County of Santa Cruz

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131
KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR
www.sccoplanning.com

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

NOTICE OF PUBLIC REVIEW AND COMMENT PERIOD

Pursuant to the California Environmental Quality Act, the following project has been reviewed by the County Environmental Coordinator to determine if it has a potential to create significant impacts to the environment and, if so, how such impacts could be solved. A Negative Declaration is prepared in cases where the project is determined not to have any significant environmental impacts. Either a Mitigated Negative Declaration or Environmental Impact Report (EIR) is prepared for projects that may result in a significant impact to the environment.

Public review periods are provided for these Environmental Determinations according to the requirements of the County Environmental Review Guidelines. The environmental document is available for review at the County Planning Department located at 701 Ocean Street, in Santa Cruz. You may also view the environmental document on the web at www.sccoplanning.com under the Planning Department menu. If you have questions or comments about this Notice of Intent, please contact Todd Sexauer of the Environmental Review staff at (831) 454-3511.

The County of Santa Cruz does not discriminate on the basis of disability, and no person shall, by reason of a disability, be denied the benefits of its services, programs or activities. If you require special assistance in order to review this information, please contact Bernice Shawver at (831) 454-3137 to make arrangements.

PROJECT: Deadman Gulch Restoration Project **APP #: 171076**

APN(S): 080-011-42, 080-011-41, 080-011-03

PROJECT DESCRIPTION: The proposed Deadman Gulch Redwood Forest Restoration Project would apply silvicultural treatments to approximately 110 acres of second growth redwood and redwood-Douglas fir forest with the goal of restoring conditions under which the forest would more rapidly re-acquire its former "old growth" condition. Treatments would focus on thinning hardwoods and small conifers, where such treatments would benefit already-established redwoods, Douglas-fir, and hardwoods. Treatments of this kind have been shown to increase growth rates of retained trees and to expedite the acquisition of old-growth characteristics. Other treatments would be used to convert small areas of hardwood to Douglas fir, where it is determined that Douglas fir have been displaced by fire and timber harvest. Treatments would also reduce the risk of catastrophic wildfire. Treatments would be accomplished by crews accessing the site on-foot using hand-held power equipment, including chainsaws. Crews would be supervised by the San Vicente Redwoods Property Manager, a Registered Professional Forester. The project design includes provisions to protect streams and other sensitive biological resources. Thinned trees would be left on the ground as large woody debris. Slash would be lopped-and-scattered or piled and burned.

PROJECT LOCATION: The proposed project is located within the approximately 8,500 acre San Vicente Redwoods property, which is located in an unincorporated area of northern Santa Cruz County. The project site is within Townships 9 and 10 South, Range 3 West (MDBM), and is mapped within the USGS Davenport 7.5' quadrange. The property makes up much of the San Vicente Rancho, spanning from the crest of Ben Lomond Mountain along Empire Grade to near the Town of Davenport. The project location is within the interior of the property, near the intersection of Empire Grade and Braemoor Drive. The project site is accessed via Empire Grade and private ranch roads. The County of Santa Cruz is bounded on the north by San Mateo County, on the south by Monterey and San Benito counties, on the east by Santa Clara County, and on the south and west by the Monterey Bay and the Pacific Ocean.

EXISTING ZONE DISTRICT: TP Timber Production
APPLICANT: Save the Redwoods League
OWNER: Peninsula Open Space Trust, Sempervirens Fund
PROJECT PLANNER: John Cairns, (831) 454-3548
EMAIL: John.Cairns@santacruzcounty.us
ACTION: Negative Declaration with Mitigations
REVIEW PERIOD: August 23, 2017 through September 21, 2017

This project will be considered administratively by the Project Planner at the conclusion of the review period.

COUNTY OF SANTA CRUZ

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MITIGATED NEGATIVE DECLARATION

Project: Deadman Gulch Restoration Project **APN(S): 080-011-42, 080-011-41, 080-011-03**

Project Description: The proposed Deadman Gulch Redwood Forest Restoration Project would apply silvicultural treatments to approximately 110 acres of second growth redwood and redwood-Douglas fir forest with the goal of restoring conditions under which the forest would more rapidly re-acquire its former "old growth" condition. Treatments would focus on thinning hardwoods and small conifers, where such treatments would benefit already-established redwoods, Douglas-fir, and hardwoods. Treatments of this kind have been shown to increase growth rates of retained trees and to expedite the acquisition of old-growth characteristics. Other treatments would be used to convert small areas of hardwood to Douglas fir, where it is determined that Douglas fir have been displaced by fire and timber harvest. Treatments would also reduce the risk of catastrophic wildfire. Treatments would be accomplished by crews accessing the site on-foot using hand-held power equipment, including chainsaws. Crews would be supervised by the San Vicente Redwoods Property Manager, a Registered Professional Forester. The project design includes provisions to protect streams and other sensitive biological resources. Thinned trees would be left on the ground as large woody debris. Slash would be lopped-and-scattered or piled and burned.

Project Location: The proposed project is located within the approximately 8,500 acre San Vicente Redwoods property, which is located in an unincorporated area of northern Santa Cruz County. The project site is within Townships 9 and 10 South, Range 3 West (MDBM), and is mapped within the USGS Davenport 7.5' quadrange. The property makes up much of the San Vicente Rancho, spanning from the crest of Ben Lomond Mountain along Empire Grade to near the Town of Davenport. The project location is within the interior of the property, near the intersection of Empire Grade and Braemoor Drive. The project site is accessed via Empire Grade and private ranch roads. The County of Santa Cruz is bounded on the north by San Mateo County, on the south by Monterey and San Benito counties, on the east by Santa Clara County, and on the south and west by the Monterey Bay and the Pacific Ocean.

Owner: Peninsula Open Space Trust, Sempervirens Fund

Applicant: Save the Redwoods League

Staff Planner: John Cairns, (831) 454-3548

Email: John.Cairns@santacruzcounty.us

This project will be considered administratively by the Project Planner at the conclusion of the review period.

California Environmental Quality Act Mitigated Negative Declaration Findings:

Find, that this Mitigated Negative Declaration reflects the decision-making body's independent judgment and analysis, and; that the decision-making body has reviewed and considered the information contained in this Mitigated Negative Declaration and the comments received during the public review period; and, that revisions in the project plans or proposals made by or agreed to by the project applicant would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and, on the basis of the whole record before the decision-making body (including this Mitigated Negative Declaration) that there is no substantial evidence that the project as revised will have a significant effect on the environment. The expected environmental impacts of the project are documented in the attached Initial Study on file with the County of Santa Cruz Clerk of the Board located at 701 Ocean Street, 5th Floor, Santa Cruz, California.

Review Period Ends: September 21, 2017

Date:_____

_____
TODD SEXAUER, Environmental Coordinator
(831) 454-3511

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CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)
INITIAL STUDY/ENVIRONMENTAL CHECKLIST

Date: July 17, 2017 **Application Number:** 171076

Project Name: Deadman Gulch Restoration Project **Staff Planner:** John Cairns

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Save the Redwoods League **APN(s):** 080-011-42, 080-011-41, 080-011-03

OWNER: Peninsula Open Space Trust, Sempervirens Fund **SUPERVISORAL DISTRICT:** 3

PROJECT LOCATION: The project is located within the approximately 8,500 acre San Vicente Redwoods property, which is located in an unincorporated area of northern Santa Cruz County (see Figure 1). The project site is within Townships 9 and 10 South, Range 3 West (MDBM), and is mapped within the USGS Davenport 7.5' quadrangle. The property makes up much of the San Vicente Rancho, spanning from the crest of Ben Lomond Mountain along Empire Grade to near the Town of Davenport. The project location is within the interior of the property, near the intersection of Empire Grade and Braemoor Drive (see Figure 2). The project site is accessed via Empire Grade and private ranch roads.

SUMMARY PROJECT DESCRIPTION:

The proposed Deadman Gulch Redwood Forest Restoration Project would apply silvicultural treatments to approximately 110 acres of second growth redwood and redwood-Douglas fir forest with the goal of restoring conditions under which the forest would more rapidly re-acquire its former "old growth" condition. Treatments would focus on thinning hardwoods and smaller conifers, where such treatments would benefit already-established redwoods, Douglas-fir, and hardwoods. Treatments of this kind have been shown to increase growth rates of retained trees and to expedite the acquisition of old-growth characteristics. Other treatments would be used to convert small areas of hardwood to Douglas fir, where it is determined that Douglas fir have been displaced by fire and timber harvest. Treatments would also reduce the risk of catastrophic wildfire. Treatments would be accomplished by crews accessing the site on-foot using hand-held power equipment, including chainsaws. Crews would be

supervised by the San Vicente Redwoods Property Manager, a Registered Professional Forester. The project design includes provisions to protect streams and other sensitive biological resources. Thinned trees would be left on the ground as large woody debris. Slash would be lopped-and-scattered or piled and burned.

The proposed Deadman Gulch Redwood Forest Restoration Project is a pilot project within the Middle Big Creek canyon, which is within the Deadman Gulch Restoration Reserve (see Figure 2). The proposed treatments would enhance the long-term growth and vigor of the existing redwood forest, and would serve as a pilot for gaining practical experience and testing the effectiveness of treatments that may be applied in a larger reserve-wide restoration effort. The focus of the pilot project is to implement restoration treatments in two IFCCs: IFCC-1 Dense Redwood Regrowth Stands, and IFCC-2 Advanced Redwood Regrowth Engulfed by Tanoak. These tend to occur in areas formerly occupied by old growth redwood stands, primarily in moister locations within the canyon bottom and side canyons and swales. Additional treatments in limited upslope areas would address IFCC-3, **Dense upland hardwoods (primarily tanoak); displaced Douglas-fir,** by cutting small areas of tanoak (several areas, each about ½ acre) and planting-in Douglas fir, and by thinning hardwood stands to enhance and invigorate the largest and best-formed trees.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: *All of the following potential environmental impacts are evaluated in this Initial Study. Categories that are marked have been analyzed in greater detail based on project specific information.*

- ☒ Aesthetics and Visual Resources
- ☒ Agriculture and Forestry Resources
- ☒ Air Quality
- ☒ Biological Resources
- ☒ Cultural Resources
- ☐ Geology and Soils
- ☒ Greenhouse Gas Emissions
- ☐ Hazards and Hazardous Materials
- ☒ Hydrology/Water Supply/Water Quality
- ☐ Land Use and Planning
- ☐ Mineral Resources
- ☒ Noise
- ☐ Population and Housing
- ☐ Public Services
- ☐ Recreation
- ☐ Transportation/Traffic
- ☐ Utilities and Service Systems
- ☐ Tribal Cultural Resources
- ☒ Mandatory Findings of Significance

DISCRETIONARY APPROVAL(S) BEING CONSIDERED:

- ☐ General Plan Amendment
- ☐ Land Division
- ☐ Rezoning
- ☐ Development Permit
- ☐ Sewer Connection Permit
- ☐ Coastal Development Permit
- ☐ Grading Permit
- ☒ Riparian Exception
- ☐ LAFCO Annexation
- ☒ Other: Land Clearing Permit

OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED (e.g., permits, financing approval, or participation agreement):

Prescribed Burn Permit from the Monterey Bay Unified Air Pollution Control District

DETERMINATION:

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Todd Sexauer, Environmental Coordinator

8-17-17
Date

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Figure 1

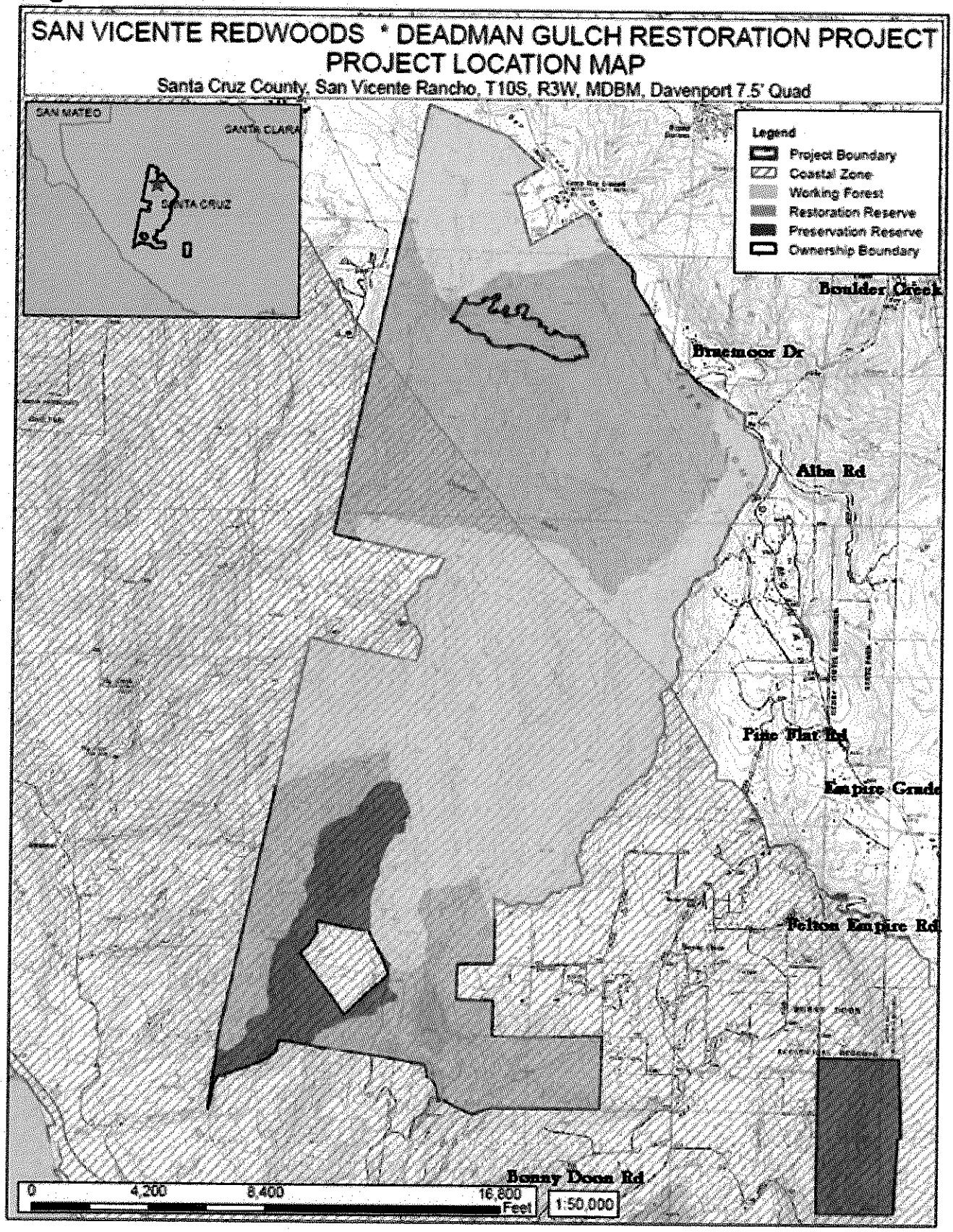
SAN VICENTE REDWOODS * DEADMAN GULCH RESTORATION PROJECT
PROJECT LOCATION MAP
Santa Cruz County, San Vicente Rancho, T10S, R3W, MDBM, Davenport 7.5' Quad
SAN MATEO
SANTA CLARA
SANTA CRUZ
Legend
Project Boundary
Coastal Zone
Working Forest
Restoration Reserve
Preservation Reserve
Ownership Boundary
Boulder Creek
Braemoor Dr
Alba Rd
Pine Flat Rd
Empire Grade
Felton Empire Rd
Bonny Doon Rd
0
4,200
8,400
16,800
Feet
1:50,000

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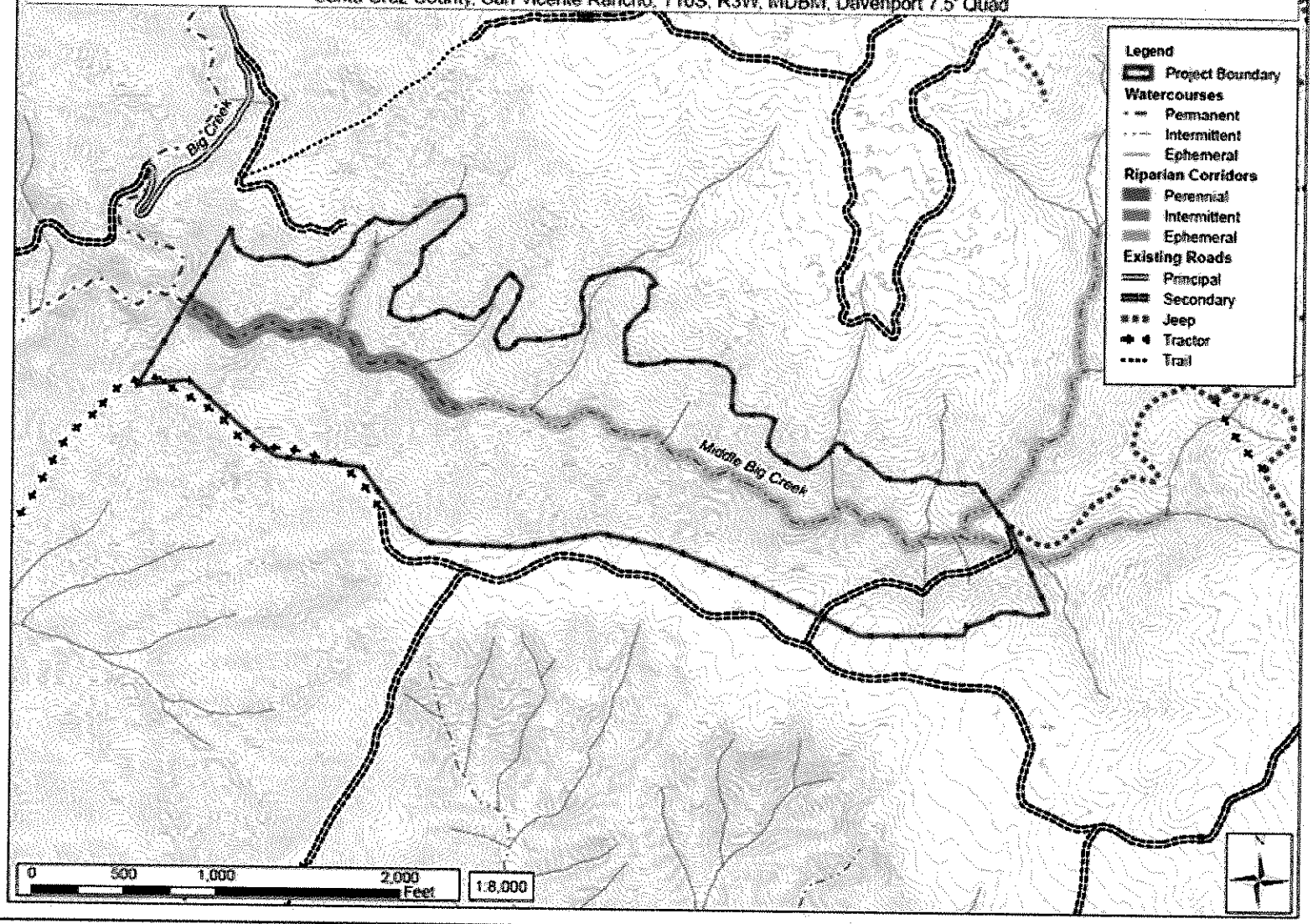
FIGURE 2: SAN VICENTE REDWOODS * DEADMAN GULCH RESTORATION PROJECT
RIPARIAN CORRIDORS MAP

Santa Cruz County, San Vicente Rancho, T10S, R3W, MDBM, Davenport 7.5' Quad



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II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Sizes: 619.55 acres, 586.6 acres, and 479.67 acres
Existing Land Use: TP; Habitat management for fish and wildlife and watershed management.
Vegetation: Redwood forest, redwood-Douglas fir forest
Slope in area affected by project: ☒ 0 - 30% ☒ 31 – 100%
Nearby Watercourse: Middle Big Creek, Big Creek
Distance To: 2,000 feet to Big Creek, Middle Big Creek crosses project site

ENVIRONMENTAL RESOURCES AND CONSTRAINTS:

Water Supply Watershed: No
Groundwater Recharge: Yes
Timber or Mineral: TPZ
Agricultural Resource: No
Biologically Sensitive Habitat: Yes
Fire Hazard: SRA-High
Floodplain: No
Erosion: Very Severe Erosion Hazard
Landslide: No
Liquefaction: No
Fault Zone: No
Scenic Corridor: No
Historic: No
Archaeology: Yes
Noise Constraint: No
Electric Power Lines: No
Solar Access: No
Solar Orientation: No
Hazardous Materials: No
Other: No

SERVICES:

Fire Protection: CRZ-FSA48 County
School District: Bonny Doon Elementary SD, San Lorenzo Valley Unified SD
Sewage Disposal: n/a
Drainage District: n/a
Project Access: via Empire Grade, private roads
Water Supply: n/a

PLANNING POLICIES:

Zone District: TP Timber Production
General Plan: RM-Mountain Residential
Special Designation: TPZ

Urban Services Line:	☐ Inside	☒ Outside
Coastal Zone:	☐ Inside	☒ Outside

ENVIRONMENTAL SETTING AND SURROUNDING LAND USES:

The project site is within the 8,532 acre San Vicente Redwoods property, one of the largest private holdings in Santa Cruz County (Figure 1). Use of the property is subject to the restrictions of a recorded Conservation Easement, which defines conservation areas where conservation and restoration are the management goals, and "working forest" areas where sustainable timber management is the primary goal (Figure 1). Limited public

access for recreational use is planned for some areas of the property, under the terms of a Recreational Access Plan now under preparation. The entire property was clear-cut in the early 20th century and now consists mostly of second growth redwood, redwood-Douglas fir, and mixed conifer-hardwood forest. Since the 1950s, the second growth forest has been managed for timber production, using mostly uneven-aged silviculture. The abandoned San Vicente Quarry is located within the property, near the town of Davenport. The quarry was for many years the source of limestone for the Davenport cement plant.

Elevations of the San Vicente Redwoods Property range from about 2,600 feet above sea level (asl) along Empire Grade, to about 200 feet asl in San Vicente Canyon below the old quarry. The Property includes substantial portions of four coastal watersheds: Laguna Creek, which flows through the separate Laguna parcel; Scott Creek, which collects the tributary streams from the northern and western portions of the Property, including Big Creek and its tributaries (Middle Big Creek and Deadman Gulch), Little Creek, and Archibald Creek; Molino Creek, which flows through the Molino Canyon; and San Vicente Creek, the main stem of which flows several miles through the Property, collecting flow from numerous perennial tributaries. The property has no permanent structures. It has an extensive network of ranch roads, including Warrenella Road, which traverses the property roughly north to south.

Most of the surrounding lands are in large holdings, including the Coast Dairies National Monument, the Cal-Poly Swanton Pacific Ranch, the Lockheed Martin facility, the Fall Creek Unit of Henry Cowell Redwoods State Park, and watershed lands of the San Lorenzo Valley Water District (Figure 1). The eastern portion of the property abuts the residential areas of Bonny Doon. There are two in-holdings within the property, one a timber ranch and the other used as an agricultural operation.

The project site itself lies deep within the Middle Big Creek canyon. Middle Big Creek is a perennial stream (categorized as Class I under the California Forest Practice Rules) in its lower reaches, and likely supports resident rainbow trout (the upper reaches and tributaries of Big Creek, including Middle Big Creek, are above the limit of anadromy for salmon and steelhead). Further up the canyon, Middle Big Creek becomes intermittent (Class II). The upper reaches of the canyon include multiple ephemeral tributaries (Class III streams). The canyon is characterized by dense second growth redwood in the canyon bottom and side-swales, with scattered old growth redwood and Douglas fir trees both near the creek and further up the canyon slopes. These slopes are dominated by a dense stand of tanoak. At the upper reaches of the slopes, the forest shifts to a mixed conifer-hardwood forest that includes redwood, Douglas-fir, madrone, shreve oak, live oak, tanoak, knobcone pine, and other species.

The project site includes most of the Middle Big Creek canyon. Figure 2 shows the project boundaries and the approximate extent of the riparian corridors defined in the Santa Cruz County Riparian Corridor and Wetland Protection

Ordinance. The Ordinance prohibits development within the defined riparian corridor without a Riparian Exception. The corridors extend 50 feet outward from the tops of the banks of perennial streams (as defined in the Riparian Ordinance), 30 feet from the tops of the banks of intermittent streams, and within the banks of ephemeral streams. Assuming stream widths of 15 feet for perennial streams, 10 feet for intermittent streams, and 5 feet for ephemeral streams, plus the buffer width defined in the Ordinance, the project site includes the following extent of riparian corridors:

Perennial stream: 4.3 Acres
Intermittent stream: 7.0 Acres
Ephemeral stream: 0.5 Acres

Total: 11.8 Acres

PROJECT BACKGROUND:

The San Vicente Redwoods property is owned by Sempervirens Fund and Peninsula Open Space Trust. Save the Redwoods League holds the conservation easement on the property. These three organizations are referred to as the "Conservation Partners." The property is divided into areas designated as conservation reserves, and others managed as working forest, pursuant to a Conservation Plan (ESA, 2013). Management is guided by the provisions of the conservation easement. The largest of the conservation reserves is the 2,733-acre Deadman Gulch Restoration Reserve, located in the upper Big Creek watershed (see Figure 1). The term "restoration reserve" was coined to designate areas of high conservation value where restoration is needed to achieve full conservation potential. The Conservation Partners have identified several "impaired forest condition classes" (IFCCs) extant within the restoration reserves, where forest stand conditions have been altered from the pre-disturbance condition of old growth, and have developed silvicultural restoration treatments to place these stands on a trajectory toward reestablishment of pre-disturbance conditions. Treatments are aimed at re-balancing species composition and tree density, and restoring physical habitat components and ecological function.

The Conservation Partners have expressed their desired future conditions for the Deadman Gulch Restoration Reserve as follows:

- Canyon bottoms, side channels, and side swales would have a nearly contiguous conifer canopy, comprised primarily of redwood, but with a Douglas-fir component. The forest would have structure, composition, and habitat features resembling old growth riparian redwood forests, and capable of supporting old-growth obligate species, including marbled murrelet. These areas would have a sparse understory of tanoak and other shrubby species, a groundcover composed of typical redwood companion species, and mature hardwoods in occasional gaps in the conifer canopy. Stream banks would support large redwoods and riparian hardwoods, notably alder. The relatively low stem density, preponderance of larger trees, and paucity of ladder fuels, would reduce risk of catastrophic or stand-replacing wildfire, and would increase resilience to the effects of drought and climate change.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

- Canyon side slopes would support a mixed hardwood-conifer forest, with small clumps and occasional groves of redwoods in swales, and widely-spaced, open grown Douglas-fir and redwood on drier slopes in association with mixed hardwoods, including tanoak, madrone, Shreve oak, and live oak. Canopy openings from fallen trees would foster patches of botanical diversity and promote natural regeneration of hardwoods and conifers, supplemented with planted-in species as well.
- Large woody debris and snags would be present, preferably in quantities typical of old growth stands, but at least sufficient to fulfill their role in providing plant, fungal, and wildlife habitat.
- Streams would exhibit excellent water quality, including low turbidity, low fine sediment loads, and cool stream temperatures, offering excellent habitat for native fish and amphibians

These conditions are generally inhibited or absent within the project area. Restoration intervention would promote the growth of stands of large redwood and Douglas-fir trees, and would release young redwood from suppression by tanoak. In the long-term, this would result in the development of mature forest structure and its concomitant habitat qualities, a diverse and flourishing understory plant community, the development of large standing snags and downed logs, and a reduction in fire risk. Ancillary benefits would include a reduction in stream temperature through increased shading and an increased capacity for carbon sequestration and long-term storage.

Short-term objectives include the following:

- Reduced tree density in the immediate area of the treatments;
- Reduced vertical fuel loading;
- Increased relative representation of redwood in the IFCC-2 treatment areas;
- Increased amount of large woody debris on the forest floor;
- Increased number of standing snags (by including girdling as a treatment);
- Increased amount of light on the forest floor, enhancing tree growth leading to long term shade and a drop in stream temperatures

The medium-term (10-20 years) objectives are as follows:

- Increased growth and relative dominance of redwoods;
- Increased diversity and abundance of forest floor vegetation;
- Reduced risk of catastrophic wildfire;
- Increased abundance of large woody debris and standing snags.

The long-term objective is to achieve the desired future conditions stated above.

DETAILED PROJECT DESCRIPTION:

The project would apply silvicultural treatments to particular identified IFCCs, in order to place these impaired stands on a trajectory for reestablishment of old-growth character, including structure, species composition, and ecological function. Treatment prescriptions were developed based on site-specific evaluation and the guidelines for restoration project planning established by the Society for Ecological Restoration International (Clewell et al. 2000). The focus is on redressing impaired conditions resulting from past anthropogenic disturbance of logging and fire suppression with the objective of creating the conditions that restore and maintain species in a range of historic proportions and in a viable condition over the near term, while reserving a diversity of management options for more precisely achieving structural objectives over the longer term.

In particular, the project would address three IFCCs, which are described below.

IFCC-1: Dense redwood regrowth stands

IFCC-1 is found in the riparian areas of canyon bottoms, where dense redwood sprouting following the clearcut of the early 20th century has served to maintain redwood composition within the canopy of regrowth stands, but the size and vigor of redwood canopy trees is variable, and undesirably dense pockets exist. Radial growth of regrowth redwoods is incongruously low relative to the apparent site quality and the species' potential. IFCC-1 covers about 18 acres of the 110 acre project area.

IFCC-2: Advanced redwood regrowth engulfed by tanoak regrowth (also referred to as "redwood isolates")

Following the clearcut, sprout regeneration of redwoods in side swales and draws occurred successfully, but in competition with sprouting hardwoods (notably, tanoak). Those hardwood sprouts ascended to the canopy and essentially segregated the more up-slope pockets of redwood sprout clumps (or "isolates") from the pure redwood stands along streams. Left untreated, hardwoods would continue to segregate up-slope redwoods from redwoods at canyon bottoms, and inhibit the growth of the isolates themselves. This represents a substantial departure from the pre-disturbance condition, and constitutes an impairment of the extent and continuity of the conifer forest. Essentially, the potential for development of the redwood isolates is locked within an early successional, simplified forest stand, which may persist for many years. IFCC-2 redwoods cover about 24 acres of the project area.

IFCC-3: Dense upland hardwoods (primarily tanoak); displaced Douglas-fir

Within the San Vicente Redwoods Property, upland sites unsuitable or marginal for redwood previously supported old-growth forests of mixed Douglas-fir and hardwoods of large stem sizes and low stand densities. The historic composition of upland forests contained a higher proportion of Douglas-fir than current conditions exhibit. Regrowth hardwoods responded vigorously to historic cutting and the subsequent fires, with their

sprouts displacing Douglas-fir, and at very high densities. In the absence of treatment, long-term dominance by tanoak is likely. IFCC-3 is found primarily on drier slopes above stream channels and swales, uphill from riparian redwood-dominated stands. IFCC-3 hardwoods cover about 68 acres of the project area.

IFCC-1 Treatment Prescription: In areas with no or minimal old growth, identify a relatively modest subset of redwood stems (or groups of stems) that have already expressed a degree of dominance, and thin locally to remove immediately adjacent stems. Remove stems in the upper canopy that compete with release trees, and also lower stems that apply shading pressure to the lower crown of release trees. This treatment, termed "crown release thinning," roughly follows the form of a low thinning, except that thinning shall be concentrated around release trees. The number of stems targeted for retention can and shall vary, to avoid a uniform residual density or spacing across the landscape. The size of a retained stem shall dictate the area thinned around it, with larger stems receiving greater area of local release, with, however, consideration given to retention of "screen trees" around large trees with potentially suitable habitat for marbled murrelet nesting (see below). The size of the stems qualifying for retention shall be a function of the range of sizes in the specific sub-basin or area being treated, with a general guideline to release trees above the 80 or 90th percentile, in terms of stem diameter. The forester shall, however, have latitude to determine site-specific tree selection.

In areas where the forester identifies a dearth of snags (standing dead trees), a subset of trees targeted for thinning may be girdled, rather than cut, to create snags.

In areas with an old growth component, in addition to thinning second growth clumps and groves, judiciously thin stems immediately adjacent to old growth to reduce crown recession and also to reduce competition for groundwater and nutrients, except where smaller stems may be considered "screen trees" for potentially suitable marbled murrelet habitat. To promote radial growth and therefore expansion of the redwood canopy at the edges of the redwood stands where they often transition rapidly to tanoak-dominated slopes, remove hardwoods that are competing for canopy position, moisture, and nutrients, per treatment prescription for IFCC-2, below.

In all treatment areas, the presence of charred stumps, legacies of the original forest and the clearcut, shall provide a guide to establish targets for ultimate stem density and potential stem diameter. Typically, old growth redwood forests contain about 30-50 large trees per acre (Giusti, 2007). Current stem density in the project area is several times this range. The typical old growth range may serve as a general guide for long-term density goals, but the project would be limited to reducing less than 50% of the overall basal area in any one clump or cohort. Follow-up treatment may be planned for 10-15 years following project implementation.

This treatment would be combined with a general stand-wide thinning that reduces overall stand density, and/or low thinning to reduce ladder fuels and establish gaps between clumps and groves (both to reduce fire risk and to promote species diversity and

regeneration in gaps). Considerations related to access and elevated fire hazard shall help guide this decision. In general, low thinning treatments shall be considered second priority to the primary treatment - crown release thinning to benefit existing stems of dominant canopy position and high growth potential.

The project would treat a relatively small amount of IFCC-1. Of the approximately 18 acres of this type present within the project area, about three to six acres would be treated, mostly in more upland redwood groves outside of the riparian buffer area.

IFCC-2 Treatment Prescription: Perform localized treatments to remove hardwoods between redwood isolates and riparian redwood stands. The size of the gaps created by removal of hardwoods may be considerable, and shall be guided by the potential crown width of redwoods targeted for release. Identify upland redwood sprout clumps and thin around each clump. Where practical, also thin around nearest riparian redwoods, to expedite the spanning of the distance between the two redwood elements. To help expedite crown expansion, redwood sprout clumps may also be reduced (crown release thinning), but at a lower priority than hardwood removal. This treatment would be most effective where sprouts have reached the lower branches of the more dominant trees in the clump – those that already have grown above the tanoak canopy – and are competing for canopy position. The project's mail focus would be on treatment of IFCC-2. An estimated 24 acres of tanoaks would be thinned around the IFCC-2 redwood isolates.

IFCC-3 Treatment Prescriptions: 1. In selected upslope areas of dense tanoak, cut patches of about ½ acre and plant-in seedlings of Douglas fir and mixed hardwoods. Follow-up in subsequent years with treatments to suppress resprouting of cut tanoaks, to reduce competition with plantings. 2. In selected upslope areas of larger tanoaks and mixed hardwoods, thin around largest and best-formed trees to reduce competition, reduce fire hazard, and invigorate trees selected for retention. Combined, these treatments would cover about six acres of IFCC-3.

Downed Wood Management

The primary goals of downed wood management are:

- Reduce the risk of catastrophic wildfire;
- Increase the amount of large woody debris on the forest floor;
- Increase the availability of growing space for understory plant communities;
- Maintain accessibility for management, research, and educational purposes.

Felled trees would be de-limbed with trunks left as intact as possible. Wood would not be removed from the site for commercial purposes, but would remain in-place as downed woody material.

Slash Treatment

Limbs and fine branches would I be piled throughout the project site where slope permits, but not within the riparian corridor. These piles would be burned in the winter following treatment.

On steep slopes, small diameter branches would be lopped and scattered to maintain soil stability. Slash height shall in no case exceed 2 feet, and shall endeavor to remain below 12 inches where possible.

Implementation

Project implementation would adhere to the following implementation procedures:

- Project site boundaries will be flagged.
- Trees selected for thinning will be marked by the project Forester.
- Areas containing sensitive biological resources will be flagged prior to project implementation. Crews will be instructed not to enter flagged sensitive areas and not to fall trees into sensitive areas or build burn piles within or in proximity to sensitive areas.
- Management of slash, including but not limited to pile burning, will be according to a Vegetation Management Plan being prepared for the project by the California Department of Forestry and Fire Protection (Cal Fire). Brush and slash management will be performed by supervised California Department of Corrections Honor Camp crews, and under the direction of the project Forester.
- Apart from one road that bisects the project site, the project site has no roads and is accessible only on foot. Crews would use portable equipment, including chainsaws, carried into the site from adjacent ranch roads.
- Fueling and maintenance areas for chainsaws and other power equipment will be established outside of the riparian corridor, away from flagged sensitive resources, and in a stable location. Fueling and oiling of chainsaws will occur only within a temporary containment apparatus, such as an oil collection pan. A spill kit would be kept at the worksite and used to clean-up any incidental spills.
- Larger trees would be felled by professional fallers under the supervision of the project Forester.
- To reduce the propensity for sprouting, the stumps of tanoaks that have been felled may be treated with an herbicide application. Herbicides will be applied only by a licensed applicator, under the supervision of the project Forester, and according to the Pest Control Advisor Recommendations of Joel Trumbo, and Best Management Practices for Herbicide Application contained in Table 7-1, attached.

Schedule

Project detailed planning and permitting would occur in the winter and spring of 2016-2017. Project implementation is planned for later summer or early fall of 2017.

Monitoring

Monitoring of project effects would follow an adaptive management framework. Control areas would be established in non-treatment areas of similar forest type and would be used to compare forest structure and individual tree response.

Required Approvals

Santa Cruz County, Riparian Exception;

Monterey Bay Unified Air Pollution Control District, Smoke Management Permit.

California Department of Forestry and Fire Protection, Vegetation Management Plan.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

III. ENVIRONMENTAL REVIEW CHECKLIST

A. AESTHETICS AND VISUAL RESOURCES

Will the project:

1. *Have a substantial adverse effect on a scenic vista?* ☐ ☐ ☐ ☒

Discussion: The project site is within the 8,500-acre San Vicente Redwoods property, and is distant from and not visible from the closest publicly-accessible areas, which are along Empire Grade and Highway 1. The project therefore would not block, alter, or degrade publicly-accessible scenic views. The project would not directly impact any public scenic resources, as designated in the County's General Plan (County of Santa Cruz, 1994), or obstruct any public views of these visual resources.

2. *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?* ☐ ☐ ☐ ☒

Discussion: State Highway 1 is an eligible, but not officially-designated State scenic highway within Santa Cruz County (CalTrans, 2017). However, the project site, which is deep within a canyon several miles inland from Highway 1, is not visible from the highway. Therefore, the project does not have the potential to damage scenic resources within a State scenic highway.

The project site is not located along a County designated scenic road, public viewshed area, scenic corridor, within a designated scenic resource area, or within a state scenic highway. No scenic rock outcrops nor historic buildings exist within the project site. The project would result in the cutting of trees, but the overall visual character of the forest would not be adversely affected. Therefore, no impact is anticipated.

3. *Substantially degrade the existing visual character or quality of the site and its surroundings?* ☐ ☐ ☐ ☒

Discussion: The project would not result in a change in topography or ground surface relief features and would not result in development of a ridgeline. The project would not degrade the existing visual character or quality of the project site and its surroundings. The project site has considerable scenic quality in the form of a dense native forest. The project would not alter the overall scenic quality or character of the native forest. Restoration treatments undertaken as a part of the project would remove mostly smaller trees, leaving the larger, more visible and aesthetically important trees. Long-term, the

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

project is intended to restore the old-growth character of the forest, which would constitute an improvement in its visual character and quality.

4.	*Create a new source of substantial light or glare which will adversely affect day or nighttime views in the area?*	☐	☐	☐	☒

Discussion: The project would not result in the development of any structures, infrastructure, or other features that would be artificially lit. Nor would the project create reflective surfaces. The project therefore would not result in new sources of light or glare.

B. AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Will the project:

1.	*Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*	☐	☐	☐	☒

Discussion: The project site does not contain any lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency (California Department of Conservation, 2014). In addition, the project does not contain Farmland of Local Importance. Therefore, no Prime Farmland, Unique Farmland, Farmland of Statewide or Farmland of Local Importance could be converted to a non-agricultural use. No impact would occur from project implementation.

2.	*Conflict with existing zoning for agricultural use, or a Williamson Act contract?*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: The project site is zoned TP Timber Production, which is not considered to be an agricultural zone (see Attachment 1, Zoning Map). Additionally, the project site's land is not under a Williamson Act Contract. Therefore, the project does not conflict with existing zoning for agricultural use, or a Williamson Act Contract. No impact is anticipated.

3.	*Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*	☐	☐	☐	☒

Discussion: The project site and the San Vicente Redwoods property as a whole are zoned TP (Timber Production). In addition to growing and harvesting timber, principal permitted uses include habitat management for fish and wildlife and watershed management. The project seeks to grow timber, improve habitat for fish and wildlife, and preserve and enhance water quality and watershed function of the forest. The project is therefore consistent with the TP zoning, and would not require rezoning. There would be no impact of this kind.

4.	*Result in the loss of forest land or conversion of forest land to non-forest use?*	☐	☐	☐	☒

Discussion: The project will implement restoration treatments to restore and enhance the existing redwood and redwood-Douglas fir forest, and to establish conditions for the forest to return to its pre-disturbance character and habitat function. The project therefore would not result in the loss of forest land or conversion of forest land to non-forest use, and there would be no impact of this kind.

5.	*Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: The project is intended to be a pilot project to test and demonstrate treatments for restoration of degraded native forests to enable them to regain, eventually, their pre-disturbance, old-growth character and ecological function. The project would not interfere with or prevent timber harvest and agricultural uses in nearby areas, including timber harvest elsewhere within the San Vicente Redwoods property. The project therefore would not be expected to result in the conversion of nearby farmland or timberland to non-agricultural or non-forest uses, and there would be no impact of this kind.

C. AIR QUALITY

The significance criteria established by the Monterey Bay Unified Air Pollution Control District (MBUAPCD) has been relied upon to make the following determinations. Will the project:

1.	*Conflict with or obstruct implementation of the applicable air quality plan?*	☐	☐	☒	☐

Discussion: The project would not conflict with or obstruct implementation of the regional air quality plan.

The North Central Coast Air Basin does not meet state standards for ozone and particulate matter (PM_{10}). Therefore, the regional pollutants of concern that would be emitted by the project are ozone precursors (Volatile Organic Compounds [VOCs] and nitrogen oxides [NO_x]), and dust.

For the construction phase of projects, the MBUAPCD has established a significance threshold of 82 pounds per day of PM10 emissions, and states that this threshold would not be expected to be exceeded by projects involving minimal earthmoving or grading on up to 8.1 acres per day.[1] PM10 emissions from construction activities are mostly from earth moving and movement of vehicles and equipment over bare earth surfaces. Since the project involves neither earthmoving nor use of mobile equipment, the MBUAPCD's PM10 threshold for construction activities would not be expected to be exceeded.

The MBUAPCD states that construction-related emissions of ozone precursors, including volatile organic compounds (VOC) and oxides of nitrogen (NO_x), are typically associated with use of diesel-powered equipment. No diesel-powered equipment is proposed to be used in the project.

Small amounts of pollutants would be emitted by gasoline-powered equipment used in the project, including chainsaws, and by vehicles used by crew and personnel to access the site. Vehicle emissions would include tailpipe emissions and dust emissions from travel over unpaved roads on the San Vicente Redwoods property. Given the modest amount of new traffic that would be generated by the project, the short-term nature of project implementation, and the use of only light gasoline-powered equipment, there is no indication that new emissions of VOCs or NO_x would exceed

[1] Monterey Bay Unified Air Pollution Control District, 2008. CEQA Air Quality Guidelines.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

MBUAPCD thresholds for these pollutants and therefore there would not be a significant contribution to an existing air quality violation.

Mitigation Measures AIR-1: The project would include burning of slash during the winter following application of forest thinning treatments. Pile burning would be conducted under the terms of a Smoke Management Permit for Prescribed (Rx) Burning issued by the MBUAPCD, pursuant to District Rule 438 (Open Outdoor Fires). Under this permit, pile burning would occur only during burn season (December 1-April 30), on days when smoke would not result in a substantial degradation of air quality ("burn days"). The permit would require burning to be conducted in a manner to ensure rapid and complete combustion and to minimize smoke generation. Applicable requirements of Rule 438 intended to ensure that smoke does not result in a nuisance or substantial degradation of air quality include the following:

- Materials to be burned shall be reasonably free of dirt and soil.
- Tree stumps more than six inches in diameter shall have been dried for at least 180 days prior to burning.
- Trees, branches and prunings more than two inches but equal to or less than six inches in diameter shall have been dried for at least 60 days prior to burning.
- Trees, branches and prunings equal to or less than two inches in diameter and plant trimmings shall have been dried for at least 30 days prior to burning.
- Material to be burned shall be arranged to provide adequate aeration to allow the material to burn with a minimum of smoke.
- Material containing poison oak shall not be burned where in the opinion of the Air Pollution Control Officer the smoke from the burning operations could adversely affect adjacent or nearby residences.
- Only approved ignition devices shall be used for ignition.
- Burning shall not commence when the wind direction would blow smoke toward a Smoke Sensitive Area or populated area which would be adversely affected by the smoke.

Adherence to the terms of the Smoke Management Permit for Prescribed Burning, which would likely include the requirements listed above and potentially additional conditions, would ensure that the project does not result in emission of smoke that becomes a nuisance or that substantially degrades air quality.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. *Violate any air quality standard or contribute substantially to an existing or projected air quality violation?*	☐	☐	☒	☐

Discussion: The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. See K-1 above.

3. *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*	☐	☐	☒	☐

Discussion: The project would result in a small, short-term incremental increase in emissions of criteria pollutants from vehicles (see Transportation section) and operation of light power equipment. This would not be expected to make a considerable contribution to cumulative criteria pollutant levels.

4. *Expose sensitive receptors to substantial pollutant concentrations?*	☐	☐	☒	☐

Discussion: As previously noted, the nearest sensitive receptors to the project site are about 2,000 to the east, across Empire Grade. The project would not be expected to result in substantial pollutant concentrations at the site of this or other receptors. There would be a very small, short-term incremental increase in CO and other pollutant concentrations along roadways used by project crew and personnel travelling to and from the site. This would not result in substantial pollutant concentrations.

Pile burning under the terms of a MBUAPCD Smoke Management Permit for Prescribed Burning would be limited to days with favorable atmospheric conditions, when smoke would not be expected to result in substantial concentration of pollutants at the location of nearby sensitive receptors.

5. *Create objectionable odors affecting a substantial number of people?*	☐	☐	☒	☐

Discussion: Pile burning under the terms of a MBUAPCD Smoke Management Permit for Prescribed Burning would be limited to days with favorable atmospheric conditions, when smoke would not be expected to result in the emission of odors that would affect a substantial number of people.

D. BIOLOGICAL RESOURCES

Will the project:

1. *Have a substantial adverse effect, either directly or through habitat modifications,*	☐	☒	☐	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, or U.S. Fish and Wildlife Service?

Discussion: A Biotic Report was prepared for this project by the San Vicente Redwoods property manager and Registered Professional Forester, Nadia Hamey, dated March 5, 2017. As stated in the Biotic Report, the California Natural Diversity Data Base (CNDDB), maintained by the California Department of Fish and Game, indicates that several special status species have been observed in proximity to the project site, though none have been observed within the project site. As shown in the Biotic Report's tables of special status species with potential to occur within the project area, there is a low likelihood of occurrence of any special status plant species within the project area. This is due to the lack of suitable habitat in the project area.

Protection of Sensitive Resources

As described in the Report and further discussed in Section III.C, Biological Resources, the project site is not known to support special status species, and as discussed in Section III.G, the project site contains no recorded or identified archeological resources. Because, however, the project site is within close proximity to observed locations of special status species, and potentially suitable habitat exists in the project area, their presence within the project site is possible. The project applicant has initiated a General Biological Consultation (pre-project consultation) with the California Department of Fish and Wildlife (CDFW) and will incorporate into the project any recommendations for protection of sensitive biological resources contained in an anticipated consultation letter from CDFW. In addition, the project will incorporate the following measures to protect sensitive resources which may be present within or nearby the project site:

Mitigation Measure BIO-1: Coho Salmon (*Oncorhynchus kisutch*) and Steelhead Trout (*Oncorhynchus mykiss*)

Central California Coast Evolutionary Significant Unit (ESU) coho salmon are listed as threatened under the federal Endangered Species Act (ESA) and endangered under the California ESA. Central California Coast ESU steelhead are listed as federally threatened and are a State Species of Special Concern. While the project site is above the limit of anadromy for both species, contamination of streams within the project site with sediment and organic debris, and alteration of surface hydrology, could affect areas downstream in Big Creek and Scott Creek, which provide spawning and rearing habitat for these species. For this reason, the following protective measures are included in the project:

- Within the channel zone, a minimum 80 percent canopy closure will be maintained, where present; within the riparian corridors, a minimum 60 percent canopy closure will be maintained, where present.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

- To the extent practical, trees will not be felled across or adjacent to streams. If a tree inadvertently lands in the watercourse it shall be brought to the attention of the RPF. If the presence of the wood has the potential to negatively impede the flow of water that section of wood shall be bucked out immediately by hand. Trees shall not be felled into, or across a watercourse where negative impacts to the beneficial uses of water are anticipated. No sediment shall be discharged as a result of cross-falling.
- Any bare soil exceeding 100 contiguous square feet resulting from project operations will be covered with limbs or other slash;
- Slash will be removed from the riparian corridor where not stabilized.

Mitigation Measure BIO-2: California Red-legged Frog (*Rana aurora draytonii*)

California red-legged frog is listed as threatened under the federal ESA and as a Species of Special Concern by CDFW. As shown in the CNDDB map contained in the Biotic Report, the closest observation of California red-legged frog (*Rana draytonii*) is several miles away from the project site. No suitable breeding and rearing habitat for this species has been observed within the project site. Because the species disperses into a wide variety of habitat types during the non-breeding season, including moist forests well away from standing or flowing water, the project includes implementation of take avoidance measures promulgated by the U.S. Fish and Wildlife Service (USFWS, 2008).

To avoid impacts to California red-legged frog, the project will proceed in accordance with the avoidance measures outlined below. These measures are based on guidelines developed by the U.S. Fish and Wildlife Service (USFWS, 2008) with slight modifications adapted to site-specific conditions, which have been developed by the project Forester who has training in CRLF life history and habitat requirements. In addition, through the requested pre-consultation, USFWS will ascertain the suitability of the project site for this species and may provide additional mitigation for species protection, which will be incorporated into the project.

1. Prior to operations occurring in the wet season, the project Forester or a qualified biologist will conduct a biological resources education program for workers, and will appoint a crew member to act as an on-site biological monitor. The educational program will include a description of the California red-legged frog and its habitat, and the guidelines that should be followed by all project personnel to avoid take of the species. Educational programs will be conducted for new personnel before they join project activities. Color photographs will be used in the training session, and a qualified person will be on hand to answer questions. For purposes of protection of red-legged frogs, the wet season begins with the first frontal rain system depositing a minimum of 0.25 inches of rain after October 15 and ending on April 15. In the absence of rain events that total at least 0.25 inches as measured at the Ben Lomond rain gauge, wet season restrictions will nevertheless apply on November 30.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

2. For wet-season operations, before project activities begin each day, the project Forester or a biological monitor will inspect under any equipment left overnight to look for California red-legged frogs. If a red-legged frog is found, the red-legged frog will not be relocated or captured, and all activities that could result in take will cease and the sighting will be reported to CDFW, USFWS, and the County of Santa Cruz, along with measures being implemented to avoid take of the individual. Activities related to the observation shall not commence until approved by the agencies.

3. Trees shall be felled away from riparian habitat, including springs, seeps, bogs, and other wet areas with saturated ground in most cases; however, in site-specific situations to improve the safety of operations or to better protect residual vegetation and the beneficial uses of water within the watercourse, trees may be felled in whichever direction spares the most residual vegetation, including parallel to or toward a watercourse, where circumstances warrant it. Prior to cross-falling, the project Forester or a biological monitor will walk the lay of the tree to check any potential habitat for California Red-legged frogs. If any are found, protection and reporting measures described in #2 will be followed.

4. All burn piles will be inspected for red-legged frogs prior to burning. If a red-legged frog is found, the red-legged frog will not be relocated or captured, and all activities that could result in take will cease and the sighting will be reported to CDFW, USFWS, and the County of Santa Cruz, along with measures being implemented to avoid take of the individual.

5. All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies. Supervisors will insure that all vehicles and equipment are inspected for fuel leaks, oil leaks, and other fluid leaks before and during their use on the San Vicente Redwoods property, to ensure that aquatic and upland habitats are not contaminated. Prior to the onset of work, the project Forester will ensure that a plan is in place for prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take shall a spill occur. A spill kit shall be kept on site at all times.

6. No herbicide use shall occur within the riparian corridor or within 30 feet of any suitable habitat except for direct application to stumps.

7. During project activities, all trash that may attract predators will be put in sealed trash containers, removed from the work site, and disposed of regularly. Following project activities, all trash and debris will be removed from work areas.

Mitigation Measure BIO-3: Nesting Birds

All nesting bird species are protected by the Migratory Bird Treaty Act. For any project activities planned during the nesting season (March 15-August 15), harm to active nests will be avoided through diligent nest searches conducted by the project Forester during project lay-out and tree marking, as well as by tree fallers prior to falling each tree. If nests are located which have indicators of current nesting activity, project

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

operations shall cease in the vicinity. Setbacks shall be 150 feet for passerines (songbirds) and 300 feet for raptors. The project Forester, in consultation with a qualified biologist, will determine the nesting status and species and will formulate appropriate protection measures. The sighting will be reported to CDFW and the County of Santa Cruz, along with measures being implemented to avoid take of the individual. Activities in the vicinity shall not commence until approved by the agencies.

Mitigation Measure BIO-4: Marbled Murrelet (*Brachyramphus marmoratus*)

The marbled murrelet is listed as endangered under the State ESA and threatened under the federal ESA. While there have been no known detections of marbled murrelet within or adjacent to the project site, there have been several detections in the area, and potentially suitable nesting habitat exists within the San Vicente Redwoods property south of the project site.

As discussed in more detail in the Biotic Report, the project Forester has conducted a survey of potentially suitable nesting trees for marbled murrelet within the project site, and has initiated pre-project consultation with CDFW. Based on the outcome of the consultation, any necessary protective measures to avoid take of this species will be incorporated into the project, as described here.

Mitigation Measure BIO-5: San-Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)

The San Francisco dusky-footed woodrat is a CDFW Species of Special Concern. Dusky-footed woodrats occur within and adjacent to the project area and are common and widespread throughout forested and chaparral habitats of the Santa Cruz Mountains. Woodrat houses (lodges or nests) made of sticks are usually built at the base of a shrub or tree. Individual houses may be occupied by successive generations for decades. Woodrat nests will be flagged for avoidance with special treatment flagging. During falling operations, trees will be aimed away from woodrat nests. The intent is to avoid damaging or destroying woodrat nests.

Mitigation Measure BIO-6: Plants

The project area has been assessed for the potential presence of several rare plant species, described in Table 2 of the Biological Resources Assessment prepared for the project (Attachment 4). Botanical reconnaissance has been conducted on foot on multiple days throughout the project area over the course of project layout. This reconnaissance included a significant sample of all habitat types, ecotones, and elevation extremes. All vascular plants observed during this recon were identifiable to a sufficient taxonomic level to determine their rarity and listing status. No threatened or endangered plants were detected during the botanical survey, including plants such as the Santa Cruz cypress (*Cupressus abramsiana*), Santa Cruz Mountains pussypaws (*Calyptridium parryi var. hesseae*), Santa Cruz Mountain beardtongue (*Penstemon rattanii var. kleei*) and Santa Cruz microceris (*Microceris decipiens*). Two plant species of botanical interest were discovered to have habitat within the project area. Measures to avoid impacts to these species are described below. Botanical reconnaissance will continue during site visits and monitoring preceding project implementation. If any

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

listed plant species are discovered, individual plants shall be flagged for avoidance and protected from harm to the extent feasible throughout project activities.

In order to minimize the possible spread of Sudden Oak Death (*Phytophthora ramorum*), Best Management Practices will be followed to mitigate the chance of pathogens leaving potential host locations. Mitigation measures will include routing equipment away from potential host locations, inspecting equipment for debris, and sanitizing all equipment and shoes before leaving the project site.

Mitigation Measure BIO-7: Point Reyes horkelia (*Horkelia marinensis*)

Point Reyes horkelia is a feathery forb species with white flowers that is on the CNPS 1B.2 list. A small colony of 5-10 plants was discovered along the Gate 21 access road adjacent to PG&E powerlines. This species occurs in coastal prairie habitats or openings in oak woodland/mixed evergreen forests. The individual plants discovered along the access road shall be flagged for avoidance and protected from harm to the extent feasible throughout project activities.

Mitigation Measure BIO-8: Santa Cruz Manzanita (*Arctostaphylous andersonii*)

Santa Cruz manzanita is an evergreen shrub with no state or federal listing and is a species on the CNPS 1B list. This species is widespread throughout Ben Lomond Mountain and is especially prevalent on the ridges in small openings and on forest edges. CNDDB indicates multiple records covering thousands of plants within 5 miles of the project area. Though this Santa Cruz Mountains endemic is relatively common within the Scotts Creek watershed in its preferred habitat of forest openings or edges, only a few gangly specimens were located on the edges of the project area over the course of layout, having been shaded out by the surrounding forest. These individuals will be flagged for avoidance during treatment activities. This obligate-seeder depends on disturbance to reduce competition and assist in the germination of its very hard seeds. Types of disturbance include timber-harvest related activities such as road and trail maintenance as well as forest thinning. Therefore, it is possible that this species may appear following these latter activities, which temporarily improve the light conditions that this species requires.

Significance after mitigation: Less than significant.

2.	*Have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations (e.g., wetland, native grassland, special forests, intertidal zone, etc.) or by the California*	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Discussion: The project site includes approximately 16 acres of riparian corridor, as defined in the Santa Cruz County Riparian Ordinance. Development within the riparian corridor, including removal of trees, is prohibited unless the County grants a Riparian Exception. The Riparian Exception can only be granted if the County makes certain findings. Robynn Swan of CDFW stated that the State would not be requiring a 1602 Lake and Streambed Alteration permit, as the project would not divert or change the stream nor deposit debris that would pass into any other body of water.

The project is intended to enhance and restore the native riparian redwood forest within the project site. While short-term disturbance of the riparian corridor would occur as a consequence of project implementation, the protections for riparian habitat already included as part of the project, and any additional measures incorporated into the project pursuant to the mitigation measures listed, will ensure that the project does not have a substantial adverse effect on any riparian habitat or sensitive natural community. The impact would therefore be less than significant.

3.	*Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*	☐	☐	☒	☐

Discussion: While a wetland delineation has not been performed for the project site, Middle Big Creek, there are some larger tributaries and swales, and occasional seeps and springs within the project site. Due to the steep hillsides and sloping stream channel, it is unlikely that a wetland exists within the project site. However, mitigation measures for sensitive resources, including falling trees away from stream channels, springs, and seeps; not cutting of trees within the banks of stream channels; leaving in place existing large woody debris within and adjacent to stream channels; removal of unstable slash from riparian areas; and erosion control measures for any disturbed soil would ensure that the project does not result in any dredging, filling hydrological interruption, or other disturbance of the sensitive species. Where thinning of trees in or near the riparian area is indicated by the treatment prescription, trees may be girdled or killed with herbicide injection using triclopyr (Garlon 3A) and left standing, following Best Management Practices (Attachment 2), in order to reduce disturbance. No impact are anticipated in the riparian areas.

4	*Interfere substantially with the movement of any native resident or migratory fish or wildlife species or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: The proposed project does not involve any activities that would interfere with the movements or migrations of fish or wildlife, or impede use of a known wildlife nursery site. The project includes provisions to protect fish and wildlife habitat, as described in the Project Description in Section II, Background. While Scott Creek and the lower reaches of Big Creek support steelhead trout (*Onchorhyncus mykiss*) and coho salmon (*Oncorhynchus kisutch*), a natural barrier on Big Creek downstream of the San Vicente Redwoods property is the limit of anadromy in this system. Middle Big Creek may support resident rainbow trout in its lower reaches.

No aspect of the project would result in a barrier to fish or wildlife migration or impede the use of native or migratory wildlife nursery sites. Stream protection measures, including falling trees away from stream channels, removal of slash from the riparian area, and leaving in place existing large woody debris in and adjacent to streams, will ensure that aquatic habitat and fish migration are not impeded. There would be no impact of this kind.

As discussed in more detail in the Biotic Report, the project Forester has conducted a survey of potentially suitable nesting trees for marbled murrelet within the project site, and has initiated pre-project consultation with CDFW. Based on the outcome of the consultation, any necessary protective measures to avoid take of this species will be incorporated into the project, as described in the mitigation measures listed under Mitigation Measure BIO-3 above.

5.	*Conflict with any local policies or ordinances protecting biological resources (such as the Sensitive Habitat Ordinance, Riparian and Wetland Protection Ordinance, and the Significant Tree Protection Ordinance)?*	☐	☒	☐	☐

Discussion: The project site does not contain sensitive habitat, as defined in the Santa Cruz County Sensitive Habitat Ordinance (Santa Cruz County Code Section 16.32.040). As discussed under item C.1, above, consultation with CDFW will be relied upon to determine whether any of the project site provides suitable habitat for marbled murrelet or other special status species. If so, protection measures will be implemented, per mitigation measures, thus ensuring consistency with the Sensitive Habitat Ordinance. Because the project site is not located within the County Coastal Zone, the Significant Tree Protection Ordinance does not apply. In summary, with incorporation mitigation measures, the project would not conflict with local policies or ordinances protecting biological resources.

6.	*Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

approved local, regional, or state habitat conservation plan?

Discussion: The San Vicente Redwoods property is not within the boundaries of any Habitat Conservation Plan or Natural Community Conservation Plan. The proposed project would not conflict with the provisions of any adopted Habitat Conservation Plan Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

7. *Produce nighttime lighting that will substantially illuminate wildlife habitats?* ☐ ☐ ☐ ☒

Discussion: The project would not result in or involve any nighttime lighting. No impact of this kind would occur.

E. CULTURAL RESOURCES

Will the project:

1. *Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?* ☐ ☐ ☐ ☒

Discussion: There are no existing structures within the project site.

2. *Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?* ☐ ☒ ☐ ☐

Discussion: As discussed in Attachment 3, Cultural Resources Documentation a records search conducted by the Northwest Information Center on February 8, 2013 (NIC File Number: 12-0751) covered the entire San Vicente Redwoods property. No records of historic or prehistoric resources located within the project site were found in the records search, though there are numerous records from elsewhere within the San Vicente Redwoods property. In addition, the project Forester has conducted a preliminary reconnaissance survey of the project site, and has not found any indication of historic or prehistoric resources. The project site contains few areas considered favorable for use by Native Americans, such as ridgelines, watercourse confluences, stream terraces, mid-slope benches, ecotones, and forest openings. Therefore, the likelihood of presence of prehistoric resources is considered low within the project site. However, pursuant to Section 16.40.040 of the Santa Cruz County Code, if archeological 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.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
3. *Disturb any human remains, including those interred outside of dedicated cemeteries?*	☐	☒	☐	☐

Discussion: Pursuant to Section 16.40.040 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 persons 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 archeological report shall be prepared and representatives of the local Native California Indian group shall be contacted. Disturbance shall not resume until the significance of the archeological resource is determined and appropriate mitigations to preserve the resource on the site are established.

4. *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*	☐	☐	☒	☐

Discussion: No paleontological resources have been identified within the project site, and the project site is not known to contain fossil-bearing rock types.

F. GEOLOGY AND SOILS

Will the project:

1. *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*				
A. *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.*	☐	☐	☐	☒
B. *Strong seismic ground shaking?*	☐	☐	☐	☒
C. *Seismic-related ground failure, including liquefaction?*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
D. Landslides?	☐	☐	☐	☒

Discussion (A through D): The project site is located outside of the limits of the State Alquist-Priolo Special Studies Zone (County of Santa Cruz GIS Mapping, California Department of Conservation, Division of Mines and Geology, various dates). The project site is located approximately seven miles southwest of the San Andreas fault zone, approximately one and a half miles south of the Zayante fault zone and approximately five miles northeast of the San Gregorio fault zone. While the San Andreas fault is larger and considered more active, each fault is capable of generating moderate to severe ground shaking from a major earthquake. Consequently, large earthquakes can be expected in the future. The October 17, 1989 Loma Prieta earthquake (magnitude 7.1) was the second largest earthquake in central California history.

All of Santa Cruz County is subject to some hazard from earthquakes. However, the project site is not located within or adjacent to a County or state mapped fault zone, and therefore the potential for ground surface rupture is low. The project site is likely to be subject to strong seismic shaking at some point in the future. The project, however, involves no construction and would not subject people or structures to potential substantial adverse effects, including the risk of loss, injury, or death related to seismic events.

2. Be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒

Discussion: The project site is underlain by deeply-weathered quartz diorite of the Salinian block (Brabb, 1997). Soils within the project site are mapped by the NRCS as Sur-Catelli complex (NRCS, 2017), described as "moderately deep, somewhat excessively drained soils on mountains (Bowman and Estrada, 1980). The project involves no development of structures and no earth movement or other substantial ground disturbance. Following a review of mapped information and a field visit to the site, there is no indication that the project site is subject to a significant potential for damage caused by any of these hazards.

3. Develop land with a slope exceeding 30%?	☐	☐	☒	☐

Discussion: While slopes within portions of the project site exceed 30%, the project proposes no constructed improvements, grading, or earth movement on slopes in excess of 30%.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
4. *Result in substantial soil erosion or the loss of topsoil?*	☐	☐	☒	☐

Discussion: The NRCS assigns the Sur-Catelli complex soils of the project site a "very severe" erosion hazard rating (NRCS, 2017). However, the project would not involve grading or other earth movement, and would not result in substantial disturbance of soil. Work crews will access the project site on foot. Falling of trees may result in minor soil disturbance, but felled trees will be left in place, thereby avoiding soil disturbance associated with skidding operations. Any bare soil caused by project operations will be covered with limbs and other slash to reduce surface erosion and stabilize the ground surface. Because little soil disturbance would occur, and that which will occur will be treated with erosion control measures, the project is not expected to result in substantial soil erosion or the loss of topsoil, despite the project site soils being highly susceptible to erosion.

5. *Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007), creating substantial risks to life or property?*	☐	☐	☐	☒

Discussion: The NRCS Soil Survey of Santa Cruz County states that Sur-Catelli complex soils have low shrink-swell potential (Bowman and Estrada, 1980). There is no indication that the project site is subject to expansive soils. The project would not involve construction of any building and therefore would not result in risks to life or property associated with construction on expansive soils.

6. *Have soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative waste water disposal systems where sewers are not available for the disposal of waste water?*	☐	☐	☐	☒

Discussion: No septic systems or sewer connections are proposed as part of the project.

7. *Result in coastal cliff erosion?*	☐	☐	☐	☒

Discussion: The proposed project is not located in the vicinity of a coastal cliff or bluff; and therefore, would not contribute to coastal cliff erosion.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

G. GREENHOUSE GAS EMISSIONS

Will the project:

1. *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*	☐	☐	☒	☐

Discussion: The project would result in an incremental increase in greenhouse gas emissions, primarily carbon dioxide (CO_2), from combustion of fossil fuels. Emissions would be limited to the project implementation period (2-3 months). Sources would include gasoline and oil used in chainsaws, and gasoline and diesel used in passenger vehicles and light trucks used by project crew and personnel to access the project site. Table L-1 provides an estimate of the volume of CO_2 equivalent (CO_2e) emissions from combustion of fossil fuels (factors, assumptions, and calculations used to produce the estimates in Tables L-1. The table shows that total estimated emissions from combustion of fossil fuels would be about 2.2 metric tons of CO_2 equivalent. This would not be considered a significant impact.

The project would also result in emission of "biogenic" CO_2 through oxidation of elemental carbon contained in plant materials that are cut as part of the restoration thinning project. Biogenic CO_2 emissions generally are not considered a contributor to global warming, because they are part of the natural cycle of carbon accumulation and release in living and dead organic matter. The project would emit biogenic CO_2 through the burning of piles of branches and other cut vegetation in the first winter after project implementation, and through a longer process of decomposition of material that is cut but not burned. Table L-1 shows that the estimated volume of biogenic emissions is 63.2 metric tons of CO_2 in the first year after project implementation, and 33 tons per year for each of the following nine years. Thereafter, the annual volume of emissions from decomposition of plant material would diminish.

Long-term, the restoration treatments implemented through the project are expected to increase the growth rate and longevity of the forest and therefore the rate and total volume of sequestration of atmospheric carbon in forest biomass. Based on calculations presented in Table L-2, the growth of conifers (primarily redwood) within the project area may be expected within about four years to sequester more CO_2 from the atmosphere than would be emitted by the project, and to continue to sequester carbon at an increasing rate for many years. Furthermore, not all the carbon contained in the cut plant material, both that which is burned and that which is left to decompose, would be emitted as CO_2. A portion would be sequestered as soil organic carbon or leaf litter. In summary, the project would result in a relatively small volume of biogenic emissions of CO_2 in the short-term, and would result in increased sequestration of carbon from the atmosphere in the long-term. Emissions of biogenic CO_2 would be less than significant.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Table L-1

Activity/Emission Source	Estimated Emissions (Metric Tons CO_2e)
Fossil Fuel Combustion	
Transportation for falling and brushing crews	0.8
Chainsaw use	1.4
Subtotal: Emissions from Fossil Fuel Combustion	**2.2**
Biogenic Sources	
Pile burning	30.2
Decomposition of cut vegetation (emitted over a 10-year period)	329.6
Subtotal: First Year Biogenic Emissions	**63.2**
Subtotal: Biogenic Emissions per Year, Years 2-9	**33**

Table L-2

Years to Offset CO2 emissions

Calculations/Values	Per Acre	Per Project - 30 acres of conifer stands
Standing Conifer - Pre-Project - Thousand Board Feet (MBF) (based on ESA, 2015)	22	660
Conifer cut in project - percent of standing biomass	15%	15%
Standing Conifer - Post-Project -MBF	18.7	561
Biogenic CO2 emissions - total (from above calculations) - Metric Tons	12.0	359.8
Growth Rate - MBF/Year	0.6	18
Elemental C Accumulation per Year - Metric Tons	1.0	30.3
CO2 Sequestration per Year - Metric Tons	3.7	111.2
Years to Offset CO2 emissions	**3.24**	**3.24**
Factors:		
metric tonnes C per MBF (redwood - from CalFire, 2010,)	1.68	
Metric Tonnes CO2 per Tonne C	3.67	

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*	☐	☐	☐	☒

Discussion: The County of Santa Cruz adopted a Climate Action Strategy in 2013. The strategy includes the following statement regarding forests (references have been omitted):

> According to the State "Climate Change Scoping Plan" California's forests remove approximately 5 million net metric tons of CO_2e (carbon dioxide equivalent) from the atmosphere annually. This occurs because there is more CO_2 removed from the air by tree growth than there is emitted by wildfires, wood combustion, wood decomposition, land conversion and other forestry related emissions. This sequestration, or "carbon sink", is a valuable ecosystem service provided by forests. The 143,000 acres of redwood and redwood-Douglas fir forests and 19,900 acres of oak woodland in Santa Cruz County contribute to this service. Forest lands in the County currently store around 56 million metric tons CO_2e. State-wide, carbon sequestration by forests is supported by sustainable management practices administered by California's Board of Forestry and Fire Protection as well as initiatives of other state agencies to conserve biodiversity, provide recreation, and promote sustainable forest management. Santa Cruz County is well positioned in terms of local forest practice, rural development policies that conserve timber, and conservation efforts to maintain the carbon sequestration benefits of forest lands in the County. About one quarter of county land area, or about 77,000 acres, is in conservation status and 71,000 acres are reserved timberlands.

As described above under L1, the project is expected to contribute to the ecosystem service of carbon sequestration provided by forest lands in Santa Cruz County, and is consistent with the statement above quoted from the County's Climate Action Strategy.

H. HAZARDS AND HAZARDOUS MATERIALS

Will the project:

1. *Create a significant hazard to the public or the environment as a result of the routine transport, use or disposal of hazardous materials?*	☐	☐	☒	☐

Discussion: Other than small quantities of gasoline, oil, and potentially herbicides for use during the brief period of project operations, the project would not result in the routine transport, use, or disposal of hazardous materials. All such materials will be stored in proper containers and used properly. Fueling and oiling of chainsaws and any other gasoline-powered equipment will occur in designated areas away from streams and sensitive resources. Therefore, the project is not expected to create a significant hazard to the public or the environment related to hazardous materials.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*	☐	☐	☒	☐

Discussion: The nearest school is Bonny Doon Elementary School, which is located approximately 5 miles to the south. The project is not expected to result in hazardous emissions.

3. *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*	☐	☐	☐	☐

Discussion: While the potential for spills or other upset and release of hazardous materials is always a possibility with the use of gasoline, oil, and herbicides, the potential for such release will be minimized by careful and proper transport, handling, and storage of such materials. No hazardous materials will be stored on site. Any hazardous materials that are needed will be brought to the site as needed and unused materials will be removed at the end of each work day. Designated fueling and mixing areas will be established and demarcated distant from waterways and other sensitive resources. Fueling and mixing will not occur on bare ground, but will utilize temporary containment facilities, such as drip pans or other containers. A spill kit be kept at the fueling and mixing sites and used to contain any inadvertent spills. In this way, the project is not expected to create a significant hazard to the public or the environment through upset or accident involving hazardous materials.

4. *Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, will it create a significant hazard to the public or the environment?*	☐	☐	☐	☒

Discussion: The project site is not included in the California Department of Toxic Substances Control's EnviroStor database of hazardous sites in Santa Cruz County, searched on January 26, 2017.

5. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, will the project result in a safety hazard for people residing or working in the project area?*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: The project site is not located within an airport land use plan or within two miles of a public airport or public use airport.

6.	*For a project within the vicinity of a private airstrip, will the project result in a safety hazard for people residing or working in the project area?*	☐	☐	☐	☒

Discussion: The closest private airstrip is in Bonny Doon, about 4 miles southeast of the project site. No aspect of the proposed project would interfere with the operation of aircraft using this airstrip, and the project would not result in a safety hazard related to operation of the airstrip for people residing or working in the area.

7.	*Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*	☐	☐	☐	☒

Discussion: The project would not alter roadways, inhibit emergency vehicle access, or otherwise interfere with an adopted emergency response plan or emergency evacuation plan.

8.	*Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*	☐	☐	☒	☐

Discussion: The closest electrical transmission lines are the existing lines that run roughly parallel to empire grade, within the San Vicente Redwoods property. The northernmost area of the project site comes within several hundred feet of the powerline. The project, however, would not place new residents or long-term workers in proximity to the powerlines. Any exposure to electro-magnetic fields would be short-term and transitory.

I. HYDROLOGY, WATER SUPPLY, AND WATER QUALITY

Will the project:

1.	*Violate any water quality standards or waste discharge requirements?*	☐	☐	☐	☒

Discussion: The project does not violate any water quality standards or waste discharge requirements.

2.	*Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there will be a net deficit in aquifer volume or a*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells will drop to a level which will not support existing land uses or planned uses for which permits have been granted)?

Discussion: The project does not include any development that would require a water supply. Groundwater would not be used nor adversely affected by the project.

3. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which will result in substantial erosion or siltation on- or off-site?*	☐	☐	☐	☒

Discussion: The project does not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site.

4. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which will result in flooding, on- or off-site?*	☐	☐	☒	☐

Discussion: Trees will be felled away from stream channels and unstable limbs, leaves, and other slash will be removed from the vicinity of streams and scattered or piled and burned upslope, according to the project's Vegetation Management Plan. Therefore, felled trees would not alter the course of a stream. Felled trees will be left on the ground as large woody debris. This will tend to slow runoff and increase infiltration, which may have the beneficial effect of reducing erosion and peak discharge, and incrementally reducing the potential for flooding downstream.

5. *Create or contribute runoff water which will exceed the capacity of existing or planned storm water drainage systems, or provide substantial additional sources of polluted runoff?*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: The project site is within a natural watershed and is unserved by constructed storm water drainage systems. As described above under items B.5 and B.7, the project would not result in substantial sources of polluted runoff.

6.	*Otherwise substantially degrade water quality?*	☐	☐	☒	☐

Discussion: Other than small amounts of contaminants from chainsaw use and small amounts of organic material from tree falling and slash management, the project is not expected to result in any adverse effects on water quality.

7.	*Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*	☐	☐	☐	☒

Discussion: The project does not involve any construction or other development that could be affected by flooding.

8.	*Place within a 100-year flood hazard area structures which will impede or redirect flood flows?*	☐	☐	☐	☒

Discussion: The project site is not within a 100-year flood hazard area and does not include construction of any structures.

9.	*Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?*	☐	☐	☐	☒

Discussion: The project does not involve construction or alteration of a levee or dam, and would not affect the function of any levee or dam outside the project area.

10.	*Inundation by seiche, tsunami, or mudflow?*	☐	☐	☐	☒

Discussion: The project site is several miles distant from the coast or any large water body and is therefore not subject to inundation in a seiche or tsunami. The project does not include any construction or other development that would be subject to inundation by a mudflow.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

J. LAND USE AND PLANNING

Will the project:

1. *Physically divide an established community?*	☐	☐	☐	☒

Discussion: The project would not include any element that would physically divide an established community.

2. *Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*	☐	☐	☒	☐

Discussion: The proposed project would not conflict with any regulations or policies adopted for the purpose of avoiding or mitigating an environmental effect. See discussion of consistency with the Santa Cruz County Riparian and Wetland Protection Ordinance, Sensitive Habitat Protection Ordinance, and Significant Tree Protection Ordinance in Section III.C, Biological Resources.

3. *Conflict with any applicable habitat conservation plan or natural community conservation plan?*	☐	☐	☐	☒

Discussion: There is no habitat conservation plan or natural community conservation plan covering the San Vicente Redwoods property. The project therefore would not conflict with any applicable habitat conservation plan or natural community conservation plan.

K. MINERAL RESOURCES

Will the project:

1. *Result in the loss of availability of a known mineral resource that will be of value to the region and the residents of the state?*	☐	☐	☐	☒

Discussion: The site does not contain any known mineral resources that would be of value to the region and the residents of the state. Therefore, no impact is anticipated from project implementation.

2. *Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: The project site is zoned TP Timber Production which is not considered to be an Extractive Use Zone (M-3) nor does it have a Land Use Designation with a Quarry Designation Overlay (Q) (County of Santa Cruz, 1994; Attachment 1). Therefore, no potentially significant loss of availability of a known mineral resource of locally important mineral resource recovery (extraction) site delineated on a local general plan, specific plan or other land use plan would occur as a result of this project.

L. NOISE

Will the project result in:

1. *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*	☐	☐	☒	☐

Discussion: The project would create a short-term incremental increase in the existing noise environment. However, this increase would be short-term, only over the course of several weeks, and would be similar in character to noise generated by the surrounding existing uses (i.e., forest management, including occasional timber harvest operations). The project would result in no permanent increase in ambient noise levels.

2. *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*	☐	☐	☐	☒

Discussion: The project would involve no pile driving or operation of heavy equipment that could result in generation of groundborne vibration or noise.

3. *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*	☐	☐	☒	☐

Discussion: The project would create a short-term incremental increase in the existing noise environment. However, this increase would be short-term, only over the course of several weeks, and would be similar in character to noise generated by the surrounding existing uses (i.e., forest management, including occasional timber harvest operations). The project would result in no permanent increase in ambient noise levels.

4. *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Discussion: Noise generated during project implementation would increase the ambient noise levels for adjoining areas. Project implementation would be of limited duration, occurring over several weeks. Given the limited duration of planned operations, the similarity of the noise generated to other forest management activities that occur occasionally in the project vicinity, and the distance to sensitive receptors, as described in item J.3, this impact is considered to be less than significant.

5. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, will the project expose people residing or working in the project area to excessive noise levels?*	☐	☐	☐	☒

Discussion: The project site is not within an airport land use plan or within two miles of a public airport or public use airport.

6. *For a project within the vicinity of a private airstrip, will the project expose people residing or working in the project area to excessive noise levels?*	☐	☐	☐	☒

Discussion: As described under item H.6, the nearest private airstrip is in Bonny Doon, approximately four miles from the project site. The project would not affect or alter operations of the private air strip and would not expose project personnel to excessive noise from aircraft.

M. POPULATION AND HOUSING

Will the project:

1. *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*	☐	☐	☐	☒

Discussion: The proposed project would not induce substantial population growth in an area because the project does not propose any physical or regulatory change that would remove a restriction to or encourage population growth in an area including, but not limited to the following: new or extended infrastructure or public facilities, including roads; new commercial or industrial facilities; residential development; accelerated conversion of homes to commercial or multi-family use; or regulatory changes including General Plan amendments, specific plan amendments, zone reclassifications, sewer or water annexations; or LAFCO annexation actions.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
2. *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*	☐	☐	☐	☒

Discussion: The proposed project would not displace any existing housing. The project site is currently vacant.

3. *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*	☐	☐	☐	☒

Discussion: The proposed project would not displace any housing or people. The project site is currently vacant

N. PUBLIC SERVICES

Will the project:

1. *Will the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:*				
a. *Fire protection?*	☐	☐	☐	☒
b. *Police protection?*	☐	☐	☐	☒
c. *Schools?*	☐	☐	☐	☒
d. *Parks?*	☐	☐	☐	☒
e. *Other public facilities; including the maintenance of roads?*	☐	☐	☐	☒

Discussion (a through e): The project involves no increase in population or permanent employment or other development that would result in increased demand for public services.

O. RECREATION

Will the project:

1. *Will the project increase the use of existing neighborhood and regional parks or other recreational facilities such that*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

substantial physical deterioration of the facility will occur or be accelerated?

Discussion: The project involves no increase in population or permanent employment or other development that will result in increased use of existing parks or other recreational facilities.

2.	*Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*	☐	☐	☐	☒

Discussion: Portions of the San Vicente Redwoods property may eventually be open to the public for recreational use. This may include roads that may be open for hiking and mountain biking in the vicinity of the project area, including potentially the one existing road that bisects the project area. The project, however, would not construct or expand recreational facilities and no portion of the project area, other than the road within the project area, would be open to recreational use.

P. TRANSPORTATION/TRAFFIC

Will the project:

1.	*Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?*	☐	☐	☒	☐

Discussion:

The project would create a small incremental increase in traffic on nearby roads and intersections only during the brief period during which the project is being implemented (several weeks). New trips would include passenger and light truck trips to and from the site by crew members and supervisorial personnel. The number of trips would not exceed approximately 10-12 round trips per day during the several weeks (approximately 3-5 weeks total) of project implementation. Given the small number of new trips created by the project, and the limited duration of the implementation period, this increase is less than significant. Further, the increase would not cause the Level of Service at any nearby intersection to drop below Level of Service D.

2.	*Conflict with an applicable congestion management program, including, but not*	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

***Discussion*:**

Because the location of the project is removed from major roads and the number of vehicles per day would be minimal, the project would not conflict with any congestion management program.

3.	*Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*	☐	☐	☐	☒

***Discussion*:** The proposed project would not affect air traffic patterns. There would be no impact of this kind.

4.	*Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*	☐	☐	☐	☒

***Discussion*:** The proposed project would not involve construction of new roads or alteration of existing roads. The only vehicles that would be used in the project would be passenger vehicles and light trucks used by crew members and supervisorial personnel to access the project site. No impact of this kind is anticipated.

5.	*Result in inadequate emergency access?*	☐	☐	☐	☒

***Discussion*:** The proposed project would not alter existing emergency access or inhibit emergency access or response.

6.	*Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?*	☐	☐	☐	☒

***Discussion*:** The proposed project would comply with current road requirements to prevent potential hazards to motorists, bicyclists, and/or pedestrians.

Q. TRIBAL CULTURAL RESOURCES

1. *Will the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public*

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
A. *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources Code section 5020.1(k), or*	☐	☐	☐	☒
B. *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*	☐	☐	☐	☒

Discussion: As discussed in Attachment 3, Cultural Resources Documentation a records search conducted by the Northwest Information Center on February 8, 2013 (NIC File Number: 12-0751) covered the entire San Vicente Redwoods property. No records of historic or prehistoric resources located within the project site were found in the records search, though there are numerous records from elsewhere within the San Vicente Redwoods property. In addition, the project Forester has conducted a preliminary reconnaissance survey of the project site, and has not found any indication of historic or prehistoric resources. The project site contains few areas considered favorable for use by Native Americans, such as ridgelines, watercourse confluences, stream terraces, mid-slope benches, ecotones, and forest openings. Therefore, the likelihood of presence of prehistoric resources is considered low within the project site. However, pursuant to Section 16.40.040 of the Santa Cruz County Code, if archeological 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.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

R. UTILITIES AND SERVICE SYSTEMS

Will the project:

1.	*Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*	☐	☐	☐	☒

Discussion: The project would not generate additional wastewater flows and would have no impact on existing wastewater treatment facilities.

2.	*Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*	☐	☐	☐	☒

Discussion: The project would not generate wastewater, would not increase the demand for water, and would not require new or expanded wastewater or water supply facilities.

3.	*Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*	☐	☐	☐	☒

Discussion: The project would not generate increased runoff, therefore it would not result in the need for new or expanded drainage facilities. No impact would occur.

4.	*Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*	☐	☐	☐	☒

Discussion: The project does not require a water supply and would have no impact related to water supply.

5.	*Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*	☐	☐	☐	☒

Discussion: The project would not generate wastewater and does not require provision of wastewater treatment facilities.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
6. *Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*	☐	☐	☐	☒

Discussion: The project would not generate substantial quantities of solid waste requiring disposal in a landfill. Small quantities of solid waste generated by project crews and personnel working within the project site, such as waste from on-site meals, empty containers, and other materials, will be removed from the site and recycled or disposed of properly.

7. *Comply with federal, state, and local statutes and regulations related to solid waste?*	☐	☐	☐	☒

Discussion: The project will comply with all federal, state and local statutes and regulations related to solid waste disposal. No impact would occur. See discussion under item O.6, above.

S. MANDATORY FINDINGS OF SIGNIFICANCE

1. *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*	☐	☐	☐	☒

Discussion: The potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory were considered in the response to each question in Section III of this Initial Study. Resources that have been evaluated as significant could be potentially impacted by the project, particularly sensitive biological resources. However, mitigation has been included that clearly reduces these effects to a level below significance. This mitigation includes requiring the project applicant to conduct pre-project consultation with the California Department of Fish and Wildlife and to adopt any recommendations for protection of special status species. As a result of this evaluation, there is no substantial evidence that, after mitigation, significant effects associated with this project would result.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

2.	*Does the project have impacts that are individually limited, but cumulatively considerable? ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*	☐	☐	☒	☐

Discussion: In addition to project specific impacts, this evaluation considered the projects potential for incremental effects that are cumulatively considerable. As a result of this evaluation, there were determined to be no potentially significant cumulative impacts. As a result of this evaluation, there is no substantial evidence that, after mitigation, there are cumulative effects associated with this project. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

3.	*Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*	☐	☐	☒	☐

Discussion: In the evaluation of environmental impacts in this Initial Study, the potential for adverse direct or indirect impacts to human beings were considered in the response to specific questions in Section III, including impacts to or involving Aesthetics, Air Quality, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Population and Housing, and Transportation and Traffic. As a result of this evaluation, there were determined to be no potentially significant effects to human beings. As a result of this evaluation, there is no substantial evidence that there are substantial adverse effects to human beings, either directly or indirectly, associated with this project. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

IV. REFERENCES USED IN THE COMPLETION OF THIS INITIAL STUDY

Brabb, E.E., 1997, *Geologic Map of Santa Cruz County, California: A Digital Database.* U.S. Geological Survey Open File Report OFR-97-489.

Bowman, R.H., and Estrada, D.C., 1980, *Soil Survey of Santa Cruz County, California*, U.S. Department of Agriculture, Soil Conservation Service.

California Department of Conservation, Division of Mines and Geology, various dates, *California Special Studies Zones* (Alquist-Priolo maps). Castle Rock Ridge (1974), Point Año Nuevo (1982), and Laurel (1991) quadrangles.

California Department of Conservation, 2014. *Santa Cruz County Important Farmlands, 2014.* Map prepared by the Farmland Mapping and Monitoring Program of the Department of Conservation.

California Department of Transportation (CalTrans), 2017. *Officially Designated State Scenic Highways and Historic Parkways.* Site accessed January 18, 2017. http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/

CalFire, 2010, "THP Greenhouse Gas Emissions Calculator." California Department of Forestry and Fire Protection.

Clewell, Andre, J. Rieger, and J. Munro, 2000. Guidelines for Developing and Managing Ecological Restoration Projects. Society for Ecological Restoration (SER).

County of Santa Cruz 1994. *1994 General Plan and Local Coastal Program for the County of Santa Cruz, California.* Adopted by the Board of Supervisors on May 24, 1994, and certified by the California Coastal Commission on December 15, 1994.

County of Santa Cruz, 2014. *Santa Cruz County Climate Action Strategy*. Prepared by County of Santa Cruz, Planning Department. Approved by: County of Santa Cruz Board of Supervisors February 26, 2013.

Environmental Science Associates, 2013. *CEMEX Redwoods Conservation Plan.* Prepared for the Conservation Partners: The Land Trust of Santa Cruz County, Peninsula Open Space Trust, Save the Redwoods League, and Sempervirens Fund, May 2013.

Environmental Science Associates, 2015. *San Vicente Redwoods Management Plan.* Prepared for the Peninsula Open Space Trust and Sempervirens Fund, June 2015.

Giusti, G. A., 2007. "Structural characteristics of an old-growth coast redwood stand in Mendocino County, California." *in* Standiford, R. B., G. A. Giusti and Y. Valachovic. (*eds*) *Proceedings of the Redwood Region Forest Science Symposium. March 15 – 17,*

2004, Rohnert Park Calif. USDA Forest Service, Pacific Southwest Research Station, General Technical Report PSW-GTR-194.

United States Department of Agriculture, Natural Resources Conservation Service, 2017. *Web Soil Survey, Santa Cruz County, California.* Accessed January 30, 2017. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

United States Department of Transportation, Federal Highway Administration, 2015. *Construction Noise Handbook.* Updated November 30, 2015. Accessed January 27, 2017. https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook09.cfm

United States Fish and Wildlife Service, 2008. *Information Needs and Guidelines for Timber Harvest Plans for US Fish and Wildlife Service Technical Assistance Analysis for California Red-legged Frog, and California Red-legged Frog Take-Avoidance Scenarios.* March 25, 2008. Replaces Feb. 1, 2008 version.

USDA Forest Service, 2017, "Piled Fuels Biomass and Emissions Calculator", produced by the Fire and and Environmental Research Applications Team and Pacific Wildland Fire Sciences Laboratory, USDA Forest Service Pacific Northwest Research Station, Seattle, WA. https://depts.washington.edu/nwfire/piles/support/pile_documentation.php

Wilson, Scott, 2014. *Marbled Murrelet Pre-Consultation for the 2014 Warrenella Road Shaded Fuelbreak Project, San Vicente, Davenport and Big Creek Watersheds, Santa Cruz County.* Memo from Scott Wilson, Regional Manager, California Department of Fish and Wildlife - Bay Delta Region, to Mr. Andrew Hubbs, Vegetation Management Program Coordinator, California Department of Forestry and Fire Protection (CALFIRE) San Mateo/Santa Cruz Unit. September 12, 2014.

VI. ATTACHMENTS

1. *Map of Zoning Districts and Project Site Assessor's Parcels; Map of General Plan Designations.*
2. *Herbicide Application Best Management Practices.*
3. *Cultural Resources Documentation (Confidential – under separate cover).*
4. *Biotic Report*, prepared by Nadia Hamey, Registered Professional Forester, dated March 5, 2017.

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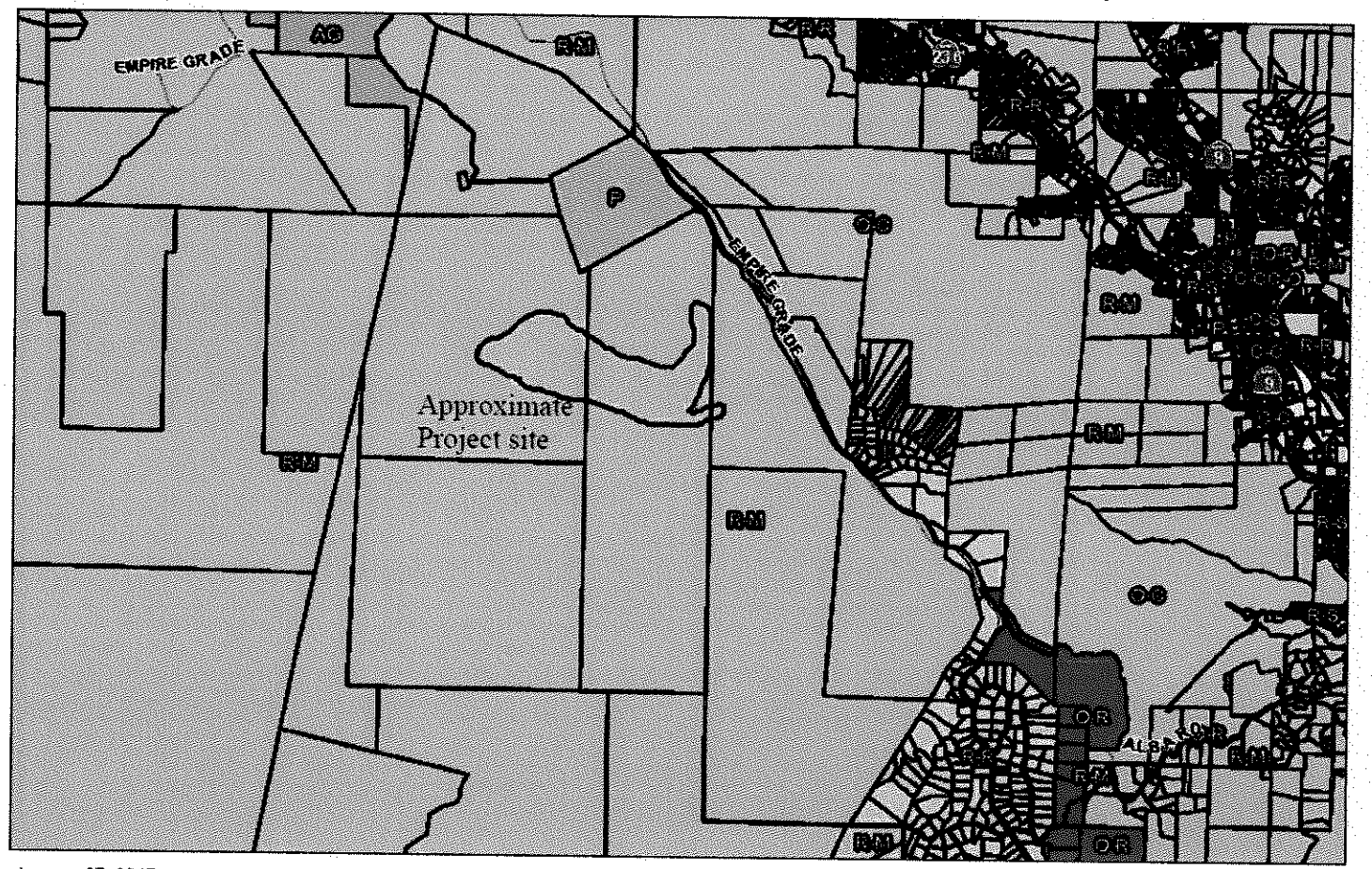
Attachment 1: Map of Zoning Districts and Project Site Assessor's Parcels; Map of General Plan Designations.

Attachment 1a

General Plan Land Use Designations in the Project Vicinity



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Attachment 1b

Zoning in Project Vicinity

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Attachment 2: Herbicide Application Best Management Practices

TABLE 7-1
HERBICIDE APPLICATION BEST MANAGEMENT PRACTICES

BMP 1	Conduct a review of the CNDDB and identify sensitive natural resources within the project including but not limited sensitive plants, habitats, animals or riparian areas.
BMP 2	Conduct on-site field evaluations. Review riparian areas and appropriateness of various herbicide treatments.
BMP 3	Identify avoidance areas such as sensitive species locale(s), buffer zones and other potential constraints using flagging or some other field identification method.
BMP 4	Determine best timing of treatments and schedule based on site-specific locale.
BMP 5	Develop a Herbicide Spill Prevention Plan.
BMP 6	Designate routes of travel, water sources and mixing sites. A Spill Kit must be on-site. These actions will reduce the risk of contamination of water by accidental spills.
BMP 7	An Emergency Response Preparedness Plan, including a First Aid Kit will be on site.
BMP 8	Anyone who handles herbicides must participate in a training program that describe the materials used and the Best Management Practices to follow, including Herbicide Spill Prevention and Emergency Response Preparedness, as well as site-specific considerations.
BMP 9	Identify the closest area of cell phone reception and familiarize all volunteers with that location.
BMP 10	Daily: Check wind speed/weather.
BMP 11	Daily: Check mixing and loading tanks, herbicide application equipment and other equipment for wear/tear, leaks.
BMP 12	Selective application techniques shall be used whenever practicable so that desirable vegetation is not adversely affected.
BMP 13	For directed foliar spray, provide selective control of vegetation by directing the application toward target species. The nozzle tip, pressure and sprayer configuration shall be such to produce a coarser droplet to minimize drift.
BMP 14	For cut stem treatments, apply the herbicide judiciously to the stump immediately after cutting.
BMP 15	Applications will not be performed when the National Weather Service forecasts a >70% probability of measurable precipitation (>0.25") within the next 24 hour period.
BMP 16	Applications will cease when wind speed measured on site exceeds 7 mph sustained.
BMP 17	The following special precautions must be observed during periods of inclement weather:
BMP 18	Applications must not be made in, immediately prior to, or immediately following rain when runoff could be expected.
BMP 19	Applications must not be made when wind and/or fog conditions have the potential to cause drift.
BMP 20	Basal bark applications must not be made when stems are wet.
BMP 21	The following minimum buffer widths from streams, wetlands and other sensitive habitat must be maintained: No buffer requirement for herbicides approved for aquatic use without surfactant 100 foot buffer requirement for herbicides not approved for aquatic use

Source: San Vicente Redwoods Management Plan, Chapter 7 (ESA, 2015).

Attachment 3: Cultural Resources Documentation

(Confidential – Under Separate Cover)

San Vicente Redwoods

Deadman Gulch Restoration Reserve – MB3 Project

Biological Resources Assessment

County application number:

Applicant: Save the Redwoods League
Attn: Richard Campbell
Forestry Program Manager
111 Sutter Street, 11th Floor
San Francisco, CA 94104
(415) 820-5826
rcampbell@savetheredwoods.org

Assessor Parcel Numbers: 080-011-03, 080-011-41 and 080-011-42

Physical address of the property: 11501 Empire Grade Road, Santa Cruz, CA 95060

Report prepared by: Nadia Hamey
Registered Professional Forester #2788
Hamey Woods
267 Sunlit Lane
Santa Cruz, CA 95060
(831) 426-1658 office
(831) 431-0288 cell
nadiahamey@gmail.com

As a Registered Professional Forester, I hereby certify that this Biological Resources Assessment was prepared based on my knowledge of the San Vicente Redwoods property to provide biological information and associated maps related to the proposed forest restoration project.

March 5, 2017

San Vicente Redwoods

Deadman Gulch Restoration Reserve – MB3 Project

Biological Resources Assessment

PROJECT AREA DESCRIPTION

The 110-acre MB3 project area is located in the upper Big Creek watershed (see maps). Big Creek is tributary to Scotts Creek. The project area is approximately ¼ mile from Empire Grade, which runs along the crest of Ben Lomond Mountain. Below is a descriptive assessment of characteristics specific to the MB3 project area.

Conservation Ownership

The project area is part of the 8,532-acre San Vicente Redwoods property, purchased in December, 2011 by conservation partners, Peninsula Open Space Trust (POST) and Sempervirens Fund. Management of the property is in collaboration with Save the Redwoods League, who holds the Conservation Easement, and the Land Trust of Santa Cruz County, who is developing public access. Initial assessment of the property and its conservation values informed the development of a Conservation Plan, which delineated the property into three zones of use: 1) Working Forest (3,669 acres), 2) Restoration Reserve (3,951 acres) and 3) Preservation Reserve (912 acres). This project covers approximately 2% of the area designated as Restoration Reserve. The location was chosen based on stand conditions and opportunities for restoration to future conditions identified in the San Vicente Redwoods Management Plan.

History

The property was owned and managed by a succession of cement companies for the past 120 years. The majority of the property, including this area was clearcut by the San Vicente Lumber Company from 1910-1920 using steam donkeys and Shay locomotives. The clearcut yielded an even-aged stand of redwood, Douglas-fir and tanoak, with a few individual scattered legacy trees. The 1948 Pine Mountain Fire burned through the entire project area. Portions of the restoration project area were subsequently selectively logged in 1990, 1994, and 1998 (see Fire and Harvest History map at end of this document).

Climate

The climate in Santa Cruz is Mediterranean, with dry summers and comparatively wet winters; most precipitation usually comes in January and February. Mean annual temperature is 54 to 58 degrees Fahrenheit on the coast, with elevated inland areas fluctuating 3-5 degrees per 1,000 foot elevation gain. The number of frost-free days ranges from 220 to 245 days annually (USDA, 1980). Annual precipitation ranges between 20 - 60 inches a year. Skies are overcast for 30 - 40 percent of the daylight hours annually. Average humidity is between 70 - 80 percent in the winter, slightly lower in the summer. Winds are usually light, with gusts near the coast and on the ridges, especially. During the summer, the warmer inland temperatures draw the marine fog inland from the coast. The fog settles in low-lying drainages and depressions. Summer coastal fog provides moisture that sustains the redwood

population. The cooling and humidifying effect of redwood trees encourages other species that thrive in these conditions to grow.

Topographic Setting

The MB3 project area straddles the Middle Fork of upper Big Creek. Elevations range from approximately 1730-2315 ft (524–701 m). The Big Creek watershed has rugged topography and steep terrain, dissected by numerous stream channels of varying sizes. The Middle Fork of upper Big Creek flows generally east-west through the project area. The steam is flanked by steep side slopes with slope gradients ranging between 30-90% and few mid-slope benches, flattening out to 0-10% along ridge tops.

Geology

The Santa Cruz Mountains are mostly underlain by an elongate wedge of granitic and metamorphic basement rock, known collectively as the Salinian Block. These rocks are separated from contrasting basement rock types to the northeast by the San Andreas Fault and to the southwest by the Sur-Nacimiento-San Gregorio fault system. Overlying the granitic basement rocks is a sequence of dominantly marine sedimentary rocks of Paleocene to Pliocene age and non-marine sediments of Pliocene to Pleistocene age.

The project area is underlain by granitic intrusive rocks that form the core of Ben Lomond Mountain. These rocks consist of locally deeply weathered quartz diorite. The colluvial soils derived from these rocks are near cohesionless and are prone to erosion where water is concentrated.

Soils

Mantling bedrock is a thin to thick veneer of weathered bedrock and late Pleistocene to Holocene age colluvium. Colluvial deposits are found nearly everywhere across the hillside, however are thickest toward the axes of swales and toe slopes. In most areas colluvial soils are less than 4 feet deep. A sharp contact often exists between the overlying colluvial soils and underlying bedrock resulting in a seasonal perched water table.

The project area contains mostly one soil type: Sur-Catelli complex, 50-75% slopes. Information obtained to determine soil distribution was taken from the Santa Cruz County GIS Database. Soil characteristics were adopted from the 1980 USDA Soil Survey of Santa Cruz County, California.

Sur-Catelli complex, 50-75% slopes

This soil is found on mountainsides with complex slopes, extending from ridges to drainageways at elevations from 400 to 3,000 feet. It is made up of 35% Sur stony sandy loam, 25% Catelli sandy loam, and 40% other loams and sandy loams. The slope of Catelli soils is typically less than 60%, while Sur soils typically have slopes greater than 60%. Base rock is at a depth of approximately 36 inches. The Sur soil is moderately deep and somewhat excessively drained, having formed in residuum derived from sandstone, schist, or granitic rock. The Catelli soil is moderately deep and well drained. It formed in residuum derived from sandstone or granitic rock. Permeability of both soils in the complex is moderately rapid, with an effective rooting depth of 20-40 inches and very rapid runoff. This complex is mainly used for watershed, wildlife habitat, recreation, and timber production, although the main limitation to timber production is the presence of unweathered bedrock and other rock fragments at 20-

40 inches deep. The Catelli soil is well suited to Douglas-fir production. The Sur soil is poorly suited to Douglas-fir, but some areas are able to grow ponderosa pine and Coulter pine.

Roads

Road management is guided by a comprehensive property-wide Road Management Plan. The project area is accessed by several secondary roads from Empire Grade. Sections of these roads are through-cut and functional drainage is maintained on the roads by preserving the shape of rolling dips and their outlets.

One culvert on Class II Middle Big Creek is located in the project area (Road Site #34). This is a 42" CMP set high in the fill and shallow relative to the channel grade. The crossing may have overtopped as suggested by the scour hole above the inlet. The inlet headwall is comprised of a redwood log and stacked redwood pieces. A 4-post trash rack is upstream of the culvert. Just beyond the outlet a 6' diameter log spans the channel. A 3' scour hole exists below the outlet. The crossing has 165' of potentially connected road on the right approach and 755' of potentially connected road on the left approach.

> Short term: The scour hole in the road behind the stacked wood headwall will be cleaned and filled with compacted earth.
>
> Long term Option 1: 1. Excavate the crossing from TOP to BOT and replace the existing culvert with a 54"x 60' culvert installed at the base of the fill in the stream axis. 2. Install a single post "I" beam trash rack above the inlet. 3. Outslope the road and fill the ditch for 165' up the left approach and install 1 rolling dip.
>
> Long term Option 2: Excavate the crossing from TOP to BOT, armor and restore stream profile.

Road Site #92 is an earth ford crossing of the road with a swale above and round rocky granite pieces throughout. The road and outboard fill are somewhat naturally armored. There has been minimal channel incision across road or down fill slope.

> Long term Option: Install an armored fill crossing using 10 yd3 of 0.5'-1' rock.

Road Site #142 is an earth ford crossing with a swale above the road that develops into a Class III stream below. A small head cut has developed at the outboard road edge and migrated 10' back into road bed. Head cut face is mossy, so it has not been active in sometime. With only 115' of left contribution it is safe to say erosion is occurring from stream flow.

> Long term Option: Install an armored fill crossing using 10 yd3 of 0.5'-1' rock.

Vegetation and Stand Conditions

The vegetation composition in the watershed varies significantly with soil depth, water availability, and aspect due to the high permeability of the decomposed granite soils. Redwood is most prevalent along the stream channel as well as on the surrounding broad ridges where soil horizons are more developed. The steep hillsides have dense stands of tanoak (*Notholithocarpus densiflorus* var. *densiflorus*) and Pacific madrone (*Arbutus menzesii*) interspersed with scattered groves of redwood and Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*). The redwoods are predominantly of sprout origin, growing in

clumps around the old growth stump. Some of these isolated groves have been heavily influenced by surrounding hardwoods and are just beginning to surpass the surrounding tanoak overstory.

The vascular plants in the project area were assessed on multiple occasions during project reconnaissance and identified to sufficient taxanomic level to determine their rarity, see attached species list. Near the ridge top, occasional redwood and Douglas-fir are present with Pacific madrone, canyon live oak (*Quercus chrysolepis*), and Santa Cruz Mountain live-oak (*Quercus parvula* var. *shreevii*). California hazel nut (*Corylus cornuta* var. *californica*) and toyon (*Heteromeles arbutifolia*) are also common here along with many understory species common in the county, such as creeping snowberry (*Symphoricarpus mollis*), hairy honeysuckle (*Lonicera hispidula*), nodding brome (*Bromus vulgaris*), and yerba buena (*Clinapodium douglasii*).

Those areas on the ridge adjacent to the project area support a shrub community dominated by coast whitethorn (*Ceanothus incanus*), hairy manzanita (*Arctostaphylos tomentosa* ssp. *crinita*), coast silk tassel (*Garrya elliptica*), golden fleece (*Ericameria arborescens*), and pitcher sage (*Lepachinia calycina*). Some scattered knob cone pine (*Pinus attenuata*) are present, an indication that these portions of landscape have been the site of high intensity, stand replacing fire in the past. Oak forest in this section of the property is undergoing a rapid colonization by Douglas fir. This shade tolerant species is near the southern limit of its range, but it has been establishing in areas historically dominated by oak species due fire suppression.

Leaving the upper elevations and entering the project area, tanoak shrubs become the dominant understory species and diversity is limited. Patches of huckleberry (*Vaccinium ovatum*) are present in close proximity to the Middle Fork of Big Creek in the downstream reaches of the project area. The majority of the project area supports a sparse cover of native species including California blackberry (Rubus ursinus), bracken fern (Pteridium aquilinum var. pubescens), hedge nettle (Stachys bullata), California phacelia (Phacelia californica), and woodland madia (Anisocarpus madioides). The flora here is relatively homogeneous.

The upper reaches of the Middle Fork of Big Creek have higher understory species diversity, with more prevalent California bay laurel (*Umbellularia californica*). A large and aromatic stand of western azalea (*Rhododendron occidentale*) can be found upstream of the culvert crossing in the project area.

Stand health is still impacted by the species changes brought on the by 1948 fire. Many redwood trees are suspected to have pockets of heart rot. Many of the older Douglas-fir trees, especially those with fire scars, have red ring rot (*Phellinus pini*). A conspicuous presence of sudden oak death (*Phytophthora ramorum*) has not been noted in the watershed, although the disease has been detected in the upper watershed adjacent to the Cal-Fire Ben Lomond Camp and Empire Grade.

Sensitive Species

The scoping process endeavored to identify all special status plants, animals, and natural communities that could potentially be impacted by the proposed project. Surveys for rare animal species and their habitats was conducted by the RPF during project layout, in consultation with the California Department of Fish and Wildlife. Additional seasonally appropriate surveys are planned for timely completion prior to and during project activities, as described below.

The California Natural Diversity Database (CNDDB) was queried for the 9 surrounding 7.5' quads. Although the CNDDB is a positive find database, it is a helpful means of determining the types of habitats and potential species potentially present within the project area. 50 plant species, 4 moss and lichen species, 7 animal species, 2 fish species, 13 bird species, 3 reptile and amphibian species, 13 insect species, 6 marine species, 4 terrestrial natural communities, and 5 aquatic natural communities have records within the search area. A map and species list from this query is included as Attachment 1. Assessment with the California Wildlife Habitat Relationships System, version 8.0, was conducted and the list of Threatened, Endangered or Animals of Special Concern in Santa Cruz County from the Santa Cruz County General Plan was also consulted.

The following species assessments consider possible species present. The initial list of species was refined based on the known geographic distribution of the particular listed taxon, its habitat affinities, results of previously conducted field work in the Deadman Gulch Watershed, and an assessment of habitats present in the project area. Resources (listed below) on species distribution, ecology, and taxonomy were utilized to assess each species and determine whether suitable habitat could be considered present. These guides, in combination with input from knowledgeable local experts helped to identify appropriate protection measures.

Wildlife

The potential for sensitive animal species to occur within the project area is described below and summarized in Table 1.

FISH

Coho Salmon (*Oncorhynchus kisutch*)

Central California Coast Evolutionary Significant Unit (ESU) coho salmon are listed as endangered under the federal ESA and endangered under the California ESA. In the greater Scotts Creek watershed, coho are present in the Scotts Creek mainstem and the lower reaches of several tributaries including Queseria Creek, Little Creek, Mill Creek and Big Creek. A large waterfall forms a barrier to anadromy in Big Creek, approximately 1 mile below the Deadman Gulch confluence. Below the waterfall, Big Creek is accessible to migrating salmonids. Above the waterfall, resident rainbow trout can be found in Class I portions of Big Creek and Deadman Gulch.

The coho salmon population in the Scotts Creek system has been augmented since 1906 and is currently sustained by releases from the Kingfisher Flat hatching and rearing facility located on Big Creek. Reproducing coho require beds of loose, silt-free, coarse gravel for spawning; and juveniles also need cover, cool water, and sufficient dissolved oxygen to thrive. The Scotts Creek watershed provides some of the least developed habitat available within this evolutionary significant unit and contains both designated (64 FR 24049) and proposed (69 FR 71880) critical habitat for Central California Coast ESU coho salmon. Critical habitat includes all naturally accessible stream channels to the ordinary high water mark. Mitigations for coho salmon and steelhead are outlined jointly below.

Table 1. Special-status Wildlife Species with Potential to Occur in the Deadman Gulch Restoration Project, S
[CNDDB, January 2017; California Wildlife Habitat Relationships System, version 8.0]

Common Name, Species Name	Status	Natural History	Occurrence Status on Property
Coho Salmon (*Oncorhynchus kisutch*)	FE, CE	Reproducing coho require beds of loose, silt-free, coarse gravel for spawning; and juveniles also need cover, cool water, and sufficient dissolved oxygen to thrive. The coho salmon population in the San Vicente Creek system has been augmented historically and is currently sustained by hatchery releases.	POSSIBLE: In the Scotts Creek Watershed, coho h present off of the property in Scotts Creek, as wel Creek and lower Little Creek.
Steelhead (*Oncorhynchus mykiss irideus)*	FT, SSC	Steelhead migrate a little further up the watershed than coho. They require similar spawning gravels, but can withstand warmer water temperatures.	PRESENT: As described above, in the Scotts Creel steelhead habitat is present in Scotts Creek, as we Big Creek and lower Little Creek, west of the prop
California Tiger Salamander *(Ambystoma californiense*)	FT, SSC	This salamander breeds in primarily in vernal (seasonal) pools and small, fishless ponds in grassland habitats. Adults are fossorial for most of the year, inhabiting burrows of ground squirrels and pocket gophers and emerge in winter of wetter years to breed.	UNLIKELY: No potentially suitable habitat is prese species does is not likely to occur on the property
California Red-legged Frog (*Rana draytonii*)	FT, SSC	In breeding ponds, sloughs and quiet waters of streams with depths typically greater than ~ 2 feet. Adults can travel up to 1.7 miles between breeding and non-breeding habitat, although at perennial sites most frogs remain year-round. Over-summering and dispersal habitats include riparian and freshwater marsh vegetation, as well as moist conditions in forests.	POSSIBLE: The property supports limited potentia breeding habitat.
Monarch Butterfly (*Danaus plexippus*)	None	Monarch butterflies require dense tree cover for overwintering and are intolerant to frost. Winter roost sites are located along the coast in wind-protected groves of eucalyptus, Monterey pine, and cypress with nectar and water sources nearby.	UNLIKELY: No habitat is present.
Zayante band-winged grasshopper (*Trimerotropis infantilis*)	FT	Habitat for this species is inland sandhills and CNDDB records indicate it has been observed 5 miles east of the property in Zayante Park and Quail Hollow Quarry.	UNLIKELY: No habitat is present.

Table 1. Special-status Wildlife Species with Potential to Occur in the Deadman Gulch Restoration Project, S
[CNDDB, January 2017; California Wildlife Habitat Relationships System, version 8.0]

Common Name, Species Name	Status	Natural History	Occurrence Status at Project Site
Western Pond Turtle (*Actinemys marmorata*)	SSC	Western pond turtles occur in a variety of permanent and intermittent aquatic habitats, but most frequently inhabit lowland streams, rivers, and sloughs. In streams they avoid fast moving and shallow water, and tend to be concentrated in pools, backwater areas, and estuaries. Occupied habitats often contain aquatic vegetation, deep water cover, as well as good basking sites. Pond turtles are usually absent from heavily shaded streams.	POSSIBLE: It is unlikely that suitable western pond habitat is present in the project area. This species recorded in the Waddell Creek Watershed, 4.2 mi the property and Highlands County Park, 2.5 mile property. This species is primarily aquatic.
Marbled Murrelet (*Brachyramphus marmoratus*)	FT, CE, BOF	Marbled murrelets inhabit near-shore marine waters where they feed on small fish and invertebrates, but during the breeding season adults fly inland to nest in mature conifer forests within 50 miles of the ocean. Stands of trees with characteristics such as large platform limbs, moss and lichen presence, platform position in the mid-canopy, and adequate screen tree cover comprise suitable habitat.	POSSIBLE: Potentially suitable marbled murrelet r habitat has been identified on the property in sev upper Deadman Gulch. Trees with developing str characteristics have been identified in the project be evaluated D+CDFS during the pre-consdultatio
Vaux's Swift (*Chaetura vauxi*)	SSC	Nest and roost trees are usually more than 20 inches in diameter and frequently have broken tops.	POSSIBLE: Vaux's swifts are likely to be present o property.
Olive-sided Flycatcher (*Contopus cooperi*)	SSC	In this region, this species occurs primarily in coniferous forests and eucalyptus groves. It prefers forests with more open canopies, and often occurs in association with openings or edges. Nests are built in trees.	POSSIBLE: Olive-sided Flycatchers are likely to be the property.
Yellow Warbler (*Dendroica petechia brewsteri*)	SSC	Yellow warblers are found primarily in riparian habitats dominated by deciduous trees such as alders, willows, maples, sycamores, and cottonwoods.	POSSIBLE: This species has been recorded from th Creek Watershed. Suitable nesting and foraging h yellow warblers (riparian willows) may be present watershed.
Purple Martin (*Progne subis*)	SSC	The purple martin is a very rare and localized breeder in upper elevation knobcone pine and redwood forests in Santa Cruz County. Tall, old snags with woodpecker holes are required for nesting. Martins often forage over water.	POSSIBLE: Suitable habitat may be present on the

Table 1. Special-status Wildlife Species with Potential to Occur in the Deadman Gulch Restoration Project, S

[CNDDB, January 2017; California Wildlife Habitat Relationships System, version 8.0]

Red-breasted Sapsucker (Sphryapicus ruber)	SSC	Red-breasted Sapsuckers are cavity nesters that potentially occur in most forest and woodland habitats. This species is expanding its breeding range in Santa Cruz County, and is more common during fall and winter.	POSSIBLE: Suitable nesting and foraging habitat m present on the property.

Common Name, Species Name	Status	Natural History	Occurrence Status at Project Site
Golden Eagle (*Aquila chrysaetos*)	FP, BOF	Golden eagles require wide-open country for foraging. Nests typically are built on cliffs throughout the range of this species, although in the oak/grass savannas of the inner California coast ranges most nests are built in trees, principally secluded oaks, cottonwoods, and sycamores.	UNLIKELY: This species is not known to nest on or property.
Long-eared Owl (*Asio otus*)	SSC	In California long-eared owls typically inhabit dense tree or shrub thickets within or adjacent to open habitat areas, which are favored for hunting. Long-eared owls use abandoned nests of corvids, hawks, and squirrels for nesting. This is a very rare, localized nesting species in the County and a secretive, highly nocturnal species.	UNLIKELY: Nesting has not been documented on t property, and suitable habitat is not likely present
American Peregrine Falcon (*Falco peregrinus anatum*)	BOF	American peregrine falcon was recently de-listed as state or federally Endangered. Peregrine falcons occur in a variety of habitats, but require open areas for foraging. While tree nesting has been recorded for this species, nesting usually occurs on ledges and cavities in sheer rock formations.	PRESENT: There is a known nesting site in the cliff Vicente Quarry site, approximately 4.4 miles sout project area.
Osprey (*Pandion haliaetus*)	SSC, BOF	Ospreys nest on rock pinnacles and in the tops of snags, live trees, or similar artificial structures near water, but may occasionally be found up to a mile from water. Throughout the osprey's range, when available, snags surrounded by water are preferred as nest sites.	POSSIBLE: A nest site was located in the lower San Creek watershed around the Mill Creek tributary osprey nests are currently know. Nests are large, and often easily located.
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	Candi-date	In California, this species is known to roost in limestone caves, lava tubes, mine tunnels, buildings, and other man-made structures. This species has also been found roosting in large basal hollows of old growth redwood trees.	POSSIBLE: Townsend's big-eared bats are thought present in limestone cave habitats associated with Vicente Quarry.

Table 1. Special-status Wildlife Species with Potential to Occur in the Deadman Gulch Restoration Project, S
[CNDDB, January 2017; California Wildlife Habitat Relationships System, version 8.0]

Status Codes: FT = Federal Threatened Status; FE = Federal Endangered Status; FP = CDFW Fully Protected Species; SSC = California Species of Special Co
BOF = Board of Forestry Sensitive Species

Species listed below were assessed and considered absent because either the property is not within their distribution range, habitat does no exist in th assessment area, or they are considered extirpated.

Tidewater Goby (*Eucyclogobius newberryi*)
Southwestern Pond Turtle (Actinemys marmorata pallida)
Coast Horned Lizard (*Phrynosoma coronatum frontale*)
San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)
Tricolored Blackbird (*Agelaius tricolor*)
Bell's Sage Sparrow (*Amphispiza belli belli*)
Great Blue Heron and Great Egret (*Ardea herodias and A. alba*)
Lark Sparrow (*Chondestes grammacus*)
California horned lark (*Eremophila alpestris actia*)
Loggerhead Shrike (*Lanius ludovicianus*)
California Thrasher (*Toxostoma redivivum*)
Short-eared Owl (*Asio flammeus*)
Burrowing Owl (*Athene cunicularia*)
Ferruginous Hawk (*Buteo regalis*)
Northern Harrier (*Circus cyaneus*)
White-tailed Kite (*Elanus leucurus*)
Merlin (*Falco columbarius*)
Bald Eagle (*Haliaeetus leucocephalus*)
Mastiff bat (*Eumops perotis*)
American Badger (*Taxidea taxus)*
Santa Cruz Kangaroo Rat (*Dipodomys venustus venustus*)
Monterey Ornate Shrew (*Sorex ornatus salaries)*

Western pearlshell (*Margaritifera falcata*)
Tidewater goby (*Eucyclogobius newberryi*)
Steller (northern) sea-lion (*Eumetopias jubatus*)
Dolloff Cave spider (*Meta dolloff*)
Empire Cave pseudoscorpion (*Neochthonius impe*
Antioch specid wasp (*Philanthus nasalis*)
Mount Hermon June beetle (*Polyphylla barbata*)
Bank swallow (*Riparia riparia*)
Mackenzie's Cave amphipod (*Stygobromus macke*
Zayante band-winged grasshopper (*Trimerotropis*
Mimic tryonia/California brackishwater snail (*Tryo*

Table 1. Special-status Wildlife Species with Potential to Occur in the Deadman Gulch Restoration Project, S
[CNDDB, January 2017; California Wildlife Habitat Relationships System, version 8.0]

Opler's longhorn moth (*Adela oplerella*)
Western snowy plover (*Charadrius alexandrinus nivosus*)
An isopod (*Calasellus californicus*)
Sandy beach tiger beetle (*Cicindela hirticollis gravida*)
Ohlone tiger beetle (*Cicindela ohlone*)
Globose dune beetle (*Coelus globosus*)
Western pond turtle (*Emys marmorata*)
Smith's blue butterfly (*Euphilotes enoptes smithi*)
Empire Cave pseudoscorpion (*Fissilicreagris imperialis*)
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)
California black rail (*Laterallus jamaicensis coturniculus*)
Moestan blister beetle (*Lytta moesta*)

Steelhead (*Oncorhynchus mykiss irideus*)

Central California Coast ESU steelhead are listed as federally threatened and are a State Species of Special Concern. Steelhead spawning runs comprise a few hundred adult fish annually in Scotts Creek, and the population appears to be comparatively stable and at or near carrying capacity for this system (www.scottscreekwatershed.org).

As described above, steelhead are not present in Upper Big Creek and are blocked from upstream migration by the waterfall on Big Creek. The Scotts Creek watershed contains both designated (65 FR 7764) and proposed (70 FR 52488) critical habitat for the Central California Coast ESU steelhead.

Coho Salmon and Steelhead Mitigations:

The project area is far upstream and upland from a stream reach with anadromous fish. To protect the beneficial uses of water in the project area and in downstream waters, the following mitigations are proposed:

1. Within the channel zone, a minimum 80 percent canopy closure will be maintained, where present; within the riparian corridors, a minimum 60 percent canopy closure will be maintained, where present
2. To the extent practical, trees will not be felled across or adjacent to streams. If a tree inadvertently lands in the watercourse it shall be brought to the attention of the RPF. If the presence of the wood has the potential to negatively impede the flow of water that section of wood shall be bucked out immediately by hand. Trees shall not be felled into, or across a watercourse where negative impacts to the beneficial uses of water are anticipated. No sediment shall be discharged as a result of cross-falling.
3. Any bare soil exceeding 100 contiguous square feet resulting from project operations will be covered with limbs or other slash;
4. Slash will be removed from the riparian corridor where not stabilized.

AMPHIBIANS

California Red-Legged Frog (*Rana aurora draytonii*)

California red-legged frog is listed as threatened under the federal ESA and as a Species of Special Concern by CDFW. Breeding and rearing habitat have not been observed within the project site, and the closest recorded observations of the species is several miles from the project site. This species, however, is known to disperse broadly and to considerable distance from breeding habitat during the wet season.

To avoid impacts to California red-legged frog, the project will proceed in accordance with the avoidance measures outlined below. These measures are based on guidelines developed by the U.S. Fish and Wildlife Service (USFWS, 2008) with slight modifications adapted to site-specific conditions, which have been developed by the project Forester who has training in CRLF life history and habitat requirements. In addition, through the requested pre-consultation, CDFW will ascertain the suitability of the project site for this species and may provide additional recommendations for species protection, which will be incorporated into the project.

1. Prior to operations occurring in the wet season, the project Forester or a qualified biologist will conduct a biological resources education program for workers, and will appoint a crew member to act as an on-site biological monitor. The educational program will include a description of the California red-legged frog and its habitat, and the guidelines that must be followed by all project personnel to avoid take of the species. Educational programs will be conducted for new personnel before they join project activities. Color photographs will be used in the training session, and a qualified person will be on hand to answer questions. For purposes of protection of red-legged frogs, the wet season begins with the first frontal rain system depositing a minimum of 0.25 inches of rain after October 15 and ending on April 15. In the absence of rain events that total at least 0.25 inches as measured at the Ben Lomond rain gauge, wet season restrictions will nevertheless apply on November 30.

2. For wet-season operations, before project activities begin each day, the project Forester or a biological monitor will inspect under any equipment left overnight to look for California red-legged frogs. If a red-legged frog is found, the red-legged frog will not be relocated or captured, and all activities that could result in take will cease and the sighting will be reported to CDFW, USFWS, and the County of Santa Cruz, along with measures being implemented to avoid take of the individual. Activities related to the observation shall not commence until approved by the agencies.

3. Trees shall be felled away from riparian habitat, including springs, seeps, bogs, and other wet areas with saturated ground in most cases; however, in site-specific situations to improve the safety of operations or to better protect residual vegetation and the beneficial uses of water within the watercourse, trees may be felled in whichever direction spares the most residual vegetation, including parallel to or toward a watercourse, where circumstances warrant it. Prior to cross-falling, the project Forester or a biological monitor will walk the lay of the tree to check any potential habitat for California Red-legged frogs. If any are found, protection and reporting measures described in #2 will be followed.

4. All refueling, maintenance, and staging of equipment and vehicles will occur at least 60 feet from riparian habitat or water bodies. Supervisors will insure that all vehicles and equipment are inspected for fuel leaks, oil leaks, and other fluid leaks before and during their use on the San Vicente Redwoods property, to ensure that aquatic and upland habitats are not contaminated. Prior to the onset of work, the project Forester will ensure that a plan is in place for prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. A spill kit shall be kept on site at all times.

5. No herbicide use shall occur within the riparian corridor or within 30 feet of any suitable habitat except for direct application to stumps.

6. During project activities, all trash that may attract predators will be put in sealed trash containers, removed from the work site, and disposed of regularly. Following project activities, all trash and debris will be removed from work areas.

BIRDS (CDFW Species of Special Concern, Sensitive Species)

Marbled Murrelet (*Brachyramphus marmoratus*)

The marbled murrelet is listed as endangered under the State ESA and threatened under the federal ESA. While there have been no known detections of marbled murrelet within or adjacent to the project site, there have been several detections in the broader area, and potentially suitable nesting habitat exists within the San Vicente Redwoods property, south of the project site.

Suitability of habitat was assessed throughout the project area and immediate surroundings. Characteristics such as large platform limbs, moss and lichen presence, platform position in the mid-canopy, and adequate screen tree cover were analyzed. Approximately 40 individual trees with structure are located within the project area and the project Forester has initiated a pre-project consultation with CDFW. Based on the outcome of the consultation, any necessary protection measures to avoid take of this species will be incorporated into the project

Vaux's Swift (*Chaetura vauxi*)

The Vaux's swift is a CDFW Species of Special Concern (nesting only). The species generally occurs in association with conifer forests that have at least some mature characteristics. Vaux's swifts nest and roost in hollow snags or in senescing live trees with heartwood decay. Nest and roost trees are usually more than 20 inches in diameter and frequently have broken tops. Pileated woodpecker cavities are also used for nesting and roosting. The species feeds aerially on small insects, often over water, but also over grasslands and forested areas. During the non-breeding season, they roost communally in hollow trees or chimneys. Vaux's swifts are possibly present in the project area but are not expected to be negatively affected by forest restoration activities. Snags will be retained as long as practical.

Black swift (*Cypseloides niger*)

Black swift is a CDFW Species of Special Concern. The species require a specialized habitat for nesting, in forested areas near rivers. Nests are often located behind waterfalls or on damp cliffs, where the environment is dark, wet, steep, and inaccessible to predators, and which provides the swifts with an unobstructed flyway to approach the nest. Project activities are not anticipated to impact Black swifts.

Olive-sided Flycatcher (*Contopus cooperi*)

The olive-sided flycatcher is a federal Species of Concern. In this region, it occurs primarily in coniferous forests and eucalyptus groves, frequently perching atop tall trees or snags from which it hawks insects. It prefers forests with more open canopies, and often occurs in association with openings or edges. Nests are built in trees. Olive-sided flycatchers occur as a breeding species in the Scotts Creek watershed and are absent (migrants) in winter. Suitable nesting and foraging habitat is present in the project area. Due to its association with open canopies, selective tree removal proposed under this

forest restoration project would be expected to either maintain or enhance overall habitat quality for this species.

Yellow Warbler (*Dendroica petechia brewsteri*)

The yellow warbler is a CDFW Species of Special Concern (nesting only). Yellow warblers are found primarily in riparian habitats dominated by deciduous trees such as alders, willows, maples, sycamores, and cottonwoods. The species has been recorded from Scotts Creek; however suitable nesting and foraging habitat for yellow warblers is not present in the project area. The broadleaf riparian habitat type potentially occupied by this species will not be significantly affected by harvest operations.

Purple Martin (*Progne subis*)

The purple martin is a CDFW Species of Special Concern (nesting only). It is a very rare and localized breeder in in upper elevation knobcone pine and redwood forests in Santa Cruz County. Tall, old snags with woodpecker holes are required for nesting. Martins often forage over water. This species, if present in the project area, is not expected to be detrimentally affected by forest restoration activities. Habitat elements including snags will be retained.

Red-breasted Sapsucker (*Sphryapicus ruber*)

The red-breasted sapsucker is a federal Species of Concern (nesting only). It is a cavity nester that potentially occurs in most forest and woodland habitats. This species is expanding its breeding range in Santa Cruz County, but is more common during fall and winter. Suitable nesting and foraging habitat may be present in the project area. Forest restoration activities are unlikely to detrimentally affect this species since snags will be retained.

BIRDS OF PREY (OWLS and LISTED RAPTOR SPECIES)

Golden Eagle (*Aquila chrysaetos*)

The golden eagle is a CDFW Fully Protected Species and a Board of Forestry Sensitive Species. Golden eagles require wide-open country for foraging, and prey predominantly on jackrabbits and ground squirrels. Nests typically are built on cliffs throughout the range of this species, although in the oak/grass savannas of the inner California coast ranges most nests are built in trees, principally secluded oaks, cottonwoods, and sycamores. This species is not known to nest within or near the project area, although there are potentially suitable cliffs nearby. Potentially suitable foraging habitat is present on open grassland habitat within the Scotts Creek watershed. Potential cliff nesting habitat and unforested foraging habitats will not be significantly affected by forest restoration activities.

Long-eared Owl (*Asio otus*)

The long-eared owl is a CDFW Species of Special Concern (nesting only). In California long-eared owls typically inhabit dense tree or shrub thickets within or adjacent to open habitat areas, which are favored for hunting. In the Santa Cruz Mountains they have been associated with conifer forests and mixed conifer/broadleaf forests. Rodents comprise the bulk of the diet. Long-eared owls use abandoned nests of corvids, hawks, and squirrels for nesting. Nests tend to have dense surrounding cover and are located either in a tree or in a thicket of tall shrubs, often found near water. This is a very rare, localized nesting

species in the County and a secretive, highly nocturnal species. Many local owl observations are likely those of migrants. Because long-eared owls tend to hunt in open-areas, forest restoration activities are unlikely to affect foraging habitat for this species. Nesting has not been documented within or near the project area, and suitable habitat is not likely present. If a long-eared owl nest is discovered in the course of treatment, CDFW and a qualified wildlife biologist will be consulted and approved protection measures will be implemented.

American Peregrine Falcon (*Falco peregrinus anatum*)

The American peregrine falcon was recently de-listed as state or federally Endangered, but is a state CDFW Fully Protected Species. Peregrine falcons occur in a variety of habitats, but require open areas for foraging. Food consists almost exclusively of birds that are caught on the wing. While tree nesting has been recorded for this species, nesting usually occurs on ledges and cavities in sheer rock formations. Nesting has not been documented within or near the project area, and suitable habitat is not likely present.

Osprey (*Pandion haliaetus*)

The osprey is a CDFW Species of Special Concern (nesting only). It is a bird of large rivers, lakes, and coastlines where it preys almost exclusively on fish. Ospreys nest on rock pinnacles and in the tops of snags, live trees, or similar artificial structures near water, but may occasionally be found up to a mile from water. Throughout the osprey's range, when available, snags surrounded by water are preferred as nest sites. No osprey nests are currently know. Nests are large, conspicuous, and often easily located. Forest restoration activities are not anticipated to affect this species.

BIRDS OF PREY (UNLISTED RAPTOR SPECIES)

Sharp-shinned Hawk (*Accipiter striatus*)

The sharp-shinned hawk occurs year-round in Santa Cruz County and is known to nest in the Scotts Creek watershed. Sharp-shinned hawks typically nest in relatively dense stands of second growth conifers, building a new nest each year. The species forages in a range of forested and lightly wooded habitats. Small birds comprise the bulk of the diet. Although no nest sites are currently known from the project area, potentially suitable nesting habitat is present. Should nesting be confirmed or suspected on the basis of behavioral observations, CDFW and a qualified wildlife biologist will be consulted and protection measures will be implemented.

Cooper's Hawk (*Accipiter cooperii*)

The Cooper's hawk occurs in the Santa Cruz County year-round, but is more common as a migrant and wintering bird. Cooper's hawks tend to occur in more open forests than do sharp-shinned hawks, and nesting is most often associated with broadleaf woodlands or mixed conifer/broadleaf forests. Dense surrounding cover is preferred in the vicinity of the nest site. Nests typically are built in broadleaf trees. Cooper's hawks show a greater tendency to reuse previous nests than do sharp-shinned hawks. The diet is composed chiefly of small birds, but small mammals, reptiles, and amphibians are also taken. Potentially suitable Cooper's hawk nesting habitat and foraging habitat may be present within the project area. Forest restoration activities are not likely to significantly affect foraging habitat of this

species and would be less likely to negatively impact potential nesting habitat than is the case with the sharp-shinned hawk.

Great Horned Owl (*Bubo virginianus*)

This is a common widespread species, found in virtually all habitat types in North America, including conifer forests. Great horned owls nest in trees and on cliffs. In trees it uses abandoned stick nests of other raptors, corvids, squirrels and woodrats. Great horned owls may nest within or adjacent to the project area. Should nesting be confirmed or suspected on the basis of behavioral observations in an area scheduled for harvesting, CDFW and a qualified wildlife biologist will be consulted and protection measures will be implemented.

Western Screech Owl (*Otus kennicottii*), Northern Pygmy Owl (*Glaucidium gnoma*), and Northern Saw Whet Owl (*Aegolius acadicus*)

These three species of small owls inhabit forested areas and nest in woodpecker holes and natural cavities in snags. Nests typically are difficult to find. Any of these three species may nest in the project area. Forest restoration activities are unlikely to significantly affect breeding habitat for these species because the critical habitat element (i.e. snags) will be retained.

Red-shouldered Hawk (*Buteo lineatus*)

The red-shouldered hawk most frequently occurs in association with streams and riparian woodlands, but may nest in any forest type except very dense second-growth. Stick nests are constructed in either broadleaf or coniferous trees, generally quite high up and against the bole. Unlike most other buteos, red-shouldered hawks forage both in wooded and open areas. Red-shouldered hawks may nest within or adjacent to the project area, particularly along watercourses. Should nesting be confirmed or suspected on the basis of behavioral observations in an area scheduled for harvesting, CDFW and a qualified wildlife biologist will be consulted and protection measures will be implemented.

Red-tailed Hawk (*Buteo jamaicensis*)

This very common and widespread hawk occurs throughout North America. It requires open areas for foraging, where it preys chiefly on small mammals. Red-tailed hawks build large stick nests either on cliffs or in trees. Nests rarely are built in the forest interior because this species is not adept at flying through forest cover and also tends to select nesting sites that allow a commanding view of the landscape. Thus, suitable nest trees usually are prominent specimens that are situated in the open, on ridgetops, or at the forest edge. Red-tailed hawks may nest in the vicinity or the project area. Should red-tailed hawk nesting be confirmed or suspected on the basis of behavioral observations in an area scheduled for harvesting, CDFW and a qualified wildlife biologist will be consulted and protection measures will be implemented.

Turkey Vulture (*Cathartes aura*)

The turkey vulture is a common, widespread scavenger that occurs in a variety of habitats throughout North America. The species generally forages over relatively open country, scanning the ground for carrion. Turkey vultures usually nest in large fissures or cavities on sheer cliffs, but may also occasionally use hollow snags or large empty stick nests of other species in dead or live trees. Due to the infrequency with which tree nests are used, the likelihood is low that turkey vultures nest within or

adjacent to forest stands proposed for treatment. Thus, no adverse impact is anticipated for this species. Should nesting be confirmed or suspected on the basis of behavioral observations, CDFW and a qualified wildlife biologist will be consulted and protection measures will be implemented.

MAMMALS

Bats

Six bat species that are either CDFW or USFWS Species of Concern potentially occur in association with coniferous forest habitats of the project area. These include Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), Western red bat (*Lasiurus blossevillii*), long-eared myotis (*Myotis evotis*), fringed myotis (*M. thysanodes*), long-legged myotis (*M. volans*), and Yuma myotis (*M. yumaensis*). Bat species distribution and abundance within the Scotts Creek watershed is not well known. Of principal concern with regard to forest restoration activities is the potential loss of tree roosting and nursery sites. These include basal hollows of fire-scarred trees, cavities or other hollows in snags and long strips of exfoliating bark. Because these habitat elements will be retained during treatment, no significant impacts are anticipated for the bats listed above.

Ringtail (*Bassariscus astutus*)

The ringtail is a CDFW Fully Protected Species. Ringtails are highly nocturnal and occur in forest and shrub habitats. Refuge and denning sites include snags, hollow trees and logs, caves, burrows, and abandoned woodrat nests. The species is primarily carnivorous. Ringtail distribution and abundance in the Santa Cruz Mountains is poorly known. Suitable habitat may be present within the project area. Forest restoration activities are not expected to significantly impact foraging or denning habitat for this species because key habitat elements noted above, including wood rat nests, will be maintained throughout the project area.

San-Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)

The San Francisco dusky-footed woodrat is a CDFW Species of Special Concern. Dusky-footed woodrats occur within and adjacent to the project area and are common and widespread throughout forested and chaparral habitats of the Santa Cruz Mountains. Woodrat houses (lodges or nests) made of sticks are usually built at the base of a shrub or tree. Individual houses may be occupied by successive generations for decades. Woodrat nests will be flagged for avoidance with special treatment flagging. During falling operations, trees will be aimed away from woodrat nests. The intent is to avoid damaging or destroying woodrat nests. Project activities are not anticipated to significantly impact this species.

PLANTS

The project area has been assessed for the potential presence of several rare plant species, described in Table 2. Special---status Vascular Plant Species with Potential to Occur within Deadman Gulch Restoration Project, Santa Cruz County, CA. Botanical reconnaissance has been conducted on foot on multiple days throughout the project area over the course of project layout. This recon included a

Table 2: Special-status Vascular Plant Species with Potential to Occur in the Deadman Gulch Restoration Pr Co., CA

Species Name, Common Name	Federal/State-listing, CA Rare Plant Rank	Habitat Preferences, Elevation	Phenology, Life Form	Local Distribution and Habitat Suita
Amsinckia lunaris bent-flowered fiddleneck	None/None 1B.2	Steep slopes, openings in coastal scrub, oak woodland, grassland. 50-800 m.	Mar-June Annual herb	Occurs in Scott Creek watershed and Swanton area (coastal slope) on Cal l land. Suitable habitat present.
Arabis blepharophylla coast rockcress	None/None 4.3	Rocky outcrops, slides. 3-1100 m.	Feb-May Perennial herb	Occurs at Eagle Rock. Suitable habita present.
Arctostaphylos andersonii Anderson's manzanita	None/None 1B.2	Openings and edges of redwood or mixed-evergreen forest, chaparral. 60-792 m.	Nov-May Evergreen shrub	Santa Cruz Mtns. endemic. Suitable habitat present.
Arctostaphylos silvicola Bonny Doon manzanita	None/None 1B.2	Inland marine sands (Zayante series) in conifer forest, maritime chaparral. 120-600 m.	Feb-Mar Evergreen shrub	Large population at Bonny Doon Ecological Reserve. Suitable substrat present.
Calandrinia breweri Brewer's calandrinia	None/None 4.2	Disturbed sites, burned areas, grassy slopes, chaparral, Monterey pine forest. < 1200 m.	Feb-May Annual herb.	Occurs at Big Basin Redwoods State l and probably elsewhere. Suitable habitat present.
Calyptridium parryi* var. *hesseae Santa Cruz Mountains pussypaws	None/None 1B.1	Sandy or gravelly openings in chaparral, woodland, forest. Fire-follower. 305-1530 m.	May-Aug Annual herb	Documented near Eagle Rock, thoug documented since the 1950s. Suitab habitat present.
Carex saliniformis deceiving sedge	None/None 1B.2	Wet openings in coastal prairie, coastal scrub, in redwood/mixed-evergreen forest or oak	June-July Perennial rhizomatous herb	Laurel and Felton quad occurrences extirpated; rediscovered in a seep ur redwood and live-oak in UCSC upper campus (Felton quad). Suitable habit

Table 2: Special-status Vascular Plant Species with Potential to Occur on San Vicente Redwoods property,

		woodland. 3-230 m.		present.
Species Name, Common Name	**Federal/State-listing, CA Rare Plant Rank**	**Habitat Preferences, Elevation**	**Phenology, Life Form**	**Local Distribution and Habitat Suita**
Chorizanthe pungens* var. *hartwegiana Ben Lomond spineflower	Federally Endangered/None 1B.1	Sandy openings (Zayante series) in maritime chaparral or understory of ponderosa pine forest, or on thin soils derived from Santa Cruz mudstone. 90-610 m.	April-July Annual herb	Occurs at Bonny Doon Ecological Reserve. Suitable substrate present.
Chorizanthe robusta* var. *robusta robust spineflower	Federally Endangered/None 1B.1	Inland or coastal marine sand deposits and sandstone outcrops; openings in maritime chaparral. 3-300 m.	Apr-Sep Annual herb	Closest population occurs near Smith Grade sandhills on private land. Suit substrate present.
Collinsia multicolor San Francisco collinsia	None/None 1B.2	Shady, moist slopes in Monterey pine forest, coastal scrub. 30-250 m.	Mar-May Annual herb	Occurs in Scott Creek/Waddell Creek watersheds. Suitable habitat present though at edge of elevational range.
Elymus californicus California bottlebrush grass	None/None 4.3	Moist openings in mixed-evergreen/ redwood forest, oak/riparian woodland. < 500 m.	May-Aug Perennial herb	Suitable habitat present.
Eriogonum nudum* var. *decurrens Ben Lomond buckwheat	None/None 1B.1	Sandy openings (Zayante series) in maritime chaparral, understory of ponderosa pine forest. 90-200 m.	July-Oct Perennial herb	Occurs at Bonny Doon Ecological Reserve. Suitable substrate present.

Table 2: Special-status Vascular Plant Species with Potential to Occur on San Vicente Redwoods property,

Species Name, Common Name	Federal/State-listing, CA Rare Plant Rank	Habitat Preferences, Elevation	Phenology, Life Form	Local Distribution and Habitat Suita
Erysimum teretifolium Santa Cruz wallflower	Federally and State-Endangered 1B.1	Sandy openings (Zayante series) in maritime chaparral, understory of ponderosa pine forest. 120-610 m.	Mar-July Perennial herb	Occurs at Bonny Doon Ecological Reserve. Suitable substrate present.
Hesperocyparis abramsiana* var. *abramsiana Santa Cruz cypress	Federally and State-Endangered 1B.2	Sandstone or granitic-derived soils in maritime chaparral, knobcone-pine forest. 280-800 m.	Evergreen tree	Stands at Bonny Doon Ecological Res and Eagle Rock and individual trees a Empire Grade. Suitable substrate present.
Horkelia marinensis Point Reyes horkelia	None/None 1B.2	Coastal prairie or openings in oak woodland/mixed evergreen forest. 5-755 m.	May-Sep Perennial herb	Suitable habitat present.
Hosackia gracilis harlequin lotus	None/None 4.2	Ditches, wet areas in meadows. < 700 m.	Mar-July Perennial herb	Occurs at Bonny Doon Ecological Reserve. Suitable habitat present.
Leptosiphon grandiflorus large-flowered leptosiphon	None/None 4.2	Sandy soil, open grassy flats. < 1200 m.	Apr-July Annual herb	Occurs off of Smith Grade in Bonny D area. Local plants appear to belong t unnamed subspecies. Suitable habita present.
Micropus amphibolus Mt. Diablo cottonweed	None/None 3.2	Openings on slopes, ridges, shallow soils. 40-900 m.	Mar-June Annual herb	Occurs in Swanton area (coastal slop Suitable habitat present.

Table 2: Special-status Vascular Plant Species with Potential to Occur on San Vicente Redwoods property,

Species Name, Common Name	Federal/State-listing, CA Rare Plant Rank	Habitat Preferences, Elevation	Phenology, Life Form	Local Distribution and Habitat Suita
Microseris paludosa marsh microseris	None/None 1B.2	Vernally moist to saturated sites in coastal grassland. 5-300 m.	Apr-July Perennial herb	Occurs in Scott Creek watershed. Suitable habitat present.
Mimulus rattanii* ssp. *decurtatus Santa Cruz County monkeyflower	None/None 4.2	Sandy, open places, especially sandstone outcrops or burns, disturbed areas. 90-1220 m.	Apr-July Annual herb	Occurs at Bonny Doon Ecological Reserve. Suitable habitat present.
Monardella sinuata* ssp. *nigrescens northern curly-leaved monardella	None/None 1B.2	Sandy openings (Zayante series) in maritime chaparral, understory of ponde-rosa pine forest. < 300 m.	May-July Annual herb	Occurs at Bonny Doon Ecological Reserve. Suitable habitat present.
Pedicularis dudleyi Dudley's lousewort	None/State-listed Rare 1B.2	Shaded, summer-moist banks and cliffs in riparian sites in redwood forest. < 350 m.	Mar-June Perennial herb	Apparently extirpated from Santa Cr County. Closest occurrence in Portol Redwoods State Park, San Mateo Co Suitable habitat present.
Penstemon rattanii* var. *kleei Santa Cruz Mtns. beardtongue	None/None 1B.2	Fire/disturbance-follower, in chaparral, mixed hardwood/redwood forest. 400-600 m.	May-June Perennial herb	Occurs off of Empire Grade. Suitable habitat present.

Table 2: Special-status Vascular Plant Species with Potential to Occur on San Vicente Redwoods property, S

Species Name, Common Name	Federal/State-listing, CA Rare Plant Rank	Habitat Preferences, Elevation	Phenology, Life Form	Local Distribution and Habitat Suita
Pentachaeta bellidiflora white-rayed pentachaeta	Federally and State Endangered 1B.1	Dry, rocky slopes, grassy areas. < 620 m.	Mar-May Annual herb	Occurs at Eagle Rock. Last document 1955. At southern edge of range. Sui habitat present.
Pinus radiata Monterey pine	None/None 1B.1	Closed-cone coniferous forest, woodland. 25-185 m.	Evergreen tree	Native stands occur at Swanton and Nuevo. Suitable habitat present.
Piperia candida white-flowered rein orchid	None/None 1B.2	Open or shaded sites in mixed-evergreen/ redwood forest. < 1500 m.	Mar-Sep Perennial herb	Occurs near Pine Mtn. at Big Basin Redwoods S.P. Suitable habitat prese
Plagiobothrys chorisianus* var. *chorisianus Choris's popcorn-flower	None/None 1B.2	Moist depressions, coastal prairie, cha-parral, coastal scrub. < 200 m.	Mar-June Annual herb	Occurs in Scott Creek watershed/Swanton (coastal slope) a Suitable habitat present.
Plagiobothrys chorisianus* var. *hickmanii Hickman's popcorn-flower	None/None 4.2	Moist depressions, sandy deposits over clay pans. < 200 m.	Apr-July Annual herb	Occurs in Scott Creek watershed/Swanton (coastal slope) a Suitable habitat present.
Plagiobothrys diffusus San Francisco popcorn-flower	None/State-listed Endangered 1B.1	Moist depressions, seeps in coastal prairie/annual grassland. 30-150 m.	Apr-June	Occurs in Scott Creek watershed. Suitable habitat present.

Table 2: Special-status Vascular Plant Species with Potential to Occur on San Vicente Redwoods property, S

Species Name, Common Name	Federal/State-listing, CA Rare Plant Rank	Habitat Preferences, Elevation	Phenology, Life Form	Local Distribution and Habitat Suita
Sanicula hoffmannii Hoffmann's sanicle	None/None 4.3	Understory or gaps in coastal scrub, mixed-evergreen/redwood/ Monterey pine woodland or forest. < 500 m.	Mar-May Perennial herb	Occurs in Scott Creek/Waddell Creek watersheds. Suitable habitat present
Sidalcea malachroides maple-leaved checkerbloom	None/None 4.2	Disturbed, open areas in coastal woodland. < 700 m.	Mar-Aug Perennial herb	No occurrences on Ben Lomond Mtn Suitable habitat is present.
Silene verecunda **ssp. verecunda** [*S. v.* in *The Jepson Manual*, 2nd ed.] San Francisco campion	None/None 1B.2	Sandy openings, roadcuts, rocky slopes in chaparral, coastal prairie, Monterey pine woodland. < 400 m.	Mar-Aug Perennial herb	Occurs in Swanton area and at Big Ba Redwoods State Park. Suitable habit present.
Stebbinsoseris decipiens Santa Cruz microseris	None/None 1B.2	Coastal grassland, grassy slopes, openings in Monterey pine forest. 10-500 m.	Apr-May Annual herb	Occurs in Scott Creek watershed and ridge between upper Scott/Mill cree and in Swanton area (coastal slope). Suitable habitat present.
Trifolium buckwestiorum Santa Cruz clover	None/None 1B.1	Gravelly areas, margins, disturbed areas in coastal prairie, oak woodland, mixed-evergreen forest. < 700 m.	Apr-Oct Annual herb	Type locality in Scott Creek watershe Suitable habitat present.

significant sample of all habitat types, ecotones, and elevation extremes. All vascular plants observed during this recon were identifiable to a sufficient taxonomic level to determine their rarity and listing status. No threatened or endangered plants were detected during the botanical survey. Two plant species of botanical interest were discovered to have habitat within the project area. Measures to avoid impacts to these species are described below. Botanical reconnaissance will continue during site visits and monitoring through spring 2017.

Point Reyes horkelia (*Horkelia marinensis*)

Point Reyes horkelia is a feathery forb species with white flowers that is on the CNPS 1B.2 list. A small colony of 5-10 plants was discovered along the Gate 21 access road adjacent to PG&E powerlines (see Botanical Species of Interest/Impaired Forest Condition Classes map). This species occurs in coastal prairie hábitats or openings in oak woodland/mixed evergreen forests. The individual plants discovered along the access road shall be flagged for avoidance and protected from harm to the extent feasible throughout project activities.

Santa Cruz Manzanita (*Arctostaphylous andersonii*)

Santa Cruz manzanita is an evergreen shrub with no state or federal listing and is a species on the CNPS 1B list. This species is widespread throughout Ben Lomond Mountain and is especially prevalent on the ridges in small openings and on forest edges. CNDDB indicates multiple records covering thousands of plants within 5 miles of the project area. Though this Santa Cruz Mountains endemic is relatively common within the Scotts Creek watershed in its preferred habitat of forest openings or edges, only a few gangly specimens were located on the edges of the project area over the course of layout, having been shaded out by the surrounding forest. These individuals will be flagged for avoidance during treatment activities. This obligate-seeder depends on disturbance to reduce competition and assist in the germination of its very hard seeds. Types of disturbance include timber-harvest related activities such as road and trail maintenance as well as forest thinning. Therefore, it is possible that this species may appear following these latter activities, which temporarily improve the light conditions that this species requires.

TERRESTRIAL NATURAL PLANT COMMUNITIES

In addition to querying the CNDDB for plant taxa in the vicinity, the CNDDB was consulted for sensitive plant communities. The terrestrial natural communities noted as occurring within the 9-quad query area are not present within the area potentially impacted by the proposed treatment.

Exotic Species

There are relatively few exotic species in the project area and surroundings. The few thistles and non-native forbs observed were largely confined to disturbed areas along the ridge road. Invasive plant species on the property are monitored and treated according to a proactive and adaptive Management Plan. A small population of French broom (*Genista monspessulana*) was previously identified on the ridge road south of the project areas and has been treated by hand several time. Monitoring and control efforts of this kind are planned to continue.

Resources Consulted

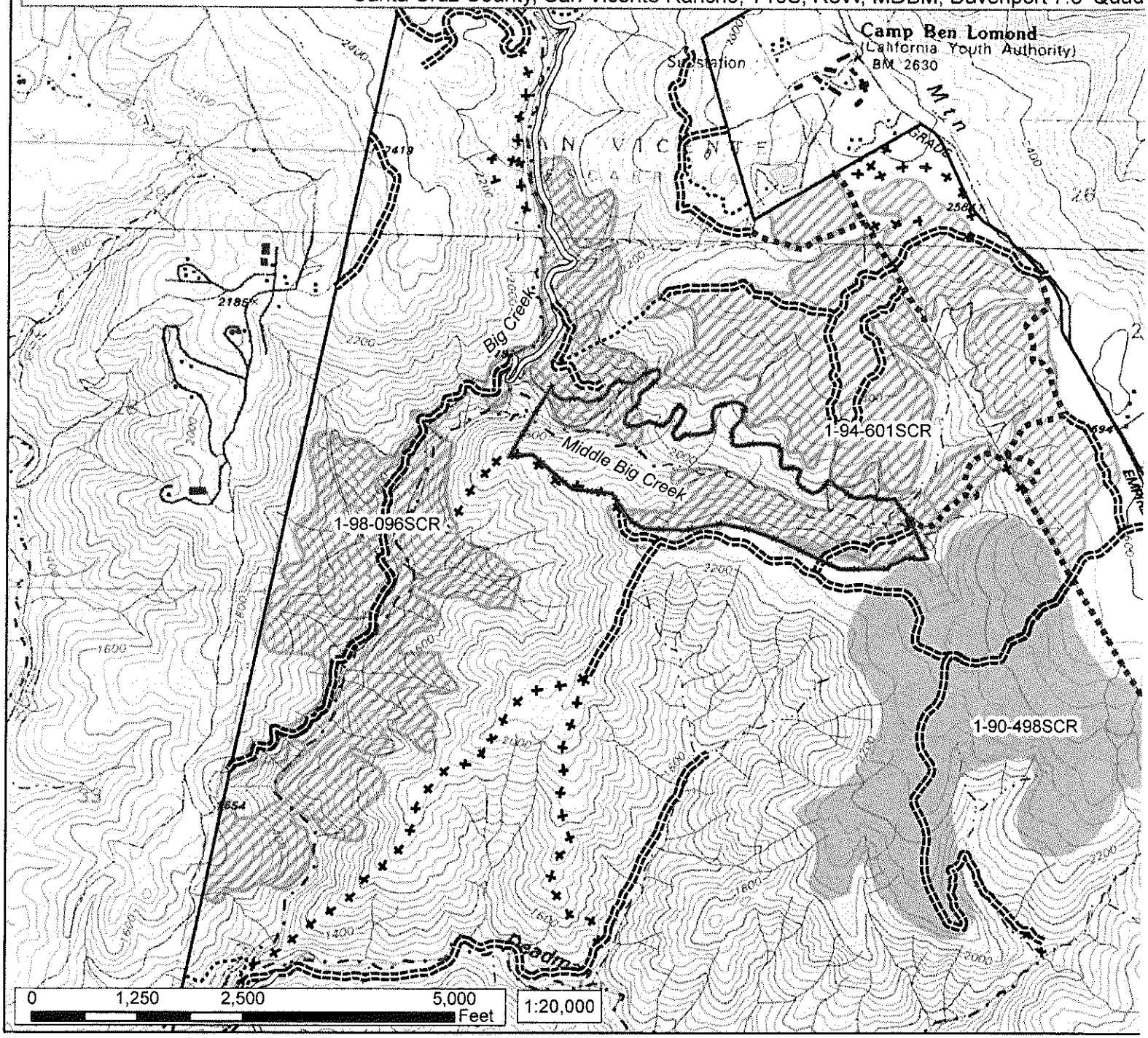
1. California Natural Diversity Database (CNDDB), Wildlife & Habitat Data Analysis Branch, Department of Fish and Wildlife, August 2013.
2. The California Wildlife Habitat Relationships System (version 8.0). The CWHR queried species based on county, habitat elements, and listed species. The species list was further revised using expert knowledge and additional resources cited below.
3. The CDFW list of *"Special Animals"*, February 2006 version. This list, maintained in conjunction with the CNDDB, contains the most accurate and up to date information on the status of animals listed by State and Federal entities.
4. The Santa Cruz Mountains Bioregional Council's list *Sensitive Fauna of the Santa Cruz Mountains Bioregion*, available at www.scmb.net/speciesatrisk-04.htm.
5. Federal recovery plans for species listed as threatened or endangered under the U.S. Endangered Species Act (ESA).
6. Individual species distribution and life history materials available on the CDFW and USFWS websites.
7. California's Wildlife Volume I and II Amphibians and Reptiles and Birds. From the Department of Fish and Game.
8. National Audubon Society Field Guide to North American Reptiles and Amphibians. Behler and King. 1996.
9. A field guide to western reptiles and amphibians. Third edition. Houghton Mifflin Company, New York, New York. 533 pp. Stebbins, R.C. 2003.
10. Handbook of frogs and toads of the United States and Canada. Third Edition. Comstock Publishing Company, Ithaca, New York. xii+640 pp. Wright, A.H. and A.A. Wright. 1949.
11. California Red-legged Frog Take Avoidance Scenarios, March 25, 2008.
12. Information Needs and Guidelines for Timber Harvest Plans (THPs) for US Fish and Wildlife Service Technical Assistance Analysis California Red-legged Frogs; March 25, 2008.
13. California Department of Forestry and Fire Protection Recommendations for Addressing California Red-legged Frog Take Avoidance in Timber Harvesting Documents; July 28, 2008.
14. USFWS Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog; August, 2005.
15. Terrestrial activity and conservation of adult California red-legged frogs *Rana aurora draytonii* in coastal forests and grasslands; J.B. Bulger et al.; Biological Conservation, 2003.
16. Life History Aspects of the San Francisco Garter Snake at the Millbrae Habitat Site. M.S. Thesis. Californria State University, Hayward, California. Larsen, S.S. 1994.
17. The Birder's Handbook: A Field Guide to the Natural History of North American Birds. Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. Simon & Schuster, New York.
18. The Birds of North America. Edited by A. Poole and F. Gill. Philadelphia: The Academy of Natural Sciences, Philadelphia, and the American Ornithologists' Union, Washington, D.C.
19. Checklist of the birds of Santa Cruz County. Prepared by D.L. Suddjian, December 31, 2005.
20. Williams. D.F. 1986. Mammalian Species of Special Concern. California Department of Fish and Game Report, 112 pp.
21. Pierson, E. D., W. E. Rainey, and D.M. Koontz. 1991. Bats and mines: experimental mitigation for Townsend's big-eared bat at the McLaughlin Mine in California. Pp. 31-42, in Issues and technology in the management of impacted wildlife, Snowmass, CO. April 8-10, 1991, Proceedings, Thorne Ecological Institute.
22. Mazurek, M. J. 2004. A maternity roost of Townsend's big-eared bats (Corynorhinus townsendii) in coast redwood basal hollows in northwestern California. Northwestern naturalist 85:60-62.

23. Fellers, G. M., and E. D. Pierson. 2002. Habitat use and foraging behavior of Townsend's big-eared bat (Corynorhinus townsendii) in coastal California. Journal of Mammalogy 83:167-177.
24. Tipton, V. M. 1983. Activity patterns of a maternity colony of Plecotus townsendii virginianus. Bat Research News 24:56-57.
25. Environmental documents prepared for nearby projects that have occurred within the Deadman Gulch watershed, including:
    CEMEX 2009 Timber Harvest Plan No. 1-09-045 SCR
26. Flora of the Santa Cruz Mountains of California: A Manual of the Vascular Plants. By John Hunter Thomas. Stanford University Press. 1961.
27. Plants of the Coast Redwood Region. Text by Kathleen Lyons and Mary Beth Cooney-Lazaneo, photography by Howard King. Shoreline Press. 2003.
28. Visual Guide to Native and Naturalized Coastal County Plants From Santa Cruz to Mendocino. By George L. Pikkarainen. Pikkdata. 2002.
29. The Rare and Endangered Plants of San Mateo and Santa Clara County. Toni Corelli and Zoe Chandik. 1995
30. The Cal Flora website was used to identify habitat types where plant species of concern, state listed, or federally listed might be located. http://www.calflora.org/.
31. The California Native Plant Society website was used to assist in identification of habitat types where state/federally listed or species of concern might be located. http://cnps.org/.
32. West, James A., Traversing Swanton Road, circa 2005.
33. An Annotated Checklist of Vascular Plants of Santa Cruz County, California. By Dylan Neubauer et al. 2013.

Maps

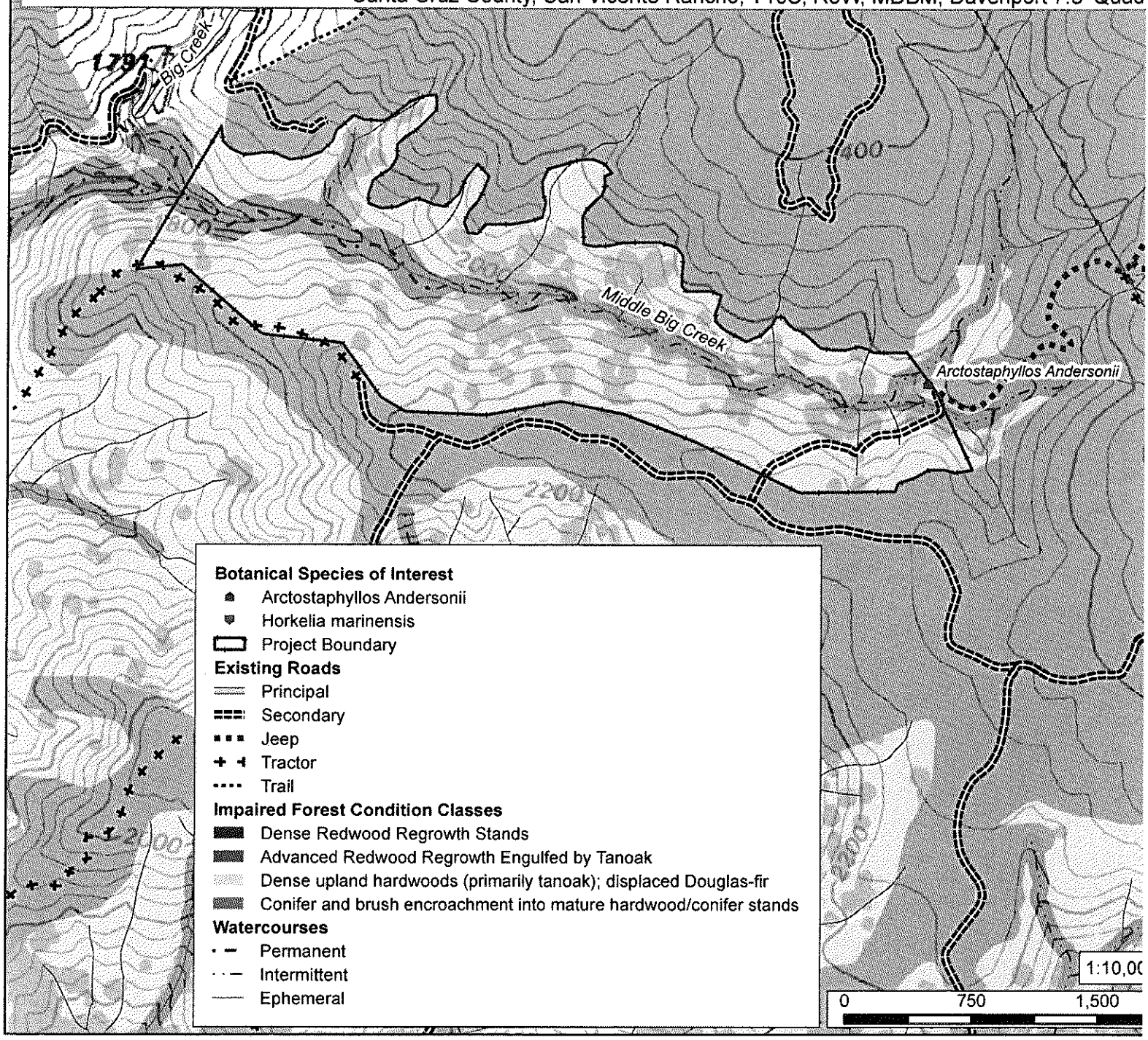
SAN VICENTE REDWOODS * DEADMAN GULCH RESTORATION
HARVEST AND FIRE HISTORY MAP

Santa Cruz County, San Vicente Rancho, T10S, R3W, MDBM, Davenport 7.5' Quad



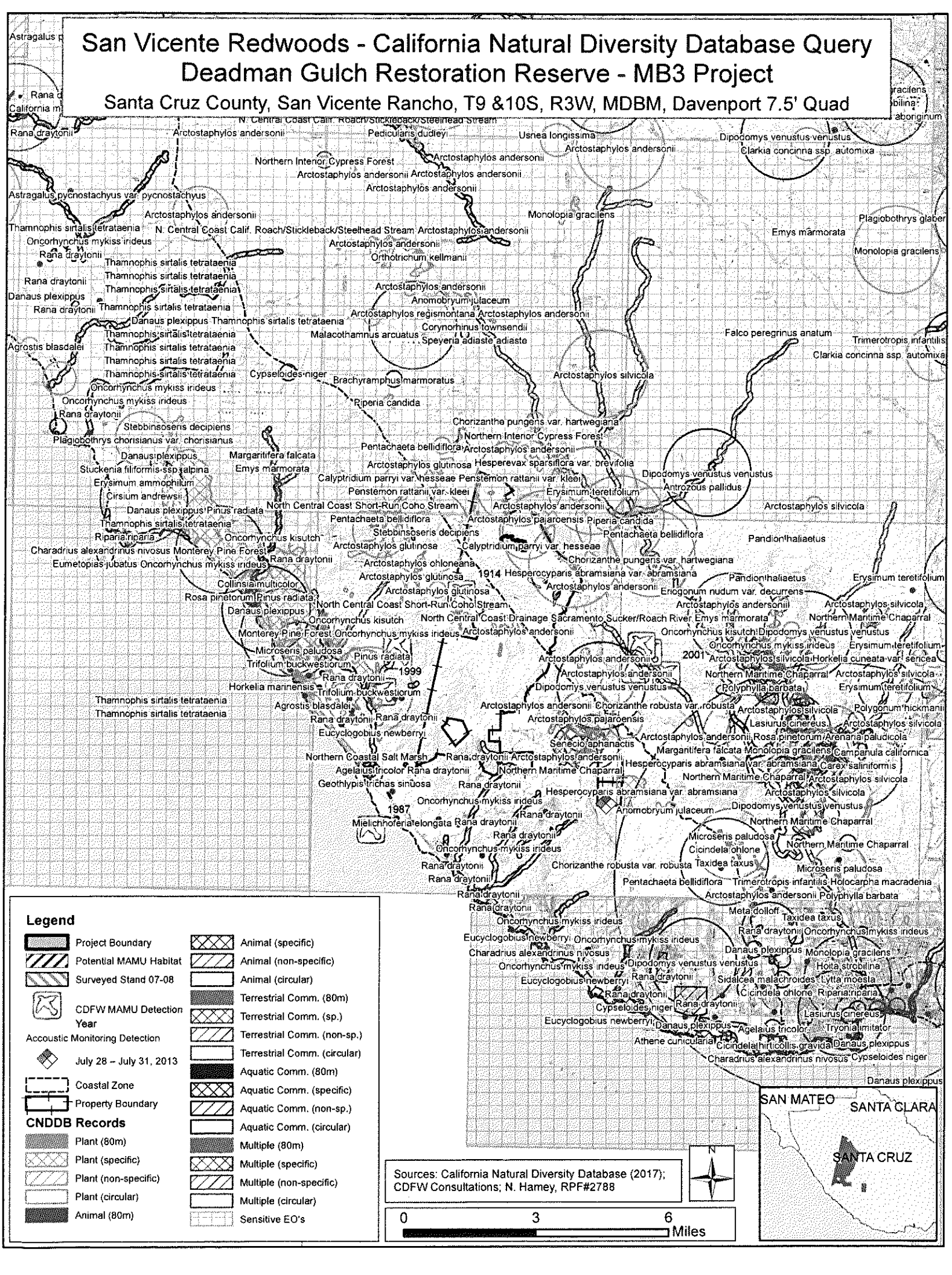
SAN VICENTE REDWOODS * DEADMAN GULCH RESTORATION
VEGETATION TYPE / IMPAIRED FOREST CONDITION CLASS

Santa Cruz County, San Vicente Rancho, T10S, R3W, MDBM, Davenport 7.5' Quad



Attachment 1: CNDDB Query Results and Map

San Vicente Redwoods - California Natural Diversity Database Query
Deadman Gulch Restoration Reserve - MB3 Project
Santa Cruz County, San Vicente Rancho, T9 &10S, R3W, MDBM, Davenport 7.5' Quad



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Imported file selection

Deadman Gulch Restoration Reserve - MB3 Project

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Adela oplerella Opler's longhorn moth	IILEE0G040	None	None	G2	S2	
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
Agrostis blasdalei Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070	None	None	G2G3	S2S3	1B.2
Anomobryum julaceum slender silver moss	NBMUS80010	None	None	G5?	S2	4.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Arctostaphylos andersonii Anderson's manzanita	PDERI04030	None	None	G2	S2	1B.2
Arctostaphylos glutinosa Schreiber's manzanita	PDERI040G0	None	None	G1	S1	1B.2
Arctostaphylos ohloneana Ohlone manzanita	PDERI042Y0	None	None	G1	S1	1B.1
Arctostaphylos regismontana Kings Mountain manzanita	PDERI041C0	None	None	G2	S2	1B.2
Arctostaphylos silvicola Bonny Doon manzanita	PDERI041F0	None	None	G1	S1	1B.2
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Arenaria paludicola marsh sandwort	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Brachyramphus marmoratus marbled murrelet	ABNNN06010	Threatened	Endangered	G3G4	S1	
Calasellus californicus An isopod	ICMAL34010	None	None	G2	S2	
California macrophylla round-leaved filaree	PDGER01070	None	None	G3?	S3?	1B.2
Calyptridium parryi var. hesseae Santa Cruz Mountains pussypaws	PDPOR09052	None	None	G3G4T2	S2	1B.1
Campanula californica swamp harebell	PDCAM02060	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Carex saliniformis deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Chorizanthe pungens var. hartwegiana Ben Lomond spineflower	PDPGN040M1	Endangered	None	G2T1	S1	1B.1
Chorizanthe robusta var. hartwegii Scotts Valley spineflower	PDPGN040Q1	Endangered	None	G2T1	S1	1B.1
Chorizanthe robusta var. robusta robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
Cicindela hirticollis gravida sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
Cicindela ohlone Ohlone tiger beetle	IICOL026L0	Endangered	None	G1	S1	
Cirsium andrewsii Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
Clarkia concinna ssp. automixa Santa Clara red ribbons	PDONA050A1	None	None	G5?T3	S3	4.3
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Cypseloides niger black swift	ABNUA01010	None	None	G4	S2	SSC
Dacryophyllum falcifolium tear drop moss	NBMUS8Z010	None	None	G2	S2	1B.3
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
Dipodomys venustus venustus Santa Cruz kangaroo rat	AMAFD03042	None	None	G4T1	S1	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eriogonum nudum var. decurrens Ben Lomond buckwheat	PDPGN08492	None	None	G5T1	S1	1B.1
Erysimum ammophilum sand-loving wallflower	PDBRA16010	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Erysimum teretifolium Santa Cruz wallflower	PDBRA160N0	Endangered	Endangered	G1	S1	1B.1
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Eumetopias jubatus Steller (=northern) sea-lion	AMAJC03010	Delisted	None	G3	S2	
Euphilotes enoptes smithi Smith's blue butterfly	IILEPG2026	Endangered	None	G5T1T2	S1S2	
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fissilicreagris imperialis Empire Cave pseudoscorpion	ILARAE5010	None	None	G1	S1	
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
Hesperocyparis abramsiana var. abramsiana Santa Cruz cypress	PGCUP04081	Threatened	Endangered	G1T1	S1	1B.2
Hesperocyparis abramsiana var. butanoensis Butano Ridge cypress	PGCUP04082	Threatened	Endangered	G1T1	S1	1B.2
Hoita strobilina Loma Prieta hoita	PDFAB5Z030	None	None	G2	S2	1B.1
Holocarpha macradenia Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Limnanthes douglasii ssp. sulphurea Point Reyes meadowfoam	PDLIM02038	None	Endangered	G4T1	S1	1B.2
Lytta moesta moestan blister beetle	IICOL4C020	None	None	G2	S2	
Malacothamnus arcuatus arcuate bush-mallow	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
Margaritifera falcata western pearlshell	IMBIV27020	None	None	G4G5	S1S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Maritime Coast Range Ponderosa Pine Forest Maritime Coast Range Ponderosa Pine Forest	CTT84132CA	None	None	G1	S1.1	
Meta dolloff Dolloff Cave spider	ILARA17010	None	None	G1	S1	
Microseris paludosa marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2
Mielichhoferia elongata elongate copper moss	NBMUS4Q022	None	None	G5	S4	4.3
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
Monterey Pine Forest Monterey Pine Forest	CTT83130CA	None	None	G1	S1.1	
N. Central Coast Calif. Roach/Stickleback/Steelhead Stream N. Central Coast Calif. Roach/Stickleback/Steelhead Stream	CARA2633CA	None	None	GNR	SNR	
Neochthonius imperialis Empire Cave pseudoscorpion	ILARAD1010	None	None	G1	S1	
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	AMAFF08082	None	None	G5T2T3	S2S3	SSC
North Central Coast Drainage Sacramento Sucker/Roach River North Central Coast Drainage Sacramento Sucker/Roach River	CARA2623CA	None	None	GNR	SNR	
North Central Coast Short-Run Coho Stream North Central Coast Short-Run Coho Stream	CARA2632CA	None	None	GNR	SNR	
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Interior Cypress Forest Northern Interior Cypress Forest	CTT83220CA	None	None	G2	S2.2	
Northern Maritime Chaparral Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
Oncorhynchus kisutch coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
Oncorhynchus mykiss irideus steelhead - central California coast DPS	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Orthotrichum kellmanii Kellman's bristle moss	NBMUS56190	None	None	G2	S2	1B.2
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pedicularis dudleyi Dudley's lousewort	PDSCR1K0D0	None	Rare	G2	S2	1B.2
Penstemon rattanii var. kleei Santa Cruz Mountains beardtongue	PDSCR1L5B1	None	None	G4T2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Pentachaeta bellidiflora white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
Philanthus nasalis Antioch specid wasp	IIHYM20010	None	None	G1	S1	
Pinus radiata Monterey pine	PGPIN040V0	None	None	G1	S1	1B.1
Piperia candida white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	PDBOR0V061	None	None	G3T2Q	S2	1B.2
Plagiobothrys diffusus San Francisco popcornflower	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
Polygonum hickmanii Scotts Valley polygonum	PDPGN0L310	Endangered	Endangered	G1	S1	1B.1
Polyphylla barbata Mount Hermon (=barbate) June beetle	IICOL68030	Endangered	None	G1	S1	
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Rosa pinetorum pine rose	PDROS1J0W0	None	None	G2	S2	1B.2
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Silene verecunda ssp. verecunda San Francisco campion	PDCAR0U213	None	None	G5T2	S2	1B.2
Speyeria adiaste adiaste unsilvered fritillary	IILEPJ6143	None	None	G1G2T1	S1	
Stebbinsoseris decipiens Santa Cruz microseris	PDAST6E050	None	None	G2	S2	1B.2
Stuckenia filiformis ssp. alpina slender-leaved pondweed	PMPOT03091	None	None	G5T5	S3	2B.2
Stygobromus mackenziei Mackenzie's Cave amphipod	ICMAL05530	None	None	G1	S1	
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis sirtalis tetrataenia San Francisco gartersnake	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
Trifolium buckwestiorum Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Trimerotropis infantilis Zayante band-winged grasshopper	IIORT36030	Endangered	None	G1	S1	
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Usnea longissima Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2

Record Count: 106

County of Santa Cruz

PLANNING DEPARTMENT
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KATHLEEN MOLLOY PREVISICH, PLANNING DIRECTOR

MITIGATION MONITORING AND REPORTING PROGRAM for the PROPOSED DEADMAN GULCH RESTORATION PROJECT

Application No. 171076, July 17, 2017

No.	Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
Biological Resources					
BIO-1	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or U.S. Fish and Wildlife Service?	**Coho Salmon (*Oncorhynchus kisutch*) and Steelhead Trout (*Oncorhynchus mykiss*)** Central California Coast Evolutionary Significant Unit (ESU) coho salmon are listed as threatened under the federal Endangered Species Act (ESA) and endangered under the California ESA. Central California Coast ESU steelhead are listed as federally threatened and are a State Species of Special Concern. While the project site is above the limit of anadromy for both species, contamination of streams within the project site with sediment and organic debris, and alteration of surface hydrology, could affect areas downstream in Big Creek and Scott Creek, which provide spawning and rearing habitat for these species. For this reason, the following protective measures are included in the project: • Within the channel zone, a minimum 80 percent canopy closure will be maintained, where present; within the riparian corridors, a minimum 60 percent canopy closure will be maintained, where present. • To the extent practical, trees will not be felled across or adjacent to streams. If a tree inadvertently lands in the watercourse it shall be brought to the attention of the RPF. If the presence of the wood has the potential to negatively impede the flow of water that section of wood shall be bucked out immediately by hand. Trees shall not be felled into, or across a watercourse where negative impacts to the beneficial uses of water are anticipated. No sediment shall be discharged as a result of cross-falling. • Any bare soil exceeding 100 contiguous square feet resulting from project operations will be covered with limbs or other slash; • Slash will be removed from the riparian corridor where not stabilized.	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be implemented during vegetation removal and revegetation efforts.
BIO-2		**California Red-legged Frog (*Rana aurora draytonii*)** California red-legged frog is listed as threatened under the federal ESA and as a Species of Special Concern by CDFW. As shown in the CNDDB map contained in the Biotic Report, the closest observation of California red-legged frog (*Rana draytonii*) is several miles away from the project site. No suitable breeding and rearing habitat for this species has been observed within the project site. Because the species disperses into a wide variety of habitat types during the non-breeding season, including moist forests well	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered	To be implemented during vegetation removal and revegetation efforts

No.	Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
		away from standing or flowing water, the project includes implementation of take avoidance measures promulgated by the U.S. Fish and Wildlife Service (USFWS, 2008). To avoid impacts to California red-legged frog, the project will proceed in accordance with the avoidance measures outlined below. These measures are based on guidelines developed by the U.S. Fish and Wildlife Service (USFWS, 2008) with slight modifications adapted to site-specific conditions, which have been developed by the project Forester who has training in CRLF life history and habitat requirements. In addition, through the requested pre-consultation, USFWS will ascertain the suitability of the project site for this species and may provide additional mitigation for species protection, which will be incorporated into the project. 1. Prior to operations occurring in the wet season, the project Forester or a qualified biologist will conduct a biological resources education program for workers, and will appoint a crew member to act as an on-site biological monitor. The educational program will include a description of the California red-legged frog and its habitat, and the guidelines that should be followed by all project personnel to avoid take of the species. Educational programs will be conducted for new personnel before they join project activities. Color photographs will be used in the training session, and a qualified person will be on hand to answer questions. For purposes of protection of red-legged frogs, the wet season begins with the first frontal rain system depositing a minimum of 0.25 inches of rain after October 15 and ending on April 15. In the absence of rain events that total at least 0.25 inches as measured at the Ben Lomond rain gauge, wet season restrictions will nevertheless apply on November 30. 2. For wet-season operations, before project activities begin each day, the project Forester or a biological monitor will inspect under any equipment left overnight to look for California red-legged frogs. If a red-legged frog is found, the red-legged frog will not be relocated or captured, and all activities that could result in take will cease and the sighting will be reported to CDFW, USFWS, and the County of Santa Cruz, along with measures being implemented to avoid take of the individual. Activities related to the observation shall not commence until approved by the agencies. 3. Trees shall be felled away from riparian habitat, including springs, seeps, bogs, and other wet areas with saturated ground in most cases; however, in site-specific situations to improve the safety of operations or to better protect residual vegetation and the beneficial uses of water within the watercourse, trees may be felled in whichever direction spares the most residual vegetation, including parallel to or toward a watercourse, where circumstances warrant it. Prior to cross-falling, the project Forester or a biological monitor will walk the lay of the tree to check any potential habitat for California Red-legged frogs. If any are found, protection and reporting measures described in #2 will be followed. 4. All refueling, maintenance, and staging of equipment and vehicles will		Professional Forester, and Work Crews	

No.	Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
		occur at least 60 feet from riparian habitat or water bodies. Supervisors will insure that all vehicles and equipment are inspected for fuel leaks, oil leaks, and other fluid leaks before and during their use on the San Vicente Redwoods property, to ensure that aquatic and upland habitats are not contaminated. Prior to the onset of work, the project Forester will ensure that a plan is in place for prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take shall a spill occur. A spill kit shall be kept on site at all times. 5. No herbicide use shall occur within the riparian corridor or within 30 feet of any suitable habitat except for direct application to stumps. 6. During project activities, all trash that may attract predators will be put in sealed trash containers, removed from the work site, and disposed of regularly. Following project activities, all trash and debris will be removed from work areas.			
BIO-3		**Nesting Birds** All nesting bird species are protected by the Migratory Bird Treaty Act. For any project activities planned during the nesting season (March 15-August 15), harm to active nests will be avoided through diligent nest searches conducted by the project Forester during project lay-out and tree marking, as well as by tree fallers prior to falling each tree. If nests are located which have indicators of current nesting activity, project operations shall cease in the vicinity. Setbacks shall be 150 feet for passerines (songbirds) and 300 feet for raptors. The project Forester, in consultation with a qualified biologist, will determine the nesting status and species and will formulate appropriate protection measures. The sighting will be reported to CDFW and the County of Santa Cruz, along with measures being implemented to avoid take of the individual. Activities in the vicinity shall not commence until approved by the agencies.	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be implemented during vegetation removal and revegetation efforts
BIO-4		**Marbled Murrelet (*Brachyramphus marmoratus*)** The marbled murrelet is listed as endangered under the State ESA and threatened under the federal ESA. While there have been no known detections of marbled murrelet within or adjacent to the project site, there have been several detections in the area, and potentially suitable nesting habitat exists within the San Vicente Redwoods property south of the project site. As discussed in more detail in the Biotic Report, the project Forester has conducted a survey of potentially suitable nesting trees for marbled murrelet within the project site, and has initiated pre-project consultation with CDFW. Based on the outcome of the consultation, any necessary protective measures to avoid take of this species will be incorporated into the project, as described here.	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be implemented during vegetation removal and revegetation efforts
BIO-5		**San-Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)** The San Francisco dusky-footed woodrat is a CDFW Species of Special	Applicant, Contractor, and	To be monitored by the County Planning Department,	To be implemented during project design and

No.	Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
		Concern. Dusky-footed woodrats occur within and adjacent to the project area and are common and widespread throughout forested and chaparral habitats of the Santa Cruz Mountains. Woodrat houses (lodges or nests) made of sticks are usually built at the base of a shrub or tree. Individual houses may be occupied by successive generations for decades. Woodrat nests will be flagged for avoidance with special treatment flagging. During falling operations, trees will be aimed away from woodrat nests. The intent is to avoid damaging or destroying woodrat nests.	Project Biologist	Applicant, Contractor, and the Project Biologist.	construction.
BIO-6		**Plants** The project area has been assessed for the potential presence of several rare plant species, described in Table 2 of the Biological Resources Assessment prepared for the project (Attachment 4 of the Initial Study). Botanical reconnaissance has been conducted on foot on multiple days throughout the project area over the course of project layout. This reconnaissance included a significant sample of all habitat types, ecotones, and elevation extremes. All vascular plants observed during this recon were identifiable to a sufficient taxonomic level to determine their rarity and listing status. No threatened or endangered plants were detected during the botanical survey, including plants such as the Santa Cruz cypress (*Cupressus abramsiana*), Santa Cruz Mountains pussypaws *(Calyptridium parryi* var. *hesseae*), Santa Cruz Mountain beardtongue (*Penstemon rattanii* var. *kleei*) and Santa Cruz microceris (*Microceris decipiens*). Two plant species of botanical interest were discovered to have habitat within the project area. Measures to avoid impacts to these species are described below. Botanical reconnaissance will continue during site visits and monitoring preceding project implementation. If any listed plant species are discovered, individual plants shall be flagged for avoidance and protected from harm to the extent feasible throughout project activities. In order to minimize the possible spread of Sudden Oak Death (*Phytophthora ramorum*), Best Management Practices will be followed to mitigate the chance of pathogens leaving potential host locations. Mitigation measures will include routing equipment away from potential host locations, inspecting equipment for debris, and sanitizing all equipment and shoes before leaving the project site.	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be implemented during vegetation removal and revegetation efforts
BIO-7		**Point Reyes horkelia (*Horkelia marinensis*)** Point Reyes horkelia is a feathery forb species with white flowers that is on the CNPS 1B.2 list. A small colony of 5-10 plants was discovered along the Gate 21 access road adjacent to PG&E powerlines. This species occurs in coastal prairie habitats or openings in oak woodland/mixed evergreen forests. The individual plants discovered along the access road shall be flagged for avoidance and protected from harm to the extent feasible throughout project activities.	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be implemented during vegetation removal and revegetation efforts

No.	Environmental Impact	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
BIO-8		**Santa Cruz Manzanita (*Arctostaphylous andersonii*)** Santa Cruz manzanita is an evergreen shrub with no state or federal listing and is a species on the CNPS 1B list. This species is widespread throughout Ben Lomond Mountain and is especially prevalent on the ridges in small openings and on forest edges. CNDDB indicates multiple records covering thousands of plants within 5 miles of the project area. Though this Santa Cruz Mountains endemic is relatively common within the Scotts Creek watershed in its preferred habitat of forest openings or edges, only a few gangly specimens were located on the edges of the project area over the course of layout, having been shaded out by the surrounding forest. These individuals will be flagged for avoidance during treatment activities. This obligate-seeder depends on disturbance to reduce competition and assist in the germination of its very hard seeds. Types of disturbance include timber-harvest related activities such as road and trail maintenance as well as forest thinning. Therefore, it is possible that this species may appear following these latter activities, which temporarily improve the light conditions that this species requires.	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be implemented during vegetation removal and revegetation efforts
Cultural Resources					
CUL-1	Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.	Pursuant to Section 16.40.040 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.	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be implemented during vegetation removal and revegetation efforts
CUL-2	Disturb any human remains, including those interred outside of dedicated cemeteries.	Pursuant to Section 16.40.040 of the Santa Cruz County Code, if at any time during the site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons 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 group shall be contacted. 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.	Applicant, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be monitored by the County Planning Department, Applicant, Contractor, San Vicente Redwoods Property Manager, Registered Professional Forester, and Work Crews	To be implemented during vegetation removal and revegetation efforts