to seek public input from neighbors, residents, agency staff and others. Survey participants were asked to express their hopes and concerns for the project by indicating their preferences for various recreational activities, by selecting their top concerns, and by judging proposed access points. The survey also allowed participants the opportunity to provide public and private feedback. To reach individuals without computer access, hard-copies of the survey were distributed by request. Additionally, in May 2014, questionnaires were also shared with a local non-profit to interface with the local Spanish speaking community. In total 2,326 people filled out the questionnaire. In June 2014, questionnaire responses were downloaded and summarized. Public



comments were also organized. The results and public comments are posted and accessible on the Land Trust's website, and provided in Appendix 3 (Questionnaire Summary).

- **Community Meetings.** A community meeting was hosted in March 2014 by the Land Trust. Over 300 people attended the meeting to share their views on public access. At the meeting, the draft access map was presented, and attendees were asked to form small groups to discuss opportunities and constraints. Each group was given the opportunity to share their views and conclusions in front of all the attendees as well as the planners. An additional community meeting was held in September 2014 to present the Draft Public Access Plan (2014) and hear from the community regarding preferences, priorities and concerns. Approximately 150 people attended this meeting, and the Public Access Plan has been revised to reflect feedback received from the public.
- **Neighborhood Outreach.** Neighborhood outreach included presentations at four meetings of the Rural Bonny Doon Association and more than 15 smaller meetings.

Throughout the planning process, the community was engaged through over 125 separate meetings and interviews with a cumulative attendance of over 1,500. The Land Trust, in collaboration with the other Conservation Partners, continues to engage and reach out to local stakeholders during the planning process.

## ORGANIZATION OF THE PLAN

The Public Access Plan is organized as follows:

- Chapter 1 – Introduction
- Chapter 2 – San Vicente Redwoods Overview
- Chapter 3 – Goals and Policies
- Chapter 4 – Recreation Access Plan
- Chapter 5 – Education and Research Access Plan
- Chapter 6 – Implementing the Plan
- Chapter 7 – Design and Maintenance Guidelines
- Chapter 8 – Acknowledgements

The first three chapters of the Public Access Plan provide an overview of the property and establish broad goals and objectives for the project. The Recreational Access Plan and the Research and Educational Access Plan are provided as Chapters 4 and 5, respectively. Chapters 6 and 7 provide further detail to guide the development and management of public access.

LAND TRUST OF SANTA CRUZ COUNTY  
SAN VICENTE REDWOODS PUBLIC ACCESS PLAN  
INTRODUCTION

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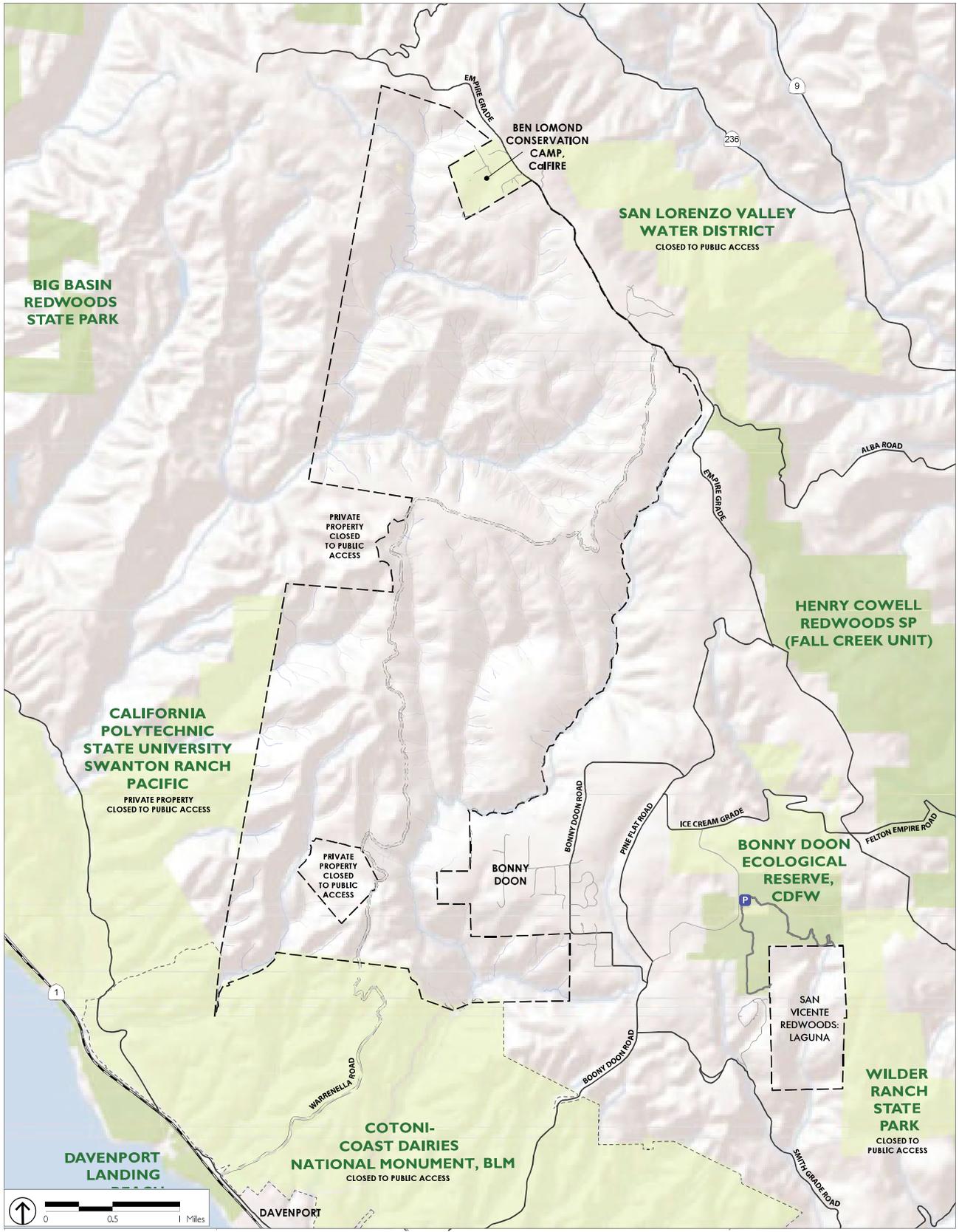
## 2 SAN VICENTE REDWOODS OVERVIEW



This chapter provides a brief overview of the 8,532-acre San Vicente Redwood property with respect to the biological resources, cultural resources, existing access and circulation system, views, and adjacencies, as well as opportunities for regional connectivity, as they pertain to access opportunities and constraints. An overview of the property is provided in Figure 2-1. The Conservation Easement defines the Conservation Values for which the property was protected. These seven Conservation Values are: (1) statewide and regional conservation significance, (2) forests, (3) biodiversity, (4) watershed protection, (5) viewshed protection, (6) landscape and habitat connections, and (7) public recreation, education, and scientific study.

### BIOLOGICAL RESOURCES

San Vicente Redwoods is comprised of a range of habitat types, including, but not limited to, redwood forest, chaparral and riparian habitats, which together have the potential to support a wide range of plant and animal species. An existing conditions review and biological sensitivity analysis were conducted by professional biologists with the purpose of identifying potential biological constraints in relation to the implementation of the Public Access Plan.

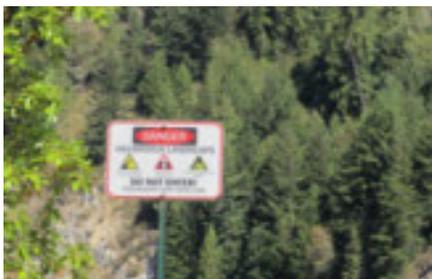


**FIGURE 2-1**  
**EXISTING CONDITIONS**

The review and analysis was based on review of existing plans and data, including, but not limited to, the Conservation Blueprint for Santa Cruz County (2011), a California Department of Fish and Wildlife (CDFW) California Native Diversity Database (CNDDDB) search (2016), the United States Fish and Wildlife Service (USFWS) Santa Cruz County quadrangle list of listed species (2016), the California Native Plant Society (CNPS) rare plant list (2016), and review of the University of California Santa Cruz Puma Project.

Based on this review and analysis, it has been determined that the property either has or has the potential to support onsite and offsite sensitive biological resources, including, but not limited to, the following:

- Special-status wildlife species such as the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), the Oak titmouse (*Baeolophus inornatus*), the anadromous steelhead (*Oncorhynchus mykuss*), the coho salmon (*Oncorhynchus kisutch*), the Townsend's big-eared bat, (*Corynorhinus townsendii townsendii*), the California red-legged frog (*Rana draytonii*), as well as the Marbled murrelet (*Brachyramphus marmoratus*).
- Special-status plant species such as the Anderson's manzanita (*Arctostaphylos andersonii*), Point Reyes horkelia (*Horkelia marinensis*), Santa Cruz Mountains pussypaws (*Calyptridium parryi* var. *hesseae*), Dudley's lousewort (*Pedicularis dudleyi*), Santa Cruz Mountains beard tongue (*Penstemon rattanii* var. *kleei*), white-flowered rein orchid (*Piperia candida*), Brewer's red maids (*Calandrinia breweri*), bristly sedge (*Carex comosa*), deceiving sedge (*Carex saliniformis*), robust spineflower (*Chorizanthe robusta* var. *robusta*), and the mountain lady's-slipper (*Cypripedium montanum*).
- Movement corridors for mountain lions (*Puma concolor*) along gentle slopes and broad ridge top lands, as well as denning sites in other areas.
- Unique and sensitive terrestrial and aquatic habitat types such as maritime chaparral, coastal scrub, coast live oak woodland, redwood forests, the endangered Anderson's manzanita (*Arctostaphylos andersonii*) habitat, seeps and seasonal wetlands, shrub-scrub wetlands, and the Zayante sandhills habitat.



## CULTURAL RESOURCES

During the time of European settlement, the land that is now the San Vicente Redwoods property was inhabited by the Awaswas division of Ohlone, who were hunter-gatherers that lived in large settlements, often near fresh water sources and surrounded by diverse and abundant plant and animal life. Through the second half of the 19<sup>th</sup> century, the majority of the property was part of the San Vicente (Escamilla) Land Grant and homesteading occurred on portions of the property. Logging activities began in the early 20<sup>th</sup> century on the northern portion of the property by the San Vicente Lumber Company. Ocean Shore Railroad built a rail line that connected the property down to the coast, which was then sold to San Vicente Lumber Company in 1920 and abandoned when the logging company went out of business in 1923. The Santa Cruz Portland Cement Company also constructed a rail line from their cement plant on the coast to a limestone quarry on the property, following San Vicente Creek. This quarry supported the small community of Bella Vista, which was destroyed in a 1962 landslide.

Based on the available historical and archeological data from the Northwest Information Center (NWIC), as well as additional sources including the office at the CAL FIRE Archaeology Program in Santa Rosa, examination of the library and files of Tom Origer & Associates, field inspection of the project location, meeting with Santa Cruz Forester Nadia Hamey, and contact with the Native American community, there are approximately 25 known cultural resource sites located on the property. However, the property has not been subjected to a survey that covers the entirety of the property and there is the potential for more unknown resources to exist. The areas where development is planned as part of the Public Access Plan (see Chapter 4, Recreation Access Plan) have been surveyed by professional archeologists (2016 and 2017). As part of these surveys, it was determined that five of the identified sites appear to be within or in close proximity to the where development is proposed. These sites are avoided by the trail network layout, and measures will be taken to detect additional sites during construction as further described in Chapter 7.

## EXISTING ACCESS AND CIRCULATION

Existing access points, internal roads and trails, and the potential for regional trail connectivity are discussed below.

## EXISTING ACCESS POINTS

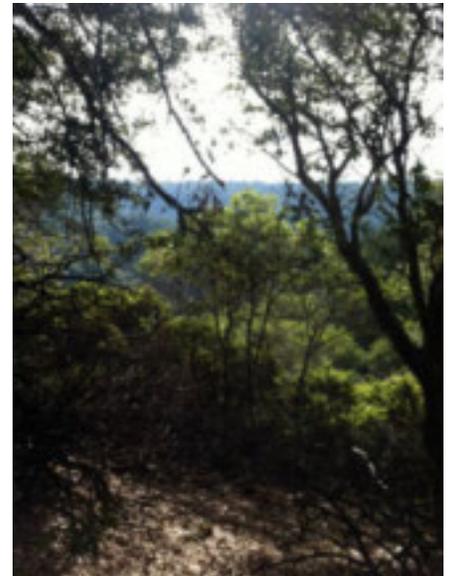
Perimeter and internal gates restrict access on the San Vicente Redwoods roads. However, due to vulnerability to trespass, the perimeter of the property is intensively managed to successfully minimize trespassing through use of frequent patrol as well as fencing, signage, and gates. These efforts will be emphasized in areas where trails approach neighboring private property, and will be coordinated with neighboring property owners. Limited perimeter access points are located along the northern edge of Empire Grade and along the southern edge that borders the Cotoni-Coast Dairies property.

## EXISTING ROADS AND TRAILS

There are a variety of existing roads and trails on the San Vicente Redwoods property, including over 80 miles of double lane and single lane roads, the railroad line, tractor roads used for timber harvest operations, and narrow trails. Many of the roads were developed for historic timber and quarry operations, and some continue to provide access for ongoing timber operations, fire, utility access, private easements, and general property management. The primary road that extends from the north to the south of the property is the private Warrenella Road. This road is used for timber harvest activities and also serves as the sole access road for several private properties. While the Warrenella Road and many other existing roads are currently used and maintained, others are not passable due to overgrowth of vegetation and maintenance needs. The road assessment conducted as part of the planning process determined that some of the existing roads are suitable for use as recreational trails. The assessment was based on numerous factors, including trail grade and alignment and the viability of water crossings.

## REGIONAL TRAIL CONNECTIVITY

San Vicente Redwoods is well situated to increase connectivity between inland and coastal open space, and between open space to the east and west of the property. Adjacent and nearby open space includes, but is not limited to, Big Basin Redwoods State Park (including Little Basin), Henry Cowell Redwoods State Park (Fall Creek Unit), San Lorenzo Valley Water District property (closed to the public), the Bonny Doon Ecological Reserve, and the Bureau of Land Management's Cotoni-Coast Dairies, which is part of the California Coastal National Monument property.



A future opportunity is to create a trail connection through San Vicente Redwoods from the Fall Creek Unit to Cotoni-Coast Dairies, which would require bridging the gap between the Fall Creek Unit and the San Vicente Redwoods property.

Potential connectivity between CDFW's Bonny Doon Ecological Reserve and San Vicente Redwoods: Laguna is relatively unconstrained as existing, informal trail connections are already present between these properties. Given that formalization of this trail connection is a component of this Plan, coordination with CDFW will still be necessary to address access and management concerns.

Other trails could connect San Vicente Redwoods to nearby State Parks and other recreational sites, such as Henry Cowell Redwoods State Park and Wilder Ranch State Park to the west, and Big Basin Redwoods State Park to the east.



## EXISTING VIEWS AND ADJACENCIES

### SCENIC VIEWS

San Vicente Redwoods offers breathtaking views over Cotoni-Coast Dairies to the Pacific Ocean coastline.

### NEIGHBOR VIEWS AND ADJACENCIES

San Vicente Redwoods is surrounded by a variety of neighbors, including single-family residential, institutional, and recreational uses. The following properties border San Vicente Redwoods:

- Ben Lomond Conservation Camp, a California Department of Corrections and Rehabilitation facility, to the north, on the same side of Empire Grade Road.
- The Bonny Doon community.
- Bureau of Land Management Cotoni-Coast Dairies to the south.
- Cal Poly Swanton Pacific Ranch, owned by the Cal Poly Corporation, a private non-profit.
- Private residential property inholding.
- Private timber land.

- Other private properties, including the private residences in the town of Davenport and the Swanton Road area.

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### 3 GOALS AND POLICIES



The Public Access Plan identifies goals and policies that will guide the development of public access at San Vicente Redwoods which are identified below. Each goal is listed in bold and followed by a list of respective policies that support it. Policies are also referenced in Table 6-2 of Chapter 6, Implementing the Plan, showing how the policies guide implementation. Policies include both general and focused direction that the Public Access Manager and Conservation Partners shall adhere to as part of Public Access Plan implementation.

#### GENERAL ACCESS GOALS AND POLICIES

- ACCESS 1      **PROVIDE SUSTAINABLE ACCESS CONSISTENT WITH THE CONSERVATION VALUES OF THE PROPERTY.**
- ACCESS 1.1      Follow appropriate steps to minimize impacts to sensitive resources when opening any areas, roads, or trails for public or management and maintenance access.
- ACCESS 1.2      Open designated trails to the public and ensure baseline level of public access.
- ACCESS 1.3      Develop framework/strategies to ensure financial sustainability of public access.

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Sustainability means meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.

*–The Bruntland Commission of the United Nations, March 20, 1987*

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- ACCESS 1.4 Implement Visitor Registration System and Special Use Permit System to control and monitor access.
- ACCESS 1.5 Coordinate public access with other property uses, including timber harvest, restoration, and conservation.
- ACCESS 1.6 Monitor the condition of access features, including staging area, trails, to assess condition of features and impacts to resources; utilize findings for adaptive management.
- ACCESS 1.7 Abide by the requirements of the Conservation Easement.
- ACCESS 1.8 Patrol and monitor closed areas for the protection of natural resources.
- ACCESS 1.9 Provide robust education and management policies to prevent nuisance trash that attracts corvids.



- ACCESS 2 MANAGE RISK AND SAFETY.
  - ACCESS 2.1 Provide patrol, monitoring, security, and signage for public safety and protection of resources.
  - ACCESS 2.2 Provide trail etiquette coaching to users and safety monitoring.
  - ACCESS 2.3 Work with partners to ensure adequate provision of emergency services.
  - ACCESS 2.4 Collect and maintain incident and accident reports and respond accordingly to reduce hazards.
- ACCESS 3 ENGAGE A VARIETY OF PARTNERS IN PUBLIC ACCESS MANAGEMENT.
  - ACCESS 3.1 Establish user-agreements with organized user groups that identify responsibilities of user groups
  - ACCESS 3.2 Engage organized groups and individuals in stewardship activities, such as volunteer patrols, interpretation, and trail construction and maintenance, where appropriate.

- ACCESS 4 MINIMIZE THE IMPACT ON THE SECURITY, PRIVACY, AND RURAL CHARACTER OF THE NEIGHBORHOODS NEAR THE PROPERTY, WHILE ACHIEVING THE OTHER GOALS OF THE PLAN.
- ACCESS 4.1 Provide buffers between public access features and neighboring properties where feasible.
- ACCESS 4.2 Utilize signage and surveillance to minimize impacts to neighboring properties caused by trespassing or other activities.
- ACCESS 4.3 Design access features to complement the natural character of the San Vicente Redwoods property and the Santa Cruz Mountains, as well as adjacent rural neighborhoods.

## RECREATIONAL ACCESS GOALS AND POLICIES

### RECREATION 1 PROVIDE OPPORTUNITIES FOR NON-MOTORIZED RECREATION.

- RECREATION 1.1 Open trails within San Vicente Redwoods for low impact recreation.
- RECREATION 1.2 Allow hiking on designated trails.
- RECREATION 1.3 Allow bicycle use on designated trails.
- RECREATION 1.4 Allow dogs on leash on designated trails.
- RECREATION 1.5 Allow equestrian use on designated trails.
- RECREATION 1.6 Allow for quiet enjoyment of nature.

### RECREATION 2 PROVIDE FOR PUBLIC STAGING/PARKING.

- RECREATION 2.1 Provide a staging area off of Empire Grade.

### RECREATION 3 PROVIDE A TRAIL NETWORK THAT SUPPORTS MULTIPLE USES WHILE MINIMIZING CONFLICTS.

- RECREATION 3.1 Provide trail opportunities that offer a variety of experiences through different habitats, different trail lengths, and difficulty levels.

RECREATION 3.2 Follow appropriate steps to ensure that trail routes avoid the following, to the extent possible: neighbor views, safety hazards, impacts to sensitive resources, and interference with timber harvest operations, other natural resource management, and ongoing general operations.

RECREATION 3.3 Provide multi-use access on designated existing roads.

RECREATION 3.4 Construct new trails that allow for bicycle and equestrian uses to be separated or improve sustainability of multi-use trails.

RECREATION 3.5 Provide loop trails, especially in the northern part of the property where they can be accessed from the Empire Grade staging area.

RECREATION 3.6 Provide through-trails that connect from the Empire Grade staging area to the Cotoni-Coast Dairies property.

RECREATION 3.7 Collaborate with the Bureau of Land Management on potential loop trails accessible from the Cotoni-Coast Dairies property.

#### RECREATION 4 PROMOTE REGIONAL TRAIL CONNECTIONS.

RECREATION 4.1 Designate a Skyline-to-Sea Trail corridor through San Vicente Redwoods, extending from Empire Grade to the Cotoni-Coast Dairies property.

RECREATION 4.2 Coordinate with adjacent open space managers to facilitate regional trail connections.

RECREATION 4.3 Provide additional trail connections to other public open space lands where feasible.

#### RECREATION 5 PROVIDE AMENITIES THAT SUPPORT NON-MOTORIZED RECREATION ACTIVITIES.

RECREATION 5.1 Provide trail-related amenities, such as signage and benches.

RECREATION 5.2 Provide amenities at the staging area; amenities may include signage, benches, trash receptacles, restrooms, and bicycle parking.

RECREATION 5.3 Provide picnic facilities and allow for informal gathering in designated areas.

## EDUCATION AND RESEARCH ACCESS GOALS AND POLICIES

All of the recreation goals listed above also apply to education and research, but additional goals include the following.

EDUCATION 1 PROVIDE THE OPPORTUNITY FOR PARTNERS TO CONDUCT RESEARCH AND EDUCATION ABOUT THE RESOURCES AND ACTIVITIES AT SAN VICENTE REDWOODS.

EDUCATION 1.1 Allow partners to interpret the natural and cultural resources of San Vicente Redwoods, as well as active uses of the property (sustainable timber harvest and restoration activities).

EDUCATION 1.2 Allow for use of property by school groups, tours, and other educational groups.

EDUCATION 2 UTILIZE RESEARCH AS A MANAGEMENT TOOL.

EDUCATION 2.1 Encourage research projects that will inform management of public access, such as studies that monitor environmental impacts of visitors on the reserves.

EDUCATION 2.2 Consider research outcomes in management decisions and any updates to the Public Access Plan.

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## 4 RECREATION ACCESS PLAN



Photo courtesy of Ian Bornarth.

The Recreation Access Plan is intended to guide the development of high-quality non-motorized recreation opportunities that meet the goals for access defined in Chapter 3, Goals and Policies, as well as the conservation goals for the property. Non-motorized recreation activities appropriate for San Vicente Redwoods are defined as allowable uses, below.

The types of recreational use that are allowable at San Vicente Redwoods, as well as concepts for providing baseline (minimum) and maximum levels of trails and other access features to support recreational use, are identified in this Plan. The Plan aims to provide immediate and long-term recreational access for the local and regional communities, and to build regional connectivity. In order to successfully monitor the impacts of recreational use, public access will be phased by gradually opening more trails and visitor activities. Phase 1 will open a limited network of trails for a variety of recreational uses, and later phases will include more visitor access as management success is demonstrated. Strategies for gauging successful management are identified in Chapter 6, Implementing the Plan. Additional guidance for implementing this Plan is provided in Chapters 6, Implementing the Plan, and Chapter 7, Design and Maintenance Guidelines. All components of the Plan must be in compliance with the California

Environmental Quality Act (CEQA), the purpose of which is to identify and reduce environmental impacts.

## ACCESS OVERVIEW AND ALLOWABLE USES

The Conservation Easement for San Vicente Redwoods gives Save the Redwoods League (SRL) the right to provide public access. With the exception of trails that are designated for public access and posted as open, all areas of the property will be closed to public access. The Conservation Partners will collaboratively provide opportunities for non-motorized recreation activities at San Vicente Redwoods as identified in this section. Figure 4-1 shows the Recreation Access Plan at buildout, and Figure 4-2 shows the phased approach to trail network implementation.

The first portion of this chapter applies to the main San Vicente Redwoods property. The Laguna Tract is described in a separate section at the end of this chapter.

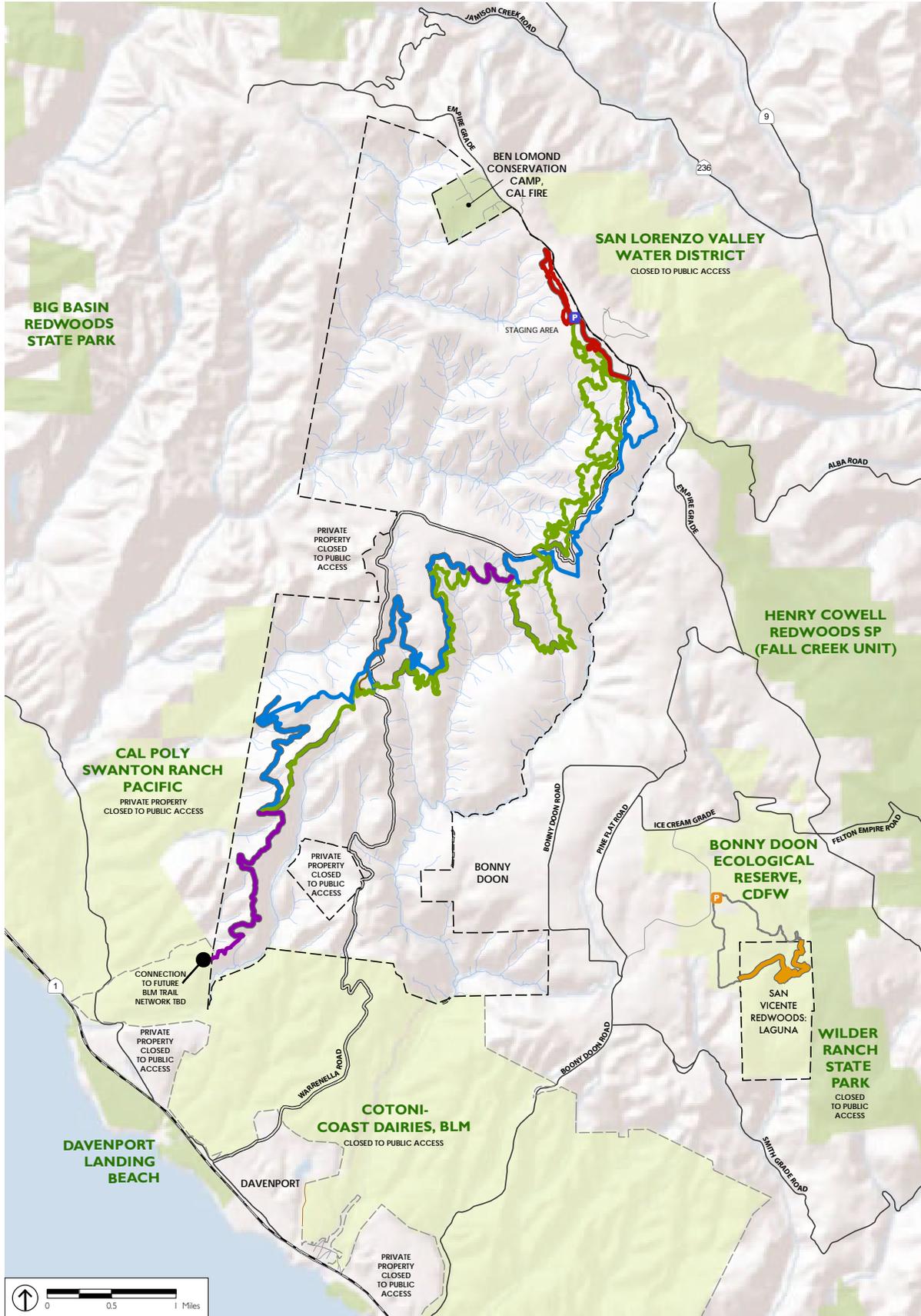
### ALLOWED RECREATIONAL USES

Allowable recreational uses are dependent on project phasing and will differ for different access features and geographic areas. For instance, each trail will have designated allowable uses that may change over time. The following recreational uses may be allowed at the staging area and on designated trails:

- Hiking
- Biking
- Horse-riding
- Dog-walking (on-leash)
- Picnicking and small group gatherings
- Nature observation

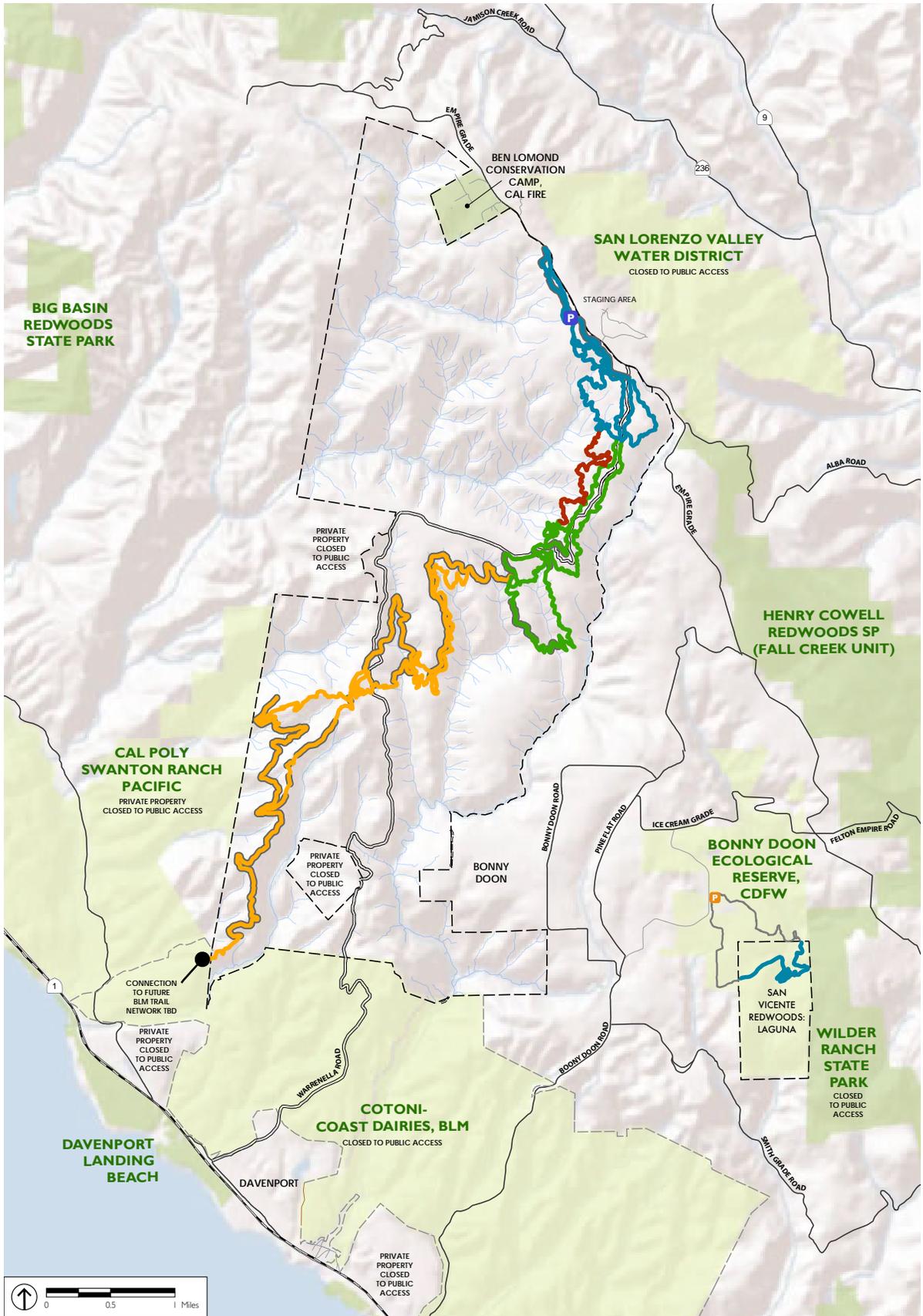
Recreational uses for the main property and the Laguna Tract will be limited to daylight hours, with public access facilities generally opening a half hour after sunrise and closing a half hour before sunset.

Other non-motorized recreational activities that require limited infrastructure and are not identified as a prohibited use (refer to page 4-5) may be allowed as determined appropriate by the Public Access Manager, defined in Chapter 6,



- |                                  |               |                          |
|----------------------------------|---------------|--------------------------|
| SV Redwoods Boundary             | Highway       | <b>Initial Trail Use</b> |
| Coast Dairies Boundary           | County Street | Horse                    |
| Public Lands - Open Access       | Arterial      | Hike                     |
| Public Lands - Restricted Access | Parking       | Hike and Bike            |
| Streams                          |               | Hike and Horse           |
| Bonny Doon Trail                 |               | Hike, Bike, Horse        |
|                                  |               | Hike, Bike, Horse, Dog   |

FIGURE 4-1  
 ACCESS AT BUILDOUT



- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>SV Redwoods Boundary</li> <li>Coast Dairies Boundary</li> <li>Public Lands - Open Access</li> <li>Public Lands - Restricted Access</li> <li>Streams</li> <li>Bonny Doon Trail</li> </ul> | <ul style="list-style-type: none"> <li>Roads                     <ul style="list-style-type: none"> <li>Highway</li> <li>County</li> <li>Street</li> <li>Arterial</li> </ul> </li> <li>Parking</li> </ul> | <p><b>Trail Phase</b><br/>                 (Grey outline indicates the trail follows an existing road)</p> <ul style="list-style-type: none"> <li>Phase 1</li> <li>Phase 2</li> <li>Phase 3</li> <li>To Be Determined</li> </ul> |
|---|---|--|

FIGURE 4-2  
**PHASE I: TRAIL PLANNING**

and its partners. Uses that are identified as prohibited in this Plan or that are determined by the Public Access Manager and its Partners to have the potential to contribute additional impacts to resources will not be allowed under any condition.

### VISITOR REGISTRATION

All recreational visitors will be expected to register using the free Visitor Registration System prior to use of public access. To register, individuals must provide contact information to the Public Access Manager to be used in case of an emergency and also sign up to receive updates on site conditions and status. Once registered, visitors must sign-in upon arrival to the property. The Public Access Manager will reduce potential barriers to registration by providing both electronic and paper (hard copy) options for registration. Following registration, visitors will be issued a pass (or permit).

Permits may also be required for parking at the designated staging area and/or for certain on-trail recreational use at the discretion of the Public Access Manager, Owner(s), and Conservation Easement Holder.

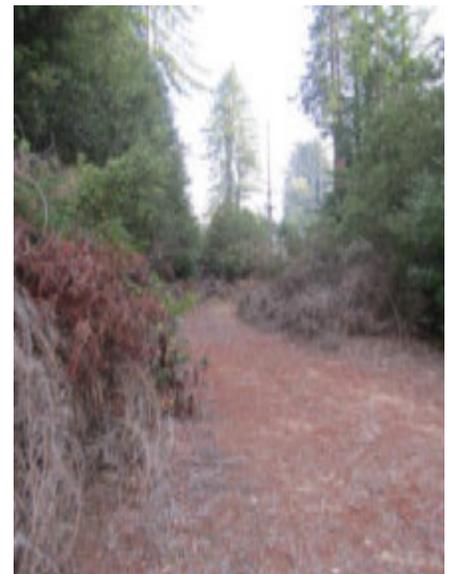
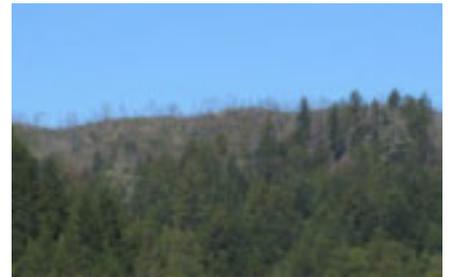
Visitors will be required to carry their permits on their person, and display a copy on the dashboard of their car when parked at the staging area. Failure to comply with rules may result in the revocation of access permits, as well as citation as further discussed in Chapter 6, Implementing the Plan.

### SPECIAL USE PERMITS

Recreational activities will require a special use permit if they are either (1) not identified as an allowed use, (2) would take place outside of daylight hours, or (3) would not be limited to designated public access trails and use areas. Permits will also be required for groups with more than 20 individuals, any special events (such as organized trail runs), or any off-trail activities. Implementation of a permit program, including permit application review, is further discussed in Chapter 6, Implementing the Plan.

### PROHIBITED USES

Activities and recreational uses that will not be allowed on the property through special use permits or under any circumstance include, but are not limited to, fire making, collecting, hunting, fishing, off-leash dogs, off-road vehicles or



motorized dirt biking (including electric bikes), trail building and rock climbing, and rappelling. Camping was considered as a use, but ultimately not included due to fire management concerns. Commercial uses, defined as activities where a fee is charged for a good or service with the intention of making a profit, are prohibited under the Conservation Easement and will not be allowed on the property under any circumstances. The designated Closed Area will be managed to receive minimal visitor activity. Smoking and unpermitted alcohol use will not be allowed on the property under any circumstance.



## STAGING AREA

Staging for recreational use on the San Vicente Redwoods property will be limited to one staging area located off Empire Grade. Prior to opening the staging area, 'No Parking' signs will be posted along Empire Grade frontage near the property and pullouts on the property. The staging area lot will be opened in Phase 1 with capacity for 25 to 40 vehicles, including two spaces for horse trailers and two accessible parking spaces. The staging area may be expanded and improved to accommodate up to 90 parking spaces as needed to ensure sufficient parking is provided to prevent parking along the road shoulder in order to protect viewsheds. The staging area will be designed to meet the accessibility requirements of the United States Access Board's Final Guidelines for Outdoor Developed Areas (ODA). See Chapter 7 for additional details and design guidance.

Access features associated with the staging area may include entry gates, signage, informational kiosks or bulletin boards, benches, picnic area/gathering area, wildlife-proof trash and recycling receptacles, dog-courtesy stations, restrooms (composting or pump-out toilet), and water tanks with combined capacity of 9,800 gallons for fire protection purposes.

Where trail connections are established between San Vicente Redwoods and adjacent open space, the adjacent open space may provide additional staging opportunities for San Vicente Redwoods trail users. This is anticipated at the Cotoni-Coast Dairies property and Bonny Doon Ecological Reserve and will require coordination with managing entities.

## TRAIL NETWORK

At full build-out, the network of public access trails on the San Vicente Redwoods property will include multi-use and separate-use trails, as well as loop and through trails. Trail alignments shown in Figure 4-1 include existing roads that will be converted to trails, as well as alignments for newly constructed trails. The trail network will be constructed and opened for public uses in gradual phases, as described below and in Chapter 6, Implementing the Plan. Key design goals that guided the development of the trail network shown in Figure 4-1 are listed below. Chapter 7, Design and Maintenance Guidelines, provides greater detail regarding requirements for trail design and maintenance.

- Provide for a variety of experiences through different habitats.
- Concentrate loop trails in the northern part of the property, where they can be accessed from the Empire Grade staging area(s).
- Establish through trails connecting the Empire Grade staging area down to the Cotoni-Coast Dairies property.
- Provide buffers around private property.
- Accommodate other property uses, including but not limited to habitat restoration, timber harvest, and research uses.
- Avoid, to the extent possible: neighbor views, safety hazards, and impacts to sensitive resources including but not limited to water sources, forest restoration and management areas, habitat areas, specifically mountain lion communication centers and dens, and cultural resources.

## TRAIL NETWORK AT FULL BUILDOUT

Complete implementation of the Public Access Management Plan would result in approximately 38 miles of recreational trails, with over 30 percent of the trails located on existing roads. Through-trails connect from Empire Grade to Cotoni-Coast Dairies property, providing continuous connections for hiking, biking, and equestrian use. Numerous loop trails connect to the through-trail, providing unique recreational experiences and allowing for the separation of use types to reduce user conflicts and improve trail experience. Trail mileage at buildout is summarized in Table 4-1 according to potential designated uses.

**TABLE 4-1 TRAIL NETWORK SUMMARY (BUILDOUT)**

| <b>Initial Trail Use*</b>       | <b>Located on Existing Road/Trails (Miles)</b> | <b>New Construction (Miles)</b> | <b>Total Trails at Buildout (Miles)</b> |
|---------------------------------|--|---------------------------------|---|
| <b>Main Property</b>            |  |                                 |   |
| Horse                           | 0  | 0.2                             | 0.2                                     |
| Hike and Horse                  | 5.0  | 6.8                             | 11.8                                    |
| Hike and Bike                   | 2  | 17.1                            | 19.1                                    |
| Hike, Bike, Horse               | 2.4  | 0.5                             | 2.9                                     |
| Hike, Bike, Horse, Dog          | 1.3  | 1.2                             | 2.5                                     |
| <i>Subtotal (Main Property)</i> | <i>10.7</i>                                    | <i>25.8</i>                     | <i>36.5</i>                             |
| <b>Laguna Tract</b>             |  |                                 |   |
| Hike                            | 1.3  | 0.2                             | 1.5                                     |
| <i>Subtotal (Laguna Tract)</i>  | <i>1.3</i>                                     | <i>0.2</i>                      | <i>1.5</i>                              |
| <b>Total</b>                    |  |                                 | <b>~38 miles</b>                        |

\* Trail use may be strategically adjusted as part of adaptive management.

While this summary of trails assumes that most trails are dual- or multi-use at full implementation, trail use designations may be revised through the adaptive management process discussed in Chapter 6. It is possible that certain areas could remain as single use trails. Trail mileage estimates for trails located on existing roads are estimated based on GIS analysis of existing road length. Trail mileage estimates for newly constructed trails is measured based on 100-foot corridor study areas using GIS and increased by 13 percent to allow for sinuosity, grade changes, and other anticipated variations in trail alignment.

Trails are described below according to initial trail use as illustrated in Figure 4-1. As discussed above, use designations may be revised through the adaptive management process.

### SINGLE-USE TRAILS

Trail use designations are subject to change in response to trail conditions and feedback on visitor experiences. Single-use trails are limited to the 1.5-mile hiking-only trail within the Laguna Tract, and a short 0.2-mile trail horse-only connection on the main property. The latter trail connection is a steep trail that is not suited for other uses.

### DUAL-USE TRAILS

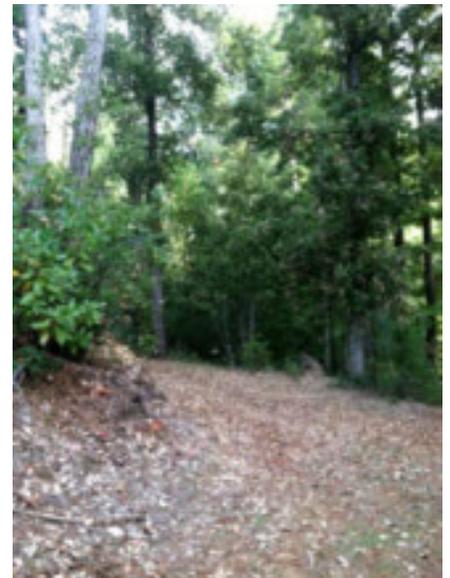
Dual-use trails are trails that allow hiking and either biking or equestrian uses. There are 19.1 miles of dual use trails that allow hiking and biking, with connections from the Empire Grade to the multi-use trail in the southern portion of the property. Loop hiking and biking trails are concentrated in the northern portion of the property.

The 11.9 miles of dual-use trails that allow hiking and equestrian comprise most of the through-trail experience for equestrian uses, with connections to multi-use trails at the northern and southern ends of the property.

### MULTI-USE TRAILS

Multi-use trails are trails that allow more than two uses. There are 2.9 miles of multi-use trails that allow hiking, biking, and equestrian use. These trail segments are located in constrained areas where separate use trails are less feasible, including the southern end of the through-trail and a short segment in the central are of the through-trail.

Approximately 2.5 miles of multi-use trail allows hiking, biking, and equestrian uses as well as on-leash dogs. These trails are located primarily along an existing frontage road that parallels Empire Grade, and is the only trail where dogs are allowed on the property.



### PHASED IMPLEMENTATION OF TRAIL NETWORK

The trail network will be constructed and implemented in phases as shown in Figure 4-2 and described in Table 4-2 and below.

TABLE 4-2 TRAIL PHASING

| Trail Phasing*                  | Located on Existing Road/Trails (Miles) | New Construction (Miles) | Total Trails (Miles) |
|---------------------------------|---|--------------------------|----------------------|
| <b>Main Property</b>            |   |                          |                      |
| Phase 1                         | 1.3                                     | 7.1                      | 8.4                  |
| Phase 2 (additional trails)     | 1                                       | 8.3                      | 9.3                  |
| Phase 3 (additional trails)     | 8.4                                     | 8.1                      | 16.5                 |
| TBD (additional trails)         | 0                                       | 2.3                      | 2.3                  |
| <b>Laguna Tract</b>             |   |                          |                      |
| Phase 1                         | 1.3                                     | 0.2                      | 1.5                  |
| <b>Total Trails at Buildout</b> | <b>12</b>                               | <b>26</b>                | <b>~38 miles</b>     |



Phase 1 includes approximately 8.4 miles of trails located in the northern area in proximity to the staging area, as well as the 1.5-mile Laguna Tract trail segment to the south. The network of loops in the north offers a range of trail experiences, with initial allowable uses shown in Figure 4-1. Phase 2 will add an additional 9.3 miles of trails, extending the network of new loops south towards the middle of the property. Phase 3 will consist of up to 16.5 miles of trails and complete the through-trail experience from Phase 2 trails to Cotoni-Coast Dairies. Phasing of approximately 2.3 miles of additional trails that would offer hiking and biking loops in the northern area of the main property will be determined based on adaptive management strategies discussed in Chapter 6.

## OTHER ACCESS FEATURES

Other access features may include overlooks and gathering areas, signage, limited site furnishings, and gates and fencing for security and safety. Signage should be used to communicate regulatory, directional, hazard, and interpretive information to the public. Limited site furnishings may include benches along the trail network and at scenic vistas or other destinations, as well as picnic

tables in designated areas. See Chapter 7, Design and Maintenance Guidelines, for additional information on access features.

## **LAGUNA TRACT**

The Laguna Tract trail is an existing trail that is to be improved with minor reroutes to reduce potential for erosion. This trail will be accessible only through existing trails on the California Department of Fish and Wildlife's (CDFW) Bonny Doon Ecological Reserve. Trail planning for the Laguna Tract has been conducted in coordination with CDFW. The Laguna Tract is located east of the main property, as shown in Figure 4-1. Management of trails, visitor activities and parking will be coordinated with CDFW to be consistent with management of the Bonny Doon Ecological Reserve. Allowable uses at the Laguna Tract are limited to hiking and nature observation from designated trails. The Conservation Partners will allocate resources to assist with patrol, maintenance and volunteer coordination, as discussed in Chapter 6 below.

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## 5 EDUCATION AND RESEARCH ACCESS PLAN



Research and educational uses are similar in that they share the goal of increasing knowledge and understanding. While research uses strive to generate new information and understanding, education is focused on sharing experiences, concepts, and information.

Activities associated with primary and secondary education, or community education conducted by organized community or non-profit groups, are unique types of public access. While such uses are complimentary to recreational access, the requirements and implications of successful educational access programs are unique and therefore addressed independently in this chapter.

This chapter identifies potential education uses that are allowable types of public access, as well as the facilities and management framework necessary for successful programs. While research is not considered a type of public access, public access features may support research uses and therefore an overview of potential research uses is provided in this chapter. Goals and policies for education and research are provided in Chapter 3, Goals and Policies.

## ACCESS OVERVIEW AND ALLOWABLE USES

There are endless opportunities for educational activities and research at San Vicente Redwoods. However, permits will be required for all research projects and for educational uses, except where such uses are indistinguishable from recreational uses and will only occur on publicly accessible trails and staging area(s). Potential educational and research uses are discussed below.

### PRIMARY, SECONDARY, AND COMMUNITY EDUCATION USES

Education uses considered as public access uses may include but are not limited to interpretive tours, field classes, eco-tourism, and restoration-based education and stewardship activities. San Vicente Redwoods is well situated to provide rich experiences for students of all ages, although group size may be limited depending on the intended location and duration of the activity.

Educational programs may be organized by primary or secondary schools, non-profit organizations, or other partners. Educational themes may include the ecological, historical, and social aspects of the property. In addition, San Vicente Redwoods may become an ideal location to showcase the synergist relationship between public access, resource protection, and resource management (timber harvest).



### HIGHER EDUCATION AND RESEARCH USES

As discussed above, research is not considered a type of public access but is discussed in this chapter because public access features have the potential to support research uses. Research uses may include a variety of project types ranging from short- to long-term projects; private projects to student or class projects; and site-based to landscape scale studies. San Vicente Redwoods provides ample opportunities for both natural and social science studies, as well as for research that extends across multiple protected open space areas. Research may be conducted within restoration, conservation reserves, or the working forest, pending a permit as discussed under Permit System, below, and in Chapter 6, Implementing the Plan. Research and higher education uses are not considered public access.

Universities and others interested in conducting research on the property should coordinate directly with the Save the Redwoods League (SRL) as the SRL will hold the conservation easement for the property. The Public Access Manager can facilitate appropriate introductions on request.

## PHYSICAL REQUIREMENTS

The physical and spatial requirements for research and education projects will vary according to the project and/or activity. However, the following physical requirements generally satisfy the key demands of uses appropriate for the properties:

**On-Road Access.** Given that research and education may be permitted at various areas throughout the property, use of access points and roads beyond those identified for public access may be required in many situations. Such use will need to be carefully coordinated with other property uses, including restoration and timber harvest.

**Off-Road Access.** In addition to utilizing existing roads, research and education uses may require off-road access throughout the property, including but not limited to, watercourses, sensitive habitats, and active areas of the working forest. During the permit review process, areas affected by proposed projects and/or programs and their potential impacts will need to be assessed.

**Gathering Spaces.** Gathering spaces may be necessary for certain education projects and programs, depending on the specific project and the number of individuals involved. Gathering spaces can be informal, and should be located in areas where tree removal and/or vegetation clearing will not be required. The intent of establishing such areas is to concentrate impacts in specified areas while creating desirable places to gather in terms of meaningful views, physical comfort and unique experiences. Chapter 7, Design and Maintenance Guidelines, provides additional guidance for the development of informal gathering spaces.

## CONTROLLING AND MONITORING ACCESS

Special use permits are the primary tool for controlling and monitoring access by primary and secondary education. Special use permits will be required for all





primary and secondary educational uses, except where such uses are indistinguishable from recreational uses that will only occur on publicly accessible trails and staging area(s) and are allowed through the visitor registration system. Implementation of the visitor registration system and special use permit program is discussed in Chapter 6, Implementing the Plan.

## 6 IMPLEMENTING THE PLAN



This chapter is intended to guide implementation of the Public Access Plan (Plan), including development of public access features and management of recreational uses. Key components of this chapter include the identification of an appropriate management framework under the Initial and Future ownership scenarios; a phasing plan that also defines the baseline and maximum level of access to be provided; implementation strategies; financial considerations; and a discussion of future planning and environmental review. Implementation of the Public Access Plan is dependent upon adequate funding for capital improvements and ongoing operations and maintenance, and adherence to the adaptive management approach described in this Chapter. Specific design and maintenance guidelines are provided in Chapter 7, Design and Maintenance Guidelines.

### MANAGEMENT FRAMEWORK

Although Save the Redwoods League (SRL) holds the right to provide and responsibility to allow for public access under the terms of the Conservation Easement with the owners, it is anticipated that other entities will take on management responsibilities under contracted agreements with the SRL or the owners. This section describes the key parties responsible for providing, or supporting provision of, public access at San Vicente Redwoods; identifies the legal agreements that will define relationships and responsibilities; and

describes potential organizational structure under the Initial and Future access scenarios. The purpose of this framework is to (1) support coordination between responsible parties, and (2) ensure the protection of the seven conservation values through proactive adaptive management. As discussed in Chapter 2, the Conservation Values include: (1) statewide and regional conservation significance, (2) forests, (3) biodiversity, (4) watershed protection, (5) viewshed protection, (6) landscape and habitat connections, and (7) public recreation, education, and scientific study. Phased implementation and adaptive management will allow for managers to balance visitor experience and protection of the Conservation Values. The distribution of management responsibilities amongst key parties will depend on potential changes in ownership of the property. In order to provide clear guidance as well as flexibility given the unknown future ownership of the property, management structure under current ownership and under potential future ownership scenarios are discussed in this Plan. The Laguna Tract, as it is accessible only through the CDFW's Bonny Doon Ecological Reserve, will be subject to certain differences in management as indicated below.



Photo courtesy of Nadia Hamey.

## RESPONSIBLE PARTIES

Key parties with responsibility to provide management or support the provision of public access at San Vicente Redwoods, are identified below. Responsibilities of each party are detailed in the Implementation Plan, and relationships between these parties are described below under Organizational Structure. The Conservation Easement Holder, property owners, and Public Access Manager comprise the four Conservation Partners.

- **Conservation Easement Holder.** The SRL will hold the Conservation Easement, and therefore has the right to provide and responsibility to allow for public access consistent with the Public Access Plan.
- **Landowner.** Peninsula Open Space Trust (POST) and Sempervirens Fund are the Landowners. The owners are the entities holding title to the land. The owners will provide broad management and steer stewardship of the entire property.
- **Public Access Manager.** The Land Trust of Santa Cruz County (Land Trust) is responsible for implementing the Plan as the Public Access Manager. The Public Access Manager does not need to conduct all of the tasks identified

in the Implementation Plan but will be responsible for ensuring that they are carried out through coordination with and oversight of the Conservation Partners and other entities. The Public Access Manager will be responsible for financial management, marketing, and fundraising for public access, and managing maintenance and security of parts of the property opened for or affected by public access. The Public Access Manager will provide stewardship, interpretation, and maintenance services. In addition, the Public Access Manager will monitor access demand and impacts, and update management and maintenance plans pertaining to public access as necessary to ensure that the Public Access Goals identified in this Plan are met.

- **Property Manager:** The Property Manager is a contractor to the property owners with expertise in forestry, ecology, and land management. The Property Manager will oversee stewardship activities that are outside the scope of the Public Access Manager, but that are essential to upholding the Conservation Values.
- **Law Enforcement:** The Santa Cruz County Sheriff's Office (County Sheriff) will provide law enforcement to ensure compliance with state laws and provide for public safety and protection of the Conservation Values.
- **Emergency Response:** CAL FIRE will provide emergency medical and firefighting services, consistent with delivery of services in the Santa Cruz County Fire Department.
- **California Department of Fish and Wildlife (CDFW):** CDFW owns the Bonny Doon Ecological Preserve, through which access to the Laguna Tract trails are provided. The Public Access Manager will coordinate with CDFW and provide appropriate signage, maps and patrols on the Bonny Doon Ecological Preserve and the Laguna Tract, and to assist in the maintenance of the parking area.

#### ADDITIONAL PARTNERS

Partnerships with user groups, institutions, and others will be important to successful implementation. Potential partners include but are not limited to recreational user groups, such as Mountain Bikers of Santa Cruz and the Santa Cruz County Horsemen's Association; local schools and school districts; and other groups with interest and capacity to help realize the conservation vision

for the properties. Tasks that partners may assist with may include trail development and maintenance, trail etiquette and safety patrol, monitoring, and provision of educational programming and interpretation. Written agreements will need to be developed where the use of the property is contingent upon fulfillment of specified responsibilities.

### DOCENTS AND VOLUNTEERS

Volunteers are significant in building a community of regular visitors with a strong stewardship ethic, which will become the culture of the property and influence the behavior of other visitors. Multiple roles for volunteers are envisioned, which will cater to different personalities and capacities: patrol, maintenance, interpretation, and trail construction. Hikers, horseback riders, and bike riders have all expressed enthusiasm for helping make the trail construction and management process successful.

### LEGAL FRAMEWORK/AGREEMENTS AND LIABILITY



- **Conservation Easement.** The Conservation Easement is the legal agreement between the Landowners (POST and Sempervirens Fund) and the Easement Holder (the SRL) that identifies specific terms for conservation and potential uses of the property. As the holder of the Conservation Easement, the SRL has the right to provide and the responsibility to provide for public access.
- **Access Management Agreement.** An Access Management Agreement will be established between the Conservation Partners, giving right and responsibility for management responsibilities identified in the Implementation Plan to the Public Access Manager.
- **Use Agreements.** Use Agreements may be established between the Public Access Manager and organized user groups. Such agreements may be used to establish conditions under which user groups may access the property and specify the type of access allowed. An example of a use agreement would be for an organized trail run.

It is important that all responsible parties, including the Landowners, Conservation Easement Holder, and Public Access Manager, maintain appropriate liability protection insurance. However, successful control and monitoring of access will minimize liability concerns for all responsible parties, as well as

potential for conflicts between the various uses of the property (including recreational, research, educational, conservation, restoration, and timber harvest, and other). For instance, liability can be reduced by ensuring that all the users are aware of allowed activities, appropriate behavior and trail etiquette, hazards, and any other access limitations (including boundaries). Strategies for ensuring that users understand and agree to conditions include implementing a registration and permit program; providing on-site signage identifying regulations, allowed uses, and user responsibilities; and conducting orientation programs for user groups.

## ORGANIZATIONAL STRUCTURE

Organizational structure under the Initial access and Future access scenarios is described below and illustrated in Figure 6-1. Within the figures, solid arrows indicate decision making authority and coordination between entities. As discussed above, the SRL has the right to provide and responsibility to allow for public access regardless of property owner or management structure.

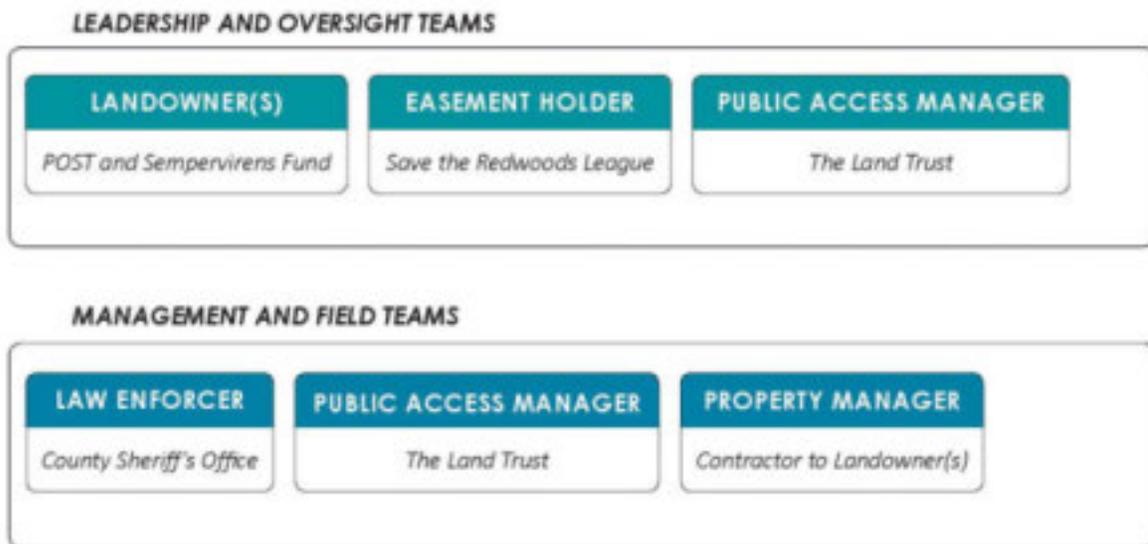
### INITIAL ACCESS

The management structure for providing initial access is applicable as long as POST and Sempervirens Fund retain ownership of the property. Under this management structure, the Landowners and the Easement Holder (the SRL) would provide oversight and leadership but would not be responsible for managing public access. The Public Access Manager will be the Land Trust, and would manage access under an agreement with the Landowners and Easement Holder. To facilitate long-term and ongoing management, the responsible parties described above will work in Public Access Coordination Teams as described below and in Figure 6-1. This structure will ensure that all responsible parties are aware of conditions and activities on the property.

- **Leadership and Oversight Teams.** Representatives from the landowners, Easement Holder, and Public Access Manager will comprise both the Leadership Team and Oversight Team. The Leadership Team will be tasked with fundraising and communications policy, as well as conflict resolution, with the landowners and easement holder having ultimate decision-making authority. The Oversight Team will also manage access related to higher education and research.

- Management and Field Teams.** The Public Access Manager and County Sheriff’s Office will comprise the Management Team and Field Team. The Management Team, which will also include the Property Manager, will be responsible for collaborating on week-to-week decisions, and the Field Team will manage day-to-day operations related to public access including recreation and primary, secondary and community education. The Field Team will collaborate with Public Access Volunteers.

Figure 6-1 Initial Access Organizational Structure



#### FUTURE ACCESS

Public access on San Vicente Redwoods is governed by this Plan until replaced by another Public Access Plan. That plan will be subject to review and approval by the Conservation Easement holder, per the conservation easement. In the event of an ownership change, where POST and Sempervirens Fund transfer fee title for the property to another entity, the parties to that transfer will reexamine the Public Access Plan and amend as appropriate. If that future landowner is not in a position to manage public access, key parties would determine the appropriate approach for continued management of public access. Under that scenario, the Land Trust anticipates continuing to manage public access. If amendments to the Public Access Plan are significant, they will be subject to additional environmental review.

#### MANAGEMENT ZONES

Three unique management zones will guide public access management activities at San Vicente Redwoods. These zones and the implications to management, maintenance and operations are identified below.

- Staging Area (4.7 acres). This zone is limited to the staging area vicinity and will receive the highest level of concentrated use, and will require regular management and maintenance.
- Public Access Area (460 acres). This zone includes a 100-foot-wide corridor centered on the trail, with 50 feet on either side. Ongoing maintenance and management will be required in this area, including management and monitoring to ensure that use is limited to designated trail alignments.
- Closed Area. Most of the property (approximately 94 percent) is closed to routine public access. As part of the research and education component of the proposed Public Access Plan, these uses would be permitted throughout the property on a case-by-case basis. The Management Team will focus management efforts in this zone on approving appropriate research and education uses and preventing access and addressing any trespass.

## RULES AND REGULATIONS

Extensive rules and regulations will protect the seven Conservation Values. Rules and regulations will include but not be limited to:

- Access is restricted to designated trails and the staging area (Public Access Area and Staging Area Zones).
- Trail users must comply with designated allowable trail uses.
- Dogs are allowed on-leash only on designated trails and the staging area.
- Public access is limited to daylight hours.
- Uses that will not be allowed on the property under any circumstance include, but are not limited to:
  - smoking
  - unauthorized alcohol use
  - fire making
  - hunting
  - camping
  - mushroom harvesting
  - firewood gathering
  - fishing
  - building log or rock pile dams
  - off-leash dogs
  - off-road vehicles or motorized dirt biking (including electric bikes)
  - unauthorized trail building
  - rock climbing and rappelling

## PHASING PLAN

The Public Access Plan provides a guide for implementation sequencing. However, adjustments may be required based on future unknown conditions such as available funding, contributions of partner organizations, opportunities for creating regional connections, and changes in ownership and management. As a first step, implementation of the Public Access Plan will also be informed by the adaptive management strategies discussed below under Implementation Plan, including routine monitoring, clear metrics for success, and regular review, which allow for adjustments to phasing. Successful achievement of adaptive

management indicators will be used to guide advancement from one phase to the next as well as to inform any changes to trail use designations.

Three phases of implementation are identified for San Vicente Redwoods, as summarized in Table 6-1 and further described below. With each phase, opportunities for recreational use would be expanded pending successful implementation for the previous phase. Impacts that result from public access will be monitored during each phase, and if successful management is demonstrated, implementation of the next phase would be appropriate. Similarly, the number of parking spaces in the staging area will be expanded based on implementation phase as well as adaptive monitoring and management. For instance, if the parking area is regularly filled to capacity, the Oversight Team may decide to expand the parking area to avoid visitor parking on the shoulder of Empire Grade. The staging area will provide 25 to 40 parking spaces in Phase 1 and can be expanded to 98 spaces as needed. Phasing is further described below, and trail alignments are described in Chapter 4.

**TABLE 6-1 PHASING STRATEGY**

| Phase            | Visitor Activities  | Total Cumulative Trail Miles | Estimated Timeline for Phase Initiation  |
|------------------|---|------------------------------|--|
| Phase 1          | Hike (all trails) bike, horseback ride, dog walk (on select trails) | 9.9                          | Year 1 (staging area and trails available at opening)  |
| Phase 2          | Hike (all trails) bike, horseback ride, dog walk (on select trails) | 19.2                         | Year 3, 4 or 5, assuming success in Phase 1  |
| Phase 3          | Hike (all trails) bike, horseback ride, dog walk (on select trails) | 35.7                         | Year 5, 6 or 7, assuming success in Phase 2 and completion of connecting trails at the Cotoni-Coast Dairies property |
| To Be Determined | Additional trails near Phase 2 trails                               | 38                           | To be determined   |



### PHASE 1

The focus of the first phase of implementation is to provide the baseline level of public access. This includes establishing the staging area with 25 to 40 parking

spaces, opening of 8.4 miles of trails within the main property, and providing necessary signage and security measures. This trail network and the staging area is intended to be complete prior to the opening of the property for public access and is envisioned to provide visitors the opportunity to recreate on the property for at least two hours if bicycling and four hours if hiking. If monitoring of visitor impacts demonstrates successful management of Phase 1, it will be appropriate to advance to Phase 2. Phase 1 also includes the opening of a 1.5-mile trail within the Laguna Tract that will be for hiking-only use. The opening of this trail would be independent of the 8.4 miles of Phase 1 trails for the main property, but is anticipated to occur prior to the initiation of Phase 2.

## PHASE 2

Phase 2 of the Plan will focus on providing loop trail opportunities. Additional trails opened to the public in Phase 2 will include up to 8.3 miles of new construction and 1 mile of improved existing road, bringing the total network to 19.2 miles. To accommodate additional visitors, the staging area may be expanded to up to 98 spaces.

## PHASE 3

Phase 3 of the Plan will focus on extending the trail network and establishing regional trail connections. Up to 16.5 miles of trail will be added, with trail connections from the San Vicente Redwoods staging area through the property to Cotoni-Coast Dairies property, creating opportunities for ridgeline to the shoreline experiences. Implementation of this phase is dependent on establishment of connecting trails at the Cotoni-Coast Dairies property.

## ADDITIONAL TRAILS: PHASING TO BE DETERMINED

Approximately 2.3 additional miles of trail may be established if adaptive management monitoring determines that management of public access in previous phases has successfully protected Conservation Values. These additional trails include three segments, each of which would offer a unique loop experience that connects to Phase 1 or Phase 2 trails. Implementation of these trails would be independent of Phase 3 implementation, but would not be established until successful implementation of Phase 2 trails has been established.

## IMPLEMENTATION PLAN

The Implementation Plan identifies tasks and responsible parties for implementation under the initial organizational structure described under Management Framework, above. The Implementation Plan utilizes all five overarching management strategies utilized by the National Park Service to manage visitor impacts, including site management, rationing (capping use), regulations, deterrence and enforcement, and visitor education. The Implementation Plan, shown in Table 6-2, presents the implementation tasks and related policies, which are defined in Chapter 3, Goals and Policies. Table 6-2 also identifies in which management zone each task will be implemented.

**TABLE 6-2 IMPLEMENTATION PLAN**

| Task  | Management Zone                 | Related Policies                                    |
|---|---------------------------------|---|
| <b>Capital Improvements Implementation Tasks</b>  |                                 |   |
| Improve existing roads for use as trails.   | Staging and Public Access Areas | ACC.1.2<br>REC.3.3                                  |
| Design and construct new trails.  | Staging and Public Access Areas | REC.3.1<br>REC.3.2<br>REC.3.4                       |
| Construct/install other access features (staging, signage, benches, restrooms, wildlife-proof trash receptacles, etc.). | Staging and Public Access Areas | ACC.2.1<br>ACC.4.3<br>REC.2.1<br>REC.5.1<br>REC.5.2 |
| Construct/install security features   | All                             | ACC.2.1<br>ACC.4.2                                  |
| <b>Safety, Security and Maintenance Tasks</b>   |                                 |   |
| Open and close trail access as necessary.   | Staging and Public Access Areas | ACC.1.5<br>REC.3.2                                  |
| Remove litter and waste.  | All                             | ACC.1.6   |
| Maintain public access features.  | Staging and Public Access Areas | ACC.1.6   |
| Provide professional security and safety patrol.  | All                             | ACC.1.6<br>ACC.2.1                                  |

**TABLE 6-2 IMPLEMENTATION PLAN**

| <b>Task</b>  | <b>Management Zone</b>          | <b>Related Policies</b>             |
|--|---------------------------------|-------------------------------------|
| Provide emergency services.  | All                             | ACC.2.3                             |
| Provide trail etiquette and safety monitoring.                               | Staging and Public Access Areas | ACC.2.2                             |
| <b>Visitor Education and Use Management Tasks</b>                            |                                 |                                     |
| Provide visitor education.   | Staging and Public Access Areas | ACC.2.2                             |
| Establish and manage a visitor registration system.                          |                                 | ACC.1.4                             |
| Establish and manage a permit system and fee system.                         |                                 | ACC.3.1<br>RES.1.2                  |
| Manage Parking.  | Staging Area                    |                                     |
| Manage Mountain Bike Use   | All                             | ACC.1.1, 1.2, 1.4, 1.6, 2.1 and 2.2 |
| <b>Other Management and Administrative Tasks</b>                             |                                 |                                     |
| Coordinate with responsible parties and management teams                     |                                 | ACC.1.5                             |
| Coordinate with adjacent open space managers and other neighbors.            |                                 | REC.2.2                             |
| Develop and implement the financial management strategies; update as needed. |                                 | ACC.1.3                             |
| Develop and implement a trail maintenance system; update as needed.          |                                 | ACC.1.1<br>RES.2.3                  |
| Develop and implement adaptive management strategies.                        |                                 | ACC.1.7                             |

Three broad categories of tasks are identified in the Implementation Plan: Implement Capital Improvements; Provide Ongoing Maintenance and Security; and Manage Public Access. All tasks will need to be conducted in all phases, with the possible exception of construction of new trails. Implementation tasks and recommended strategies for completing the tasks are discussed below according to category.

## CAPITAL IMPROVEMENTS

The design and construction of capital improvements should adhere to the guidelines provided in Chapter 7, Design and Maintenance Guidelines, as well as any permit requirements.

Access features may include staging, signage, informational kiosks or bulletin boards, benches, picnic tables, restrooms, trash receptacles, dog courtesy stations, and other site furnishings. No visitor centers, amphitheaters or other large built elements are planned. Security features installed on-site are anticipated to include gates, fencing, signage, and cameras. Up to two portable staff offices sized for a parking space may be located in the staging area for use as staff offices and equipment storage. The portable offices may be shipping containers with appropriate upgrades and aesthetic treatments. The Land Trust will collaborate with the CDFW to support improvements they make to their Martin Road staging area.

## SAFETY, SECURITY, AND MAINTENANCE AND OPERATIONS

Recommended strategies for implementing safety, security, maintenance and operations tasks are provided below. The Management and Field Teams will be responsible for these efforts, with the Public Access Manager leading efforts and County Sheriff's Office providing support. The County Sheriff's office will provide law enforcement to ensure compliance with State laws and County ordinances, provide for public safety, and protect the Conservation Values. The Public Access Manager will provide maintenance and patrol services for trails and access roads, as well as visitor engagement and education. The level and type of effort required will vary for each management zone as described above. The Sheriff's Office and County Parks Department have committed to provide these services. The Conservation Partners will offset costs of the Sheriff's Office and County Parks Department's participation, as described below under Implementation Costs.

## OPEN AND CLOSED TRAIL ACCESS

The Public Access Manager will be responsible for opening and closing staging area(s) and trails using gates and/or signage as described below:

- Open and close gates daily for Empire Grade staging area. Public access will be limited to daylight hours. Staging Area gates shall be opened

approximately 30 minutes after sunrise and closed 30 minutes before sunset. Close trails and/or staging areas based on seasonal or extended closures, as necessary to accommodate other property uses including timber harvest, conservation, restoration, and extreme fire danger (including National Weather Service 'red flag' days). The property should also be closed if wet weather conditions limit the ability of emergency vehicles to access the property.

- Utilize temporary re-routes and/or trail closures to minimize potential conflicts with timber harvest activities.
- Close trails that do not meet the maintenance criteria identified in Chapter 7, Design and Maintenance Guidelines, until the trails are improved to meet criteria.
- Close property to mountain bikes and/or other user groups if unauthorized use cannot be effectively managed.
- The Public Access Manager will collaborate with the CDFW to support management of the CDFW's Martin Road staging area.

#### LITTER AND WASTE MANAGEMENT

Trash shall be removed at least weekly, and at a frequency sufficient to prevent trash overflow at the receptacles and to minimize wildlife-attracting odors. All trash and recycling receptacles will be wildlife-proof. Signage and visitor education should instruct visitors to pack out and/or properly dispose of all waste. Litter, food scraps, and dog waste should be picked up and disposed of as part of regular monitoring and patrol activities.

#### MONITOR AND MAINTAIN PUBLIC ACCESS FEATURES

The staging area, trails, and other public access features (such as water tanks, signage, furnishings, and monitoring equipment) should be monitored and maintained by the Management and Field Teams to meet guidelines and criteria provided in Chapter 7. Features that do not meet conditions specified in Chapter 7 should be improved or closed to public use until improvements can be completed. Monitoring and maintenance should address drainage, vegetation, and graffiti or damage to the property. Specific guidelines for trail maintenance are provided in Chapter 7. Monitoring and maintenance activities should include but not be limited to:

- Inspect restrooms three times a week and maintain restrooms at least weekly and more frequently when necessary.
- Clean graffiti and fix vandalism within 48 hours of discovery to demonstrate evidence of stewardship and resistance to vandalism.
- Ensure maps and educational materials are stocked.
- Monitor trail conditions and maintain trails to encourage visitors to stay on trails by rapidly clearing down trees that fall onto or affect access along the trail, and maintaining brush, drainage, signs, gates, and barriers. Respond with increased effort and/or a more rapid response if off-trail use takes place due to trail maintenance issues. Conduct cross country scouting (contour patrols) to locate unauthorized trails, decommission as quickly as possible, and respond with increased patrol, engagement, and enforcement including prosecution.
- Monitor the Public Access Area for occurrences of California Invasive Plant Council high and medium priority 'Red List' species, and manage those populations for eradication, if feasible, and containment, if infeasible.
- Track the availability of parking, and whether the parking area is regularly filled to capacity.
- Monitor water tanks quarterly to ensure tanks are at least 80 percent full and showing structural integrity.
- Provide separate maps for the main property and the Laguna Tract to clearly distinguish between these two distinct recreational opportunities, and collaborate with the CDFW to show the closed areas of the Bonny Doon Ecological Reserve on maps.

#### PROVIDE PROFESSIONAL SECURITY AND SAFETY PATROL

Public access features, including staging area(s) and trails, will be patrolled on a regular basis by the Management and Field Teams, including the County Sheriff's office. The County Sheriff will ensure a rapid response and a credible deterrent to those who would violate laws and regulations (see rules and regulations, above).

In addition to patrol, trails may be monitored using photographic monitoring in the Closed Area and for nighttime monitoring of the Staging Area and Public

Access Area. Patrol and enforcement activities should be initiated when construction activities begin. For instance, on discovery of an unauthorized trail, the trail should be dismantled as rapidly and completely as possible, and tools or equipment should be confiscated. County Sheriff should attempt to identify builders and users and engage them, with enforcement as necessary, to motivate compliance with rules. If necessary, the Public Access Manager will prosecute and make civil court claims where appropriate.

The Management and Field Teams should track visitor compliance with Closed Area, nighttime, and weather related closures, and increase management effort as needed to ensure compliance. Estimated labor cost for provision of patrol is identified under Financial Considerations, below.

#### PROVIDE EMERGENCY SERVICES

Emergency services include police, fire, and medical services. Emergency services will be provided by the Santa Cruz County Fire Department, which is managed by CAL FIRE. The Land Trust will develop a safety and emergency management plan in collaboration with CAL FIRE and the Santa Cruz County Sheriff's Office that identifies specific roles and responsibilities. The plan will include but not be limited to the response strategies identified in Table 6-3.

#### PROVIDE TRAIL ETIQUETTE AND SAFETY MONITORING

Patrol activities should demonstrate a stewardship presence, and foster a culture of responsibility among visitors to increase user compliance with closed area designations, and rules regarding litter, food scraps and dog waste. Patrol should also provide education on safe trail use, including educating visitors on trail options for their selected use. Bike bells, which jingle to alert visitors of approaching cyclists, may be provided to users to further reduce potential use conflicts. Specific tasks for providing visitor education include but are not limited to:

- Engage and educate horseback riders and other visitors about actions they should take to avoid the introduction of non-native plants and animals.
- Educate horse and dog owners in the actions they must take to protect water quality by cleaning up their animal waste, especially in proximity to streams. Provide bags and trash receptacles in convenient locations.

**TABLE 6.3 EMERGENCY PREVENTION AND RESPONSE STRATEGIES**

| Threat                     | Prevention   | Response  |
|----------------------------|--|---|
| Injury or Health Emergency | <ul style="list-style-type: none"> <li>▪ Use restrictions</li> <li>▪ Education and signage</li> <li>▪ Areas closures</li> <li>▪ Trail design and maintenance</li> <li>▪ Hazard tree inspections and removal</li> </ul> | <ul style="list-style-type: none"> <li>▪ Signage and maps to locate victims and emergency response meeting locations</li> <li>▪ Call box at staging area</li> <li>▪ Emergency response meeting locations along trail network</li> </ul>                                     |
| Lost or Missing Persons    | <ul style="list-style-type: none"> <li>▪ Good trail maps and wayfinding signs along trails</li> <li>▪ Closed area signs and wayfinding signs in closed areas</li> <li>▪ Visitor registration system</li> </ul>         | <ul style="list-style-type: none"> <li>▪ Search and rescue training</li> <li>▪ Routine patrols</li> </ul>   |
| Wildfire                   | <ul style="list-style-type: none"> <li>▪ Use restrictions</li> <li>▪ Coordination of trail network design with shaded fuel breaks</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Response planning with CAL FIRE</li> <li>▪ Incident training with CAL FIRE</li> <li>▪ Frequent patrols for early identification</li> <li>▪ Firefighting tanks at staging area, along trail network, and in closed areas</li> </ul> |

- Educate mountain bike riders and other visitors about the gradual approach to phasing, with observed success being necessary for the implementation of future phases.
- Work with members of the bike community to exert peer pressure on their fellow riders to comply with all rules and regulations.
- Educate mountain bike riders on trail courtesy and etiquette in order to minimized potential conflicts with other trail users.
- Engage hikers, mountain bike riders, dog walkers and horseback riders to ensure they appreciate the privilege of visiting the property and that they contribute to the culture of stewardship.

Patrol requirements may be offset by volunteer patrol efforts provided by docents or by organized user groups under a formal Use Agreement. Volunteer patrols should be prioritized for high-use times and days. Other strategies for

ensuring user safety and reducing liability of owners and managers include conducting orientations for user groups, as well as use of visitor registration system to ensure users are aware of and agree to conditions of use.

### VISITOR AND USE MANAGEMENT TASKS

Recommended strategies for providing visitor education and managing level of use are provided below. These tasks, unless specified, will not apply to the Laguna Tract.

#### PROVIDE VISITOR EDUCATION

Visitor education is an opportunity to inspire the conservationists of tomorrow (and today), as well as to educate users about rules and regulations. Fostering a stewardship culture that deters visitor impacts (such as unauthorized trail construction) is a primary strategy for minimizing visitor impact. In addition to the tasks described under trail etiquette and safety monitoring, above, visitor education strategies include providing educational and interpretive signage, providing staff and volunteer training, and supporting educational efforts. This task will apply to the Laguna Tract.

#### ESTABLISH AND MANAGE A VISITOR REGISTRATION SYSTEM

This large property has poor cellular coverage, dense vegetation, rugged terrain, and roads in closed areas, which may contribute to visitors becoming lost. Furthermore, the property is subject to forest management operations, including tree falling and log hauling, for restoration and commercial purposes. The Public Access Manager will establish a visitor registration system for the main San Vicente Redwoods property to facilitate visitor awareness of site conditions, notify regular visitors of closures, and facilitate the identification and prosecution of abusive visitors, including revoking access privileges. The registration system will include both electronic and paper (hard copy) options. Following registration, a visitor will be issued a visitor use permit that they will be required to carry on their person and to display a copy on the dashboard of their car while parked at the staging area. Permits are further discussed below.

#### ESTABLISH AND MANAGE PERMIT PROGRAMS/FEE PROGRAMS

Permit programs are an effective way to ensure that all users agree to conditions of use and to monitor and document use. While commercial use of the property is prohibited, certain permits may or may not have associated fees

to cover some of the costs of management, as described below. Different permits will require different levels of review by the Public Access Manager and the Conservation Partners, as well as other advisors that they deem appropriate. Permits for approved uses such as parking at dedicated staging areas should be obtainable through an on-site and/or on-line permit system. Other permits may require direct coordination with the Public Access Manger and the Conservation Partners. Permits would be revoked if conditions of use are not met.

All permitted uses must be in compliance with the Conservation Easement and consistent with requirements for 501(c)(3) status. Permit requests that are likely to conflict with protection of the Conservation Values or the intent of the Conservation Easement, including activities that leave materials behind or manipulate the environment, will require a greater level of review and may not be permitted. No activities identified as prohibited in Chapter 4 will be permitted. Permit approval will be limited to minimize the potential for visitation on days with special use permits to exceed that of typical (days without special events) high-visitation days and to ensure that staging area capacity is not exceeded.

Permits which may be required for public access include:

- **Visitor Use Permits.** A visitor use permit would demonstrate that a visitor has completed the visitor registration system.
- **Parking Permits.** If utilized, parking permits for use of the staging area(s) would allow for monitoring of daily use, and provide a framework by which each visitor agrees to the conditions of use for public access.
- **Special Use Permits.** As discussed in Chapters 4 and 5, special use permits would be required for any use that does not take place on dedicated public access trail or at a staging area requires a special use permit, for groups larger than 20, for special events (such as organized trail run), and for primary, secondary and community education groups. Special use permits are intended for use on a limited basis only, and will be managed so that all use, enjoyment, and conservation values will be maintained. In addition to the considerations for permit approval discussed above, special use permit review should consider duration and timing of the activity, the number of individuals involved, proposed location(s), potential conflicts with other property uses and activities, and potential impacts to the property/s

resources. Special Use Permits will require that facilities for special uses would be limited to the staging area, trails, gathering areas, and benches, with no vegetation clearing beyond the guidelines described in Chapter 7, Design and Maintenance Guidelines.

Fees may be charged for parking and special use permits at the discretion of the Public Access Manager and the Conservation Partners. A fee schedule should be developed by the Public Access Manager. Fees would be nominal so as not to create a deterrent to visiting the property or participating in the permit system. Fees would be structured to, at most, offset some of the costs of managing public access.

As discussed in Chapter 5 and under Organizational Structure, above, research and higher education are not considered public access. Requests for research and higher education uses will be reviewed, authorized, and managed by the Landowners and the Conservation Easement Holder, and other advisors as they deem necessary.

#### MANAGE PARKING

Use of the staging area should be monitored and tracked as described above, and expanded to full capacity as necessary to ensure adequate capacity. The Public Access Manager will collaborate with the Santa Cruz County Department of Public Works to ensure that road shoulder parking does not become an established pattern, through the use of strategies such as no-parking zones and towing.

#### MANAGE MOUNTAIN BIKE USE

Managing visitor impact to protect the Conservation Values involves special considerations with mountain biking as an allowed use. Open space in the Santa Cruz Mountains hosts various examples of non-sustainable and environmentally damaging trails primarily used by mountain bikes. The damage is primarily caused by erosion, trail widening, and unauthorized trail use and/or construction.

Several examples also exist in the region of high-quality trail stewardship led by responsible members of the mountain bike community.

The Public Access Manager will implement prevention-based strategies to mountain bike use that includes visitor education, monitoring, and enforcement (described above), as well as engagement of users in trail building and other activities. As discussed above, the property will be closed to mountain bikes if unauthorized use cannot be effectively managed. The Laguna Tract will be managed as closed to mountain bike use.

#### OTHER MANAGEMENT AND ADMINISTRATIVE TASKS

Recommended strategies for conducting other management and administrative tasks are provided below.

##### COORDINATE WITH RESPONSIBLE PARTIES AND MANAGEMENT TEAMS

The Public Access Manager will be responsible for conducting routine meetings and providing ongoing coordination with the Leadership, Oversight, Management, and Fields Teams to determine when actions are needed to ensure protection of the seven Conservation Values. Public access must accommodate timber harvest and restoration forestry, and operations may necessitate re-routing or temporarily closing trails for visitor safety. Although most potential conflicts and opportunities will be identified in advance, there is potential for unforeseen conflicts (such as those requiring trail closures) or opportunities (new discoveries or research needs) to arise.

##### COORDINATE WITH ADJACENT OPEN SPACE MANAGERS AND OTHER NEIGHBORS

Ongoing coordination will also be necessary with adjacent open space managers and neighboring residents and property owners. It is recommended that a system for recording and responding to neighbor input be established. The level of coordination required with adjacent open space managers will depend upon the status of trail connection projects and unforeseen opportunities. Given the anticipated connection to the Cotoni-Coast Dairies property and the Bonny Doon Ecological Reserve, coordination with the Bureau of Land Management and CDFW is of high importance.

##### DEVELOP AND IMPLEMENT ADAPTIVE MANAGEMENT STRATEGIES

The Public Access Manager will implement adaptive management strategies to ensure protection of the seven Conservation Values. In addition to phased implementation of the staging area and trail network, adaptive management

strategies should include monitoring and tracking of use and site conditions, followed by proactive management actions. The following will be monitored and tracked to inform management decisions: visitor compliance with regulations; development of unauthorized trails; trail and drainage feature conditions; signage and furnishings conditions; occurrence of food waste, dog waste, and horse waste; available capacity of the staging area; perspectives of the Property Manager and restoration project managers; and visitor satisfaction. The Public Access Manager will monitor and respond to a variety of indicators, as described below.

Monitoring and tracking should be conducted as part of patrol activities discussed above, as well as trail assessments discussed in Chapter 7. Response to visitor impacts may include increased patrol, increased communication, increased enforcement, and additional use restrictions, including potentially banning particular uses from the property. Specific adaptive management strategies for ensuring protection of each of the seven Conservation Values are identified in Table 6-4. Additional context for these strategies, including the specific constraints addressed and related preventative strategies, is provided in Appendix 2 (Adaptive Management Overview).

**TABLE 6-4 OVERVIEW OF ADAPTIVE MANAGEMENT STRATEGIES**

| Conservation Value                  | Adaptive Management Strategy  |
|-------------------------------------|---|
| Statewide and Regional Significance | <ul style="list-style-type: none"> <li>▪ Monitor and enforce rule violations; adjust engagement and enforcement effort.</li> </ul>  |
|                                     | <ul style="list-style-type: none"> <li>▪ Monitor closed areas for unauthorized access; adjust education and enforcement effort.</li> </ul>  |
|                                     | <ul style="list-style-type: none"> <li>▪ Track visitor satisfaction; respond to meet expectations to the extent feasible.</li> </ul>  |
| Forests                             | <ul style="list-style-type: none"> <li>▪ Maintain trails so they don't widen or erode; adjust effort if problems arise.</li> </ul>  |
|                                     | <ul style="list-style-type: none"> <li>▪ Track the satisfaction of working forest and restoration project managers; increase collaboration effort with partners as needed.</li> </ul> |
|                                     | <ul style="list-style-type: none"> <li>▪ Track unauthorized visitors on 'red flag' fire hazard days; adjust patrol effort, engagement and enforcement</li> </ul>                      |
|                                     | <ul style="list-style-type: none"> <li>▪ Monitor and maintain tanks to ensure they are full and in good condition.</li> </ul>   |

**TABLE 6-4 OVERVIEW OF ADAPTIVE MANAGEMENT STRATEGIES**

| Conservation Value  | Adaptive Management Strategy  |
|---|---|
| <b>Biodiversity</b>   | <ul style="list-style-type: none"> <li>▪ Patrol for unauthorized trail construction; prosecute and/or sue violators; decommission unauthorized trails; impose use restrictions.</li> <li>▪ Track food waste; adjust visitor engagement and waste management effort.</li> <li>▪ Monitor and manage invasive plants in the public access area.</li> </ul>                           |
| <b>Watershed Protection</b>   | <ul style="list-style-type: none"> <li>▪ Monitor trails for sediment delivery to streams or wetlands; remediate problems promptly.</li> <li>▪ Monitor and enforce closures; adjust staffing as needed.</li> </ul>   |
| <b>Viewshed Protection</b>  | <ul style="list-style-type: none"> <li>▪ Track and remediate horse and dog waste near streams and wetlands; adjust engagement; impose use restrictions.</li> <li>▪ Inspect trails routinely for widening and erosion; adjust maintenance effort; adjust alignments and grade.</li> <li>▪ Track the availability of parking and expand the parking area only as needed.</li> </ul> |
| <b>Landscape and Habitat Connections</b>                              | <ul style="list-style-type: none"> <li>▪ Monitor and enforce closed areas for unauthorized access; adjust patrol and enforcement effort; impose use restrictions.</li> <li>▪ Review and revise strategies for protecting core habitat in response to research.</li> <li>▪ Monitor and enforce night time and area closures; adjust patrol and enforcement effort.</li> </ul>      |
| <b>Conservation Value: Public Recreation, Education, and Research</b> | <ul style="list-style-type: none"> <li>▪ Survey visitor satisfaction; respond to the extent feasible with changes to trails, including use designations.</li> <li>▪ Track and evaluate incidents and accidents; identify and implement corrective measures.</li> </ul>  |

**DEVELOP AND IMPLEMENT THE FINANCIAL MANAGEMENT STRATEGIES**

The Public Access Manager will be responsible for developing financial management strategies for the provision of public access. Strategies will be informed by the financial considerations and preliminary cost estimates provided in this chapter, and will be updated as needed. Strategies should be designed to ensure long-term financial sustainability.

#### DEVELOP AND IMPLEMENT A TRAIL MAINTENANCE PLAN

A trail maintenance system will be developed by the Management Team and reviewed by the Leadership and Oversight Teams. The maintenance guidelines provided in Chapter 7 are intended to guide the system, including the requirement that trails be inspected every spring and fall.

#### ESTABLISH AND MANAGE A VOLUNTEER PROGRAM

The San Vicente Access Manager will manage the volunteer program and collaborate with County Sheriff's Office staff to ensure their programs receive volunteer support. The San Vicente Access Manager will ensure that each volunteer benefits from education and training in the natural history of the property, and will collaborate with the Oversight Team to confirm the content of that educational material. Volunteer roles may include the following:

- The most experienced and trusted docents will patrol the property. Patrol volunteers will be eyes on the property, but all enforcement activities will be handled by Land Trust, County, or Sheriff staff.
- Interpretive docents will engage visitors with educational experiences about the cultural and natural history of the property and its context in the Santa Cruz Mountains.
- Maintenance docents will help with the upkeep of facilities such as roads, trails and picnic tables, and collect rubbish.

The San Vicente Access Manager will be responsible for ensuring this training occurs, and that all volunteer work is managed such that the activities and products are consistent with design guidelines and construction protocols provided in Chapter 7, and all permits and regulatory authorizations. Specific constraints addressed and related preventative strategies, is provided in Appendix 2 (Adaptive Management Overview).

## FINANCIAL CONSIDERATIONS

This section provides an overview of projected capital improvement costs, annual operations and maintenance costs, potential revenue, including donations, generated by the implementation of the Plan, as well as secured and pledged funding. Table 6-5 summarizes the financial analysis conducted.

**TABLE 6-5 SUMMARY OF FINANCIAL ANALYSIS**

| Description   | Phase 1                   | Buildout                   |
|---|---------------------------|----------------------------|
| Capital Improvements  | \$800,000–<br>\$1,200,000 | \$3-5 million <sup>b</sup> |
| Projected Annual Operations Costs <sup>a</sup>                                    | \$250,00–\$500,000        |                            |
| Potential Annual Revenue <sup>c</sup>   | \$10,000–<br>\$50,000     | \$100,000–<br>\$400,000    |
| Funding Secured for Capital Improvements and Initial Operating Costs <sup>d</sup> | \$2.25 million            |                            |
| Contribution by Non-Profit and Agency Partners <sup>e</sup>                       | \$1.25 million            |                            |

<sup>a</sup> Annual cost based on average cost of first ten years of implementation.  
<sup>b</sup> These costs would be partially offset by volunteer trail construction (equestrian and mountain bike).  
<sup>c</sup> Revenue is projected to be generated by the Land Trust through donations, grants, contributions from volunteers, partner non-profits and agencies, and fees.  
<sup>d</sup> Funds were raised through Land Trust of Santa Cruz County Capital Program.  
<sup>e</sup> Pledged financial contributions by Sempervirens Fund, Save the Redwoods League.

### IMPLEMENTATION COSTS

Providing public access at San Vicente Redwoods, including construction and management activities, is estimated to cost \$5 to \$10 million during the first ten years of implementation. Financial elements include:

- Oversight Team and Management Team staffing.
- Administrative, legal and planning costs.
- Access management staffing.
- Maintenance (Roads and Trails).
- Construction.
- Payments for services to the County Sheriff’s Office, County Parks Department, and the Santa Cruz County Fire Department.

The annual cost of providing public access will increase as the number of trails increases; however, the maintenance cost per mile of trail will decrease due to economies of scale.

## POTENTIAL REVENUE

The Land Trust has secured donations and commitments valued in excess of \$3.5 million to initiate the project. The Land Trust is responsible for securing adequate funding for operations and maintenance of public access through donations, grants, financial and in-kind contributions from non-profit, agency partners, and volunteers, and through permit fees, among other sources. If adequate operating funds cannot be secured in the future, the Land Trust will have to close the property to public access. If financial planning indicates that closure of the property will be necessary, a reserve of funds will be retained by the Land Trust to finance the closure, including patrols and enforcement, to protect natural resources on the property and nearby communities. As discussed above, advancing from one phase to the next will also be dependent on available funding.

Donations and permit fees could generate up to \$50,000 in Phase 1 and \$400,000 at buildout. Given the limited revenue anticipated from fees, it is anticipated that donations and contributions will be the primary revenue source, and will directly affect the level of access provided.

## FUNDING SOURCES

Funding sources are anticipated to include the following:

- **Donations and Contributions.** Donations and contributions from individuals and organizations are anticipated to be the primary source of funding. Fees may supplement these amounts. Secured donations and commitments are described above under Potential Revenue.
- **Coastal Conservancy.** The California Coastal Conservancy made a generous grant in support of the development of this plan, and may be a source of additional funding for implementation. The Coastal Conservancy Grant programs fund projects that are consistent with the Agency's goals to "protect, restore, and enhance coastal resources, and to provide access to the shore." Proposals for funding from the Conservancy are accepted on a continuous basis, and there are no established grant minimum or maximum amounts.
- **Wildlife Conservation Board.** The Wildlife Conservation Board (WCB) provides public access funding and can enter into cooperative project

agreements with local agencies or nonprofit organizations for the development of facilities for “public access for hunting, fishing, or other wildlife-oriented recreation,” such as wildlife viewing and bird watching. The WCB may fund the construction of project elements such as trails, boardwalks, interpretive facilities. Applications are accepted on a continuous basis.

- **Federal Land and Water Conservation Fund (LWCF).** This fund can be used to reimburse development costs for outdoor recreation areas and facilities. The funds provide matching grants to cities and counties seeking funds covering up to 50 percent of project costs.
- **Other Grants.** The Public Access Manager should identify other grants for public access and pursue in partnership with other entities, as appropriate given grant requirements. Resources for identifying grant opportunities include American Trails, which maintains a list of federal grant programs at <http://www.americantrails.org/resources/funding/index.html>; and the International Mountain Bicycling Association maintains a similar list at <https://www.imba.com/resources/grants>.

## FUTURE PLANNING AND ENVIRONMENTAL REVIEW

This Plan was developed based on an understanding of current environmental, economic, and financial conditions, as well as assumptions regarding recreational demand and other uses of the properties. The Public Access Plan is intended to guide the provision of access for 10 years, at which point it may be revisited and updated as necessary, in accordance with the Conservation Easement. This will remain the active plan until revised. In addition, further planning may be necessary in order to address future conditions. Future planning efforts may expand upon the information put forward in this Plan, and all efforts should also be consistent with the vision, goals, and guidelines described in this Plan.

Preparation of environmental review documents will be coordinated with Santa Cruz County, who will serve as the lead agency for CEQA review of the Public Access Plan.

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## 7 DESIGN AND MAINTENANCE GUIDELINES



This chapter provides guidance for the design and construction of the features outlined in the Public Access Plan, as well as for the maintenance of the trails. All development of public access features must comply with requirements of the California Environmental Quality Act (CEQA) to identify and mitigate potential environmental impacts, and must meet the standards and protocols identified in this chapter.

The development of Public Access Features must also comply with any permits or regulatory authorizations issued by the agencies listed below.

- Santa Cruz County
- California Department of Fish and Wildlife (CDFW)
- United States Fish and Wildlife Service (USFWS)
- U.S. Army Corps of Engineers (USACE)
- National Marine Fisheries Service (NMFS)
- Central Coast Regional Water Quality Control Board (RWQCB)

### TRAIL DESIGN GUIDELINES

Trail design guidelines are intended to facilitate the design and construction of trails as identified in Chapter 4. Trails that do not meet these standards or



comply with the protocols may be closed for public use until maintenance can be completed.

Conceptual trail alignments identified in Chapter 4 indicate appropriate trail corridors where trails should be located; exact alignment may vary as necessary to address field conditions and meet design guidelines provided in this chapter.

Given the existing conditions and planned uses at San Vicente Redwoods, trail design guidelines are organized based on construction-type rather than trail type: (1) roads to be maintained for vehicles and used as trails, (2) roads to be decommissioned and converted into trails, and (3) trails to be built along completely new alignments. Trail characteristics according to planned use that apply to all types of construction are provided below, followed by design guidelines based on construction type. Standard Details providing construction detail relevant to all trail types are provided at the end of this chapter.

#### TRAIL GUIDELINES ACCORDING TO PLANNED USE

Regardless of planned use, all trail routes should be designed to provide for a variety of experiences through different habitats, and should be coordinated with other property uses, including timber harvest and research uses. In addition, trail routes should avoid the following, to the extent possible: neighbor views, safety hazards, impacts to sensitive resources, and interference with timber harvest operations. Where feasible, buffers should be provided around private property, and views of neighboring houses should be obstructed by vegetation where necessary.

Table 7-1 provides general trail dimensions for each trail type envisioned at San Vicente Redwoods, including multi-use, hiking and equestrian, and mountain bike and hiking trails. Accessible trails are further discussed below.

**TABLE 7-1 TRAIL DIMENSIONS BY USE TYPE\***

| Trail Type                       | Tread Width                        | Vegetation Clearance                   | Maximum Grade                   |
|----------------------------------|------------------------------------|--|---------------------------------|
| Accessible Trails                | Constructed Width:<br>5 feet +     | 2 feet horizontal;<br>10 feet vertical | <5% (ADA)**<br>10% (ODA)***     |
|                                  | Maintained Width:<br>5 feet +      |  |                                 |
| Multi-Use Trails                 | Constructed Width:<br>5 feet+      | 1-foot horizontal;<br>10 feet vertical | 15% for any<br>extended section |
|                                  | Maintained Width:<br>2 to 5 feet + |  |                                 |
| Equestrian<br>Hiking Trails      | Constructed Width:<br>2 to 5 feet  | 1-foot horizontal;<br>10 feet vertical | 15% for any<br>extended section |
|                                  | Maintained Width:<br>2 to 5 feet   |  |                                 |
| Mountain Biking<br>Hiking Trails | Constructed Width:<br>2 to 4 feet  | 1-foot horizontal;<br>10 feet vertical | 15% for any<br>extended section |
|                                  | Maintained Width:<br>2 to 4 feet   |  |                                 |

\*Where trails utilize roads that are to be maintained for vehicle use, dimensions will be dictated by vehicular requirements.

\*\*Americans with Disabilities Act (ADA).

\*\*\* United States Access Board Final Guidelines for Outdoor Developed Areas (ODA)

## ACCESSIBILITY

Americans with Disabilities Act (ADA) Accessibility guidelines address accessible routes between facilities, but currently do not address trails. The United States (U.S.) Access Board is currently reviewing guidelines for shared use paths and public right-of-way that will include trails, but there is no schedule for their anticipated release. The Final Guidelines for Outdoor Developed Areas<sup>1</sup> (ODA) are considered best management practices and standards for pedestrian trails and it is recommended that they are used until updated ADA Accessibility

<sup>1</sup> U.S. Access Board, 2013. *Final Guidelines for Outdoor Developed Areas*. <https://www.access-board.gov/guidelines-and-standards/recreation-facilities/outdoor-developed-areas/final-guidelines-for-outdoor-developed-areas>.

guidelines are released.<sup>2</sup> The ODA guidelines provide detailed accessibility recommendations for pedestrian/hiker designated trails. Due to constraints related to the natural terrain, most of San Vicente Redwoods trails will not meet ADA or ODA requirements. However, efforts should be made to meet guidelines to the extent that is practical. The northern frontage trail can be designed as an accessible trail. The ODA guidelines for trail surface, slope, and signage are as follows:

- **Surface.** The ODA guidelines do not provide a list of specific surface materials that are accessible. Instead, the guidelines require that “surface of trails, passing spaces, and resting intervals to be firm and stable. A firm trail surface resists deformation by indentations. A stable trail surface is not permanently affected by expected weather conditions and can sustain normal wear and tear from the expected uses between planned maintenance.” The ODA guidelines also require that openings in trail surfaces, such as grates, be no more than 0.25-inch-wide and that 2-inch vertical obstacles are allowed on surfaces other than asphalt and concrete. The ODA guidelines are clear that surfaces are required to be firm and stable and that materials other than concrete or asphalt are allowed.
- **Slopes.** The ODA guidelines include requirements that running slopes for trails must be less than 10 percent and where slope is steeper than 5 percent resting intervals are included per the ODA guidelines. Cross slope and clear ground spaces of trails must be 2 percent maximum with 5 percent allowed on surfaces other than asphalt, concrete or boards when necessary for drainage.
- **Signage.** Trailhead signage must include length, surface type, typical and minimum trail width, and typical and minimum running and cross slopes.



#### ROADS TO BE MAINTAINED FOR VEHICLES AND USED AS TRAILS

Where existing roads will be used as trails and also maintained for limited vehicular use for property operations and maintenance. Upgrades should be based on the trail maintenance system, discussed in Chapter 6, and proposed

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<sup>2</sup> January 9, 2014. Webinar. “Trails and the New Federal Accessibility Guidelines” from American Trails (A National Trails Training Partnership).

use type. Signage and design will depend on whether the road will be used for regular, intermittent, or emergencies only.

Improvements to existing roads shall be designed to minimize erosion and extend the life of the trails while avoiding disturbance of the surrounding landscape. Any drainage features shall be built for longevity and require minimal maintenance.

#### ROADS TO BE DECOMMISSIONED AND CONVERTED INTO TRAILS

An historic railroad grade, which also served as a road historically, will be converted to use as a trail. Most of this landform is stable and should not be regraded. In these segments, the trail should be installed on the inboard edge of the road as shown in Standard Detail 1, *Trail Installation- Road to Trail Conversion*. Existing stream crossings should be fully excavated during road-to-trail conversions, and may be narrowed and upgraded for trail use. As the road approaches the crossing, the trail alignment is meandered toward the inboard edge of the road to intersect with the stream on contour. An appropriate crossing structure should be installed at stream crossing; refer to discussion of stream crossings for new trails (below) for preferred crossings. Existing culverts that are in good condition and adequately sized will be retained. Existing culverts in poor condition may be improved or replaced with hardened crossings. Refer to Standard Details 2, 3, and 4.

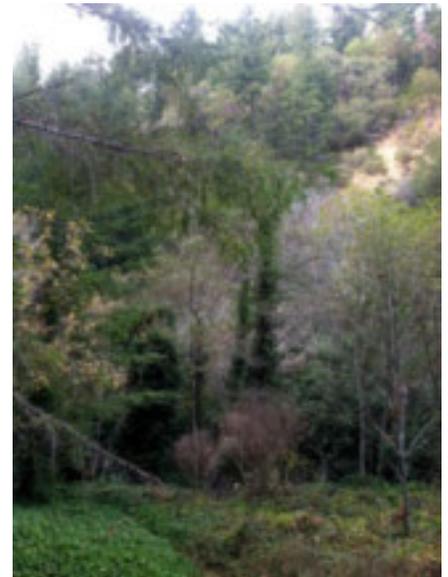
Many other roads were considered for decommissioning and use as trails, but were determined to be unsuitable for use as trails as a result of grade, location, or drainage.

#### NEW TRAILS

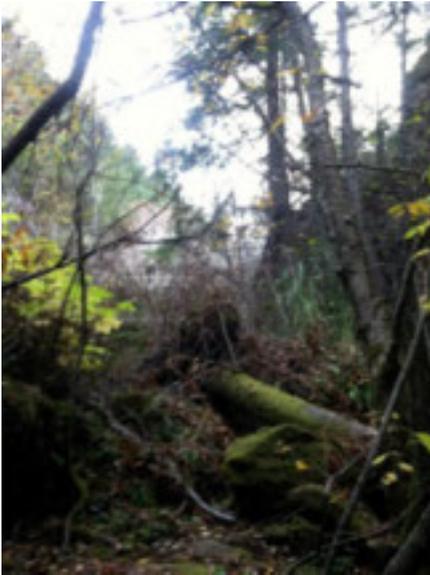
New routes may be created when existing routes are not able to provide desired connectivity or have drainage issues or other problems that make trail sustainability infeasible. For the construction of new trails on the San Vicente Redwoods property, the following design guidelines should be utilized.

#### LAYOUT

- The trail should be laid out and construction overseen by a qualified design professional with experience in backcountry trail management.



- The trail shall be laid out to conform to the natural terrain to create a visually pleasing alignment, engineered for resilience and to discourage the establishment of unauthorized trails. The trail should have a curvilinear alignment that avoids long straight reaches. The alignment should incorporate natural terrain features (e.g., trees, rocks) to form required grade reversals, while minimizing tree removal and impacts to roots. In addition to a curvilinear alignment, a narrow trail design will help maintain the aesthetic character of the surrounding viewsheds.
- The trail should avoid active unstable and other hazardous areas, sensitive plant and animal habitats, archaeological resources, steep sideslopes, and unstable watercourse crossings. Sensitive habitats include wetlands and non-wetland waters, riparian habitats, plant communities listed by the CDFW with a Global (G) or State (S) Rank of 1, 2, or 3, and occurrences of special-status plant and wildlife species. To ensure avoidance of sensitive habitats, trails corridors should be surveyed by a qualified biologist. The trail network shall leave large, intact habitat blocks undisturbed by recreational visitors, in particular disturbance of the mountain lion movement corridors.



#### TRAIL ORIENTATION

- **Trail Alignment:** Trails shall avoid fall line orientations. A fall line trail is a trail that drops directly down the hillside following the same path that water flows, thereby focusing water down the length. These routes are difficult, if not impossible, to drain, and often experience higher rates of ongoing erosion. Instead, trails on slopes should follow a contour alignment. Retaining walls may be required where additional support is needed to ensure trail sustainability on steep slopes. Refer to Standard Details 5, 6, 7 and 8, respectively.
- **Trail Grade:** As a general rule, the trail should have a grade no steeper than half the grade of the native hillside. For example, a trail crossing a 10 percent gradient hillside shall have a grade no steeper than 5 percent. The maximum sustained trail grade should generally be less than 10 percent, preferably 5 to 7 percent, and the trail grade should not exceed 15 percent for a distance of more than 50 feet unless otherwise approved by the project design professional. Trails steeper than 15 percent tend to have



greater erosion problems and require more maintenance than trails less than 15 percent.

#### SWITCHBACKS AND CLIMBING TURNS

Switchbacks and climbing turns should be constructed to reverse the direction of travel on hillsides and to gain elevation in a limited distance. A switchback is a sharp turn with a flat landing, whereas a climbing turn has a wider radius with a constant grade through the turn. The advantage of climbing turns are that they allow for better user flow, especially with mountain bikes which sometimes cannot easily navigate a switchback, are easier to construct, and generally require less maintenance. The climbing turns also discourage user created short-cuts when brush, ridgelines, and logs are strategically located to block short-cut options. However, climbing turns are restricted to moderate gradient slopes less than about 45 percent. To the extent feasible, the trail should be laid out to minimize switchbacks and where necessary avoid stacking.

#### NATURAL CHOKE POINTS

Trails for bicycles should be designed and constructed to be undulating. A 5 to 7 percent grade is ideal, with a 15 percent maximum for trails that allow bikes. Natural choke points, turns, and adequate line of sight are necessary design features to limit speeds downhill and to reduce visitor conflict.

#### TRAIL DRAINAGE

Trails should be designed, constructed, and upgraded to cause minimal disruption of natural drainage patterns. As a general rule, runoff should not be allowed to concentrate from one catchment to another. Other guidelines for trail drainage include the following:

- **Grade Reversals:** Trail shall be drained with grade reversals that are incorporated into the trail at the time of construction in order to avoid concentrated water flow by creating a drainage dip in the trail. Refer to Standard Detail 9.
- **Grade Reversal Spacing:** Grade reversals shall be installed at minimum spacing of 150 feet. Grade reversal location should be identified and flagged in advance of trail construction by the project design professional.

- **Decomposed Granitic Soils:** Tighter spacing and larger grade reversals are required in areas underlain by decomposed granitic soils, as applies to many areas of San Vicente Redwoods.
- **Wet Soils:** In excessively wet areas the road tread may need to be armored or the trail built up on a causeway or low puncheon (a small, low, elevated structure spanning the drainage). The locations of these areas are often known prior to construction and should be avoided to the extent possible during trail layout. Refer below to discussion of Stream Crossings.



#### GRADING AND EXCAVATION

Trails should be constructed at width not to exceed those specified in Table 7-1. Trails should be constructed on a full bench with fill spread downslope of the trail at a depth less than 6 inches. Refer to Standard Details 3, 4, and 5.

#### STREAM CROSSINGS

Trail routes should avoid watercourse crossings where channel gradient is steep, as well as at deeply entrenched streams with potential unstable streamside slopes. Routes preferably should be located such that drainage areas are crossed high in their watershed locations where streams are less defined in order to avoid stream disturbance. Site-specific field review will be needed to determine suitability of new stream crossings. Existing water crossings should be used where doing so would minimize environmental impacts and continue to allow for a desirable trail alignment in terms of sustainability and user experience. Guidelines for stream crossings include the following:

- **Design:** All stream crossings shall be designed to avoid impacts to streams, riparian areas, and wetlands. Stream crossings shall be properly designed by a qualified trail professional.
- **Type:** Appropriate crossings include bridges, armored crossings, puncheons, and existing culverts. Bridges and puncheons are the preferred crossing type for streams. Armored crossings are the preferred crossing type for swales that lack a defined channel. As discussed above, existing culverts that are in good condition and adequately sized will be retained. Existing culverts in poor condition may be replaced with hardened crossings. Refer to Standard Details 10, 11, 12, and 13.

- **Size:** All bridges shall be designed to accommodate 100-year flood flow, including sediment and debris. All drainage improvements shall be sized to convey flood overflows for the 25-year storm in compliance with Santa Cruz County Design Criteria.
- **Approach:** Avoid steep trail grades leading to stream crossings. The crossing should be as close to perpendicular to the stream as possible in order to shorten the span of crossing.

#### VEGETATION CLEARING

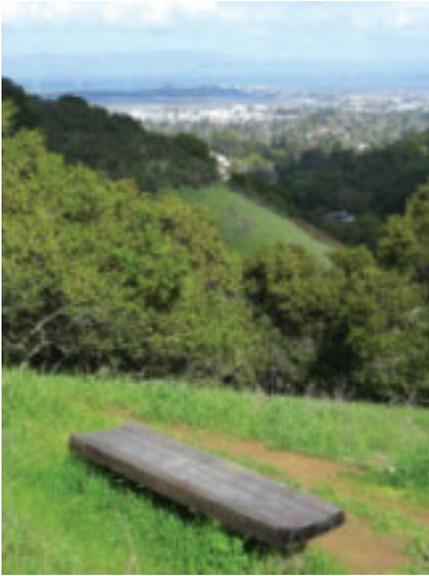
Guidelines for vegetation at trails include the following:

- Final trail alignment shall be determined with consideration to minimize impacts to trees larger than 12 inches in diameter at breast height (DBH).
- The trail bed and the area extending 1 foot to either side of the trail bed may be cleared of trees and logs less than 12 inches DBH. Trees greater than 12 inches DBH within the trail bed shall be removed only if indicated on the plans or with the authorization of the landowner representative.
- Vegetation should be maintained for views and seating at up to 10 overlooks. Maintenance may include removal of trees and shrubs less than 12 inches in DBH. An overlook may be up to 10 feet by 20 feet.
- All roots exposed during construction shall be clean cut to avoid tree damage.
- Branches that extend into the trail corridor may be trimmed to leave a minimum 10-foot-high vertical clearance.
- When pruning, prevent branches from damaging tree or stripping the bark when the branch falls to the ground.

#### ADDITIONAL DESIGN GUIDELINES

Specific guidelines are provided below to aid in the design and construction of other public access features, including the entrance gateway(s), security gates, the staging area, picnic areas, site furnishings, and signage.

The character of San Vicente Redwoods will be defined by its natural setting and the historic and ecological features that are located on the property. For this



reason, it is important that all public access components be designed and constructed to be consistent with the property’s historic character and environmental setting. Where possible, access features should be constructed with natural and durable materials, such as concrete, metal, wood, or locally sourced stone. Guidelines for ensuring that the design of specific access features and elements reflect the natural beauty and unique history of the property, while allowing for flexibility and innovative design solutions, are provided below.

### ENTRANCE GATEWAY(S) AND SIGNAGE

The entrance to the staging area(s) should be a threshold/gateway that will provide a strong sense of arrival and exemplify the character of the property. The gateway should be constructed with natural materials that are appropriate for the site, such as stone, concrete, metal, and/or wood. Signage at the entrance should be visible for approaching vehicles coming in both directions on Empire Grade, yet it should also complement the neighborhood and be subdued. Roadside parking should be discouraged through an inviting and easy-to-access staging area, as well as clear roadside signage.



### SECURITY GATES AND FENCING

Gates and/or appropriate signage should be installed at certain roads and trails to allow for areas/trails to be closed off to the public when needed. Gates should be designed for utility and resistant to vandalism, to the extent feasible. All gates and bollards should be made of durable materials, such as metal, with a natural finish.

Fencing should be provided at entrances to the property and where necessary to restrict access. Three-strand wire, split-rail fencing, or other low, rustic fencing constructed of natural materials and designed to ensure permeability for local wildlife, is preferred when the purpose is to visually communicate restrictions where security concerns exist. However, chainlink fence and guardrails should be used when necessary to protect resources and ensure safety, but without impeding wildlife movement.



### STAGING AREA

A staging area provides parking as well as visitor information, amenities, and trailhead access. Parking at the staging area should be designed for efficient

circulation, to maximize permeable surfaces and shade, minimize vegetation disturbance, and to meet ADA Accessibility Guidelines to the extent possible. The surface for parking areas should be unpaved with road base material, and the accessible parking spaces shall be surfaced with concrete. Sufficient parking should be provided to prevent accumulation of vehicles parked along road shoulders in order to protect surrounding viewsheds.

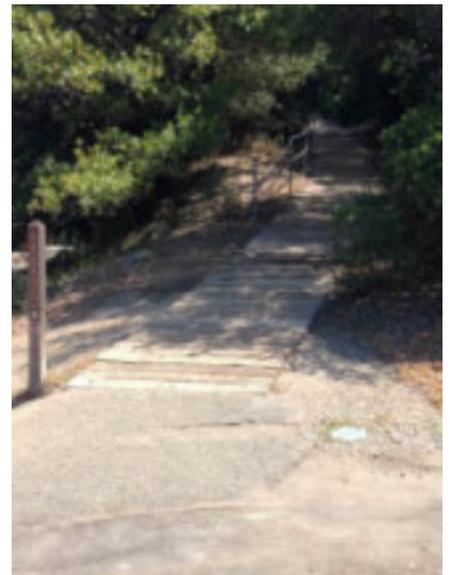


The staging area should include a kiosk with informational signage, restrooms, benches, and receptacles for trash and recycling. Trash receptacles must be wildlife-proof, particularly for corvids and raccoons. Water tanks for fire protection purposes, and dog and horse courtesy stations may be included, as needed.

Bicycle parking should be provided at the staging area as well. Bicycle racks should be galvanized steel U-racks, looped-racks, or racks of a similar design, with a metal finish. If paint is necessary, racks should be painted with neutral tones.

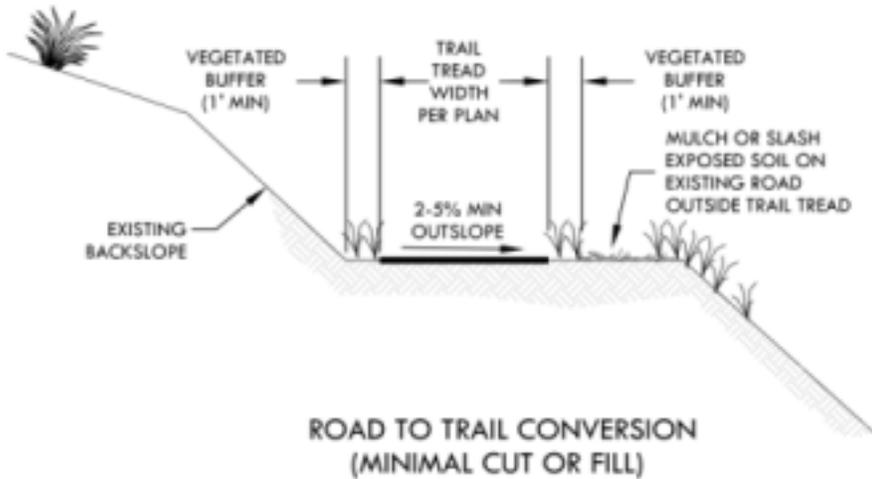
## PICNIC AREAS AND GATHERING AREAS

Picnic areas should include one or two tables and be located near the staging area. Picnic areas should be easy to locate from staging areas yet have some visual buffer for a pleasing appearance. Picnic tables and benches must be located outside of the dripline of redwood trees and outside of old-growth stands. Picnic areas should either include wildlife-proof trash receptacles or clear signage stating that trash must be packed out. See Site Furnishings below for additional guidance.



As discussed in Chapter 5, gathering spaces are informal areas that do not require tree removal and/or vegetation clearing. A gathering area may be up to 20 feet by 40 feet. Gathering spaces may be developed where regular and/or on-going use is anticipated and supported by the Public Access Manager and its partners. The intent of establishing such areas is to concentrate impacts in specified areas while creating desirable places to gather in terms of meaningful views, physical comfort, and unique experiences. Elements within semi-formal gathering areas should be limited to seating, preferably constructed with onsite materials such as fallen logs.

LAND TRUST OF SANTA CRUZ COUNTY  
SAN VICENTE REDWOODS PUBLIC ACCESS PLAN  
DESIGN AND MAINTENANCE GUIDELINES



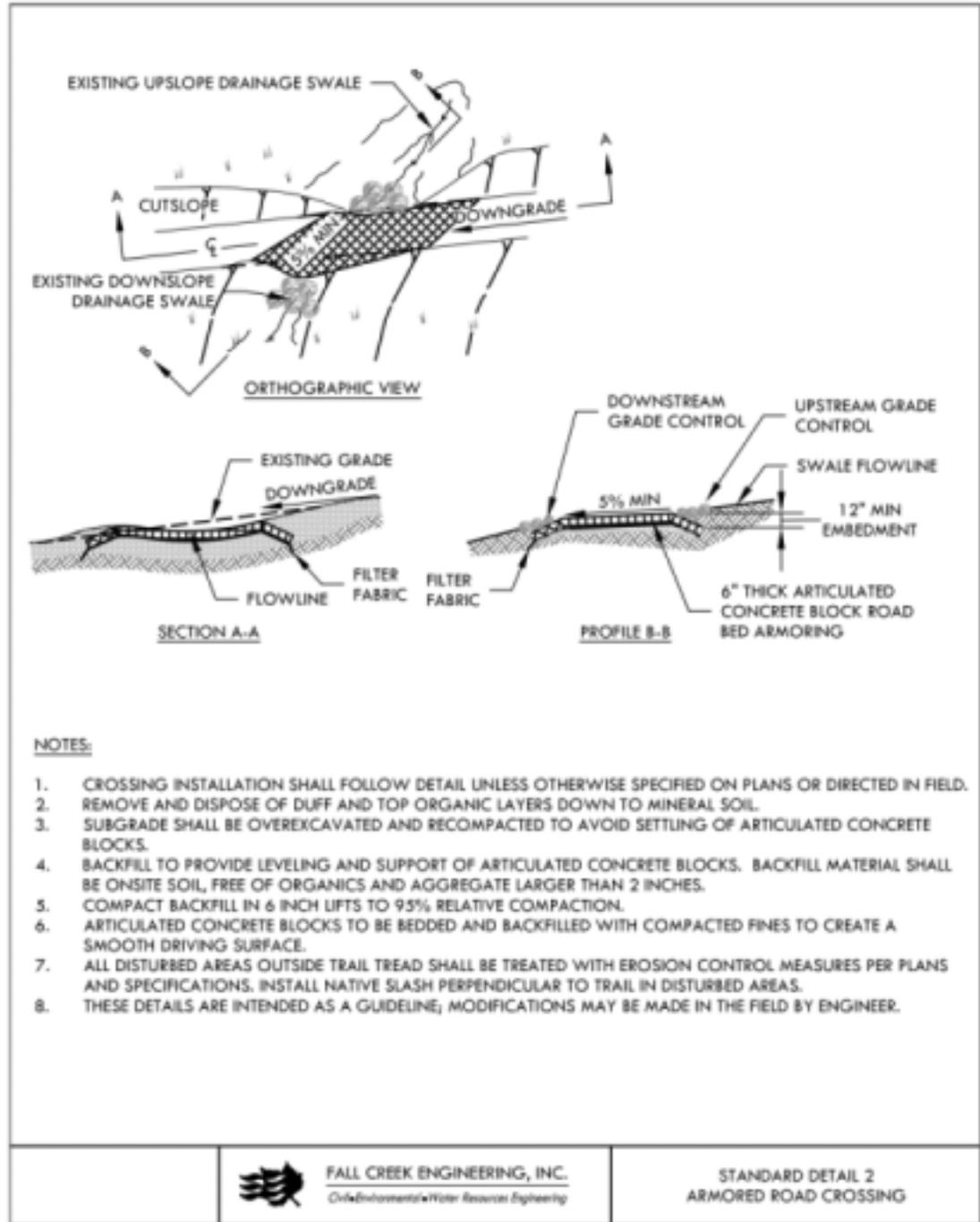
**NOTES:**

1. TRAIL INSTALLATION SHALL FOLLOW DETAIL UNLESS OTHERWISE SPECIFIED ON PLANS OR DIRECTED IN FIELD.
2. TRAIL TREAD SHALL BE CONSTRUCTED WITH WIDTH PER PLAN WITH 1 FOOT MIN VEGETATED BUFFERS ON BOTH SIDES OF TRAIL.
3. TRAIL TREAD SHALL BE LOCATED ON THE CUT SLOPE (BACKSLOPE) SIDE OF THE ROAD SECTION.
4. CLEAR BRUSH, TREES AND ROOTS WITHIN LIMITS OF TRAIL INSTALLATION. ROOTS SHALL BE CLEAN CUT TO AVOID TREE DAMAGE.
5. CLEAR TOP SOIL DOWN TO CONSOLIDATED STABLE SOIL.
6. BACKFILL TRAIL TREAD TO MATCH EXISTING GRADE. BACKFILL MATERIAL SHALL BE ONSITE SOIL, FREE OF ORGANICS AND AGGREGATE LARGER THAN 2 INCHES.
7. FILL ROOT HOLES TO CREATE A SMOOTH OUTSLOPE TRAIL TREAD.
8. COMPACT TRAIL TREAD.
9. OUTSLOPE IN DIRECTION OF NATURAL DRAINAGE WITH A MINIMUM OF 5% SLOPE, 2% FOR ACCESSIBLE TRAILS.
10. ACCESSIBLE TRAILS MUST MEET ODA/ORAR GUIDELINES.
11. ALL DISTURBED AREAS OUTSIDE TRAIL TREAD SHALL BE TREATED WITH EROSION CONTROL MEASURES PER PLANS AND SPECIFICATIONS. INSTALL NATIVE SLASH PERPENDICULAR TO TRAIL IN DISTURBED AREAS.
12. THESE DETAILS ARE INTENDED AS A GUIDELINE; MODIFICATIONS MAY BE MADE IN THE FIELD BY ENGINEER.



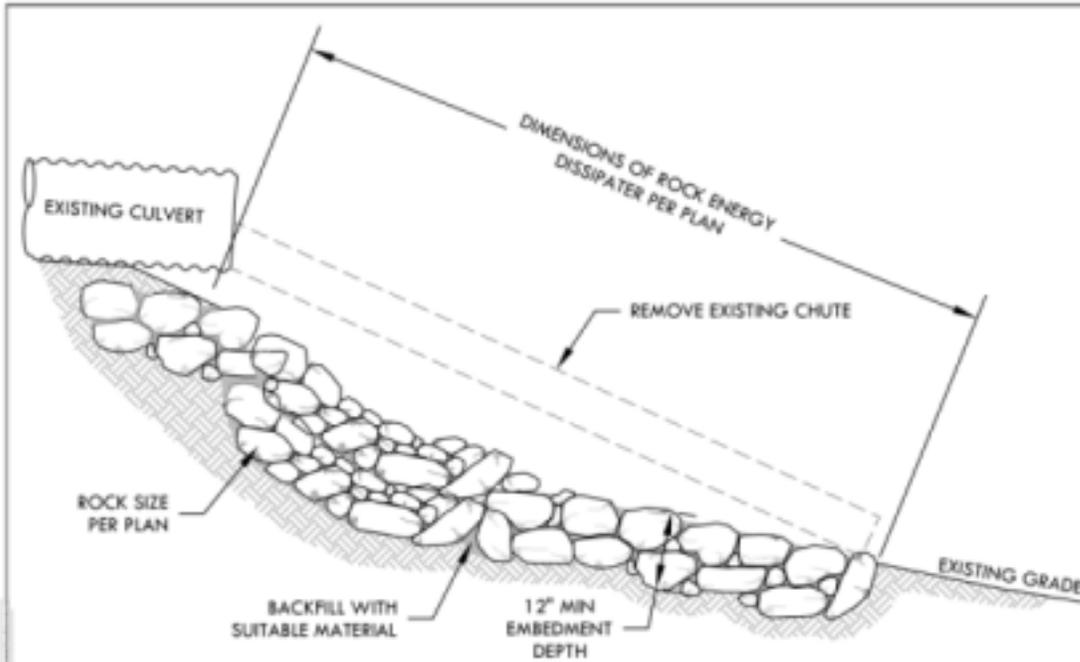
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STANDARD DETAIL 1  
 TRAIL INSTALLATION  
 ROAD TO TRAIL CONVERSION



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*Civil/Environmental/Water Resources Engineering*

STANDARD DETAIL 2  
 ARMORED ROAD CROSSING



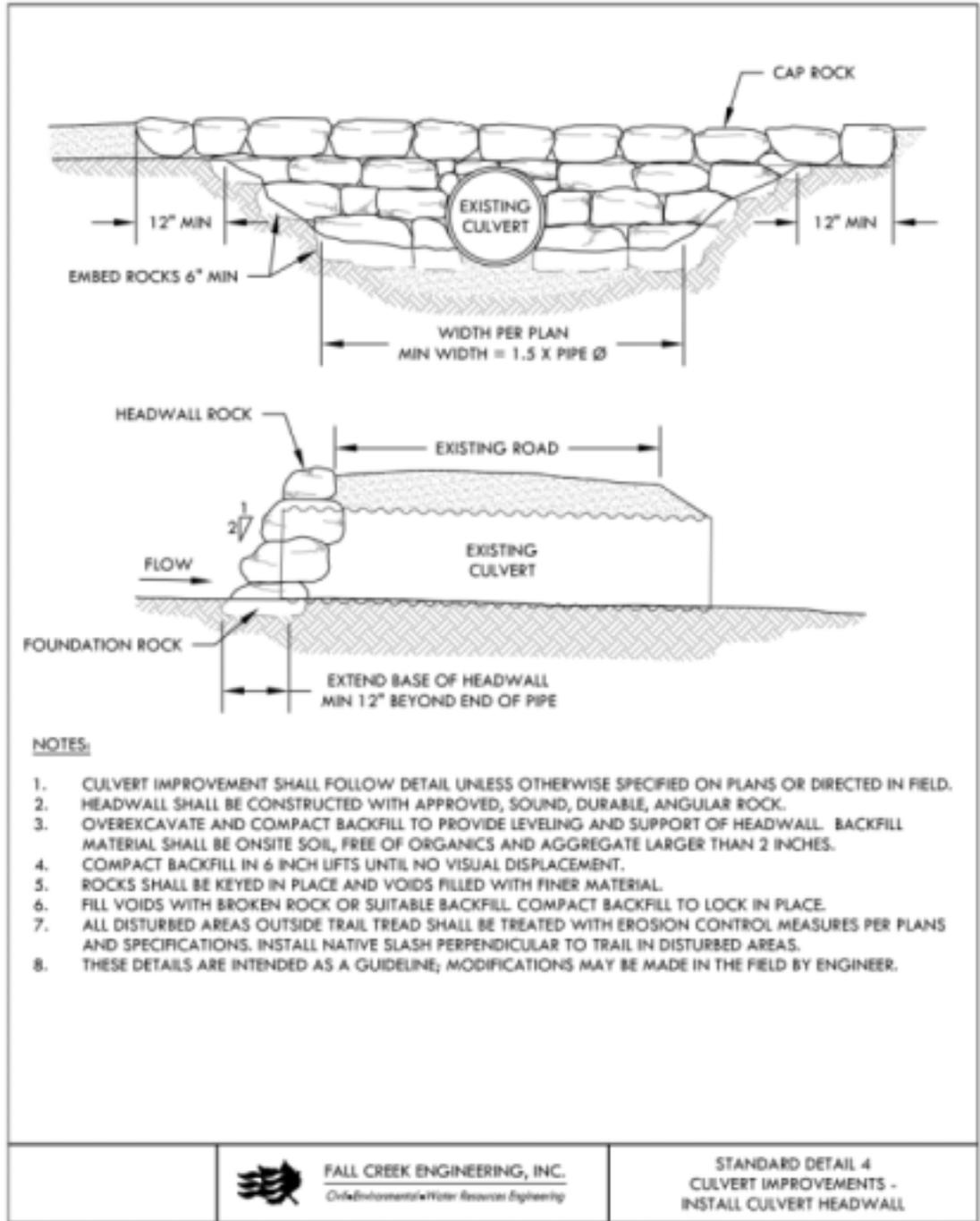
**NOTES:**

1. CULVERT IMPROVEMENT SHALL FOLLOW DETAIL UNLESS OTHERWISE SPECIFIED ON PLANS OR DIRECTED IN FIELD.
2. ROCK ENERGY DISSIPATER SHALL BE CONSTRUCTED WITH APPROVED, WELL-GRADED, SOUND, DURABLE, ANGULAR ROCK. DSD ROCK SIZE PER PLAN.
3. OVEREXCAVATE AND COMPACT BACKFILL TO PROVIDE LEVELING AND SUPPORT OF BASE ROCK. BACKFILL MATERIAL SHALL BE ONSITE SOIL, FREE OF ORGANICS AND AGGREGATE LARGER THAN 2 INCHES.
4. LAY ROCK WITH A MINIMUM OF 3 POINTS OF CONTACT WITH ADJACENT ROCKS.
5. LAY ROCKS IN A RANDOM ARRANGEMENT.
6. ROCKS SHALL BE KEYED IN PLACE AND VOIDS FILLED WITH FINER MATERIAL.
7. FILL VOIDS WITH BROKEN ROCK OR SUITABLE BACKFILL. COMPACT BACKFILL TO LOCK IN PLACE.
8. ALL DISTURBED AREAS OUTSIDE TRAIL TREAD SHALL BE TREATED WITH EROSION CONTROL MEASURES PER PLANS AND SPECIFICATIONS. INSTALL NATIVE SLASH PERPENDICULAR TO TRAIL IN DISTURBED AREAS.
9. THESE DETAILS ARE INTENDED AS A GUIDELINE; MODIFICATIONS MAY BE MADE IN THE FIELD BY ENGINEER.



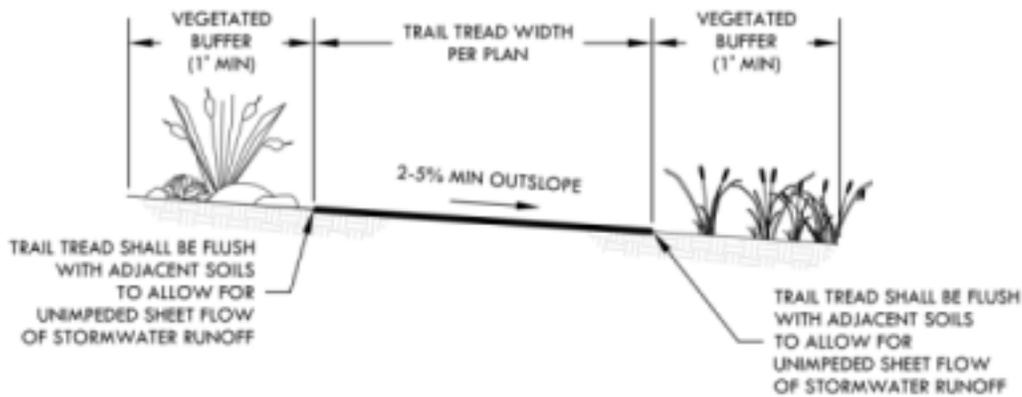
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STANDARD DETAIL 3  
 CULVERT IMPROVEMENTS - REMOVE CHUTE  
 AND INSTALL ROCK ENERGY DISSIPATER



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STANDARD DETAIL 4  
 CULVERT IMPROVEMENTS -  
 INSTALL CULVERT HEADWALL



**INSTALL TRAIL ON GRADE  
 (MINIMAL CUT OR FILL)**

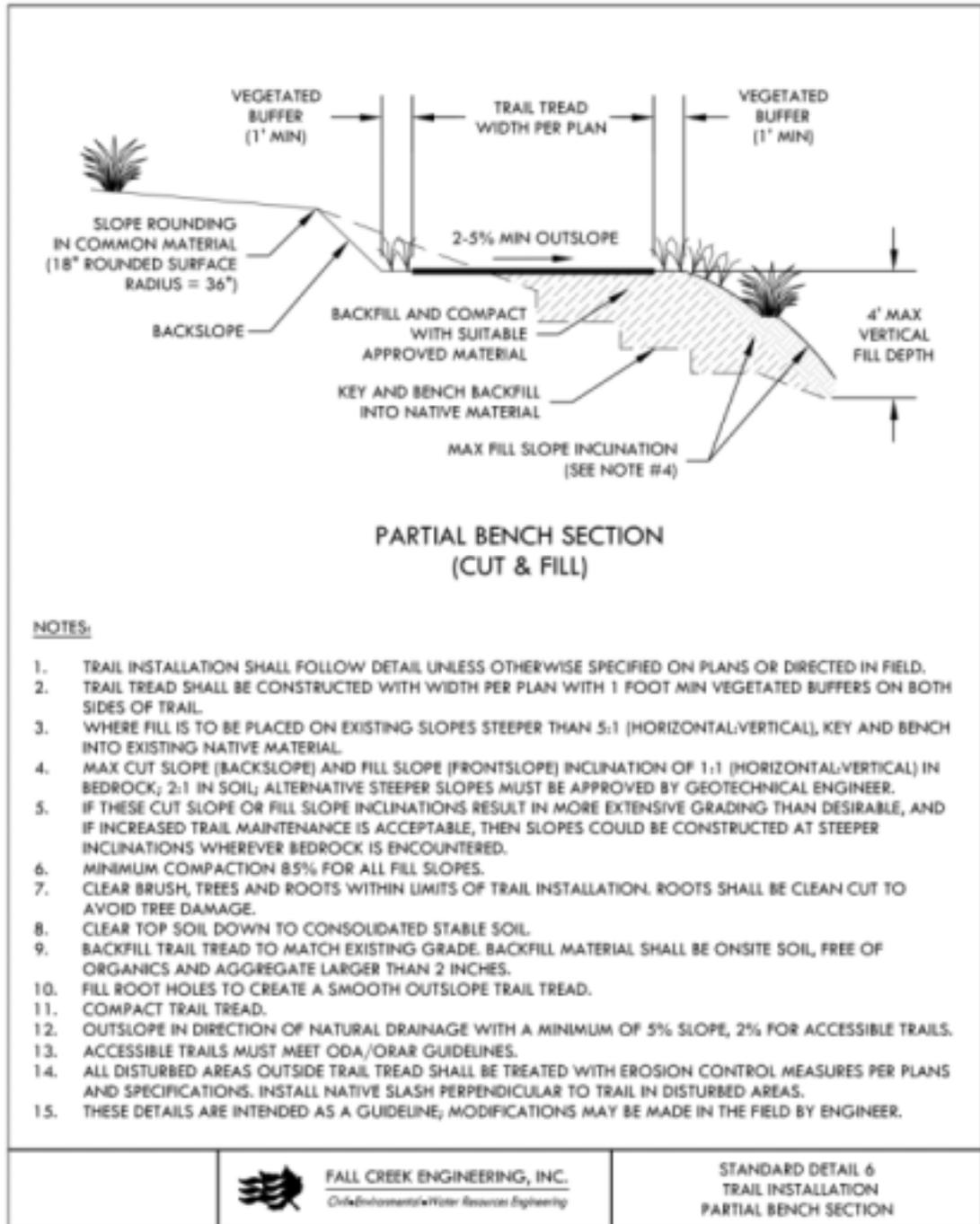
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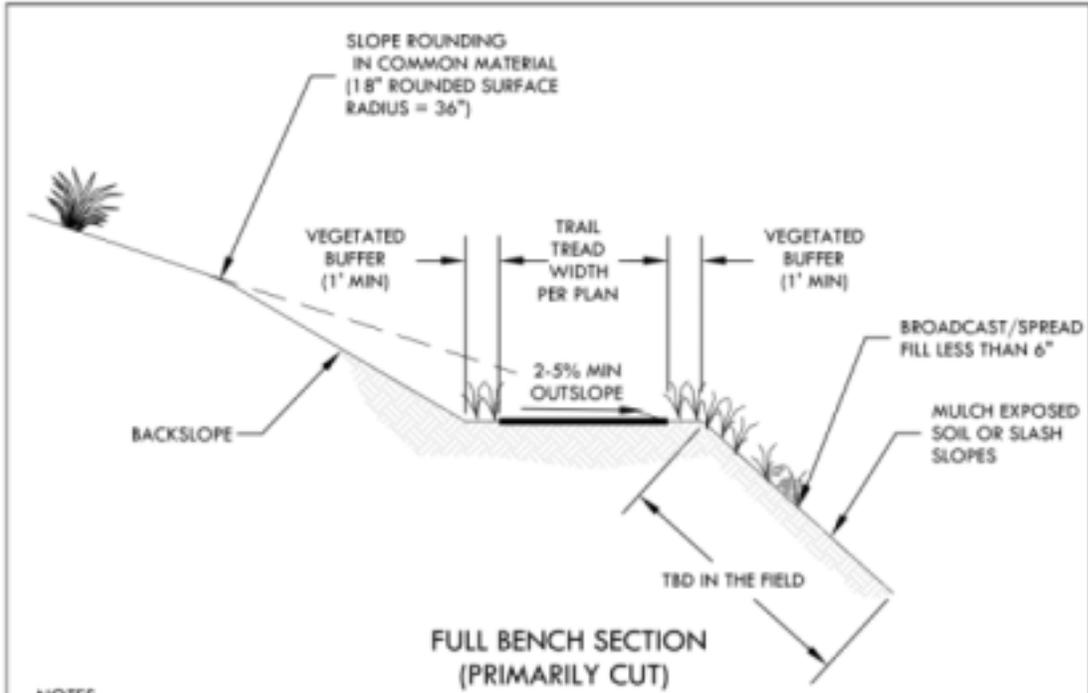
1. TRAIL INSTALLATION SHALL FOLLOW DETAIL UNLESS OTHERWISE SPECIFIED ON PLANS OR DIRECTED IN FIELD.
2. TRAIL TREAD SHALL BE CONSTRUCTED WITH WIDTH PER PLAN WITH 1 FOOT MIN VEGETATED BUFFERS ON BOTH SIDES OF TRAIL.
3. CLEAR BRUSH, TREES AND ROOTS WITHIN LIMITS OF TRAIL INSTALLATION. ROOTS SHALL BE CLEAN CUT TO AVOID TREE DAMAGE.
4. CLEAR TOP SOIL DOWN TO CONSOLIDATED STABLE SOIL.
5. BACKFILL TRAIL TREAD TO MATCH EXISTING GRADE. BACKFILL MATERIAL SHALL BE ONSITE SOIL, FREE OF ORGANICS AND AGGREGATE LARGER THAN 2 INCHES.
6. FILL ROOT HOLES TO CREATE A SMOOTH OUTSLOPE TRAIL TREAD.
7. COMPACT TRAIL TREAD.
8. OUTSLOPE IN DIRECTION OF NATURAL DRAINAGE WITH A MINIMUM OF 5% SLOPE OR 2% FOR ACCESSIBLE TRAILS.
9. ACCESSIBLE TRAILS MUST MEET ODA/ORAR GUIDELINES.
10. ALL DISTURBED AREAS OUTSIDE TRAIL TREAD SHALL BE TREATED WITH EROSION CONTROL MEASURES PER PLANS AND SPECIFICATIONS. INSTALL NATIVE SLASH PERPENDICULAR TO TRAIL IN DISTURBED AREAS.
11. THESE DETAILS ARE INTENDED AS A GUIDELINE, MODIFICATIONS MAY BE MADE IN THE FIELD BY ENGINEER.



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*On the Environment's Water Resource Engineering*

STANDARD DETAIL 5  
 TRAIL INSTALLATION  
 INSTALL TRAIL ON GRADE





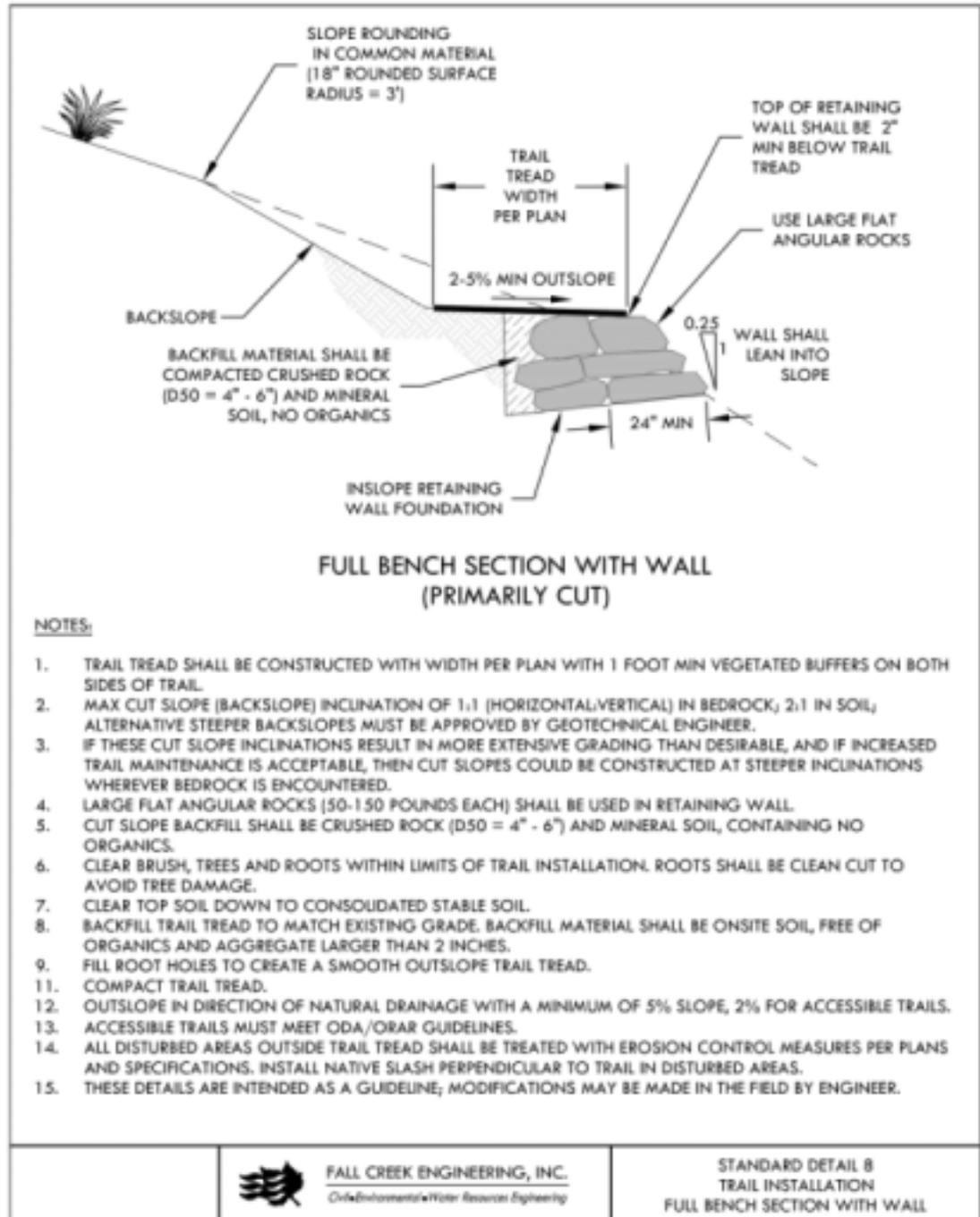
**NOTES:**

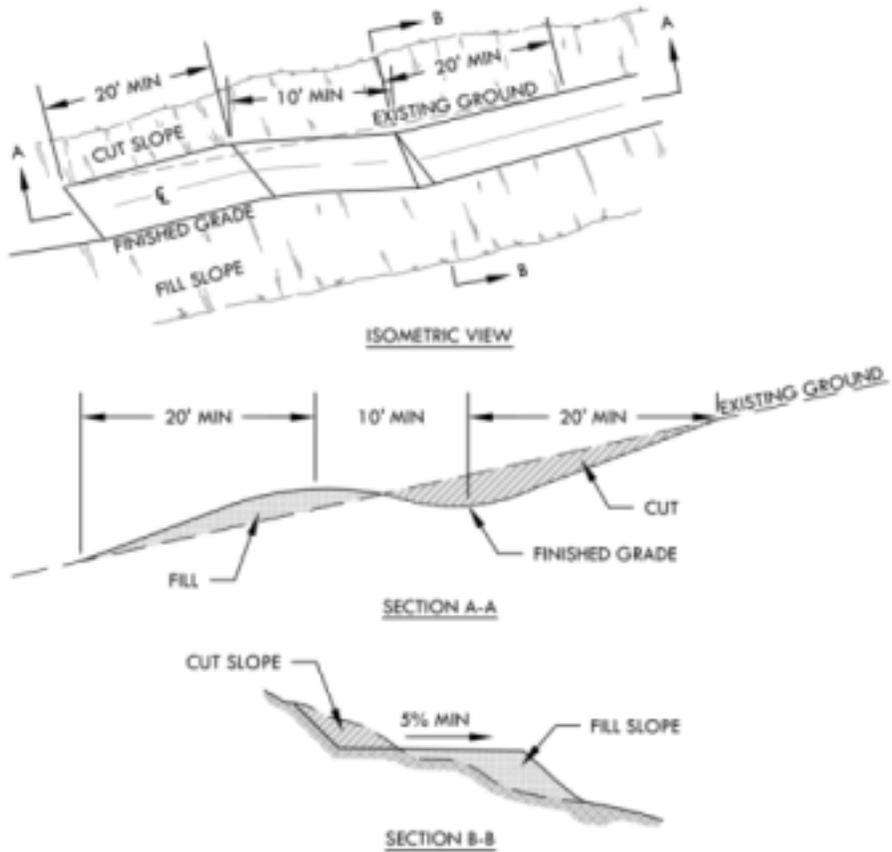
1. TRAIL INSTALLATION SHALL FOLLOW DETAIL UNLESS OTHERWISE SPECIFIED ON PLANS OR DIRECTED IN FIELD.
2. TRAIL TREAD SHALL BE CONSTRUCTED WITH WIDTH PER PLAN WITH 1 FOOT MIN VEGETATED BUFFERS ON BOTH SIDES OF TRAIL.
3. WHERE TRAIL CONSTRUCTED WITH FULL BENCH, BROADCAST EXCAVATED SOILS BELOW TRAIL TO A DEPTH LESS THAN 6 INCHES.
4. MAX CUT SLOPE (BACKSLOPE) INCLINATION OF 1:1 (HORIZONTAL/VERTICAL) IN BEDROCK; 2:1 IN SOIL; ALTERNATIVE STEEPER BACKSLOPES MUST BE APPROVED BY GEOTECHNICAL ENGINEER.
5. IF THESE CUT SLOPE INCLINATIONS RESULT IN MORE EXTENSIVE GRADING THAN DESIRABLE, AND IF INCREASED TRAIL MAINTENANCE IS ACCEPTABLE, THEN CUT SLOPES COULD BE CONSTRUCTED AT STEEPER INCLINATIONS WHEREVER BEDROCK IS ENCOUNTERED.
6. CLEAR BRUSH, TREES AND ROOTS WITHIN LIMITS OF TRAIL INSTALLATION. ROOTS SHALL BE CLEAN CUT TO AVOID TREE DAMAGE.
7. CLEAR TOP SOIL DOWN TO CONSOLIDATED STABLE SOIL.
8. BACKFILL TRAIL TREAD TO MATCH EXISTING GRADE. BACKFILL MATERIAL SHALL BE ONSITE SOIL, FREE OF ORGANICS AND AGGREGATE LARGER THAN 2 INCHES.
9. FILL ROOT HOLES TO CREATE A SMOOTH OUTLOPE TRAIL TREAD.
10. COMPACT TRAIL TREAD.
11. OUTSLOPE IN DIRECTION OF NATURAL DRAINAGE WITH A MINIMUM OF 5% SLOPE, 2% FOR ACCESSIBLE TRAILS.
12. ACCESSIBLE TRAILS MUST MEET ODA/ORAR GUIDELINES.
13. ALL DISTURBED AREAS OUTSIDE TRAIL TREAD SHALL BE TREATED WITH EROSION CONTROL MEASURES PER PLANS AND SPECIFICATIONS. INSTALL NATIVE SLASH PERPENDICULAR TO TRAIL IN DISTURBED AREAS.
14. THESE DETAILS ARE INTENDED AS A GUIDELINE; MODIFICATIONS MAY BE MADE IN THE FIELD BY ENGINEER.



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*Civil/Environmental/Water Resources Engineering*

STANDARD DETAIL 7  
 TRAIL INSTALLATION  
 FULL BENCH SECTION





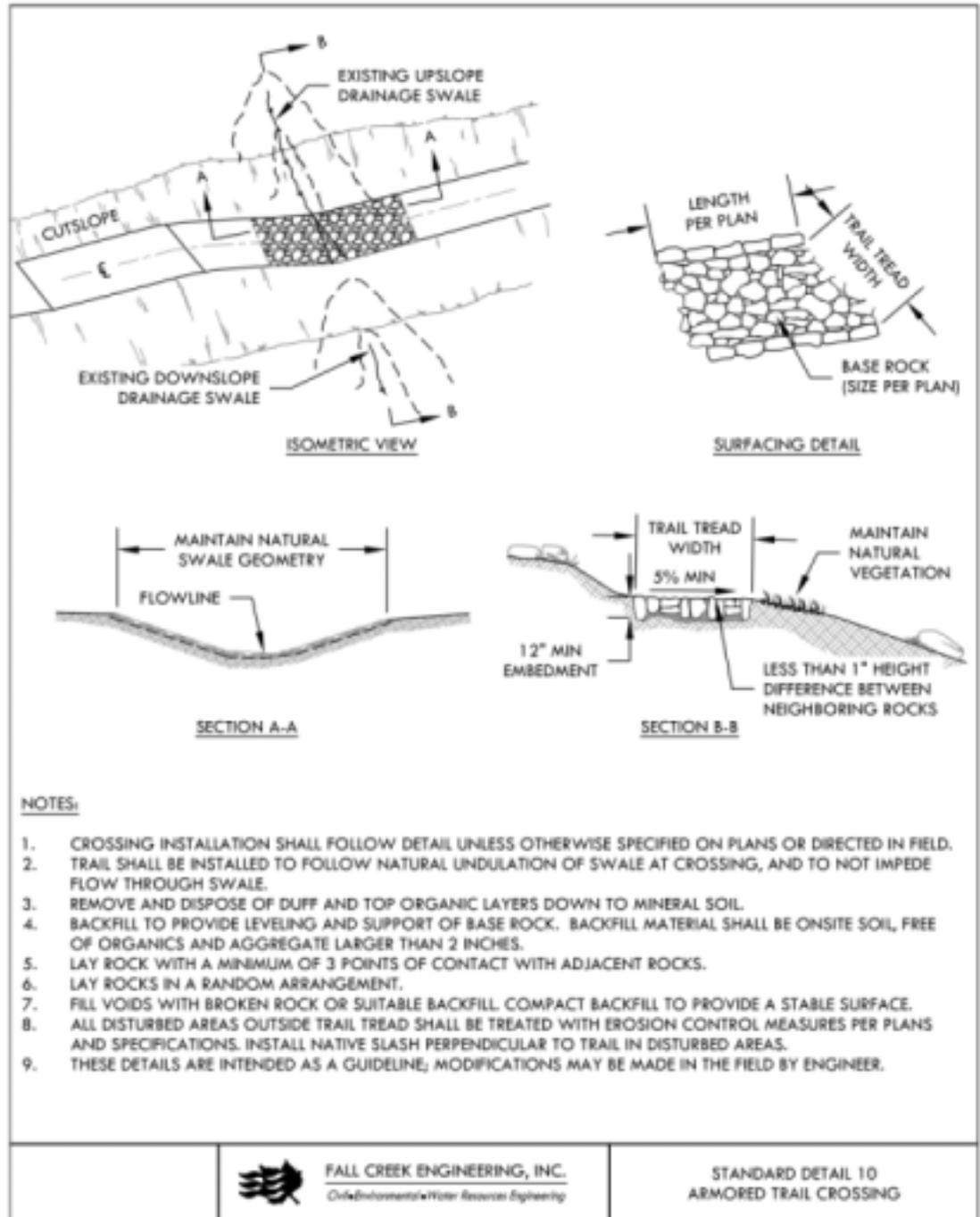
**NOTES:**

1. GRADE REVERSAL SHALL FOLLOW DETAIL UNLESS OTHERWISE SPECIFIED ON PLANS OR DIRECTED IN FIELD.
2. TRAIL SHALL BE INSTALLED TO FOLLOW NATURAL UNDULATION OF SWALE AT CROSSING, AND TO NOT IMPEDE FLOW THROUGH SWALE.
3. GRADE REVERSAL SHALL BE PLACED AT INTERVALS AS SPECIFIED IN THE PLANS. IF NOT SPECIFIED, GRADE REVERSALS SHALL BE PLACED AT A MAXIMUM 150 FOOT SPACING.
4. MAX CUT SLOPE (BACKSLOPE) AND FILL SLOPE (FRONTSLOPE) INCLINATION OF 1:1 (HORIZONTAL:VERTICAL) IN BEDROCK; 2:1 IN SOIL; ALTERNATIVE STEEPER SLOPES MUST BE APPROVED BY GEOTECHNICAL ENGINEER.
5. IF THESE CUT SLOPE OR FILL SLOPE INCLINATIONS RESULT IN MORE EXTENSIVE GRADING THAN DESIRABLE, AND IF INCREASE TRAIL MAINTENANCE IS ACCEPTABLE, THEN SLOPES COULD BE CONSTRUCTED AT STEEPER INCLINATIONS WHEREVER BEDROCK IS ENCOUNTERED.
6. ALL DISTURBED AREAS OUTSIDE TRAIL TREAD SHALL BE TREATED WITH EROSION CONTROL MEASURES PER PLANS AND SPECIFICATIONS. INSTALL NATIVE SLASH PERPENDICULAR TO TRAIL IN DISTURBED AREAS.
7. THESE DETAILS ARE INTENDED AS A GUIDELINE; MODIFICATIONS MAY BE MADE IN THE FIELD BY ENGINEER.



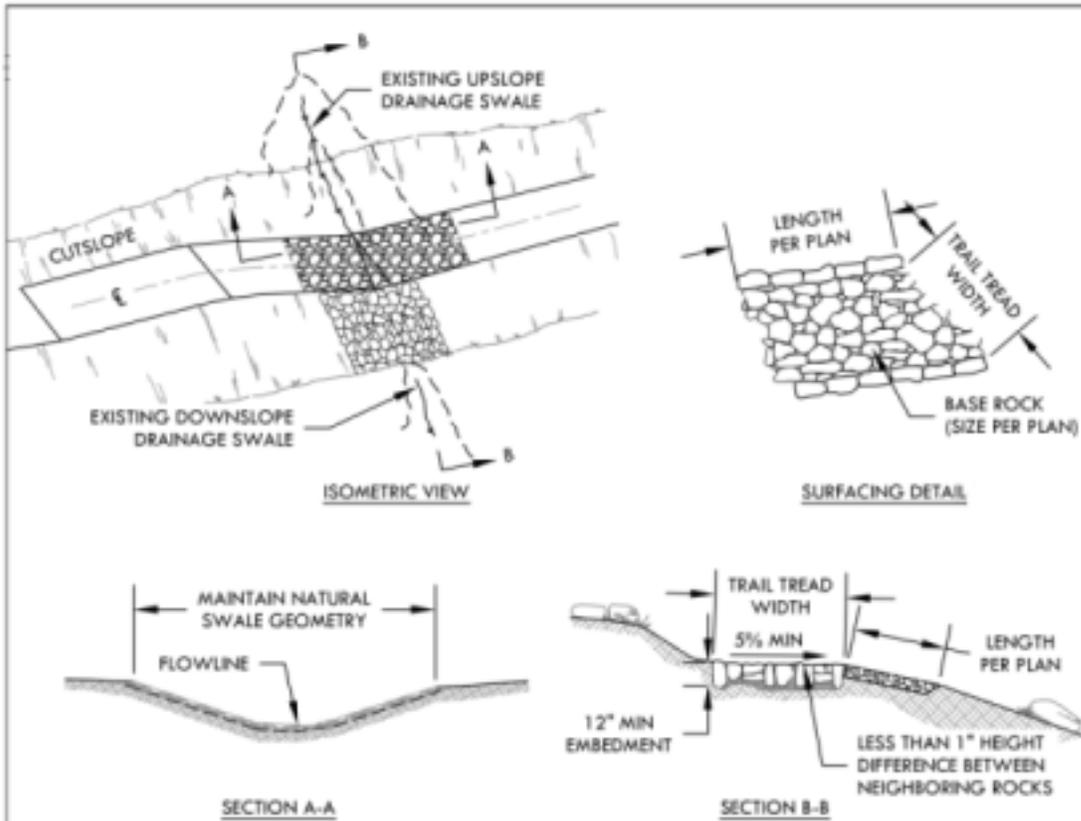
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STANDARD DETAIL 9  
 GRADE REVERSAL



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STANDARD DETAIL 10  
 ARMORED TRAIL CROSSING



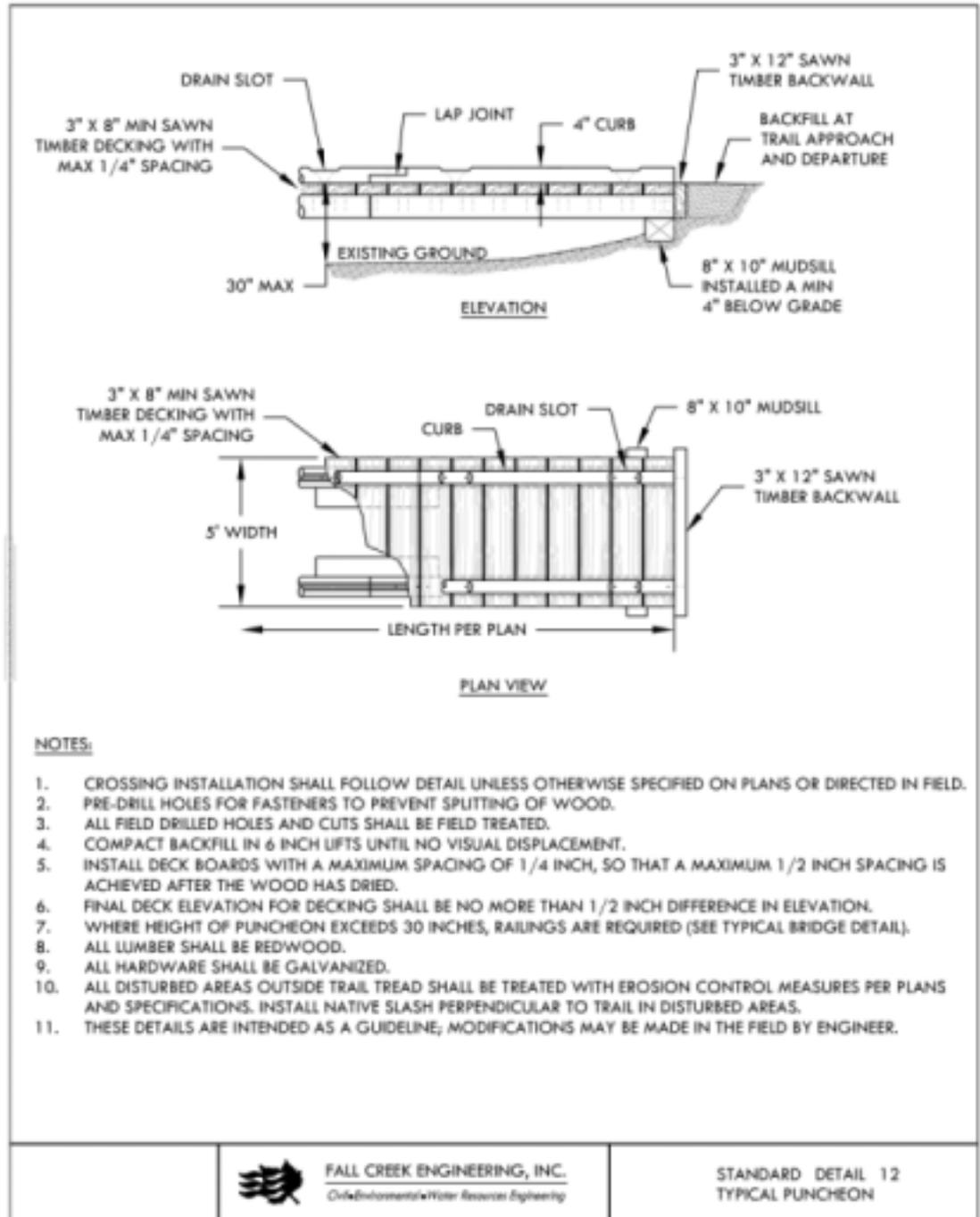
**NOTES:**

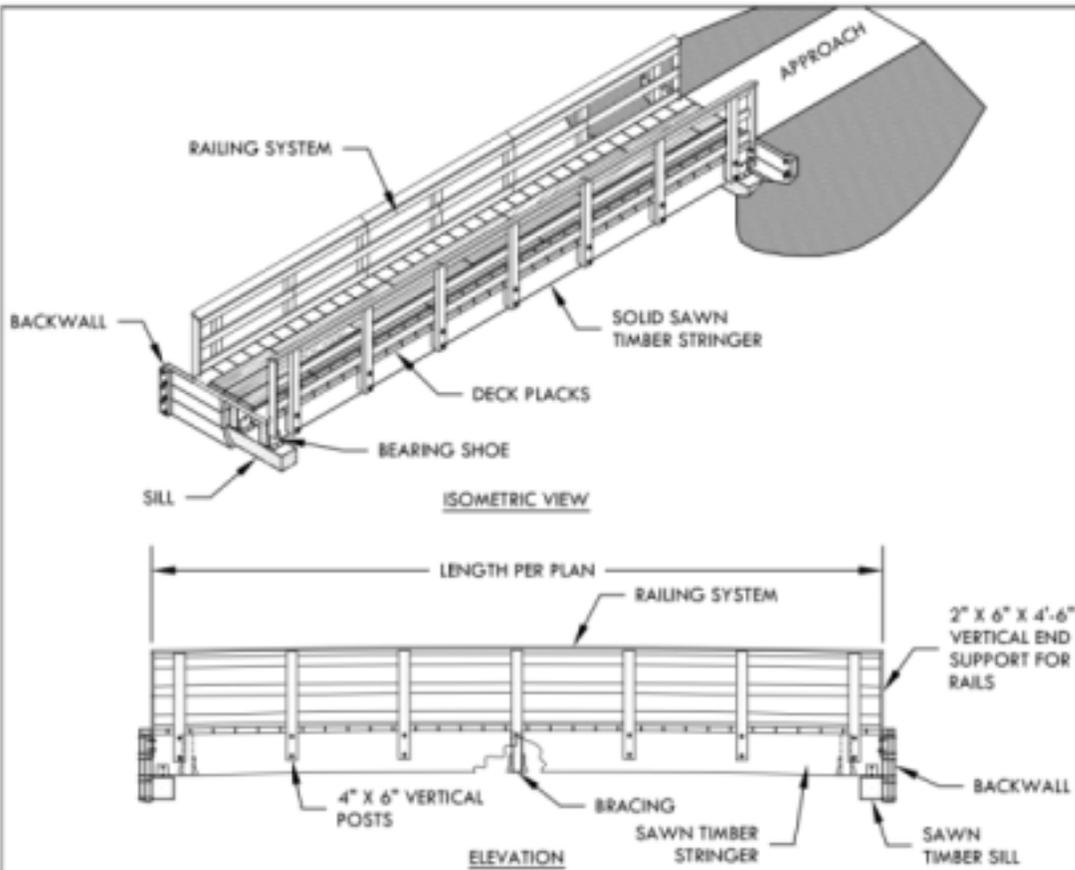
1. CROSSING INSTALLATION SHALL FOLLOW DETAIL UNLESS OTHERWISE SPECIFIED ON PLANS OR DIRECTED IN FIELD.
2. TRAIL SHALL BE INSTALLED TO FOLLOW NATURAL UNDULATION OF SWALE AT CROSSING, AND TO NOT IMPEDE FLOW THROUGH SWALE.
3. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.
4. BACKFILL TO PROVIDE LEVELING AND SUPPORT OF BASE ROCK. BACKFILL MATERIAL SHALL BE ONSITE SOIL, FREE OF ORGANICS AND AGGREGATE LARGER THAN 2 INCHES.
5. LAY ROCK WITH A MINIMUM OF 3 POINTS OF CONTACT WITH ADJACENT ROCKS.
6. LAY ROCKS IN A RANDOM ARRANGEMENT.
7. FILL VOIDS WITH BROKEN ROCK OR SUITABLE BACKFILL. COMPACT BACKFILL TO PROVIDE A STABLE SURFACE.
8. ALL DISTURBED AREAS OUTSIDE TRAIL TREAD SHALL BE TREATED WITH EROSION CONTROL MEASURES PER PLANS AND SPECIFICATIONS. INSTALL NATIVE SLASH PERPENDICULAR TO TRAIL IN DISTURBED AREAS.
9. THESE DETAILS ARE INTENDED AS A GUIDELINE; MODIFICATIONS MAY BE MADE IN THE FIELD BY ENGINEER.



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*Only Environmental & Water Resource Engineering*

STANDARD DETAIL 11  
 ARMORED TRAIL CROSSING WITH  
 DOWNSTREAM ARMOR





**NOTES:**

1. CROSSING INSTALLATION SHALL FOLLOW DETAIL UNLESS OTHERWISE SPECIFIED ON PLANS OR DIRECTED IN FIELD.
2. PRE-DRILL HOLES FOR FASTENERS TO PREVENT SPLITTING OF WOOD.
3. ALL FIELD DRILLED HOLES AND CUTS SHALL BE FIELD TREATED.
4. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
5. INSTALL DECK BOARDS WITH A MAXIMUM SPACING OF 1/4 INCH, SO THAT A MAXIMUM 1/2 INCH SPACING IS ACHIEVED AFTER THE WOOD HAS DRIED.
6. FINAL DECK ELEVATION FOR DECKING SHALL BE NO MORE THAN 1/2 INCH DIFFERENCE IN ELEVATION.
7. ALL LUMBER SHALL BE REDWOOD.
8. ALL HARDWARE SHALL BE GALVANIZED.
9. ALL DISTURBED AREAS OUTSIDE TRAIL TREAD SHALL BE TREATED WITH EROSION CONTROL MEASURES PER PLANS AND SPECIFICATIONS. INSTALL NATIVE SLASH PERPENDICULAR TO TRAIL IN DISTURBED AREAS.
10. THESE DETAILS ARE INTENDED AS A GUIDELINE; MODIFICATIONS MAY BE MADE IN THE FIELD BY ENGINEER.



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*Chief Environmental/Water Resource Engineering*

STANDARD DETAIL 13  
 TYPICAL BRIDGE

## PLANTING

All new planting on the property should be native, regionally appropriate, and consistent with any guidelines. Any cut surfaces or fill should be planted with native groundcovers.

## SITE FURNISHINGS

In addition to the site furnishings located at the staging area(s), rest stops with benches should be strategically located along trails to emphasize scenic views, encourage a diversity of experiences, and provide shade and other pedestrian comforts. Site furnishings must be located outside of the dripline of redwood trees.

As true for all park features, site furnishings should be made of durable materials, such as concrete, metal, wood, or locally sourced stone, and should have natural or neutral colored finishes. For example, cut log stools for gathering areas.

## SIGNAGE

Clear signage should be installed and maintained at the staging area(s), at property boundaries, and on all trails that includes allowable uses, proper trail etiquette, and wayfinding. Trailhead signage should include length, surface type, typical and minimum trail width, and typical and minimum running and cross slopes. Interpretative and educational signage should communicate rules while also fostering a stewardship ethic.

To minimize the introduction of invasive plants or plant pathogens that could threaten sensitive vegetation, staging and parking areas should include signage or other materials aimed at instructing the general public on the potential threats associated with invasive plants, plant pathogens, and other pests of concern. These materials should include basic prevention methods that the general public can implement such as inspecting shoes and pet fur for weed seeds or avoiding the movement of plant material or soil from one area to another. This education signage should be in place prior to opening the trails for public access and should be maintained annually by the Public Access Manager to ensure that signage is not obstructed and is legible at all times. Trail closures must also be identified through clear onsite signage and gates, if warranted.

Signage should be durable and framing/support structures should be made of natural materials, where possible.

## CONSTRUCTION PROTOCOLS

Construction protocols to further ensure the protection of biological and cultural resources, and water quality are listed under the corresponding topic.

### BIOLOGICAL RESOURCES

A site-specific *Biological Resources Assessment* (BRA) was prepared for the areas with planned development under the Public Access Plan and is included in Appendix 4 (Biological Resources Assessment). Implementation of the following biological resources (BR) construction protocol is required to mitigate adverse impacts to biological resources and ensure the protection of sensitive biological communities:

#### BR 1 PROTECT SENSITIVE COMMUNITIES

- BR 1.1 The construction work area including the parking area shall be minimized to the fullest extent feasible and trails shall be limited to the minimum width necessary to support the proposed use (i.e., hiking, cycling, and horse riding) as detailed in Table 7-1 (Trail Dimensions by Use Type).
- BR 1.2 Prior to the start of construction, all construction personnel shall be educated on the sensitivity of the biological communities and species at the site by a qualified, County-approved biologist. Environmental awareness training shall include measures to avoid or reduce impacts to the community, reporting and follow-up actions if sensitive biological communities are impacted, and the worker's responsibility under the applicable environmental regulation(s). A designated staff member from the contractor's crew shall provide follow-up training to any employees who begin work after the initial pre-construction training.

- BR 1.3 Trails should be routed around sensitive vegetation to the fullest extent feasible. At a minimum, the full width of the trail (i.e., the full extent of vegetation removal and ground disturbance during construction) should avoid the dripline of sensitive vegetation, with greater separation between the trail and sensitive vegetation being preferred. If trails are re-routed, they should be re-routed downslope of any sensitive vegetation to avoid causing erosion or sedimentation issues which could be detrimental to sensitive vegetation.
- BR 1.4 Tree and shrub removal in sensitive biological communities shall be minimized to the fullest extent feasible. Where necessary, obtaining a tree removal permit may be required per Santa Cruz County Municipal Code Chapter 16.34, Significant Trees Protection. Tree removal should be conducted by a licensed arborist or registered professional forester using industry-standard best management practices (BMPs) to prevent the spread of invasive weeds or plant pathogens and avoid damage to vegetation to be retained.
- BR 1.5 Trail construction shall incorporate the best available technology and industry-standard Best Management Practices (BMPs) to minimize the potential for detrimental impacts such as erosion or sedimentation and to minimize the need for future maintenance. See Standard Details 5 through 13.
- BR 1.6 Any restoration or landscape plantings (e.g., plantings around the proposed parking/staging area) shall use native species appropriate for plant communities found at the site. To the extent feasible, plant material shall be salvaged from trail construction activities at the site. If not possible, plant material shall be propagated by a reputable nursery with protocols in place for minimizing the potential spread of plant diseases (sudden oak death or other *Phytophthora*-related diseases). Any propagated plant material shall be sourced from as close to the site as possible, ideally from within the site itself to avoid genetic variation.
- BR 1.7 Stream crossings should ideally be designed and constructed to freespan the channel and be anchored above the top of bank. Crossings of regulated streams that avoid work below the ordinary

high-water mark do not require a permit from the USACE. When required, notify the CDFW and the Central Coast RWQCB of the crossing, even if located above the top of bank. If the CDFW and/or RWQCB issue authorizations for such work, the measures included in any such authorizations shall be incorporated into the design.

- BR 1.8 Where wetlands or streams cannot be avoided, appropriate approvals from the USACE (for impacts to regulated wetlands or areas below the ordinary high water mark of regulated streams) and/or the RWQCB and the CDFW (for impacts to regulated wetlands, riparian vegetation, or areas below the top of bank of regulated streams) shall be secured prior to initiating work in these areas. The measures included in any such authorizations shall be incorporated into the design.
- BR 1.9 Trails constructed near wetlands or streams shall be designed to minimize changes to pre-project hydrology. Avoid erosion or sedimentation by installing BMPs (e.g., silt fencing, wattles, sterile straw, hydromulch, geotextile fabrics, sediment traps, drainage swales, or sandbag dikes) around wetlands and streams. All materials shall be certified weed-free and must be constructed of natural materials. No plastic monofilament netting may be used. The exact location and configuration of BMPs shall be determined by the contractor based on specific site conditions and the type of work being conducted. BMPs shall remain in place until all disturbed ground has been stabilized either through compaction or re-vegetation.
- BR 1.10 Equipment used for building new trails should generally have tread width of 48 inches or less and mass less than 10,000 pounds.
- BR 1.11 To avoid the introduction and prevent the spread of invasive weeds or plant pathogens, prior to arriving on the site, all construction equipment and vehicles shall be inspected to ensure they are clean.
- BR 1.12 Any equipment or vehicles that have been used in areas with known sudden oak death or other *Phytophthora*-related plant diseases shall be sterilized before being used and inspected by a qualified, County-approved biologist prior to entering the job site.

BR 1.13 All disturbed ground shall be stabilized concurrent with or immediately following construction. Stabilization methods may include: compacting the soil (for trail surfaces only), covering disturbed soils with duff and leaf litter as well as branches removed for construction of trails, revegetation using appropriate native plant species, or use of other standard erosion control measures such as weed-free straw or hydromulch. If disturbed areas are to be revegetated, only native plants appropriate for the habitat shall be used per Protocol BR 1.6. If other erosion control materials are to be used, they shall be certified weed-free and as otherwise specified in Protocol BR 1.9.

BR 1.14 The importation of soils for construction of the parking area or other parts of the site shall be minimized to the fullest extent feasible. To the extent feasible, soils shall be salvaged from onsite before being imported from offsite. If it is necessary to import soils, they shall be certified weed-free and from a qualified, County-approved source with protocols in place for minimizing the potential spread of plant diseases (e.g., sudden oak death or other *Phytophthora*-related diseases).

BR 1.15 Equipment and vehicle fueling and maintenance parking areas shall be at least 100 feet from any wetland or stream. A spill containment kit shall be provided at the work site and located within 50 feet of the fueling or maintenance area. All spills shall be cleaned immediately (i.e., within 5 minutes of the spill) and all resulting materials shall be disposed of properly. All construction vehicles shall be inspected daily for leaks of oil, hydraulic fluid, or other potentially hazardous materials by a qualified construction crew member and drip pans shall be placed under parked vehicles during prolonged periods of disuse (e.g., during evenings and weekends).

## BR 2 PROTECT SPECIAL-STATUS PLANT SPECIES

In addition to implementing Protocol BR 1.1 through 1.15, the following construction protocols are required to ensure the protection of special-status plant species.

BR-2.1 All occurrences of special-status plants within 50 feet of any work areas shall be flagged by a qualified, County-approved biologist prior to

construction. Where work will occur within 10 feet of a special-status plant to be preserved, orange construction fencing (or similar) shall be installed at the edge of the work area and no work shall occur beyond the fence. If there are occurrences of special-status plants downslope from the work area, silt fencing shall be installed at the edge of the work area to prevent soil or other materials from being transported downslope where they may impact special-status plants.

- BR-2.2 Occurrences of special-status plants shall be avoided by re-routing the trail alignment to the extent feasible and practicable. Where this is not possible, impacts to special-status plants shall be minimized by reducing the trail width and associated vegetation removal to the fullest extent feasible. At a minimum, the full width of the trail (i.e., the full extent of vegetation removal) should avoid the dripline of any special-status shrubs and should avoid special-status herbs by a minimum of 10 feet. If trails are re-routed, they should be re-routed downslope, where feasible, of any special-status plants to avoid causing erosion or sedimentation issues which could be detrimental to special-status plants. If not feasible then re-route the drainage away from the special-status plants. If other considerations such as slope or soil stability make it impossible to avoid special-status plants, a qualified, County-approved biologist shall apply a combination of propagation from local seed and habitat enhancement to repair, rehabilitate, or restore the impacted environment.

### BR 3 PROTECT SPECIAL-STATUS WILDLIFE SPECIES

- BR 3.1 Tree removal and trimming, regardless of size, may take place outside of both the maternity and hibernation period for special-status bats (between September 1st and October 31st) and avoid the breeding bird window per Protocols BR 3.4 and BR 3.5. Tree removal can take place during this period (between September 1st and October 31st) without a breeding bird or bat roost survey.
- BR 3.2 If removal of large trees (e.g., the Diameter at Breast Height [DBH] is greater than 12 inches) occurs during the bat roosting season (November 1st through August 31st), these trees shall be inspected by a qualified, County-approved biologist for the presence of bat roosts. If

a maternity roost is detected, up to a 200-foot buffer shall be placed around the maternity site until the bats are no longer utilizing the site. Non-maternity roost sites can be removed under the direction of a qualified, County-approved biologist. Any large tree that will be removed shall be left on the ground for 24 hours before being taken offsite or being chipped. This period will allow any day-roosting bats the opportunity to leave before the tree is either removed from the area or is chipped.

- BR 3.3 Consultation with the CDFW shall be initiated to determine appropriate conservation measures if active roosting bat sites are disturbed.
- BR 3.4 Conduct pre-construction breeding bird surveys if construction, vegetation removal, or ground disturbance activities occur during the breeding season (February 1 to August 31). Pre-construction surveys shall be conducted by a qualified individual within 14 days of the start of these activities to avoid disturbance of active nests, eggs, and/or young. If these activities stop or lapse for a period of 14 days or more during the breeding season, a follow-up breeding bird survey shall be conducted to ensure no new breeding activity has occurred within the anticipated work area. Outside of the breeding season, no pre-construction breeding bird survey would be required for construction, vegetation removal, or ground disturbance activities.
- BR 3.5 If nesting birds are identified, an exclusion zone in which no construction activities would be allowed shall be established around any active nests of any avian species protected by the Migratory Bird Treaty Act and California Fish and Game Code until a qualified, County-approved biologist has determined that all young have fledged. Suggested exclusion zone distances differ depending on species, location, and placement of nest, and shall be at the discretion of the biologist based on the species in question, the proximity of the nest to the work area, and the type of work being conducted (e.g., use of hand tools versus gas-operated machinery).
- BR 3.6 During construction, all workers shall ensure that food scraps, paper wrappers, food containers, cans, bottles, and other trash from the

construction area is deposited in covered or closed trash containers. The trash containers shall not be left open and unattended overnight.

- BR 3.7 A pre-construction survey of the parking area shall be conducted by a qualified, County-approved biologist to flag and delineate any woodrat middens within the planned disturbance footprint. During construction of the parking area, a biological monitor shall be onsite to ensure vegetation and ground disturbance with heavy equipment shall not impact those delineated resources. When avoidance of woodrat middens is not possible, the qualified, County-approved biologist shall dismantle the nest in accordance with Protocol BR 3.9.
- BR 3.8 During construction and trail installation, a qualified, County-approved biologist or trained designee from the contractor's crew shall identify woodrat middens located along the trail alignment. If the latter, a qualified, County-approved biologist shall provide the training prior to the start of each construction phase. To the extent feasible and practicable, the trail alignment shall avoid woodrat middens by re-routing the trail alignment. Where this is not possible, implementation of Protocol BR 3.9 would be required.
- BR 3.9 When construction of the trail alignment or the parking area would result in a direct impact to a woodrat midden, a qualified, County-approved biologist shall dismantle the nest and scatter the nest material a minimum of 10 feet outside of the trail alignment or the footprint of the staging area. If woodrat middens with young are encountered during the dismantling process, the material shall be placed back on the nest and the nest shall remain unmolested for three weeks in order to give the young enough time to mature and leave on their own accord. After three weeks, the nest dismantling process may resume. In the event that a nest must be relocated, the following procedures shall be adhered to:
- a) Prior to nest disturbance, the biologist shall obtain from CDFW a scientific collection permit for the trapping of the dusky-footed wood rats.

- b) Nests shall be disturbed or dismantled only during the non-breeding season, between October 1 and December 31.
- c) At least two weeks prior to construction, the qualified biologist shall survey the project disturbance area to confirm the wood rat nest location and locate any other nests that may have been built in the project vicinity that may be affected by the proposed development.
- d) Prior to nest disturbance, woodrats shall be trapped at dusk of the night set for relocation of the nest(s).
- e) Any existing nest that may be disturbed by construction activities shall be mostly dismantled and the material spread in the vicinity of identified nest relocation site(s).
- f) In order to avoid the potential health effects associated with handling rodents and their milieu, all workers involved in the handling of the wood rats or the nest materials should wear protective gear to prevent inhalation of contaminant particulates, contact with conjunctiva (eyes), and protection against flea bites; a respirator, eye protection, and skin protection should all be used.
- g) Dismantling shall be done by hand, allowing any animals not trapped to scape either along existing wood rat trails or toward other available habitat.
- h) If a litter of young is found or suspected, nest materials shall be replaced, and the nest left along for 2-3 weeks before recheck to verify that young are capable of independent survival before proceeding with nest dismantling.
- i) Woody debris shall be collected from the area and relocated nests shall be partially constructed in an area determined by the qualified biologist to be both suitable for the wood rats and far enough away from the construction activities that they will not be impacted.

- j) Rats that were collected at dusk shall be released hours before dawn near the newly constructed nests to allow time for rats to find refuge.
- k) Once construction is complete, the biologist shall survey the nest area to note whether the new nests are in use, the wood rats have built new nests, or the nest area has been completely abandoned. This information shall be reported in a letter report to the Environmental Planning Section of the Planning Department, and the local CDFW biologist.

BR 3.10 A qualified, County-approved biologist shall conduct a pre-construction survey immediately prior to the start of any ground-disturbing activities for stream crossings and areas within 100 feet of wetted features. If California red-legged frog (CRLF) are found within the work area, all work shall cease within the immediate vicinity (approximately 25 feet around the work area) until the individual(s) have been allowed to leave the work area on their own. If CRLF cannot passively leave the work area, work shall cease and the USFWS shall be contacted by the qualified, County-approved biologist to determine the appropriate course of action. The qualified, County-approved biologist shall then implement the appropriate course of action as determined by the USFWS.

BR 3.11 Because dusk and dawn are often the times when CRLF are most active and likely to disperse, all construction activities shall cease one half hour before sunset and shall not begin prior to one half hour before sunrise. Furthermore, no mechanized work shall occur during significant rain events, defined here as 0.25 inch or greater within a 24-hour period, when CRLF are more likely to disperse and occur within the work area.

#### CULTURAL RESOURCES

A site-specific *Cultural Resources Study* was prepared for areas with planned development under the Public Access Plan. The Study includes confidential information regarding the locations of archaeological resources that are protected by law and is therefore, not available to the general public.

Implementation of the following cultural resources (CR) construction protocol is based on the findings of the *Cultural Resource Study* and is required to mitigate adverse impacts to cultural resources and ensure the protection of cultural resources:

CR 1 PROTECT ARCHEOLOGICAL RESOURCES

CR 1.1 Prior to the start of construction, all construction personnel shall be educated on the identification and treatment of prehistoric and/or historic artifacts that may be discovered by a qualified, County-approved archaeologist who meets the Secretary of Interior standards or a registered, County-approved forester who has successfully completed the California Department of Forestry and Fire Protection (CAL FIRE) archeology program.

CR 1.2 If ground disturbing activity takes place and possible artifacts are discovered, then all construction activities within a 50-foot radius of the find shall be halted immediately and a qualified, County-approved archaeologist who meets the Secretary of Interior standards (including CAL FIRE archeologists) shall be consulted to determine whether the resource requires further study. (Note, it is CAL FIRE policy that registered professional “foresters” do not perform significance evaluations of cultural resources). Prehistoric archaeological site indicators include: obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g., slabs and handstones, and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible addition of bone and shell remains, and fire affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps). Any previously undiscovered resources found during construction activities shall be recorded on appropriate California Department of Parks and Recreation (DPR) forms and evaluated for significance in terms of the California Environmental Quality Act (CEQA) criteria by a qualified archeologist. If the resource is

determined significant under CEQA, the qualified archaeologist shall prepare and implement a research design and archaeological data recovery plan that will capture those categories of data for which the site is significant. The archaeologist shall also perform appropriate technical analyses; prepare a comprehensive report complete with methods, results, and recommendations; and provide for the permanent curation of the recovered resources. The report shall be submitted to the County of Santa Cruz, Northwest Information Center (NWIC), and State Historic Preservation Office (SHPO), if required.

- CR 1.3 When trail building in the vicinity of sites P-44-000069, P-44-000070, P-44-000071, P-44-000123, and P-44-000596 as identified in the Cultural Resources Study dated October 2017 and on file with the County, a County-approved, qualified archaeologist who meets the Secretary of the Interior standards or a County-approved, registered forester who has successfully completed the CAL FIRE archaeology program shall be present during the initial ground-disturbing phase of construction. Selected portions of proposed trail routes may be in close proximity to sites P-44-000069, P-44-000070, P-44-000071, P-44-000123, and P-44-000596, and monitoring at locations shown on Figure 3 and Figure 4 of the Cultural Resources Study is required. If archaeological specimens are discovered, a qualified archaeologist who meets the Secretary of the Interior standards should evaluate their significance.
- CR 1.4 For sites P-44-000596 and Camp ZZZ, a signage program at all entrances shall be developed by the applicant prior to final inspection at the entrances to the property. Signs shall include a brief description of the history of San Vicente Railroad, including various camps throughout the area, a discussion of the historic value of the sites, and the citation of the regulatory codes that protect artifacts. The signage shall also include the requirements to stay on trails.
- CR 1.5 If a trail is planned at site P-44-000596, the trail shall be constructed within the old railroad grade wherever possible because no trace of the railroad line, other than the grade is evident. If the trail is planned to be built outside the railroad grade where past land uses have disturbed to ground surface, construction of the trail is acceptable with the

provision that any surface artifacts are avoided and ground disturbance is kept to a minimum. Portions of known railroad grade segments are depicted in Figures 5a and 5b of the Cultural Resources Study.

CR 1.6 If a trail is planned at the Camp ZZZ site to follow the alignment of the existing gravel road, it is acceptable for the trail to follow within the road route because there is no trace of historic-period specimens evident within this alignment.

CR 1.7 The following actions are promulgated in Public Resources Code 5097.98 and Health and Human Safety Code 7050.5, and pertain to the discovery of human remains. If human remains are encountered, excavation or disturbance of the location must be halted in the vicinity of the find, and the county coroner contacted. If the coroner determines the remains are Native American, the coroner shall contact the Native American Heritage Commission. The Native American Heritage Commission will identify the person or persons believed to be "most likely descended" from the deceased Native American. The most likely descendent would then make recommendations regarding the treatment of the remains with appropriate dignity.

CR 1.8 The following text shall be clearly identified on all grading plans and construction drawings: "Pursuant to Sections 16.40.040 (Site Discovered During Excavation or Development) of the Santa Cruz County Code, if archaeological resources are uncovered during construction, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in County Code Chapter 16.40.040."

CR-1.9 The following text shall be clearly identified on all grading plans and construction drawings: "Pursuant to Sections 16.40.040 (Site Discovered During Excavation or Development) of the Santa Cruz County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible person shall immediately cease and desist from all further site excavation and notify the sheriff-coroner and the Planning Director. If the coroner determines that the remains are not of recent origin, a full archaeological report shall be prepared and representatives of the local Native California Indian groups shall be

contacted. If it is determined that the remains are Native American, the Native American Heritage Commission will be notified as required by law. The Commission will designate a Most Likely Descendant who will be authorized to provide recommendations for management of the Native American human remains. Pursuant to Public Resources Code Section 5097, the descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. Disturbance shall not resume until the significance of the archaeological resource is determined and appropriate mitigations to preserve the resource on the site are established.”

#### AIR QUALITY

A site-specific air quality analysis was prepared for the areas with planned development under the Public Access Plan. While all impacts were determined to be well below the significance standards of the Monterey Bay Unified Air Pollution Control District, implementation of the following Air Quality (AQ) construction protocol would be implemented to further minimize emissions from fugitive dust:

##### AQ 1 CONSTRUCTION DUST EMISSIONS

AQ 1.1 During the construction of the parking area, construction emissions from fugitive dust shall be minimized to the fullest extent through implementation of the following Best Management Practices (BMPs) as applicable.

- Water all active construction areas as necessary and indicated by soil and air conditions.
- When materials are transported off site, all material will be covered, or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container will be maintained.
- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, will be effectively stabilized of dust emissions using water, chemical



stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.

- All land clearing, grubbing, scraping, excavation, land leveling, grading, and cut & fill activities will be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- All operations will limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)
- Hydroseed or apply similarly effective soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (nontoxic) soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 20 miles per hour.

## TRAIL MAINTENANCE GUIDELINES

All trails in San Vicente Redwoods will require routine maintenance to ensure the trails are functioning properly and to correct problems before they become significant. The goal is to maintain the trail for safe use, correct erosional problems that may impact natural resources, and preserve trail investment. Lack

of such maintenance could increase long-term upkeep costs, adversely impact the environment, and result in potential offsite impacts. Effective trail maintenance incorporates trail assessments and work plans, trail maintenance and repairs, and scheduling.

## TRAIL ASSESSMENT AND WORK PLAN

### TRAIL ASSESSMENT

The first step in trail maintenance and a key component of adaptive management is to inspect all trails on a routine basis to identify and document current conditions, erosion and incision, evidence of sediment deposit into streams or wetlands, unauthorized trails, and any problem areas in need of improvement. Minor problems, such as clearing trail drainage features of debris, can often be corrected during the assessment whereas sites with heavy maintenance needs may require a trail crew to undertake the improvements. It is at these larger sites where documenting the problems is most useful for scheduling and prioritizing repairs.

During the assessment, sites requiring improvements are documented on a Trail Maintenance/Repair Form. This form takes the ambiguity out of the maintenance work and provides a means to identify problem areas and convey that information to crews who will be performing the maintenance. It also provides background information that could be used in a monitoring program. This form should include the following information:

- Trail and site number
- Location / Site map
- Problem description
- Recommended repair
- Priority of repair
- Materials/ Staff required
- Sketch map or photo

Typical problems include infilled and nonfunctioning drainage features, wet and muddy trail segments, failed trail segments, plugged stream crossings, downed trees, informal social trails, rutted/rilled trail segments, and areas of trail widening.

#### WORK PLAN

Work plans should be prepared to plan for and schedule any needed upgrades. It may be necessary to prioritize repairs based on available funding or severity of the problem. Upgrades should be completed prior to October 15<sup>th</sup> each year.

#### TRAIL MAINTENANCE AND REPAIRS

To minimize impacts to sensitive vegetation from use of the trail network, the trail maintenance system should be implemented as described in Chapter 6 of the Public Access Plan. The trail maintenance system includes an annual monitoring program aimed at identifying maintenance issues (e.g., erosion) and other problems (e.g., nuisance trash areas or other impacts from trail users). The trail maintenance system should include specific methods for routinely documenting and implementing the necessary maintenance by the Public Access Manager.

#### VEGETATION MAINTENANCE AT TRAILS

- Clear brush and trees from the trail corridor to conform to Standard Details.
- All side branches extending into the trail clearing should be cut flush with the parent branch or stem, leaving no stubs.
- Small trees and shrubs within the tread should be grubbed out to prevent tripping — holes should be filled and compacted.
- Fallen branches and trees should be removed from trail tread and placed outside the corridor.

#### TREAD MAINTENANCE

- Remove outside berms and out-slope tread to drain.
- Remove cut-bank slough from the trail tread.
- Remove loose rocks.
- Install appropriately sized, well-graded, angular rock aggregate at chronic wet/muddy segments of trail as needed.

#### DRAINAGE AND STREAM CROSSING MAINTENANCE

- Remove accumulated debris from all trail drainage features.

- Enlarge grade reversals that appear undersized and at risk for failure.
- Install additional drainage grade reversals in areas where runoff is concentrated.
- Clean infilled ditches.
- Clean culverts of debris.
- Replace failing culverts with alternative improvements such as hardened crossings.
- Inspect and repair puncheons and bridges.

#### SIGN MAINTENANCE

- Sign repair/replacement.

#### SCHEDULING

Inventory drainage features (grade reversal/rolling dip, bridge, waterbar, culvert, and swale) in April and September and perform major maintenance before summer and winter seasons.

- **Routine Inspection:** Inspect and maintain trails monthly, including vegetation, signs, gates, barriers, etc., to discourage shortcuts, trail widening, and erosion. Ensure that the width and surface of the trail designed for accessibility is appropriately maintained. Incision of the trail tread should be monitored and tracked to ensure erosion and root damage does not become a problem. Additional stormwater runoff management features should be installed where needed to address erosion and failing trails should be re-routed if necessary. Spring inspections are necessary to identify failed or poorly functioning drainage structures that may become less evident following summer trail use. Fall inspections are necessary to identify problems that may have arisen following summer trail use and to make a final check of the trail prior to the winter rainy seasons. Inventory drainage features (grade reversal/rolling dip, bridge, puncheons, waterbar, culvert, and swale) in April and September.
- **Winter Inspections:** Perform routine winter season inspections and maintenance monthly from October to April to minimize trail damage and the need to re-route trails in the future. It is also advisable to inspect

portions of the trail network during or following major storm events. These inspections would generally focus on watercourse crossings, steep gradient trail reaches, and known problems areas. Assess each drainage feature for evidence of stormwater delivery of sediment to streams or wetlands every winter and remediate any problems

- **Upgrades:** Perform major maintenance before summer and winter seasons. Prescribed trail maintenance should occur prior to October 15th and the winter season. Minor trail maintenance, such as clearing dips and culverts using hand crews may occur at any time, including during routine inspections. Trails should generally be maintained to conform to the standard trail specifications.
- **Repairs.** Maintain high use trails within one week of identifying an issue and maintain low use trails are maintained within two weeks of identifying an issue.

## 8 ACKNOWLEDGEMENTS

We would like to acknowledge the State Coastal Conservancy for providing grant funding to support his planning project, as well as Land Trust donors who helped make this possible. We would also like to thank our Conservation Partners for the robust collaboration that resulted in this plan.

We would like to acknowledge and express gratitude to our agency partners, to the experts who reviewed drafts of the plan, and to experts consulted through interviews.

### AGENCY PARTNER TEAM

The agency partner team is working with the Conservation Partners on emergency management, public safety, and visitor services and will continue to collaborate during the implementation phase.

Angela Bernheisel, CAL FIRE, Forester II – Soquel Demonstration Forest

Jake Hess, Deputy Chief, CAL FIRE San Mateo-Santa Cruz Unit

Jeff Gaffney, Parks Director, Santa Cruz County

Also Gonzalez, Battalion Chief, CAL FIRE San Mateo-Santa Cruz Unit

Rich Sampson, CAL FIRE, Forester II

Eric Strum, Park Superintendent, Santa Cruz County

Craig Wilson, Chief Deputy, Santa Cruz County Sheriff's Office

### EXPERT REVIEW

We solicited review of the plan from experts in public access management and the protection of wildlife in the context of recreation management. Their insightful feedback strengthened our approach. Expert review included a conference call, field tour and review of a draft of the Public Access Plan and supporting materials. Each reviewer participated in some or all of these elements. We look forward to future collaboration to ensure implementation is a success.

Ramona Arechiga, San Mateo County Parks, Natural Resource Manager

Angela Bernheisel, CALFIRE, Forester II – Soquel Demonstration Forest

Sarah Birkeland, San Mateo County Parks, Assistant Director

Ben Blom, Bureau of Land Management, Central Coast Field Office Manager

Joe Connors, California State Parks, Supervising Ranger

Jeremy Dertien, Wildlife Conservation Society, Project Coordinator

Will Fourt, Santa Cruz County Parks, Park Planner  
Jeff Gaffney, Santa Cruz County Parks, Director  
Joanne Kerbavaz, California State Parks, Senior Environmental Scientist  
Courtney Larson, Colorado State University Fort Collins, Graduate Research Assistant  
Brian Malone, Midpeninsula Regional Open Space District, Land Facilities Manager  
Lee Otter, California Coastal Commission, Planner (Retired)  
Mike Powers, Bureau of Land Management, Natural Resource Specialist  
Juliana Rebagliati, City of Santa Cruz, Planning Director (Retired)  
Sarah Reed, Wildlife Conservation Society, Director of Applied Conservation Science for the Americas Program, and Colorado State University Fort Collins, Affiliate Faculty Member  
Michelle Reilly, Northern Arizona University, PhD (now Wildlife Biologist and Strategic Habitat Conservation Coordinator at the U.S. Fish and Wildlife Service)  
Chris Spohrer, California State Parks, District Superintendent  
Chris Wilmers, UC Santa Cruz, Professor and Santa Cruz Puma Project Director  
Bill Wolcott, California State Parks, Public Safety Superintendent

## INTERVIEWS

To guide development of this plan, we interviewed staff from agencies and organizations with relevant expertise. Interviewees, in addition to expert reviewers, included:

Ezekiel Bean, Water Resources Supervisor, City of Santa Cruz Water Department  
Rick Bisaccia, Stewardship Director, Ojai Land Conservancy  
Rick Cooper, Field Manager, Bureau of Land Management (Retired)  
Scott Couture, Lead Resource Specialist III, The Land Conservancy of San Luis Obispo County  
Joe Christy, Bonny Doon Fire Safe Council  
Joe Clarke, Sargent, Santa Cruz Sheriff Coroner  
Paul Houghtaling, wildlife tracker, University of California at Santa Cruz  
Terris Kasteen, Wildlife Biologist, California Department of Fish and Wildlife  
Ian Larkin, Chief, CalFIRE San Mateo-Santa Cruz Unit  
Randy Lavasseur, Chief of Visitor and Resource Protection, Golden Gate National Recreation Area

Brian Martin, Chief Ranger, Bureau of Land Management Hollister Office  
David Moore, Outdoor Recreation Planner, Bureau of Land Management  
Sky Painter Murphy, Planning & Environmental Coordinator, Bureau of Land  
Management  
Michael Newburn, Visitor Services Manager, Midpeninsula Regional Open Space  
District  
John Ricker, Director, Santa Cruz County Water Resources Division  
Justine Smith, PhD Candidate, University of California at Santa Cruz  
John Svahn, Stewardship Director, Tahoe Donner Land Trust

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A P P E N D I X 1

C O N S E R V A T I O N V A L U E S





# Overview of Conservation Values

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*The 2014 Grant Deed of Conservation Easement by Peninsula Open Space Trust and Sempervirens Fund to Save The Redwoods League for the San Vicente Redwoods property identifies the following values as providing a significant public benefit and are worthy of conservation. These values are referred to as the Conservation Values.*

1. **Statewide and Regional Conservation Significance.** The Property is identified as a conservation priority in several regional planning efforts, including the Bay Area Open Space Council's *Conservation Lands Network, 2011*, Save the Redwood League's *Master Plan for the Coast Redwoods, 2007*, Land Trust of Santa Cruz County's *Conservation Blueprint, 2011* ("*Conservation Blueprint*"), The Nature Conservancy's *Central California Coast Ecoregional Plan, 2006*, and the Living Landscape Initiative's *Redwood Focal Area, 2011*.
2. **Forests.** The Property includes substantial native forest ecosystems in their natural or relatively natural condition, including second-growth mixed redwood and Douglas-fir forest and live oak forest. The Property's forests are naturally diverse, consisting of a range of age classes and forest structures, including old-growth forest and large individual and contiguous stands of younger trees. The Property contains numerous forest resource values, including but not limited to its capacity to provide raw material for wood, timber and other forest products.
3. **Biodiversity.** The Property encompasses at least eight distinct vegetation types, ranging from vast stands of redwood forest to smaller pockets of the endemic Sandhills community. Populations of locally rare and unique plants such as Santa Cruz manzanita, oracle oak, and Shreve oak occur on the Property. The pockets of Sandhills habitat located on the Property are dominated by sparse stands of the rare maritime form of ponderosa pine forest and by maritime chaparral, and may support at least four federally-endangered plant species found only in the Sandhills, including Ben Lomond spineflower, Santa Cruz wallflower, Ben Lomond buckwheat, and Bonny Doon (silver leaf) manzanita. The Property provides habitat for a wide variety of rare and sensitive animal species, including California red-legged frog, mountain lion, peregrine falcon, steelhead trout, coho salmon and marbled murrelet. The Sandhills are also home to two insects found nowhere else on earth, the Mount Hermon June beetle and the Zayante band-winged grasshopper, as well as the Santa Cruz kangaroo rat and coast horned lizard.
4. **Watershed Protection.** Conservation of the Property is very important for watershed protection. San Vicente Creek originates on the Property and is the sole supply of domestic water to the residents of the town of Davenport. Laguna Creek, which bisects the Laguna parcels, is a critical source of domestic water for the City of Santa Cruz, especially during drought years. Most of the Property is underlain by pervious soils and underground karst formations, which provide for critical groundwater recharge. This recharge helps maintain vital year-round stream flows, which in turn supports aquatic habitat and domestic water supplies. The Property's streams are also a very important conservation priority to sustain populations of steelhead trout, red-legged frog, and other aquatic species, and its

two principal streams - Big Creek (tributary to Scott Creek) and San Vicente Creek - were designated as core coho salmon recovery priorities in the 2010 Draft Coho Recovery Plan prepared by the National Oceanic and Atmospheric Administration, Department of Fisheries, Office of Protected Resources. Mill Creek has both coho salmon and steelhead presence, and is therefore a high priority for conservation. Laguna Creek has a strong steelhead population and historically supported coho salmon, and is a very important conservation priority to sustain populations of steelhead, red-legged frog, and other aquatic species. Together with their tributaries, there are over 19.5 kilometers of critical stream targets on the Property, and 19.7 kilometers of very important streams as designated in the Conservation Blueprint. Conservation and watershed-based management of the Property represents an outstanding opportunity to protect and restore water supply and water quality.

5. **Viewshed Protection.** Much of the Property is visible from Highway 1, Empire Grade Road, Smith Grade Road, County-designated scenic routes, and from public viewpoints in parks and protected lands along the coast and in the Santa Cruz Mountains. Views from Highway 1 in particular reveal the abundant natural resources of the Property, including the extensive native tree cover. The view of these undisturbed natural resources contributes to the scenic panorama and character of the Santa Cruz Mountain range.
6. **Landscape and Habitat Connections.** The Property is located within a nearly 70,000-acre complex of mostly contiguous habitat, including Big Basin Redwoods State Park, the private forestlands just to the west of the Property, and several large adjoining properties comprising approximately 20,000 acres, including Cal Poly Swanton Pacific Ranch, Coast Dairies Property, Bonny Doon Ecological Reserve, Wilder Ranch State Park and the University of California Santa Cruz Campus Natural Reserve. Conservation of the Property will secure the southern portion of this large habitat block and will help maintain connectivity to nearby contiguous habitats, including Ben Lomond Mountain, the Upper San Lorenzo River watershed, and Loch Lomond Reservoir and its headwaters. Protecting the Property through this Conservation Easement will result in over 27,500 acres of contiguous, protected lands.
7. **Public Recreation, Education and Scientific Study.** With over 70 miles of unpaved roads, the Property has outstanding potential for public recreational access, including regional trail connections to Big Basin Redwoods State Park, the Fall Creek Unit of Henry Cowell Redwoods State Park, and the Coast Dairies Property, including the possibility for a new Skyline to the Sea Trail that would connect the California Coastal Trail in Davenport to the main crest of the Santa Cruz Mountains along Empire Grade. Given its proximity to Cal Poly Swanton Pacific Ranch and the university's focus on resource management-related research, the Property provides unparalleled opportunities for scientific research related to restoration forestry, as well as environmental education and interpretation for the public at large. The Property may also present opportunities related to the University of California Natural Reserve Program's system of living laboratories and outdoor classrooms in which a variety of disciplines could pursue fieldwork and educational efforts.

A P P E N D I X 2

A D A P T I V E M A N A G E M E N T  
O V E R V I E W





# Overview of Constraints, Preventative Strategies, and Adaptive Management Strategies by Conservation Value

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| <i>Constraints</i>  | <i>Preventative Strategies</i>  | <i>Adaptive Management Strategies</i>  |
|---|---|--|
| <b>Conservation Value 1: Statewide and Regional Conservation Significance</b> |   |  |
| Preserve the regionally significant conservation values of the property       | Perform an extensive planning process and a well-organized and funded implementation  | Monitor and enforce rule violations; adjust engagement and enforcement effort  |
| Leave undisturbed large blocks of habitat                                     | Zone public access and closed areas to retain large contiguous closed blocks of habitat                                       | Monitor closed areas for unauthorized access; adjust education and enforcement effort  |
| Provide regionally significant public access                                  | Provide a nature-based recreation opportunity with a skyline-to-the-sea type transect of Ben Lomond Mountain                  | Track visitor satisfaction; respond to meet expectations to the extent feasible  |
| <b>Conservation Value 2: Forests</b>  |   |  |
| Minimize native tree removal and damage                                       | Preserve large native trees when locating trails<br><br>Locate the staging area in an area dominated by non-native trees      | Maintain trails so they don't widen or erode; adjust effort if problems arise  |
| Do not interfere with forest restoration and timber production                | Route trails around large blocks of the Restoration Reserves and Working Forest   | Track the satisfaction of working forest and restoration project managers; increase collaboration effort with partners as needed   |
| Do not increase wildfire risk or damage                                       | Close the property on 'red flag' days of exceptionally high fire risk.<br><br>Maintain a network of fire-fighting water tanks | Track unauthorized visitors on 'red flag day' fire hazard days; adjust patrol effort, engagement and enforcement<br><br>Monitor and maintain tanks to ensure they are full and in good condition |

| <i>Constraints</i>   | <i>Preventative Strategies</i>   | <i>Adaptive Management Strategies</i>   |
|--|--|---|
| <b>Conservation Value 3: Biodiversity</b>                      |  |   |
| Minimize impacts to mountain lion breeding                     | Provide large closed areas around mountain lion denning areas  | Patrol for unauthorized trail construction; prosecute and/or sue violators; decommission unauthorized trails; impose use restrictions                   |
| Avoid increasing populations of predators of marbled murrelets | Manage waste with education and wildlife-proof trash receptacles   | Track food waste; adjust visitor engagement and waste management effort   |
| Avoid the introduction of invasive species                     | Require that contractors clean vehicles of dirt and organic material   | Monitor and manage invasive plants in the public access area  |
| <b>Conservation Value 4: Watershed Protection</b>              |  |   |
| Protect municipal water supplies                               | Route trails away from municipal water intakes with large buffers  | Monitor closed areas for unauthorized access; educate and enforce closures  |
| Protect stream water quality                                   | Design and maintain trails to frequently shed water and minimize erosion<br><br>Close the property following significant rain events until soils dry | Monitor trails for sediment delivery to streams or wetlands; remediate problems promptly<br><br>Monitor and enforce closures; adjust staffing as needed |
| Protect aquatic habitat and wetlands                           | Span streams with bridges and route trails around wetlands unless that results in greater overall impacts  | Track and remediate horse and dog waste near streams and wetlands; adjust engagement; impose use restrictions   |
| <b>Conservation Value 5: Viewshed Protection</b>               |  |   |
| Preserve native forest canopy                                  | Design new trails with a narrow tread to retain full canopy cover  | Inspect trails routinely for widening and erosion; adjust maintenance effort; adjust alignments and grade   |
| Minimize impacts to roadside aesthetics                        | Design the parking area to expand to accommodate demand, minimizing road shoulder and neighborhood parking   | Track the availability of parking and expand the parking area only as needed  |

| <i>Constraints</i>   | <i>Preventative Strategies</i>   | <i>Adaptive Management Strategies</i>  |
|--|--|--|
| <b>Conservation Value 6: Landscape and Habitat Connections</b>                 |  |  |
| Preserve core wildlife habitat   | Locate the public access area and the closed area to provide large areas of core habitat   | Monitor and enforce closed areas for unauthorized access; adjust patrol and enforcement effort ; impose use restrictions |
| Preserve corridors for wildlife movement                                       | Locate the public access area to minimize activity in identified corridors, especially at night                                      | Monitor and enforce night time and area closures; adjust patrol and enforcement effort                                   |
| <b>Conservation Value 7: Public Recreation, Education and Scientific Study</b> |  |  |
| Manage conflicts between visitor groups  | Provide trail use designations that allow visitors to enjoy and avoid specific uses  | Survey visitor satisfaction; respond to the extent feasible with changes to trails, including use designations           |
| Manage safety and risk   | Maintain trails and facilities; Educate visitors; Patrol, enforce and create a stewardship presence; Maintain incident report system | Track and evaluate incidents and accidents; identify and implement mitigation measures                                   |

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A P P E N D I X 3

QUESTIONNAIRE SUMMARY





# San Vicente Redwoods Public Access Plan

## Opportunities and Constraints

### Expressed by Interview and Questionnaire Participants

Bryan Largay and Jessica Missaghian  
Land Trust of Santa Cruz County  
July 24, 2014

#### ***Purpose***

This document summarizes the opportunities and constraints related to public access of the San Vicente Redwoods property as expressed by community members through questionnaires and interviews.

#### ***Overview of Opportunities for Participation by the Community***

The Land Trust and our conservation partners, the Peninsula Open Space Trust, Sempervirens Fund and Save the Redwoods League, are developing the San Vicente Redwoods Public Access Plan over the next year. We invite community participation throughout the planning process.

#### **Phase 1. Questionnaire and Interviews**

During this phase anyone interested in the plan may complete a questionnaire. We will also interview certain affected parties, such as owners of adjacent lands, emergency services, and others. Two small group meetings will be held, one for education and research interests, and one for representatives of recreational user groups. During this period various technical assessments will also be conducted.

Questionnaires are available online at [www.LandTrustSantaCruz.org](http://www.LandTrustSantaCruz.org). Paper versions are available on request from the Land Trust of Santa Cruz County, Attn. San Vicente Access, 617 Water Street, Santa Cruz CA 95060. Questionnaires will be accepted until April 30.

#### **Phase 2. Opportunities and constraints summary**

The findings from Phase 1 will be combined into a summary of the opportunities and constraints on the property. These will be presented in map format at a Community

Meeting in early spring. Public input will be welcome at that meeting and during the following month.

### **Phase 3. Draft plan**

Public input will be combined with feasibility analysis to develop a draft plan. This will be presented at a Community Meeting planned for September 10, 2014. Public input will be welcome at that meeting and for a few weeks afterwards.

### **Phase 4. Final plan and implementation**

Input from the public, follow-up analysis and decision making by partners will lead to the Final Plan. Components to be implemented will be submitted to Santa Cruz County for regulatory compliance, which is anticipated to take about a year.

## ***Interview and Questionnaire Approach***

This document provides a summary of the results of preliminary public and stakeholder engagement conducted in the process of planning for public access on the San Vicente Redwoods property.

In order to understand how people could be affected by the project, the Land Trust of Santa Cruz County conducted a series of interviews and hosted an online questionnaire to provide an opportunity for neighbors, residents, agency staff and others to express their hopes and concerns.

Between October 2013 and June 2014 we interviewed and held small group meetings with 115 people. The online questionnaire was launched in mid-November, and on June 24, 2014, we downloaded the data summarized here. The questionnaire was closed May 1, 2014, but was reopened on request for individuals who were unable to participate previously. We organized feedback into concerns and opportunities, and summarize those here.

The future work of developing the management plan will include addressing concerns expressed and making the most of those opportunities identified by the community.

## ***Results***

Overall, the community expressed strong support for access. Of the 2326 valid questionnaires, 97% supported some form of public access, while only 20 respondents (1%) indicated that they did not want to see any recreational access to the property. (The difference consisted of people who either did not respond to the question or who responded 'maybe' to the question).

| <i>Affiliations of questionnaire respondents<br/>(percent of respondents who indicated each affiliation)</i> |     |
|--|-----|
| Resident of Adjacent Property  | 5%  |
| Resident of Bonny Doon or Davenport  | 12% |
| Resident of Santa Cruz County  | 41% |
| Hiker  | 46% |
| Mountain Biker   | 33% |
| Equestrian   | 41% |
| Agency Staff   | 1%  |
| Educator/Researcher  | 5%  |
| Business Representative  | 2%  |
| Other Interested Party (please specify)  | 10% |

Common responses to ‘Other Interested Party’ can be grouped into these categories: dog owner, disc golfer, birder, trail runner, off-road vehicle rider, mushroom gatherer and ‘nature lover’ or similar.

### **Concerns**

A variety of interviewees and respondents expressed concerns.

| <i>Concerns expressed by questionnaire respondents<br/>(percent of respondents who expressed each concern)</i> |     |
|--|-----|
| Illegal Uses   | 48% |
| Trail Conflicts (horses, bikers, hikers, dogs, etc.)   | 48% |
| Fire Risks (i.e. campfires)  | 43% |
| Wildlife Impacts   | 35% |
| Parking  | 26% |
| Impacts to Water Quality and/or Supply   | 21% |
| Invasive Species   | 20% |
| Too Many Users   | 19% |
| Private Land Trespassing   | 14% |
| Roadway Congestion   | 14% |
| Other (please specify)   | 15% |
| Cost of Management   | 12% |
| Quarry Hazards   | 8%  |
| Loss of Productive Timberland  | 7%  |

Most responses to ‘Other’ consisted of additional detail on one of the other topics, expressed concerns about the planning process, particularly that one group of users would be unfairly advantaged at the expense of others.

### **Management Responsibility and Approach**

Overarching all other concerns were questions about responsibility for management, including provision of public safety services. Interview participants almost always had numerous questions about how management would be provided, including consideration of costs. Only one in eight questionnaire respondents expressed concern related to the cost of management.

Many process participants expressed the opinion that adverse impacts would occur unless a robust approach was adopted for the implementation phase. Many expressed interest in who was going to be in charge of daily operations and what level of resources would be allocated to managing the property. Many expressed that additional resources would be required for people to use the property safely and for neighbors to not be adversely impacted.

Many residents of Davenport and Bonny Doon we talked to expressed the opinion that local emergency services are under strain. They said that there are relatively few Sheriffs Deputies on patrol, relatively few volunteers available for fire protection, and long response times in emergencies. We heard that private landowners in the area were under pressure from trespass and illegal activities.

Many residents wanted to know how the approach to management of public access would prevent illegal activities from occurring.

Many interviewees provided suggestions to address these management challenges included:

- high investment (dollars, skills and hours)
- on-site presence
- frequent patrols
- modest infrastructure and extent of trail network
- gradual roll-out of facilities
- investment in relationships with both users and neighbors
- monitoring technology.

### **Health and safety of users and nearby residents**

Health and safety of neighbors was far and away the most consistent concern expressed during interviews. Embedded within this concern were several interrelated themes.

#### **Illegal Activities**

Illegal activities that were identified as concerns included a variety of criminal and trespass related activities such as:

- trespass
- vandalism
- theft and storage of stolen goods
- marijuana cultivation
- camping
- dumping
- off-road vehicle operation
- mountain bike trail construction
- commercial mushroom harvesting
- commercial firewood harvesting
- commercial landscape materials collection

Nearby residents expressed concern that illegal activities could spread to their property. Business property owners in the area described typically spending thousands to tens of thousands of dollars annually preventing such unauthorized activities. We heard from a variety of people who thought that existing public lands in the area were inadequately

managed with regard to these issues. They provided examples that such lands have been the origin of wildfires, location of extensive unauthorized encampments, and the sites of illegal drug production and consumption.

Many concerned individuals wanted to know the approach to manage these potential impacts.

### **Fire**

Fire was the single greatest and most consistent concern. Two large scale wildfires – and dozens of smaller ones – have burned in the vicinity of the property in the past six years. Arson and carelessness are the primary causes. Numerous people expressed concern that providing access would result in a much greater likelihood of fire. Recreational user activities they identified as related to wildfires included:

- unauthorized camping and cooking,
- camp fires,
- tobacco and marijuana smoking,
- improper use of cook stoves,
- vehicle use in parking lots, and
- arson

While Cal Fire maintains a strong presence in the area, a blaze can cover hundreds of acres very quickly. The communities of Bonny Doon and Davenport have active community-agency partnerships to reduce fire risk and provide, but these are often strained in terms of financing and volunteer hours.

### **Parking and Roadway Congestion**

Parking was of great concern to neighbors. Some neighbors indicated that the provision of a parking lot close to their homes would bring noise, trash and undesirable people who might commit crimes. They also said that the increase in activity would change the character of their neighborhoods. Some recreational users also expressed concern about parking, indicating that many recreational areas in Santa Cruz have road shoulder parking which is unsafe. Many participants indicated that Empire Grade is unsafe for road shoulder parking. Many participants indicated that the residential streets in Davenport and Bonny Doon Road would be inappropriate for road shoulder parking.

A few participants expressed the expectation that traffic associated with opening the property to public access would substantially change the noise levels and safety of roads in the vicinity, including Highway 1, Empire Grade and Bonny Doon Road.

### **Quarry Hazards**

Participants familiar with the quarry expressed considerable concern about the safety hazards posed by quarry and related infrastructure and earthworks. Sinkholes, cliffs, tunnels, aging infrastructure and other features were identified as areas of concern.

## **User Experience**

### **Trail Conflicts**

Numerous participants expressed concern that hikers, bikers, equestrians and dog walkers could not share the same trails without diminishment of the enjoyment. Contributing factors included:

- differences in the speed of the biker and hikers,
- rude behavior by cyclists
- rude behavior by hikers
- the potential for bikes to startle horses
- people not cleaning up after their dogs
- flies and odors associated with horses
- hikers feeling unsafe without their dogs
- dogs behaving aggressively towards other users and wildlife

Numerous suggestions were made to mitigate these impacts, including:

- separate trails for different user groups
- alternating days of use for different user groups
- uni-directional trails for biking, with the uphill direction aligned with
- requirements for leashes on dogs
- trail stewards to educate users and mediate conflict

## **Natural Resources**

### **Wildlife, Water and Water Quality, and Too Many Users**

Many participants expressed concerns related to natural resources and the impact of too many users on those resources. Comments along these lines expressed the importance of leaving parts of the property in a wild state for the benefit of wildlife and preservation of ecologic integrity. A number of Davenport residents expressed concern about the impact of access on the quality of drinking water, which is sourced on the property. Water resource agency staff expressed concerns related potential impacts to the City of Santa Cruz water supply, which is located downstream from the Laguna Parcel.

Participants recommended strategies to reduce impacts to salmonids (manage erosion), mountain lions (avoid denning and migration corridors), and peregrine falcons (manage access to the quarry using fencing).

## **Access Points**

### **Trailheads and Parking Lots**

Many participants expressed concern about how the public would access the property: where they would park and where the trailheads would be located. Most of the concern centered around parking lots, as described above. Participants generally did not want parking lots to be

located in their neighborhoods. Many participants were also concerned about trailheads, again preferring for them to be located in neighborhoods other than theirs. The least favored site for either trailheads or parking was in Bonny Doon. Parking and trailheads at the Coast Dairies property in Davenport were generally preferred, except for by the residents of Davenport. Parking and trailheads at Empire Grade received the broadest – but not strongest – support.

| <i>Support for trailheads and parking lots from different areas<br/>(percent of respondents who expressed support for the activity<br/>in the specified area)</i> |            |     |
|---|------------|-----|
| Area A (Empire Grade) Parking   | Bonny Doon | 53% |
|   | Davenport  | 59% |
|   | Santa Cruz | 68% |
| Area A (Empire Grade) Trailhead   | Bonny Doon | 72% |
|   | Davenport  | 65% |
|   | Santa Cruz | 81% |
| Area B (Bonny Doon Road) Parking  | Bonny Doon | 26% |
|   | Davenport  | 34% |
|   | Santa Cruz | 43% |
| Area B (Bonny Doon Road) Trailhead  | Bonny Doon | 51% |
|   | Davenport  | 48% |
|   | Santa Cruz | 67% |
| Area C (Coast Dairies) Parking  | Bonny Doon | 76% |
|   | Davenport  | 27% |
|   | Santa Cruz | 72% |
| Area C (Coast Dairies) Trailhead  | Bonny Doon | 76% |
|   | Davenport  | 42% |
|   | Santa Cruz | 82% |

### **Opportunities**

Numerous participants described various opportunities for the property. Participants described preferences for various recreational uses of the property.

| <i>Opportunities expressed by questionnaire respondents<br/>(percent of respondents who answered 'Yes' to the question of<br/>whether the activity should be provided)</i> |     |
|--|-----|
| Hiking   | 85% |
| Loop Trail   | 84% |
| Ridgeline to Ocean Trail   | 85% |
| Biking   | 46% |
| Horseback Riding   | 58% |
| Hike-In Camping  | 43% |
| On-Leash Dogs  | 57% |
| Off-Leash Dogs   | 27% |

In addition to options offered by the questionnaire, various participants identified:

- a disc golf course
- collecting mushrooms and edible plants
- hosting gatherings and events

- providing a place of quiet nature reflection
- providing a place for building communities in concert with nature

### **Summary**

The interviews and questionnaire provided an invaluable window into the hopes and concerns of the community.

Below is a word cloud consisting of the 50 most common words expressed in responses to an open ended question in the questionnaire. The size of each word is proportionate to its frequency in the responses.



A P P E N D I X 4

BIOLOGICAL RESOURCES  
ASSESSMENT





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# Biological Resources Assessment Draft San Vicente Redwoods Public Access Plan

SANTA CRUZ COUNTY, CALIFORNIA

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**WRA Project No.:** 22287





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## LIST OF ACRONYMS AND ABBREVIATIONS

|           |  |
|-----------|--|
| BMP       | Best Management Practice                                       |
| CCA       | California Coastal Act   |
| CCR       | California Code of Regulations                                 |
| CDFG      | California Department of Fish and Game (currently the CDFW)    |
| CDFW      | California Department of Fish and Wildlife (formerly the CDFG) |
| CEQA      | California Environmental Quality Act                           |
| CESA      | California Endangered Species Act                              |
| CFGC      | California Fish and Game Code                                  |
| CFR       | Code of Federal Regulations                                    |
| CNDDDB    | California Natural Diversity Database                          |
| CNPS      | California Native Plant Society                                |
| Corps     | U.S. Army Corps of Engineers                                   |
| CRLF      | California Red-Legged Frog                                     |
| CSRL      | California Soil Resource Lab                                   |
| DBH       | Diameter at Breast Height                                      |
| DPS       | Distinct Population Segment                                    |
| EFH       | Essential Fish Habitat   |
| ESA       | Federal Endangered Species Act                                 |
| ESU       | Ecologically Significant Unit                                  |
| Inventory | CNPS Inventory of Rare and Endangered Plants                   |
| LCP       | Local Coastal Program  |
| MBTA      | Migratory Bird Treaty Act                                      |
| NMFS      | National Marine Fisheries Service                              |
| OWHM      | Ordinary High Water Mark                                       |
| PCE       | Primary Constituent Element                                    |
| PFMC      | Pacific Fisheries Management Council                           |
| Rank      | California Rare Plant Rank                                     |
| RWQCB     | Regional Water Quality Control Board                           |
| USFWS     | U.S. Fish and Wildlife Service                                 |
| WBWG      | Western Bat Working Group                                      |
| WRA       | WRA, Inc.  |



## EXECUTIVE SUMMARY

This report provides an analysis of natural community and special-status species issues for the proposed trail alignment associated with the Draft San Vicente Redwoods Public Access Plan (Draft Public Access Plan; PlaceWorks 2018) located in unincorporated Santa Cruz County, California. In December 2015, January, February, June, August, and October 2016, and May, June, and August 2017 WRA, Inc. (WRA) conducted a biological resources assessment within the Project Area for the proposed trail network. WRA observed 13 biological communities, 242 plant taxa and 18 wildlife taxa. Eleven sensitive biological communities were identified, including three sensitive aquatic communities. One special-status plant species and three special-status wildlife were determined to be present based on direct observations made by WRA or documented historical occurrences from the site. An additional 18 special-status plant species known from the region were originally determined to have potential to occur within the trail alignment. However, these plants were not observed within the trail alignment during seasonally timed rare plant surveys in 2016 and 2017, and it was subsequently determined that these species have low potential to occur within the proposed trail alignment, although they may have potential occur elsewhere on the property. An additional 13 special-status wildlife species known from the region were determined to have a moderate to high potential to occur within the proposed trail alignment or the immediate vicinity based on the presence of suitable habitat conditions and the proximity of known occurrences within the vicinity of the Project Area.

Although the proposed Project covers a large amount of land, the proposed Project itself is relatively minimal in nature. As a result of the intensive conservation and planning analyses conducted by the Project team, the proposed trail alignment and staging area have been designed to minimize impacts on the land and the sensitive resources found there. The proposed trail design has incorporated the best available design practices for trail construction and maintenance, reducing the potential for long-term adverse impacts related to erosion, sedimentation, and other issues that can arise from poor trail design. The trail network was designed to occupy only a small fraction of the land within the larger San Vicente Redwoods property, thereby providing ample untouched lands for plant and wildlife conservation. Moreover, the minimal nature of the proposed trail network and the activities that will be allowed there are by their very nature compatible with wildland conservation. With the implementation of the avoidance and minimization measures built into the project, WRA believes that all potential adverse impacts associated with the proposed Project can be reduced to a less-than-significant level.



## 1.0 INTRODUCTION

On multiple dates in December 2015, January, February, June, August, and October 2016, and May, June, and August 2017, WRA, Inc. (WRA) performed an assessment of biological resources for a proposed trail network within the approximately 8,532-acre San Vicente Redwoods property. The trail network is described in the Draft San Vicente Redwoods Public Access Plan (PlaceWorks 2018). The site is composed of two properties located in unincorporated Santa Cruz County, California (Figure 1). For the purpose of this report, the “main parcel” refers to the approximately 8,159-acre property located off of Empire Grade Road, and the “Laguna parcel” refers to the approximately 373-acre property located adjacent to the Bonny Doon Ecological Reserve. The “Project Area” refers to the alignment for the proposed trail network on both properties and an associated parking and staging area on the main parcel, adjacent to Empire Grade Road. The Project Area includes an approximately 50-foot buffer on either side of the trail alignment and around the parking and staging area (Figure 2).

The purpose of the assessment was to gather information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA) for the proposed trail network. This report describes the results of the site visit, which assessed the Project Area for the (1) potential to support special-status species and (2) presence of other sensitive biological resources protected by local, state, and federal laws and regulations. Special-status species observed during the site visit were documented and are discussed herein. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys be conducted. This report also contains an evaluation of potential impacts to special-status species and sensitive biological communities that may occur as a result of the proposed Project, including potential mitigation measures to compensate for any such impacts.

A biological resources assessment provides general information on the potential presence of sensitive species and habitats. The biological resources assessment is not an official protocol-level survey for listed species which may be required for Project approval by local, state, or federal agencies. This assessment is based on information available at the time of the study and on site conditions that were observed on the dates of the site visits.

**Note to the Reader:** All Figures referenced in the text are included in Appendix A.

## 2.0 REGULATORY BACKGROUND

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

### 2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, riparian habitat, and sensitive terrestrial communities. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the California Department of Fish and Wildlife (CDFW; formerly the California Department of Fish and Game [CDFG]) Streambed Alteration Program, and the CEQA; and/or local ordinances or policies such as Special Habitat Management Areas or General Plan Elements. Where these communities occur within the Coastal Zone, they may also be regulated under the California Coastal Act (CCA), as administered by the Santa Cruz County Local Coastal Program (LCP).

### **2.1.1 Clean Water Act Section 404**

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

### **2.1.2 Clean Water Act Section 401 and Porter-Cologne Water Quality Control Act**

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

### **2.1.3 California Fish and Game Code Section 1600**

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

#### **2.1.4 Essential Fish Habitat**

Essential Fish Habitat (EFH) is regulated through the National Marine Fisheries Service (NMFS), a division of the National Oceanic and Atmospheric Administration. Protection of EFH is mandated through changes implemented in 1996 to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to protect the loss of habitat necessary to maintain sustainable fisheries in the United States. The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" [16 USC 1802(10)]. The NMFS further defines Pacific coast salmon fishery essential fish habitat as "waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem" (Pacific Fisheries Management Council [PFMC] 1999). California salmonid species covered by this Fisheries Management Plan include Chinook salmon (*Oncorhynchus tshawytscha*) and Coho salmon (*O. kisutch*), and the EFH "must include all streams, lakes, ponds, wetlands, and other currently viable water bodies and most of the habitat historically accessible to salmon" in California (PFMC 1999). Under regulatory guidelines issued by the NMFS, any federal agency that authorizes, funds, or undertakes action that may affect EFH is required to consult with the NMFS (50 CFR 600.920).

The Project Area is located outside of viable areas to Chinook salmon and Coho salmon (as described in more detail in Section 4.2.2) and Project activities will be minimized to prevent downstream impacts to EFH (as described in Section 6.1.2). Therefore, while EFH was evaluated for the regulatory context of this Project; no further discussion of EFH is warranted.

#### **2.1.5 CDFW Sensitive Terrestrial Communities**

Sensitive terrestrial biological communities include terrestrial habitats that fulfill special functions or have special values. The CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFW 2016a). Sensitive plant communities are also identified by CDFW (CNPS 2016a, CDFW 2016b). CNDDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G; referred to herein as the "Global Rank") or statewide (S; referred to herein as the "State Rank") as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified by the CDFW must be considered and evaluated under the CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances (see sections 2.1.6 and 2.1.7).

#### **2.1.6 Sensitive Communities Identified by Santa Cruz County Code**

Chapter 16 of the Santa Cruz County Code pertains to the protection of natural resources, and includes sections relating to topics such as grading regulations, erosion control, and water quality control, among others. The sections of Chapter 16 which are relevant to the Project are summarized as follows:

##### **Riparian Corridor and Wetlands Protection**

County approval is required for projects that may result in impacts to "riparian corridors." In Chapter 16.30, a riparian corridor is defined as:

- (1) *Lands within a stream channel, including the stream and the area between the mean rainy season (bankfull) flowlines;*

- (2) *Lands extending 50 feet (measured horizontally) out from each side of a perennial stream. Distance shall be measured from the mean rainy season (bankfull) flowline;*
- (3) *Lands extending 30 feet (measured horizontally) out from each side of an intermittent stream. Distance shall be measured from the mean rainy season (bankfull) flowline;*
- (4) *Lands extending 100 feet (measured horizontally) from the high water mark of a lake, wetland, estuary, lagoon or natural body of standing water;*
- (5) *Lands within an arroyo located within the urban services line, or the rural services line;*
- (6) *Lands containing a riparian woodland.*

### **Sensitive Habitat Protection**

County approval is required for projects that may result in impacts to “sensitive habitat.” Chapter 16.32 includes the following definition of a “sensitive habitat”:

- (1) *Areas of special biological significance as identified by the State Water Resources Control Board.*
- (2) *Areas which provide habitat for locally unique biotic species/communities including but not limited to: oak woodlands, coastal scrub, maritime chaparral, native rhododendrons and associated Elkgrass, indigenous Ponderosa Pine, indigenous Monterey Pine, mapped grassland in the Coastal Zone and sand parkland; and special forests including San Andreas Oak Woodlands, indigenous Ponderosa Pine, indigenous Monterey Pine and ancient forests.*
- (3) *Areas adjacent to essential habitats of rare, endangered or threatened species as defined in subsections (5) and (6) of this definition.*
- (4) *Areas which provide habitat for species of special concern as listed by the California Department of Fish and Game in the special animals list, natural diversity database.*
- (5) *Areas which provide habitat for rare or endangered species which meet the definition of Section 15380 of the California Environmental Quality Act guidelines.*
- (6) *Areas which provide habitat for rare, endangered or threatened species as designated by the State Fish and Game Commission, United States Fish and Wildlife Service or California Native Plant Society.*
- (7) *Nearshore reefs, rocky intertidal areas, sea caves, islets, offshore rocks, kelp beds, marine mammal hauling grounds, sandy beaches, shorebird roosting, resting and nesting areas, cliff nesting areas and marine, wildlife or educational/research reserves.*
- (8) *Dune plant habitats.*
- (9) *All lakes, wetlands, estuaries, lagoons, streams and rivers.*

(10) *Riparian corridors.*

County code allows for limited uses within these sensitive habitats, including nature study and research and hunting, fishing, and equestrian trails that have no adverse impact on the species or habitat. Although no hunting or fishing will be allowed on the site, the proposed use of the site for pedestrian, bicycle, and equestrian trails is in line with the spirit of the County code.

Development within any sensitive habitat area is subject to the following conditions:

- *All development shall mitigate significant environmental impacts, as determined by the Environmental Coordinator.*
- *Dedication of an open space or conservation easement or an equivalent measure shall be required as necessary to protect the portion of a sensitive habitat which is undisturbed by the proposed development activity or to protect a sensitive habitat on an adjacent parcel.*
- *Restoration of any area which is a degraded sensitive habitat or has caused or is causing the degradation of a sensitive habitat shall be required; provided, that any restoration required shall be commensurate with the scale of the proposed development.*

### **2.1.7 Environmentally Sensitive Habitats Identified by the Santa Cruz County Local Coastal Program**

The County of Santa Cruz Local Coastal Program (LCP; County of Santa Cruz 1994) defines Environmentally Sensitive Habitats protected under the California Coastal Act in the unincorporated portions of Santa Cruz County. In addition to areas shown on County General Plan and LCP Resources and Constraints Maps, the LCP considers all of the habitats listed above in Section 2.1.6 as Environmentally Sensitive Habitats for purposes of the California Coastal Act. The LCP also identifies a number of specific special-status plant and wildlife species, the habitat for which constitutes Environmentally Sensitive Habitat.

The LCP regulates development and other activities within and adjacent to Environmentally Sensitive Habitats and defines required buffers or setbacks from such habitats. The LCP defines allowed uses within Environmentally Sensitive Habitats and their buffers and specifically identifies “non-motorized recreation and pedestrian trails” as an allowed use compatible with riparian habitat. Because the Santa Cruz County LCP is contained within their General Plan, many of the LCP protections over Environmentally Sensitive Habitats within the Coastal Zone are aligned with the County Code regarding sensitive biological resources and implementation of the LCP is through the Riparian Corridor and Wetlands Protection Ordinance (16.30) and the Sensitive Habitat Ordinance (16.32) (see Section 2.1.6).

## **2.2 Special-Status Species**

### **2.2.1 Special-Status Plants and Wildlife**

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the Federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. In addition, CDFW Species of Special Concern, CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW Special-Status Invertebrates are all considered special-status

species. Although these aforementioned species generally have no special legal status, they are given special consideration under the CEQA. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity. Bats listed as a “High Priority” or “Medium Priority” species for conservation by the WBWG are typically considered special-status and are considered under the CEQA. In addition to regulations for special-status species, most birds in the United States, including non-special-status native species, are protected by the Migratory Bird Treaty Act of 1918 (MBTA) and the CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws, destroying active bird nests, eggs, and/or young is illegal.

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

Table 1. Description of California Rare Plant Ranks and Threat Codes

| <b>California Rare Plant Ranks</b> |  |
|------------------------------------|--|
| Rank 1A                            | Presumed extirpated in California and either rare or extinct elsewhere   |
| Rank 1B                            | Rare, threatened, or endangered in California and elsewhere              |
| Rank 2A                            | Presumed extirpated in California, but more common elsewhere             |
| Rank 2B                            | Rare, threatened, or endangered in California, but more common elsewhere |
| Rank 3                             | Plants about which more information is needed - A review list            |
| Rank 4                             | Plants of limited distribution - A watch list                            |
| <b>Threat Ranks</b>                |  |
| 0.1                                | Seriously threatened in California                                       |
| 0.2                                | Moderately threatened in California                                      |
| 0.3                                | Not very threatened in California  |

### **2.2.2 Critical Habitat**

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

## 2.3 Protected Trees

Chapter 16 of the Santa Cruz County Municipal Code outlines policies for the protection of significant trees within the unincorporated portions of the County. County approval is required for projects that may result in impacts to “significant trees.” Per Chapter 16.34, a permit is needed for trees within the Coastal Zone that meet Definitions 1 or 2, below. A permit is also needed for trees within Sensitive Habitat (Definition 3).

1. *Within the Urban Services Line or Rural Services Line, any tree which is equal to or greater than 20 inches d.b.h. (approximately 5 feet in circumference); any sprout clump of five or more stems each of which is greater than 12 inches d.b.h. (approximately 3 feet in circumference); or any group consisting of five or more trees on one parcel, each of which is greater than 12 inches d.b.h. (approximately 3 feet in circumference).*
2. *Outside the Urban Services Line or Rural Services line, where visible from a scenic road, any beach, or within a designated scenic resource area, any tree which is equal to or greater than 40 inches d.b.h. (approximately 10 feet in circumference); any sprout clump of five or more stems, each of which is greater than 20 inches d.b.h. (approximately 5 feet in circumference); or, any group consisting of ten or more trees on one parcel, each greater than 20 inches d.b.h. (approximately 5 feet in circumference).*
3. *Any tree located in a sensitive habitat as defined in Chapter 16.32. Also see Section 16.34.090(c), exemption of projects with other permits.*

The following work is exempted from all provisions of Chapter 16.34 :

- (A) *Timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practices Act of 1973 (commencing with Section 4511).*
- (B) *Any activity done pursuant to a valid timber harvest permit, or a notice of timber harvesting, approved pursuant to Chapter 16.52 SCCC.*
- (C) *Any tree removal authorized pursuant to a valid discretionary permit approved pursuant to Chapter 13.10 (Zoning Regulations), Chapter 13.20 (Coastal Zone Regulations), Chapter 14.01 (Subdivision Regulations), Chapter 16.20 (Grading Regulations), Chapter 16.22 (Erosion Control), Chapter 16.30 (Riparian Corridor and Wetlands Protection), Chapter 16.32 (Sensitive Habitat Protection), or Chapter 16.54 SCCC (Mining Regulations).*
- (D) *Removal of tree crops pursuant to agricultural operations. [Ord. 3443 § 1, 1983; Ord. 3341 § 1, 1982].*

## 3.0 METHODS

On December 16-17, 2015; January 20-22, February 10-12, June 15-16, August 15-17, August 24-25, and October 21, 2016; and May 30-June 1, and August 8-9, 2017 the Project Area was traversed on foot to determine (1) plant communities present within the Project Area, (2) whether existing conditions may provide suitable habitat for any special-status plant or wildlife species, and (3) whether sensitive habitats are present. In addition, these surveys included a comprehensive mapping of San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)

middens and seasonally timed surveys for special-status plants. The Project Area for the assessment was defined to include the proposed trail alignment plus an approximately 50-foot buffer on both sides, as well as the proposed parking area adjacent to Empire Grade Road and a 50-foot buffer (Figure 2).

All plant and wildlife species encountered were recorded and are listed in Appendix B. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (2017), except where noted. Because of recent changes in classification for many of the taxa treated by Baldwin et al. and the Jepson Flora Project, relevant synonyms are provided in brackets. For cases in which regulatory agencies, CNPS, or other entities base rarity on older taxonomic treatments, precedence was given to the treatment used by those entities.

### **3.1 Biological Communities**

Prior to the site visit, an online soil survey of the Project Area (California Soil Resource Lab 2016) was examined to determine whether any unique soil types that could support sensitive plant communities and/or aquatic features are present in the Project Area. In addition, aerial imagery (Google Earth) of the Project Area was reviewed to determine where sensitive landscape features may occur. Biological communities present in the Project Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) and *A Manual of California Vegetation, Online Edition* (CNPS 2016a). However, in some cases it was necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature.

Mapping of plant communities relied on a high-level analysis of the site based on data from CalVeg (U.S. Forest Service 2009) which were augmented by local experts and the Land Trust of Santa Cruz County to document important local habitats such as sandhills, sandhill parklands, and stands of the Federal Endangered Santa Cruz cypress (*Hesperocyparis abramsiana* var. *abramsiana*) and to reflect the boundaries of urban and cultivated lands (ESA 2012). WRA did not refine the mapping of biological communities; however, WRA did note the occurrence of any sensitive biological communities within the Project Area (see Section 3.1.2). Sensitive biological communities with discrete boundaries (e.g., wetlands and streams) were mapped in the field; however, sensitive communities lacking discrete boundaries (e.g., forest types) were not mapped. Instead, the assessment focused on developing avoidance and minimization measures to prevent adverse impacts to such communities. Biological communities observed within the Project Area were classified as sensitive or non-sensitive as defined by the CEQA and other applicable laws and regulations (see below).

#### **3.1.1 Non-Sensitive Biological Communities**

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

#### **3.1.2 Sensitive Biological Communities**

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

### **Wetlands and Non-Wetland Waters**

The Project Area was surveyed to determine whether any wetlands and waters potentially subject to jurisdiction by the Corps, RWQCB, or CDFW are present. The assessment was based primarily on the presence of wetland plant indicators, but may also include any observed indicators of wetland hydrology or wetland soils. Potential wetland areas were identified as areas dominated by plant species with a wetland indicator status<sup>1</sup> of OBL, FACW, or FAC as given on the National Wetlands Plant List (Lichvar et al. 2016). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, algal mats, and oxidized root channels, or indirect (secondary) indicators, such as a water table within two feet of the soil surface during the dry season. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual (Environmental Laboratory 1987) and Field Indicators of Hydric Soils in the United States (Natural Resources Conservation Service 2010).

### **Coastal Act/Local Coastal Program Wetlands**

Whereas wetlands regulated under the Clean Water Act or the Porter-Cologne Act are identified based on the presence of three parameters (hydrophytic vegetation, hydric soils, and wetland hydrology), the Coastal Act defines wetlands as those areas meeting any one or more of the three wetland parameters. As such, WRA used the Coastal Act wetland definition to identify potentially jurisdictional wetlands within the portion of the Project Area that occurs within the Coastal Zone. Areas which were dominated by FACW- or OBL-rated vegetation or which contained hydric soils or displayed evidence of wetland hydrology were always treated as wetlands for the purposes of the Coastal Act. Areas which were dominated by FAC-rated vegetation and which were located in a suitable topographic position to support wetland hydrology were also always treated as wetlands for the purposes of the Coastal Act. Because FAC-rated vegetation is by definition equally likely to occur in wetlands and uplands (Lichvar et al. 2016), WRA biologists examined areas dominated by FAC-rated vegetation but which were not located in a typical wetland topographic position on a case by case basis. In those situations, WRA biologists looked for evidence that the vegetation was being supported by wetland hydrology (e.g., the presence of hydric soils, evidence of wetland hydrology, or suitable topographic position) before determining that the area should be considered a wetland for the purposes of the Coastal Act.

### **Sensitive Terrestrial Biological Communities**

Prior to the site visit, aerial photographs, local soil maps, and *A Manual of California Vegetation, Online Edition* (CNPS 2016a) were reviewed to assess the potential for sensitive biological communities to occur in the Project Area. During the site visits, the Project Area was evaluated for the presence of sensitive terrestrial biological communities, including sensitive plant communities recognized by the CDFW and sensitive habitats identified in the General Plan/Local Coastal Program and the Santa Cruz County Code. Communities were identified based on descriptions and membership rules developed by the CDFW and the CNPS (Sawyer et al. 2009 and subsequent online updates). All alliances observed within the Project Area with a State Ranking ("S") of 1 through 3 were considered sensitive biological communities and are described in Section 4.1.2, below. Due to the scale of the Project Area, both its narrow width and its long length, and given the comparatively coarse scale at which vegetation alliances are mapped, it

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

was not practical or feasible to map discrete boundaries between sensitive terrestrial communities in the Project Area. Instead, the presence of these communities was noted, and potential impacts to such communities were assessed collectively at a programmatic level.

## **3.2 Special-Status Species**

### **3.2.1 Literature Review**

Potential occurrence of special-status species in the Project Area was evaluated by first determining which special-status species occur in the vicinity of the Project Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Davenport 7.5-minute U.S. Geological Survey (USGS) quadrangle and the six surrounding quadrangles (Año Nuevo, Franklin Point, Big Basin, Castle Rock Ridge, Felton, and Santa Cruz). The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Project Area:

- CNDDDB records (CDFW 2016a)
- USFWS quadrangle species lists (USFWS 2016a)
- CNPS Inventory records (CNPS 2016b)
- CDFG publication “California’s Wildlife, Volumes I-III” (Zeiner et al. 1990)
- CDFG publication “California Bird Species of Special Concern” (Shuford and Gardali 2008)
- CDFG publication “An Annotated Checklist of Amphibian and Reptile Species of California and Adjacent Waters” (Jennings 2004)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- University of California at Davis California Fish Data and Management Software (PISCES 2016)
- National Marine Fisheries Service Distribution Maps for California Salmonid Species (NMFS 2013)

In addition to these resources, WRA received additional unpublished information regarding the presence of local special-status plant occurrences, including for Rank 4 species which are not tracked in the CNDDDB (Nadia Hamey, Big Creek forester, personal communication to Matthew Richmond, April 6, 2016).

### **3.2.2 Site Assessment**

Multiple site visits were made to the Project Area to search for suitable habitats for special-status species. Surveys covered the trail network and parking area, including approximately 50 feet on either side of the proposed trail alignment (25 feet on either side of the alignment for wood rat nest mapping) as well as 50-feet around the parking area. Habitat conditions within these areas were used to evaluate the potential for special-status species to occur there. The potential for each special-status species to occur in the Project Area was evaluated according to the following criteria:

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

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

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

**Present.** Species is observed on the site or has been recorded (e.g., CNDDDB, other reports) on the site recently.

**Not Observed.** Species is identifiable year-round but was not observed during surveys or the survey occurred when the species should have been apparent and identifiable but the species was not observed. These species are assumed to not be present.

The site assessment is intended to identify the presence or absence of suitable habitat for each special-status species known to occur in the vicinity in order to determine its potential to occur in the Project Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special-status species is observed during the site visit, its presence was recorded and is discussed in the following sections.

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

All special-status species observed during the site visit were documented and are discussed below in Section 4.2. For some species, a site assessment at the level conducted for this report may not be sufficient to determine the presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. In some cases, focused surveys may be sufficient to determine the presence or absence of a species for the purposes of the CEQA. WRA conducted seasonally-timed, focused surveys for special-special status plants documented from the region and focused surveys for San Francisco dusky-footed woodrat. The methods for these surveys are described in the following sections. Special-status species for which further focused or protocol-level surveys may be necessary are described below in Section 6.0.

### ***3.2.3 Special-Status Species Surveys***

#### **Special-Status Plants**

Surveys for special-status plants were conducted on the dates listed below; surveys were stratified such that each portion of the alignment was subjected to early- (December-February), mid- (May-June), and late-season (August-October) surveys.

Special-Status Plant Survey Dates:

| <u>2015</u>    | <u>2016</u>         | <u>2017</u>   |
|----------------|---------------------|---------------|
| December 16-17 | January 20-22       | May 30-June 1 |
|                | February 10-12      | August 8-9    |
|                | June 15-16          |               |
|                | August 15-17, 24-25 |               |
|                | October 21          |               |

Surveys were conducted by WRA botanists familiar with the plants and vegetation of the Santa Cruz Mountains. Surveys covered the trail segments shown on Figure 2, including an approximately 50-foot buffer on all sides. Surveys were also conducted in the proposed parking and staging area adjacent to Empire Grade Road, including an approximately 50-foot buffer. All areas were traversed on foot and all species encountered were identified to the taxonomic level necessary to determine rarity. Occurrences of rare plants were captured as GPS points (for single plants or closely spaced, small groups of plants) and polygons (for larger or more widely spaced groups of plants).

Anderson's manzanita (*Arctostaphylos andersonii*; CNPS Rank 1B.2) was the only special-status plant observed within the Project Area. To calculate potential impacts to Anderson's manzanita associated with the proposed Project, WRA overlaid Anderson's manzanita point and polygon occurrences over a map of the proposed trail alignment; to give them dimensions, individual manzanita points were assigned an average 5-foot radius based on the average plant size observed in the field. All occurrences of Anderson's manzanita that intersected a 7-foot band representing the width of trail construction (5 feet of trail tread plus 1 foot of vegetation clearance on either side) running down the centerline of the trail alignment were considered to be directly impacted. Such impacts are theoretical given that there is flexibility to move the trail anywhere within the 100-foot-wide band surveyed for this report; however, it gives an indication of the maximum number of individuals that could be impacted.

### **Special-Status Wildlife**

WRA wildlife biologists conducted a general assessment of habitat quality within the Project Area on December 16-17, 2015 and January 20-22 and February 10-12, 2016. Wildlife biologists walked the entirety of the proposed alignment, including an approximately 50-foot buffer on either side of the alignment, to note habitat conditions and document unique features for wildlife.

Concurrent with this assessment, biologists mapped all active San Francisco dusky-footed woodrat middens observed within the Project Area. WRA biologists familiar with the identification of woodrat middens and the biology of the species conducted the surveys. Surveys covered the trail alignments shown on Figure 2; all areas were traversed on foot and woodrat middens located within approximately 25 feet of the proposed trail alignment were mapped using handheld GPS units with sub-meter accuracy. Woodrat middens within the proposed parking area adjacent to Empire Grade Road, including a 50-foot buffer, were also mapped following the same approach. To estimate potential direct impacts to woodrat nests, each nest, or group of nests, was mapped using handheld GPS equipment, and all nests that intersect with a 7-foot band (5 feet of trail tread plus 1 foot of vegetation clearance on either side) running down the centerline of the trail alignment were considered to be directly impacted. Such impacts are theoretical in that there is flexibility to move the trail anywhere within the 50-foot-wide band surveyed for this report.

Within the Project Area, WRA biologists mapped locations of large old-growth trees with unique habitat features that may support special-status wildlife species such as roosting bats. Noted as "wildlife trees", these features had various combinations of exposed snags, open cavities, exfoliating bark, or unique crown formations that may provide good thermal properties for roosting or unique nesting habitat. In addition to WRA's observations, locations of old-growth Douglas fir and redwood trees and stands of old-growth that should be evaluated for the potential to support marbled murrelet have been historically mapped at the site by multiple groups and are shown on the associated special-status wildlife Figures in Appendix A (see ESA 2012 for additional information).

### **3.2.4 Critical Habitat**

To determine whether Critical Habitat for listed plant or wildlife species has been designated within the Project Area, WRA reviewed the USFWS online Critical Habitat mapping tool (USFWS 2016b). For cases in which Critical Habitat has been designated at the site, WRA biologists assessed the area to determine whether it contained the primary constituent elements (PCEs) required by the species in question.

### **3.4 Protected Trees**

WRA did not conduct a tree survey or any other type of assessment to determine whether protected trees occur within the Project Area. In the staging area, native trees were identified by registered professional forester Nadia Hamey and mapped by Fall Creek Engineers. Staging area construction is anticipated to result in the removal of the following native trees with diameter at breast height (DBH) greater than 12 inches: 11 oak trees (including coast live oak, canyon live oak, tanoak): 4 @ 12 inch DBH, 13 inch DBH, 15 inch DBH, 20 inch DBH, 2 @ 18 inch DBH, 19 inch DBH, 36 inch DBH, one Douglas fir: 30 inch DBH and, four madrone: 12 inch DBH, 13 inch DBH, 16 inch DBH, 17 inch DBH.

## **4.0 ENVIRONMENTAL SETTING**

The larger San Vicente Redwoods property (i.e., the main parcel) is located in the heart of the Santa Cruz Mountains, situated among a number of other large, protected properties with very limited development. Rural residences occur in small communities adjacent to the site along Empire Grade Road and Pine Flat Road. The Project Area occurs within the North Coast Watersheds, an important area for multi-species benefits conservation identified in the Land Trust of Santa Cruz County's *A Conservation Blueprint* (Mackenzie et al. 2011). The San Vicente Redwoods property is contiguous with a large amount of protected lands including Cal Poly's Swanton Ranch, the Coast Dairies, Bonny Doon Ecological Preserve, Wilder Ranch State Park, and UC Santa Cruz's Natural Reserve (ESA 2012).

The majority of the main parcel and adjacent lands are characterized by dense redwood, coast/canyon live oak, and tanoak forest, with smaller areas of scrub and chaparral habitat. Elevations within the main parcel range from approximately 500 to 2,500 feet above sea level. The Project Area within the main parcel contains a number of east-west trending ridges extending from Empire Grade, transitioning into a north-south trending ridge that dips down into Cotoni Coast Dairies at the southern end of the main parcel. The southern portion of the Project Area burned in 2009, resulting in a mosaic of chaparral and forest regrowth and standing dead trees which provide high value for wildlife. The largest creek on the main parcel is San Vicente Creek, a perennial stream with its headwaters near Empire Grade.

The Laguna parcel is located to the southeast of the main parcel, adjacent to the Bonny Doon Ecological Reserve, home to a number of sensitive plant species adapted to the sandy soils that occur there. The Laguna parcel occurs on a different soil type and supports some sandhills or sand parkland habitat similar to that found on the adjacent Bonny Doon Ecological Reserve, however, the trail network avoids this area. On the Laguna parcel, the Project Area follows a more gentle south-westerly slope along the riparian corridor along Laguna Creek, a perennial creek with its headwaters near Empire Grade. Elevations within the Laguna parcel range from approximately 750 to 1,600 feet above sea level.

Both parcels were historically used for timber harvesting and contain dirt logging roads. Some active logging operations also occur on the main parcel. The main parcel contains portions of a utility road for high-tension electric transmission lines (referred to herein as the “powerline road”). The main parcel also contains a former quarry pit and a private inholding. Otherwise, both parcels are undeveloped and provide ample opportunity for both public access and wildland conservation.

## 5.0 RESULTS

The following sections present the results and discussion of the biological assessment within the Project Area. Figures showing the results of the assessment area included as Appendix A. Lists of all plant and wildlife species observed within the Project Area are included as Appendix B. An analysis of the potential for special-status plant species to occur within the Project Area is included as Appendix C. Photographs of the Project Area are included as Appendix D.

### 5.1 Biological Communities

Biological communities documented by ESA (2012) within the larger San Vicente Redwoods property are listed in Table 2 and are shown on Figure 3. These communities span a range of classification types ranging from high-level communities (*sensu* Holland 1986) to more refined vegetation alliances (*sensu* USFS 2009, Sawyer et al. 2009). Many of these communities, or elements of them, are present within the Project Area. Specific vegetation alliances and other biological communities observed by WRA within the Project Area are listed in Table 3. Descriptions of each community observed are provided in the following sections.

In general, the Project Area is dominated by a mix of redwood- and Douglas fir-dominated communities, with inclusions of other conifer and hardwood stands and patches of manzanita chaparral. Although some old-growth trees are present, most areas are dominated by second- or third-growth stands. Some stands appear to be relatively young, with a diverse understory. Other stands are well established and lack substantial understory vegetation. In many areas, it is clear that plant communities are transitioning from species that occur under open, sunny growing conditions to species that occur under dense, closed-canopy conditions. At the southern end of the Project Area within the main parcel, a large tract of forest was burned during 2009 and is currently dominated by a mix of chaparral and forest regrowth. A portion of the Laguna Parcel appears to have been burned in the 2008 Martin fire that affected the Bonny Doon Ecological Reserve; however, the portion of the Project Area that occurs on the Laguna Parcel is located away from the burned area. Limited riparian vegetation was observed in association with ephemeral and intermittent streams observed within the Project Area; often the vegetation adjacent to streams was indiscernible from adjacent upland vegetation. Larger intermittent and perennial streams contained more well-developed riparian vegetation.

In some portions of the Project Area (e.g., along Empire Grade Road and Warrenella Road), a shaded fuel break (*sensu* Agee et al. 2000) has been implemented. In these areas, all non-sensitive understory vegetation is removed and some overstory trees may be thinned. Shaded fuel breaks are thought to reduce fire fuel loads while maintaining habitat for species that prefer cover such as mountain lions. Shaded fuel breaks may also provide other habitat benefits, such as opening habitat for plant species that prefer light shade to open sun such as Anderson's manzanita. Within the Project Area, Anderson's manzanita was flagged and protected from removal. In these areas, Anderson's manzanita may benefit from the removal of dense understory brush and young saplings that can outcompete the species for sunlight and other resources.

Table 2. Coarse-Scale Biological Communities Mapped within the Larger San Vicente Redwoods Property by ESA (2012)

| Community Name      | Scientific Name <sup>1</sup>  |
|---------------------|---|
| Redwood             | <i>Sequoia sempervirens</i> Alliance                                |
| Redwood-Douglas Fir | <i>Sequoia sempervirens</i> - <i>Pseudotsuga menziesii</i> Alliance |
| Pacific Douglas Fir | <i>Pseudotsuga menziesii</i> Alliance                               |
| Santa Cruz Cypress  | <i>Callitropsis</i> [ <i>Cupressus</i> ] <i>abramsiana</i> Alliance |
| Maritime Chaparral  | Multiple  |
| Coast Live Oak      | <i>Quercus agrifolia</i> Alliance                                   |
| Knobcone Pine       | <i>Pinus attenuata</i> Alliance                                     |
| Coastal Scrub       | Multiple  |
| Grasslands          | Multiple  |
| Sandhills           | n/a   |
| Cultivated          | n/a   |
| Barren/Rock         | n/a   |
| Urban               | n/a   |
| Water               | n/a   |

<sup>1</sup>Scientific names from USFS (2009).

Table 3. Biological Communities Observed by WRA within the Project Area

| Common Name                                 | Scientific Name <sup>1</sup>                                     | State Rank | Sensitive? |
|---|--|------------|------------|
| <b>Tree-Dominated Communities</b>           |  |            |            |
| Madrone Forest                              | <i>Arbutus menziesii</i> Forest Alliance                         | S3.2       | Yes        |
| Tanoak Forest                               | <i>Notholithocarpus densiflorus</i> Forest Alliance              | S3.2       | Yes        |
| Coulter Pine Woodland (planted)             | <i>Pinus coulteri</i> Woodland Alliance                          | S4         | No         |
| Douglas Fir Forest                          | <i>Pseudotsuga menziesii</i> Forest Alliance                     | S4         | No         |
| Coast Live Oak Woodland                     | <i>Quercus agrifolia</i> Woodland Alliance                       | S4         | Yes        |
| Canyon Live Oak Forest                      | <i>Quercus chrysolepis</i> Forest Alliance                       | S5         | Yes        |
| Redwood Forest                              | <i>Sequoia sempervirens</i> Forest Alliance                      | S3.2       | Yes        |
| California Bay Forest                       | <i>Umbellularia californica</i> Forest Alliance                  | S3         | Yes        |
| <b>Shrub-Dominated Communities</b>          |  |            |            |
| Anderson's Manzanita Chaparral <sup>2</sup> | <i>Arctostaphylos andersonii</i> Shrubland Alliance <sup>2</sup> | n/a        | Yes        |
| Brittle Leaf Manzanita Chaparral            | <i>Arctostaphylos crustacea</i> Shrubland Alliance               | S2         | Yes        |
| <b>Aquatic Habitats</b>                     |  |            |            |
| Seasonal Wetland                            | n/a  | n/a        | Yes        |
| Shrub-Scrub Wetland                         | n/a  | n/a        | Yes        |
| Ephemeral/Intermittent Streams              | n/a  | n/a        | Yes        |
| <b>Developed/Disturbed Areas</b>            |  |            |            |
| Developed/Disturbed                         | n/a  | n/a        | No         |

<sup>1</sup>Scientific names from CNPS (2016).

<sup>2</sup>Community not described by CNPS (2016).

### **5.1.1 Non-Sensitive Biological Communities**

Non-sensitive biological communities observed within the Project Area include Coulter pine woodland, Douglas fir forest, and developed/disturbed areas. These communities and habitats are described below.

**Coulter Pine Woodland (*Pinus coulteri* Woodland Alliance); Rank G4 S4.** Coulter pine woodlands typically occur on steep upper slopes and ridges on dry soils. Coulter pine is the dominant tree, with other species such as canyon live oak (*Quercus chrysolepis*) or black oak (*Q. kelloggii*) as subdominants. This community typically occurs from 2,250 to 6,500 feet in elevation and occurs from the San Francisco Bay south into Baja California (Sawyer et al. 2009). No natural stands are known to occur within Santa Cruz County (CNPS 2016a).

Within the Project Area, Coulter pine occurs as planted stands, primarily adjacent to Empire Grade Road and in other locations on the main parcel. The high density of these planted stands has resulted in a dense overstory canopy and a thick layer of pine needles on the forest floor. Understory vegetation is generally lacking in these areas due to the dark conditions resulting from the dense overstory canopy and the smothering effect of the thick layer of pine needles on the forest floor. Areas of planted Coulter pine woodland within the Project Area offer high potential for restoration particularly for Anderson's manzanita.

**Douglas Fir Forest (*Pseudotsuga menziesii* Forest Alliance); Rank G5 S4.** Douglas fir forests occur in a broad range of topographic positions and aspects and on a variety of substrates extending from the Pacific Northwest south to southern California (Sawyer et al. 2009). The community typically occurs from 2,250 to 5,000 feet in elevation (CNPS 2016a). Due to the wide distribution of this community, co-dominant and non-dominant understory species vary widely.

Within the Project Area, Douglas fir forest occurs as both single-species stands and mixed with other conifers and hardwoods on both the main parcel and the Laguna parcel. In many parts of the Project Area, Douglas fir occurs as a co-dominant with tanoak (*Notholithocarpus densiflorus*) in what has been described as a Douglas fir-tanoak forest (*Pseudotsuga menziesii*-*Notholithocarpus densiflorus* Forest Alliance; Rank G4 S4), also a non-sensitive community (State Rank S4). In most portions of the Project Area, Douglas fir forest and Douglas fir-tanoak forest occurs in dense stands with limited understory development. In younger stands, the understory is dominated by tanoak and madrone (*Arbutus menziesii*) saplings.

**Developed/Disturbed Areas; No Rank.** Developed and/or disturbed areas are not described in the literature, but include areas that have been significantly modified by human activity. Within the Project Area, disturbed areas are primarily limited to dirt roads and logging landings. Some of the roads are actively used for utility maintenance and by local residents with properties adjacent to the San Vicente Redwoods property; however, most roads within the Project Area are former logging roads that have been decommissioned. These areas generally lack natural vegetation or are dominated by early seral species, many of which are weedy non-natives. Developed and/or disturbed areas are not considered sensitive under the CEQA.

### **5.1.2 Sensitive Biological Communities**

Sensitive biological communities observed within the Project Area include eight terrestrial communities (madrone forest, tanoak forest, redwood forest, coast live oak woodland, canyon live oak forest, California bay forest, Anderson's manzanita chaparral, and brittle leaf manzanita chaparral) and three aquatic communities (seasonal wetlands, shrub-scrub wetlands, and

streams). These communities and habitats would be considered sensitive under the CEQA and some may also be protected under other federal, state, or local laws (e.g., wetlands and streams).

### **Sensitive Terrestrial Communities**

**Madrone Forest (*Arbutus menziesii* Forest Alliance); Rank G4 S3.2.** Madrone forests form a network of small stands extending along the west coast from British Columbia to the California border with Mexico (CNPS 2016a). These forests are located within a range of topographic positions and on a variety of soil types (Sawyer et al. 2009).

Within the Project Area, madrone forest occurs as small patches within a larger matrix of mixed coniferous forest primarily on the main parcel. Although only a few areas might be considered true madrone forest, the species occurs in large numbers throughout the Project Area and provides a valuable food source for birds and small mammals. During surveys conducted in early 2016, large numbers of migrating American robins (*Turdus migratorius*) were observed foraging among stands of fruiting madrone. The species responds well to fire, resprouting from burned stumps. This community would be considered sensitive under the CEQA.

**Tanoak Forest (*Notholithocarpus densiflorus* Forest Alliance); Rank G4 S3.2.** Tanoak forests occur primarily in hilly to mountainous regions from Oregon to Point Conception in southern California (CNPS 2016a). Tanoak forests occur on a range of topographic positions and aspects; however, they are generally restricted to areas with deep, well-drained soil (Sawyer et al. 2009). Tanoak seedlings and saplings are adapted to growth in densely forested areas with low light levels under the canopy (CNPS 2016a). The species responds well to fire, resprouting from burned stumps. Tanoaks produce large seed crops every other year, with mast years in 6-year cycles (CNPS 2016a).

Within the Project Area, tanoak occurs as a dominant understory species in redwood and Douglas fir forests and is the dominant overstory tree in many areas on both the main parcel and the Laguna parcel. Where tanoak is the dominant overstory tree, a dense layer of leaf litter accumulates, preventing the germination and establishment of many understory herbs and shrubs, creating a relatively sparse, low-diversity understory. The widespread distribution of this species within the larger San Vicente Redwoods property undoubtedly provides a valuable food source for many mammals. This community would be considered sensitive under the CEQA.

**Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance); Rank G5 S4.** Coast live oak woodland is known from the outer and inner Coast Ranges and Transverse Ranges, and along the coast from northern Mendocino County south to San Diego County. This community is typically located on terraces, canyon bottoms, slopes, and flats underlain by deep, well-drained sandy or loam substrates with high organic content (Sawyer et al. 2009).

Within the Project Area, coast live oak woodland occurs in limited stands within pockets of other forest types, primarily on the main parcel. Coast live oak appears to co-occur with Canyon live oak (*Quercus chrysolepis*) and potentially with Shreve oak (*Quercus parvula* var. *shrevei*). However, due to the tall size of the trees, WRA biologists were limited to identifying trees using leaves and acorns that were fallen on the ground. Due to the co-occurrence of multiple oak species and potential hybridization, it was difficult to discern the relative dominance of each oak species. In addition, many of the oaks observed by WRA biologists displayed characteristics from multiple species, suggesting that the oaks may be hybridizing. Although coast live oak forest is not considered a sensitive community by the CDFW, it is considered sensitive by Santa Cruz County and would be considered sensitive under the CEQA.

**Canyon Live Oak Forest (*Quercus chrysolepis* Forest Alliance); Rank G5 S5.** Canyon live oak forest is known to occur throughout California, with the exception of the Modoc Plateau, the Central Valley, and parts of the desert region (CNPS 2016a). The community is known to occur in a wide range of topographic positions, from stream benches and canyon bottoms to steep, rocky slopes on infertile soils (CNPS 2016a). Due to the large range of this community, co-dominant species vary widely based on location within the State.

Within the Project Area, canyon live oak forest occurs in limited stands within pockets of other forest types, primarily on the main parcel. As noted for coast live oak woodland, canyon live oak appears to co-occur with other oaks such as coast live oak or Shreve oak. However, due to the difficulty in reaching fresh leaves and acorns and potential issues with hybridization, it was difficult to discern the relative dominance of each oak species. Although canyon live oak forest is not considered a sensitive community by the CDFW, it is considered sensitive by Santa Cruz County and would be considered sensitive under the CEQA.

**Redwood Forest (*Sequoia sempervirens* Forest Alliance); Rank G3 S3.2.** Redwood forests are known from extensive, nearly contiguous, stands in the North Coast Ranges and isolated stands in the Central Coast Ranges, from Del Norte County to Santa Barbara County (Sawyer et al. 2009). These forests are typically located on stream terraces, benches, coastal slopes, and canyon bottoms underlain by deep, well-drained loams (Sawyer et al. 2009). The species responds well to fire, resprouting from burned stumps (CNPS 2016a).

Within the Project Area, redwood forest forms the dominant plant community, often co-occurring with subdominant trees such as Douglas fir and tanoak on both the main parcel and the Laguna parcel. The dense overstory canopy of the redwood forest prevents the establishment of a diverse understory community; however, in many areas, the understory is dominated by tanoak saplings and young trees. Although most of the redwoods within the Project Area are second or third growth, some trees are considered old-growth, and many of the second or third growth trees are relatively large and provide valuable wildlife habitat. This community would be considered sensitive under the CEQA.

**California Bay Forest (*Umbellularia californica* Forest Alliance); Rank G4 S3.** California bay forests are known from the inner and outer Coast Ranges, Transverse Ranges, and Sierra Nevada Foothills from Del Norte County south to San Diego County (Sawyer et al. 2009). This community is typically located on terraces, canyon bottoms, north-facing slopes, and rock outcrops underlain by shallow to deep sand to loam substrates (Sawyer et al. 2009). The species responds well to fire, resprouting from burned stumps (CNPS 2016a).

Within the Project Area, California bay primarily occurs as a subdominant species within other forest types, primarily on the main parcel. Although it does not occur in as high of numbers as species such as tanoak or madrone, California bay is likely an important food source for wildlife within the Project Area. This community would be considered sensitive under the CEQA.

**Anderson's Manzanita Chaparral (*Arctostaphylos andersonii* Shrubland Alliance); No Rank.** Anderson's manzanita chaparral has not been described in the literature; however, given the widespread distribution of this species within the Project Area and its occurrence in many areas as large, single-species stands, WRA believes that it deserves consideration as its own plant community. Although this community has not been described and does not have an official global or state ranking, the dominant species in this community, Anderson's manzanita, has a California Rare Plant Rank of 1B.2, and therefore, the community should be considered sensitive under the CEQA. As a species, Anderson's manzanita is restricted to the Southern Santa Cruz Mountains (Kauffmann et al. 2015).

Within the Project Area, Anderson's manzanita occurs both as scattered individuals or small groups of individuals and as large, single-species stands, primarily on the main parcel, but also on the Laguna parcel. Because the dominant species in this community is a special-status plant, occurrences of this community were mapped during rare plant surveys. Collectively, these occurrences were estimated to occupy approximately 7.75 acres within the Project Area; this likely represents a small fraction of the total occurrences on the greater San Vicente Redwoods site.

The species is adapted to lightly shaded to open, sunny conditions and is best represented in forest openings and along road cuts within the forest. Where this species occurs under dense overstory canopy, it is experiencing significant mortality; in these areas, it is clear that the species became established under more open, sunny conditions following a timber harvest but is currently dying off due to the subsequent reestablishment of the overstory canopy. In the presence of fire suppression, active management may be required to maintain suitable open habitat for this species. This community would be considered sensitive under the CEQA.

**Brittle Leaf Manzanita Chaparral (*Arctostaphylos crustacea* Shrubland Alliance); Rank G2 S2.** Although brittle leaf manzanita is not considered a special-status species, as a community it has limited distribution and is therefore considered sensitive. The community occurs in the Coast Ranges, from the San Francisco Bay Area south to near Point Conception, and on the Catalina Islands (CNPS 2016a). Brittle leaf manzanita chaparral occurs in uplands near the coast and in adjacent areas subject to the maritime climate, primarily on nutrient-poor soils derived from sandstone, shale, and granite (CNPS 2016a).

Within the Project Area, this community is composed of the *crinita* subspecies. This community occurs in mixed conifer forest, as well as in open areas on ridges and other high points, primarily on the main parcel, but also on the Laguna parcel. The community typically occurs as small patches with a limited number of individuals; however, in some areas, this community occurs as large, single-species stands. This community would be considered sensitive under the CEQA.

### **Sensitive Aquatic Communities**

The Project Area generally contains steep topography and well-drained soils. The proposed trail alignment occurs primarily on side slopes and ridges, avoiding low spots where water may collect and create wetland conditions. As such, the Project Area contained a relatively limited amount of sensitive aquatic resources. These resources were primarily limited to seasonal to perennial wetlands associated with seeps and compacted portions of old logging roads, as well as stream crossings and associated riparian wetlands. Wetlands, including both three-parameter Corps/RWQCB wetlands and one-parameter Coastal Act Wetlands, documented within or adjacent to the Project Area are shown on Figure 4. Locations where the proposed trail alignment crosses drainages or streams potentially subject to regulatory authority by one or more agency are shown on Figure 5. These features are protected by local, state, and federal laws and would be considered sensitive under the CEQA.

**Seeps and Seasonal Wetlands; No Rank.** Seeps and seasonal wetlands occur throughout the state in a wide range of topographic settings. As such, vegetation associated with seeps and seasonal wetlands varies greatly across the state. Outside of the Coastal Zone, seeps and seasonal wetlands are mapped following guidance from the U.S. Army Corps of Engineers which requires the presence of three parameters: wetland vegetation, wetland soils, and wetland hydrology. Within the Coastal Zone, wetlands are mapped based on the presence of a single parameter (wetland vegetation, wetland soils, or wetland hydrology; see Section 3.1.2).

A limited number of seeps and seasonal wetlands were observed within the Project Area. These features included hillside and roadside seeps dominated by golden chain fern (*Woodwardia fimbriata*) and a variety of sedge (*Carex* sp.) and rush (*Juncus* sp.) species, as well as compacted portions of old logging roads dominated by sedges and rushes.

**Shrub-Scrub Wetlands, No Rank.** The Project Area contained a limited number of shrub-scrub wetlands located at stream or drainage crossings. These areas were dominated by wetland- and riparian-associated shrubs such as western azalea (*Rhododendron occidentale*), ocean spray (*Holodiscus discolor*), or hazelnut (*Corylus cornuta*). In many cases, these wetlands lacked strong indicators of wetland hydrology or hydric soils and were considered wetlands only for the purposes of the Coastal Act. In other cases, all three parameters were present and the wetlands were mapped as wetlands for the purposes of the Clean Water Act and other laws. These tended to be larger, more well-developed wetlands associated with streams. These wetlands often had a strong understory dominated by species such as slough sedge (*Carex obnupta*), California spikenard (*Aralia californica*), and golden chain fern.

**Ephemeral, Intermittent, and Perennial Streams; No Rank.** The Project Area contains a number of ephemeral drainages and intermittent to perennial streams. The headwaters of these streams are typically shallow swales which convey water after major storms, but are differentiated from jurisdictional streams which convey water with greater regularity and for longer duration by the lack of a clear bed and bank, lack of an ordinary high water mark, and lack of any riparian vegetation that is discernably different from the adjacent vegetation. Larger intermittent and perennial streams occur lower in the watershed, and Laguna Creek, a perennial stream, features prominently in the Project Area for the Laguna parcel. These streams often contained more well-developed riparian vegetation.

The Project Area includes 64 crossings of ephemeral drainages and intermittent to perennial streams that would be considered jurisdictional by the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, and the California Department of Fish and Wildlife. These crossings are shown on Figure 5. Streams within the Project Area are protected under State and Federal laws and would be considered sensitive under the CEQA.

## 5.2 Special-Status Species

### 5.2.1 Special-Status Plants

Based upon a review of the resources and databases given in Section 3.2.1, it was determined that 69 special-status plant species have been documented from the vicinity of the Project Area, exclusive of mosses and lichens. Figure 6 shows special-status plant species that have been documented in the CNDDB within 5 miles of the Project Area (CDFW 2016a). Appendix C summarizes the potential for occurrence for each special-status plant species documented from the vicinity of the Project Area.

One special-status plant species was observed in the Project Area during the assessment site visits: Anderson's manzanita (*Arctostaphylos andersonii*; Rank 1B.2). Other special-status plants, such as Point Reyes horkelia (*H. marinensis*; Rank 1B.2), are known to occur on the greater San Vicente Redwoods Property, but were not observed within the Project Area. Figure 7 shows the special-status plant species that were observed within the Project Area during surveys conducted for this report.

In addition to the two special-status plant species known to occur within the Project Area, 24 additional special-status plant species were originally determined to have a moderate to high

potential to occur in the Project Area based on the presence of potentially suitable habitat and known occurrences of the plants from the immediate vicinity, including reports of some species from within the larger San Vicente Redwoods property:

- Schreiber's manzanita (*Arctostaphylos glutinosa*; Rank 1B.2)
- Ohlone manzanita (*A. ohloneana*; Rank 1B.1)
- Pajaro manzanita (*A. pajaroensis*; Rank 1B.1)
- Kings Mountain manzanita (*A. regismontana*; Rank 1B.2)
- Bonny Doon manzanita (*Arctostaphylos silvicola*; Rank 1B.2)
- Brewer's red maids (*Calandrinia breweri*; Rank 4.2)
- Santa Cruz Mountains pussypaws (*Calyptridium parryi* var. *hesseae*; Rank 1B.1)
- Bristly sedge (*Carex comosa*; Rank 2B.1)
- Deceiving sedge (*Carex saliniformis*; Rank 1B.2)
- Robust spineflower (*Chorizanthe robusta* var. *robusta*; FE, Rank 1B.1)
- Mountain lady's-slipper (*Cypripedium montanum*; Rank: 4.2)
- California bottle-brush grass (*Elymus californicus*, CNPS Rank 4.3)
- Santa Cruz cypress (*Hesperocyparis abramsiana* var. *abramsiana*; FE, SE, Rank 1B.2)
- Butano Ridge cypress (*Hesperocyparis abramsiana* var. *butanoensis*; FE, SE, Rank 1B.2)
- Point Reyes horkelia (*Horkelia marinensis*; Rank 1B.2)
- Arcuate bush-mallow (*Malacothamnus arcuatus*; Rank 1B.2)
- Santa Cruz County monkeyflower (*Mimulus rattanii* ssp. *decurtatus*; Rank 4.2)
- Northern curly-leaved monardella (*Monardella sinuata* ssp. *nigrescens*; Rank 1B.2)
- Dudley's lousewort (*Pedicularis dudleyi*; State Rare, Rank 1B.2)
- Santa Cruz Mountains beard tongue (*Penstemon rattanii* var. *kleei*; Rank 1B.2)
- White-flowered rein orchid (*Piperia candida*; Rank 1B.2)
- Pine rose (*Rosa pinetorum*; Rank 1B.2)
- Hoffmann's sanicle (*Sanicula hoffmannii*; Rank 4.3)
- Rayless ragwort (*Senecio aphanactis*; Rank 2B.2)
- San Francisco campion (*Silene verecunda* ssp. *verecunda*; Rank 1B.2)
- Santa Cruz microseris (*Stebbinsoseris decipiens*; Rank 1B.2)

None of these species were observed during seasonally-timed, focused surveys along the entirety of the proposed alignment and parking and staging areas. The lack of additional special-status plant observations was largely attributed to the dense, closed canopy conditions and deep tanoak leaf litter that dominate a large percentage of the Project Area. Based on the lack of observations, it was determined that these species are unlikely to occur within the Project Area and no additional surveys are recommended. Details about these species are included in Appendix C.

The remaining 43 species documented from the vicinity of the Project Area were determined to be unlikely to occur based on a lack of suitable habitat conditions. In general, these are plants that occur along the immediate coast or that occur in open, sunny habitats such as grasslands, which are generally lacking within the Project Area. Many of these species are also known to occur on specific soil types which are not present within the Project Area such as serpentine soils or Zayante sands (Zayante sands are mapped at the western edge of the larger San Vicente Redwoods property, but do not occur near the Project Area). Finally, many of these species occur in perennially wet marsh or swamp habitats which generally do not occur within the Project Area. These species may have potential to occur within other portions of the larger San Vicente Redwoods property; however, they are unlikely to occur within the Project Area.

Special-status plant species that are present within in the Project Area are discussed below, as are federally listed plant species that were not observed and determined to be not present.

### **Special-Status Plant Species Present within the Project Area**

**Anderson's manzanita (*Arctostaphylos andersonii*), Rank 1B.2.** Anderson's manzanita is a perennial shrub that occurs in the Santa Cruz Mountains in chaparral and at the openings and edges of broadleaf upland forest and North Coast coniferous forest habitats at elevations from 60 to 760 meters (Baldwin et al. 2012; Kauffmann et al 2015). The species blooms between November and May (CNPS 2016b). During surveys conducted for this report, numerous occurrences of this species were observed within the Project Area, both on the main parcel and the Laguna parcel (Figure 7). In many cases, the species occurs as scattered individuals or small clusters of individuals. However, in some areas, the species occurs as large, single-species stands. In open areas, the shrub is generally healthy in appearance; however, where the species occurs under closed canopy conditions, it is in decline. Many dead or dying individuals were observed within heavily forested portions of the Project Area. It is clear that many occurrences of this species became established under more open, sunny conditions such as after a timber harvest and are now in decline as the forest returns.

### **Federally Listed Plants that Occur in the Region but are Unlikely to Occur in the Project Area**

**Marsh sandwort (*Arenaria paludicola*); Federal Endangered, State Endangered, Rank 1B.1.** Marsh sandwort is a stoloniferous herb in the pink family (Caryophyllaceae) that blooms from May to August (CNPS 2016b). This species occurs in sandy openings in freshwater or brackish marshes and swamps from 10 to 558 feet in elevation and is known from seven USGS 7.5-minute quadrangles in Los Angeles and San Luis Obispo counties (CDFW 2016a, CNPS 2016b). The species is believed extirpated from San Bernardino, Santa Cruz, and San Francisco counties, and Washington State. This species was determined to be unlikely to occur within the Project Area due to a lack of extant populations within the region and a lack of suitable marsh or swamp habitat within the Project Area.

**Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*); Federal Endangered, Rank 1B.1.** Ben Lomond spineflower is an annual herb in the buckwheat family (Polygonaceae) that blooms from April to July (CNPS 2016b). The species occurs in maritime ponderosa pine sandhills habitat in six USGS 7.5-minute quadrangles Santa Cruz County (CDFW 2016a, CNPS 2016b). The species is thought to be threatened by sand mining, development, and non-native plants (CNPS 2016b). This species was determined to be unlikely to occur within the Project Area due to a lack of suitable habitat. Suitable habitat for this species may be present within the larger San Vicente Redwoods property, but is not found within the Project Area.

**Scotts Valley spineflower (*Chorizanthe robusta* var. *hartwegii*); Federal Endangered, Rank 1B.1.** Scotts Valley spineflower is an annual herb in the buckwheat family (Polygonaceae) that blooms from April to July (CNPS 2016b). This variety occurs in meadows and seeps with sandy soils and in valley and foothill grassland on mudstone and Purisima outcrops from 755 to 804 feet in elevation (CDFW 2016a, CNPS 2016b). The species is a California endemic documented from only two USGS 7.5-minute quadrangles in Santa Cruz County (CNPS 2016b). Development and vehicles threaten the variety (CNPS 2016b). This species was determined to be unlikely to occur within the Project Area due to a lack of suitable meadows, seeps, or grasslands.

**Robust spineflower (*Chorizanthe robusta* var. *robusta*); Federal Endangered, Rank 1B.1.** Robust spineflower is a summer-flowering annual herb in the buckwheat family (Polygonaceae) found on sandy soils in chaparral, coastal dune, coastal scrub, sandy coastal prairie sites, and openings in cismontane woodland communities with coarse soils and relatively sparse ground cover (CDFW 2016a, CNPS 2016b). This species requires sand- or gravel-based soils and is

found at elevations from 10 to 1000 feet. Its blooming period is from April to September, although in years with late fall rains, fruiting structures may be obvious as late as November. It is found in Monterey, Santa Cruz, San Francisco, and San Mateo counties, and is thought to be extirpated in its historic range in Santa Clara and Alameda counties. The species is threatened by development, recreation, mining, and non-native plants (CNPS 2016b). Within the Project Area, this species was originally determined to have potential to occur in openings such as at road crossings. However, this species was not observed during seasonally-timed surveys and it is assumed to be not present.

**Santa Cruz wallflower (*Erysimum teretifolium*); Federal Endangered, State Endangered, Rank 1B.1.** Santa Cruz wallflower is a perennial herb in the mustard family (Brassicaceae) that blooms from March to July (CNPS 2016b). This species occurs on inland marine sands (Zayante sands) in chaparral and lower montane coniferous forest from 394 to 2001 feet in elevation (CDFW 2016a, CNPS 2016b). The range of this California endemic spans three USGS 7.5-minute quadrangles in Santa Cruz County (CNPS 2016b). Development, sand mining, and vandalism pose serious threats to the species (CNPS 2016b). This species was determined to be unlikely to occur within the Project Area due to a lack of suitable substrate (Zayante sands). Although potentially suitable substrate may be present within the larger San Vicente Redwoods property, it is unlikely to occur within the Project Area.

**Santa Cruz cypress (*Hesperocyparis abramsiana* var. *abramsiana*); Federal Endangered, State Endangered, Rank 1B.1.** Santa Cruz cypress is an evergreen, coniferous tree in the cypress family (Cupressaceae) with an elevational range of approximately 920 to 2650 feet (CNPS 2016b). This species is not a flowering plant and does not bloom, but produces male and female cones on the same plant and remnants, early cones, and/or open cones of one or both sexes should be visible on reproductive individuals year-round (i.e., the species is identifiable year-round). Santa Cruz cypress occurs in closed-cone coniferous forests, chaparral, and lower montane coniferous forests in areas underlain with sandstone-derived or granitic soils (CDFW 2016a, CNPS 2016b). The species is endemic to California and is known from less than ten natural populations in four USGS quadrangles in San Mateo and Santa Cruz counties (CNPS 2016b). This species may be threatened by development, agriculture, alteration of fire regimes, and introgression from the closely related species Monterey cypress (*H. macrocarpa*) (CNPS 2016b), which is planted as a common ornamental tree in the area. Although this species has been documented from the immediate vicinity of the Project Area along Empire Grade Road, WRA received anecdotal evidence that the population has been extirpated (Nadia Hamey, Big Creek forester, personal communication to Matthew Richmond, April 6, 2016). Moreover, this species is identifiable year-round, but was not observed during surveys within the Project Area. As such, this species was determined to be not present within the Project Area.

**Butano Ridge cypress (*Hesperocyparis abramsiana* var. *butanoensis*); Federal Endangered, State Endangered, Rank 1B.1.** Butano Ridge cypress is an evergreen, coniferous tree in the cypress family (Cupressaceae) with an elevational range of approximately 920 to 2650 feet (CNPS 2016b). This species is not a flowering plant and does not bloom, but produces male and female cones on the same plant and remnants, early cones, and/or open cones of one or both sexes should be visible on reproductive individuals year-round (i.e., the species is identifiable year-round). Butano Ridge cypress occurs in closed-cone coniferous forests, chaparral, and lower montane coniferous forests in areas underlain with sandstone-derived soils (CDFW 2016a, CNPS 2016b). The species is endemic to California and is known from Butano Ridge (CNPS 2016b), located over 8 miles from the Project Area. This species may be threatened by alteration of fire regimes and recreation (CNPS 2016b). This species was determined to be unlikely to occur within the Project Area based on its hyperlocal occurrence on Butano Ridge. Moreover, the species is identifiable year-round, but was not observed during surveys within the Project Area. As such, this species was determined to be not present within the Project Area.

**Santa Cruz tarplant (*Holocarpha macradenia*); Federal Threatened, State Endangered, Rank 1B.1.** Santa Cruz tarplant is an annual herb from the sunflower family (Asteraceae) that blooms from June to October (CNPS 2016b). The species is found on grassy coastal terraces at elevations ranging from 33 to 726 feet (CDFW 2016a, CNPS 2016b). Suitable habitats include coastal prairie, coastal scrub, and valley and foothill grasslands (CDFW 2016a, CNPS 2016b). This species often occurs on moderately disturbed, sandy or clay soils (CNPS 2009). However, specific microhabitat preferences for this plant are not well known and some populations described in the CNDDDB occur on loamy soils (CDFW 2016a). The only remaining natural occurrences are known from Santa Cruz and Monterey counties, and the species has been largely extirpated from Marin, Contra Costa, and Alameda counties (CNPS 2016b). Extant populations in Solano County are recent re-introductions; most re-introduced populations have failed (CNPS 2016b). This species is severely threatened by urbanization, agriculture, and non-native plants and also depends on appropriate ecological disturbance for persistence in an area, which may be lacking from many areas (CNPS 2016b). This species was determined to be unlikely to occur within the Project Area due to a lack of suitable coastal terrace, coastal prairie, coastal scrub, and valley and foothill grassland habitats.

**White-rayed pentachaeta (*Pentachaeta bellidiflora*); Federal Endangered, State Endangered, Rank 1B.1.** White-rayed pentachaeta is an annual herb in the sunflower family (Asteraceae) that blooms from March to May (CNPS 2016b). The species occurs in cismontane woodlands and valley and foothill grassland habitats at elevations of approximately 115 - 2050 feet (CDFW 2016a, CNPS 2016b). When occurring in grassy habitats, this species is often found on serpentine-derived substrates (CNPS 2016b). Within other habitats, this species occurs on dry, rocky slopes (CDFW 2016a). White-rayed pentachaeta was known from 12 USGS 7.5-minute quadrangles in Marin, Santa Cruz, and San Mateo counties, but is now presumed extirpated from all historical locations except those in the Woodside quadrangle in San Mateo County. All of the previously known occurrences were lost to development, making this a major threat for the species. This species was determined to be unlikely to occur within the Project Area to a lack of suitable grassland habitat and dry, rocky openings within woodland habitat, in addition to being considered extirpated from the region.

**Scotts Valley polygonum (*Polygonum hickmanii*); Federal Endangered, State Endangered, Rank 1B.1.** Scotts Valley polygonum is an annual herb in the knotweed family (Polygonaceae) that blooms from May to August (CNPS 2016b). This species occurs on mudstone- and sandstone-derived substrates in valley and foothill grassland habitats from 689 to 820 feet in elevation. This California endemic is only known from two occurrences in Scotts Valley (CDFW 2016a). The species is threatened by development and invasive plants (CNPS 2016b). This species was determined to be unlikely to occur within the Project Area due to a general lack of grassland habitat.

### **5.2.2 Special-Status Wildlife**

Seventy-seven special-status wildlife species have been recorded in the vicinity or have ranges that overlap with the Project Area based on a review of the resources outlined in Section 3.2.1. Figure 8 shows special-status wildlife species documented within 5 miles of the Project Area (CDFW 2016a). Appendix C summarizes the potential for each of these species to occur in the Project Area. Three special-status wildlife species were observed in the Project Area during the site assessment: oak titmouse (*Baeolophus inornatus*; USFWS Bird of Conservation Concern), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*; CDFW Species of Special Concern), and California red-legged frog (*Rana draytonii*; Federal Threatened, CDFW Special of Special Concern). In addition to these three species, six special-status wildlife species were determined to have a high potential to occur in the Project Area, seven special-status wildlife species were determined to have a moderate potential to occur, and it was determined that the

Project Area contains designated Critical Habitat for California red-legged frog (*Rana draytonii*). The remaining 61 species documented from within the vicinity of the Project Area were determined to be unlikely or have no potential to occur. Special-status wildlife species observed during WRA's site visits and significant wildlife life habitat features (i.e., large, complex old-growth trees) that may support special-status species are shown on Figure 9.

### **Special-Status Wildlife Present within the Project Area**

**Oak titmouse (*Baeolophus inornatus*); USFWS Bird of Conservation Concern.** This relatively common species is a year-round resident throughout much of California, including most of the coastal slope, the Central Valley, and the western Sierra Nevada foothills. In addition, the species may also occur in residential settings where landscaping provides foraging and nesting habitat. Its primary habitat is woodland dominated by oaks. Local populations have adapted to woodlands of pines and/or junipers in some areas (Cicero 2000). Oak titmouse nests in tree cavities, usually natural cavities or those excavated by woodpeckers, although they may partially excavate their own cavities (Cicero 2000). Seeds and arboreal invertebrates comprise the bird's diet. This species was observed foraging within various forest and edge habitat throughout the Project Area. Impacts to this species may be considered significant under the CEQA.

**San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); CDFW Species of Special Concern.** This subspecies of the dusky-footed woodrat occurs in the Coast Ranges between San Francisco Bay and the Salinas River (Matocq 2003). Occupied habitats are variable and include forest, woodland, and chaparral habitats, including riparian areas. Woodrats feed on woody plants, but will also consume fungi, grasses, flowers, and acorns. Foraging occurs on the ground and in bushes and trees. This species constructs robust stick houses/structures, also referred to as middens, in areas with moderate cover and an understory containing woody debris. Breeding takes place from December to September. Individuals are active year-round and are generally nocturnal.

This species was observed within the Project Area and large stick houses (i.e., middens) were found to be prolific throughout the Project Area, but concentrated in the northern portion of the main parcel. Middens were commonly found in every terrestrial/upland biological community within the Project Area, and were frequently encountered in high density. Surveyors mapped 1,815 middens within 25-feet on either side of the proposed trail alignment and within the proposed parking area and an associated 25-foot buffer (Figure 9). Based on the representative densities of woodrat middens within the Project Area (approximately 8.7 middens per acre), it is estimated that the greater San Vicente Redwoods site may harbor as many as 74,000 woodrat nests. Based on a 5-foot wide trail and 1 foot of vegetation clearance on either side (7 feet total disturbance), it is estimated that up to 144 woodrat middens could be directly impacted by trail construction. However, such impacts are theoretical given that there is flexibility to move the trail anywhere within the 50-foot-wide band surveyed for this report. Impacts to dusky-footed woodrat species must be considered under the CEQA; however, given the large number of middens potentially present at the site and the minor number of middens that would be directly impacted by trail construction, such impacts would clearly not threaten the existence of the species at the site and therefore should not be considered significant under the CEQA.

**California red-legged frog (*Rana draytonii*); Federal Threatened, CDFW Species of Special Concern.** The California red-legged frog (CLRF) is dependent on suitable aquatic, estivation, and upland habitats. During the rainy season, starting with the first rainfall in late fall, red-legged frogs disperse away from their estivation sites to seek suitable breeding habitat. Dispersal is more prevalent during wet weather such as during rain or heavy fog. Aquatic and breeding habitats are characterized by dense, shrubby, riparian vegetation and deep, still or slow-moving

water. Breeding occurs between late November and late April. California red-legged frogs estivate (a period of inactivity similar to hibernation) during the dry months in small mammal burrows, moist leaf litter, incised stream channels, and large cracks in the bottom of dried ponds.

This species has been documented to occur within the larger San Vicente Redwoods property, and the Project Area contains Critical Habitat for the species (Unit SCZ-1; see Section 4.2.3 for a discussion of CRLF Critical Habitat). A CRLF occurrence from 1997 is located adjacent to the Project Area, and there are many additional documented occurrences within 2 miles of the Project Area (CDFW 2016a). Although no suitable breeding habitat was observed (i.e., no slow or standing water with adequate depth to support breeding), the Project Area provides potential dispersal and aquatic non-breeding habitat that may support the species. During a June 2017 site visit WRA biologists observed an adult CRLF in a shallow pool along an existing road within the proposed alignment (Figure 9). The Project Area is located within dispersal distance of known occurrences. Although the species is unlikely to breed within the Project Area, it may occur seasonally, during dispersal events.

### **Special-Status Wildlife with High Potential to Occur within the Project Area**

**Townsend's big-eared bat, (*Corynorhinus townsendii townsendii*); State Candidate, CDFW Species of Special Concern, WBWG High Priority.** This species ranges throughout western North America, from British Columbia to central Mexico. Its local distribution is strongly associated with the presence of caves, but roosting also occurs within human-made structures, including mines and buildings. While many bats species wedge themselves into tight cracks and crevices, big-eared bats hang from walls and ceilings in the open. Males roost singly during the spring and summer months whereas females aggregate at maternity roosts to give birth in the spring. Females roost with their young until late summer or early fall, until the young become independent, flying and foraging on their own. In central and southern California, hibernation roosts tend to be composed of small aggregations of individuals (Pierson and Rainey 1998). Foraging typically occurs along edge habitats near streams and wooded areas, where moths are the primary prey (WBWG 2015). This species has been documented roosting within cave habitat in close proximity to the Project Area and there are numerous occurrences documented within 5 miles of Project Area (CDFW 2016a). Therefore, the species was determined to have a high potential to occur within the Project Area. Impacts to this species could be considered significant under the CEQA.

**Marbled murrelet (*Brachyramphus marmoratus*); Federal Threatened, State Endangered.** The marbled murrelet is a small seabird that breeds up to 30 miles inland from the coast on large limbs of redwood and Douglas fir trees. At sea, it feeds on small fish near the shore and travels from nesting sites to feed at the coast at dawn and dusk during the breeding season. Breeding requirements for this species are not well documented in the southern portion of its range; however, it appears that dense, humid coastal forests of old-growth trees are necessary for breeding. The breeding range of the marbled murrelet in California is considered to be split, with the majority of the population breeding within the extreme northwest portion of its range (i.e., Oregon border south to Eureka) and a smaller population breeding south of San Francisco (Pillar Point south to Santa Cruz) (Small 1994).

There are numerous occurrences of this species documented throughout the Santa Cruz Mountains, the closest of which are located approximately 1 mile to the west and 1.9 miles to the east of the Project Area (CDFW 2016a). Critical Habitat for the species is also located approximately 1.2 miles south (Unit CA-15) and 2.4 miles north (Unit CA-14-b). Within the Project Area, several stands of old-growth redwood occur and provide potentially suitable nesting habitat

for the species. Several large old-growth trees with complex canopy structures have also been documented within the Project Area and are shown on Figure 9. Therefore, although the species has not been documented within the Project Area, nor does the Project Area contain Critical Habitat, the presence of trees that could support potentially suitable nesting habitat and the proximity of known occurrences and designated Critical Habitat gives this species a high potential to occur within the greater Project Area.

**Vaux's swift (*Chaetura vauxi*); CDFW Species of Special Concern.** The Vaux's swift is a summer resident in California, breeding on the coast from central California northward and in the Cascade and Sierra Nevada ranges. Nesting occurs in large, accessible, chimney-like tree cavities that allow birds to fly within the cavity directly to secluded nest sites. Such cavities usually occur in conifers, especially old-growth redwoods (Shuford and Gardali 2008). Chimneys and similar human-made substrates are also used for nesting. This species is highly aerial and forages widely for insects in areas of open airspace. During migration, nocturnal roosting occurs communally and favored sites may host thousands of individuals. Within the Project Area, large stands of coniferous forest with complex canopies and snags occur throughout and provide potentially suitable nesting and foraging habitat. Due to presence of available nesting and foraging habitat, this species was determined to have a high potential to occur within the Project Area.

**Allen's hummingbird (*Selasphorus sasin*); USFWS Bird of Conservation Concern.** Allen's hummingbird, common in many portions of its range, is a summer resident along the majority of California's coast and a year-round resident in portions of coastal southern California and the Channel Islands. Breeding occurs in association with the coastal fog belt, and typical habitats used include coastal scrub, riparian habitat, woodland and forest edges, and eucalyptus and cypress groves (Mitchell 2000). The species feeds on nectar, as well as insects and spiders. Within the Project Area, mature oaks, riparian woodland, and edge habitat provide potentially suitable nesting habitat, and thus, the species was determined to have a high potential to occur.

**Nuttall's woodpecker (*Picoides nuttalli*); USFWS Bird of Conservation Concern.** Nuttall's woodpecker, common in much of its range, is a year-round resident throughout most of California, west of the Sierra Nevada Range. Typical habitat is oak or mixed woodland, and riparian areas (Lowther 2000). Nesting occurs in tree cavities, principally those of oaks and larger riparian trees. Nuttall's woodpecker also occurs in older residential settings and orchards where trees provide suitable foraging and nesting habitat. This species forages on a variety of arboreal invertebrates. Within the Project Area, mature oaks and riparian woodland provide potentially suitable nesting habitat, and thus, the species was determined to have a high potential to occur.

**Olive-sided flycatcher (*Contopus cooperi*); USFWS Bird of Conservation Concern, CDFW Species of Special Concern.** This species is found within the coniferous forest biome, most often associated with forest openings, forest edges near natural openings (e.g., meadows, canyons, rivers) or human-made openings (e.g., harvest units), or open to semi-open forest stands (Altman and Sallabanks 2000). The species is most numerous in montane coniferous forests where tall trees overlook canyons, meadows, lakes, or other open terrain. Within the Project Area, mixed conifer, redwood, pine forest, and edge habitats may provide suitable nesting habitat for this species. The species has also been observed frequently along roads surrounding the Project Area (eBird 2016). Therefore, this species was determined to have a high potential to occur within the Project Area.

#### **Special-Status Wildlife with Moderate Potential to Occur within the Project Area**

**Hoary bat (*Lasiurus cinereus*); WBWG Medium Priority.** Hoary bats are highly associated with forested habitats in the western United States, particularly in the Pacific Northwest. They are

a solitary species and roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, usually at the edge of a clearing. Roosts are typically located 10 to 30 feet above the ground. They have also been documented roosting in caves, beneath rock ledges, in woodpecker holes, in grey squirrel nests, under driftwood, and clinging to the side of buildings, although the latter behavior is not typical. Hoary bats are thought to be highly migratory; however, wintering sites and migratory routes have not been well documented. This species tolerates a wide range of temperatures and has been captured at air temperatures between 0 and 22 degrees Celsius. Hoary bats probably mate in the fall, with delayed implantation leading to birth in May through July. They usually emerge late in the evening to forage, typically from just over one hour after sunset to after midnight. This species reportedly has a strong preference for moths, but is also known to eat beetles, flies, grasshoppers, termites, dragonflies, and wasps (WBWG 2015). This species has been documented to occur within 3.75 miles of the Project Area (CDFW 2016a). Within the Project Area, mature conifer and broadleaf trees have the potential to support roosting sites. Therefore, this species was determined to have a moderate potential to occur within the Project Area.

**Pallid bat (*Antrozous pallidus*); CDFW Species of Special Concern, WBWG High Priority.**

Pallid bats are distributed from southern British Columbia and Montana to central Mexico and east to Texas, Oklahoma, and Kansas. This species occurs in a number of habitats ranging from rocky, arid deserts to grasslands and into higher-elevation coniferous forests. They are most abundant in the arid Sonoran life zones below 6,000 feet in elevation, but have been found at elevations of up to 10,000 feet in the Sierra Nevada. Pallid bats often roost in colonies of between 20 and several hundred individuals. Roosts are typically located in rock crevices, tree hollows, mines, caves, and a variety of human-made structures, including vacant and occupied buildings. Tree roosting has been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and within cavities in large oak trees. Pallid bats are primarily insectivorous, feeding on large prey that is usually taken on the ground, but also sometimes in flight. Prey items include arthropods such as scorpions, ground crickets, and cicadas (WBWG 2015). This species has been documented from within 3.75 miles of the Project Area (CDFW 2016a). Cavities within large, mature trees within the Project Area may provide potential roost habitat for pallid bat. Additionally, higher-quality rock outcroppings and cave features that may have the potential to support roosting sites are known to occur within the larger San Vicente Redwoods property, in close proximity to the Project Area. Therefore, this species was determined to have a moderate potential to occur within the Project Area.

**Western red bat (*Lasiurus blossevillii*); CDFW Species of Special Concern, WBWG High Priority.**

This species is highly migratory and broadly distributed, ranging from southern Canada through much of the western United States. Western red bats are believed to make seasonal shifts in their distribution, although there is no evidence of mass migrations (Pierson et al. 2006). They are typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly located in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas, possibly in association with riparian habitat (particularly willows, cottonwoods, and sycamores) (Pierson et al. 2006). It is believed that males and females maintain different distributions during pupping, where females take advantage of warmer inland areas and males occur in cooler areas along the coast. The Project Area contains potentially suitable maternity roosting habitat within riparian habitats along streams. Suitable foraging habitat is supported within and adjacent to streams throughout the Project Area. Although perennial streams and associated well-developed riparian habitat are not present within the Project Area, the species may utilize the Project Area for roosting and foraging, and therefore was determined to have a moderate potential to occur.

**Silver-haired bat (*Lasionycteris noctivagans*); WBWG Medium Priority.** Silver-haired bats occur in temperate conifer, mixed-conifer, and deciduous forests from southern Alaska to northeastern Mexico. Females form maternity roosts almost exclusively inside hollows or under loose bark of large trees and may switch roosts multiple times (WBWG 2015). Hibernation occurs in trees, rock crevices, leaf litter, in and under buildings, and in caves and mines. Foraging occurs above the tree canopy where the silver-haired bat preys on insects. Silver-haired bats are known to migrate south in the winter, although overwintering at northern latitudes has also been documented (WBWG 2015). The Project Area may contain potentially suitable maternity roosting habitat within mixed conifer forest. Suitable foraging habitat may be supported within and adjacent to streams throughout the Project Area. Therefore, this species was determined to have a moderate potential to occur.

**Fringed myotis (*Myotis thysanodes*), WBWG High Priority.** The fringed myotis ranges through much of western North America from southern British Columbia, Canada, south to Chiapas, Mexico and from Santa Cruz Island in California, east to the Black Hills of South Dakota. This species is found in desert scrubland, grassland, sage-grass steppe, old-growth forest, and subalpine coniferous and mixed deciduous forests. Oak and pinyon-juniper woodlands are most commonly used. The fringed myotis roosts in colonies from 10 to 2,000 individuals, although large colonies are rare. Caves, buildings, underground mines, crevices in cliff faces, and bridges are used for maternity and night roosts, whereas hibernation has only been documented in buildings and underground mines. Tree-roosting has also been documented in Oregon, New Mexico, and California (WBWG 2015). Within the Project Area, roosting habitat may occur in the large stands of conifer and hardwood forest habitat; however, higher quality roost habitat may be found in cave and cliff habitats that occur near the San Vicente Quarry in the southern portion of the larger site. The species is likely to forage over the Project Area, and based on the proximity to roost habitat, the species was determined to have a moderate potential to occur.

**Ring-tailed cat (*Bassariscus astutus*); CDFW Fully Protected Species.** The ring-tailed cat is an uncommon but widespread resident of California, excluding the Central Valley, south to Mexico. This species is found in remote riparian habitats, rocky canyons, and stands of forest and shrub habitats that contain trees, brush, and rock crevices for cover. This species is also usually found within 0.6 mile of water (Zeiner et al. 1990). Hollow trees, snags, rock crevices, and other cavities are used for cover and nesting. Ring-tailed cats are primarily carnivorous and mostly nocturnal. Within the Project Area, wooded habitat of varying composition could support the species and its foraging needs. The Project Area is also surrounded by large tracts of undeveloped forest, which provides a habitat corridor for the species. Although perennial water sources were not observed within the Project Area, seasonal streams may make portions of the Project Area more suitable under during different periods of the year. Based on these conditions, it was determined that this species has a moderate potential to occur.

**Purple martin (*Progne subis*); CDFW Species of Special Concern.** Purple martin is an uncommon summer resident in California, occurring in woodlands and low-elevation hardwood and coniferous forests. It usually feeds on insects captured in flight 100 to 200 feet above the ground. Purple martin nests in cavities often located in tall, isolated trees or snags in open forest or woodland habitats. The Project Area contains large tracts of coniferous forest that may provide suitable nesting habitat for this species. This species has been observed east of the Project Area, in the Bonny Doon Ecological Reserve (eBird 2016). Foraging habitat is also likely to be supported above the tree canopy above Project Area. Due to the dominance of coniferous forest habitat within the Project Area, this species was determined to have a moderate potential to occur.

### **Mountain Lion and Wildlife Corridors**

While not protected by the CESA or the ESA, the 1990 California Wildlife Protection Act prohibits sport hunting of mountain lion (*Puma concolor*) in California. These top predators serve an important ecological role within the region, and while mountain lion are primarily solitary, individuals exhibit localized approaches to foraging and spatial use (Allen et al. 2015). Mountain lion are active year-round and tend to hunt and move between the hours of dawn and dusk; however, mountain lions have been found to opportunistically hunt during daytime hours when prey is available (Allen et al. 2015). This carnivore is primarily an ambush hunter, and feeds mainly on black-tailed deer, but will also take a number of species including rabbit, rodents, turkey, and various smaller predators including coyote and raccoon. Mountain lions are capable of breeding any time of year, but kittens are typically born in June or July in dens such as a shallow cave, rock overhang, or area of dense vegetation.

Mountain lions maintain large home ranges, with females utilizing areas 3 to 12 square miles and males occupying habitats from 25 to 96 square miles (CDFW 2016a). Population densities for mountain lions have been found to vary from 0.37 individuals per 100 square kilometers in resource-limited portions of Utah up to 3.6 individuals per 100 square kilometers in coastal California (Allen et al. 2015). Whereas home range size and habitat use vary based on prey availability, illegal hunting has also been found to result in lower population densities (Allen et al. 2015).

The species is well documented within the Santa Cruz Mountains, as UC Santa Cruz and the CDFW have collaborated on tracking studies with radio-collared individuals to better understand their movement and the status of the population. Sign from this species (i.e., scrapes, tracks, and scat) was observed during WRA's fieldwork, and the Santa Cruz Puma Project has documented radio-collared individuals moving through the Project Area.

The Project Area is known to support mountain lions and is located within an area identified by the CDFW as a wildlife corridor and part of the essential connectivity for this species (CDFW 2014). Maintaining large, interconnected tracks of contiguous forest habitats allows the movement of mountain lion, their prey, and other native species. Because of the ecological importance mountain lion play within the region and the critical role wildlife corridors play in facilitating the movement of native species, wildlife corridors are considered a significant resource under the CEQA, and the potential impact of the Project on wildlife corridors is discussed in more detail in Section 6.3.7.

### **Federally Listed Wildlife that Occur in the Region but are Unlikely to Occur in the Project Area**

Federally listed species that have been documented to occur within the vicinity or adjacent to the Project Area but which are unlikely to occur there include: least Bell's vireo (*Vireo bellii pusillus*), steelhead Central California Coast DPS (*Oncorhynchus mykiss*), and Central California Coast Ecologically Significant Unit (ESU) of Coho salmon (*Oncorhynchus kisutch*). These species are discussed below (also see Appendix C).

**Least Bell's vireo (*Vireo bellii pusillus*); Federal Endangered, State Endangered, CDFW Species of Special Concern.** This subspecies of Bell's vireo is a neotropical migrant and summer resident in California and northern Baja California, wintering in southern Baja California (Brown 1993). Nesting occurs in riparian areas in the vicinity of water or in dry river bottoms. Nests are often located along margins of bushes or on twigs projecting into pathways, usually on species such as willow, coyote brush, or mesquite. This vireo was once common in lowland riparian habitats throughout California but declined precipitously during the twentieth century

(USFWS 1998). By the time its federal listing in 1986, the population was restricted to an estimated 300 pairs in southern California, primarily in San Diego County (USFWS 1998). The population has increased since that time, with the number of nesting territories in the state in 2006 estimated to be approximately ten times greater than in 1986 (USFWS 2006). However, the distribution of the vireo at that time remained almost entirely within southern California (USFWS 2006). This species was determined to be unlikely to occur within the Project Area due to the absence of suitable riparian and scrub habitats required by the species for nesting. Furthermore, the species is not known to nest or occur within the Santa Cruz Mountains.

**Steelhead - Central California Coast DPS (*Oncorhynchus mykiss irideus*), Federal Threatened.** The Central California Coast distinct population segment (DPS) of steelhead includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Steelhead typically migrate to marine waters after spending two years in freshwater, although they may stay in freshwater for up to seven years. They then reside in marine waters for 2 or 3 years prior to returning to their natal stream to spawn as 4- or 5-year-olds. Steelhead adults typically spawn between December and June. In California, females typically spawn two times before they die. Preferred spawning habitat for steelhead includes perennial streams with cool to cold water, high dissolved oxygen levels, and fast-flowing water. Abundant riffle areas (i.e., shallow areas with gravel or cobble substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. This species is known to occur within the mainstem of San Vicente Creek, up to the quarry tunnel and the lower reaches of Mill Creek; however, partial fish passage barriers, narrow, steep channels, and the ephemeral nature of the streams within the Project Area make it unlikely for this species to occur (ESA 2012; Ross Taylor and Associates 2004). Similarly, a natural fish passage barrier on Laguna Creek, downstream of the Laguna Parcel, precludes the presence of steelhead in that reach of Laguna Creek (Ross Taylor and Associates 2004). Given these reasons, it was determined that steelhead are unlikely to occur within the Project Area.

**Coho Salmon - Central California Coast ESU (*Oncorhynchus kisutch*), Federal Endangered, State Endangered.** The Central California Coast ESU of Coho salmon includes all naturally spawned populations of Coho salmon (and their progeny) in California streams from the Eel River to Aptos Creek, including the Russian River and its tributaries, excluding the Sacramento-San Joaquin River Basin. Coho salmon typically migrate in late fall to early winter to spawn in smaller coastal streams. Spawning migration, known as “runs”, occur throughout the year. Spawning occurs mainly between November and January, but can occur as late as March during drought conditions. Juveniles may spend several years in the freshwater habitat before migrating to the ocean. Most adult fish return “home”, maintaining fidelity to their natal stream. Preferred spawning habitat for Coho salmon is small freshwater streams with cool to cold water temperature, medium to small gravel substrate, and high dissolved oxygen levels at the head of a riffle where water changes from laminar flow to turbulent flow (providing greater dissolved oxygen). Abundant riffle areas (i.e., shallow areas with gravel substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding. This species is known to occur within the mainstem of San Vicente Creek, up to the quarry tunnel and the lower reaches of Mill Creek; however, fish passage barriers, narrow, steep channels, and the ephemeral nature of the streams make the Project Area unsuitable for the species (ESA 2012). Similarly, a natural fish passage barrier on Laguna Creek prevents the occurrence of Coho salmon within the Laguna parcel (Ross Taylor and Associates 2004).

### **5.2.3 Critical Habitat**

Based on WRA's review of the USFWS Critical Habitat Mapper (USFWS 2016b), it was determined that the Project Area contains Critical Habitat for CRLF. There are four physical and biological features, formerly referred to as PCEs, that are considered to be essential for the conservation or survival of a species. The features for the CRLF include: aquatic breeding habitat; non-breeding aquatic habitat; upland habitat; and dispersal habitat (USFWS 2010).

Aquatic breeding habitat consists of low-gradient fresh water bodies, including natural and manmade (e.g., stock) ponds, backwaters within streams and creeks, marshes, lagoons, and dune ponds. It does not include deep water habitat, such as lakes and reservoirs. Aquatic breeding habitat must hold water for a minimum of 20 weeks in most years. This is the average amount of time needed for egg, larval, and tadpole development and metamorphosis so that juveniles can become capable of surviving in upland habitats (USFWS 2010).

Aquatic non-breeding habitat may or may not hold water long enough for this species to hatch and complete its aquatic life cycle, but it provides shelter, foraging, predator avoidance, and aquatic dispersal habitat for juvenile and adult CRLF. These waterbodies include plunge pools within intermittent creeks; seeps; quiet water refugia during high water flows; and springs of sufficient flow to withstand the summer dry period. The third habitat type is upland habitats, which include areas within 300 feet of aquatic and riparian habitat and are composed of grasslands, woodlands, and/or vegetation that provides shelter, forage, and predator avoidance. Upland habitat can include structural features such as boulders, rocks, and organic debris (e.g., downed trees), as well as small mammal burrows and moist leaf litter (USFWS 2010). Finally, dispersal habitat includes accessible upland or riparian habitats between occupied locations within 0.7 mile of each other that allow for movement between these sites. Although California red-legged frog is highly aquatic, this species has been documented to make overland movements of several hundred meters and up to one mile during a winter/spring wet season in Northern California (Bulger et al. 2003, Fellers and Kleeman 2007) and 2,860 meters (1.8 miles) in the central California coast (Rathbun and Schneider 2001).

The Project Area does not contain aquatic breeding habitat for CRLF; however, the Project Area may provide dispersal habitat to off-site breeding features. Additionally, intermittent drainages within the Project Area may be considered seasonal aquatic non-breeding habitat by the USFWS; associated areas within 300 feet of seasonal aquatic non-breeding habitat would be considered upland foraging habitat.

### **5.3 Protected Trees**

Although a tree survey was not conducted for this report, any tree located within one of the sensitive habitats described in Section 4.1.2 may be protected by the County. A tree removal permit may be required for the removal of such trees.

## **6.0 PROJECT DESCRIPTION**

The Draft Public Access Plan outlines a site-wide, programmatic approach to public access for recreation at the San Vicente Redwoods. The Plan outlines goals and policies related to public access, access plans for recreation, an implementation plan, and design and maintenance guidelines. This report focuses on the trail network and attendant features described in the Draft Public Access Plan (PlaceWorks 2018), and more specifically on the trail segments shown on Figure 2.

Under the Draft Public Access Plan, a network of approximately 38 miles of trails will be constructed as part of the overall proposed Project. The trail network will include a combination of single- and multi-use trails which will allow public access for the following allowable uses:

- Hiking
- Biking
- Horse riding
- Dog walking (on-leash only)
- Picnicking and small group gatherings
- Nature observation

These uses will be allowed during daylight hours only, except on a limited basis by permit.

Prohibited uses will include:

- Smoking
- Unpermitted alcohol use
- Fire making
- Collecting
- Hunting
- Fishing
- Off-road vehicles or motorized dirt biking
- Rock climbing
- Rappelling
- Caving

Key design goals for the development of the trail network include the following:

- Provide for a variety of experiences through different habitats
- Concentrate loop trails in the northern part of the property, where they can be accessed from the Empire Grade staging area(s)
- Establish through-trails connecting the Empire Grade staging areas down to the Coast Dairies property
- Provide buffers around private property
- Accommodate other property uses, including timber harvest and research uses
- Avoid, to the extent possible: neighbor views, safety hazards, and impacts to sensitive resources including water sources, mountain lions, and cultural resources
- Allow for sustainable trail grades and orientation. Use of existing roads as recreational trails should be limited to roads identified as suitable (grades under 15 percent and without fall-line alignment) where possible, and new trail construction should emphasize narrow trails and should result in separate use trails

The Draft Public Access Plan will be implemented in two phases: an initial 10-mile set of multi-use trails easily accessible from the proposed parking and staging area adjacent to Empire Grade Road. Hiking, horse riding, and mountain biking would be allowed on the Phase I trails, with dog walking limited to a frontage trail that parallels Empire Grade Road. Implementation of the Phase I trails is expected to occur over a 1- to 3-year period. Phase II will include approximately 9-11 additional miles of trails to be implemented over a 2- to 3-year period, as well as an expansion of

the staging and parking area adjacent to Empire Grade Road. Phase III will include approximately 16-19 additional miles of trails over a 2- to 3-year period.

During the phased implementation of the Draft Public Access Plan, trail use for all phases will be approximately 35% horse/hike, 40% horse/bike, 25% hike/horse/bike with 1.5 miles of the hike/horse/bike trails allowing dog walking.

In conjunction with the construction of the Phase I trails, a staging area will be constructed along Empire Grade Road, as shown on Figure 2. The staging area will initially have space for at least 45 cars and may be expanded in later phases of the proposed Project. Staging areas may include entry gates, signage, informational kiosks, benches, picnic area/gathering area, trash and recycling receptacles, dog-courtesy stations and restrooms (composting or pump-out toilets).

Trail dimensions will be determined based on the type (or use) of trail as shown on Table 4. Additional details regarding specific design specifications or construction methods are provided in the Draft Public Access Plan. Most trail construction will occur by hand with limited use of heavy machinery or vehicles; the use of the latter would be limited to areas with existing vehicular access (e.g., on former logging roads). However, it is expected that construction of the parking area adjacent to Empire Grade Road will entail the use of standard construction machinery and equipment.

Table 4. Trail Dimensions by Type

| Trail Type                        | Constructed Tread Width | Vegetation Clearance                  |
|-----------------------------------|-------------------------|---------------------------------------|
| Accessible Trails                 | 5 feet +                | 2 feet horizontal<br>10 feet vertical |
| Multi-Use Trails                  | 5 feet +                | 1 foot horizontal<br>10 feet vertical |
| Equestrian and Hiking Trails      | 2 to 5 feet             | 1 foot horizontal<br>10 feet vertical |
| Mountain Biking and Hiking Trails | 2 to 4 feet             | 1 foot horizontal<br>10 feet vertical |

## 7.0 POTENTIAL IMPACTS, MINIMIZATION, AND AVOIDANCE MEASURES

As described in Section 5.0, the proposed Project entails the construction of approximately 38 miles of recreational trails and an associated 4.7-acre parking area. To the extent feasible, trails and the parking area have been located in non-sensitive habitat and have been designed to have minimal impact on the land and the sensitive biological resources that may occur there. Although the proposed Project covers a large amount of undeveloped land in an area with a rich diversity of biological resources, the proposed Project is relatively minimal in scope and is not expected to result in significant adverse impacts to sensitive resources. The following sections discuss potential impacts to sensitive biological resources associated with the proposed trail alignment (including both initial construction and subsequent use and maintenance) and provide recommended avoidance and minimization measures. With the implementation of these measures, WRA believes that the proposed Project will not result in significant adverse impacts to the environment.

## 7.1 Sensitive Biological Communities

A range of sensitive terrestrial and aquatic biological communities occur within the Project Area, including: madrone forest, tanoak forest, coast live oak woodland, canyon live oak forest, redwood forest, California bay forest, Anderson's manzanita chaparral (not described in the literature), brittle leaf manzanita chaparral, seasonal wetlands, shrub-scrub wetlands, and streams (including limited riparian vegetation). The proposed trail network has the potential to impact these communities through both initial trail construction and subsequent use and maintenance.

### 7.1.1 Sensitive Terrestrial Communities

#### Biology Impact 1

The proposed trail network and staging area have the potential to directly impact sensitive terrestrial communities through removal of vegetation and grading activities during construction, as well as by subsequent damage (e.g., trampling) from pedestrians, cyclists, equestrians, or dogs. The proposed Project also has potential to indirectly impact sensitive terrestrial communities through compaction, erosion, and other disturbances caused by pedestrians, cyclists, horses, or dogs. This may include the introduction of invasive weeds or plant diseases (e.g., sudden oak death or other *Phytophthora*-related diseases) which could adversely affect susceptible species. With the implementation of the minimization measures listed below, WRA believes that the project will not result in any significant adverse impacts to sensitive terrestrial communities within the Project Area.

#### Biology Minimization Measure 1A

Given the widespread nature of sensitive terrestrial communities, protective fencing or flagging is not practical or feasible (fencing or flagging is recommended for occurrences of Anderson's manzanita chaparral due its dual role as a special-status plant; see Section 6.2). However, to minimize impacts to sensitive vegetation, the work area, including any staging areas, should be minimized to the fullest extent feasible and trails should be the minimum width necessary to support the proposed use (i.e., hiking, cycling, horse riding) as defined in the Draft San Vicente Redwoods Public Access Plan (PlaceWorks 2018).

#### Biology Minimization Measure 1B

To minimize inadvertent impacts to sensitive vegetation, all construction personnel should be educated on the sensitivity of the biological communities and species at the site and the importance of minimizing impacts to vegetation outside of the work area. This should occur prior to the start the construction for each phase of trail and staging area construction during a pre-construction environmental awareness training by a qualified, County-approved biologist and given to all construction personnel working on the proposed Project. A designated staff member from the contractor's crew should provide follow-up training to any employees who begin work after the initial pre-construction training.

The training should include a photograph and/or description of sensitive communities and species at the site, measures being taken to avoid or reduce impacts to the community, reporting and follow-up actions if sensitive communities are impacted, and the worker's responsibility under the applicable environmental regulation(s).

#### Biology Minimization Measure 1C

To minimize removal of sensitive vegetation, trails should be routed around sensitive vegetation to the fullest extent feasible. At a minimum, the full width of the trail (i.e., the full extent of

vegetation removal and ground disturbance during construction) should avoid the dripline of sensitive vegetation, with greater separation between the trail and sensitive vegetation being preferred. If trails are re-routed, they should be re-routed downslope of any sensitive vegetation to avoid causing erosion or sedimentation issues which could be detrimental to sensitive vegetation. If other considerations such as slope or soil stability make it impossible to avoid sensitive vegetation, a qualified, County-approved biologist should develop appropriate mitigation measures based on the type of sensitive vegetation, the size of the impact, and the likelihood of success with various mitigation approaches such as transplantation, propagation, or habitat enhancement. Mitigation measures for unavoidable impacts should be approved by the County prior to any removal of sensitive vegetation.

#### *Biology Minimization Measure 1D*

To avoid the introduction of invasive weeds or plant pathogens that could adversely impact sensitive vegetation, prior to arriving on the site all equipment and vehicles shall be inspected to ensure they are clean of any dirt or debris.

#### *Biology Minimization Measure 1E*

To minimize both construction-related and post-construction impacts to sensitive vegetation, trail design should incorporate the best available technology and industry-standard Best Management Practices (BMPs) to minimize the potential for detrimental impacts such as erosion or sedimentation and to minimize the need for future maintenance. Specific standards (including standard details) for trail construction are provided in the Draft San Vicente Redwoods Public Access Plan (PlaceWorks 2018).

#### *Biology Minimization Measures 1F*

To minimize effects on sensitive vegetation from erosion and sedimentation due to construction activities, all disturbed ground should be stabilized concurrent with trail construction. Stabilization methods may include: compacting the soil<sup>1</sup>, covering disturbed soils with duff and leaf litter as well as branches removed for construction of trails, revegetation using appropriate native plant species, or use of other standard erosion control measures such as weed-free straw or hydromulch. If disturbed areas are to be revegetated, only native plants appropriate for the habitat should be used as outlined in Biology Minimization Measure 1H. If other erosion control materials are to be used, they should be certified weed-free and as otherwise specified in Biology Minimization Measures 1I.

#### *Biology Minimization Measure 1G*

To minimize the introduction of invasive plants or plant pathogens that could threaten sensitive vegetation, parking and staging areas should include signage or other materials aimed at instructing the general public on the potential threats associated with invasive plants, plant pathogens, and other pests of concern. These materials should include basic prevention methods that the general public can implement such as inspecting shoes and pet fur for weed seeds or avoiding the movement of plant material or soil from one area to another. This education signage should be in place prior to opening the trails for public access and should be maintained annually by the Public Access Manager to ensure that signage is not obstructed and is legible at all times.

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<sup>1</sup> Although compaction may be used with any of the other soil stabilization measures, it is only suitable for use on its own on trail surfaces which typically would not be treated with other erosion control materials.

### Biology Minimization Measure 1H

To minimize the introduction of invasive plant species and/or plant pathogens which could adversely impact sensitive vegetation, any restoration or landscape plantings (e.g., plantings around the proposed parking/staging area) should use native species appropriate for plant communities found at the site. To the extent feasible, plant material should be salvaged from trail construction activities at the site. If not possible, plant material should be propagated by a reputable nursery with protocols in place for minimizing the potential spread of *Phytophthora* or other plant diseases. Any propagated plant material should be sourced from as close to the site as possible, ideally from within the site itself.

### Biology Minimization Measure 1I

To avoid the introduction of weed seed or plant pathogens that could adversely impact sensitive vegetation, the importation of soils for construction of the parking/staging area or other parts of the Project Area should be minimized to the fullest extent feasible. To the extent feasible, soils should be salvaged from onsite before being imported from offsite. If it is necessary to import soils, they should be certified weed-free and from a County-approved source with protocols in place for minimizing the potential spread of *Phytophthora* or other plant diseases.

### Biology Minimization Measure 1J

To minimize impacts to sensitive vegetation from use of the trail network, the Trail Maintenance System should be implemented as described in Chapter 6 of the Draft San Vicente Redwoods Public Access Plan. The Trail Maintenance System includes an annual monitoring program aimed at identifying maintenance issues (e.g., erosion) and other problems (e.g., nuisance trash areas or other impacts from trail users). The Trail Maintenance System should include specific methods for routinely documenting and implementing the necessary maintenance by the Public Access Manager.

## **7.1.2 Sensitive Aquatic Communities**

### Biology Impact 2

The proposed trail network and staging area have the potential to directly affect sensitive aquatic communities that may be protected by the Clean Water Act or other Federal, State, or local laws through removal of vegetation, placement of fill, or other grading activities that could impact wetlands, the bed and bank of streams, or riparian vegetation. The proposed Project also has potential to indirectly impact sensitive aquatic communities through increased rates of erosion and sedimentation, the introduction of invasive weeds, and other disturbances from trail users or trail maintenance. The proposed trail network may entail minor impacts to vegetation within the buffers of Environmentally Sensitive Habitats protected under the County of Santa Cruz LCP; however, passive recreational trails are an allowed use within the riparian corridor. With the implementation of the minimization measures listed below, WRA believes that the proposed trail network will not have a significant adverse impact to any wetlands, streams, or their buffers/riparian corridor.

### Biology Minimization Measure 2A

To minimize adverse impacts to sensitive aquatic communities, implement Biology Minimization Measures 1A through 1J.

### Biology Minimization Measure 2B

To the extent feasible, wetlands and streams should be avoided by trail and staging area construction by a minimum of 100 feet. The jurisdictional boundaries of wetlands, within the 100-foot survey buffer, should be re-flagged in the field prior to construction by a qualified, County-approved individual and trails should be routed around these areas when possible. Trails should be routed downslope of wetland areas, if possible, to avoid the potential for detrimental erosion or sedimentation. When not possible, trails should be sited to avoid altering any obvious source of wetland hydrology and should be sloped downhill crossways so no water accumulates and instead flows off immediately. This avoids concentration of stormwater into “gutters” which then have to be discharged via water bars.

Crossings of regulated streams should be appropriately located to minimize impacts to riparian vegetation and to minimize the potential for long-term impacts to the stream. Trails should be routed in areas with less riparian vegetation to minimize the need for vegetation removal in these areas. Trails should also be located in areas that will minimize the potential for detrimental erosion or sedimentation. Stream crossings should be designed to minimize trail erosion following the specific standards for trail construction provided in the Draft Public Access Plan (PlaceWorks 2018). Crossings should be designed to fre-span the channel and should ideally be anchored above the top of bank. In some locations however, hardened crossings that include work below the top of bank may be the least impactful approach.

Crossings of regulated streams that avoid work below the ordinary high water mark do not require a permit from the United States Army Corps of Engineers. However, such crossings may require notification to the California Department of Fish and Wildlife (CDFW), the Regional Water Quality Control Board (RWQCB), and the County, even if located above the top of bank. If the CDFW, RWQCB, or County issue authorizations for such work, the measures included in any such authorizations should be incorporated into the proposed Project design.

### Biology Minimization Measure 2C

Where wetlands or streams cannot be avoided, appropriate approvals from the United States Army Corps of Engineers (for impacts to regulated wetlands or areas below the ordinary high water mark of regulated streams) and/or the Regional Water Quality Control Board and the California Department of Fish and Wildlife (for impacts to regulated wetlands, riparian vegetation, or areas below the top of bank of regulated streams) should be secured prior to initiating work in these areas. Additional County approvals may be required under the Riparian Corridor and Wetlands Protection Ordinance. The measures included in any such authorizations should be incorporated into the proposed Project design.

### Biology Minimization Measure 2D

To prevent erosion or sedimentation during construction, appropriate Best Management Practices (BMPs) (e.g., silt fencing, wattles, sterile straw, hydromulch, geotextile fabrics, sediment traps, drainage swales, or sand bag dikes) should be installed around wetlands and streams. All materials should be certified weed-free and must be constructed of natural materials. No plastic monofilament netting may be used. The exact location and configuration of BMPs should be determined by the contractor based on specific Project site conditions and the type of work being conducted. BMPs should remain in place until all disturbed ground has been stabilized either through compaction, re-vegetation, or other methods provided for in Biology Minimization Measure 1F.

### Biology Minimization Measure 2E

Any fueling or maintenance of equipment or vehicles should be conducted at a minimum of 100 feet from any wetland or stream. A spill containment kit should be maintained at any fueling or maintenance area. Any spills should be cleaned as soon as feasibly possible and all resulting materials should be disposed of properly. All construction vehicles should be inspected daily for leaks of oil, hydraulic fluid, or other potentially hazardous materials by a qualified, construction-crew member and drip pans should be placed under parked vehicles during prolonged periods of disuse (e.g., during evenings and weekends).

## **7.2 Special-Status Plant and Wildlife Species**

### *7.2.1 Special-Status Plants*

One special-status plant species is known to occur within the Project Area: Anderson's manzanita (Rank 1B.2). Based on the current alignment, there is potential for impacting up to 0.54 acre of Anderson's manzanita. These impacts are based on a 7-foot band of disturbance (5-foot trail tread plus 1 foot of vegetation clearance on either side) located down the centerline of the trail alignment and may not reflect actual impacts due to the potential for reducing the width of the trail in critical areas and for re-routing the trail alignment anywhere within the 100-foot-wide band surveyed for this report. It is anticipated that the flexibility built into the trail alignment will help to minimize impacts to Anderson's manzanita.

The proposed Project has the potential to impact Anderson's manzanita through both initial trail construction and subsequent use and maintenance. Suitable measures for avoiding, minimizing, or mitigating impacts to Anderson's manzanita, are provided below.

### Biology Impact 3

The proposed trail network and staging area have the potential to directly impact Anderson's manzanita through direct vegetation removal and grading activities, as well as by subsequent damage (e.g., trampling) from pedestrians, cyclists, horses, or dogs. The proposed Project also has potential to indirectly impact Anderson's manzanita through compaction and other disturbances caused by pedestrians, cyclists, horses, or dogs. This may include the introduction of invasive weeds or plant diseases (e.g., sudden oak death or other *Phytophthora*-related diseases) which could adversely affect susceptible species. With the implementation of the minimization measures listed below, WRA believes that the proposed trail network will not have a significant adverse impact to Anderson's manzanita.

### Biology Minimization Measure 3A

Implement Biology Minimization Measures 1A-1J.

### Biology Minimization Measure 3B

Where work will occur within 10 feet of a special-status plant to be preserved, orange construction fencing (or similar) should be installed at the edge of the work area and no work should occur beyond the fence. If such occurrences of special-status plants occur downslope from the work area, silt fencing should be installed at the edge of the work area to prevent soil or other materials from being transported downslope where they may impact special-status plants.

### Biology Minimization Measure 3C

To the extent feasible and practicable, occurrences of special-status plants should be avoided by re-routing the trail alignment. At a minimum, the full width of the trail (i.e., the full extent of vegetation removal) should avoid the dripline of any special-status shrubs and should avoid special-status herbs by a minimum of 10 feet. If trails are re-routed, they should be re-routed downslope, where feasible, of any special-status plants to avoid causing erosion or sedimentation issues which could be detrimental to special-status plants. If not feasible then re-route the drainage away from the special-status plants. If other considerations such as slope or soil stability make it impossible to avoid special-status plants, a qualified, County-approved biologist should develop appropriate mitigation measures based on the species in question, the size and type of the anticipated impact, and the likelihood of success with various minimization approaches approved by the CNPS (1998) including:

- (a) Avoiding the impact altogether by not taking a certain action*
- (b) Minimizing impacts by limiting the degree or magnitude of the action*
- (c) Rectifying the impact by repairing, rehabilitating or restoring the impacted environment*
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the Project*
- (e) Compensating for the impact by replacing or providing substitute resources or environments (for example Anderson's manzanita habitat enhancement could be used to offset impacts on-site near disturbance areas by the removal of overstory trees, including non-native trees)*

### 7.2.2 Special-Status Wildlife

Two special-status wildlife species were observed within the Project Area: San Francisco dusky-footed woodrat and oak titmouse. An additional 13 special-status wildlife species were determined to have moderate to high potential to occur there. The proposed Project has the potential to impact these wildlife species through both initial trail construction and subsequent use and maintenance.

### **Special-Status Bats**

#### Biology Impact 4

The proposed trail network and staging area have the potential to directly impact special-status bats with the potential to occur within the Project Area through direct tree removal and grading activities. Tree removal and roost disturbance could occur during vegetation clearing associated with the establishment of parking and multi-use trail areas. Additionally, the operation of loud machinery in the immediate vicinity of a maternity roost site could impact the species by causing the parent to abandon the roost or induce elevated stress levels for the individuals occupying the maternity site. Although there are potential direct and indirect impacts to roost habitat associated with the Project, the clearing of vegetation may actually improve foraging habitat in locations that are currently too dense for bats to forage within. With the implementation of the minimization measures listed below, WRA believes that the proposed trail network will not have a significant adverse impact to any special-status bats.

#### Biology Minimization Measure 4A

Potentially significant impacts to roosting special-status bats may be minimized through avoiding disturbance to active roost sites. If any tree removal, regardless of size, or trimming is required, it is recommended to take place between September and October. This window falls outside of both the maternity and hibernation period for bats and avoids the breeding bird window (see Biology Minimization Measure 5A, below). Tree removal can take place during this period without a breeding bird or bat roost survey, although a tree removal permit may still be necessary.

#### Biology Minimization Measure 4B

If removal of large trees (diameter at breast height >12 inches) occurs during the bat roosting season (November through August), these trees should be inspected by a qualified, County-approved biologist for the presence of bat roosts. Potential bat roosts include large oak trees, riparian trees, exfoliating bark, tree cavities, and snags. If a maternity roost is detected, up to a 200-foot buffer should be placed around the maternity site until the bats are no longer utilizing the site. Non-maternity roost sites can be removed under the direction of a qualified, County-approved biologist.

#### Biology Minimization Measure 4C

Any large tree (diameter at breast height >12 inches) that will be removed should be left on the ground for 24 hours before being taken offsite or being chipped. This period will allow any day-roosting bats the opportunity to leave before the tree is either removed from the area or is chipped.

#### Biology Minimization Measure 4D

Consultation with the California Department of Fish and Wildlife (CDFW) should be initiated to determine appropriate mitigation measures if roosts are disturbed; this should be conducted by a qualified, County-approved biologist and any mitigation measures required by the CDFW should be implemented under the guidance of the same biologist.

### **Special-Status Birds and Other Avian Species**

#### Biology Impact 5

Several species of special-status birds were observed or were determined to have the potential to occur within the Project Area; they include: oak titmouse, Vaux's swift, Nuttall's woodpecker, Allen's hummingbird, olive-sided flycatcher, and purple martin. (In addition to these species, marbled murrelet may also occur within the Project Area; however, impacts and minimization for this species is discussed under Biology Impact 6.)

The proposed Project will entail minor amounts of vegetation removal which has the potential to impact potential nesting and foraging habitat for avian species. The operation of construction machinery during the breeding season could also cause disturbance to breeding birds and could impact nesting activity. Indirect impacts to nesting birds may also occur as increased noise and human disturbance will occur as hikers, cyclists, horses, and dogs utilize various trail segments. Special-status and other native bird species are protected during the nesting season by the Migratory Bird Treaty Act and the California Fish and Game Code, as well as the California Environmental Quality Act. Potential significant impacts to nesting special-status birds may be minimized through avoiding disturbance to active nests through implementation of the following measures.

#### Biology Minimization Measure 5A

If construction, vegetation removal, or ground disturbance activities occur during the breeding season (February 1 to August 31), pre-construction breeding bird surveys should be conducted by a qualified individual within 14 days of the start of these activities to avoid disturbance of active nests, eggs, and/or young.

#### Biology Minimization Measure 5B

If construction, vegetation removal, or ground disturbance activities stop or lapse for a period of 14 days or more during the breeding season, a follow-up breeding bird survey should be conducted to ensure no new breeding activity has occurred within the anticipated work area. Outside of the breeding season, no pre-construction breeding bird survey would be required for construction, vegetation removal, or ground disturbance activities.

#### Biology Minimization Measure 5C

If nesting birds are located, an exclusion zone in which no construction activities would be allowed should be established around any active nests of any avian species protected by the Migratory Bird Treaty Act and California Fish and Game Code until a qualified, County-approved biologist has determined that all young have fledged. Suggested exclusion zone distances differ depending on species, location, and placement of nest, and should be at the discretion of the approved biologist based on the species in question, the proximity of the nest to the work area, and the type of work being conducted (e.g., use of hand tools versus gas-operated machinery).

### **Marbled Murrelet**

#### Biology Impact 6

Marbled murrelet may occur within stands of old-growth forest with complex canopy such as shown on Figure 9. However, these areas have not been evaluated for their potential to support marbled murrelet following United States Fish and Wildlife Service protocols and it is unknown whether they represent potential habitat for marbled murrelet. If the species is present, the operation of construction machinery during the breeding season could result in disturbance to breeding individuals and could impact nesting activity. Additionally, although direct impacts to this species from vegetation and tree removal are unlikely, the species may still be impacted from a resulting increase in edge habitat and the presence of trash or food waste from trail users. An increase in edge habitat and/or food waste can result in an increased occurrence of corvids, including Steller's jay (*Cyanocitta stelleri*), which can increase nest predation and reduce reproductive success. This may be particularly prevalent in or around the parking lot and picnic areas where trash and food scraps are more likely to concentrate. Potential significant impacts to marbled murrelet may be minimized through the measures listed below. Informal consultation with the United States Fish and Wildlife Service (USFWS) should be initiated and any additional measures recommended by the USFWS should be implemented as part of the project.

#### Biology Minimization Measure 6A

During construction, all workers should ensure that food scraps, paper wrappers, food containers, cans, bottles, and other trash from the construction area is deposited in wildlife-proof trash containers. The trash containers should not be left open and unattended overnight.

#### Biology Minimization Measure 6B

Ensure the Public Access Plan includes specific measures that include the installation of animal-proof trash receptacles and describe specific methods for routine trash pickup and ongoing monitoring by the Public Access Manager to ensure that trash removal occurs at a frequency sufficient to prevent trash overflow at the receptacles.

*Biology Minimization Measure 6C*

Educational signage should be placed within the parking lot and at picnic areas informing the public to remove trash and food waste. Signage should provide information on the marbled murrelet and the impact that corvid and avian predators can have on nest sites. This education signage should be in place prior to opening the trails for public access and should be routinely maintained by the Public Access Manager to ensure that signage is not obstructed and is legible at all times.

*Biology Minimization Measure 6D*

Picnic locations should be located outside of old-growth stands.

***San Francisco Dusky-Footed Woodrat***

***Biology Impact 7***

The proposed trail network and staging area have the potential to directly impact San Francisco dusky-footed woodrat through mortality and destruction of their large stick nests, potentially containing young, that could occur during vegetation removal, grubbing, grading, or other ground-disturbing activities. Potential indirect impacts to woodrats may include increased predation through increased access for predators, such as raccoon or coyote. Predators may also be attracted to food waste and trash created by trail users, particularly within the picnic and parking lot areas. Multi-use trail and parking lot areas will also introduce domestic animals including dogs to the Project Area, which could disturb nests by marking their scent or direct destruction of nests in close proximity to multi-use trails. The Draft Public Access Plan (PlaceWorks 2018) limits dogs to the proposed 1.5-mile-long Northern Frontage Trail that parallels Empire Grade Road.

San Francisco dusky-footed woodrat middens are found in very high numbers throughout all portions of the Project Area. Approximately 1,815 woodrat middens were mapped within the Project Area; based on the representative densities (8.7 middens per acre) observed across the 38 miles of trail surveyed for this report, it is estimated that the greater San Vicente Redwoods property may support up to 74,000 woodrat middens. Based on the current trail alignment, it is estimated that 144 middens may be directly impacted; this represents less than 0.2% of the estimated population of the greater site.

As with all impacts to special-status species discussed in this Biological Resources Assessment, these impacts are theoretical in that they are based on a 7-foot-wide area of disturbance running down the center of the proposed trail alignment shown on Figure 2; by strategically aligning the trail within the survey corridor, these impacts may be reduced or avoided. While some direct impacts to woodrat nests may be unavoidable, this would not be considered a significant impact as the species is prolific at the site and suitable habitat is abundant within both the Project Area and the greater San Vicente Redwoods. Minimization measures listed below are recommended to reduce impacts to woodrat to a less-than-significant level.

### **Biology Minimization Measure 7A**

Implement Biology Minimization Measures 1A, 1B, 6A, and 6B.

### **Biology Minimization Measure 7B**

A pre-construction survey of the parking lot area should be conducted by a qualified, County-approved biologist to flag and delineate any woodrat middens within the planned disturbance footprint. During construction of the parking lot, a biological monitor should be onsite to ensure vegetation and ground disturbance with heavy equipment should not impact those delineated resources. When avoidance of woodrat middens is not possible, the qualified, County-approved biologist should dismantle the nest in accordance with Minimization Measure 7D.

### **Biology Minimization Measure 7C**

During construction and trail installation, a qualified, County-approved biologist or trained designee from the contractor's crew should identify woodrat middens located along the trail alignment. If the latter, a qualified, County-approved biologist should provide the training prior to the start of each construction phase. To the extent feasible and practicable, the trail alignment should avoid woodrat middens by re-routing the trail alignment. The trail should avoid woodrat nests. To accomplish this, a qualified member of the contractor's crew should be trained in the identification of woodrat nests and this person should be responsible for making minor adjustments to the trail alignment during construction to avoid woodrat nests. Where is not possible to avoid all woodrat nests, impacts to woodrats and their middens implementation of Minimization Measure 7D would be required.

### **Biology Minimization Measure 7D**

When construction of the trail alignment or the parking area will result in a direct impact to a woodrat midden, a qualified, County-approved biologist should dismantle the nest and scatter the nest material a minimum of 10 feet outside of the trail alignment or the footprint of the parking area. If young are encountered during the dismantling process, the material should be placed back on the nest and the nest should remain unmolested for three weeks in order to give the young enough time to mature and leave of their own accord. After three weeks, the nest dismantling process may resume.

### **Biology Minimization Measure 7E**

For trail segments where dogs on leash are permitted, educational signage should be posted to inform trail users of woodrats, their middens, and the importance of keeping dogs on trails and away from the structures. This educational signage should be in place prior to opening the trails for public access and should be routinely maintained by the Public Access Manager to ensure that signage is not obstructed and is legible at all times.

### **California Red-Legged Frog**

#### **Biology Impact 8**

The proposed trail network and staging area have the potential to directly impact California red-legged frog (CRLF) which may disperse through the Project Area. Furthermore, the Project Area contains Critical Habitat for the species. The development of stream crossings and the associated vegetation and ground clearing activities may impact or impede CRLF movement. Indirect impacts to CRLF may include increased predation through increased access for predators, such

as raccoon or coyote. Predators may also be attracted to food waste and trash created by hikers within the picnic and parking lot areas.

Impacts to CRLF and the species Critical Habitat may also occur if aquatic features are degraded through increased rates of erosion and sedimentation, the introduction of invasive weeds, and other disturbances from trail users or trail maintenance. Minimization measures listed below are recommended to prevent impacts to CRLF and to maintain the physical or biological features of the species Critical Habitat. If these measures are implemented, no take is expected to occur during the proposed Project. Consultation with the United States Fish and Wildlife Service (USFWS) may still be required due to the presence of Critical Habitat; however, the physical and biological features of the species' Critical Habitat is anticipated to remain unchanged with the Project. If consultation with the USFWS is required, and additional measures by the USFWS are warranted, those measures should be implemented with the Project in addition to those identified below.

### **Biology Minimization Measure 8A**

Implement Biology Minimization Measures 2B through 2E.

### **Biology Minimization Measure 8B**

For stream crossings and areas within 100 feet of wetted features, pre-construction surveys by a qualified, County-approved biologist should be performed immediately prior to the start of any ground-disturbing activities. If California red-legged frog (CRLF) are found within the Project Area, all work should cease within the immediate vicinity (approximately 25-feet around the work area) until the individual(s) have been allowed to leave the Project Area on their own. If CRLF cannot passively leave the Project Area, work should cease and the United States Fish and Wildlife Service (USFWS) should be contacted by the approved biologist to determine the appropriate course of action. The approved biologist should then implement the appropriate course of action as determined by the USFWS.

### **Biology Minimization Measure 8C**

Because dusk and dawn are often the times when California red-legged frog (CRLF) are most active and likely to disperse, all construction activities should cease one half hour before sunset and should not begin prior to one half hour before sunrise. Furthermore, no mechanized work should occur during significant rain events, defined here as 0.25 inch or greater within a 24 hour period, when CRLF are more likely to disperse and occur within the Project Area.

## **Wildlife Corridors**

### **Biology Impact 9**

The Project Area is located within the western portion of an important wildlife corridor, as identified by the California Department of Fish and Wildlife's (CDFW) essential connectivity network mapping project (CDFW 2014). Wildlife corridors and essential connectivity areas have been mapped by the CDFW to include the Project Area and continuing through to the north, east, and southeast (CDFW 2014). The proposed trail network and staging area have the potential to impact wildlife migration, including mountain lion, through the introduction of new human disturbance and increased noise. New scents will also occur as multi-use trails allow horses and dogs to access the area. The Project will not, however, result in the development of any physical structures or barriers that would restrict or prevent wildlife migration (i.e., no new roads, large fences, urban development, etc.). Mountain lion and other native species often utilize trail

networks, and the development of trails within the Project Area is not anticipated to result in an impact to wildlife corridors or movement.

### **Biology Minimization Measure 9**

The proposed Project is not anticipated to impact wildlife corridors within Santa Cruz County, and therefore no additional minimization measures are recommended.

## **7.3 Protected Trees**

### **Biology Impact 10**

The proposed trail network and staging area have the potential to directly impact trees protected under the Santa Cruz County Tree Protection Ordinance. Protected trees include trees within any of the sensitive habitats defined by the Santa Cruz County Municipal Code (see Section 2.3).

### **Biology Minimization Measure 10**

All tree removals should adhere to the County's tree protection ordinance. Tree removal should be conducted by a licensed arborist or a registered professional forester using industry-standard best management practices (BMPs) to prevent the spread of invasive weeds or plant pathogens and avoid damage to vegetation to be retained.

## **8.0 CONCLUSION**

Based on the results of this Biological Resources Assessment, it was determined that the Project Area contains sensitive resources which could be adversely impacted by the proposed Project. Elements of at least eight sensitive terrestrial biological communities and three sensitive aquatic biological communities were observed within the areas designated for trail construction. One special-status plant, Anderson's manzanita, was determined to be present. Based on a lack of observations during seasonally-timed surveys, it was determined that other special-status plants are unlikely to occur within the Project Area. Two special-status wildlife species were determined to be present, San Francisco dusky-footed woodrat and oak titmouse, and another 13 special-status wildlife species were determined to have moderate to high potential to occur. Additionally, the Project Area contains designated Critical Habitat for CRLF.

Although the proposed Project covers a large amount of wild lands containing a high diversity of biological resources, the proposed Project is relatively minimal in scope and is not expected to result in significant adverse impacts to sensitive resources. Due to the significant efforts that have gone into understanding ecology of the property (ESA 2012) and developing the proposed trail network (PlaceWorks 2018), areas with the most sensitive resources have been avoided and large tracts of wild land will remain off limits to public access. When implemented appropriately, the proposed trail network and the associated recreational, research, and educational activities are compatible with the conservation and long-term maintenance of sensitive biological resources. To this effect, the alignment of the trail and the specific construction methods proposed will largely avoid sensitive resources and will reduce the potential for long-term adverse impacts. With the implementation of the minimization measures included in Section 6.0, as well as the detailed management actions listed in the Draft Public Access Plan, it is anticipated that any potential impacts to sensitive biological resources associated with the Project will be reduced to a less-than-significant level.

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## **APPENDIX A**

### **PROJECT FIGURES**

- Figure 1. Location Map
- Figure 2. Project Area Overview
- Figure 3. Biological Communities Documented within the Greater San Vicente Redwoods Property
- Figure 4. Wetlands Documented within the Project Area
- Figure 5. Regulated Stream Crossings within the Project Area
- Figure 6. Special-Status Plants Documented within a 5-Mile Radius of the Project Area
- Figure 7. Special-Status Plants Documented within the Project Area
- Figure 8. Special-Status Wildlife Documented within a 5-Mile Radius of the Project Area
- Figure 9. Special-Status Wildlife Documented within the Project Area



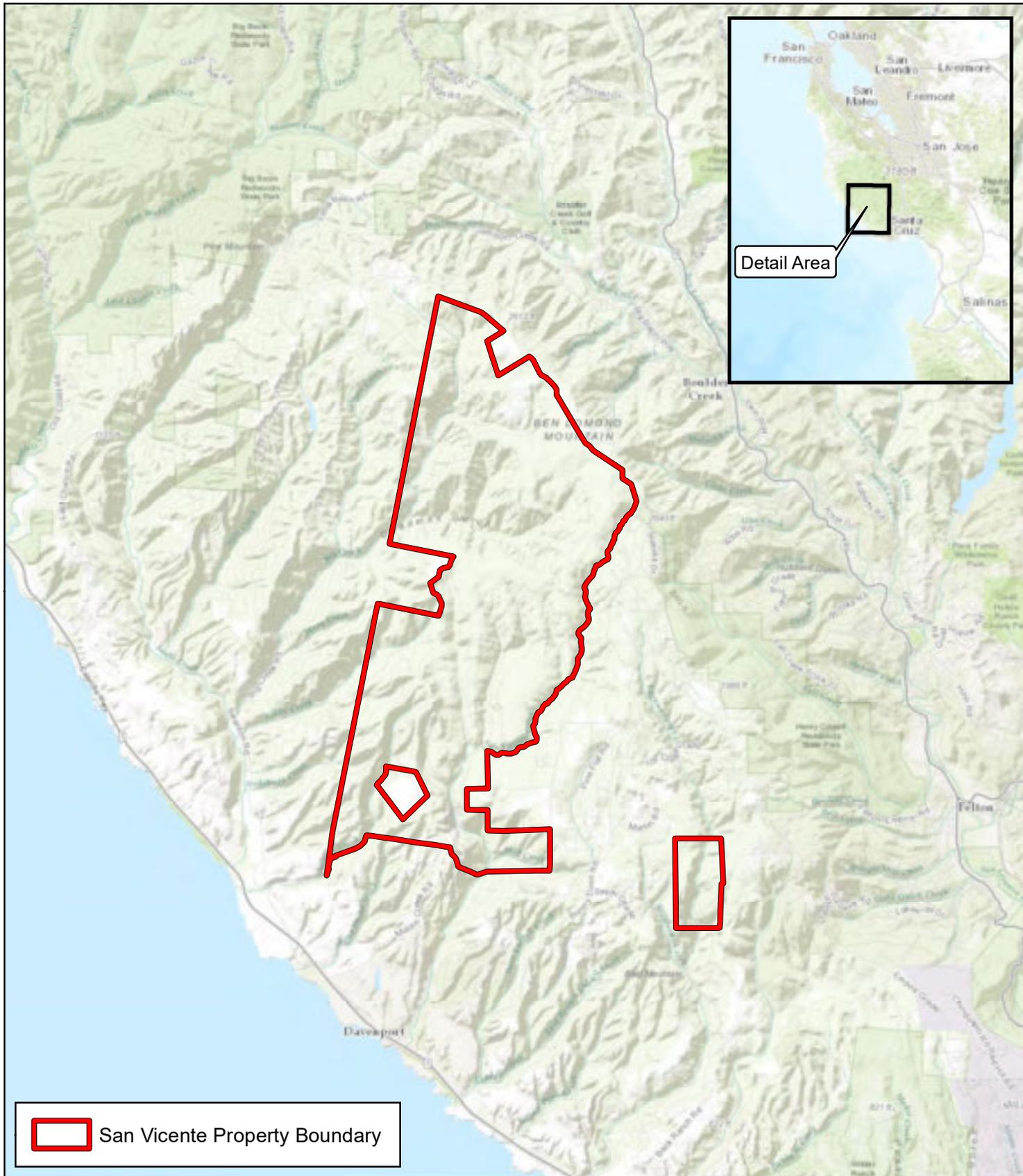
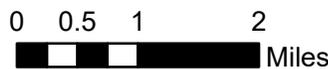
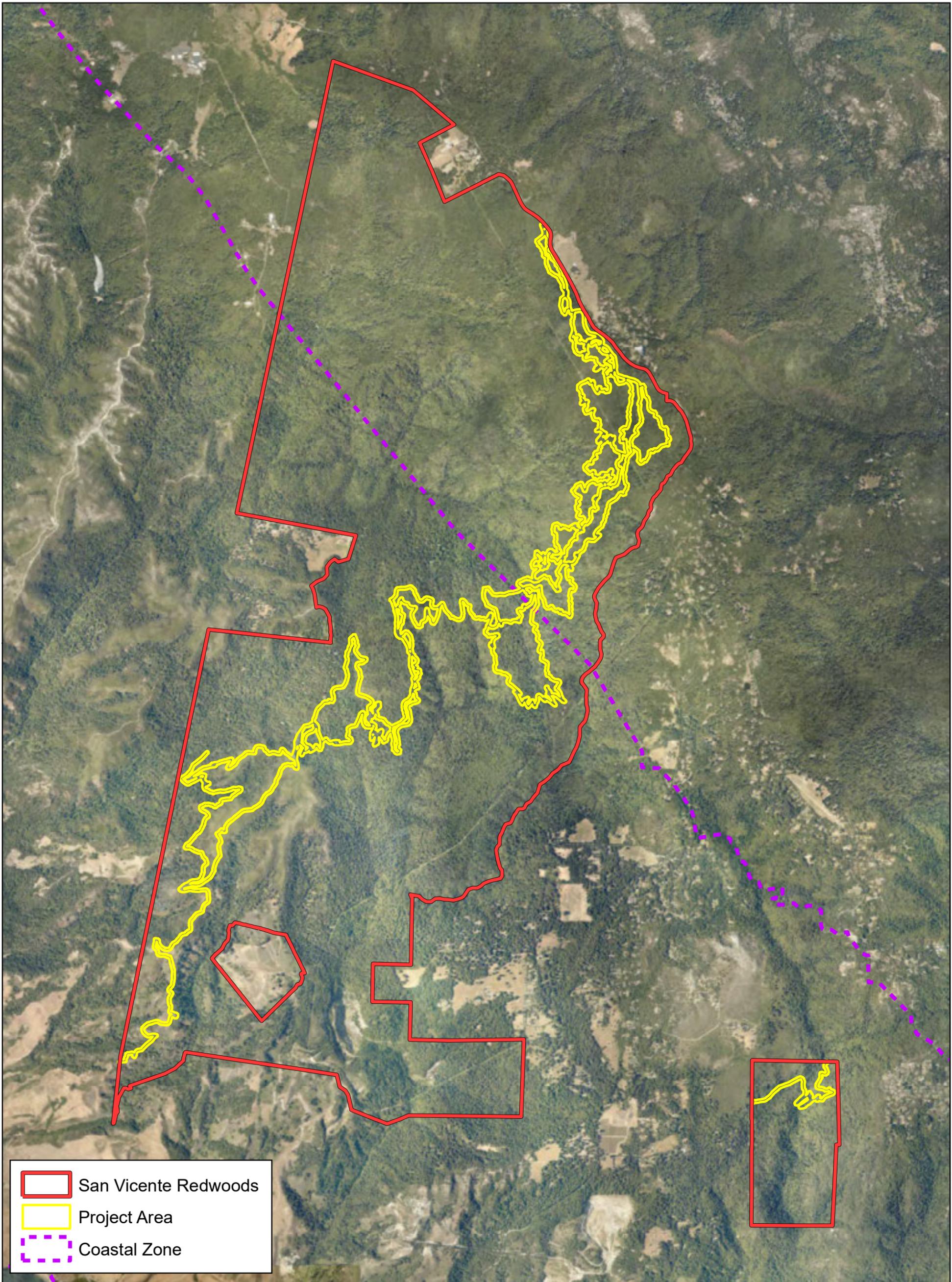


Figure 1. Location Map

San Vicente Redwoods  
 Draft Public Access Plan  
 Santa Cruz County, California



Map Prepared Date: 11/8/2016  
 Map Prepared By: sgillespie  
 Base Source: Esri World Topo  
 Data Source(s): WRA



- San Vicente Redwoods
- Project Area
- Coastal Zone

Figure 2. Overview of Project Area

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San Vicente Redwoods  
 Draft Public Access Plan  
 Santa Cruz County, California

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 Feet

Map Prepared Date: 4/23/2018  
 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
 Data Source(s): WRA, DCE, SCCBP

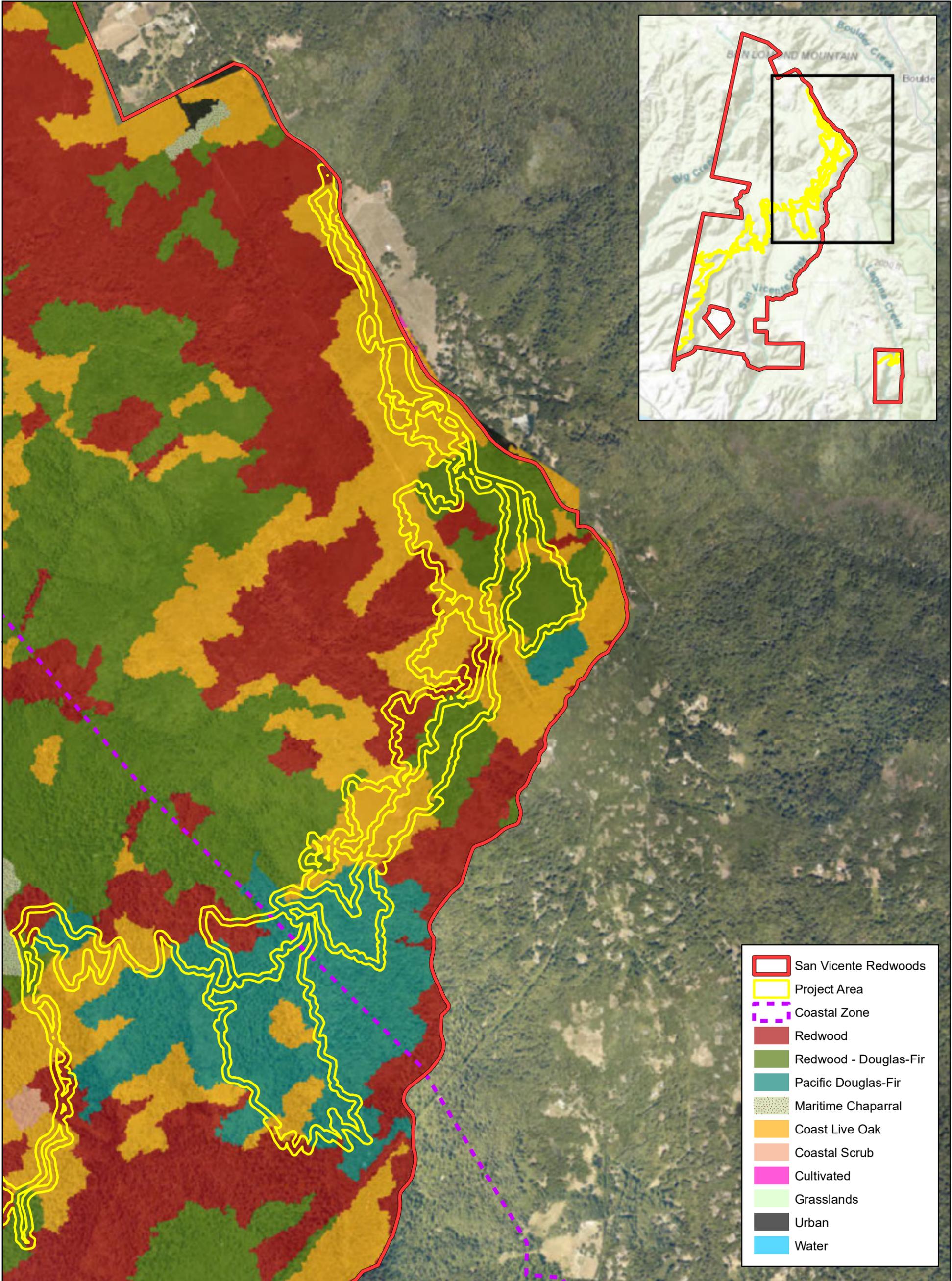


Figure 3A. Biological Communities North

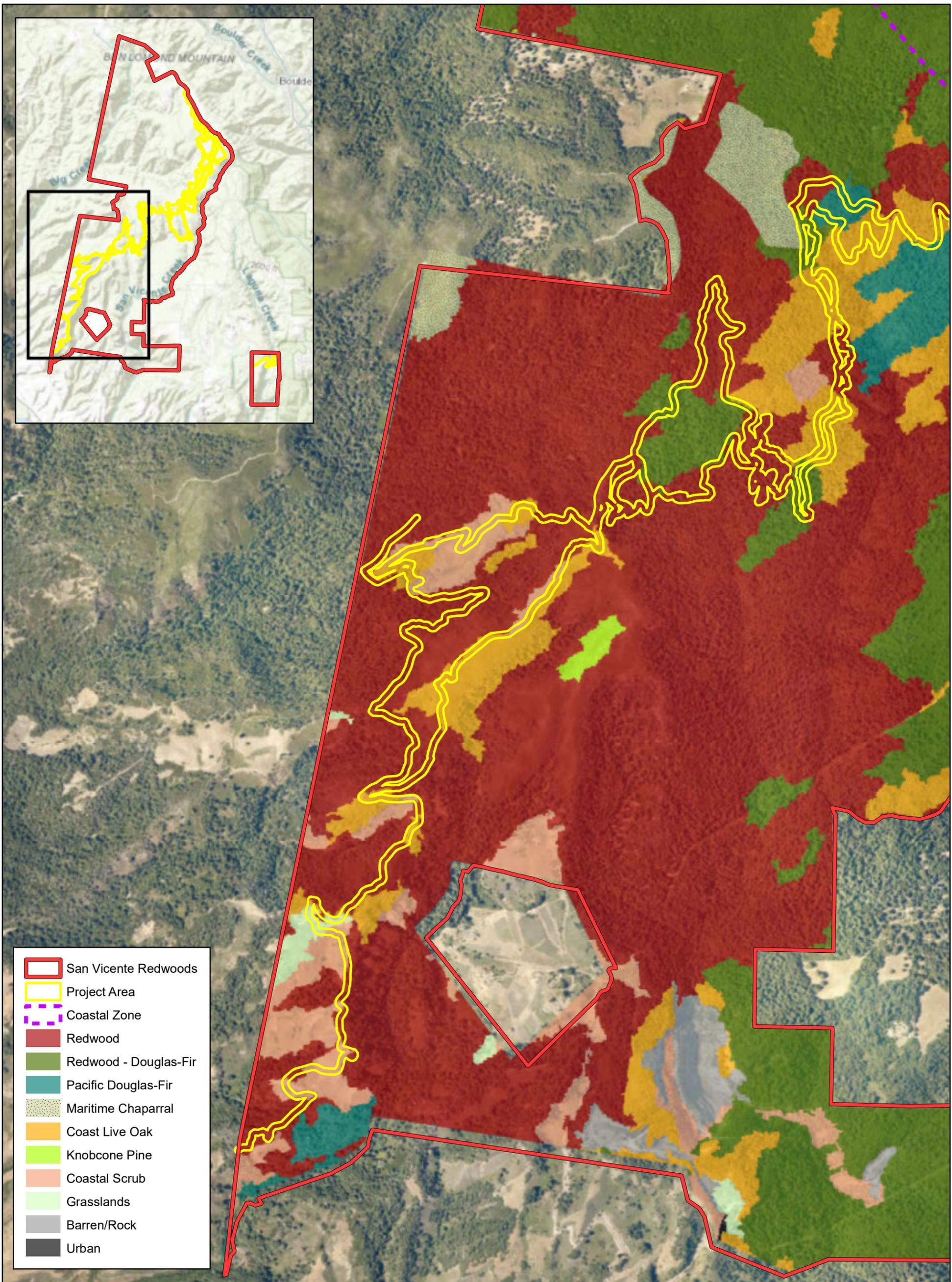
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San Vicente Redwoods  
Draft Public Access Plan  
Santa Cruz County, California

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Map Prepared Date: 4/23/2018  
Map Prepared By: SGillespie  
Base Source: Esri World Imagery  
Data Source(s): WRA, DCE, SCCBP



- San Vicente Redwoods
- Project Area
- Coastal Zone
- Redwood
- Redwood - Douglas-Fir
- Pacific Douglas-Fir
- Maritime Chaparral
- Coast Live Oak
- Knobcone Pine
- Coastal Scrub
- Grasslands
- Barren/Rock
- Urban

Figure 3B. Biological Communities South

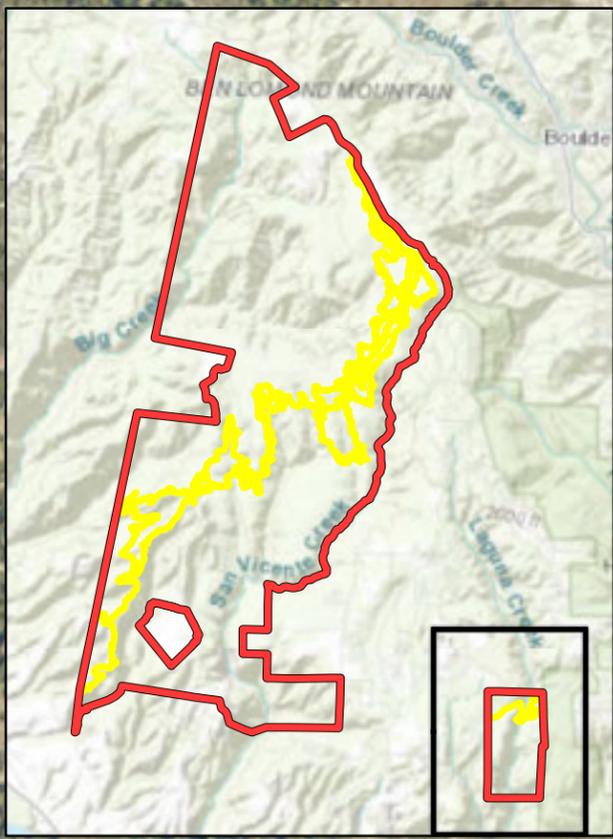
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San Vicente Redwoods  
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Map Prepared Date: 4/23/2018  
 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
 Data Source(s): WRA, DCE, SCCBP



- San Vicente Redwoods
- Project Area
- Redwood
- Redwood - Douglas-Fir
- Santa Cruz Cypress
- Maritime Chaparral
- Coast Live Oak
- Knobcone Pine
- Sandhills

Figure 3C. Biological Communities Laguna Parcel

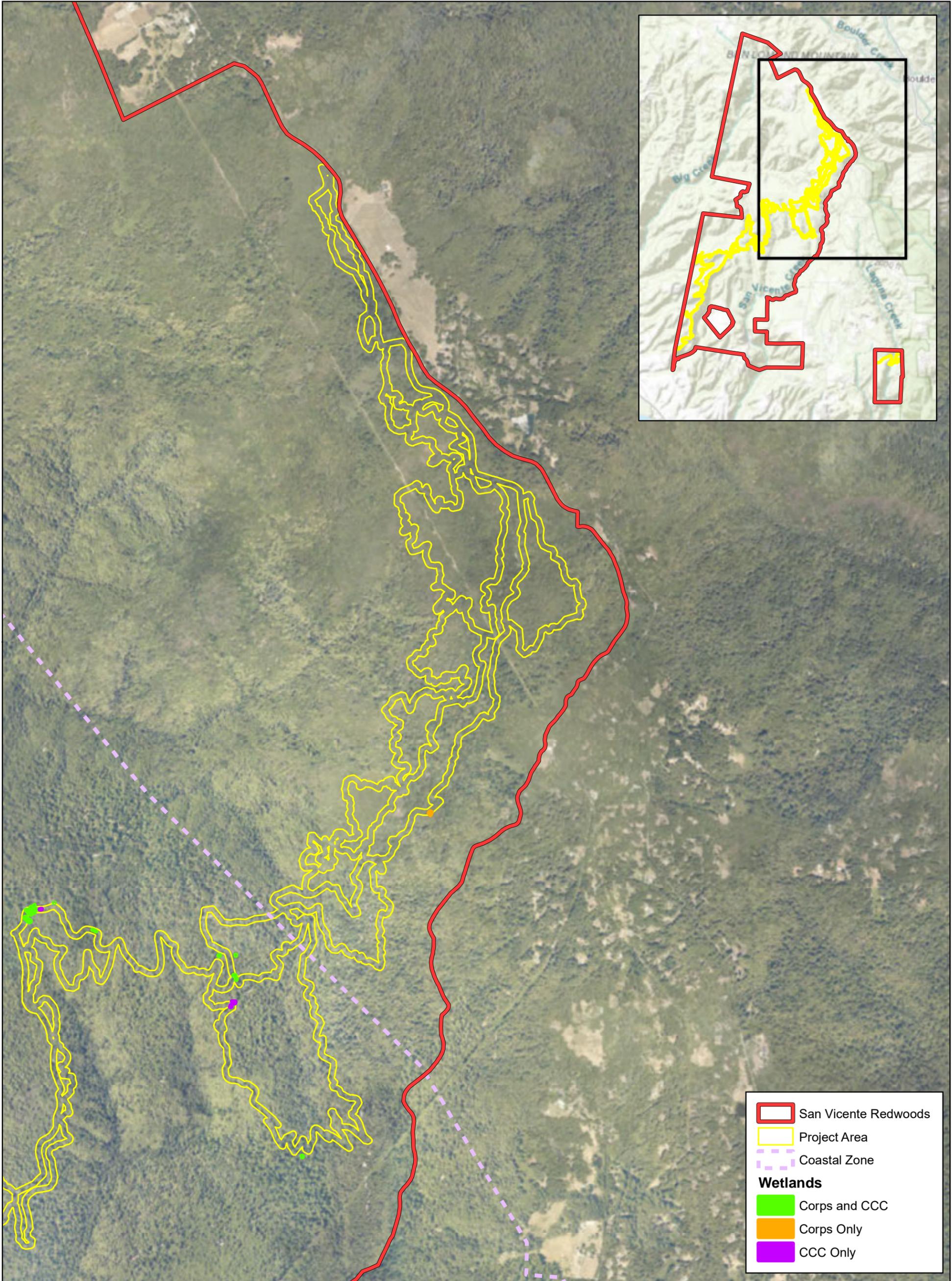
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San Vicente Redwoods  
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Santa Cruz County, California



Map Prepared Date: 4/23/2018  
Map Prepared By: SGillespie  
Base Source: Esri World Imagery  
Data Source(s): WRA, DCE, SCCBP



|                 |                      |
|-----------------|----------------------|
|                 | San Vicente Redwoods |
|                 | Project Area         |
|                 | Coastal Zone         |
| <b>Wetlands</b> |                      |
|                 | Corps and CCC        |
|                 | Corps Only           |
|                 | CCC Only             |

Figure 4A. Wetlands North

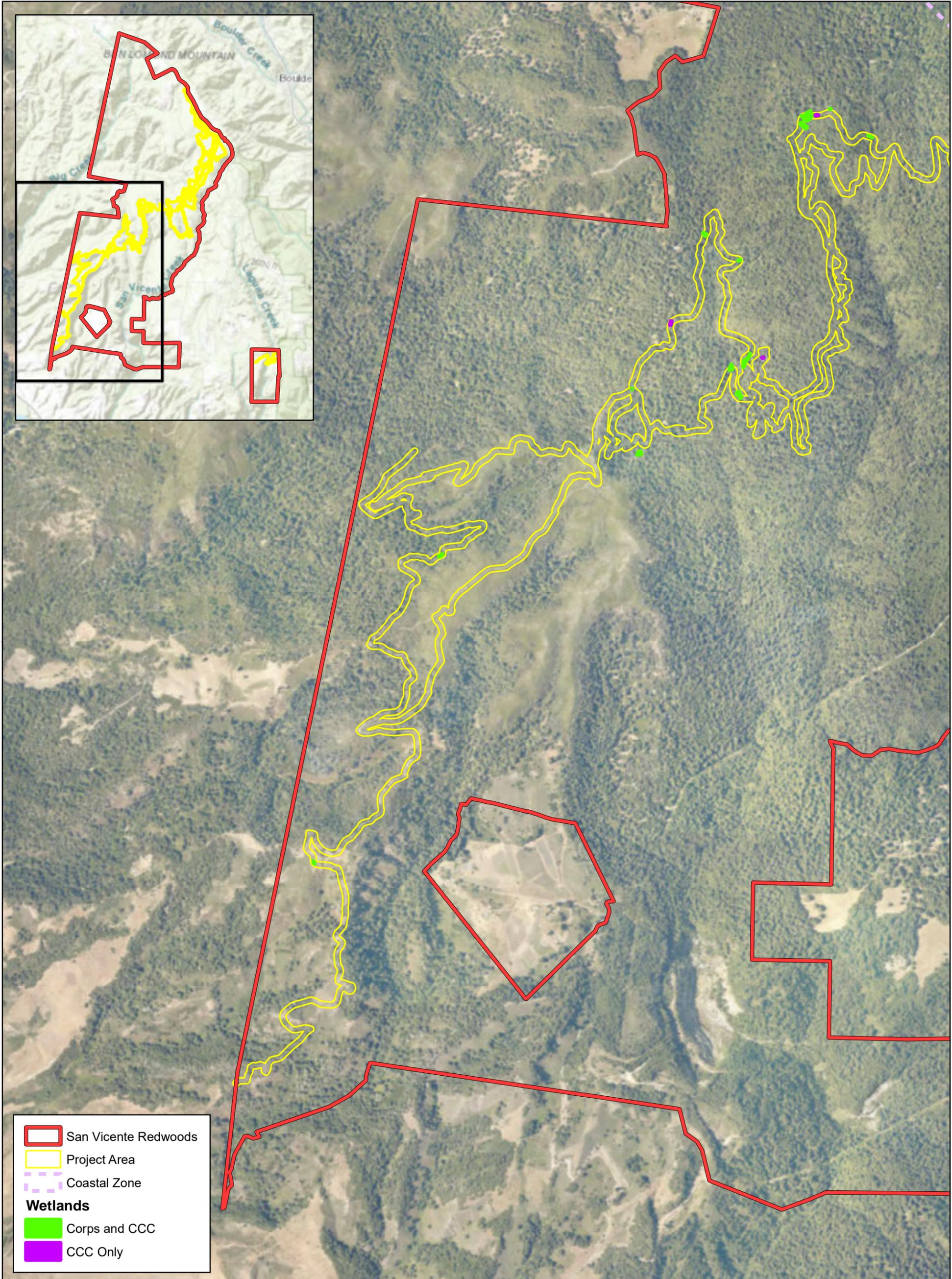
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San Vicente Redwoods  
Draft Public Access Plan  
Santa Cruz County, California

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Map Prepared By: SGillespie  
Base Source: Esri World Imagery  
Data Source(s): WRA, DCE, SCCBP



|                 |                      |
|-----------------|----------------------|
|                 | San Vicente Redwoods |
|                 | Project Area         |
|                 | Coastal Zone         |
| <b>Wetlands</b> |                      |
|                 | Corps and CCC        |
|                 | CCC Only             |

Figure 4B. Wetlands South

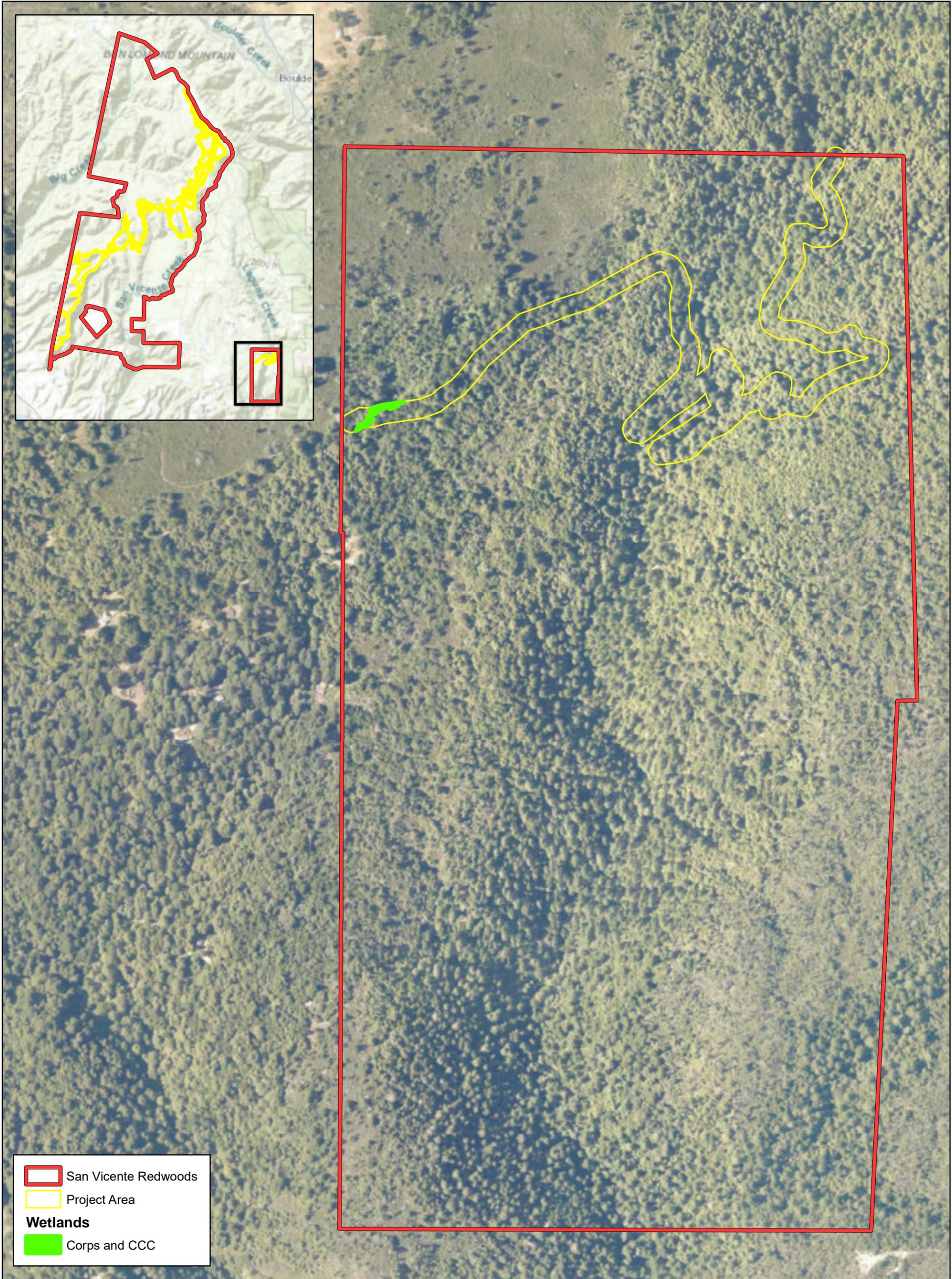
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San Vicente Redwoods  
Draft Public Access Plan  
Santa Cruz County, California

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Base Source: Esri World Imagery  
Data Source(s): WRA, DCE, SCCBP



|  |                      |
|--|----------------------|
|  | San Vicente Redwoods |
|  | Project Area         |
| <b>Wetlands</b>  |                      |
|  | Corps and CCC        |

Figure 4C. Wetlands Laguna Parcel

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San Vicente Redwoods  
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 Santa Cruz County, California



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 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
 Data Source(s): WRA, DCE, SCCBP

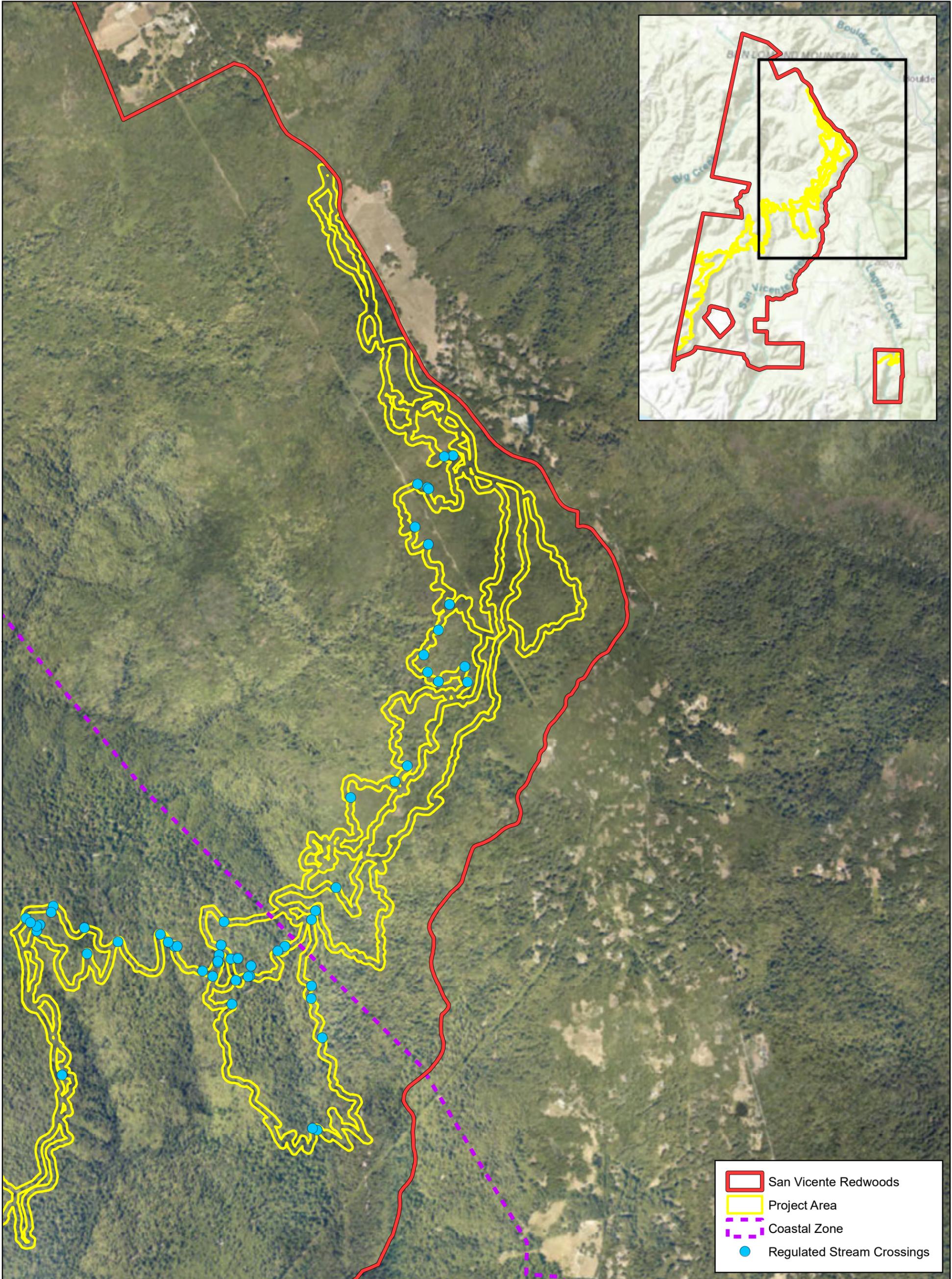


Figure 5A.Regulated Stream Crossings North

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San Vicente Redwoods  
 Draft Public Access Plan  
 Santa Cruz County, California

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Map Prepared Date: 4/23/2018  
 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
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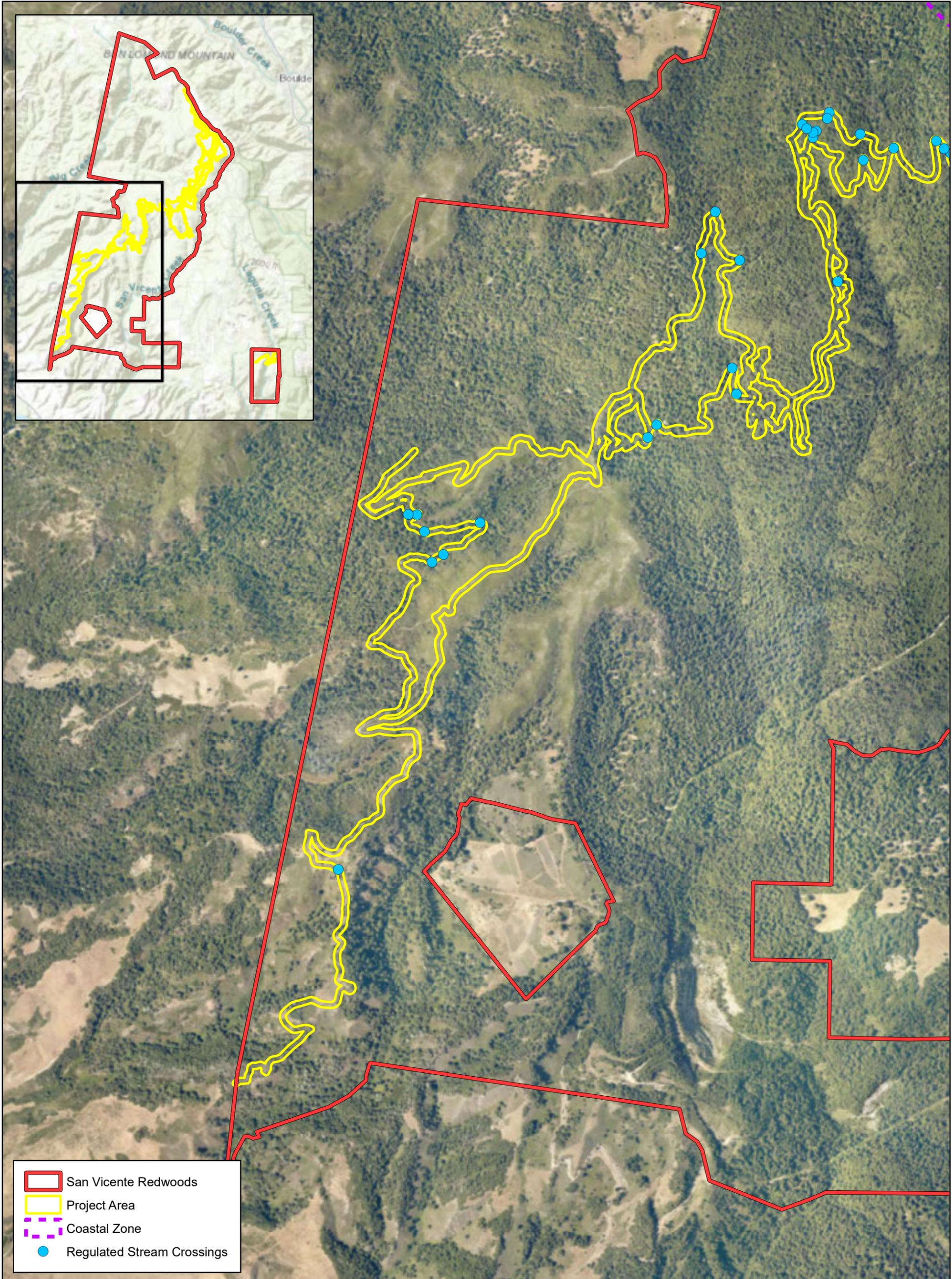


Figure 5B. Regulated Stream Crossings South

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San Vicente Redwoods  
 Draft Public Access Plan  
 Santa Cruz County, California

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Map Prepared Date: 4/23/2018  
 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
 Data Source(s): WRA, DCE, SCCBP

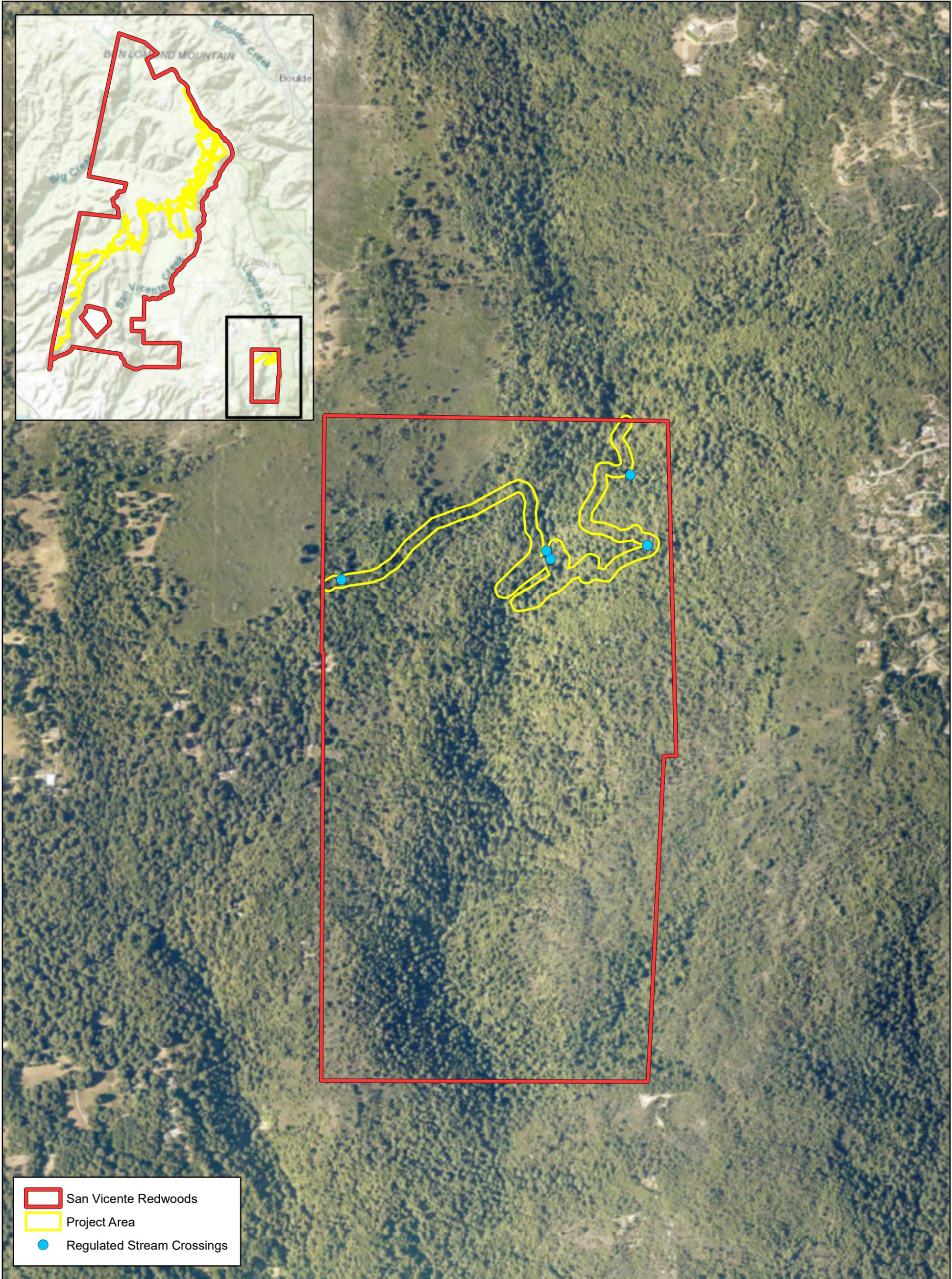
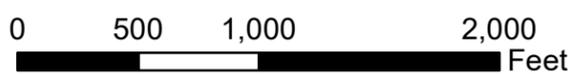


Figure 5C. Regulated Stream Crossings Laguna Parcel

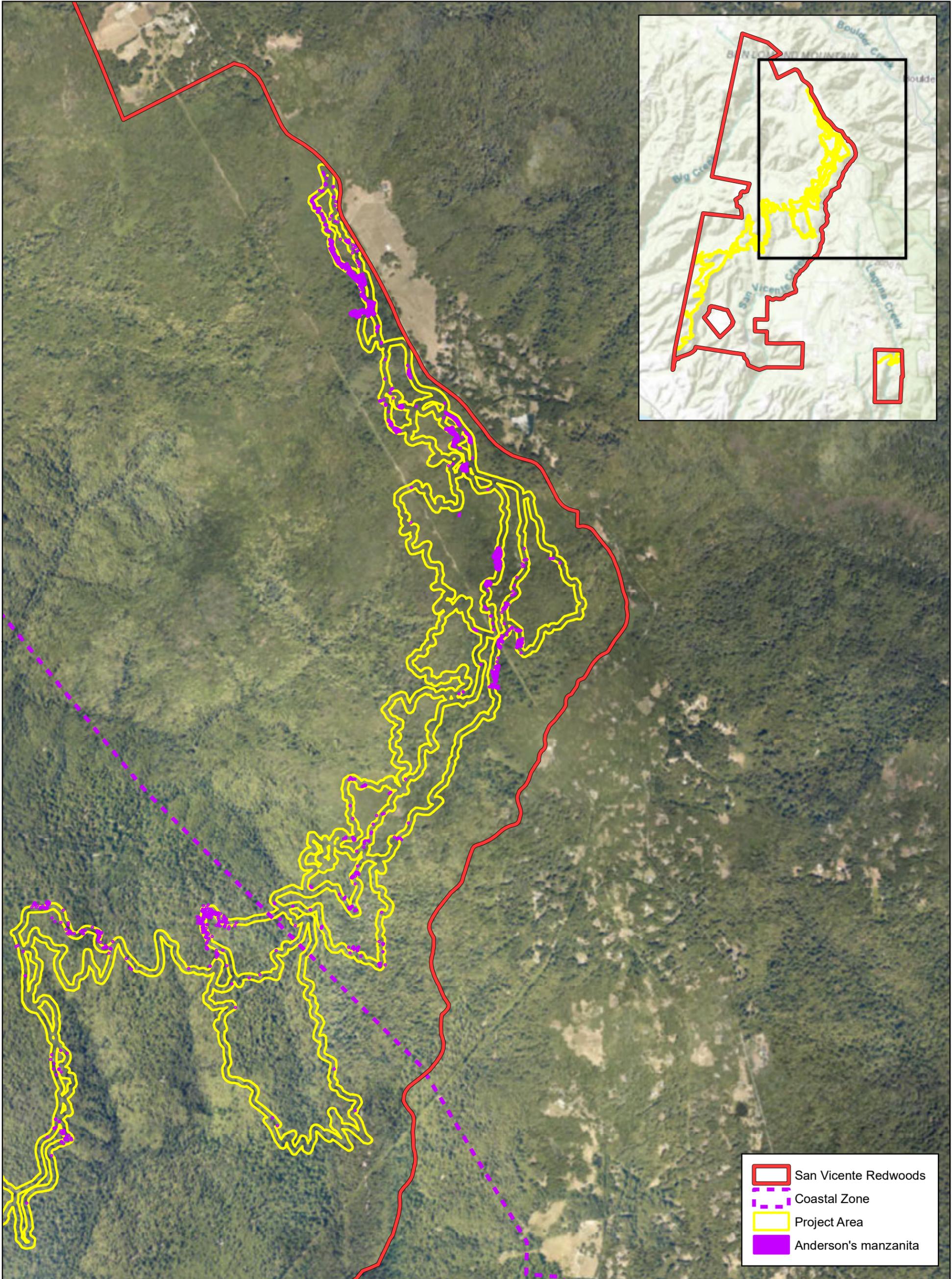
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San Vicente Redwoods  
 Draft Public Access Plan  
 Santa Cruz County, California



Map Prepared Date: 4/23/2018  
 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
 Data Source(s): WRA, DCE, SCCBP



|   |                      |
|---|----------------------|
|  | San Vicente Redwoods |
|  | Coastal Zone         |
|  | Project Area         |
|  | Anderson's manzanita |

Figure 7A. Special-Status Plant Species North

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San Vicente Redwoods  
Draft Public Access Plan  
Santa Cruz County, California

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Map Prepared Date: 4/23/2018  
Map Prepared By: SGillespie  
Base Source: Esri World Imagery  
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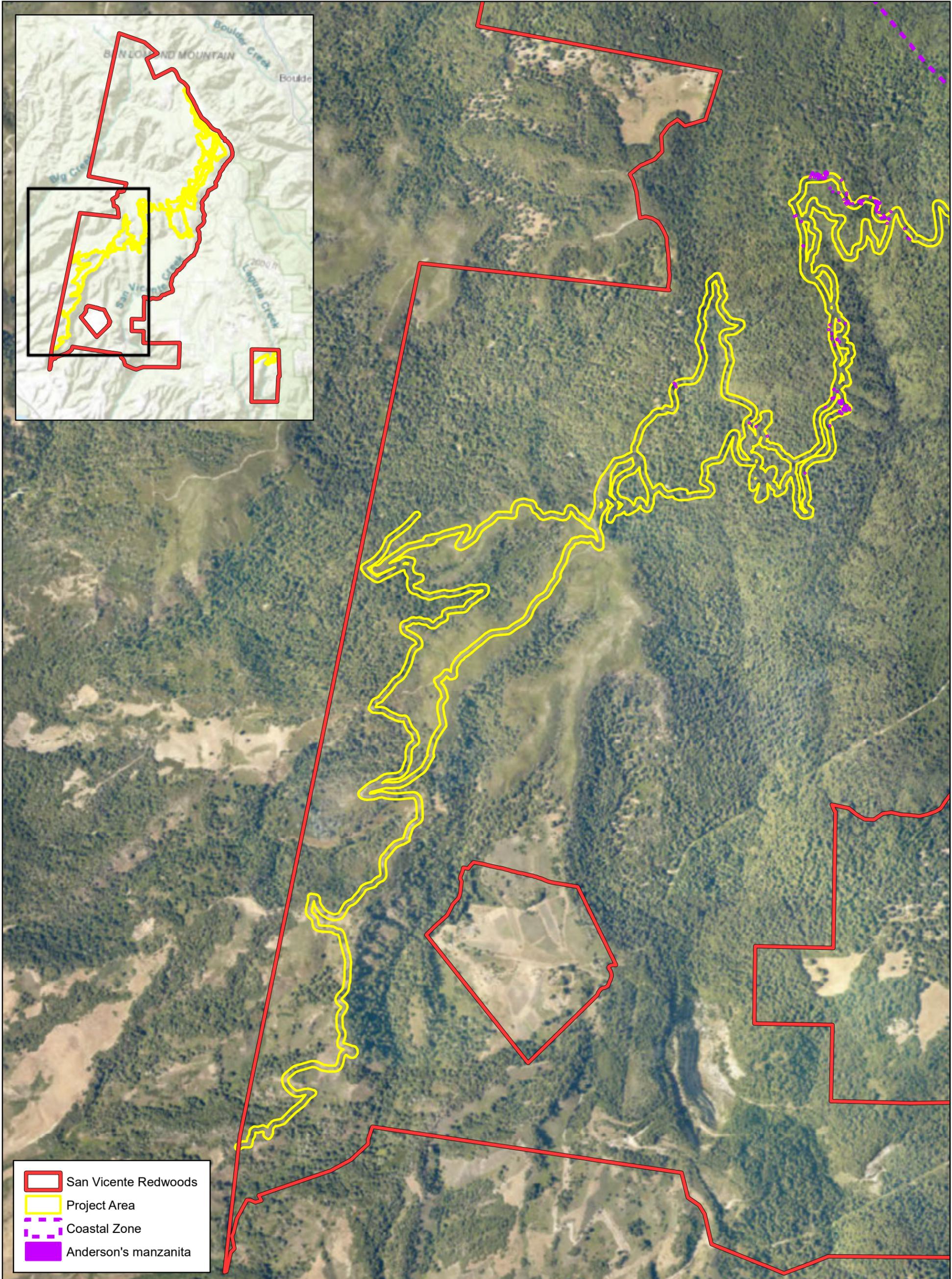


Figure 7B. Special Status Plants South

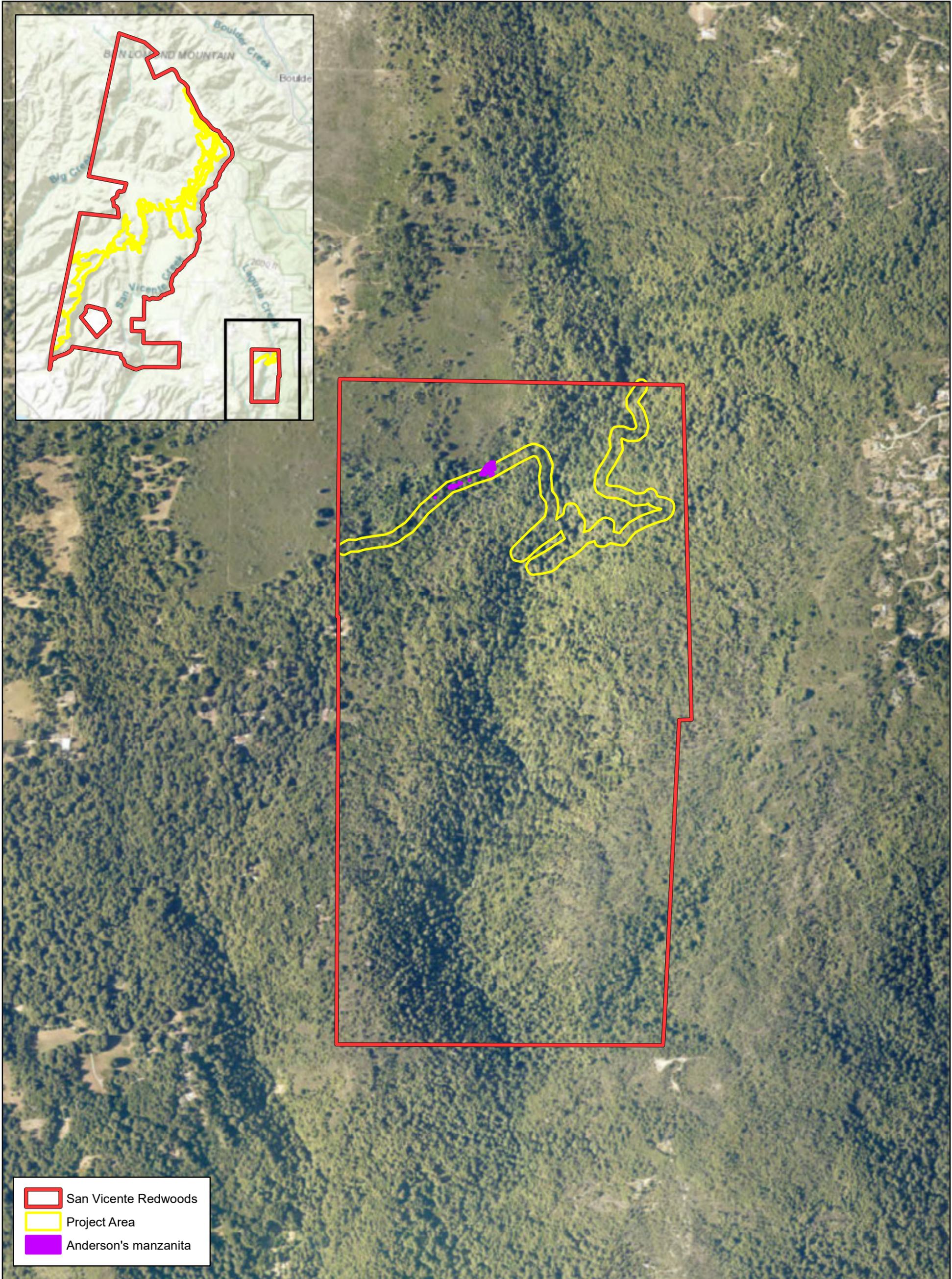
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San Vicente Redwoods  
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 Santa Cruz County, California

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Map Prepared Date: 4/23/2018  
 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
 Data Source(s): WRA, DCE, SCCBP



-  San Vicente Redwoods
-  Project Area
-  Anderson's manzanita

Figure 7C. Special Status Plants Laguna Parcel

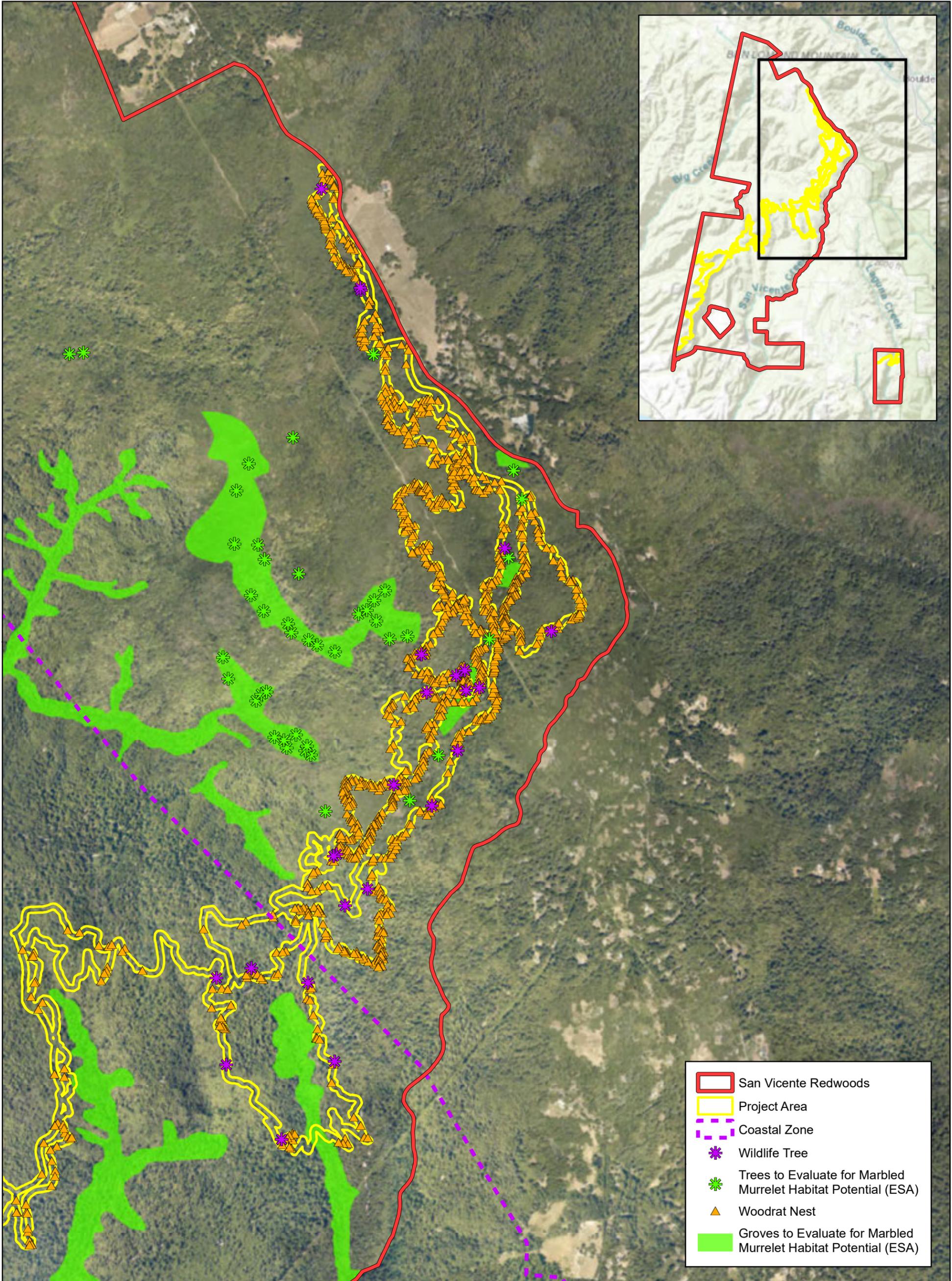
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San Vicente Redwoods  
Draft Public Access Plan  
Santa Cruz County, California



Map Prepared Date: 4/23/2018  
Map Prepared By: SGillespie  
Base Source: Esri World Imagery  
Data Source(s): WRA, DCE, SCCBP



- San Vicente Redwoods
- Project Area
- Coastal Zone
- ✱ Wildlife Tree
- ✱ Trees to Evaluate for Marbled Murrelet Habitat Potential (ESA)
- ▲ Woodrat Nest
- Groves to Evaluate for Marbled Murrelet Habitat Potential (ESA)

Figure 9A. Special-Status Wildlife Species North

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San Vicente Redwoods  
Draft Public Access Plan  
Santa Cruz County, California

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Map Prepared Date: 4/23/2018  
Map Prepared By: SGilispie  
Base Source: Esri World Imagery  
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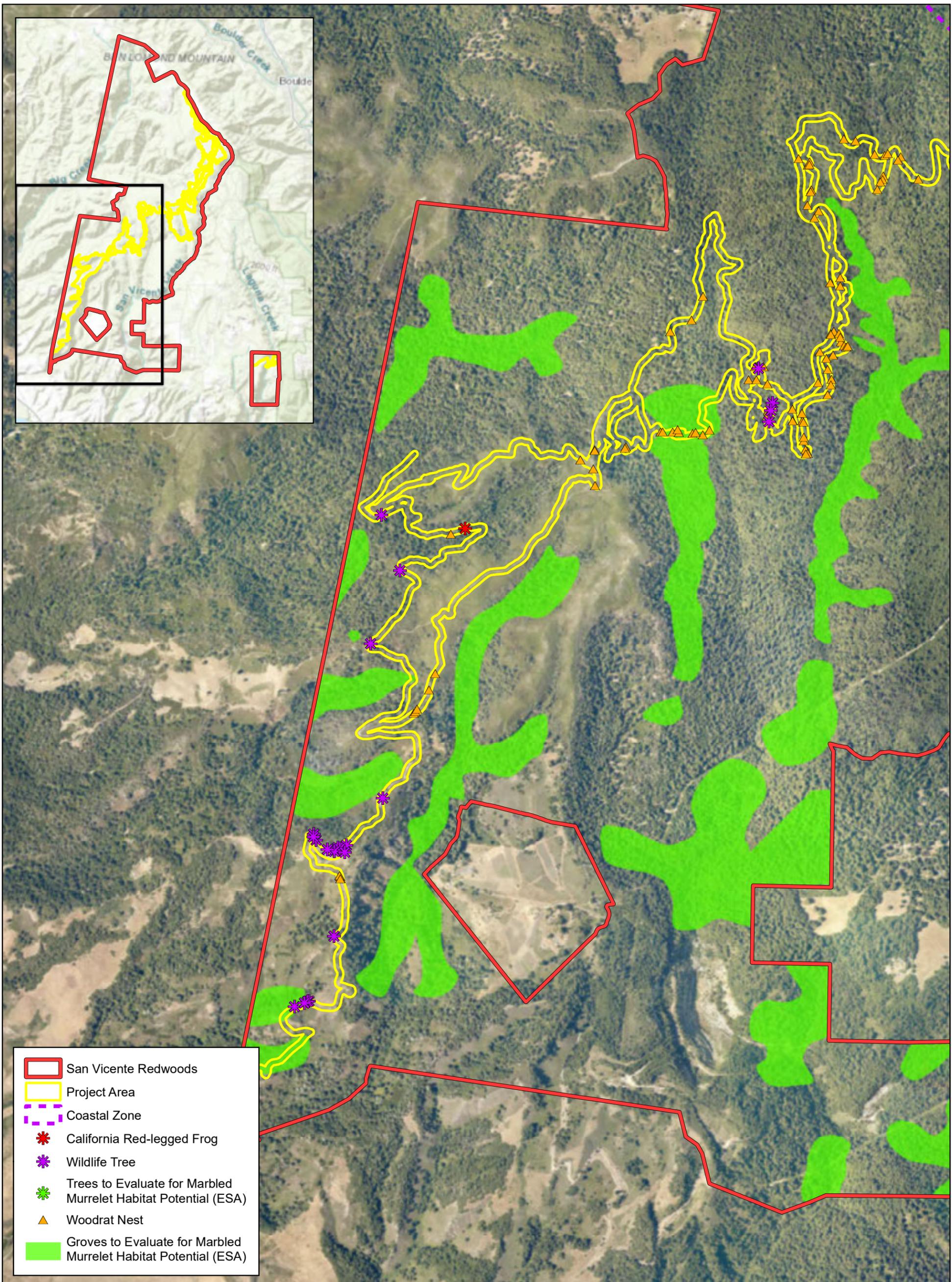


Figure 9B. Special Status Plants South

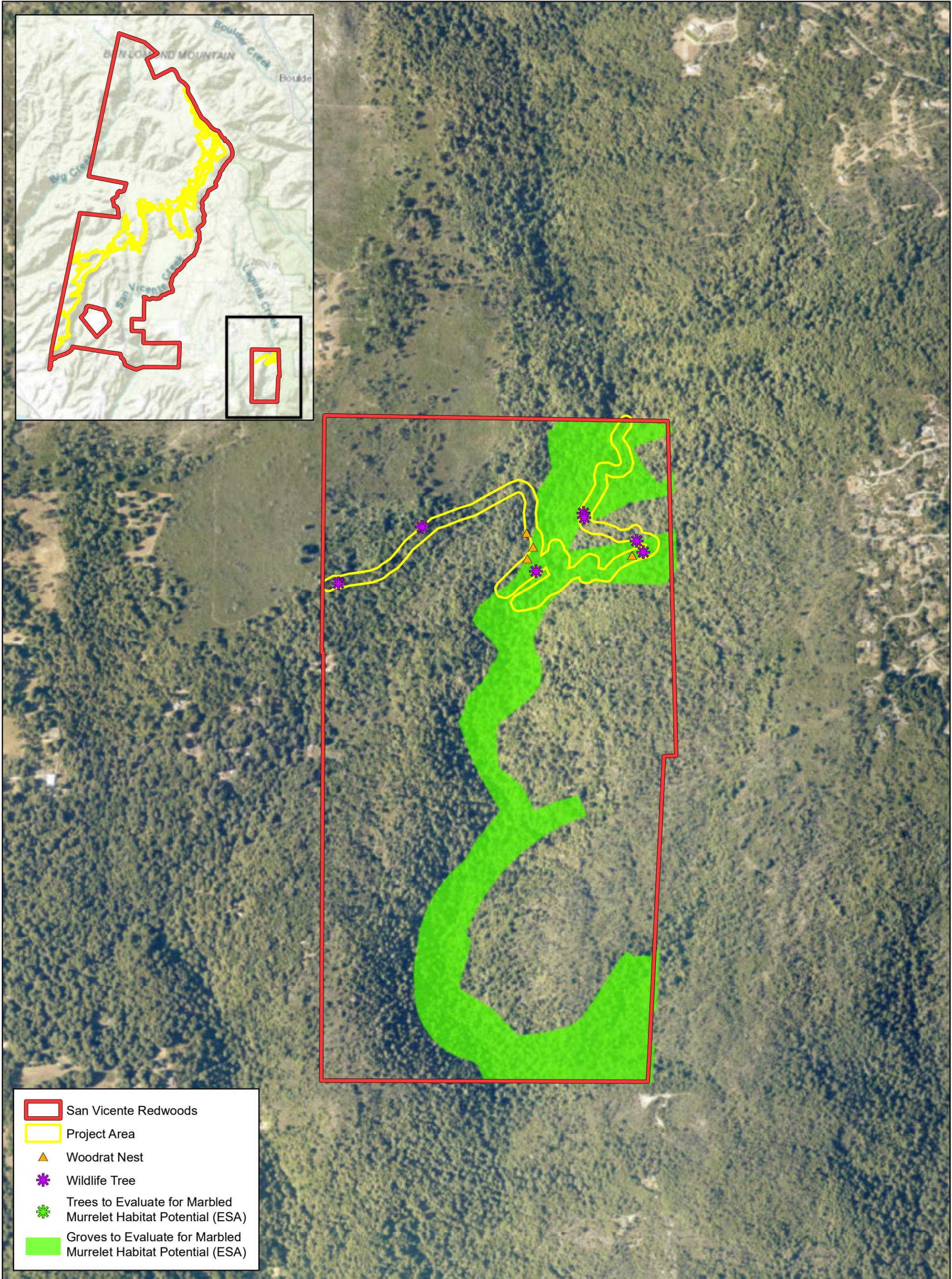
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San Vicente Redwoods  
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 Santa Cruz County, California

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Map Prepared Date: 4/23/2018  
 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
 Data Source(s): WRA, DCE, SCCBP



- San Vicente Redwoods
- Project Area
- ▲ Woodrat Nest
- ✱ Wildlife Tree
- ✱ Trees to Evaluate for Marbled Murrelet Habitat Potential (ESA)
- Groves to Evaluate for Marbled Murrelet Habitat Potential (ESA)

Figure 9C. Special Status Wildlife Laguna Parcel

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San Vicente Redwoods  
 Draft Public Access Plan  
 Santa Cruz County, California



Map Prepared Date: 4/23/2018  
 Map Prepared By: SGillespie  
 Base Source: Esri World Imagery  
 Data Source(s): WRA, DCE, SCCBP

**APPENDIX B**

**LIST OF OBSERVED PLANT AND WILDLIFE SPECIES**



Appendix B1. Plant species observed within the Project Area for the San Vicente Redwoods Public Access Plan (PlaceWorks 2018) during surveys conducted by WRA biologists on December 16-17, 2015, January 20-22, February 10-12, June 15-16, August 15-17 and 24-25, and October 21, 2016, and May 30-June 1 and August 8-9, 2017. Plant nomenclature follows Baldwin et al. (2012) and subsequent revisions by the Jepson Flora Project (2017).

| Scientific Name                                    | Common Name                   | Origin                | Form           | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|--|-------------------------------|-----------------------|----------------|----------------------------|-----------------------------|
| <i>Acacia dealbata</i>                             | Silver wattle                 | non-native (invasive) | tree, shrub    | -                          | Moderate                    |
| <i>Acer macrophyllum</i>                           | Bigleaf maple                 | native                | tree           | -                          | -                           |
| <i>Achillea millefolium</i>                        | Yarrow                        | native                | perennial herb | -                          | -                           |
| <i>Acmispon americanus</i> var. <i>americanus</i>  | Spanish lotus                 | native                | annual herb    | -                          | -                           |
| <i>Acmispon glaber</i>                             | Deerweed, california broom    | native                | perennial herb | -                          | -                           |
| <i>Acmispon heermannii</i> var. <i>orbicularis</i> | Round leaved heermann's lotus | native                | perennial herb | -                          | -                           |
| <i>Acmispon parviflorus</i>                        | Hill lotus                    | native                | annual herb    | -                          | -                           |
| <i>Adenostoma fasciculatum</i>                     | Chamise                       | native                | tree, shrub    | -                          | -                           |
| <i>Agoseris grandiflora</i>                        | Giant mountain dandelion      | native                | perennial herb | -                          | -                           |
| <i>Agrostis</i> sp.                                | -                             | -                     | -              | -                          | -                           |
| <i>Aira caryophyllea</i>                           | Silvery hairgrass             | non-native (invasive) | annual grass   | -                          | -                           |
| <i>Anaphalis margaritacea</i>                      | Pearly everlasting            | native                | perennial herb | -                          | -                           |
| <i>Anisocarpus madioides</i>                       | Woodland madia                | native                | perennial herb | -                          | -                           |
| <i>Aralia californica</i>                          | California spikenard          | native                | perennial herb | -                          | -                           |
| <i>Arbutus menziesii</i>                           | Madrono                       | native                | tree           | -                          | -                           |
| <i>Arctostaphylos andersonii</i>                   | Anderson's manzanita          | native                | shrub          | Rank 1B.2                  | -                           |

| Scientific Name                                     | Common Name              | Origin                | Form                    | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|---|--------------------------|-----------------------|-------------------------|----------------------------|-----------------------------|
| <i>Arctostaphylos crustacea</i> ssp. <i>crinita</i> | Crinite manzanita        | native                | shrub                   | -                          | -                           |
| <i>Arnica discoidea</i>                             | Rayless arnica           | native                | perennial herb          | -                          | -                           |
| <i>Artemisia californica</i>                        | Coastal sage brush       | native                | shrub                   | -                          | -                           |
| <i>Artemisia douglasiana</i>                        | California mugwort       | native                | perennial herb          | -                          | -                           |
| <i>Asarum caudatum</i>                              | Creeping wild ginger     | native                | perennial herb          | -                          | -                           |
| <i>Asyneuma prenanthoides</i>                       | California harebell      | native                | perennial herb          | -                          | -                           |
| <i>Athyrium filix-femina</i> var. <i>cyclosorum</i> | Western lady fern        | native                | fern                    | -                          | -                           |
| <i>Avena barbata</i>                                | Slim oat                 | non-native (invasive) | annual, perennial grass | -                          | Moderate                    |
| <i>Baccharis pilularis</i> ssp. <i>consanguinea</i> | Coyote brush             | native                | shrub                   | -                          | -                           |
| <i>Brachypodium distachyon</i>                      | Purple false brome       | non-native (invasive) | annual, perennial grass | -                          | Moderate                    |
| <i>Briza maxima</i>                                 | Rattlesnake grass        | non-native (invasive) | annual grass            | -                          | Limited                     |
| <i>Briza minor</i>                                  | Little rattlesnake grass | non-native            | annual grass            | -                          | -                           |
| <i>Bromus carinatus</i>                             | California brome grass   | native                | perennial grass         | -                          | -                           |
| <i>Bromus diandrus</i>                              | Ripgut brome             | non-native (invasive) | annual grass            | -                          | Moderate                    |
| <i>Bromus hordeaceus</i>                            | Soft chess               | non-native (invasive) | annual grass            | -                          | Limited                     |

| Scientific Name  | Common Name                  | Origin                | Form                     | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|--|------------------------------|-----------------------|--------------------------|----------------------------|-----------------------------|
| <i>Bromus laevipes</i>                                 | Narrow flowered brome        | native                | annual, perennial grass  | -                          | -                           |
| <i>Bromus racemosus</i>                                | Smooth brome                 | non-native            | perennial grass          | -                          | -                           |
| <i>Calochortus albus</i>                               | White fairy lantern          | native                | perennial herb           | -                          | -                           |
| <i>Calyptridium monandrum</i>                          | Common pussypaws             | native                | annual herb              | -                          | -                           |
| <i>Calystegia macrostegia</i> ssp. <i>cyclostegia</i>  | Coast morning glory          | native                | perennial herb, vine     | -                          | -                           |
| <i>Calystegia purpurata</i> ssp. <i>purpurata</i>      | Smooth western morning glory | native                | perennial herb           | -                          | -                           |
| <i>Camissoniopsis hirtella</i>                         | Hairy sun cup                | native                | annual herb              | -                          | -                           |
| <i>Cardamine hirsuta</i>                               | Hairy bitter cress           | non-native            | annual herb              | -                          | -                           |
| <i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i> | Italian thistle              | non-native (invasive) | annual herb              | -                          | Moderate                    |
| <i>Carex barbarae</i>                                  | Valley sedge                 | native                | perennial grasslike herb | -                          | -                           |
| <i>Carex globosa</i>                                   | Round fruit sedge            | native                | perennial grasslike herb | -                          | -                           |
| <i>Carex leptopoda</i>                                 | Slender-footed sedge         | native                | perennial grasslike herb | -                          | -                           |
| <i>Carex obnupta</i>                                   | Slough sedge                 | native                | perennial grasslike herb | -                          | -                           |
| <i>Carex tumulicola</i>                                | Split awn sedge              | native                | perennial grasslike herb | -                          | -                           |
| <i>Castilleja affinis</i> ssp. <i>affinis</i>          | Wight's indian paint brush   | native                | perennial herb           | -                          | -                           |
| <i>Ceanothus leucodermis</i>                           | Chaparral whitethorn         | native                | shrub                    | -                          | -                           |
| <i>Ceanothus papillosus</i>                            | Wartleaf ceanothus           | native                | shrub                    | -                          | -                           |

| Scientific Name  | Common Name                   | Origin                | Form           | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|--|-------------------------------|-----------------------|----------------|----------------------------|-----------------------------|
| <i>Ceanothus thyrsiflorus</i> var. <i>thyrsiflorus</i>   | Blue blossom                  | native                | tree, shrub    | -                          | -                           |
| <i>Centaurea melitensis</i>                              | Tocalote                      | non-native (invasive) | annual herb    | -                          | Moderate                    |
| <i>Centaureum tenuiflorum</i>                            | Slender centaury              | non-native            | annual herb    | -                          | -                           |
| <i>Cephalanthera austiniiae</i>                          | Phantom orchid                | native                | perennial herb | -                          | -                           |
| <i>Cerastium glomeratum</i>                              | Large mouse ears              | non-native            | annual herb    | -                          | -                           |
| <i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i> | Common soaproot               | native                | perennial herb | -                          | -                           |
| <i>Chorizanthe diffusa</i>                               | Diffuse spineflower           | native                | annual herb    | -                          | -                           |
| <i>Chrysolepis chrysophylla</i> var. <i>chrysophylla</i> | Golden chinquapin             | native                | tree, shrub    | -                          | -                           |
| <i>Cirsium brevistylum</i>                               | Indian thistle                | native                | perennial herb | -                          | -                           |
| <i>Cirsium occidentale</i>                               | Western thistle               | native                | perennial herb | -                          | -                           |
| <i>Cirsium vulgare</i>                                   | Bull thistle                  | non-native (invasive) | perennial herb | -                          | Moderate                    |
| <i>Claytonia parviflora</i>                              | Narrow leaved miner's lettuce | native                | annual herb    | -                          | -                           |
| <i>Claytonia perfoliata</i>                              | Miner's lettuce               | native                | annual herb    | -                          | -                           |
| <i>Clinopodium douglasii</i>                             | Yerba buena                   | native                | perennial herb | -                          | -                           |
| <i>Clintonia andrewsiana</i>                             | Red clintonia                 | native                | perennial herb | -                          | -                           |
| <i>Collomia heterophylla</i>                             | Varied leaved collomia        | native                | annual herb    | -                          | -                           |
| <i>Conium maculatum</i>                                  | Poison hemlock                | non-native (invasive) | perennial herb | -                          | Moderate                    |
| <i>Corallorhiza maculata</i>                             | Summer coral root             | native                | perennial herb | -                          | -                           |

| Scientific Name                               | Common Name                 | Origin                | Form                     | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|---|-----------------------------|-----------------------|--------------------------|----------------------------|-----------------------------|
| <i>Cortaderia jubata</i>                      | Andean pampas grass         | non-native (invasive) | perennial grass          | -                          | High                        |
| <i>Corylus cornuta ssp. californica</i>       | Beaked hazelnut             | native                | shrub                    | -                          | -                           |
| <i>Crassula connata</i>                       | Sand pygmy weed             | native                | annual herb              | -                          | -                           |
| <i>Crocanthemum scoparium</i>                 | Bisbee Peak Rushrose        | native                | shrub                    | -                          | -                           |
| <i>Croton setiger</i>                         | Turkey-mullein              | native                | perennial herb           | -                          | -                           |
| <i>Cryptantha sp.</i>                         | Cryptantha                  | native                | annual herb              | -                          | -                           |
| <i>Cuscuta sp.</i>                            | Dodder                      | -                     | annual herb              | -                          | -                           |
| <i>Cynoglossum grande</i>                     | Houndstongue                | native                | perennial herb           | -                          | -                           |
| <i>Cynosurus echinatus</i>                    | Dogtail grass               | non-native (invasive) | annual grass             | -                          | Moderate                    |
| <i>Cyperus eragrostis</i>                     | Tall cyperus                | native                | perennial grasslike herb | -                          | -                           |
| <i>Dactylis glomerata</i>                     | Orchardgrass                | non-native (invasive) | perennial grass          | -                          | Limited                     |
| <i>Daucus pusillus</i>                        | Wild carrot                 | native                | annual herb              | -                          | -                           |
| <i>Deinandra increscens ssp. increscens</i>   | Grassland tarweed           | native                | annual herb              | -                          | -                           |
| <i>Dendromecon rigida</i>                     | Bush poppy                  | native                | shrub                    | -                          | -                           |
| <i>Dichelostemma capitatum ssp. capitatum</i> | Wild hyacinth               | native                | perennial herb           | -                          | -                           |
| <i>Digitalis purpurea</i>                     | Foxglove                    | non-native (invasive) | perennial herb           | -                          | Limited                     |
| <i>Drymocallis glandulosa</i>                 | Sticky cinquefoil           | native                | perennial herb           | -                          | -                           |
| <i>Dudleya lanceolata</i>                     | Southern California dudleya | native                | perennial herb           | -                          | -                           |

| Scientific Name                         | Common Name                     | Origin                   | Form                      | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|---|---------------------------------|--------------------------|---------------------------|----------------------------|-----------------------------|
| <i>Elymus glaucus</i>                   | Blue wildrye                    | native                   | perennial grass           | -                          | -                           |
| <i>Epilobium canum</i>                  | California fuchsia, zauschneria | native                   | perennial herb            | -                          | -                           |
| <i>Epilobium ciliatum</i>               | Slender willow herb             | native                   | perennial herb            | -                          | -                           |
| <i>Epilobium minutum</i>                | Minute willowherb               | native                   | annual herb               | -                          | -                           |
| <i>Epipactis helleborine</i>            | Helleborine                     | non-native               | perennial herb            | -                          | -                           |
| <i>Equisetum telmateia ssp. braunii</i> | Giant horsetail                 | native                   | fern                      | -                          | -                           |
| <i>Ericameria arborescens</i>           | Golden fleece                   | native                   | shrub                     | -                          | -                           |
| <i>Erigeron canadensis</i>              | Canada horseweed                | native                   | annual herb               | -                          | -                           |
| <i>Eriodictyon californicum</i>         | Yerba santa                     | native                   | shrub                     | -                          | -                           |
| <i>Eriogonum nudum</i>                  | Naked buckwheat                 | native                   | shrub                     | -                          | -                           |
| <i>Eriophyllum confertiflorum</i>       | Yellow yarrow                   | native                   | shrub                     | -                          | -                           |
| <i>Eriophyllum lanatum</i>              | Wooly sunflower                 | native                   | perennial herb            | -                          | -                           |
| <i>Eriophyllum staechadifolium</i>      | Lizard tail                     | native                   | perennial herb            | -                          | -                           |
| <i>Erodium botrys</i>                   | Big heron bill                  | non-native<br>(invasive) | annual herb               | -                          | -                           |
| <i>Erodium cicutarium</i>               | Coastal heron's bill            | non-native<br>(invasive) | annual herb               | -                          | Limited                     |
| <i>Eschscholzia californica</i>         | California poppy                | native                   | annual,<br>perennial herb | -                          | -                           |
| <i>Eurybia radulina</i>                 | Roughleaf aster                 | native                   | perennial herb            | -                          | -                           |
| <i>Festuca bromoides</i>                | Brome fescue                    | non-native               | annual grass              | -                          | -                           |
| <i>Festuca californica</i>              | California fescue               | native                   | perennial<br>grass        | -                          | -                           |

| Scientific Name                                       | Common Name            | Origin                | Form                    | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|---|------------------------|-----------------------|-------------------------|----------------------------|-----------------------------|
| <i>Festuca myuros</i>                                 | Rattail sixweeks grass | non-native (invasive) | annual grass            | -                          | -                           |
| <i>Festuca perennis</i>                               | Italian rye grass      | non-native            | annual, perennial grass | -                          | -                           |
| <i>Festuca rubra</i>                                  | Red fescue             | native                | perennial grass         | -                          | -                           |
| <i>Fragaria vesca</i>                                 | Wild strawberry        | native                | perennial herb          | -                          | -                           |
| <i>Frangula californica</i>                           | California coffeeberry | native                | shrub                   | -                          | -                           |
| <i>Fumaria parviflora</i>                             | Fine leaved fumitory   | non-native            | annual herb             | -                          | -                           |
| <i>Galium aparine</i>                                 | Cleavers               | native                | annual herb             | -                          | -                           |
| <i>Galium californicum</i>                            | California bedstraw    | native                | perennial herb          | -                          | -                           |
| <i>Galium porrigens</i>                               | Climbing bedstraw      | native                | vine, shrub             | -                          | -                           |
| <i>Gamochaeta ustulata</i>                            | Featherweed            | native                | perennial herb          | -                          | -                           |
| <i>Garrya elliptica</i>                               | Coast silk tassel      | native                | tree, shrub             | -                          | -                           |
| <i>Gastridium phleoides</i>                           | Nit grass              | non-native            | annual grass            | -                          | -                           |
| <i>Gaultheria shallon</i>                             | Salal                  | native                | shrub                   | -                          | -                           |
| <i>Genista monspessulana</i>                          | French broom           | non-native (invasive) | shrub                   | -                          | High                        |
| <i>Helenium puberulum</i>                             | Sneezeweed             | native                | perennial herb          | -                          | -                           |
| <i>Heracleum maximum</i>                              | Common cowparsnip      | native                | perennial herb          | -                          | -                           |
| <i>Heteromeles arbutifolia</i>                        | Toyon                  | native                | shrub                   | -                          | -                           |
| <i>Heterotheca sessiliflora</i> ssp. <i>bolanderi</i> | Golden aster           | native                | perennial herb          | -                          | -                           |
| <i>Heuchera micrantha</i>                             | Alum root              | native                | perennial herb          | -                          | -                           |

| Scientific Name                                    | Common Name             | Origin                | Form                     | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|--|-------------------------|-----------------------|--------------------------|----------------------------|-----------------------------|
| <i>Hieracium albiflorum</i>                        | White flowered hawkweed | native                | perennial herb           | -                          | -                           |
| <i>Holcus lanatus</i>                              | Common velvetgrass      | non-native (invasive) | perennial grass          | -                          | Moderate                    |
| <i>Holodiscus discolor</i>                         | Oceanspray              | native                | shrub                    | -                          | -                           |
| <i>Hulsea heterochroma</i>                         | Red rayed hulsea        | native                | perennial herb           | -                          | -                           |
| <i>Hypericum perforatum</i> ssp. <i>perforatum</i> | Klamathweed             | non-native            | perennial herb           | -                          | -                           |
| <i>Hypochaeris glabra</i>                          | Smooth cats ear         | non-native (invasive) | annual herb              | -                          | Limited                     |
| <i>Hypochaeris radicata</i>                        | Hairy cats ear          | non-native (invasive) | perennial herb           | -                          | Moderate                    |
| <i>Iris fernaldii</i>                              | Fernald's iris          | native                | perennial herb           | -                          | -                           |
| <i>Juncus bufonius</i>                             | Common toad rush        | native                | annual grasslike herb    | -                          | -                           |
| <i>Juncus effusus</i> ssp. <i>pacificus</i>        | Pacific rush            | native                | perennial grasslike herb | -                          | -                           |
| <i>Juncus hesperius</i>                            | Coast or bog rush       | native                | perennial grasslike herb | -                          | -                           |
| <i>Juncus patens</i>                               | Spreading rush          | native                | perennial grasslike herb | -                          | -                           |
| <i>Lathyrus vestitus</i>                           | Common pacific pea      | native                | perennial herb           | -                          | -                           |
| <i>Lepechinia calycina</i>                         | Pitcher sage            | native                | shrub                    | -                          | -                           |
| <i>Linum bienne</i>                                | Flax                    | non-native            | annual herb              | -                          | -                           |
| <i>Logfia gallica</i>                              | Narrowleaf cottonrose   | non-native            | annual herb              | -                          | -                           |
| <i>Lonicera hispidula</i>                          | Pink honeysuckle        | native                | vine, shrub              | -                          | -                           |
| <i>Lupinus albus</i> var. <i>collinus</i>          | Silver bush lupine      | native                | shrub                    | -                          | -                           |

| Scientific Name   | Common Name                       | Origin                | Form                   | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|---|-----------------------------------|-----------------------|------------------------|----------------------------|-----------------------------|
| <i>Lupinus bicolor</i>                                      | Bicolored lupine                  | native                | annual, perennial herb | -                          | -                           |
| <i>Lupinus succulentus</i>                                  | Arroyo lupine                     | native                | annual herb            | -                          | -                           |
| <i>Lysimachia arvensis</i>                                  | Scarlet pimpernel                 | non-native            | annual herb            | -                          | -                           |
| <i>Lysimachia latifolia</i>                                 | Pacific starflower                | native                | perennial herb         | -                          | -                           |
| <i>Madia gracilis</i>                                       | Gumweed                           | native                | annual herb            | -                          | -                           |
| <i>Maianthemum racemosum</i>                                | Feathery false lily of the valley | native                | perennial herb         | -                          | -                           |
| <i>Marah fabacea</i>  | California man-root               | native                | perennial herb, vine   | -                          | -                           |
| <i>Melica geyeri</i>  | Geyer's onion grass               | native                | perennial grass        | -                          | -                           |
| <i>Melica imperfecta</i>                                    | Coast range melic                 | native                | perennial grass        | -                          | -                           |
| <i>Mimulus aurantiacus</i>                                  | Sticky monkeyflower               | native                | shrub                  | -                          | -                           |
| <i>Mimulus moschatus</i>                                    | Musk monkeyflower                 | native                | perennial herb         | -                          | -                           |
| <i>Mimulus pilosus</i>                                      | Snouted monkeyflower              | native                | annual herb            | -                          | -                           |
| <i>Monardella villosa</i>                                   | Coyote mint                       | native                | perennial herb         | -                          | -                           |
| <i>Morella californica</i>                                  | California wax myrtle             | native                | shrub                  | -                          | -                           |
| <i>Myosotis latifolia</i>                                   | Wide leaved forget-me-not         | non-native (invasive) | perennial herb         | -                          | Limited                     |
| <i>Navarretia squarrosa</i>                                 | Skunkweed                         | native                | annual herb            | -                          | -                           |
| <i>Nemophila parviflora</i>                                 | Small flowered nemophila          | native                | annual herb            | -                          | -                           |
| <i>Notholithocarpus densiflorus</i> var. <i>densiflorus</i> | Tanoak                            | native                | tree, shrub            | -                          | -                           |

| Scientific Name                     | Common Name          | Origin                   | Form                          | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|-------------------------------------|----------------------|--------------------------|-------------------------------|----------------------------|-----------------------------|
| <i>Nuttallanthus texanus</i>        | Blue toadflax        | native                   | annual,<br>perennial herb     | -                          | -                           |
| <i>Orobanche fasciculata</i>        | Pinyon broomrape     | native                   | perennial herb<br>(parasitic) | -                          | -                           |
| <i>Osmorhiza berteroi</i>           | Sweetcicely          | native                   | perennial herb                | -                          | -                           |
| <i>Oxalis corniculata</i>           | Creeping wood sorrel | non-native<br>(invasive) | perennial herb                | -                          | -                           |
| <i>Oxalis oregana</i>               | Redwood sorrel       | native                   | perennial herb                | -                          | -                           |
| <i>Panicum sp.</i>                  | -                    | -                        | -                             | -                          | -                           |
| <i>Pellaea andromedifolia</i>       | Coffee fern          | native                   | fern                          | -                          | -                           |
| <i>Pentagramma triangularis</i>     | Gold back fern       | native                   | fern                          | -                          | -                           |
| <i>Perideridia kelloggii</i>        | Yampah               | native                   | perennial herb                | -                          | -                           |
| <i>Phacelia malvifolia</i>          | Stinging phacelia    | native                   | annual herb                   | -                          | -                           |
| <i>Phacelia rattanii</i>            | Rattan's phacelia    | native                   | annual herb                   | -                          | -                           |
| <i>Pinus attenuata</i>              | Scrub pine           | native                   | tree                          | -                          | -                           |
| <i>Pinus coulteri</i>               | Coulter pine         | native                   | tree                          | -                          | -                           |
| <i>Pinus ponderosa</i>              | Yellow pine          | native                   | tree                          | -                          | -                           |
| <i>Piperia elegans ssp. elegans</i> | Elegant piperia      | native                   | perennial herb                | -                          | -                           |
| <i>Plantago lanceolata</i>          | Ribwort              | non-native<br>(invasive) | perennial herb                | -                          | Limited                     |
| <i>Polygala californica</i>         | Milkwort             | native                   | perennial herb                | -                          | -                           |
| <i>Polypogon interruptus</i>        | Ditch beard grass    | non-native               | perennial<br>grass            | -                          | -                           |
| <i>Polystichum munitum</i>          | Western sword fern   | native                   | fern                          | -                          | -                           |

| Scientific Name                                    | Common Name           | Origin                   | Form                      | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|--|-----------------------|--------------------------|---------------------------|----------------------------|-----------------------------|
| <i>Prosartes hookeri</i>                           | Drops of gold         | native                   | perennial herb            | -                          | -                           |
| <i>Prunella vulgaris</i>                           | Self heal             | native                   | perennial herb            | -                          | -                           |
| <i>Pseudognaphalium californicum</i>               | Ladies' tobacco       | native                   | annual,<br>perennial herb | -                          | -                           |
| <i>Pseudognaphalium luteoalbum</i>                 | Jersey cudweed        | non-native               | annual herb               | -                          | -                           |
| <i>Pseudognaphalium ramosissimum</i>               | Pink cudweed          | native                   | biennial herb             | -                          | -                           |
| <i>Pseudotsuga menziesii</i> var. <i>menziesii</i> | Douglas fir           | native                   | tree                      | -                          | -                           |
| <i>Pteridium aquilinum</i> var. <i>pubescens</i>   | Western bracken fern  | native                   | fern                      | -                          | -                           |
| <i>Quercus agrifolia</i> var. <i>agrifolia</i>     | Coast live oak        | native                   | tree                      | -                          | -                           |
| <i>Quercus chrysolepis</i>                         | Gold cup live oak     | native                   | tree                      | -                          | -                           |
| <i>Quercus parvula</i> var. <i>shrevei</i>         | Shreve's oak          | native                   | tree                      | -                          | -                           |
| <i>Quercus wislizeni</i> var. <i>wislizeni</i>     | Interior live oak     | native                   | tree, shrub               | -                          | -                           |
| <i>Rhododendron occidentale</i>                    | Western azalea        | native                   | tree, shrub               | -                          | -                           |
| <i>Ribes</i> sp.                                   | Currant, gooseberry   | native                   | shrub                     | -                          | -                           |
| <i>Rosa gymnocarpa</i> var. <i>gymnocarpa</i>      | Wood rose             | native                   | shrub                     | -                          | -                           |
| <i>Rubus leucodermis</i>                           | White bark raspberry  | native                   | shrub                     | -                          | -                           |
| <i>Rubus parviflorus</i>                           | Thimbleberry          | native                   | vine, shrub               | -                          | -                           |
| <i>Rubus ursinus</i>                               | California blackberry | native                   | vine, shrub               | -                          | -                           |
| <i>Rumex acetosella</i>                            | Sheep sorrel          | non-native<br>(invasive) | perennial herb            | -                          | Moderate                    |
| <i>Rumex salicifolius</i>                          | Willow leaved dock    | native                   | perennial herb            | -                          | -                           |
| <i>Rupertia physodes</i>                           | Common rupertia       | native                   | perennial herb            | -                          | -                           |

| Scientific Name                            | Common Name                | Origin                | Form                     | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|--|----------------------------|-----------------------|--------------------------|----------------------------|-----------------------------|
| <i>Rytidosperma penicillatum</i>           | Purple awned wallaby grass | non-native (invasive) | perennial grass          | -                          | Limited                     |
| <i>Salix scouleriana</i>                   | Scouler willow             | native                | tree, shrub              | -                          | -                           |
| <i>Sambucus nigra ssp. caerulea</i>        | Blue elderberry            | native                | shrub                    | -                          | -                           |
| <i>Sambucus racemosa var. racemosa</i>     | Red elderberry             | native                | shrub                    | -                          | -                           |
| <i>Scirpus microcarpus</i>                 | Mountain bog bulrush       | native                | perennial grasslike herb | -                          | -                           |
| <i>Scrophularia californica</i>            | California bee plant       | native                | perennial herb           | -                          | -                           |
| <i>Senecio minimus</i>                     | Coastal burnweed           | non-native (invasive) | annual, perennial herb   | -                          | -                           |
| <i>Sequoia sempervirens</i>                | Coast redwood              | native                | tree                     | -                          | -                           |
| <i>Sisyrinchium bellum</i>                 | Blue eyed grass            | native                | perennial herb           | -                          | -                           |
| <i>Solanum douglasii</i>                   | Douglas' nightshade        | native                | perennial herb           | -                          | -                           |
| <i>Solanum umbelliferum</i>                | Blue witch                 | native                | shrub                    | -                          | -                           |
| <i>Solidago velutina ssp. californica</i>  | California goldenrod       | native                | perennial herb           | -                          | -                           |
| <i>Sonchus asper ssp. asper</i>            | Sow thistle                | non-native (invasive) | annual herb              | -                          | -                           |
| <i>Sonchus oleraceus</i>                   | Sow thistle                | non-native            | annual herb              | -                          | -                           |
| <i>Stachys rigida var. quercetorum</i>     | Rough hedgenettle          | native                | perennial herb           | -                          | -                           |
| <i>Stephanomeria exigua ssp. coronaria</i> | White plume wirelettuce    | native                | annual herb              | -                          | -                           |
| <i>Stipa pulchra</i>                       | Purple needle grass        | native                | perennial grass          | -                          | -                           |
| <i>Symphoricarpos mollis</i>               | Snowberry                  | native                | shrub                    | -                          | -                           |
| <i>Symphyotrichum subspicatum</i>          | Douglas aster              | native                | perennial herb           | -                          | -                           |

| Scientific Name                               | Common Name           | Origin                | Form           | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|---|-----------------------|-----------------------|----------------|----------------------------|-----------------------------|
| <i>Torilis arvensis</i>                       | Field hedge parsley   | non-native (invasive) | annual herb    | -                          | Moderate                    |
| <i>Toxicodendron diversilobum</i>             | Poison oak            | native                | vine, shrub    | -                          | -                           |
| <i>Toxicoscordion fremontii</i>               | Fremont's star lily   | native                | perennial herb | -                          | -                           |
| <i>Trifolium angustifolium</i>                | Narrow leaved clover  | non-native            | annual herb    | -                          | -                           |
| <i>Trifolium campestre</i>                    | Hop clover            | non-native            | annual herb    | -                          | -                           |
| <i>Trifolium dubium</i>                       | Shamrock              | non-native            | annual herb    | -                          | -                           |
| <i>Trifolium glomeratum</i>                   | Clustered clover      | non-native            | annual herb    | -                          | -                           |
| <i>Trifolium hirtum</i>                       | Rose clover           | non-native (invasive) | annual herb    | -                          | Limited                     |
| <i>Trifolium microcephalum</i>                | Small head clover     | native                | annual herb    | -                          | -                           |
| <i>Trifolium variegatum</i>                   | Variegated clover     | native                | annual herb    | -                          | -                           |
| <i>Trifolium willdenovii</i>                  | Tomcat clover         | native                | annual herb    | -                          | -                           |
| <i>Trillium chloropetalum</i>                 | Giant wakerobin       | native                | perennial herb | -                          | -                           |
| <i>Trillium ovatum ssp. ovatum</i>            | Western wakerobin     | native                | perennial herb | -                          | -                           |
| <i>Umbellularia californica</i>               | California bay        | native                | tree           | -                          | -                           |
| <i>Urtica dioica</i>                          | Stinging nettle       | native                | perennial herb | -                          | -                           |
| <i>Vaccinium ovatum</i>                       | Evergreen huckleberry | native                | shrub          | -                          | -                           |
| <i>Verbascum thapsus</i>                      | Woolly mullein        | non-native (invasive) | perennial herb | -                          | Limited                     |
| <i>Verbascum virgatum</i>                     | Wand mullein          | non-native            | perennial herb | -                          | -                           |
| <i>Verbena lasiostachys var. lasiostachys</i> | Vervain               | native                | perennial herb | -                          | -                           |
| <i>Vicia hassei</i>                           | Hasse's vetch         | native                | vine           | -                          | -                           |

| Scientific Name               | Common Name            | Origin     | Form                 | Rarity Status <sup>1</sup> | Cal-IPC Status <sup>2</sup> |
|-------------------------------|------------------------|------------|----------------------|----------------------------|-----------------------------|
| <i>Vicia sativa</i>           | Spring vetch           | non-native | annual herb,<br>vine | -                          | -                           |
| <i>Viola ocellata</i>         | Western heart's ease   | native     | perennial herb       | -                          | -                           |
| <i>Viola sempervirens</i>     | Redwood violet         | native     | perennial herb       | -                          | -                           |
| <i>Whipplea modesta</i>       | Modesty                | native     | vine, shrub          | -                          | -                           |
| <i>Woodwardia fimbriata</i>   | Western chain fern     | native     | fern                 | -                          | -                           |
| <i>Zeltnera muehlenbergii</i> | Muehlenberg's centaury | native     | annual herb          | -                          | -                           |

### <sup>1</sup>Key to Rarity Status

|           |  |
|-----------|--|
| FE        | Federal Endangered   |
| FT        | Federal Threatened   |
| SE        | State Endangered   |
| ST        | State Threatened   |
| SR        | State Rare   |
| Rank 1B.1 | CNPS Rank 1B.1: Rare, threatened, or endangered in California and elsewhere (seriously threatened in California)               |
| Rank 1B.2 | CNPS Rank 1B.2: Rare, threatened, or endangered in California and elsewhere (moderately threatened in California)              |
| Rank 2B.1 | CNPS Rank 2B.1: Rare, threatened, or endangered in California, but more common elsewhere (seriously threatened in California)  |
| Rank 2B.2 | CNPS Rank 2B.2: Rare, threatened, or endangered in California, but more common elsewhere (moderately threatened in California) |
| Rank 3.1  | CNPS Rank 3.1: Plants about which more information is needed - A review list (seriously threatened in California)              |
| Rank 3.2  | CNPS Rank 3.2: Plants about which more information is needed - A review list (moderately threatened in California)             |
| Rank 4.2  | CNPS Rank 4.2: Plants of limited distribution - A watch list (moderately threatened in California)                             |
| Rank 4.3  | CNPS Rank 4.3: Plants of limited distribution - A watch list (not very threatened in California)                               |

### <sup>2</sup>Key to Cal-IPC Status

|          |   |
|----------|---|
| High     | These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.   |
| Moderate | These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread. |
| Limited  | These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.  |

Appendix B2. Wildlife species observed within the Project Area for the San Vicente Redwoods Public Access Plan (PlaceWorks 2018) during surveys conducted by WRA biologists on December 16-17, 2015, January 20-22, February 10-12, June 15-16, August 15-17 and 24-25, and October 21, 2016, and May 30-June 1 and August 8-9, 2017.

| Common Name                        | Species                           |
|------------------------------------|-----------------------------------|
| <b>MAMMALS</b>                     |                                   |
| mountain lion                      | <i>Puma concolor</i>              |
| black-tailed deer                  | <i>Odocoileus hemionus</i>        |
| coyote                             | <i>Canis latrans</i>              |
| mole                               | <i>Scapanus spp.</i>              |
| San Francisco dusky-footed woodrat | <i>Neotoma fuscipes annectens</i> |
| Western grey squirrel              | <i>Sciurus griseus</i>            |
| <b>BIRDS</b>                       |                                   |
| American robin                     | <i>Turdus migratorius</i>         |
| Anna's Hummingbird                 | <i>Calypte anna</i>               |
| chestnut-backed chickadee          | <i>Poecile rufescens</i>          |
| dark-eyed junco                    | <i>Junco hyemalis</i>             |
| Eurasian collared-dove             | <i>Streptopelia decaocto</i>      |
| oak titmouse                       | <i>Baeolophus inornatus</i>       |
| pileated woodpecker                | <i>Dryocopus pileatus</i>         |
| Steller's jay                      | <i>Cyanocitta stelleri</i>        |
| Townsend's warbler                 | <i>Setophaga townsendii</i>       |
| western scrub-jay                  | <i>Aphelocoma californica</i>     |
| <b>AMPHIBIANS</b>                  |                                   |
| California slender salamander      | <i>Batrachoseps attenuatus</i>    |
| black salamander                   | <i>Aneides flavipunctatus</i>     |

**APPENDIX C**

**POTENTIAL FOR SPECIAL-STATUS SPECIES  
TO OCCUR IN THE PROJECT AREA**

**Appendix C. Potential for special-status species to occur in the Project Area.** List compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database, U.S. Fish and Wildlife Service (USFWS) Species Lists, and California Native Plant Society (CNPS) Electronic Inventory search of the Franklin Point, Big Basin, Año Nuevo, Davenport, Felton, Castle Rock Ridge, and Santa Cruz USGS 7.5 minute quadrangles and a review of other CDFW lists and publications (Jennings and Hayes 1994, Zeiner et al. 1990).

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS   |
|--|---------------------|---|---|---|
| <b>Plants</b>  |                     |   |   |   |
| Blasdale's bent grass<br><i>Agrostis blasdalei</i>       | Rank 1B.2           | Coastal bluff scrub, coastal dunes, coastal prairie. Elevation ranges from 20 to 490 feet (5 to 150 meters). Blooms May-Jul.                                    | <b>Unlikely.</b> Although the Project Area is located within 2 miles of an occurrence of this species, the Project Area does not contain coastal bluff scrub, coastal dune, or coastal prairie habitat. | No further action recommended for this species.   |
| bent-flowered fiddleneck<br><i>Amsinckia lunaris</i>     | Rank 1B.2           | Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 10 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.               | <b>Unlikely.</b> Although this species has been documented less than 2 miles to the west of the Project Area, the Project Area lacks suitable grassy openings required to support this species.         | No further action recommended for this species.   |
| coast rockcress<br><i>Arabis blepharophylla</i>          | Rank 4.3            | Broadleaved upland forest, coastal bluff scrub, coastal prairie, coastal scrub/rocky. Elevation ranges from 10 to 3610 feet (3 to 1100 meters). Blooms Feb-May. | <b>Unlikely.</b> Although the Project Area contains suitable broadleaved upland forest habitat, it does not contain the open, rocky habitat required by this species.                                   | No further action recommended for this species.   |
| Anderson's manzanita<br><i>Arctostaphylos andersonii</i> | Rank 1B.2           | Broadleaved upland forest, chaparral, north coast coniferous forest/openings, edges. Elevation ranges from 200 to 2490 feet (60 to 760 meters). Blooms Nov-May. | <b>Present.</b> This species was observed in the Project Area.  | See Section 7.0 of the BRA for recommended avoidance, minimization, and mitigation measures for this species. |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS                                 |
|--|---------------------|---|---|---|
| Schreiber's manzanita<br><i>Arctostaphylos glutinosa</i>       | Rank 1B.2           | Closed-cone coniferous forest, chaparral; on diatomaceous shale. Elevation ranges from 560 to 2250 feet (170 to 685 meters). Blooms (Nov), Mar-Apr.                     | <b>Not Observed.</b> This species has been documented adjacent to the west of the Project Area on siliceous shale soil, which is also present in the Project Area. However, all <i>Arctostaphylos</i> species observed within the Project Area were identified to species level; <i>A. glutinosa</i> was not observed. It is assumed this species is not present. | No further action recommended for this species. |
| Ohlone manzanita<br><i>Arctostaphylos ohloneana</i>            | Rank 1B.1           | Closed-cone coniferous forest, coastal scrub/siliceous shale. Elevation ranges from 1480 to 1740 feet (450 to 530 meters). Blooms Feb-Mar.                              | <b>Not Observed.</b> This species has been documented adjacent to the west of the Project Area on siliceous shale soil, which is also present in the Project Area. However, all <i>Arctostaphylos</i> species observed within the Project Area were identified to species level; <i>A. ohloneana</i> was not observed. It is assumed this species is not present. | No further action recommended for this species. |
| Pajaro manzanita<br><i>Arctostaphylos pajaroensis</i>          | Rank 1B.1           | Chaparral (sandy). Elevation ranges from 100 to 2490 feet (30 to 760 meters). Blooms Dec-Mar.   | <b>Not Observed.</b> Although this species is reported in the CNDDDB to occur within the larger San Vicente Redwoods property, all <i>Arctostaphylos</i> species observed within the Project Area were identified to species level, and <i>A. pajaroensis</i> was not observed. It is assumed that this species is not present.                                   | No further action recommended for this species. |
| Kings Mountain manzanita<br><i>Arctostaphylos regismontana</i> | Rank 1B.2           | Broadleaved upland forest, chaparral, north coast coniferous forest/granitic or sandstone. Elevation ranges from 1000 to 2400 feet (305 to 730 meters). Blooms Jan-Apr. | <b>Not Observed.</b> All <i>Arctostaphylos</i> species observed within the Project Area were identified to species level; <i>A. regismontana</i> was not observed. It is assumed that this species is not present.  | No further action recommended for this species. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS                                 |
|---|---------------------|--|--|---|
| Bonny Doon manzanita<br><i>Arctostaphylos silvicola</i>                               | Rank 1B.2           | Closed-cone coniferous forest, chaparral, lower montane coniferous forest/inland marine sands. Elevation ranges from 390 to 1970 feet (120 to 600 meters). Blooms Jan-Mar. | <b>Not Observed.</b> All <i>Arctostaphylos</i> species observed within the Project Area were identified to species level; <i>A. silvicola</i> was not observed. In addition, the Project Area does not contain suitable Zayante coarse sands required to support this species. It is assumed that this species is not present.             | No further action recommended for this species. |
| marsh sandwort<br><i>Arenaria paludicola</i>  | FE, SE, Rank 1B.1   | Marshes and swamps (freshwater or brackish)/sandy, openings. Elevation ranges from 10 to 560 feet (3 to 170 meters). Blooms May-Aug.                                       | <b>Unlikely.</b> The Project Area does not contain suitable open marsh or swamp habitat and the species is thought to be extirpated from Santa Cruz County.  | No further action recommended for this species. |
| coastal marsh milk-vetch<br><i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i> | Rank 1B.2           | Coastal dunes (mesic), coastal scrub, marshes and swamps (coastal salt, streamsides). Elevation ranges from 0 to 100 feet (0 to 30 meters). Blooms Apr-Oct.                | <b>Unlikely.</b> The Project Area does not contain suitable coastal marsh, swamp, or other saline mesic habitats required to support this species. The Project Area is also outside of the known elevation range for this species.   | No further action recommended for this species. |
| Brewer's calandrinia<br><i>Calandrinia breweri</i>                                    | Rank 4.2            | Disturbed or burned sites on sandy or loamy soils in chaparral or coastal scrub. Elevation ranges from 30 to 4000 feet (10-1220 meters). Blooms Jan-Jun.                   | <b>Unlikely.</b> This species was originally determined to have potential to occur in open, disturbed areas such as along the powerline road; however, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area.   | No further action recommended for this species. |
| Santa Cruz Mountains pussypaws<br><i>Calyptridium parryi</i> var. <i>hesseae</i>      | Rank 1B.1           | Chaparral, cismontane woodland/sandy or gravelly, openings. Elevation ranges from 1000 to 5020 feet (305 to 1530 meters). Blooms May-Aug.                                  | <b>Unlikely.</b> This species has been documented in the vicinity and was originally determined to have potential to occur in suitable sandy openings in chaparral and cismontane woodland habitat. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS                                 |
|---|---------------------|---|--|---|
| swamp harebell<br><i>Campanula californica</i>                                  | Rank 1B.2           | Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), north coast coniferous forest/mesic. Elevation ranges from 0 to 1330 feet (1 to 405 meters). Blooms Jun-Oct. | <b>Unlikely.</b> The Project Area does not contain suitable bog, marsh, or other mesic habitats required to support this species and the nearest known occurrence is located over 8 miles away.  | No further action recommended for this species. |
| bristly sedge<br><i>Carex comosa</i>  | Rank 2B.1           | Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland. Elevation ranges from 0 to 2050 feet (0 to 625 meters). Blooms May-Sep.  | <b>Unlikely.</b> This species was originally determined to have potential to occur along streams within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| deceiving sedge<br><i>Carex saliniformis</i>                                    | Rank 1B.2           | Coastal prairie, coastal scrub, meadows and seeps, marshes and swamps (coastal salt)/mesic. Elevation ranges from 10 to 750 feet (3 to 230 meters). Blooms Jun (Jul).   | <b>Unlikely.</b> This species was originally determined to have potential to occur along streams within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| johnny-nip<br><i>Castilleja ambigua</i><br><i>var. ambigua</i>                  | Rank 4.2            | Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pool margins. Elevation ranges from 0 to 1430 feet (0 to 435 meters). Blooms Mar-Aug.                            | <b>Unlikely.</b> The Project Area does not contain suitable openings in coastal prairie, coastal scrub, marsh, swamp, grassland, or other mesic habitats required to support this species.   | No further action recommended for this species. |
| Ben Lomond spineflower<br><i>Chorizanthe pungens</i><br><i>var. hartwegiana</i> | FE,<br>Rank 1B.1    | Lower montane coniferous forest (maritime ponderosa pine sandhills). Elevation ranges from 300 to 2000 feet (90 to 610 meters). Blooms Apr-Jul.   | <b>Unlikely.</b> The Project Area does not contain suitable ponderosa pine sandhill habitat or Zayante coarse sands required to support this species.  | No further action recommended for this species. |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS                                 |
|--|---------------------|--|--|---|
| Scotts Valley spineflower<br><i>Chorizanthe robusta</i><br><i>var. hartwegii</i> | FE,<br>Rank 1B.1    | Meadows and seeps (sandy), valley and foothill grassland (mudstone and purissima outcrops). Elevation ranges from 750 to 800 feet (230 to 245 meters). Blooms Apr-Jul.             | <b>Unlikely.</b> The Project Area does not contain suitable open grassland habitat necessary to support this species.  | No further action recommended for this species. |
| robust spineflower<br><i>Chorizanthe robusta</i><br><i>var. robusta</i>          | FE,<br>Rank 1B.1    | Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub/sandy or gravelly. Elevation ranges from 10 to 980 feet (3 to 300 meters). Blooms Apr-Sep.      | <b>Unlikely.</b> Although most of the Project Area is dominated by dense forest which is not suitable for this species, this species was originally determined to have potential to occur in openings at road crossings such as along the powerline alignment may have potential to support this species. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| Franciscan thistle<br><i>Cirsium andrewsii</i>                                   | Rank 1B.2           | Broadleaved upland forest, coastal bluff scrub, coastal prairie, coastal scrub/mesic, sometimes serpentine. Elevation ranges from 0 to 490 feet (0 to 150 meters). Blooms Mar-Jul. | <b>Unlikely.</b> Although the Project Area may contain suitable habitat elements, it does not contain mesic sites on serpentine soils. Additionally, the nearest known occurrence is over 8 miles from the Project Area.   | No further action recommended for this species. |
| Santa Clara red ribbons<br><i>Clarkia concinna</i> ssp.<br><i>automixa</i>       | Rank 4.3            | Chaparral, cismontane woodland. Elevation ranges from 300 to 4920 feet (90 to 1500 meters). Blooms (Apr), May-Jun (Jul).   | <b>Unlikely.</b> Although the Project Area contains suitable habitat elements, the nearest known occurrences are located over 10 miles away on the eastern slopes of the Santa Cruz Mountains. No occurrences are known from the western slopes.   | No further action recommended for this species. |
| San Francisco collinsia<br><i>Collinsia multicolor</i>                           | Rank 1B.2           | Closed-cone coniferous forest, coastal scrub/sometimes serpentine. Elevation ranges from 100 to 820 feet (30 to 250 meters). Blooms (Feb), Mar-May.                                | <b>Unlikely.</b> The Project Area lacks suitable closed cone coniferous forest or coastal scrub necessary to support this species. In addition, the Project Area is located above the known elevation range of this species.   | No further action recommended for this species. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS                                 |
|---|---------------------|--|---|---|
| branching beach aster<br><i>Corethrogyne leucophylla</i>      | Rank 3.2            | Closed-cone coniferous forest, coastal dunes. Elevation ranges from 10 to 200 feet (3 to 60 meters). Blooms May-Dec.   | <b>Unlikely.</b> The Project Area lacks suitable closed cone coniferous forest or coastal dunes and is located above the known elevation range for this species.  | No further action recommended for this species. |
| clustered lady's-slipper<br><i>Cypripedium fasciculatum</i>   | Rank 4.2            | Lower montane coniferous forest, north coast coniferous forest/usually serpentine seeps and streambanks. Elevation ranges from 330 to 7990 feet (100 to 2435 meters). Blooms Mar-Aug.        | <b>Unlikely.</b> Although the Project Area contains streams, they are located high in the watershed and do not support the hydrology required by this species. In addition, no serpentine seeps occur within the Project Area.  | No further action recommended for this species. |
| mountain lady's-slipper<br><i>Cypripedium montanum</i>        | Rank 4.2            | Broadleaved upland forest, cismontane woodland, lower montane coniferous forest, north coast coniferous forest. Elevation ranges from 610 to 7300 feet (185 to 2225 meters). Blooms Mar-Aug. | <b>Unlikely.</b> This species was originally determined to have potential to occur in broadleaved upland forest, cismontane woodland, and lower montane coniferous forest within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| California bottle brush<br><i>Elymus californicus</i>         | Rank 4.3            | Moist openings in mixed evergreen/redwood forest and oak/riparian forest. Elevation ranges from 50-155 feet (15-47 meters). Blooms May-Nov.  | <b>Moderate Potential.</b> This species was originally determined to have potential to occur in moist openings in forested habitats within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area.                                       | No further action recommended for this species. |
| Ben Lomond buckwheat<br><i>Eriogonum nudum var. decurrens</i> | Rank 1B.1           | Chaparral, cismontane woodland, lower montane coniferous forest (maritime ponderosa pine sandhills)/sandy. Elevation ranges from 160 to 2620 feet (50 to 800 meters). Blooms Jun-Oct.        | <b>Unlikely.</b> The Project Area does not contain suitable Ponderosa pine sandhill habitat required to support this species.   | No further action recommended for this species. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS                                 |
|---|---------------------|---|--|---|
| sand-loving wallflower<br><i>Erysimum ammophilum</i>                      | Rank 1B.2           | Chaparral (maritime), coastal dunes, coastal scrub/sandy, openings. Elevation ranges from 0 to 200 feet (0 to 60 meters). Blooms Feb-Jun.   | <b>Unlikely.</b> The Project Area does not contain suitable sandy openings in maritime chaparral, coastal dunes, or coastal scrub required to support this species and the nearest known occurrence is located over 8 miles from the Project Area. | No further action recommended for this species. |
| Santa Cruz wallflower<br><i>Erysimum teretifolium</i>                     | FE, SE, Rank 1B.1   | Chaparral, lower montane coniferous forest/inland marine sands. Elevation ranges from 390 to 2000 feet (120 to 610 meters). Blooms Mar-Jul.   | <b>Unlikely.</b> Although the Project Area may contain suitable habitat elements, it does not contain Zayante coarse sands necessary to support this species.  | No further action recommended for this species. |
| stinkbells<br><i>Fritillaria agrestis</i>                                 | Rank 4.2            | Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland/clay, sometimes serpentine. Elevation ranges from 30 to 5100 feet (10 to 1555 meters). Blooms Mar-Jun. | <b>Unlikely.</b> The Project Area does not contain suitable grassy openings required by this species and the nearest known occurrence is over 8 miles away.  | No further action recommended for this species. |
| fragrant fritillary<br><i>Fritillaria liliacea</i>                        | Rank 1B.2           | Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland/often serpentine. Elevation ranges from 10 to 1350 feet (3 to 410 meters). Blooms Feb-Apr.                     | <b>Unlikely.</b> The Project Area does not contain suitable grassy openings, heavy clay, or serpentine soils required by this species.   | No further action recommended for this species. |
| San Francisco gumplant<br><i>Grindelia hirsutula</i> var. <i>maritima</i> | Rank 3.2            | Coastal bluff scrub, coastal scrub, valley and foothill grassland/sandy or serpentine. Elevation ranges from 50 to 1310 feet (15 to 400 meters). Blooms Jun-Sep.                                  | <b>Unlikely.</b> The Project Area does not contain suitable open, coastal habitats or serpentine soils required to support this species.   | No further action recommended for this species. |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS                                 |
|--|---------------------|---|---|---|
| short-leaved evax<br><i>Hesperovax sparsiflora</i> var. <i>brevifolia</i>        | Rank 1B.2           | Coastal bluff scrub (sandy), coastal dunes, coastal prairie. Elevation ranges from 0 to 710 feet (0 to 215 meters). Blooms Mar-Jun.                           | <b>Unlikely.</b> The Project Area does not contain suitable coastal bluff scrub, coastal dunes, or coastal prairie. Although an occurrence is located in seemingly unsuitable habitat less than 2 miles from the site, the occurrence is from 1954 and no other occurrences occur within the quadrangles examined for this report.  | No further action recommended for this species. |
| Santa Cruz cypress<br><i>Hesperocyparis abramsiana</i> var. <i>abramsiana</i>    | FE, SE, Rank 1B.2   | Closed-cone coniferous forest, chaparral, lower montane coniferous forest/sandstone or granitic. Elevation ranges from 920 to 2620 feet (280 to 800 meters).  | <b>Not Observed.</b> Although this species is known to occur within the immediate vicinity of the Project Area, WRA received anecdotal evidence that the population has been extirpated (Nadia Hamey, forester for Santa Cruz Land Trust, pers comm, April 6, 2016). The species was not observed during surveys conducted for this report. The species is identifiable year-round and would have been observed if present. Therefore, it is assumed that the species is not present within the Project Area. | No further action recommended for this species. |
| Butano Ridge cypress<br><i>Hesperocyparis abramsiana</i> var. <i>butanoensis</i> | FE, SE, Rank 1B.2   | Closed-cone coniferous forest, chaparral, lower montane coniferous forest/sandstone. Elevation ranges from 1310 to 1610 feet (400 to 490 meters). Blooms Oct. | <b>Not Observed.</b> This species was not observed during surveys conducted for this report. The species is identifiable year-round and would have been observed if present. Moreover, the species is only known from Butano Ridge, located over 8 miles from the Project Area. Therefore, it is assumed that the species is not present within the Project Area.   | No further action recommended for this species. |

| SPECIES  | STATUS <sup>1</sup>  | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS                                 |
|--|----------------------|---|---|---|
| Loma Prieta hoita<br><i>Hoita strobilina</i>               | Rank 1B.1            | Chaparral, cismontane woodland, riparian woodland/usually serpentine, mesic. Elevation ranges from 100 to 2820 feet (30 to 860 meters). Blooms May-Jul (Aug), (Oct).                    | <b>Unlikely.</b> Suitable mesic serpentine soils are not present within the Project Area and the nearest known occurrence is located over 12 miles away on the eastern slopes of the Santa Cruz Mountains.  | No further action recommended for this species. |
| Santa Cruz tarplant<br><i>Holocarpha macradenia</i>        | FT, SE,<br>Rank 1B.1 | Coastal prairie, coastal scrub, valley and foothill grassland/often clay, sandy. Elevation ranges from 30 to 720 feet (10 to 220 meters). Blooms Jun-Oct.                               | <b>Unlikely.</b> The Project Area does not contain suitable coastal prairie, coastal scrub, or valley or foothill grassland habitats required to support this species and the Project Area is located above the known elevation range for this species. | No further action recommended for this species. |
| Kellogg's horkelia<br><i>Horkelia cuneata var. sericea</i> | Rank 1B.1            | Closed-cone coniferous forest, chaparral (maritime), coastal dunes, coastal scrub/sandy or gravelly, openings. Elevation ranges from 30 to 660 feet (10 to 200 meters). Blooms Apr-Sep. | <b>Unlikely.</b> The Project Area does not contain suitable coastal sandhill habitat necessary to support this species and the Project Area is located above the known elevation range of this species.   | No further action recommended for this species. |
| Point Reyes horkelia<br><i>Horkelia marinensis</i>         | Rank 1B.2            | Coastal dunes, coastal prairie, coastal scrub/sandy. Elevation ranges from 20 to 2480 feet (5 to 755 meters). Blooms May-Sep.   | <b>Unlikely.</b> Although the Project Area contains at least three known occurrences of this species and the species was observed outside of the Project Area by WRA biologists, the species was not observed within the Project Area.                  | No further action recommended for this species. |
| harlequin lotus<br><i>Hosackia gracilis</i>                | Rank 4.2             | Wet areas in meadows and other grassy habitats, roadside ditches, etc. Elevation ranges from 0-2300 feet (0-700 meters). Blooms Mar-Jul.  | <b>Unlikely.</b> The Project Area does not contain suitable mesic meadows, grasslands, or grassy road shoulders capable of supporting this species.   | No further action recommended for this species. |
| coast iris<br><i>Iris longipetala</i>                      | Rank 4.2             | Coastal prairie, lower montane coniferous forest, meadows and seeps/mesic. Elevation ranges from 0 to 1970 feet (0 to 600 meters). Blooms Mar-May.                                      | <b>Unlikely.</b> The Project Area does not contain suitable mesic sites on heavy soils required to support this species.  | No further action recommended for this species. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS                                 |
|---|---------------------|--|--|---|
| large-flowered leptosiphon<br><i>Leptosiphon grandiflorus</i>               | Rank 4.2            | Sandy soils in open, grassy flats. Elevation ranges from 15-4000 feet (5-1220 meters). Blooms Apr-Aug.   | <b>Unlikely.</b> The Project Area does not contain suitable open, grassy habitats necessary to support this species.   | No further action recommended for this species. |
| woolly-headed lessingia<br><i>Lessingia hololeuca</i>                       | Rank 3              | Broadleaved upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland/clay, serpentine. Elevation ranges from 50 to 1000 feet (15 to 305 meters). Blooms Jun-Oct. | <b>Unlikely.</b> The Project Area does not contain suitable serpentine soils required to support this species.   | No further action recommended for this species. |
| smooth lessingia<br><i>Lessingia micradenia</i> var. <i>glabrata</i>        | Rank 1B.2           | Chaparral, cismontane woodland/serpentine, often roadsides. Elevation ranges from 390 to 1380 feet (120 to 420 meters). Blooms (May), (Jun), Jul-Nov.  | <b>Unlikely.</b> The Project Area does not contain suitable serpentine soils required to support this species.   | No further action recommended for this species. |
| Point Reyes meadowfoam<br><i>Limnanthes douglasii</i> ssp. <i>sulphurea</i> | SE, Rank 1B.2       | Coastal prairie, meadows and seeps (mesic), marshes and swamps (freshwater), vernal pools. Elevation ranges from 0 to 460 feet (0 to 140 meters). Blooms Mar-May.                                    | <b>Unlikely.</b> The Project Area does not contain suitable vernal wet depressional features required to support this species and the nearest known occurrence is located over 10 miles away.  | No further action recommended for this species. |
| arcuate bush-mallow<br><i>Malacothamnus arcuatus</i>                        | Rank 1B.2           | Chaparral, cismontane woodland. Elevation ranges from 50 to 1160 feet (15 to 355 meters). Blooms Apr-Sep.  | <b>Unlikely.</b> This species was originally determined to have potential to occur in gravelly openings such as along the powerline road. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| Mt. Diablo cottonweed<br><i>Micropus amphibolus</i>                         | Rank 3.2            | Broadleaved upland forest, chaparral, cismontane woodland, valley and foothill grassland/rocky. Elevation ranges from 150 to 2710 feet (45 to 825 meters). Blooms Mar-May.                           | <b>Unlikely.</b> The Project Area does not contain sunny, open rocky areas necessary to support this species.  | No further action recommended for this species. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS                                 |
|---|---------------------|--|---|---|
| marsh Microseris<br><i>Microseris paludosa</i>                                | Rank 1B.2           | Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 20 to 1160 feet (5 to 355 meters). Blooms Apr-Jun (Jul).   | <b>Unlikely.</b> The Project Area does not contain sunny openings on mesic soils necessary to support this species.   | No further action recommended for this species. |
| Santa Cruz County monkeyflower<br><i>Mimulus rattanii ssp. decurtatus</i>     | Rank 4.2            | Chaparral, lower montane coniferous forest/margins, gravelly. Elevation ranges from 1310 to 1640 feet (400 to 500 meters). Blooms May-Jul.   | <b>Unlikely.</b> This species was originally determined to have potential to occur in gravelly openings such as along the powerline road. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area.  | No further action recommended for this species. |
| northern curly-leaved Monardella<br><i>Monardella sinuata ssp. nigrescens</i> | Rank 1B.2           | Chaparral, coastal dunes, coastal scrub, lower montane coniferous forest (ponderosa pine sandhills)/sandy. Elevation ranges from 0 to 980 feet (0 to 300 meters). Blooms (Apr), May-Jul (Aug), (Sep).  | <b>Unlikely.</b> This species was originally determined to have potential to occur in openings on sandy soils throughout the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| woodland woolythreads<br><i>Monolopia gracilens</i>                           | Rank 1B.2           | Broadleaved upland forest (openings), chaparral (openings), cismontane woodland, north coast coniferous forest (openings), valley and foothill grassland/serpentine. Elevation ranges from 330 to 3940 feet (100 to 1200 meters). Blooms (Feb), Mar-Jul. | <b>Unlikely.</b> The Project Area does not contain serpentine soils or suitable forest openings required to support this species. In addition, the nearest known occurrence is located over 6 miles away from the Project Area.   | No further action recommended for this species. |

| SPECIES  | STATUS <sup>1</sup>  | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS                                 |
|--|----------------------|---|---|---|
| Dudley's lousewort<br><i>Pedicularis dudleyi</i>                                   | SR,<br>Rank 1B.2     | Chaparral (maritime), cismontane woodland, north coast coniferous forest, valley and foothill grassland. Elevation ranges from 200 to 2950 feet (60 to 900 meters). Blooms Apr-Jun. | <b>Unlikely.</b> An occurrence of this species is located approximately 2 miles to the northeast of the Project Area and this species was originally determined to have potential to occur in cismontane woodland and coniferous forest within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| Santa Cruz Mountains beardtongue<br><i>Penstemon rattanii</i><br><i>var. kleei</i> | Rank 1B.2            | Chaparral, lower montane coniferous forest, north coast coniferous forest. Elevation ranges from 1310 to 3610 feet (400 to 1100 meters). Blooms May-Jun.                            | <b>Unlikely.</b> An occurrence is known within less than 1 mile from the Project Area and this species was originally determined to have potential to occur in coniferous forest habitat within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area.  | No further action recommended for this species. |
| white-rayed pentachaeta<br><i>Pentachaeta bellidiflora</i>                         | FE, SE,<br>Rank 1B.1 | Cismontane woodland, valley and foothill grassland (often serpentine). Elevation ranges from 110 to 2030 feet (35 to 620 meters). Blooms Mar-May.                                   | <b>Unlikely.</b> The Project Area does not contain suitable open, dry rocky slopes and grassy areas necessary to support this species, nor does the Project Area contain serpentine soils.  | No further action recommended for this species. |
| Monterey pine<br><i>Pinus radiata</i>  | Rank 1B.1            | Closed-cone coniferous forest, cismontane woodland. Elevation ranges from 80 to 610 feet (25 to 185 meters).  | <b>Not Observed.</b> Monterey pine is identifiable year-round, but was not observed within the Project Area during surveys conducted for this report. It is assumed that this species is not present.   | No further action recommended for this species. |

| SPECIES  | STATUS <sup>1</sup>  | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS                                 |
|--|----------------------|--|--|---|
| white-flowered rein orchid<br><i>Piperia candida</i>                               | Rank 1B.2            | Broadleaved upland forest, lower montane coniferous forest, north coast coniferous forest/sometimes serpentine. Elevation ranges from 100 to 4300 feet (30 to 1310 meters). Blooms (Mar), May-Sep. | <b>Unlikely.</b> There is a known occurrence of this species within 2.5 miles from the site and the species was originally determined to have potential to occur in suitable habitat within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| Choris' popcornflower<br><i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>  | Rank 1B.2            | Chaparral, coastal prairie, coastal scrub/mesic. Elevation ranges from 50 to 520 feet (15 to 160 meters). Blooms Mar-Jun.  | <b>Unlikely.</b> The Project Area does not contain suitable mesic sites in chaparral, coastal prairie, or coastal scrub habitats necessary to support this species. In addition, the Project Area is located above the known elevation range for this species.   | No further action recommended for this species. |
| Hickman's popcorn flower<br><i>Plagiobothrys chorisianus</i> var. <i>hickmanii</i> | Rank 4.2             | Moist depressions in sandy deposits over clay. Elevation ranges from 50-600 feet (15-185 meters). Blooms Apr-Jun.  | <b>Unlikely.</b> The Project Area does not contain suitable open, mesic sites necessary to support this species.   | No further action recommended for this species. |
| San Francisco popcornflower<br><i>Plagiobothrys diffusus</i>                       | SE,<br>Rank 1B.1     | Coastal prairie, valley and foothill grassland. Elevation ranges from 200 to 1180 feet (60 to 360 meters). Blooms Mar-Jun.   | <b>Unlikely.</b> The Project Area does not contain suitable coastal prairie or other grassland habitats required to support this species.  | No further action recommended for this species. |
| Scotts Valley Polygonum<br><i>Polygonum hickmanii</i>                              | FE, SE,<br>Rank 1B.1 | Valley and foothill grassland (mudstone and sandstone). Elevation ranges from 690 to 820 feet (210 to 250 meters). Blooms May-Aug.   | <b>Unlikely.</b> The Project Area does not contain suitable grassland habitats required to support this species and the species is only known from one location in Scott's Valley.   | No further action recommended for this species. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS                                 |
|---|---------------------|--|---|---|
| pine rose<br><i>Rosa pinetorum</i>                        | Rank 1B.2           | Closed-cone coniferous forest, cismontane woodland. Elevation ranges from 10 to 3100 feet (2 to 945 meters). Blooms May-Jul.   | <b>Unlikely.</b> This species was originally determined to have potential to occur in coniferous forest or cismontane woodland within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area.                      | No further action recommended for this species. |
| <i>Sanicula hoffmannii</i><br>Hoffmann's sanicle          | Rank 4.3            | Broadleaved upland forest, coastal bluff scrub, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest/often serpentine or clay. Elevation ranges from 100 to 980 feet (30 to 300 meters). Blooms Mar-May. | <b>Unlikely.</b> This species was originally determined to have potential to occur in broadleaved upland forest and lower montane coniferous forest within the Project Area. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species. |
| chaparral ragwort<br><i>Senecio aphanactis</i>            | Rank 2B.2           | Chaparral, cismontane woodland, coastal scrub/sometimes alkaline. Elevation ranges from 50 to 2620 feet (15 to 800 meters). Blooms Jan-Apr.  | <b>Unlikely.</b> This species was originally determined to have potential to occur in openings such as along the powerline road. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area.   | No further action recommended for this species. |
| maple-leaved checkerbloom<br><i>Sidalcea malachroides</i> | Rank 4.2            | Broadleaved upland forest, coastal prairie, coastal scrub, north coast coniferous forest, riparian woodland/often in disturbed areas. Elevation ranges from 0 to 2400 feet (0 to 730 meters). Blooms (Mar), Apr-Aug.               | <b>Unlikely.</b> Although the Project Area may contain suitable habitat elements, the nearest known occurrence is located over 10 miles to the southeast of the site and is listed as possibly extirpated.  | No further action recommended for this species. |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS  |
|--|---------------------|--|---|--|
| San Francisco campion<br><i>Silene verecunda</i><br><i>ssp. verecunda</i>    | Rank 1B.2           | Coastal bluff scrub, chaparral, coastal prairie, coastal scrub, valley and foothill grassland/sandy. Elevation ranges from 100 to 2120 feet (30 to 645 meters). Blooms (Feb), Mar-Jun (Aug).   | <b>Unlikely.</b> This species was originally determined to have potential to occur in openings such as along the powerline road. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species.                |
| Santa Cruz Microseris<br><i>Stebbinsoseris decipiens</i>                     | Rank 1B.2           | Broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland/open areas, sometimes serpentine. Elevation ranges from 30 to 1640 feet (10 to 500 meters). Blooms Apr-May.   | <b>Unlikely.</b> This species was originally determined to have potential to occur in openings such as along the powerline road. However, this species was not observed during seasonally-timed surveys and was determined to be unlikely to occur in the Project Area. | No further action recommended for this species.                |
| slender-leaved pondweed<br><i>Stuckenia filiformis</i><br><i>ssp. alpina</i> | Rank 2B.2           | Marshes and swamps (assorted shallow freshwater). Elevation ranges from 980 to 7050 feet (300 to 2150 meters). Blooms May-Jul.   | <b>Unlikely.</b> The Project Area lacks suitable marsh or swamp habitat necessary to support this species.  | No further action recommended for this species.                |
| Santa Cruz clover<br><i>Trifolium buckwestiorum</i>                          | Rank 1B.1           | Broadleaved upland forest, cismontane woodland, coastal prairie/gravelly, margins. Elevation ranges from 340 to 2000 feet (105 to 610 meters). Blooms Apr-Oct.   | <b>Unlikely.</b> The Project Area lacks openings with moist grassland and gravelly margins necessary to support this species.   | No further action recommended for this species.                |
| <b>Mammals</b>   |                     |  |   |  |
| Hoary bat<br><i>Lasiurus cinereus</i>  | WBWG<br>Medium      | Hoary bats are solitary and roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, 3-12 meters above the ground (WBWG 2012). Roosts are usually at the edge of a clearing. Summer tree roosts are typically located along edge habitats close to feeding grounds. | <b>Moderate.</b> This species has been documented to occur within 3.75 miles of the Project Area (CDFW 2016). Mature conifer and broadleaf trees in the Project Area have the potential to support roosting sites.  | Recommendations for this species are provided in Section 7.2.2 |

| SPECIES  | STATUS <sup>1</sup>   | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS  |
|--|-----------------------|--|---|--|
| Pallid bat<br><i>Antrozous pallidus</i>                    | SSC,<br>WBWG<br>High  | Roost habitat for this species includes buildings, hollows in trees, caverns, and bridges.   | <b>Moderate.</b> This species has been documented to occur within 3.75 miles of the Project Area (CDFW 2016). Cavities within large mature trees in the Project Area and nearby rock outcroppings, and cave features in the have the potential to support roosting sites. | Recommendations for this species are provided in Section 7.2.2 |
| Townsend's big-eared bat<br><i>Corynorhinus townsendii</i> | SSC,<br>WBWG<br>High  | Lives in a wide variety of habitats but most common in mesic sites. Day roosts highly associated with caves and mines. Need appropriate roosting, maternity, and hibernacula sites free from human disturbance.  | <b>High.</b> This species has been documented roosting within cave habitat within the property and near the Project Area and there are numerous occurrences within 5 miles of Project Area.   | Recommendations for this species are provided in Section 7.2.2 |
| western red bat<br><i>Lasiurus blossevillii</i>            | SSC,<br>WBWG;<br>High | This species is typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores).                             | <b>Moderate.</b> The Project Area contains potentially suitable maternity roosting habitat within the riparian habitat. Suitable foraging habitat is supported within and adjacent to creek habitat throughout the Project Area.  | Recommendations for this species are provided in Section 7.2.2 |
| silver-haired Bat<br><i>Lasionycteris noctivagans</i>      | WBWG;<br>Medium       | Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. This species is primarily a forest dweller, feeding over streams, ponds, and open brushy areas. It roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark. | <b>Moderate.</b> The Project Area contains potentially suitable maternity roosting habitat within the forest habitat. Suitable foraging habitat is supported within and adjacent to creek habitat throughout the Project Area.  | Recommendations for this species are provided in Section 7.2.2 |

| SPECIES                                      | STATUS <sup>1</sup>   | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS  |
|--|-----------------------|--|---|--|
| fringed myotis<br><i>Myotis thysanodes</i>   | WBWG;<br>High         | Associated with a wide variety of habitats including mixed coniferous-deciduous forest and redwoods/sequoia groves. Buildings, mines, and large snags are important day and night roosts.                      | <b>Moderate.</b> The Project Area contains potentially suitable maternity roosting habitat within the large stands of conifer and hardwood forest habitat found throughout the Project Area. Nearby cave and cliff area of the San Vicente Quarry may also support roosting.                        | Recommendations for this species are provided in Section 7.2.2 |
| long-legged myotis<br><i>Myotis volans</i>   | WBWG;<br>High         | Generally associated with woodlands and forested habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.                          | <b>Unlikely.</b> This species is more common in coastal regions with redwood/sequoia stands. This species may occasionally forage or occur as a migrant through the area; however, roosting habitat is suboptimal and the Project Area is unlikely to support maternity roosting.                   | No further actions are recommended.                            |
| western mastiff bat<br><i>Eumops perotis</i> | SSC,<br>WBWG;<br>High | Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders. | <b>Unlikely.</b> The Project Area does not contain open arid habitats. While potential roosting habitat for this species may occur within the rock and cliff crevices of the San Vicente Quarry, the Project Area does not contain such rock habitat and therefore is unlikely to support roosting. | No further actions are recommended.                            |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS   |
|---|---------------------|--|---|---|
| ringtail (ring-tailed cat)<br><i>Bassariscus astutus</i>                | CFP                 | Ringtail is widely distributed throughout most of California, absent from some portions of the Central Valley and northeastern California. Found in a variety of habitats throughout the western US including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 1400m in elevation. Typically uses cliffs or large trees for shelter. | <b>Moderate.</b> The Project Area provides wooded habitat of varying composition that could support the species and it's foraging needs. The Project Area is also surrounded by forest which provides a habitat corridor for the species. | Due to the elusive nature of this species, it is unlikely to be directly impacted by construction or trail activities and no further surveys or avoidance measures are recommended. |
| Salt-marsh harvest mouse<br><i>Reithrodontomys raviventris</i>          | FE, SE, CFP         | Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is the primary habitat. Does not burrow, but builds loosely organized nests and requires higher areas for flood escape.  | <b>No Potential.</b> Suitable salt-marsh habitat is not present in the Project Area. There are no documented occurrences within 5 miles of the Permanente Property (CDFW 2016).   | No further surveys or avoidance measures are recommended.   |
| San Francisco dusky-footed woodrat<br><i>Neotoma fuscipes annectens</i> | SSC                 | Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.  | <b>Present.</b> This species has been observed throughout the Project Area.   | Recommendations for this species are provided in Section 7.2.2  |
| Monterey ornate shrew<br><i>Sorex ornatus salarius</i>                  | SSC                 | Riparian, wetland and upland areas in the vicinity of the Salinas River delta. Prefers moist microhabitats. Feeds on insects and other invertebrates found under logs, rocks, and litter.  | <b>Unlikely.</b> The Project Area is located outside of the species known range.  | No further surveys or avoidance measures are recommended.   |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS   |
|--|---------------------|--|--|---|
| American badger<br><i>Taxidea taxus</i>                                | SSC                 | Occurs in drier open stages of most scrub, forest, and herbaceous habitats where friable soils and prey populations are present.   | <b>Unlikely.</b> Dense woodland within the Project Area provides unsuitable habitat for this species, and no badger burrows were observed in the Project Area during the site assessment. While there are documented occurrences >2.5 miles southeast of the Project Area, burrow habitat and open herbaceous habitat more characteristic of the species does not occur. | No further surveys or avoidance measures are recommended. |
| <b>Birds</b>   |                     |  |  |   |
| California brown pelican<br><i>Pelecanus occidentalis californicus</i> | FD, SD, CFP         | Generally a winter visitor to the region (though present nearly year-round). Nests colonially on offshore islands; nearest rookeries are on the Channel Islands. San Francisco Bay provides important foraging and loafing habitat.                    | <b>No Potential.</b> No foraging or nesting habitat is present, and this species does not nest in the area.  | No further surveys or avoidance measures are recommended. |
| golden eagle<br><i>Aquila chrysaetos</i>                               | CFP, BCC            | Resident in rolling foothill and mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range.  | <b>Unlikely.</b> The Project Area does not provide suitable nesting habitat for this species, nor does it provide foraging habitat. The species may fly over the Project Area.   | No further surveys or avoidance measures are recommended. |
| bald eagle<br><i>Haliaeetus leucocephalus</i>                          | FD, SE, CFP, BCC    | Occurs year-round in California, but primarily a winter visitor. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish. | <b>Unlikely.</b> The Project Area does not provide suitable nesting habitat for this species, nor does it provide foraging habitat. The species may fly over the Project Area.   | No further surveys or avoidance measures are recommended. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS   |
|---|---------------------|--|---|---|
| white-tailed kite<br><i>Elanus leucurus</i>                 | CFP                 | Resident in coastal and valley lowlands. Preys on small mammals and other small vertebrates, and insects. Nests in trees and larger shrubs, often in relatively isolated stands.   | <b>Unlikely.</b> The dense forest that dominates the Project Area does not provide typical nesting or foraging habitat for this species.  | No further surveys or avoidance measures are recommended. |
| ferruginous hawk<br><i>Buteo regalis</i>                    | BCC                 | Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys and fringes of pinyon-juniper habitats. Winters west of Cascades-Sierra Nevada.  | <b>Unlikely.</b> Occasionally observed along the open coast terraces of Santa Cruz County (eBird 2016). However, dense forest within the Project Area provides unsuitable habitat for this species.   | No further surveys or avoidance measures are recommended. |
| northern harrier<br><i>Circus cyaneus</i>                   | SSC                 | Nests and forages in grassland habitats, usually in association with coastal salt and freshwater marshes. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas. May also occur in alkali desert sinks. | <b>Unlikely.</b> The dense forest habitat that dominates the Project Area does not provide suitable nesting for the species. Foraging habitat is largely precluded, and while the species may occur along nearby open coast terraces of Santa Cruz County (eBird 2016), the Project Area is not anticipated to support the species. | No further surveys or avoidance measures are recommended. |
| prairie falcon<br><i>Falco mexicanus</i>                    | BCC                 | Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.  | <b>Unlikely.</b> Occasionally observed in coastal Santa Cruz County (eBird 2016). However, dense forest that dominates the Project Area provides unsuitable habitat for this species.   | No further surveys or avoidance measures are recommended. |
| American peregrine falcon<br><i>Falco peregrinus anatum</i> | FD, SD, CFP         | Largely resident. Requires protected cliffs, ledges or manmade structures for nesting. Often associated with coasts, bays, marshes and other open expanses of water. Preys primarily upon waterbirds; forages widely.  | <b>Unlikely.</b> The Project Area does not contain suitable cliff habitat to support nesting. While the species has been documented to nest along the cliffs of the San Vicente Quarry, and may fly overhead, the Project Area does not support nesting.  | No further surveys or avoidance measures are recommended. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS  |
|---|---------------------|--|--|--|
| California clapper rail<br><i>Rallus longirostris obsoletus</i> | FE, SE,<br>CFP      | Resident in salt marshes of the San Francisco Bay Estuary, with largest populations in south San Francisco Bay. Requires mud flats for foraging and dense marsh vegetation on higher ground for nesting.   | <b>No Potential.</b> Suitable salt-marsh habitat is not present in the Project Area.   | No further surveys or avoidance measures are recommended.      |
| marbled murrelet<br><i>Brachyramphus marmoratus</i>             | FT, SE              | (Nesting) Feeds near shore; nests inland along the Pacific coast, from Eureka to Oregon border, and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland. Nests often built in Douglas-fir or redwood stands containing platform-like branches. | <b>High Potential.</b> There are numerous occurrences of this species throughout the Santa Cruz Mountains, the closest of which are approximately 1 mile to the west and 1.9 miles to the east of the Project Area (CDFW 2016). Within the Project Area, several stands of old-growth redwood potentially suitable for nesting habitat occur. Therefore, while the species has not been documented within the Project Area, the presence of potentially suitable nesting habitat and the proximity to known occurrences makes it likely that the species would utilize the Project Area. | Recommendations for this species are provided in Section 7.2.2 |
| western snowy plover<br><i>Charadrius alexandrinus nivosus</i>  | FT, SSC,<br>BCC     | Federal listing applies only to the Pacific coastal population. Found on sandy beaches, dry salt ponds, mudflats and adjacent levees, and shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting.   | <b>No Potential.</b> Project Area lacks sandy beaches, dry salt ponds, mudflats, levees or shores.   | No further surveys or avoidance measures are recommended.      |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS   |
|---|---------------------|--|--|---|
| California least tern<br><i>Sterna antillarum browni</i>            | FE, SE, CFP         | Summer resident. Breeds along the California coast from San Francisco Bay south. Nests colonially on barren or sparsely vegetated, flat substrates near water. Forages for small fish, typically in shallow shoreline habitats. San Francisco Bay colonies usually located on dry/abandoned salt ponds and along estuarine shores. | <b>No Potential.</b> Project Area lacks nesting colony and foraging habitat.   | No further surveys or avoidance measures are recommended. |
| California black rail<br><i>Laterallus jamaicensis coturniculus</i> | ST, CFP             | Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.  | <b>No Potential.</b> The Project Area does not contain suitable marsh habitat.   | No further surveys or avoidance measures are recommended. |
| burrowing owl<br><i>Athene cunicularia</i>                          | SSC, BCC            | Largely resident in the region. Found in grasslands and other open habitats with a sparse to absent shrub/tree canopy. Nests and roosts in old mammal burrows, typically those of ground squirrels. Preys upon insects, and also small mammals, reptiles and birds.  | <b>Unlikely.</b> The dense forest that dominates the Project Area precludes the presence of this species. No ground squirrel burrows were observed in the Project Area and the dense woodlands do not provide suitable habitat for this species. No sign of burrowing owl was observed during the site assessment. | No further surveys or avoidance measures are recommended. |
| short-eared owl<br><i>Asio flammeus</i>                             | SSC                 | Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.   | <b>No potential.</b> No suitable marshland to support nesting or foraging is present within the Project Area.  | No further surveys or avoidance measures are recommended. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS  |
|---|---------------------|---|--|--|
| long-eared owl<br><i>Asio otus</i>              | SSC                 | Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding. | <b>Unlikely.</b> The Project Area does not provide suitable riparian bottomland habitat characteristic of the species nesting areas.   | No further surveys or avoidance measures are recommended.      |
| Vaux's swift<br><i>Chaetura vauxi</i>           | SSC                 | Redwood, Douglas-fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.                  | <b>High potential.</b> Large stands of coniferous forest with complex canopies and snags occur throughout the Project Area. Potentially suitable nesting and foraging habitat is prevalent in the Project Area.  | Recommendations for this species are provided in Section 7.2.2 |
| black swift<br><i>Cypseloides niger</i>         | SSC, BCC            | Summer resident. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above surf. Forages widely.   | <b>Unlikely.</b> The Project Area is not known to contain cliffs with waterfall features that would be suitable for nesting. While nesting along the coastline to the west and south has been documented, and the species may opportunistically forage or fly over the Project Area, nesting is not anticipated to be supported in the Project Area. | No further surveys or avoidance measures are recommended.      |
| Allen's hummingbird<br><i>Selasphorus sasin</i> | BCC                 | Inhabits mixed evergreen, riparian woodlands, eucalyptus and cypress groves, oak woodlands, and coastal scrub during breeding season. Nest in shrubs and trees with dense vegetation.   | <b>High Potential.</b> Mature oak and riparian woodland within the Project Area provides suitable nesting habitat.   | Recommendations for this species are provided in Section 7.2.2 |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS  |
|---|---------------------|---|---|--|
| Lewis' woodpecker<br><i>Melanerpes lewis</i>      | BCC                 | Uncommon winter resident occurring on open oak savannahs, broken deciduous and coniferous habitats.   | <b>Unlikely.</b> The species does not nest along coastal California, and while the species has been sporadically observed in Santa Cruz County, the dense woodland of the Project Area is not conducive to the open foraging areas needed for the species (eBird 2016). | No further surveys or avoidance measures are recommended.      |
| Nuttall's woodpecker<br><i>Picoides nuttallii</i> | BCC                 | Relatively dense oak and riparian woods. Can also occur in urban and residential settings.  | <b>High Potential.</b> Mature oak and riparian woodland provides suitable nesting habitat for this relatively common species.   | Recommendations for this species are provided in Section 7.2.2 |
| olive-sided flycatcher<br><i>Contopus cooperi</i> | SSC, BCC            | Nesting habitats are mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir and lodgepole pine. Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.                 | <b>High Potential.</b> Mixed conifer, redwood, and pine forest throughout the Project Area provide suitable nesting habitat for this species. The species has been observed frequently along roads surrounding the Project Area (eBird 2016).                           | Recommendations for this species are provided in Section 7.2.2 |
| willow flycatcher<br><i>Empidonax traillii</i>    | SE, BCC             | Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000 to 8000 foot elevation. Require dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches | <b>Unlikely.</b> No suitable willow nesting habitat exists within the Project Area, and there are no CNDDDB records within the vicinity (CDFW 2016). The species may occur briefly during migration.  | No further surveys or avoidance measures are recommended.      |
| loggerhead shrike<br><i>Lanius ludovicianus</i>   | SSC, BCC            | Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.                      | <b>Unlikely.</b> The dense forest and woodland within the Project Area is not typical foraging and nesting habitat for this species.  | No further surveys or avoidance measures are recommended.      |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS  |
|--|---------------------|--|--|--|
| Least Bell's vireo<br><i>Vireo bellii pusillus</i>                                 | FE, SE              | This species is a Summer resident of Southern California but whose range is extending northward. Nesting occurs in riparian areas in the vicinity of water or in dry river bottoms. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, coyote brush or mesquite. | <b>Unlikely.</b> The Project Area is outside of the known range for this species.  | No further surveys or avoidance measures are recommended.      |
| bank swallow<br><i>Riparia riparia</i>   | ST                  | Migrant in riparian and other lowland habitats in western California. Colonial nester in riparian areas with vertical cliffs and banks with fine-textured or fine-textured sandy soils near streams, rivers, lakes or the ocean.   | <b>Unlikely.</b> No suitable nesting habitat exists within the Project Area, and the species is unlikely to forage/ pass through here. The nearest CNDDDB record for this species is located 8 miles northwest of the Project Area and dated 1987 (CDFW 2016). | No further surveys or avoidance measures are recommended.      |
| oak titmouse<br><i>Baeolophus inornatus</i>  | BCC                 | Oak woodland and savannah, open broad-leaved evergreen forests containing oaks, and riparian woodlands. Associated with oak and pine-oak woodland and arborescent chaparral.   | <b>Present.</b> This species is commonly found within mature oak woodland habitat, which occurs in the Project Area.   | Recommendations for this species are provided in Section 7.2.2 |
| yellow warbler<br><i>Setophaga petechia</i>  | SSC, BCC            | Frequents riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. Also nests in montane shrubbery in open conifer forests.   | <b>Unlikely.</b> No suitable willow nesting habitat exists within the Project Area, and there are no CNDDDB records within the vicinity (CDFW 2016). The species may occur briefly during migration.   | No further surveys or avoidance measures are recommended.      |
| San Francisco (saltmarsh) common yellowthroat<br><i>Geothlypis trichas sinuosa</i> | SSC, BCC            | Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.   | <b>Unlikely.</b> No suitable marsh habitat exists in or near the area.   | No further surveys or avoidance measures are recommended.      |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS   |
|---|---------------------|--|---|---|
| yellow-breasted chat<br><i>Icteria virens</i>                           | SSC                 | Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forage and nest within 10 feet of ground.  | <b>Unlikely.</b> Suitable riparian thickets do not exist in the Project Area, and the species has not been observed in the vicinity of the Project Area (CDFW 2016, eBird 2016).  | No further surveys or avoidance measures are recommended. |
| grasshopper sparrow<br><i>Ammodramus savannarum</i>                     | SSC                 | Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting.   | <b>Unlikely.</b> Dense forest and woodland habitat occurs throughout the Project Area, which does not provide suitable grassland habitat.   | No further surveys or avoidance measures are recommended. |
| Bryant's savannah sparrow<br><i>Passerculus sandwichensis alaudinus</i> | SSC                 | Associated with the coastal fog belt, primarily between Humboldt and northern Monterey Counties. Occupies low tidally influenced habitats, adjacent to ruderal areas; often found where pickleweed communities merge into grassland. Infrequently found in drier grasslands. | <b>Unlikely.</b> The Project Area is outside of the known range for this species.   | No further surveys or avoidance measures are recommended. |
| Bell's sage sparrow<br><i>Amphispiza belli belli</i>                    | BCC                 | Year-round resident, though shows seasonal movements. Prefers dense chaparral and scrub habitats for breeding; strongly associated with chamise. Also occurs in more open habitats during winter.  | <b>Unlikely.</b> The Project Area does not contain patches of scrub habitat and lacks suitable nesting habitat for the species. While the species has been documented to the east and north of the Project Area (eBird 2016), the Project Area contains suboptimal foraging habitat relative to areas outside of the Project Area and is unlikely to support nesting. | No further surveys or avoidance measures are recommended. |
| Lawrence's goldfinch<br><i>Spinus lawrencei</i>                         | BCC                 | Nests in open oak or other arid woodland and chaparral, near water. Nearby herbaceous habitats used for feeding. Closely associated with oaks.   | <b>Unlikely.</b> The Project Area is outside of the known range for this species.   | No further surveys or avoidance measures are recommended. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS  |
|---|---------------------|---|---|--|
| tricolored blackbird<br><i>Agelaius tricolor</i>                          | SSC                 | Resident, though disperses somewhat when not breeding. Typically nests over or near freshwater in dense cattails, tules, or thickets of willow, blackberry, wild rose or other tall herbs. Highly colonial; breeding aggregations tend to be large. | <b>Unlikely.</b> No suitable freshwater marsh or riparian thicket habitat is present in the Project Area. There are no CNDDDB records in the vicinity (CDFW 2016).  | No further surveys or avoidance measures are recommended.      |
| purple martin<br><i>Progne subis</i>                                      | SSC                 | Inhabits woodlands and low elevation coniferous forests. Nests in old woodpecker cavities and human-made structures. Nest is often located in tall, isolated tree or snag.  | <b>Moderate Potential.</b> The Project Area contains coniferous forests that may provide suitable nesting habitat. This species has been observed east of the Project Area in Bonny Doon Ecological Preserve (eBird 2016).  | Recommendations for this species are provided in Section 7.2.2 |
| <b>Reptiles and Amphibians</b>  |                     |   |   |  |
| California tiger salamander<br><i>Ambystoma californiense</i>             | FT, ST, SSC         | Inhabits annual grasslands, spending most of the year underground in mammal burrows. Breeding occurs in vernal pools and other seasonal aquatic features. In the immediate vicinity of San Francisco Bay, occurs only in Fremont.                   | <b>No Potential.</b> There is no suitable aquatic breeding or upland aestivation habitat present for this species. This species has not been documented to occur within 5 miles of the Project Area (CDFW 2016).  | No further surveys or avoidance measures are recommended.      |
| Santa Cruz long-toed salamander<br><i>Ambystoma macrodactylum croceum</i> | FE, SE, CFP         | Wet meadows near sea level in a few restricted locales in Santa Cruz and Monterey counties. Aquatic larvae prefer shallow (<12 inches) water, using clumps of vegetation or debris for cover. Adults use mammal burrows.                            | <b>No Potential.</b> This species has a limited range, and is not documented to occur north of Aptos, which is over 15 miles southeast of the Project Area (USFWS 2009). The Project Area does not support habitat for this species, and the species is not known for the area. | No further surveys or avoidance measures are recommended.      |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS  |
|---|---------------------|--|--|--|
| California red-legged frog<br><i>Rana aurora</i>                    | FT, SSC             | Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Documented to disperse through upland habitats after rains.  | <b>Moderate Potential.</b> This species has been documented to occur within the property and adjacent to the Project Area in 1997 and there are many documented occurrences within 2 miles (CDFW 2016). While no suitable aquatic breeding habitat was observed, the Project Area provides dispersal and seasonal aquatic non-breeding habitat that may support the species. The Project Area is located within dispersal distance of known occurrences. | Recommendations for this species are provided in Section 7.2.2 |
| foothill yellow-legged frog<br><i>Rana boylei</i>                   | SSC                 | Found in rocky streams in a variety of habitats. Feeds on both aquatic and terrestrial invertebrates. Closely associated with water.   | <b>Unlikely.</b> There are no CNDDDB occurrences within 5 miles of the Project Area (CDFW 2016). The Project Area does not contain perennial streams with suitable basking habitat.  | No further surveys or avoidance measures are recommended.      |
| Alameda whipsnake<br><i>Masticophis lateralis euryxanthus</i>       | FT, ST              | Alameda Whipsnake is restricted to valley-foothill hardwood habitat of the Coast Ranges between Monterey and San Francisco Bay. They inhabit south-facing slopes and ravines where shrubs form a vegetative mosaic with oak trees and grasses. | <b>No Potential.</b> The Project Area is outside of the species' known range, and does not contain suitable habitat.   | No further surveys or avoidance measures are recommended.      |
| Blainville's (coast) horned lizard<br><i>Phrynosoma blainvillii</i> | SSC                 | Habitat variable, most common in lowlands along sandy washes with low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of insect forage are primary microhabitat components.         | <b>No Potential.</b> No suitable lowland or wash habitat is present in the Project Area.   | No further surveys or avoidance measures are recommended.      |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS   |
|--|---------------------|--|--|---|
| San Francisco garter snake<br><i>Thamnophis sirtalis tetrataenia</i> | FE, SE, CFP         | Found in the vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important. Adults prey chiefly on large frogs. | <b>No Potential.</b> The Project Area is outside of this subspecies' known range, and provides no typical aquatic habitat or forage.   | No further surveys or avoidance measures are recommended. |
| Pacific pond turtle<br><i>Actinemys marmorata</i>                    | SSC                 | Occurs in perennial ponds, lakes, rivers and streams with suitable basking habitat (mud banks, mats of floating vegetation, partially submerged logs) and submerged shelter. Nests are excavated in areas with friable soil and vegetative cover.                                      | <b>Unlikely.</b> There are no perennial streams or pond habitat that would support the species. Basking habitat is limited within the dense woodland of the Project Area. The nearest CNDDDB occurrence for this species is over 4 miles east of the Project Area (CDFW 2016). | No further surveys or avoidance measures are recommended. |
| <b>Fishes</b>  |                     |  |  |   |
| green sturgeon<br><i>Acipenser medirostris</i>                       | FT, SSC             | Anadromous. Spawns in the Sacramento and Klamath River systems. Lingering transients may be found throughout the San Francisco Bay Estuary, particularly juveniles.  | <b>No Potential.</b> The Project Area is outside of the known range for this species.  | No further surveys or avoidance measures are recommended. |
| tidewater goby<br><i>Eucyclogobius newberryi</i>                     | FE, SSC             | Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.                               | <b>No Potential.</b> No brackish water habitat is present within or immediately adjacent to the Project Area.  | No further surveys or avoidance measures are recommended. |

| SPECIES   | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS   |
|---|---------------------|--|---|---|
| Delta smelt<br><i>Hypomesus transpacificus</i>                    | FT, ST              | Endemic to the Sacramento-San Joaquin delta area; found in areas where salt and freshwater systems meet. It occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay.   | <b>No Potential.</b> The Project Area is outside of the range for this species and does not contain suitable habitat.   | No further surveys or avoidance measures are recommended. |
| longfin smelt<br><i>Spirinchus thaleichthys</i>                   | FC, ST, SSC         | Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.  | <b>No Potential.</b> The Project Area does not contain suitable estuarine habitat.  | No further surveys or avoidance measures are recommended. |
| Coho salmon - Central CA Coast ESU<br><i>Oncorhynchus kisutch</i> | FE, SE              | Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of San Francisco Bay only. Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen. | <b>No Potential.</b> Coho is known to occur within the lower reaches of San Vicente Creek; however, fish passage barriers, steep gradient, and the ephemeral nature of the streams in the Project Area make it unlikely for this species to occur. Coho is not known from Laguna Creek, and known natural fish passage barriers downstream of the Project Area make it unlikely that Coho to occur. | No further surveys or avoidance measures are recommended. |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS   |
|--|---------------------|--|---|---|
| steelhead - Central CA Coast DPS<br><i>Oncorhynchus mykiss irideus</i>       | FT                  | Anadromous, spending most of life cycle in the ocean. This ESU occurs from the Russian River south to Soquel Creek and Pajaro River, including the San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.                   | <b>Unlikely.</b> Steelhead occur within the mainstem of San Vicente Creek up to the quarry tunnel and the lower reaches of Mill Creek; however, partial fish passage barriers, narrow steep channels, and the ephemeral nature of the streams in the main parcel make it unlikely for this species to occur there. Steelhead are known from the lower reaches of Laguna Creek; however, a known natural barrier occurs downstream of the site, making it unlikely that steelhead would occur there. | No further surveys or avoidance measures are recommended. |
| steelhead – South/Central CA Coast DPS<br><i>Oncorhynchus mykiss irideus</i> | FT                  | Occurs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.   | <b>Unlikely.</b> Steelhead occur within the mainstem of San Vicente Creek up to the quarry tunnel and the lower reaches of Mill Creek; however, this location is in the territorial area for Central California Coast DPS steelhead. Therefore the Project Area is outside of the range for this DPS. Further, steelhead are unlikely to occur in the Project Area for the reasons outlined for the Central California Coast DPS.   | No further surveys or avoidance measures are recommended. |
| Chinook salmon - Winter-run ESU<br><i>Oncorhynchus tshawytscha</i>           | FE, SE              | Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel. | <b>No Potential.</b> The Project Area is outside of the known range for this species.   | No further surveys or avoidance measures are recommended. |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS   |
|--|---------------------|--|--|---|
| Chinook salmon -<br>Central Valley<br>Spring-run ESU<br><i>Oncorhynchus</i><br><i>tshawytscha</i>    | FT, ST              | Occurs in the Feather River and the Sacramento River and its tributaries, including Butte, Mill, Deer, Antelope and Beegum Creeks. Adults enter the Sacramento River from late March through September. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams from mid-August through early October. Juveniles migrate soon after emergence as young-of-the-year, or remain in freshwater and migrate as yearlings. | <b>No Potential.</b> The Project Area is outside of the known range for this species.  | No further surveys or avoidance measures are recommended. |
| <b>Invertebrates</b>   |                     |  |  |   |
| Conservancy fairy<br>shrimp<br><i>Branchinecta</i><br><i>conservatio</i>                             | FE                  | Lives in ephemeral or temporary pools of freshwater (vernal pools) that form in the cool, wet months of the year. Highly turbid water is preferred.  | <b>No Potential.</b> No vernal pool or seasonal wetland habitat is present within the Project Area.  | No further surveys or avoidance measures are recommended. |
| vernal pool fairy<br>shrimp<br><i>Branchinecta lynchi</i>  | FT                  | Inhabits small, clear-water sandstone-depression pools, grassy swales, slumps, or basalt-flow depression pools.  | <b>No Potential.</b> No vernal pool or seasonal wetland habitat is present within the Project Area.  | No further surveys or avoidance measures are recommended. |
| Ohlone tiger beetle<br><i>Cicindela ohlone</i>   | FE                  | Sparsely vegetated native grasslands on coastal terrace in Santa Cruz County. Substrate is poorly-drained clay or sandy clay soil over bedrock of Santa Cruz mudstone.   | <b>No Potential.</b> The nearest CNDDDB occurrence for this species is located 4.8 miles southeast of the Project Area (CDFW 2016). The Project Area is not within the coastal terrace and does not contain native grasslands. | No further surveys or avoidance measures are recommended. |
| Valley elderberry<br>longhorn beetle<br><i>Desmocerus</i><br><i>californicus</i><br><i>dimorphus</i> | FT                  | Occurs only in the central valley of California, in association with blue elderberry ( <i>Sambucus mexicana</i> ). Prefers to lay eggs in elderberry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.   | <b>No Potential.</b> The Project Area is out of the species' known range.  | No further surveys or avoidance measures are recommended. |

| SPECIES  | STATUS <sup>1</sup>             | HABITAT REQUIREMENTS  | POTENTIAL FOR OCCURRENCE <sup>2</sup>   | RECOMMENDATIONS   |
|--|---------------------------------|---|---|---|
| vernal pool tadpole shrimp<br><i>Lepidurus packardii</i>         | FE                              | VPTS pools are commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.   | <b>No Potential.</b> The Project Area provides no suitable vernal/seasonal pool habitat, and is outside of this species' known range (the nearest population is isolated in Fremont on the eastern shore of the Bay). | No further surveys or avoidance measures are recommended. |
| Myrtle's silverspot butterfly<br><i>Speyeria zerene myrtleae</i> | FE                              | Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County. Larval foodplant thought to be <i>Viola adunca</i> .   | <b>No Potential.</b> The Project Area is outside of the species known range.  | No further surveys or avoidance measures are recommended. |
| monarch butterfly<br><i>Danaus plexippus</i>                     | Roost Habitat Protected by CDFW | Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.           | <b>Unlikely.</b> Typical winter roost sites do not exist in the Project Area.   | No further surveys or avoidance measures are recommended. |
| Bay checkerspot butterfly<br><i>Euphydryas editha bayensis</i>   | FT                              | Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. <i>Plantago erecta</i> is the primary host plant.  | <b>No Potential.</b> No native serpentine grasslands or larval host or nectar plants are present in the Project Area.   | No further surveys or avoidance measures are recommended. |
| Smith's blue butterfly<br><i>Euphilotes enoptes smithi</i>       | FE                              | Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties. <i>Eriogonum latifolium</i> and <i>Eriogonum parvifolium</i> are utilized as host plants and adult food plants. | <b>No Potential.</b> Suitable habitat and host/food plants are not present in the Project Area.   | No further surveys or avoidance measures are recommended. |

| SPECIES  | STATUS <sup>1</sup> | HABITAT REQUIREMENTS   | POTENTIAL FOR OCCURRENCE <sup>2</sup>  | RECOMMENDATIONS   |
|--|---------------------|--|--|---|
| Mount Hermon (=barbate) June beetle<br><i>Polyphylla barbata</i>   | FE                  | Known only from sand hills in Santa Cruz County (type locality). Occurs in open, sandy habitat on Zayante series soils.  | <b>No Potential.</b> The nearest CNDDDB occurrence for this species is located 4.8 miles east of the Project Area (CDFW 2016). No sand hill habitat or suitable Zayante soils are present in the Project Area. | No further surveys or avoidance measures are recommended. |
| Zayante band-winged grasshopper<br><i>Trimerotropis infantilis</i> | FE                  | Endemic to isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem). Restricted to sand parkland habitat found on ridges and hills within this very limited ecosystem. | <b>No Potential.</b> No sandhills habitat or suitable Zayante soils are present in the Project Area.   | No further surveys or avoidance measures are recommended. |

<sup>1</sup>Key to status codes

|           |  |
|-----------|--|
| FE        | Federal Endangered   |
| FT        | Federal Threatened   |
| FD        | Federal Delisted   |
| FC        | Federal Candidate  |
| BCC       | USFWS Birds of Conservation Concern  |
| SE        | State Endangered   |
| ST        | State Threatened   |
| SR        | State Rare   |
| SSC       | CDFW Species of Special Concern  |
| CFP       | CDFW Fully Protected Animal  |
| WBWG      | Western Bat Working Group Priority Species   |
| Rank 1B.1 | CNPS Rank 1B.1: Rare, threatened, or endangered in California and elsewhere (seriously threatened in California)               |
| Rank 1B.2 | CNPS Rank 1B.2: Rare, threatened, or endangered in California and elsewhere (moderately threatened in California)              |
| Rank 2B.1 | CNPS Rank 2B.1: Rare, threatened, or endangered in California, but more common elsewhere (seriously threatened in California)  |
| Rank 2B.2 | CNPS Rank 2B.2: Rare, threatened, or endangered in California, but more common elsewhere (moderately threatened in California) |
| Rank 3.1  | CNPS Rank 3.1: Plants about which more information is needed - A review list (seriously threatened in California)              |
| Rank 3.2  | CNPS Rank 3.2: Plants about which more information is needed - A review list (moderately threatened in California)             |
| Rank 4.2  | CNPS Rank 4.2: Plants of limited distribution - A watch list (moderately threatened in California)                             |
| Rank 4.3  | CNPS Rank 4.3: Plants of limited distribution - A watch list (not very threatened in California)                               |

<sup>2</sup>Key to Potential for Occurrence

|                    |  |
|--------------------|--|
| No Potential       | None of the habitat components meeting the species requirements are present. The habitat is clearly unsuitable for the species.  |
| Unlikely           | Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.             |
| Moderate Potential | Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.                    |
| High Potential     | All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.                          |
| Present            | Species is observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.  |
| Not Observed       | The species is identifiable year-round but was not observed during surveys or the survey occurred when the species should have been apparent and identifiable but the species was not observed. These species are assumed to not be present. |



**APPENDIX D**  
**SITE PHOTOGRAPHS**





Example of shaded fuel break within the Project Area.



Example of shaded fuel break within the Project Area.



Example of open, sunny edge habitat where plant diversity is expected to be higher and a larger number of rare plants have potential to occur.



Example of dense, shaded understory habitat where plant diversity is expected to be lower and fewer rare plants have potential to occur.



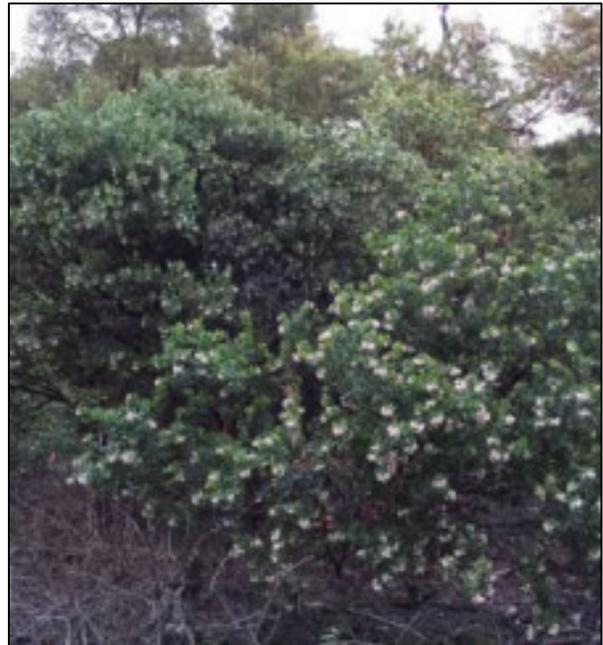
Anderson's manzanita flowers.



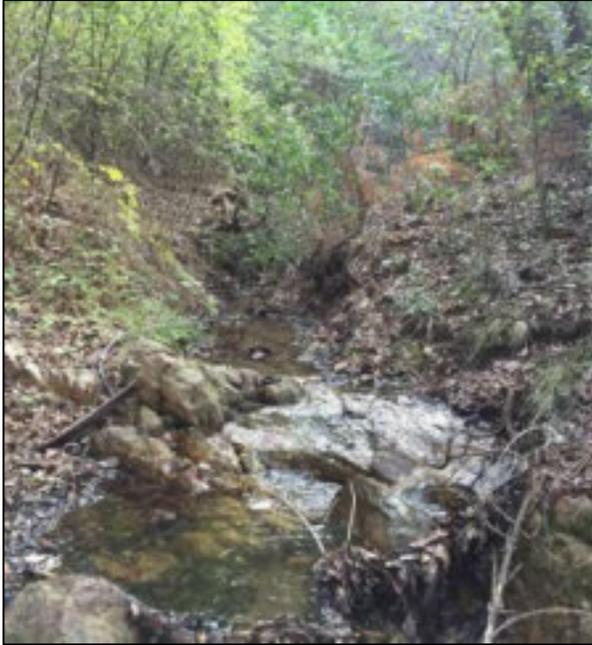
Typical leaf arrangement for Anderson's manzanita.



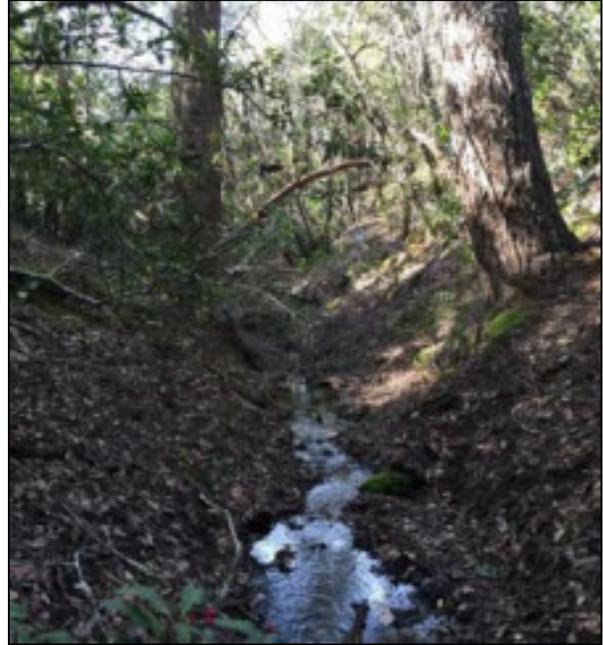
Anderson's manzanita in flower.



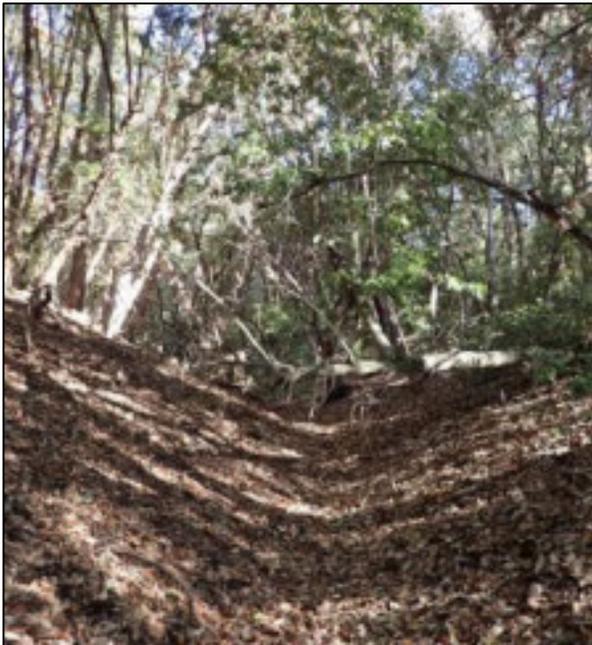
Anderson's manzanita growth form under open, sunny conditions.



Example of a regulated stream.



Example of a regulated stream.



Example of a drainage feature determined to be non-jurisdictional.



Example of a drainage feature determined to be non-jurisdictional.



Example of a woodrat midden in the Project Area.



Example of a woodrat midden in the Project Area.



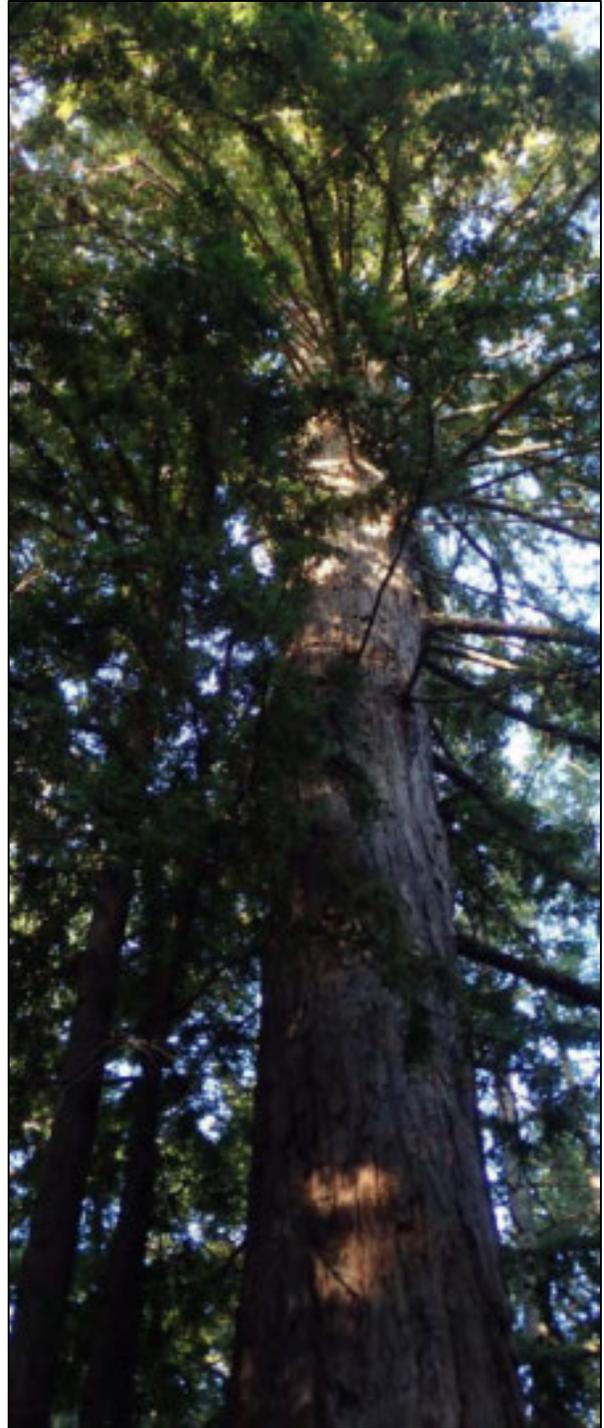
Example of a woodrat midden in the Project Area.



Example of a woodrat midden in the Project Area.



Example of a potentially significant wildlife tree.



Example of a potentially significant wildlife tree.



Laguna Creek, a perennial stream located on the Laguna parcel.

