

Initial Study and Draft Mitigated Negative Declaration

Richard Anderson

**Environmental Review of General Plan Amendment, Rezone, and Minor
Subdivision**

June 2023





Prepared By
Del Norte County
Community Development Department
Planning Division
981 H Street, Suite 110
Crescent City, California 95531
www.co.del-norte.ca.us

This page intentionally left blank.

Contents

Project Information Summary	5
Environmental Factors Potentially Affected	8
Determination	8
Environmental Checklist	9
1. Aesthetics	9
2. Agriculture and Forest Resources	10
3. Air Quality	11
4. Biological Resources	12
5. Cultural Resources	18
6. Energy	19
7. Geology and Soils	19
8. Greenhouse Gas Emissions	20
9. Hazards and Hazardous Materials	21
10. Hydrology and Water Quality	22
11. Land Use and Planning	23
12. Mineral Resources	23
13. Noise	24
14. Population and Housing	24
15. Public Services	25
16. Recreation	25
17. Transportation	26
18. Tribal Cultural Resources	26
19. Utilities and Service Systems	26
20. Wildfire	27
21. Mandatory Findings of Significance	28
Mitigation Monitoring Plan	29

Exhibits and Appendices Follow

- 1) Biological Assessment: Bachelor Rd THP (Prepared by Corrina Kamoroff and dated 8/19/2022)
- 2) Botanical Survey Report: Bachelor Rd Timber Harvest Plan (Prepared by Caitlyn Allchin and dated 6/5/2023) and Bachelor Road Timber Harvest Plan: Aquatic Resources Delineation Report (Prepared by Jonathan Foster and dated May 2023)
- 3) On-Site Sewage Disposal Evaluation APN 105-191-008 (Prepared by Lee Tromble and dated 12/6/2022)
- 4) Proposed Buffer Reduction ESHA siting criteria (Prepared by Caitlyn Allchin)

Project Information Summary

- 1. Project Title:** Richard Anderson
Environmental Review of Zone Reclassification, General Plan
Amendment and Minor Subdivision (R2013C, GPA2301C, and MS2301C)
- 2. Lead Agency Name and Address:** Del Norte County
Planning Commission
981 H Street, Suite 110
Crescent City, CA 95531
- 3. Contact Person and Phone Number:** Maia Mello
(707) 464-7254
mmello@co.del-norte.ca.us
- 4. Project Location and APN:** Near 500 Bachelor Rd, Crescent City, CA 95531
APN 105-191-008
- 5. Project Sponsor's Name and Address:** Zack Larson
PO Box 1400
Crescent City, CA 95531
- 6. County Land Use:** Rural Residential 1 DU/3 Acres
- 7. County Zoning:** RRA-3 (Rural Residential Agriculture with a minimum lot size of 3 acres)
- 8. Description of Project:**

Richard Anderson has submitted applications for a zone reclassification, an amendment to the Del Norte County Coastal Land Use Plan, and to subdivide his 6.28 acre parcel. The parcel is currently undeveloped and has a zone designation of Rural Residential with a three acre minimum lot size. Anderson proposes to reclassify the zone to Rural Residential with a one acre minimum lot size which would require the General Plan to be amended from Rural Residential 1 DU/3 acres to Rural Residential 1 DU/Acre. The proposal for the minor subdivision includes creating four new parcels (each one acre) and one remainder parcel (2.28 acres).

The proposed subdivision lots would be served by individual wells and on-site waste-water treatment systems (septic).

Access to the parcel is from the county maintained portion of Bachelor Road and a deeded easement that runs east/west along the north property line serves as the parcel's legal access.

The applicant has a pending Timber Harvest Plan and a Subdivision Conversion Exemption from CALFIRE. Lead Agency staff has been in communication with CAL Fire staff regarding the pending application.

The project parcel is composed of a North Coast coniferous forest dominated by Redwood (*Sequoia sempervirens*) Forest & Woodland Alliance dominated by coastal redwood (*Sequoia sempervirens*) with less than 20% of Sitka spruce (*Picea sitchensis*), Douglas fir (*Pseudotsuga menziesii*), and grand fir (*Abies grandis*). The project parcel is generally flat with a 0-2% grade.

A biological assessment, botanical survey and wetland delineation were prepared for the project site in preparation for the timber conversion on this parcel. The result of the biological assessment and botanical survey found the occurrence of two special status species on the project parcel (*Ribes Laxiflorum* and the California Red Legged Frog).

The biological assessment noted a Class 1 watercourse on an adjacent parcel (to the south) and prescribed a 150' non-development buffer with flagging (and later, a more permanent buffer delineation like a split rail fence to protect and delineate the buffer for non-development will be required) from that watercourse which extends onto the project parcel to protect the California Red Legged Frog's breeding habitat. The wetland delineation on the parcel did not detect any wetlands present on the project parcel despite the presence of wetland indicator plants intermixed with upland plants. (Bachelor Road Timber Harvest Plan: Aquatic Resources Delineation Report, Foster 2023).

Ribes Laxiflorum (Trailing Black Currant), a taxa 4.3 rare plant according to the California Rare Plant Ranking system, was located in several places on the project parcel. CRPR 4 is the least sensitive CRPR ranking for a rare plant. Timber operation activities and road construction will potentially impact one of the sites of *Ribes Laxiflorum* by encroaching slightly into a 35' equipment exclusion zone (EEZ) buffer prescribed by Allchin for species protection during the timber harvest activities. Mitigation measures suggested by Caitlyn Allchin (Botanical Survey Report Bachelor Road Timber Harvest Plan) for occurrences of *Ribes Laxiflorum* include the EEZ setback/buffers with flagging from each occurrence of *Ribes Laxiflorum* are consistent with Forest Practice Rules. Allchin indicated that the 35' buffer would be sufficient for plant protection during the timber harvest and road construction phases of the development.

Any impacts to *Ribes Laxiflorum* will require a revegetation or translocation plan and monitoring plan with an appropriate success benchmark for occurrence survival and monitoring interval.

Allchin has provided a document proposing the reduced (35') buffer to *Ribes Laxiflorum* as required when requesting a reduced buffer from ESHA through a discussion of seven siting criteria. In the document, Allchin highlights that *Ribes laxiflorum* is impact tolerant and indicates the reduced buffer would protect the plant during road construction, timber harvest and eventual residential development because of its hardiness.

Removal and management of invasive species (English Ivy and English Holly) are planned in areas of their occurrence at the project site.

Inadvertent discovery of tribal cultural resources at the project site will trigger the immediate cessation of work and notification to tribes, the county, and a qualified archaeologist. An inadvertent discovery condition will be placed on all associated local permits describing requirements in the event of an inadvertent discovery at the site during development operations.

9. Surrounding Land Uses and Settings:

The project parcel is surrounded by timberland to the west and mixed residential density zones to the north, east and south. Residential development has occurred to the north, east and south of the project parcel. Immediately east of the project parcel, land use density is Rural Residential, 1 dwelling unit per acre with a zone classification of Rural Residential Agriculture one acre minimum lot size.

- 10. Required Approvals:** Adoption of a Mitigated Negative Declaration (Del Norte County Planning Commission)
- 11. Other Approval (Public Agencies):** California Coastal Commission (Amendment to Local Coastal Program)
CAL FIRE (Timber Conversion Permit, Timber Harvest Plan)
North Coast Regional Water Quality Control Board (SWPPP)
- 12. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?**

Native American tribes, traditionally and culturally affiliated with the project area, have been notified of the project application completion and the beginning of the AB 52 consultation period pursuant to PRC §21080.3.1. Notification of the beginning of the AB 52 consultation period was provided 2/9/2023 by mail. No requests for consultation pursuant to PRC §21080.3.1 were received.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" without mitigation as indicated by the checklist on the following pages. All mitigation measures are provided in the Mitigation Monitoring and Reporting Program.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry Resources	<input type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Energy
<input type="checkbox"/>	Geology/Soils	<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards & Hazardous Materials
<input type="checkbox"/>	Hydrology / Water Quality	<input type="checkbox"/>	Land Use / Planning	<input type="checkbox"/>	Mineral Resources
<input type="checkbox"/>	Noise	<input type="checkbox"/>	Population / Housing	<input type="checkbox"/>	Public Services
<input type="checkbox"/>	Recreation	<input type="checkbox"/>	Transportation	<input type="checkbox"/>	Tribal Cultural Resources
<input type="checkbox"/>	Utilities / Service Systems	<input type="checkbox"/>	Wildfire	<input type="checkbox"/>	Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	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 by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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.

Maia Mello
Planner

Date

Environmental Checklist

1. Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or public views of the site and its surroundings? (Public views are those that are experienced from publically accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion of Impacts

a. The project would have no impact on a scenic vista

b. Although tree removal is planned through the conversion, the area is not along a state highway or designated scenic route. Additionally, the project area is not visible from other main thoroughfares not already impacted by clear cut timber harvest. There has been a recent clear cut immediately to the west of the property on a designated Timber Production Zone district parcel. Only because of this clear cut can the applicant's parcel even be seen from that road.

c. The project would not substantially degrade the existing visual character of the site.

d. The ultimate residential uses would include associated lighting but all lighting would be consistent with other residential lighting present in this area and would be further shielded and diminished by the surrounding preserved forested area on each proposed parcel.

2. Agriculture and Forest Resources

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) 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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion of Impacts

- a. No prime farmland exists on-site.
- b. This action would not conflict with existing zoning for agricultural uses nor conflict with a Williamson Act contract.
- c. No Timber Production zones exists the on-site
- d. The loss of forestland or conversion of forestland to non-forest uses creates a significant impact if appropriate permits are not obtained. CAL FIRE requires a Timber Harvest Plan for a project of this scale. The applicant is aware that a Timber Harvest Plan and a Conversion permit OR a Subdivision Exemption will be applied for through CAL FIRE. This project has been monitored by CAL FIRE though its initial processes and appropriate CAL FIRE staff are aware of the local agency processes and actions regarding this project.

The site is dominated by second growth Redwood forest with less than 20% Sitka spruce, Douglas Fir, and grand fir. The silviculture method identified for the timber harvest plan is 'clear cut'. The project site and surrounding areas are designated for rural residential and light agricultural uses and zoned for such uses under the County's certified Local Coastal Program. Rural residential agricultural uses are understood to necessitate the conversion of some forested acreage for residential and light agriculture pursuits. No part of the property is designated as timberland in any long-range planning document or map. A Timberland Conversion Permit or equivalent would normally be required by CAL FIRE in the event of timber removal with or without the approval of this subdivision. Additionally, the applicant indicates that they intend to retain some trees and native understory on each newly created parcel so as to preserve the character granted to the proposed parcels by their presence.

- e. The project would not convert farmland to a non-agricultural use. As discussed above, the project would allow for the future conversion of forestland to accommodate rural residential agriculture uses including but not limited to single-family residences on each of the proposed lots. The conversion of some wooded acreage on a rural residential agriculture-zoned property would be considered less than significant, since that land was designated and zoned for rural residential agriculture uses.

3. Air Quality

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

applicable air quality plan?				
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. The project would have no foreseeable impacts on the implementation of an air quality plan.

b. Del Norte County is an attainment area for particulate matter and all other criteria pollutants designated by state and federal standards (California Air Resources Board, 2016). The development of a single-family residence in the future could contribute to some level of pollutants due to the associated construction activities and energy use of a residence. However, this would be considered a less than significant impact due to the area's attainment status.

c. The project would not expose receptors to the substantial pollutant concentrations as substantial pollutant concentrations would not be created.

d. The project would have no foreseeable impacts in increasing emissions that adversely affect a substantial number of people.

4. Biological Resources

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

corridors, or impede the use of native wildlife nursery sites?				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion of Impacts

a-b. Applicant provided a biological assessment titled “Bachelor Road THP” dated 8/19/2022 and prepared by Corrina Kamoroff of Hohman and Associates Forestry Consultants. The document indicates a Class 1 watercourse “less than 150’ to the south of the parcel boundary.” Kamoroff noted the observation of a California red-legged frog on the project parcel during her site visit on 8/17/2022. She indicated the existence of breeding habitat associated with the “Class 1 channel migration zone” for the frog and suggested that a 150’ watercourse buffer would provide sufficient protection for this species and other species that may use the watercourse. Canopy retention between 70-80% along the watercourse will provide adequate protection according to the page 14 of Kamoroff’s assessment.

Also according to the biological assessment, “The proposed project falls within the range of the Northern Spotted Owl (NSO)” and that potential NSO habitat exists on the project parcel however, USFWS protocol surveys were conducted in 2022 and 2023 and “No NSO were documented” during any of the surveys in 2022. According to the applicant’s agent, no NSO were detected in any of the 2023 surveys conducted so far. The assessment indicates that if a “new nesting site is located in 2023, mitigation will be put in place following USFWS guidelines (USFWS 2012).”

Seasonally appropriate botanical surveys were conducted in June 2022 and April 2023 for the project site by Caitlyn Allchin of Hohman and Associates. In her report dated 6/5/2023, Allchin describes the project site as “North Coast coniferous forest composed of a Redwood (*Sequoia sempervirens*) Forest & Woodland Alliance dominated by coastal redwood (*Sequoia sempervirens*) (S3.2 G3) with less than 20% of Sitka spruce (*Picea sitchensis*), Douglas fir (*Pseudotsuga menziesii*), and grand fir (*Abies grandis*).”

Allchin noted “multiple detections of the limited distribution trailing black currant (*Ribes laxiflorum*, [RILA] CRPR 4.3)” and indicated in her report that plants with a California Rare Plant Rank (CRPR) like RILA of a 4 are known as “limited distribution plants, which are defined as being uncommon within the state of California, are intermittent throughout a broader area in the state, and are therefore on a watch list (CNPS 2021).” CRPR 4 is the least sensitive CRPR ranking for a rare plant. Allchin provided a map of the occurrences of RILA with her report and noted that two of the occurrences of RILA are in the northeast corner of the existing parcel and are close to the proposed access road to the project site.

RILA has a global rank of 5 (G5) meaning it is “secure” globally. RILA’s state rank of 3 (S3) indicates vulnerability due to “a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation”. Because of this ranking and its CRPR rank of 4.3, RILA is subject to consideration and protection under Cal. Code Regs. Tit. 14, § 15380(b) - Endangered, Rare or Threatened Species.

Allchin outlined general impacts from the clear-cut silviculture to shade tolerant organisms due to “change in the canopy and understory structure” from the timber harvest. Allchin indicates that the clear-cut proposed will likely not be detrimental to RILA as the plants “prefer conditions ranging from full sun to partial shade (SevenOaks Native Nursery 2023), and therefore the alteration in canopy structure should not be detrimental to their viability given the capacity to flourish in sunny conditions. Additionally, if mitigations include relocation of the northwestern-most RILA detections on the property into the protected habitat of the southeastern-most RILA detections, the transplanting will likely prove to

be successful based on translocation efforts conducted at Fern Hill Nursery and Botanical Sanctuary (2023) for RILA individuals.” Allchin indicates that “if deemed appropriate, translocation would be performed by a professional botanist prior to road construction into the southeastern RILA protected 35-ft No Harvest EEZ buffer [Equipment Exclusion Zone] which will be sufficiently protected from road construction.” RILA occurrences have been flagged with pink Native Plant Protect flagging and the 35-ft buffers with Equipment Exclusion Zone flagging.

This 35-ft EEZ buffer is explained further by Allchin and indicates the following regarding the buffer:

- No blading of vegetation shall occur within the 35-ft No Harvest EEZ buffers.
- No skid trails shall be made within the 35-foot No Harvest EEZ buffers of the RILA detections.
- The trees shall be felled away from all RILA detections.
- There shall be no ignition of fuels or site preparation within 35-feet of RILA detections.
- There shall be no harvesting of biomass or down wood within 35-feet of RILA detections.
- There shall be no application of herbicides within 35-feet of RILA detections.
- All spoils from road construction shall be placed at least 35-feet away from the RILA detections.

Allchin’s report indicates that there will be a minor reduction in the 35-ft EEZ for the northeastern-most RILA detection and proposes to increase protection of this and the RILA occurrence just south of this RILA occurrence on the eastern side of both, extending the EEZ out further than 35-ft to compensate for encroachment into the norther EEZ buffer by the road easement. A map in Allchin’s report (page 48) depicts the impact to the buffer on the north side and expansion of the buffer to the east of these occurrences of RILA.

Because Del Norte County has no authority to condition the Timber Harvest Plan activities, staff has not mentioned Allchin’s specific timber operation mitigations in this document as mitigations required unless they are applicable to both the timber operations and the future residential development.

The buffers discussed have either been adopted based on Allchin and Kamoroff’s recommendations (as in the case of the 150’ watercourse buffer) or have been supplementally justified by other documentation (as in Allchin’s reduced buffer justification document).

Mitigation Measure BIO-1

Prior to the construction of grading, drainage, and/or road improvements, *Ribes laxiflorum* shall be flagged by a professionally qualified individual (e.g., botanist) and a wildlife friendly physical buffer (e.g. split rail fence) shall be placed at the extent of the 35’ buffer around each occurrence of *Ribes laxiflorum*. The northwestern-most *Ribes laxiflorum* detections may be translocated by a professionally qualified individual (e.g. botanist) prior to road construction.

Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.

Enforcement: County Community Development Department

Monitoring: N/A

Mitigation Measure BIO-2

If direct impacts to the plant (*Ribes laxiflorum*) can't be avoided, the applicant shall prepare a plan for minimizing the impacts by one or more of the following methods:

1. Salvage the impacted plant or procure commercially available specimens and replant plants near the same location following construction or replant in the protected buffer of another occurrence of the plant; and,
2. Collect seeds or other propagules for reintroduction to the site at a ratio of 3 plants installed for each 1 special species individual disturbed.

Timing/Implementation: Upon identification of Special Status Plants located within the project area that are impacted by the project.

Enforcement: County Community Development Department, California Department of Fish and Wildlife

Monitoring: See Mitigation Measure BIO-3 for monitoring

Mitigation Measure BIO-3

The property owner, where the mitigation is planted, shall submit annual reports to the Del Norte County Planning Division prepared by a qualified professional (e.g., botanist) documenting mitigation monitoring for a period of five years following all *Ribes laxiflorum* plants by a qualified professional (e.g. botanist).

The success criterion for any seeded, planted, and/or relocated plants shall be full replacement at a 1:1 ratio after five years. Monitoring surveys of the seeded, planted, or transplanted individuals shall be conducted and reported on annually for a minimum of five years, to ensure that the success criterion can be achieved at year 5. If it appears the success criterion would not be met after five years, contingency measures may be applied. Such measures shall include, but not be limited to: additional seeding and planting, altering or implementing weed management activities, or introducing or altering other management activities. Approval of the Special Status Plants Mitigation Plan shall be made by the County in consultation with the California Department of Fish and Wildlife.

Timing/Implementation: Upon identification of Special Status Plants located within the project area that are impacted by the project.

Enforcement: County Community Development Department, California Department of Fish and Wildlife

Monitoring: Annual monitoring surveys for a minimum of five years depending on success of mitigation per success criterion provided in the Special Status Plans Mitigation Plan. Contingency measures will be considered if success criterion not met within five years.

Mitigation Measure BIO-4

Due to the road easement, there will be a minor reduction (33 m²) along the northern edge of the protected habitat for the northeaster-most *Ribes laxiflorum* detection. To compensate for this minor reduction, an increase in protected habitat along the eastern edge of the same northeastern most *Ribes laxiflorum* detections will occur (an additional 164 m²) (see Figure 2, Pg 48, Allchin Final Botanical Survey Report dated 6/5/2023).

Timing/Implementation: Upon identification of Special Status Plants located within the project area that are impacted by the project.

Enforcement: County Community Development Department

Monitoring: N/A

Mitigation Measure BIO-5

Prior to the filing of the subdivision map, a note shall be placed on the map stating: “It is the property owner’s responsibility where Ribes laxiflorum mitigation has been planted to monitor Ribes laxiflorum for a period of five years. The mitigation obligation shall cease if mitigation planted at a 3:1 ratio is successful at a 1:1 or greater after a period of five years.”

*Timing/Implementation: Upon filing of the subdivision map.
Enforcement: County Community Development Department
Monitoring: N/A*

Mitigation Measure BIO-6

Prior to the filing of the subdivision map, the 35’ buffers from all occurrences of Ribes laxiflorum shall be depicted on a separate map sheet for filing with the subdivision map to ensure that the plant is protected during future residential development.

*Timing/Implementation: Upon filing of the subdivision map.
Enforcement: County Community Development Department
Monitoring: N/A*

Mitigation Measure BIO-7

Prior to construction of grading, drainage, and road improvements, the property owner shall submit documentation that US Fish and Wildlife Service (USFWS) protocol surveys have occurred within the past year and (1) no Northern Spotted Owl (NSO) and/or NSO nesting sites were detected or (2) NSO and/or NSO nesting sites were located and mitigation consistent with USFWS guidelines will be defined and implemented at the direction of an appropriately qualified individual (e.g., wildlife biologist) prior to commencing construction activities.

*Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.
Enforcement: County Community Development Department
Monitoring: N/A*

Mitigation Measure BIO-8

Prior to completion of grading, drainage, and/or road improvements, English Ivy (Hedera helix, Cal-IPC High) within the boundaries of the subdivision shall be treated by cutting all climbing English Ivy 6 feet above the ground so that it cannot re-root into the substrate and hand pulling all young plants and runners on the ground when the soil is moist to ensure all roots are removed. Repeat removal treatments over multiple years until English Ivy is eliminated. English Ivy shall be taken to the Del Norte County Transfer Station for disposal.

*Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.
Enforcement: County Community Development Department
Monitoring: N/A*

Mitigation Measure BIO-9

Prior to completion of grading, drainage, and/or road improvements, English Holly (*Ilex aquifolium*, Cal-IPC Limited) within the boundaries of the subdivision shall be removed by handsaw for larger shrubs/small trees and with a weed wrench for smaller detections. English holly shall be taken to the Del Norte County Transfer Station for disposal.

Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.
Enforcement: County Community Development Department
Monitoring: N/A

c. No wetlands were located on the project site. The Class 1 watercourse indicated to the south of the project site has been given a 150' buffer than extends onto the project site for protection. Additionally, no filling, removal or hydrological interruption is proposed, necessary, or expected from this project.

Mitigation Measure BIO-10

Prior to the filing of the subdivision map, a 150' buffer from the Class 1 watercourse on the parcel to the south of the project parcel, shall be depicted on a separate map sheet for filing with the subdivision map to ensure the watercourse and buffer is protected during future residential development.

Timing/Implementation: Upon filing of the subdivision map.
Enforcement: County Community Development Department
Monitoring: N/A

Mitigation Measure BIO-11

Prior to filing the subdivision map, a note shall be placed on the map stating: "No development shall occur within the 150-foot Class 1 watercourse buffer shown on this map."

Timing/Implementation: Upon filing of the subdivision map.
Enforcement: County Community Development Department
Monitoring: N/A

Mitigation Measure BIO-12

Prior to completion of grading, drainage, and/or road improvements, a wildlife friendly physical buffer (e.g. split rail fence) shall be placed at the extent of the 150' Class 1 watercourse buffer to maintain protection of the watercourse and to physically divide the watercourse buffer area from the development area.

Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.
Enforcement: County Community Development Department
Monitoring: N/A

d. The parcel does not contain any known wildlife movement corridors and would not affect migratory patterns of wildlife.

e. The project would not be in conflict with local ordinances protecting biological resources.

f. Although the project site is within the range of the Oregon Silver Spot Butterfly, “the species is reliant on the early blue violet (*Viola adunca*)” according to the biological assessment, none of these plants were located during the two seasonally appropriate botanical surveys (“Botanical Survey Report Bachelor Road Timber Harvest Plan” prepared by Caitlyn Allchin and dated 6/5/2023). Also according to the biological assessment report, the Oregon Silver Spot Butterfly Recovery Plan indicates “the closest Oregon Silver Spot Butterfly Conservation Area is approximately 1.5 miles to the west of the project plan on the opposing side of Lake Earl.”

5. Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion of Impacts

a-c. No cultural resources are known to exist on-site. The County records were searched for known cultural sites in the general project vicinity, and none were identified. Notice was provided to the two tribes traditionally culturally affiliated with the project area and no comment was given with regard to cultural resources. Additionally, cultural staff from the Tolowa-Dee-ni’ Nation is a voting member of the County Environmental Review Committee which reviews projects and makes CEQA recommendations. While resources are not known to exist on-site, the possibility of an inadvertent discovery is always possible during construction or other implementation activities associated with the project. In this case, mitigation measures included as CULT-1 assigned to the project will ensure that any resources located on-site will be properly treated as to not cause a significant impact.

Mitigation Measure CULT-1

Should any archaeological resources be found during project activities, construction activities shall be halted until an evaluation of the find is made by either a qualified archaeologist or representatives of the local tribes. Any mitigation measures that may be deemed necessary must have the approval of the local tribes and the County of Del Norte, and shall be implemented by a qualified archeologist representing the County of Del Norte prior to resumption of construction activities. If human remains are exposed by a project related activity, the County of Del Norte shall comply with California State Health and Safety Code, Section 7050.5, which states that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and disposition pursuant to California Public Resources Code, Section 5097.98.

Timing/Implementation: Ongoing during the timber harvest phase and infrastructure placement for subdivision.

Enforcement: County Community Development Department

Monitoring: N/A

6. Energy

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. The project would have no foreseeable impacts on increasing wasteful, inefficient, or unnecessary energy use due to the relatively small size of the project. The project will use minimal amounts of fuel and energy.

b. This project does not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

7. Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a-d. The project is not anticipated to cause significant impacts including the risk of loss, injury, or death related to soils impacts. The site is flat and has no potential for landslides, mass wasting, or other slope-related impacts. Seismic ground shaking and liquefaction could occur in any region of coastal California; however, the potential impacts would be considered less than significant as structural development will be engineered and constructed to current building code.

e. No impacts related to geology and/or soils, as a result of this project, are expected to occur. An on-site sewage disposal analysis was completed by a California Licensed Civil Engineer to ensure that the proposed parcels have adequate soil for sewage disposal systems and reserve drainage fields. Eight (8) test pits were dug and no groundwater, or evidence thereof, was encountered in any of the excavations to a depth of 8.5 feet. Soils were analyzed and a percolation test was completed for all test pits on the proposed parcels. It was determined that all proposed parcels are suitable for a conventional on-site sewage disposal system (septic tank/leach field system). The site is not located on expansive soil as defined in Table 18-1-B and soils are adequate for conventional septic systems.

A wetland delineation was conducted as some wetland indicator plants were found amongst upland plants (Bachelor Road Timber Harvest Plan: Aquatic Resources Delineation Report” dated May 2023 by Jonathan Foster of Foster Consulting and botanist Caitlyn Allchin of Hohman and Associates). The report confirmed uniform well drained/non-hydric soil across the site. More than twelve exploratory holes were dug on the project site looking for evidence of ponding, primary or secondary hydrology, or anaerobic conditions and nothing was found to indicate unsuitable drainage.

f. No known paleontological resources or unique geologic features are known to exist on site.

8. Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. In 2002, the California State Legislature declared that global climate change was a matter of increasing concern for the state’s public health and environment, and enacted a law requiring the California Air Resource Board (CARB) to control greenhouse gas (GHG) emissions from motor vehicle (Health and Safety Code §32018.5 et seq.). CEQA Guidelines define GHG to include carbon dioxide (CO₂), nitrous oxide (N₂O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The California Global Warming Solutions Act of 2006 (AB 32) definitively established the state’s climate change policy and set GHG reduction targets (Health and Safety Code §38500 et seq.).

Approval of the Minor Subdivision, and subsequent construction of new buildings at the site, may generate GHG emissions as a result of combustion of fossil fuels consumed by construction equipment. Use of construction materials would indirectly contribute to GHG emissions because of emissions related to their manufacturing and production. The construction-related GHG emissions would be minor and short-term, and would not constitute a significant impact based on established thresholds.

The total size of the project once completed will be up to five dwelling units. Based on the Institute of Transportation Engineer’s Trip Generation Manual, 10th Edition, 9.44 vehicle trips are estimated for each dwelling unit. Based on this calculation 47.2 vehicle trips are expected each day. Vehicular emissions associated with 47.2 vehicles entering the site each day should not have a significant impact on the environment.

b. The project does not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

9. Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) 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, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion of Impacts

a-g. The project would not create impacts related to hazards or hazardous materials. This subdivision would not facilitate the transport of hazardous materials, the release of hazardous materials, nor would it create additional exposure to wildland fires besides that by allowing for the potential to construct up to five additional single-family residences in the future within the State Responsibility Area (SRA). This project is in a moderate risk area for fire hazard within the SRA. The subdivision of a single residential parcel into four residential parcels and a remainder parcel increases the risk of placing additional residences on land susceptible to wildfire at some point in the future. While the current or future owner/s of the subdivided parcel would be allowed to construct a residence and accessory structures

by right, the building permit would require compliance with State Minimum Fire Safe Regulations. These regulations ensure that structures built in the SRA reduce risk of human life and property loss to the greatest extent possible from wildfire. This reduces any impacts related to the exposure of people and property to wildfire as less than significant.

10. Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) result in substantial erosion or siltation on-or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional source of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable ground water management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. The project would not violate any water quality standards or waste discharge requirements.

b. The project would not interfere in any substantial way to groundwater supplies. The subdivision of a single rural residential agriculture zoned parcel into four parcels and a remainder parcel could indirectly lead to up to five extra single-family residences which would require wells for water supply, however this would not impact groundwater supplies or recharge rates.

c. Because the Timber Harvest Plan will address potential site drainage, runoff, and siltation impacts from the removal of trees and some understory, those impacts will not be discussed here. Future residential development, grading or construction of up to five homes will not substantially alter the drainage pattern of the site. A condition of the subdivision approval would require the preparation of improvement plans for grading, drainage, and road improvements by an appropriately licensed engineer. Additionally, all permitted activities would require building permits with a drainage or erosion and runoff plan to be reviewed by the County Engineering and Surveying Division.

The site is relatively flat with good soil percolation so impacts to drainage would be less than significant. Polluted runoff and flood flows are not anticipated at this site.

d. The proposed project is not in an area subject to inundation by seiche or mudflow. The project is not in any Special Flood Hazard Area, and would not affect flood waters. Additionally, it is identified as being outside the Tsunami Hazard Map for Crescent City.

e. The project will not conflict with or obstruct implementation of a water quality control plan or sustainable ground water management plan.

11. Land Use and Planning

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation of an agency adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. The proposed project would not physically divide an established community.

b. No conflict with any land use plan or zoning ordinance would occur as a result of this project. The County's certified Local Coastal Program has guidelines and implementing zoning adopted to avoid and mitigate environmental impacts. Impacts related to the increase in residential density have been analyzed through the initial study and where needed, mitigation has been incorporated. The project would comply with the Local Coastal Program and County Zoning following certification of the Local Coastal Program Amendment by the California Coastal Commission. The requested density is consistent with zoning and land use to the east of the parcel. Increasing housing stock is also a requirement of the Del Norte County 2022-2030 Housing Element update.

12. Mineral Resources

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

- a. 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.
- b. The project site is zoned Rural Residential Agriculture which does not allow for mining or mineral extraction. Although the Del Norte County Local Coastal Program establishes the local presence of extractive mineral resources (clay, sand and gravel, stone quarries and beach sand) the project site has not been specifically identified as a source area for any of those resources and therefore no potentially significant loss of mineral resources would occur as a result of this project.

13. Noise

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or 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, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

- a. Noise thresholds for construction and development have not been established in the Del Norte County Local Coastal Program. Del Norte County Code exempts construction and grading (“Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday”) subject to specified timeframes. Del Norte County Code establishes that residential neighborhoods are considered “noise sensitive”. Because the area around this project area is sparsely populated and there exists natural buffers in the way of wooded areas between this site and other residential uses, future development noise and residential use noise will constitute a less than significant noise impact in the area.
- b. Future development will not generate excessive groundborne vibration or noise levels. Groundborne noise is primarily associated with railway systems or the sinking of deep (sub-surface) structural supports on soils prone to saturation and liquefaction. As neither is a factor in future residential development at this site, groundborne noise and vibration not be a factor.
- c. This project is not located within the vicinity of any airport, airstrip or airport land use compatibility plan. The local public airport is approximately six miles away from the site.

14. Population and Housing

Would the project:	Potentially	Less Than	Less Than	No Impact
--------------------	-------------	-----------	-----------	-----------

	Significant Impact	Significant Impact with Mitigation Incorporated	Significant Impact	
a) Induce substantial unplanned 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. This potential residential subdivision, rezone and general plan amendment does propose to increase residential density in this area but only to the extent that it matches surrounding densities which are still considered rural/low density. Community water and sewer are not available in this area and therefore would not be an expansion of that infrastructure and is not expected so have significant growth inducing impacts. Extension of and improvements to the road are the responsibility of the subdivider (applicant) and would not impact public road infrastructure.

b. No displacement will occur due to this project.

15. Public Services

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would 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:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

While the project represents a minimal expansion to the need for services, the project will meet all standards and requirements identified by the local fire agency or CAL FIRE, as applicable, and fees and taxes paid by the applicant or future property owners upon development would be used to offset the incremental increase in the demand of road, school, parks, and emergency response infrastructure. Impacts would be considered less than significant.

16. Recreation

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. The project would not substantially increase the use of existing neighborhood and regional parks or other recreational facilities. Impacts would be considered less than significant.

b. The project does not propose the expansion or require the construction of additional recreational facilities. No impact would occur.

17. Transportation

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision(b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. The project is not anticipated to conflict with a program, plan, ordinance, or policy addressing any circulation system. Each new parcel created will potentially allow for a residence for a total of five residences served by the subdivision.

b. The project is expected to be consistent with CEQA Guidelines section 15064.3, subdivision (b). According to the 2020 Del Norte Region SB 743 Implementation Plan, the Traffic Analysis Zone (TAZ 102) containing in the project area describes the average VMT to be approximately 7.96 daily per capita. The project was analyzed subject to screening criteria outline in the 2020 Del Norte Region SB 743 Implementation Plan. Using to the 10th Edition of the Institute of Transportation Engineers Trip Generation Manual, single-family detached housing has 9.44 average daily trips per dwelling unit. It is projected using this methodology that the project would create up to 47.2 trips per day for all five

potential future dwelling units. Further, the 2020 Del Norte Region SB 743 Implementation Plan provides for thresholds of significance that screen certain projects out of constituting a significant impact toward VMT generation. In this case, the project is expected to generate less than 110 trips per day, so it can be considered to have a less than significant impact as a ‘Small Project’ under Section 3.2.1 of the SB 743 Implementation Plan.

c. The project does not increase hazards due to a design feature. There are no dangerous features in the project area and this project would not require improvements that would introduce circulation or traffic safety hazards.

d. The project would not result in inadequate emergency access in the area.

18. Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public 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:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. The project would have no impact on known cultural resources. The project site is located on lands used for rural residential purposes, previously logged, with no obvious cultural resources. A search of the County’s cultural resources investigations has not demonstrated any resource being located in proximity to the project site or subject property. In addition, a tribal consultation period pursuant to Public Resources Code section 21.080.3.1 has been allowed to occur and no interest has been generated from local Native American groups that have historically and culturally occupied the area. The project was reviewed by the County Environmental Review Committee which includes a representative of the local Native American community and no issues related to a native cultural perspective were brought to the attention of the lead agency.

19. Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a 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 providers existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion of Impacts

a. The project will result in the addition of up to five new residences. The new residences will not result in the relocation or construction of new or expanded water or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental impacts. The project site does not have unsuitable soils for wastewater disposal. A soils disposal analysis was completed by a registered civil engineer and was determined to have soils suitable to support conventional on-site sewage disposal systems (septic tank and leach lines). The potential to develop additional single-family residences on the project site after a map has been recorded would have no impact on wastewater treatment requirements or the surrounding environment.

b. The project would not have a significant impact on water supplies available to the parcels. The project will be served by planned individual private wells. The area has not been identified as being deficient in water.

c. The project will be served by individual on-site wastewater treatment systems. No burden will be placed on a public wastewater treatment provider.

d. The project site has solid waste pickup service available from local franchisee Recology. Self-hauling to the Del Norte Transfer Station is also available. The solid waste generated by up to five homes would not significantly impact the capacity of either service provider.

e. No conflict with solid waste regulations is expected.

20. Wildfire

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion of Impacts

- a. The project would not substantially impair an adopted emergency response plan or emergency evacuation plan.
- b. The project is located within the State Responsibility Area (SRA) with Moderate fire hazard severity. However, the topography of the site is flat and post-Timber Harvest Plan, the site will see a vast reduction in fuels and therefore, contribution to airborne pollutants from fuels present will be minimal should wildfire be a reality at the site. All future residential development in this proposed subdivision would be subject to Fire Safe Regulations. These regulations ensure that structures built in the SRA reduce risk of human life and property loss to the greatest extent possible from wildfire.
- c. The project does not require the installation or maintenance of any infrastructure that may exacerbate fire risk, or result in temporary or ongoing impacts to the environment.
- d. The project does not expose people or structures to significant risks associated with flooding, landslides, post-fire instability, or drainage changes and the general area is flat with good soil percolation.

21. Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially 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, substantially 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) 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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-c. The project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially 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 as long as mitigation and monitoring plans are followed. Additionally, the project’s impacts that are individually limited but cumulatively considered to be less than significant with some mitigation measures proposed and does not have environmental effects which will cause substantial adverse effects on human beings directly nor indirectly.

Mitigation Monitoring Plan

The following mitigation measures would reduce significant impacts to a less than significant level.

Biological Resources

Mitigation Measure BIO-1

Prior to the construction of grading, drainage, and/or road improvements, *Ribes laxiflorum* shall be flagged by a professionally qualified individual (e.g., botanist) and a wildlife friendly physical buffer (e.g. split rail fence) shall be placed at the extent of the 35’ buffer around each occurrence of *Ribes laxiflorum*. The northwestern-most *Ribes laxiflorum* detections may be translocated by a professionally qualified individual (e.g. botanist) prior to road construction.

Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.

Enforcement: County Community Development Department

Monitoring: N/A

Mitigation Measure BIO-2

If direct impacts to the plant (*Ribes laxiflorum*) can’t be avoided, the applicant shall prepare a plan for minimizing the impacts by one or more of the following methods:

3. Salvage the impacted plant or procure commercially available specimens and replant plants near the same location following construction or replant in the protected buffer of another occurrence of the plant; and,
4. Collect seeds or other propagules for reintroduction to the site at a ratio of 3 plants installed for each 1 special species individual disturbed.

Timing/Implementation: Upon identification of Special Status Plants located within the project area that are impacted by the project.

Enforcement: County Community Development Department, California Department of Fish and Wildlife

Monitoring: See Mitigation Measure BIO-3 for monitoring

Mitigation Measure BIO-3

The property owner where the mitigation is planted shall submit annual reports to the Del Norte County Planning Division prepared by a qualified professional (e.g., botanist) documenting mitigation monitoring for a period of five years following all *Ribes laxiflorum* plants by a qualified professional (e.g. botanist).

The success criterion for any seeded, planted, and/or relocated plants shall be full replacement at a 1:1 ratio after five years. Monitoring surveys of the seeded, planted, or transplanted individuals shall be conducted and reported on annually for a minimum of five years, to ensure that the success criterion can be achieved at year 5. If it appears the success criterion would not be met after five years, contingency measures may be applied. Such measures shall include, but not be limited to: additional seeding and planting, altering or implementing weed management activities, or introducing or altering other management activities. Approval of the Special Status Plants Mitigation Plan shall be made by the County in consultation with the California Department of Fish and Wildlife.

Timing/Implementation: Upon identification of Special Status Plants located within the project area that are impacted by the project.

Enforcement: County Community Development Department, California Department of Fish and Wildlife

Monitoring: Annual monitoring surveys for a minimum of five years depending on success of mitigation per success criterion provided in the Special Status Plants Mitigation Plan. Contingency measures will be considered if success criterion not met within five years.

Mitigation Measure BIO-4

Due to the road easement, there will be a minor reduction (33 m²) along the northern edge of the protected habitat for the northeaster-most *Ribes laxiflorum* detection. To compensate for this minor reduction, an increase in protected habitat along the eastern edge of the same northeastern most *Ribes laxiflorum* detections will occur (an additional 164 m²) (see Figure 2, Pg 48, Allchin Final Botanical Survey Report dated 6/5/2023).

Timing/Implementation: Upon identification of Special Status Plants located within the project area that are impacted by the project.

Enforcement: County Community Development Department

Monitoring: N/A

Mitigation Measure BIO-5

Prior to the filing of the subdivision map, a note shall be placed on the map stating: “It is the property owner’s responsibility where *Ribes laxiflorum* mitigation has been planted to monitor *Ribes laxiflorum* for a period of five years. The mitigation obligation shall cease if mitigation planted at a 3:1 ratio is successful at a 1:1 or greater after a period of five years.”

Timing/Implementation: Upon filing of the subdivision map.

Enforcement: County Community Development Department

Monitoring: N/A

Mitigation Measure BIO-6

Prior to the filing of the subdivision map, the 35' buffers from all occurrences of *Ribes laxiflorum* shall be depicted on a separate map sheet for filing with the subdivision map to ensure that the plant is protected during future residential development.

Timing/Implementation: Upon filing of the subdivision map.
Enforcement: County Community Development Department
Monitoring: N/A

Mitigation Measure BIO-7

Prior to construction of grading, drainage, and road improvements, the property owner shall submit documentation that US Fish and Wildlife Service (USFWS) protocol surveys have occurred within the past year and (1) no Northern Spotted Owl (NSO) and/or NSO nesting sites were detected or (2) NSO and/or NSO nesting sites were located and mitigation consistent with USFWS guidelines will be defined and implemented at the direction of an appropriately qualified individual (e.g., wildlife biologist) prior to commencing construction activities.

Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.
Enforcement: County Community Development Department
Monitoring: N/A

Mitigation Measure BIO-8

Prior to completion of grading, drainage, and/or road improvements, English Ivy (*Hedera helix*, Cal-IPC High) within the boundaries of the subdivision shall be treated by cutting all climbing English Ivy 6 feet above the ground so that it cannot re-root into the substrate and hand pulling all young plants and runners on the ground when the soil is moist to ensure all roots are removed. Repeat removal treatments over multiple years until English Ivy is eliminated. English Ivy shall be taken to the Del Norte County Transfer Station for disposal.

Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.
Enforcement: County Community Development Department
Monitoring: N/A

Mitigation Measure BIO-9

Prior to completion of grading, drainage, and/or road improvements, English Holly (*Ilex aquifolium*, Cal-IPC Limited) within the boundaries of the subdivision shall be removed by handsaw for larger shrubs/small trees and with a weed wrench for smaller detections. English holly shall be taken to the Del Norte County Transfer Station for disposal.

Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.
Enforcement: County Community Development Department
Monitoring: N/A

Mitigation Measure BIO-10

Prior to the filing of the subdivision map, a 150' buffer from the Class 1 watercourse on the parcel to the south of the project parcel, shall be depicted on a separate map sheet for filing with the subdivision map to ensure the watercourse and buffer is protected during future residential development.

Timing/Implementation: Upon filing of the subdivision map.
Enforcement: County Community Development Department
Monitoring: N/A

Mitigation Measure BIO-11

Prior to filing the subdivision map, a note shall be placed on the map stating: "No development shall occur within the 150-foot Class 1 watercourse buffer shown on this map."

Timing/Implementation: Upon filing of the subdivision map.
Enforcement: County Community Development Department
Monitoring: N/A

Mitigation Measure BIO-12

Prior to completion of grading, drainage, and/or road improvements, a wildlife friendly physical buffer (e.g. split rail fence) shall be placed at the extent of the 150' Class 1 watercourse buffer to maintain protection of the watercourse and to physically divide the watercourse buffer area from the development area.

Timing/Implementation: Prior to completion of grading, drainage, and/or road improvements.
Enforcement: County Community Development Department
Monitoring: N/A

Cultural Resources

Mitigation Measure CULT-1

Should any archaeological resources be found during project activities, construction activities shall be halted until an evaluation of the find is made by either a qualified archaeologist or representatives of the local tribes. Any mitigation measures that may be deemed necessary must have the approval of the local tribes and the County of Del Norte, and shall be implemented by a qualified archeologist representing the County of Del Norte prior to resumption of construction activities. If human remains are exposed by a project related activity, the County of Del Norte shall comply with California State Health and Safety Code, Section 7050.5, which states that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and disposition pursuant to California Public Resources Code, Section 5097.98.

Timing/Implementation: Ongoing during the timber harvest phase and infrastructure placement for subdivision.
Enforcement: County Community Development Department
Monitoring: N/A



P.O. Box 733, Hydesville, CA 95547 . (707) 768-3743 . (707) 768-3747 fax

Biological Assessment

Bachelor Road THP
APN: 105-191-008

Prepared by
Corrina Kamoroff
8/19/2022

For
Hohman and Associates Forestry Consultants

Signature:

A handwritten signature in black ink that reads "Corrina Kamoroff". The signature is written in a cursive, flowing style.

Date: 8/19/2022

CONTENTS

1. Summary	1
2. Introduction.....	2
2.1 Project Description.....	2
2.2 Setting	3
2.3 Zoning	3
2.4 Qualifications	3
2.5 Terms	4
3. Methods.....	5
3.1 Biological Assessment Area	5
3.2 Database Search	6
3.3 Field Surveys	6
4. Habitat.....	7
4.1 Upland Communities	7
4.2 Wetland and Riparian Communities	7
4.3 Special Status Animals	7
4.3.1 Special Status Animals Documented by CNDDDB in the Crescent City 9-Quad Area ..	8
4.3.2 Potential Impacts to Special Status Animals	11
5. Conclusions.....	23
5.1 Summary of Findings and Conclusions	23
6. References.....	24
Appendix A. Botanical Scoping Report	
Appendix B. Photos	
Appendix C. Rank Definitions	
Appendix E. Northern Spotted Owl Summary	
Appendix F. Oregon silverspotted butterfly Conservation Areas	

1. Summary

This Biological Assessment was prepared on behalf of Richard Anderson who is proposing a conversion project on APN:105-191-008. This document assesses habitats and potentially occurring special-status plants and animals. This document also identifies potential impacts of the proposed operations on biological resources. This assessment also recommends mitigation measures needed to reduce potential impacts to less-than-significant levels.

The project is located on a Rural Residential Agriculture zoned parcel, located approximately 6 miles due north of Crescent City in Del Norte County, California which has the potential to support numerous special status plant and animal species (details are provided in Section 4.3 Special Status Animals). The parcel is located within the California Coastal Zone approximately 2.8 miles due east of the Pacific Ocean and approximately 0.5 miles away from Lake Earl (Figure 1). Appendix A provides a Botanical Scoping Report for the project. Appendix B provides photos taken of the parcels and surrounding habitat. Appendix C provides an explanation of NatureServe rankings. Appendix E provides A Northern Spotted Owl Habitat Assessment. Appendix F provides a map of the Oregon Silverspot Butterfly Conservation Areas.

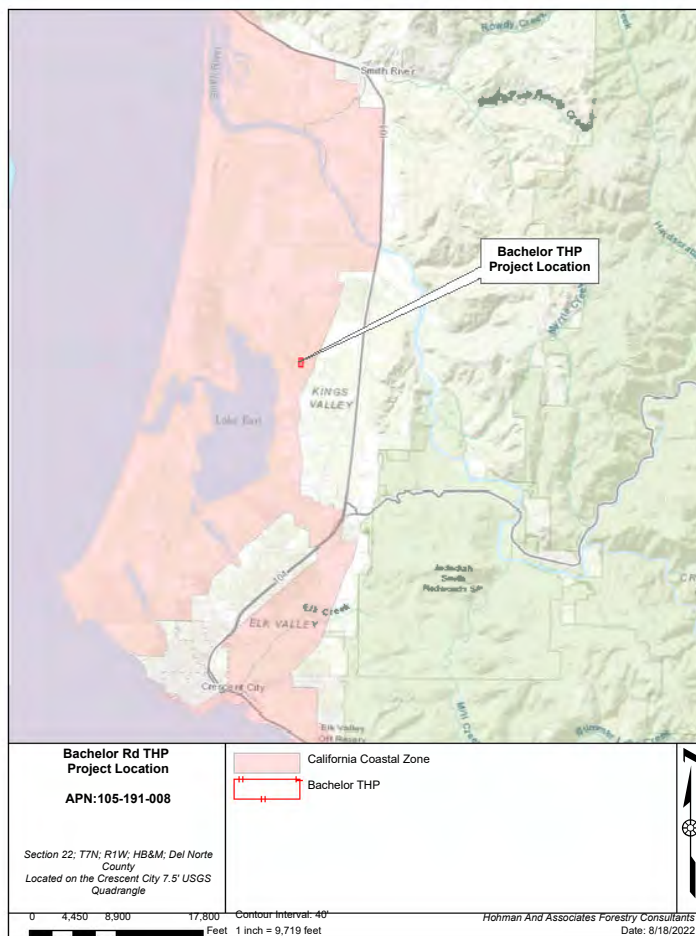


Figure 1. General Location of project Location within the Coastal Zone in Del Norte County, California. The Coastal Zone is shown in light red on the map.

2. Introduction

2.1 Project Description

Richard Anderson is seeking permitting for a conversion project on parcel APN: 105-191-008. The proposed project, includes the conversion of 7.1 acres on APN 105-191-002. The project is located on a 6.3 acre parcel and the proposed project includes an 0.8-acre easement. Proposed activities include driveway access through an easement (on APN: 105-191-002), a THP and the conversion of the parcel into multiple units (Figure 2). The biological resources were surveyed and assessed on August 17, 2022 by Biologist, Corrina Kamoroff.

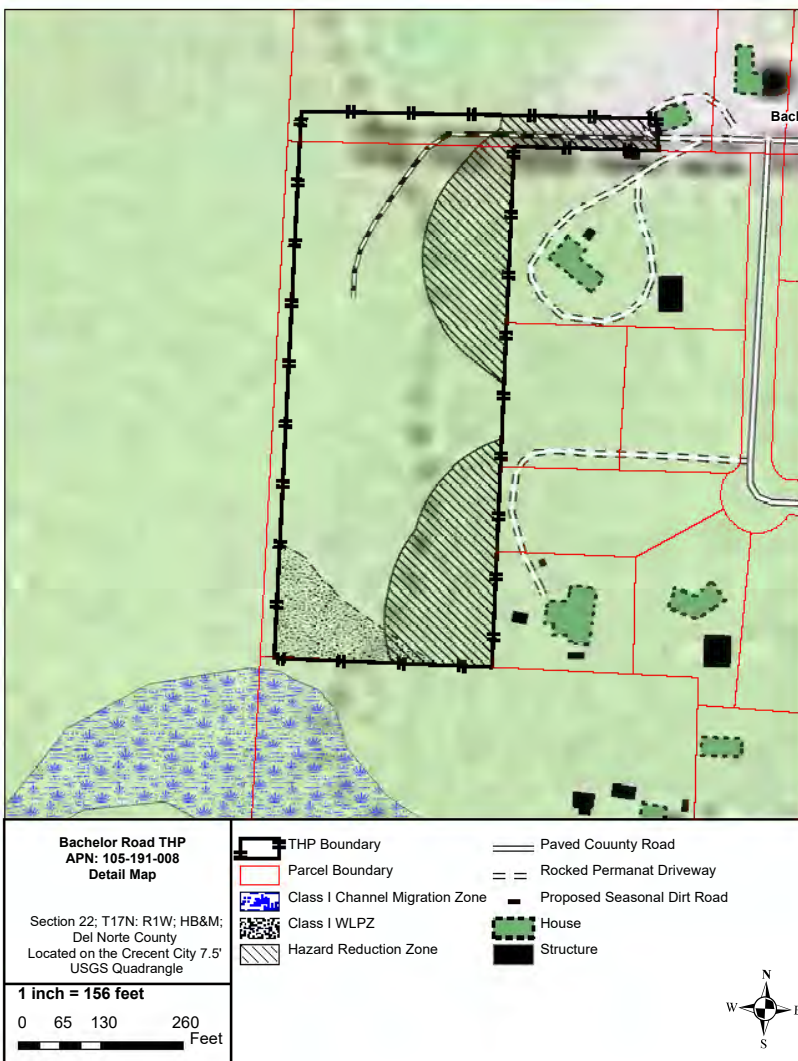


Figure 2. Project Detail Map for the Bachelor Rd. THP Project.

2.2 Setting

The Bachelor THP project is located a portion of Section 22, Township 7 North, Range 1 West HB&M; Del Norte County, on the Crescent City USGS 7.5' quadrangle (Figure 1). The biogeographic region can be described using a three-tiered hierarchy of province, region and sub-region. This site lies within the California Floristic Province, Northwestern California region, and North Coast sub-region. The elevation is approximately 62 feet (19 m) above sea level. Slopes on the property are considered flat. The parcel is composed of North Coast coniferous forest dominated by coastal redwood (*Sequoia sempervirens*) with Sitka spruce (*Picea sitchensis*).

2.3 Zoning

The parcel is currently zoned for Rural Residential Agriculture (RRA-3).

2.4 Qualifications

The Biological Assessment for this project was conducted by Corrina Kamoroff. Corrina Kamoroff is a Wildlife Biologist for Hohman and Associates Forestry Consultants. Corrina received her B.S. in Evolution, Ecology and Biodiversity from University of California, Davis. Corrina is currently pursuing her M.S. in Natural Resources with a concentration in Wildlife from Cal Poly Humboldt. Corrina has over 8 years of wildlife experience in Northern California, including over two years conducting biological surveys and evaluating potential impacts in fulfillment of CEQA requirements.

2.5 Terms

Biological Assessment Area (BAA): The area evaluated for potential impacts to biological resources, defined in this document as the property area surrounded by a 1.3 mile buffer.

California Department of Fire (CDF) Sensitive: Species that warrant protection during timber harvest operations, listed in California Forest Practice Rules.

California Environmental Quality Act (CEQA): A state environmental law that applies to discretionary projects subject to state agency review. The purposes of CEQA include disclosing environmental impacts, minimizing environmental damage, and involving the public.

California Endangered Species Act (CESA): A state law that prohibits “take” of species protected by CDFW, including Threatened, Endangered, and Candidate Species.

California Department of Fish and Wildlife (CDFW): A trustee agency that protects California’s fish and wildlife resources.

California Native Plant Society (CNPS): A non-profit organization dedicated to preserving and protecting native plants and their habitats. CNPS provides protocols and information relevant to plant conservation, including rankings of rare plants recognized by CDFW.

Endangered: Taxa in immediate jeopardy of extinction in all or part of their range.

Federal Endangered Species Act (FESA): A federal law enacted in 1973 that protects species listed as Threatened or Endangered by the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS).

Fully Protected (FP): Take of species is strictly prohibited by CDFW.

NatureServe: A non-profit dedicated to providing scientific information to support informed decisions. NatureServe provides information on species and rankings of rare species (see Attachment D).

Special Animals: All animals tracked by CDFW, including threatened, endangered, rare, sensitive, and otherwise vulnerable species.

Species of Special Concern (SSC): Species considered by CDFW to be vulnerable because of declining populations, limited range, or other threats.

Threatened: Taxa likely to become endangered in the foreseeable future

3. Methods

3.1 Biological Assessment Area

The Biological Assessment Area (BAA) for this project includes a 1.3-mile buffer area around the project boundary. The assessment considers off-site impacts to habitats and species that may be in the BAA buffer area. Consideration of off-site impacts in the BAA is potentially relevant to sensitive species and habitats downslope or downstream of operations (e.g. riparian habitat or salmonids), and to species that require a large range and may be sensitive to disturbance (e.g. the northern spotted owl) (Figure 3).

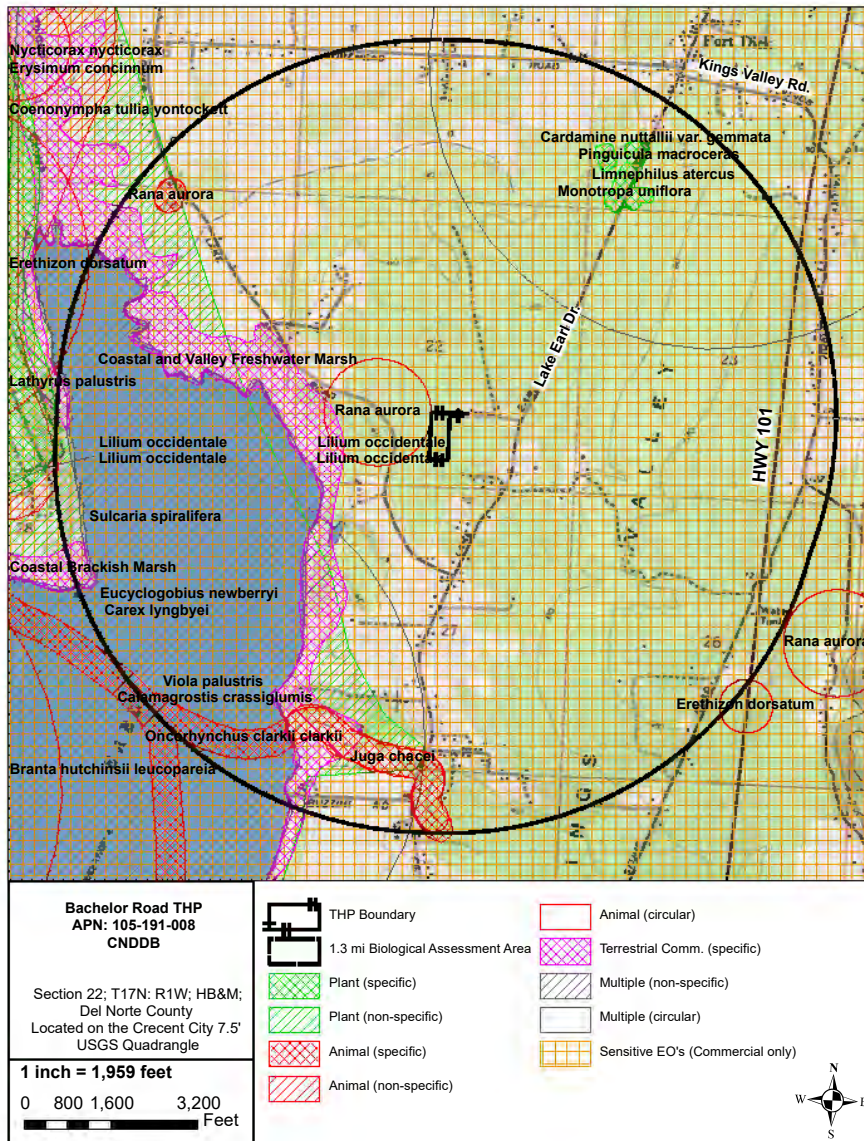


Figure 3. CNDDDB Query Map for the Bachelor Rd. THP Project.

3.2 Database Search

A list of special-status animal species was downloaded from CNDDDB for the Crescent City 9-quad area. Potential habitats on the parcel and within the Biological Assessment Area (BAA) for species occurring in the in the 9-quad areas were evaluated (Figure 3.). The potential for the project to impact each species was evaluated based on the potential for the species to occur in the area of impact and sensitivity of the species to potential loss of habitat, disturbance, or other effects of operations. Surveys and mitigations needed are specified for species that could incur significant impacts.

3.3 Field Surveys

The site was evaluated for potential habitat value to protected, endangered, threatened, rare, and sensitive species by walking around the project area to observe species, habitat types, and quality. Habitat and potential impacts were evaluated during a site visit to the project site on 9/17/2022 by Biologist, Corrina Kamoroff (Figure 4).

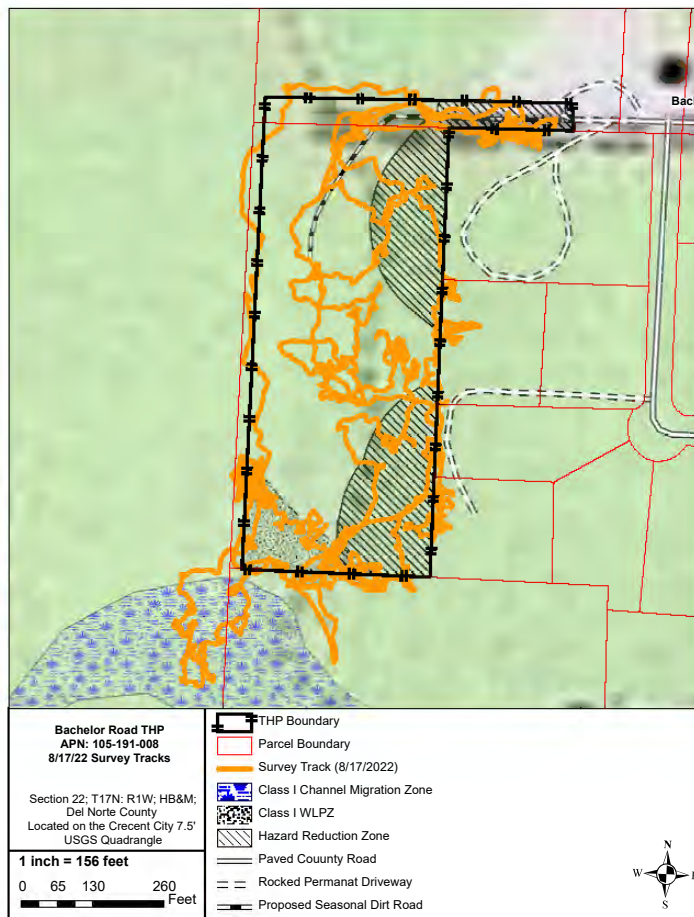


Figure 4. Survey Route from site visit conducted on 8/17/22 for the Bachelor THP Project.

4. Habitat

4.1 Upland Communities

The parcel is composed of a North Coast coniferous forest dominated by coastal redwood (*Sequoia sempervirens*) with Sitka spruce (*Picea sitchensis*).

4.2 Wetland and Riparian Communities

There are no wetland or watercourse on the parcel. There is, however, a Class I Channel Migration Zone within 150 feet of the parcel boundary. A 150 ft. WLPZ buffer is flagged/marked. Protection of the WLPZ area will follow the Forest Practice Rules outline in the THP.

4.3 Special Status Animals

Special status animals evaluated in this report include animal taxa listed or proposed for listing under Federal and State Endangered Species Acts, CDFW Fully Protected, CDFW Watch List, CDFW Species of Special Concern, California Department of Forestry and Fire Protection Sensitive Species, and other special species and other taxa tracked by CDFW. Impacts to special status animals are evaluated in this section based on their likelihood of occurrence in the area, habitat and life-history needs, and sensitivity to operations. Likelihood of inhabiting the area was based on documented occurrences in the Crescent City 9-quad area (Section 4.3.1), and availability of potential habitat. Details on potentially occurring taxa, potential impacts, and surveys and mitigations needed for these animals can be found in Section 4.3.2 Potential Impacts to Special Status Animals.

4.3.1 Special Status Animals Documented by CNDDB in the Crescent City 9-Quad Area

Scientific Name	Common Name	Federal Status	State Status	CDFW Status	GRank	SRank	Potential To Occur On-Site
<i>Ascaphus truei</i>	Pacific tailed frog	None	None	SSC	G4	S3S4	No, but potential within Class I drainage.
<i>Plethodon elongatus</i>	Del Norte salamander	None	None	WL	G4	S3	Yes
<i>Rana aurora</i>	northern red-legged frog	None	None	SSC	G4	S3	Yes
<i>Rana boylei</i>	foothill yellow-legged frog	None	Endangered	SSC	G4	S3	Yes
<i>Rhyacotriton variegatus</i>	southern torrent salamander	None	None	SSC	G3G4	S2S3	Yes
<i>Accipiter striatus</i>	sharp-shinned hawk	None	None	WL	G5	S4	Yes, but unlikely due to lack of appropriate nesting habitat
<i>Circus hudsonius</i>	northern harrier	None	None	SSC	G5	S3	Yes, but unlikely due to lack of appropriate nesting habitat
<i>Elanus leucurus</i>	white-tailed kite	None	None	FP	G5	S3S4	Yes, but unlikely due to lack of appropriate nesting habitat
<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	Endangered	FP	G5	S3	Yes, but unlikely due to lack of appropriate nesting habitat
<i>Brachyramphus marmoratus</i>	marbled murrelet	Threatened	Endangered	-	G3	S2	Yes, but unlikely due to lack of appropriate nesting habitat
<i>Cerorhinca monocerata</i>	rhinoceros auklet	None	None	WL	G5	S4	No
<i>Fratercula cirrhata</i>	tufted puffin	None	None	SSC	G5	S1S2	No
<i>Ptychoramphus aleuticus</i>	Cassin's auklet	None	None	SSC	G5	S2S4	No
<i>Branta hutchinsii leucopareia</i>	cackling (=Aleutian Canada) goose	Delisted	None	WL	G5T3	S3	Yes

<i>Cypseloides niger</i>	black swift	None	None	SSC	G4	S2	Yes
<i>Ardea alba</i>	great egret	None	None	-	G5	S4	Unlikely
<i>Ardea herodias</i>	great blue heron	None	None	-	G5	S4	Unlikely
<i>Botaurus lentiginosus</i>	American bittern	None	None	-	G5	S3S4	Unlikely
<i>Egretta thula</i>	snowy egret	None	None	-	G5	S4	Yes
<i>Nycticorax nycticorax</i>	black-crowned night heron	None	None	-	G5	S4	Yes
<i>Charadrius nivosus nivosus</i>	western snowy plover	Threatened	None	SSC	G3T3	S2	No
<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	G4T4	S3S4	Yes, but unlikely due to lack of appropriate nesting habitat
<i>Riparia riparia</i>	bank swallow	None	Threatened	-	G5	S2	Yes
<i>Hydrobates furcatus</i>	fork-tailed storm-petrel	None	None	SSC	G5	S1	Unlikely
<i>Pandion haliaetus</i>	osprey	None	None	WL	G5	S4	Yes, but unlikely due to lack of appropriate nesting habitat
<i>Poecile atricapillus</i>	black-capped chickadee	None	None	WL	G5	S3	Yes
<i>Pelecanus occidentalis californicus</i>	California brown pelican	Delisted	Delisted	FP	G4T3T4	S1S2	Unlikely
<i>Nannopterum auritum</i>	double-crested cormorant	None	None	WL	G5	S4	Unlikely
<i>Bonasa umbellus</i>	ruffed grouse	None	None	WL	G5	S3S4	Yes
<i>Sphyrapicus ruber</i>	red-breasted sapsucker	None	None	-	G5	S4	Yes
<i>Coturnicops noveboracensis</i>	yellow rail	None	None	SSC	G4	S1S2	Yes
<i>Strix occidentalis caurina</i>	Northern Spotted Owl	Threatened	Threatened	-	G3G4T3	S2	Yes, two years of NSO surveys will be completed.
<i>Selasphorus rufus</i>	rufous hummingbird	None	None	-	G4	S1S2	Yes
<i>Empidonax traillii brewsteri</i>	little willow flycatcher	None	Endangered	-	G5T3T4	S1S2	Unlikely
<i>Acipenser medirostris pop. 2</i>	green sturgeon - northern DPS	None	None	SSC	G2T1	S1	No
<i>Eucyclogobius newberryi</i>	tidewater goby	Endangered	None	-	G3	S3	No
<i>Spirinchus thaleichthys</i>	longfin smelt	Candidate	Threatened	-	G5	S1	No
<i>Thaleichthys pacificus</i>	eulachon	Threatened	None	-	G5	S2	No
<i>Entosphenus tridentatus</i>	Pacific lamprey	None	None	SSC	G4	S3	No

<i>Lampetra richardsoni</i>	western brook lamprey	None	None	SSC	G4G5	S3S4	No
<i>Oncorhynchus clarkii clarkii</i>	coast cutthroat trout	None	None	SSC	G5T4	S3	No
<i>Oncorhynchus keta</i>	chum salmon	None	None	-	G5	S1	No
<i>Oncorhynchus kisutch</i> pop. 2	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	-	G5T2Q	S2	No
<i>Oncorhynchus mykiss irideus</i> pop. 1	steelhead - Klamath Mountains Province DPS	None	None	SSC	G5T3Q	S2	No
<i>Oncorhynchus mykiss irideus</i> pop. 36	summer-run steelhead trout	None	Candidate Endangered	SSC	G5T4Q	S2	No
<i>Oncorhynchus tshawytscha</i> pop. 14	chinook salmon - southern Oregon/northern California coastal	None	None	SSC	G5T3Q	SNR	No
<i>Arborimus pomo</i>	Sonoma tree vole	None	None	SSC	G3	S3	Unlikely
<i>Erethizon dorsatum</i>	North American porcupine	None	None	-	G5	S3	Unlikely
<i>Enhydra lutris nereis</i>	southern sea otter	Threatened	None	FP	G4T2	S2	No
<i>Martes caurina humboldtensis</i>	Humboldt marten	Threatened	Endangered	SSC	G4G5T1	S1	Unlikely
<i>Pekania pennanti</i>	Fisher	None	None	SSC	G5	S2S3	Unlikely
<i>Eumetopias jubatus</i>	Steller sea lion	Delisted	None	-	G3	S2	No
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	G4	S2	Unlikely
<i>Lasionycteris noctivagans</i>	silver-haired bat	None	None	-	G3G4	S3S4	Unlikely
<i>Lasiurus cinereus</i>	hoary bat	None	None	-	G3G4	S4	Unlikely
<i>Myotis evotis</i>	long-eared myotis	None	None	-	G5	S3	Unlikely
<i>Myotis thysanodes</i>	fringed myotis	None	None	-	G4	S3	Unlikely
<i>Myotis volans</i>	long-legged myotis	None	None	-	G4G5	S4	Unlikely
<i>Speyeria zerene hippolyta</i>	Oregon silverspot butterfly	Threatened	None	-	G5T1	S1	Unlikely

4.3.2 Potential Impacts to Special Status Animals

1. Peregrine Falcon (*Falcon peregrinus*)

Status: Board of Forestry Sensitive Species (BOF), Federally Delisted August 25, 1999, State Delisted September 4, 2009

Key Habitat: Breeds near wetlands, lakes, riparian areas, or other water, mostly on high cliffs, ledges and rock outcroppings in woodland, forest, and coastal habitats. There has been recent documentation of peregrine falcon nests in old growth redwood snags.

Status within Plan Area and BAA: The Biologist searched for cliffs over 70 feet in height and for residual trees or snags with cavities in their tops within one mile of the project area while conducting project preparation, aerial photo interpretation and field reconnaissance. No cliffs over 70 feet in height were found. The larger trees were checked for the presence of any wildlife species that may be utilizing them for nesting, roosting, or perching. No nest trees or perch trees with signs of nests or whitewash were observed during plan preparation. No recorded observations within 10 miles as per CNDDDB 2022.

Mitigations: No known Peregrine Falcon nests site are within one mile of the project boundary. Operations conducted under this project should not significantly impact peregrine falcons or their habitat. Peregrine falcon surveys are not considered necessary for operations for this project.

2. Bald Eagle (*Haliaeetus leucocephalus*)

Status: State Endangered, Federally Delisted August 8, 2007, CDFW “Fully Protected”, and BOF Sensitive Species

Key Habitat: Requires large bodies of water or free flowing rivers with abundant fish populations, with adjacent snags or other perches. Fish are a primary source of prey, and bald eagles are typically found in forested areas near large fish-bearing waters (Cornell Lab). Bald eagles build large nests about 6 feet wide. Nests are typically found in large trees, but may be built on other available vegetation or structures (Cornell Lab).

Status within Plan Area and BAA: For this project, the entire plan and the area adjacent to the plan was searched for the existence of bald eagle nests or potential habitat on August 17, 2022. These areas were assessed with timber type maps, CNDDDB quadrangle overlays, and aerial photos before a field visit to determine areas of potential habitat. The Bald eagle is documented in CNDDDB north near Rowdy Creek, approximately 6 miles from the project boundary.

Mitigations: Considering the availability of habitat in the project area and that no known Bald eagle nests are within 5 miles of the project boundary.; operations conducted under this project should not significantly impact Bald Eagle or their habitat.

3. Northern Spotted Owl (*Strix occidentalis caurina*)

Status: State Threatened, Federally Threatened, and BOF Sensitive Species

Key Habitat: Requires mature forest patches with permanent water and suitable nesting trees and snags.

Status within Plan Area and BAA: There have been no documented NSO within 1.3 mi of the of the project area. There is potential NSO habitat within the BAA. See Appendix E.

Mitigations: USFWS protocol surveys (USFWS 2012) were conducted in 2022 and will be completed in 2023. No NSO were documented during the six surveys completed in 2022, if a new Activity Center or nesting site is located in 2023 mitigations will be put in place following the USFWS guidelines (USFWS 2012).

4. Marbled murrelet (*Brachyramphus marmoratus*)

Status: State Endangered, Federal Threatened, and BOF Sensitive Species

Key Habitat: Forages in marine environments only. Partial to coastlines with stands of mature redwood or dense mature conifer forests.

Status within Plan Area and BAA: The nearest occurrence documented in CNDDB is approximately 3.7 miles away in the Jedediah Smith Redwoods State Park. Quadrangle overlays, and aerial photos before a field visit to determine areas of potential habitat. Searches were conducted using optical scanning and stand searches when necessary. No sign of Marbled murrelet or potential nesting platforms were observed.

Mitigations: The stand was thoroughly search on August 17, 2022. No residual trees potentially suitable for the Marbled murrelet were observed within 0.25 miles of the proposed project. No suitable platforms for nesting were available within the stand. Due to the lack of suitable habitat, operations conducted under this project should not significantly impact Marbled murrelet or their habitat.

5. Longfin smelt (*Spirinchus thaleichthys*)

Status: State Threatened, BOF Sensitive Species and Candidate Federal Threatened

Key Habitat: The longfin smelt is an anadromous fish represented by numerous subpopulations. This longfin smelt occupies a wide range of habitats from near shore coastal waters to medium size rivers and even landlocked lakes. Spawning occurs in fresh water, over sandy-gravel substrates, rocks, and aquatic vegetation. Decline in longfin smelt populations is attributed to water diversions and other activities that constricting the size of favorable habitat, sedimentation, and pesticide runoff.

Status within Plan Area: Permanent streams in the BAA and in the surrounding area could provide habitat. The nearest occurrence mapped in CNDDB over 20 miles from the project in the Klamath River.

Mitigations: Considering the lack of appropriate habitat for the species within the vicinity of the proposed project and the protection provided to watercourses by the Forest Practice Rules, operations related to this plan should not have a significant effect on the species. The project will avoid significant impacts to streams on the property and in the downstream watershed. The potential impact with mitigation incorporated is less than significant.

6. Eulachon (*Thaleichthys pacificus*)

Status: Federally Threatened.

Key Habitat: The eulachon is an anadromous smelt that occupies the nearshore ocean bottom and coastal inlets. This fish lives for about 5 years, becoming sexually mature at 3 or 4 years. Spawns in coastal freshwater up to a few miles inland upon silt, sand, gravel, cobble, or detritus, preferably at bar or riffle habitat (NatureServe 2021).

Status within Plan Area: Permanent streams in the surrounding area could provide habitat. The eulachon is threatened by overfishing but also impacted by degradation of freshwater and marine habitats caused by water diversions, dredging, logging, and industrial pollution. The

nearest occurrence mapped in CNDDDB is documented in Smith River approximately 5.5 miles away from the project location.

Mitigations: The project will avoid significant impacts to streams on the property and in the downstream watershed. The potential impact with mitigation incorporated is less than significant.

7. Coho Salmon (*Oncorhynchus kisutch*)

Status: State Threatened, BOF Sensitive Species and Federally Threatened.

The coho salmon supports valuable commercial and sport fisheries in the Pacific Northwest Region.

Key Habitat: Coho salmon utilize a variety of freshwater habitats and tolerances and requirements change with season and age. Each of the four distinct life stages, Adult, Spawning/embryo/alevin, Parr, and Smolt, require specific habitat quality.

Status within Plan Area: Permanent streams in the surrounding area could provide habitat. The nearest occurrence mapped in CNDDDB is documented in Smith River. A Class I drainage that may provide habitat for the Coho Salmon is located within 150 feet of the project boundary.

Mitigations: Considering the protection provided to watercourses by the Forest Practice Rules and described in this project, operations on this plan should not have a significant effect on these species.

8. Summer Steelhead Trout (*Oncorhynchus mykiss*)

Status: Federally Candidate Species, Federally Threatened.

Key Habitat: Migrating fish require deep holding pools with cover. Spawning occurs in cool, clear, and well-oxygenated streams. Preferred water temperatures are 10-15 degrees C. Juveniles migrate out to sea in 1 to 3 years.

Status within Plan Area and BAA: Class I watercourses do provide habitat within the BAA. Summer Steelhead Trout have been observed in the Smith River. A Class I drainage that may provide habitat for the Summer Steelhead Trout is located within 150 feet of the project boundary.

Mitigations: Considering the protection provided to watercourses by the Forest Practice Rules and described in this project, operations on this plan should not have a significant effect on these species.

9. Gray Wolf (*Canis lupus*)

Status: The gray wolf was listed as endangered under the California Endangered Species Act (CESA) by the California Fish and Game Commission on June 4, 2014.

Habitat: Please note that gray wolves are habitat generalists and considered to have occurred in the Sierra Nevada, southern Cascades, Modoc Plateau, and Klamath Mountains. Sightings of wolves and detection of den sites shall be reported to the California Department of Fish and Wildlife (CDFW). No sightings occurred during layout of the proposed project.

Mitigation: If any sighted wolves, rendezvous sites or identified den sites are discovered during timber operations, the LTO shall stop operations and notify the CALFIRE Resource Management Office. Consultation with CDFW will be required due to presence of wolves or known wolf den sites and the results of that consultation shall be amended into the project plans before operations begin again.

9. Oregon silverspot butterfly (*Speyeria zerene hippolyta*)

Status: Federally Threatened

Habitat: The silverspot butterfly occurs in disjointed areas near the coast from Del Norte County, California north to Washington. The butterfly occupies early successional, coastally influence grassland habitat that contains the caterpillar host plant, early blue violet (*Viola adunca*).

Status within Plan Area: The proposed plan are does not contain grassland habitat or any known early blue violet. A designated conservation area exists approximately 1.5 miles away from the project area.

Mitigations: The proposed operations are not expected to impact the Oregon silverspot butterfly or its habitat. If the early blue violet is determined to be present during the botany surveys, the Biological Assessment will be amended and mitigation measures will be implemented.

A. AMPHIBIAN SPECIES

1. Southern Torrent Salamander (*Rhyacotriton variegatus*)

Status: CDFW “Species of Special Concern”

Key Habitat: Found in coastal forests of northwestern California, relatively common in preferred habitats of cold, well shaded permanent streams and spring seepages within redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer forests.

Status within Plan Area and BAA: Southern torrent salamander habitat is within the BAA. CNDDDB notes observations along the Smith River approximately 2.5 miles away. A Class I drainage/wetland area that may provide habitat for the Southern Torrent Salamander is located within 150 feet of the project boundary.

Mitigations: WLPZ buffer of 50-150’ and canopy retention between 70% and 80% in class I watercourses will provide adequate protection.

2. Northern Red-Legged Frog (*Rana aurora*)

Status: CDFW “Species of Special Concern”

Key Habitat: Found in riparian areas and permanent bodies of relatively quiet water such as ponds, pools along streams, reservoirs, springs, lakes and marshes.

Status within Plan Area and BAA: Potential habitat exists within and adjacent to the class II, III watercourses and within the BAA. The Northern Red-Legged Frog has been documented in CNDDDB, approximately 0.3 miles from the proposed project and was observed during the site visit on August 17, 2022.

Mitigations: Breeding habitat for the red-legged frog exists along the Class I channel migration zone located less than 150’ to the south of the parcel boundary. While the species may be located on the parcel outside of the breeding season, breeding habitat and species will be protected by a Class I watercourse buffer of 150’ from the adjacent Channel Migration Zone, will offer adequate protection to the species. WLPZ buffer of 50-150’ and canopy retention between 70% and 80% in the class I watercourses will provide adequate protection.

3. Foothill Yellow-legged Frog (*Rana boylei*)

Status: CDFW “Species of Special Concern”

Key Habitat: Prefers watercourses with bedload materials composed primarily of sand and gravels while larger rocks are sought out for cover. Regardless of season this frog is rarely found far from permanent water. Tadpoles require water for at least three to four months while completing aquatic development.

Status within Plan Area and BAA: None were observed during the site survey, but potential habitat exists within the class I, watercourses within 150' of THP area. CNDDDB observations are north along the Smith River ~2 miles away. A Class I drainage that may provide habitat for the Foothill Yellow-legged frog is located within 150' of the project boundary.

Mitigations: Operations conducted under the watercourse protection measures of this THP should not significantly impact Foothill yellow-legged frogs or their habitat. WLPZ buffer of 50'-150' and canopy retention between 70% and 80% in the class I watercourses will provide adequate protection.

4. Pacific Tailed Frog (*Ascaphus truei*)

Status: CDFW "Species of Special Concern"

Key Habitat: Found in riparian areas where there are clear, cold swift-flowing mountain streams; sometimes found near water in damp forests or in more open areas in cold, wet weather. Key habitat components within cold swift-flowing streams are plunge pools and rocky substrates where tadpoles cling to surfaces with large sucker like mouth while eggs are attached to downstream side of rocks.

Status within Plan Area and BAA: Habitat exists within BAA along the class I, II and III watercourses. Multiple occurrences of the species have been recorded along the Smith River. A Class I drainage that may provide habitat for the Pacific Tailed Frog is located within 150' of the project boundary.

Mitigations: Operations conducted under the watercourse protection measures of this THP should not significantly impact tailed frogs or their habitat. WLPZ buffer of 50'-150' and canopy retention between 70% and 80% in the class I watercourses will provide adequate protection.

5. Del Norte salamander (*Plethodon elongatus*)

Status: CDFW "Watch List"

Key Habitat: The Del Norte salamander primarily occupies moist talus and rocky areas in redwood or Douglas-fir forests. (Zeiner et al. 1988). Adults are terrestrial and do not require stand water for breeding and larval development (Zeiner et al. 1988).

Status within Plan Area and BAA: Although the project is not located in an area of prime habitat, it is possible that the Del Norte salamander could be using hydric sites within the BAA. The nearest occurrence mapped in CNDDDB approximately 3 miles from the project. The project will avoid impacts to potential wetland habitat. Canopy retention of between 70% to 80% along Class I watercourses zones will provide adequate protection. The potential impact with mitigation incorporated is less than significant.

Mitigations: Operations conducted under the watercourse protection measures of this THP should not significantly impact tailed frogs or their habitat. WLPZ buffer of 50'-150' and canopy retention between 70% and 80% in the class I watercourses will provide adequate protection.

B. REPTILIAN SPECIES

1. Western Pond Turtle (*Clemmys marmorata*)

Status: CDFW “Species of Special Concern”

Key Habitat: This species ranges from the Oregon border south to Kern County. Specific habitat includes areas of permanent water such as lakes, ponds, marshes, rivers, sloughs, and drainage ditches.

Status within Plan Area and BAA: Within the BAA there are watercourses and ponds that could provide habitat. No turtles have been observed in the watercourses near the project. No habitat within the THP. Occurrences are reported approximately 5.5 miles to the southwest of the proposed project. A Class I drainage that may provide habitat for the Western Pond Turtle is located within 150’ of the project boundary.

Mitigations: Operations conducted under the watercourse protection measures of this THP should not significantly impact tailed frogs or their habitat. WLPZ buffer of 50’-150’ and canopy retention between 70% and 80% in the class I watercourses will provide adequate protection.

C. FISH SPECIES

1. Pacific lamprey (*Entosphenus tridentatus*)

Status: CDFW “Species of Concern”

Key Habitat: Pacific lamprey require cool, permanent streams with a variety of substrates and structural complexity (CalFish). Lampreys are anadromous and must have unimpeded access to the ocean (CalFish).

Status within Plan Area and BAA: Permanent streams in the surrounding area could provide habitat for the Pacific Lamprey. The nearest occurrence mapped in the CNDDB is unprocessed but within the Crescent City quad. The project will avoid significant impacts to streams on the property and in the downstream watershed.

Mitigations: The project will avoid significant impacts to streams the downstream watershed through the use of the forest practice rules. The potential impact with mitigation incorporated is less than significant.

2. Coastal Cutthroat trout (*Oncorhynchus clarki clarki*)

Status: California “Species of Concern”

Key Habitat: Migrating fish require small, low gradient, cool, well –shaded coastal streams deep holding pools with cover. Spawning occurs in cool, clear, and well-oxygenated streams. Preferred water temperatures are 10-15 degrees C. Juveniles migrate out to sea in 1 to 3 years.

Status within Plan Area and BAA: Fish have been documented in the Smith River and should be assumed present throughout the Class I watercourses in the area. A Class I drainage that may provide habitat for the Coastal Cutthroat trout is located within 150’ of the project boundary.

Mitigations: Considering the protection provided to watercourses by the Forest Practice Rules and described in this conversion, operations on this plan should not have a significant effect on these species.

3. Steelhead-Klamath Mountain Province DPS (*Oncorhynchus mykiss irideus*)

Status: California “Species of Concern”

Key Habitat: Steelhead are anadromous rainbow trout that migrate to the ocean as juveniles and return to freshwater habitats to spawn. The Klamath Mountains Distinct Population Segment (DPS) ranges from Klamath and Trinity basins and streams north to the Smith, Rogue and Elk Rivers in Oregon (Moyle et al. 2008). Salmonids, including steelhead, require cool, clear perennial streams and rivers with structural complexity for cover and low suspended sediment. Steelhead may swim upstream in during the winter to spawn in stream segments that are not accessible to other salmonids during low flows (Moyle et al. 2008). Sedimentation is a major threat to salmonids in their early life stages.

Status within Plan Area and BAA: Fish have been documented in the Smith River and should be assumed present throughout the Class I waters in the area. A Class I drainage that may provide habitat for Steelhead is located within 150’ of the project boundary. The species is mapped in CNDDDB along the Smith River.

Mitigations: Streams in the BAA are likely habitat for summer-run steelhead. Considering the protection provided to watercourses by the Forest Practice Rules and described in this conversion, operations on this plan should not have a significant effect on these species.

4. Chinook Salmon-Southern Oregon/Northern California Coastal (*Oncorhynchus tshawytscha*)

Status: BOF Sensitive Species, CDFW “Species of Special Concern”

Key Habitat: Chinook salmon utilize a variety of freshwater habitats and tolerances and requirements change with season and age. Each of the four distinct life stages, Adult, Spawning/embryo/alevin, Parr, and Smolt, require specific habitat quality.

Status within Plan Area: Class I watercourses do provide habitat within the BAA. Chinook have been observed within the Smith River. A Class I drainage that may provide habitat for Chinook Salmon is located within 150’ of the project boundary.

Mitigations: Considering the protection provided to watercourses by the Forest Practice Rules and described in this conversion, operations on this plan should not have a significant effect on these species.

D. BIRD SPECIES

1. Osprey (*Pandion haliaetus*)

Status: CDFW “Species of Special Concern”, Board of Forestry Sensitive species.

Key Habitat: Nests on stick platforms at the top of large snags or dead-topped trees. Uses rivers, lakes, reservoirs, bays, estuaries and surf zones to prey on fish, although small mammals, birds, amphibians, reptiles and invertebrates may be taken.

Status within Plan Area and BAA: Habitat exist within the BAA. The osprey is documented in CNDDDB, 2022 approximately 5.5 miles away. There are no known nest trees are with within 5 miles of the plan area. The stand was thoroughly searched on August 17, 2022. No osprey or potential nest sites were observed.

Mitigations: Considering the availability of habitat in the conversion area; operations conducted under this project should not significantly impact the Osprey or their habitat.

2. Great Blue Heron (*Ardea herodias*)

Status: Board of Forestry Sensitive species

Habitat: Feeds primarily on fish (75% of its diet), however, also eats small rodents, amphibians, snakes, lizards, insects, crustaceans, and occasionally small birds. Stands motionless or walks slowly while searching for prey in shallow water or, less commonly, in open fields. Perches and roosts in secluded tall trees. Nests in colonies in tops of secluded large snags or live trees.

Status within Plan Area and BAA: No Great Blue Herons were observed during the site visit. The over-story trees within the conversion area were observed for the presence of nesting structures. The conversion area and immediate portions nearby contain no shallow water feeding areas. This species may exist within the BAA, but are not expected to nest on the project site or within 0.5 miles of the project site.

Mitigations: Operations conducted under this conversion will have no significant impact to great blue herons or their habitat.

3. Great Egret (*Ardea alba*)

Status: Board of Forestry sensitive species

Habitat: Feeds in shallow water and along shores of estuaries, lakes, ditches, and slow-moving streams, in salt ponds and mud flats. Eats fish, amphibians, snakes, snails, crustaceans, insects, and small mammals. Roosts communally in trees, nests in large trees, usually near water. Nesting colony must be isolated from human activities.

Status within Plan Area and BAA: The over-story was inspected for the presence of nest structures. This was done during conversion layout and consisted of looking for nesting structures in the canopy and white wash on the ground or on nearby vegetation. The over-story trees within the project boundary were observed for the presence of nesting structures.

Mitigations: Operations conducted under this conversion should not significantly impact Great egrets or their habitat.

4. Sharp-Shinned Hawk (*Accipiter striatus*)

Status: CDFW "Watch List"

Key Habitat: Sharp-shinned Hawk's breeding and wintering habitat is characterized by woodlands of young or open forests with a variety of plant life forms (Johnsgard 1990). They occur in more open woodlands, forest edges and riparian corridors.

Status within Plan Area and BAA: No sharp-shinned hawks were encountered in the biological assessment area or during stand search. The sharp-shinned hawk is a common migrant and winter visitor; uncommon summer resident and breeder" (Harris 1991). Proposed land management activities are unlikely to negatively affect this species. Nest sites in Oregon indicated that sharp-shinned hawks used mid-seral timber at an earlier stage than the Cooper's hawk, but similar to the Cooper's hawk needed dense canopy closure (Reynolds 1983). This type of habitat, for both species, is present in the assessment area.

Mitigations: Operations conducted under this conversion project should not significantly impact sharp-shinned hawks or their habitat.

5. Bank swallow (*Rapia rapia*)

Status: State Threatened

Key habitat: The bank swallow requires vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, and the ocean for nesting.

Status within the Plan Area and BAA: No known nesting habitat is present within the project area. Bank swallows are unlikely to occur in the area directly impacted by the project. Habitat exists within the BAA. The nearest occurrence mapped in CNDDDB is ~4.5 miles from the project along the Smith River.

Mitigations: Project operations will not significantly impact bank swallows or their habitat.

E. MAMMAL SPECIES

1. Townsend's Big-Eared Bat (*Corynorhinus townsendii*)

The Townsend's big-eared bat (COTO) has been designated as a species of special concern with the California Department of Fish and wildlife. The species was determined not to be a candidate for State listing as a threatened or endangered species under CESA.

According to the CDFW (CDFW 2022), the Townsend's big-eared bat is found throughout most of California, from desert habitats to the coastal redwood forests, and in oak woodlands. Their distribution is patchy, and is strongly correlated with the availability of caves, with populations occurring in areas dominated by cavity forming rock, and thus historic mining districts. They prefer open surfaces of caves and undisturbed spaces in buildings, bridges, tunnels, and possibly basal hollows of large trees.

The project site is located within the general range of the known habitat. The present designated habitat range encompasses most of northern California, parts of Oregon and Nevada. The primary hot spots are inland within the mining country. The project boundary & BAA contains no known habitat with suitable structural elements.

The watercourse zones (WLPZ) contain a variety of diameter sizes present for potential roost cavities, but none noted as potential denning cavities. There are no known mine shafts nor maternity roosts in basal hollows of old growth trees within the project boundary.

Project operations will not significantly reduce habitat with important structural elements for this species on the ownership or watershed levels. After reviewing the habitat requirements of this species, the potential impacts of the proposed project, the proposed habitat conservation measures, and the take avoidance measures to be implemented if a potential maternity roost is located, it has been determined that significant adverse and/or cumulative impacts to this species are not expected.

2. Long-eared myotis (*Myotis evotis*)

Status: CDFW Special Animals List (2021)

Key habitat: The long-eared myotis is widespread in California's brush, woodland, and forest habitats, but uncommon. The insectivore nests in cavities, under bark, in snags, or in buildings (Zeiner et al. 1988).

Status within the plan area and BAA: The broader surrounding area could provide potential roosting structures, but the project is not expected to directly impact to roosting habitat. No roosting habitat is present on the project site or within 0.25 miles of the project boundary.

Mitigations: Project operations are not expected to significantly impact the long-eared myotis or its habitat.

3. Silver-haired bat (*Lasionycteris noctivagans*)

Status: CDFW Special Animals List (2021)

Key habitat: Habitat is primarily forested (frequently coniferous forest) areas adjacent to lakes, ponds, or streams, including areas that have been altered by humans. The insectivore roosts in a wide variety of locations including hollow trees, snags, rock crevices, caves, under bark, and in man-made structures (Zeiner 1988).

Status within the plan area and BAA: The broader surrounding area could provide potential roosting structures, but the project is not expected to directly impact to roosting habitat. No roosting habitat is present on the project site or within 0.25 miles of the project boundary. The nearest occurrence in CNDDDB approximately 6 miles southeast of the project in the Jedediah Smith Redwoods State Park.

Mitigations: Project operations are not expected to significantly impact the long-eared myotis or its habitat.

Humboldt Martin (*Martes caurina humboldtensis*)

Status: Federally Threatened, State Endangered, CDFW "Species of Special Concern"

Key Habitat: Includes late-succession coniferous forests of multiple species stands composed of mixed conifer/hardwoods. Primary species present within the general sightings includes Douglas-fir, white oak and tanoak. Den sites were found in unharvested or selectively cut areas where less than 20% of the overhead canopy was taken. Martens were not frequently found in relatively early successional conifer/non-commercial timber types along the immediate coast. Past sightings appear to be inland, where the habitat becomes dryer.

Status within the plan area and BAA: The likelihood of a Humboldt Marten being present within the project area is low, due to the location of the conversion site and the fragmented residential areas surrounding the project location. No Humboldt Marten have been recorded within the BAA.

Mitigation: The proposed conversion site is located in an area with a mosaic of habitat that is not suitable for the Humboldt Marten. The project location as well as the retention of the WLPZ areas. The proposed project is not expected to have a significant negative impact on this species.

8. Fisher (*Pekania pennanti*)

Status: CDFW “Species of Special Concern”

Fisher Habitat: The Fisher is a relative of the mink, otter and marten. The Fisher inhabits old growth forest that once ranged from British Columbia through northern California and the Sierra Nevada. Fishers use large areas of primarily coniferous forest with fairly dense canopies and large trees, snags and down logs. The Fisher dens in rotting logs, hollow trees, and rocky crevices of old growth forest. They are specialized animals that frequently travel along waterways and rest in or on live trees, snags and down logs with cavities. These characteristics are usually only found in large, undistributed tracts of old forest. Douglas-fir is the most common species used for resting in northern California. Frequently used resting structures in live trees include cavities, large branches and squirrel or raptor nest. Snags, logs and aggregations of large woody debris are also utilized. A general preference for a large tree is likely related to the more frequent presence of large lateral limbs, with areas of decay contributing to cavity formation and presence of other structural elements.

Status within the plan area and BAA: The conversion site is located within the general range of the known habitat. The present designated habitat range encompasses most of northern California, parts of Oregon and Nevada. The primary hot spots are inland within the mining country. The BAA contains no known habitat with suitable structural elements. No known observations of the fisher in the BAA (2022 CNDDDB). The project boundary and the BAA contain areas with suitable structural elements for den and resting sites. These structural elements include: a) live trees with cavities, broken tops and other similar features; b) snags, with cavities and broken tops; c) platforms formed by nesting animals or witches broom associated with mistletoe; large diameter down logs and stumps with cavities; and d) ground cavities.

The likelihood of a Fisher being present within the project area can be predicted as low, due to the fact that the project site is within range. No Fishers have been recorded within the BAA areas of this project. The conversion site and in particular, the WLPZ outside of the project was evaluated during preparation of the conversion for any signs of past & present roosting or denning.

The project proposes Clearcutting outside of the WLPZ. The operation shall maintain large blocks of dense vegetation and canopy cover within the WLPZ to provide denning and travel corridors. These WLPZ networks retained through implementation of the silvicultural methods shall provide cover and habitat for the Fisher that may be using the area over the long term.

Mitigations: The conversion site is located in an area with a mosaic of habitat that is not suitable for the Fisher. The retention of the WLPZ areas and the use of the above silvicultural methods shall provide long term cover and habitat for the Fisher. The proposed project will not have a significant negative impact on this species. It is highly unlikely that there will be any adverse impact to this species resulting from this project.

9. Sonoma tree vole (*Arborimus pomus*)

Status: CDFW Species of Special Concern

Key habitat: The Sonoma tree vole occurs along the North Coast in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood conifer habitats (Zeiner et al. 1988). The small rodent specializes in feeding on Douglas-fir and grand fir needles, and typically constructs nests in Douglas-fir trees (Zeiner et al. 1988).

Status within the Plan Area and the BAA: The project area is unlikely to provide suitable habitat. There are areas of potential habitat within the 1.3 mi BAA.

Mitigations: Project operations will not significantly impact the Sonoma tree vole or its habitat.

10. North American porcupine (*Erethizon dorsatum*)

Status: CDFW Special Animals List (2022)

Key Habitat: The American porcupine is most commonly found in montane conifer, Douglas-fir, alpine dwarf-shrub, and wet meadow habitats. The herbivore feeds on a wide variety of aquatic and terrestrial herbs, shrubs, fruits, leaves, and buds in the summer. During the winter, the porcupine diet includes evergreen leaves, twigs, bark, and cambium of trees, particularly conifers.

Status within the Plan Area and BAA: Although widely distributed throughout North America and occurring in many habitats, the North American porcupine is considered vulnerable in California. The nearest occurrence mapped in CNDDDB approximately 0.3 mile southeast of the project location along highway 101.

Mitigations: Project operations are not expected to significantly impact the North American Porcupine or its habitat.

5. Conclusions

5.1 Summary of Findings and Conclusions

The proposed project is located off of Bachelor Road with a residential area to the east of the parcel and a previously harvested area to the west belonging to Green Diamond Resource Logging Company.

A California red-legged frog was observed during the site visit on August 17, 2022. Breeding habitat for the California red-legged frog exists along the Class I channel migration zone located less than 150' to the south of the parcel boundary. While the species may be located on the parcel outside of the breeding season, breeding habitat and species will be protected by a Class I watercourse buffer of 150' from the adjacent Channel Migration Zone, will offer adequate protection to the species. No other sensitive plant or animal species were observed during the site visit.

The proposed project falls within the range of the Northern Spotted Owl (NSO). Potential habitat exists on the parcel and in the surrounding area for the NSO. USFWS protocol surveys (USFWS 2012) were conducted in 2022 and will be completed in 2023. No NSO were documented during the six surveys completed in 2022 (see Appendix E).

Proposed operations are located within the known range of the Oregon Silver Spot Butterfly (*Speyeria zerene hippolyta*), the species is reliant on the early blue violet (*Viola adunca*) Conservation areas have been identified in Del Norte County by the USFWS Oregon Silverspot Butterfly Recovery Plan (USFW 2001)(See Appendix F). The closest Oregon silver spot butterfly Conservation Area is approximately 1.5 miles to the west of the project plan on the opposing side of Lake Earl.

The site visit was conducted outside of the blooming period for many rare and sensitive plant species. Prior to operations a complete botany survey will be conducted by a professional Botanist. If sensitive plant species are observed appropriate protection measures will be put in place.

The proposed project is located within the Coastal Zone, and Environmentally Sensitive Habitat Areas (ESHA) are located within 150' of the project area. Following Forest Practice Rules will offer adequate protection to the sensitive areas and species associates with them. Northern Spotted Owl surveys will continue in 2023. Seasonally appropriate Botanical surveys will be completed in 2023. If NSO or any sensitive animal or plant species are detected, this document will be amended and appropriate mitigation measures will be implemented.

6. References

- Bombay, H.L., Benson, T.M., Valentine, B.E. and Stefani, R.A., 2003. A willow flycatcher survey protocol for California. U.S. Forest Service, Pacific Southwest Region, Vallejo, California.
- CalFish: A California Cooperative Anadromous Fish and Habitat Data Program. Species Pages. <http://www.calfish.org/FisheriesManagement/SpeciesPages/PacificLamprey.aspx>.
- California Department of Fish and Wildlife. 2013. Report to the Fish and Game Commission: Evaluation of the petition from the Center for Biological Diversity to list the Townsend's big-eared bat (*Corynorhinus townsendii*) as an Endangered or Threatened Species under the California Endangered Species Act. 27 pp.
- California Department of Fish and Wildlife, Natural Diversity Database, BIOS. 2022. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA.
- California Department of Fish and Wildlife (CDFW), California Natural Diversity Database, Special Animals List. 2019. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA. <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline>>.
- Center for Biological Diversity. 2012. A Petition to list the Townsend's big-eared bat (*Corynorhinus townsendii*) as an Endangered or Threatened Species under the California Endangered Species Act. 69 pp.
- Cook, D. G. 2012. *Rana boylii* (Foothill yellow-legged frog). Upland Movement. Herpetological Review 43(2): 325.
- Cornell Lab of Ornithology, "*All About Birds: Bird Guide.*" <<https://www.allaboutbirds.org/guide/search.aspx>>.
- Craig, D. and P. L. Williams. 1998. Willow Flycatcher (*Empidonax traillii*). In The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. <http://www.prbo.org/calpif/htmldocs/riparian_v-2.html>.
- 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 (1): 167-177.
- Harris, S.W. 2005. Northwestern California birds. 3rd Ed. Humboldt State Univ., Arcata, CA.
- Hickman, J.C. 1993. The Jepson Manual Higher Plants of California. University of California Press, Berkeley, CA. 1400p.
- Mazurek, M.J. 2004. A maternity roost of Townsend's big-eared bat (*Corynorhinus townsendii*) in coast redwood basal hollows in northwestern California. Northwestern Naturalist 85:60-62.
- Moyle, P.B., J.A. Israel, and S.E. Purdy. 2008. Salmon, Steelhead, and Trout in California: Status of an Emblematic Fauna. U.C. Davis Center for Watershed Sciences.
- Nafis, G. 2000-2017. California Herps - A Guide to the Amphibians and Reptiles of California. <<http://www.californiaherps.com/>>

NatureServe. 2022. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <<http://explorer.natureserve.org>>.

Pierson, E.D. and W.E. Rainey. 1998. The distribution, status, and management of Townsend's big-eared bat (*Corynorhinus townsendii*) in California. California Department of Fish and Wildlife, Bird and Mammal Conservation Program Report. 96-7. 49 pp.

Pierson, E. D., M. C. Wackenhut, J. S. Altenbach, P. Bradley, P. Call, D. L. Genter, C. E. Harris, B. L. Keller, B. Lengus, L. Lewis, B. Luce, K. W. Navo, J. M. Perkins, S. Smith, and L. Welch. 1999. Species conservation assessment and strategy for Townsend's big-eared bat (*Corynorhinus townsendii townsendii* and *Corynorhinus townsendii pallescens*). Idaho Conservation Effort, Idaho Department of Fish and Game, Boise, Idaho.

Rodewald, P. (Editor). 2015. The Birds of North America: <https://birdsna.org>. Cornell Laboratory of Ornithology, Ithaca, NY.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
<<https://www.wildlife.ca.gov/Conservation/SSC/Birds>>.

Sibley, D.A., 2003. The Sibley field guide to birds of Western North America. Alfred A. Knopf, New York.

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: a citizen-based bird observation network in the biological sciences. *Biological Conservation* 142: 2282-2292.

U.S. Fish and Wildlife Service (USFWS ECOS). ECOS Environmental Conservation Online System.
<<https://ecos.fws.gov/ecp/>>.

U.S. Fish and Wildlife Service (USFWS). 2001. Oregon silverspot butterfly (*Speyeria zerene hippolyta*) revised recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon. 113 pp.

U.S. Fish and Wildlife Service (USFWS). 2006. Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California. Arcata, CA.

U.S. Fish and Wildlife Service (USFWS). 2014. Draft Species Report: Fisher (*Pekania pennanti*), West Coast Population. <https://www.fws.gov/yreka/20140911_WCFSR_finaldraft.pdf>.

Xerces Society for Invertebrate Conservation. Bumble bee conservation. Portland, OR.
<<http://xerces.org/bumblebees/>>.

Yarnell, S. 2013. 'Stream Habitat Associations of the Foothill Yellow-Legged Frog (*Rana boylii*): The Importance of Habitat Heterogeneity,' in Maddock, I., Harby, A., Kemp, P., and Wood, P., *Ecohydraulics: An Integrated Approach*, First Edition. John Wiley & Sons, Ltd., p. 93.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California. Updated by CWHR Program Staff, February 2005. <<https://www.wildlife.ca.gov/data/cwhr/life-history-and-range>>.

Appendix A. Botanical Scoping Report



P.O. Box 733, Hydesville, CA 95547 . (707) 768-3743 . (707) 768-3747 fax

Botanical Survey Initial Scoping Report Bachelor Road Timber Harvest Plan

Prepared by
Caitlyn Allchin
8/9/22

Hohman and Associates
Hydesville, CA

Signature:

A handwritten signature in black ink that reads "Caitlyn Allchin". The signature is written in a cursive, flowing style.

Date: 8/9/22

Setting

The Bachelor Road THP (APN: 105-191-008-000) is located in Section 22 Township 17 North, Range 1 West HB&M; Del Norte County, on the Crescent City USGS 7.5' quadrangle. The project area is approximately 6 miles due north of the town of Crescent City, CA, off Bachelor Road, and approximately 0.5 miles east of Lake Earl. The biogeographic region can be described using a three-tiered hierarchy of province, region, and sub-region. This site lies within the California Floristic Province, Northwestern California region, and North Coast (NCo) sub-region. The property is currently designated as Rural Residential Agriculture (RRA-3) under Del Norte County Code. The ownership lies at approximately 62 ft, or 19 m in elevation. The geology consists of marine and nonmarine (continental) sedimentary rocks derived from alluvium, lake, playa, and terrace deposits. The property is composed of a North Coast coniferous forest dominated by coastal redwood (*Sequoia sempervirens*) (S3.2 G3) with Sitka spruce (*Picea sitchensis*). The Bachelor Road THP is approximately 6.8 acres.

Methods

The botanical surveys for the Bachelor Road THP will be conducted by Caitlyn Allchin. Caitlyn holds a B.S. in Botany from Cal Poly Humboldt, where she is currently a biology graduate student. Caitlyn has taken relevant courses including plant taxonomy, lichens and bryophytes, principles of ecology, introduction to soils, and introduction to geology, and conducted her senior directed study on the pollination biology of Western coltsfoot (*Petasites frigidus* var. *palmatus*) in Arcata, CA. She has 4 years of botany experience in Northern California.

Surveys will be done as an intuitive assessment of potential habitats based on personal knowledge and visible environmental features such as canopy cover, slope, soil texture, aspect, hydrologic features, and associated tree, shrub, and herbaceous plant species present. The survey will be floristic in nature and seasonally appropriate. This survey protocol is based on the Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018). An annotated list of potential threatened, endangered, rare, or limited distribution plants on CNPS lists 1 - 4 found within the 9-quad area as listed in CNPS Rare Plant Inventory and CDFW BIOS is available in Attachment A. Attachment B contains rare plant rank definitions. A general location map and a CALVEG map of the ownership can be found in Attachment C. A custom soils resource report of the property provided from USDA NRCS web soil survey is provided in Attachment D.

References

- Baldwin, B.G., D.H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors. 2012. *The Jepson Manual: Vascular Plants of California*, second edition. University of California Press, Berkeley.
- California Department of Conservation [DOC]. 2019. [Interactive geological map of California]. Geologic Map of California. Retrieved from <https://maps.conservation.ca.gov/cgs/gmc/>
- California Department of Fish and Wildlife [CDFW]. 2018. "Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities" State of California.
- California Department of Fish and Wildlife, Natural Diversity Database, BIOS. 2021. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA. Accessed June 2022.
- California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website <https://www.rareplants.cnps.org> [accessed 4 June 2022].
- Jepson Flora Project (eds.) 2021. Jepson eFlora, <http://ucjeps.berkeley.edu/eflora/> [accessed June 2022].
- Kauffmann, M.E., V. T. Parker, and M. C. Vasey. 2015. *Field guide to manzanitas: California, North America, and Mexico*. Backcountry Press, Kneeland, CA, in association with California Native Plant Society, North Coast Chapter.
- Malcom, B., Malcom, N. Shevock, J., and Norris, D. 2009. *California mosses*. Micro-Optics Press.
- McCune, B., Geiser, L. 2009. *Macrolichens of the Pacific Northwest*. Corvallis, OR: Oregon State University Press.
- Niehaus, T.F., 1976. *A field guide to Pacific States wildflowers: Washington, Oregon, California and adjacent areas*. Houghton Mifflin.
- Pojar, J. and MacKinnon, A., 1994. *Plants of the Pacific Northwest coast*. Lone Pine, Vancouver, BC.
- Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation Online*, 2nd edition. California Native Plant Society, Sacramento, CA. Accessed June 2022. <<http://vegetation.cnps.org/>>.
- Sharnoff, S. 2014. *A field guide to California lichens*. Yale University Press.

Smith Jr, J.P., 2014. Field guide to grasses of California (Vol. 110). Univ of California Press.

Stuart, J.D. and Sawyer, J.O., 2001. Trees and shrubs of California (Vol. 62). Univ of California Press.

United States Department of Agriculture [USDA], Natural Resources Conservation Service [NRCS]. 2021. Custom Soil Resource Report for Humboldt County, South Part, California.

Attachment A. Potentially Occurring Sensitive Plant Species

Rare Plant Table

#	Species	Status					Blooming Period	Family and Lifeform	Habitat and Elevation	Potential for Occurrence
		Federal	State	CRPR	Global Rank	State Rank				
1	<i>Abronia umbellata</i> <i>var. breviflora</i> Pink sand-verbena	--	--	1B.1	G4 G5 T2	S2	June – October	Nyctaginaceae Annual herb	General Habitat: coastal dunes Elevation: 0 - 10 m	None. No coastal dune habitat on the property; no potential habitat exists.
2	<i>Angelica lucida</i> Sea-watch	--	--	4.2	G5	S3	April – September	Apiaceae Perennial herb	General Habitat: coastal bluff scrub, coastal dunes, coastal scrub, marshes and swamps Elevation: 0 – 150 m	None. No coastal bluff scrub, coastal dunes, coastal scrub, or marshes and swamps on the property; no potential habitat exists.
3	<i>Antennaria suffrutescens</i> Evergreen everlasting	--	--	4.3	G4	S3	January – July	Asteraceae Perennial stoloniferous herb	General Habitat: lower montane coniferous forest Elevation: 500 – 1600 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
4	<i>Anthoxanthum nitens</i> <i>ssp. nitens</i> Vanilla-grass	--	--	2B.3	G5 T5	S2	April – July	Poaceae Perennial rhizomatous herb	General Habitat: meadows and seeps Elevation: 1500 – 1895 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.

5	<i>Arabis aculeolata</i> Waldo rockcress	--	--	2B.2	G4	S2	April – June	Brassicaceae Perennial herb	General Habitat: broadleaved upland forest, lower montane coniferous forest, upper montane coniferous forest Micro Habitat: serpentinite Elevation: 410 – 1800 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
6	<i>Arabis mcdonaldiana</i> McDonald's rockcress	FE	CE	1B.1	G3	S3	May – July	Brassicaceae Perennial herb	General Habitat: lower montane coniferous forest, upper montane coniferous forest Micro Habitat: serpentinite Elevation: 135 – 1800 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
7	<i>Arctostaphylos</i> <i>hispidula</i> Howell's manzanita	--	--	4.2	G4	S3	March – April	Ericaceae Perennial evergreen shrub	General Habitat: chaparral (sandstone, serpentinite) Elevation: 120 – 1250 m	None. No habitat above 19 m elevation occurs on the property, no chaparral habitats; no potential habitat exists.
8	<i>Arctostaphylos</i> <i>nortensis</i> Del Norte manzanita	--	--	4.3	G2	S2	February	Ericaceae Perennial evergreen shrub	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite (often) Elevation: 500 – 800 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
9	<i>Arnica cernua</i> Serpentine arnica	--	--	4.3	G5	S4	April – July	Asteraceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 500 – 1920 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
10	<i>Arnica spathulata</i> Klamath arnica	--	--	4.3	G3 ?	S3	May – August	Asteraceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 640 – 1800 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.

11	<i>Asplenium trichomanes</i> ssp. <i>trichomanes</i> Maidenhair spleenwort	--	--	2B.1	G5 T5	S1	May – July	Aspleniaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest Elevation: 185 – 200 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
12	<i>Boechera koehleri</i> Koehler's stipitate rockcress	--	--	1B.3	G3 G4	S3	(March) April – July	Brassicaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: rocky, serpentinite Elevation: 155 – 1660 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
13	<i>Calamagrostis crassiglumis</i> Thurber's reed grass	--	--	2B.1	G3 Q	S2	May – August	Poaceae Perennial rhizomatous herb	General Habitat: coastal scrub (mesic), marshes and swamps (freshwater) Elevation: 10 – 60 m	None. No mesic coastal scrub, no freshwater marshes or swamps on the property; no potential habitat exists.
14	<i>Calicium adspersum</i> Spiral-spored gilded-head pin lichen	--	--	2B.2	G3 G4	S1	--	Caliciaceae Crustose lichen (epiphytic)	General Habitat: lower montane coniferous forest, North Coast coniferous forest General Micro Habitat: often restricted to old-growth bark of conifers that are over 200 years in age Elevation: 200 – 200 m	High. No habitat above 19 m elevation occurs on the property, however, potential habitat may exist on any old-growth stumps over 200 years of age that remain in the understory.
15	<i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i> Butte County morning-glory	--	--	4.2	G5 T3	S3	May – July	Convolvulaceae Perennial rhizomatous herb	General Habitat: chaparral, lower montane coniferous forest, valley and foothill grassland Micro Habitat: roadsides (sometimes), rocky Elevation: 565 – 1524 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.

16	<i>Cardamine angulata</i> Seaside bittercress	--	--	2B.2	G4 G5	S3	(January) March – July	Brassicaceae Perennial herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest General Micro Habitat: wet areas Micro Habitat: streambanks Elevation: 15 – 915 m	High. Potential habitat exists within wet areas of the forest.
17	<i>Cardamine nuttallii</i> <i>var. gemmata</i> Yellow-tubered toothwort	--	--	3.3	G5 T3 Q	S2	April – May (June)	Brassicaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest Micro Habitat: serpentinite Elevation: 100 – 700 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
18	<i>Carex arcta</i> Northern clustered sedge	--	--	2B.2	G5	S1	June – September	Cyperaceae Perennial herb	General Habitat: bogs and fens, North Coast coniferous forest (mesic). Elevation: 60 – 1400 m	High. Although no habitat above 19 m exists on the property, potential habitat may exist within mesic areas of the forest.
19	<i>Carex lenticularis var.</i> <i>limnophila</i> Lagoon sedge	--	--	2B.2	G5 T5	S1	June – August	Cyperaceae Perennial herb	General Habitat: bogs and fens, marshes and swamps, North Coast coniferous forest General Micro Habitat: shores, beaches Micro Habitat: gravelly (often) Elevation: 0 – 6 m	High. Although no habitat below 19 m exists on the property, potential habitat may exist within gravelly, mesic areas of the forest.
20	<i>Carex lyngbyei</i> Lyngbye's sedge	--	--	2B.2	G5	S3	April – August	Cyperaceae Perennial rhizomatous herb	General Habitat: marshes and swamps (brackish, freshwater) Elevation: 0 – 10 m	None. No marshes and swamps on the property; no habitat below 19 m elevation occurs; no potential habitat exists.
21	<i>Carex praticola</i> Northern meadow sedge	--	--	2B.2	G5	S2	May – July	Cyperaceae Perennial herb	General Habitat: meadows and seeps (mesic) Elevation: 0 – 3200 m	High. Potential habitat exists within seep areas of the forest or surrounding grasslands.

22	<i>Carex scabriuscula</i> Siskiyou sedge	--	--	4.3	G3 G4	S4	May – July	Cyperaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, meadows and seeps, upper montane coniferous forest Micro Habitat: mesic, seeps (sometimes), serpentinite (sometimes) Elevation: 701 – 2345 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
23	<i>Carex serpenticola</i> Serpentine sedge	--	--	2B.3	G4	S3	March – May	Cyperaceae Perennial rhizomatous herb	General Habitat: meadows and seeps (mesic, serpentinite) Elevation: 60 – 1200 m	None. No habitat above 19 m elevation occurs, no serpentine parent bedrock; no potential habitat exists.
24	<i>Carex sheldonii</i> Sheldon's sedge	--	--	2B.2	G4	S2	May – August	Cyperaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, marshes and swamps, riparian scrub Elevation: 1200 – 2012 m	None. No habitat above 19 m elevation occurs on the property; no potential habitat exists.
25	<i>Carex viridula</i> ssp. <i>viridula</i> Green-yellow sedge	--	--	2B.3	G5 T5	S2	(June) July – September (November)	Cyperaceae Perennial herb	General Habitat: bogs and fens, marshes and swamps (freshwater), North Coast coniferous forest (mesic) Elevation: 0 – 1600 m	High. Potential habitat exists within mesic areas of the forest.
26	<i>Cascadia nuttallii</i> Nuttall's saxifrage	--	--	2B.1	G4 ?	S1	May	Saxifragaceae Perennial rhizomatous herb	General Habitat: North Coast coniferous forest (mesic, rocky) Elevation: 40 – 75 m	High. Although no habitat above 19 m elevation occurs on the property, potential habitat may exist within mesic areas of the forest.
27	<i>Castilleja ambigua</i> var. <i>ambigua</i> Johnny-nip	--	--	4.2	G4 T4	S3 S4	March – August	Orobanchaceae annual herb (hemiparasitic)	General Habitat: coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools Elevation: 0 – 435 m	High. Potential habitat exists within vernal mesic areas of the ownership.

28	<i>Castilleja brevilobata</i> Short-lobed paintbrush	--	--	4.2	G4	S3	April – July	Orobanchaceae Perennial herb (hemiparasitic)	General Habitat: lower montane coniferous forest (edges, openings, serpentine) Elevation: 120 – 1700 m	None. No habitat above 19 m elevation occurs on the property; no serpentine substrate occurs on the property; no potential habitat exists.
29	<i>Castilleja elata</i> Siskiyou paintbrush	--	--	2B.2	G3	S2 S3	May – August	Orobanchaceae Perennial herb (hemiparasitic)	General Habitat: bogs and fens, lower montane coniferous forest (seeps) Micro Habitat: serpentine (often) Elevation: 0 – 1750 m	High. Potential habitat exists within seeps of the forest; however, no serpentine substrate exists on the property, therefore highly suitable habitat is unlikely to occur.
30	<i>Castilleja litoralis</i> Oregon coast paintbrush	--	--	2B.2	G3	S3	June	Orobanchaceae Perennial herb (hemiparasitic)	General Habitat: coastal bluff scrub, coastal dunes, coastal scrub Micro Habitat: sandy Elevation: 15 – 100 m	None. No coastal habitat occurs on the property, no coastal bluff scrub, no coastal dunes, and no coastal scrub; no sandy areas; no potential habitat exists.
31	<i>Chrysosplenium glechomifolium</i> Pacific golden saxifrage	--	--	4.3	G5 ?	S3	February – June	Saxifragaceae Perennial herb	General Habitat: North Coast coniferous forest, riparian forest Micro Habitat: roadsides (sometimes), seeps (sometimes), streambanks Elevation: 10 – 220 m	High. Potential habitat exists throughout the ownership.
32	<i>Cochlearia groenlandica</i> Greenland cochlearia	--	--	2B.3	G4	S1	May – July	Brassicaceae Annual herb	General Habitat: coastal bluff scrub (basaltic sea stacks) Elevation: 0 – 50 m	None. No coastal bluff scrub, no basaltic sea stacks; no potential habitat exists.
33	<i>Coptis laciniata</i> Oregon goldthread	--	--	4.2	G4 ?	S3 ?	(February) March – May (September – November)	Ranunculaceae Perennial rhizomatous herb	General Habitat: meadows and seeps, North Coast coniferous forest (streambanks) Micro Habitat: mesic Elevation: 0 – 1000 m	High. Potential habitat exists within mesic or seep areas of the forest.

34	<i>Cypripedium californicum</i> California lady's-slipper	--	--	4.2	G3	S4	April – August (September)	Orchidaceae Perennial rhizomatous herb	General Habitat: bogs and fens, lower montane coniferous forest Micro Habitat: seeps, serpentinite (usually), streambanks Elevation: 30 – 2750 m	Low. Although no habitat exists above 19 m elevation, and no serpentinite parent bedrock occurs on the ownership, potential habitat may exist within seepage areas of the forest.
35	<i>Cypripedium montanum</i> Mountain lady's-slipper	--	--	4.2	G4 G5	S4	March – August	Orchidaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, cismontane woodland, lower montane coniferous forest, North Coast coniferous forest Elevation: 185 – 2225 m	None. No habitat above 19 m elevation; no potential habitat exists.
36	<i>Darlingtonia californica</i> California pitcherplant	--	--	4.2	G4	S4	April – August	Sarraceniaceae Perennial rhizomatous herb (carnivorous)	General Habitat: bogs and fens, meadows and seeps Micro Habitat: mesic, seeps (usually), serpentinite (usually) Elevation: 0 – 2585 m	Low. No serpentinite parent bedrock occurs within the ownership; however, potential habitat may exist within seepage areas adjacent to the property.
37	<i>Dicentra formosa ssp. oregana</i> Oregon bleeding heart	--	--	4.2	G5 T4	S3	April – May	Papaveraceae Perennial herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 425 – 1485 m	None. No habitat above 19 m elevation; no serpentinite parent bedrock within the ownership; no potential habitat exists.
38	<i>Doellingeria glabrata</i> Siskiyou aster	--	--	4.3	G4	S3	June – September	Asteraceae Perennial herb	General Habitat: lower montane coniferous forest, upper montane coniferous forest Micro Habitat: openings, rocky Elevation: 120 – 2705 m	None. No habitat above 19 m elevation; no potential habitat exists.
39	<i>Downingia willamettensis</i> Cascade downingia	--	--	2B.2	G4	S2	June – July (September)	Campanulaceae Annual herb	General Habitat: cismontane woodland, valley and foothill grassland, vernal pools Elevation: 15 – 1110 m	High. Potential habitat exists within vernal mesic areas of the forest.

40	<i>Empetrum nigrum</i> Black crowberry	--	--	2B.2	G5	S1 ?	April – June	Empetraceae Perennial evergreen shrub	General Habitat: coastal bluff scrub, coastal prairie Elevation: 10 – 200 m	None. No coastal bluff scrub, no coastal prairie; no potential habitat exists.
41	<i>Epilobium rigidum</i> Siskiyou Mountains willowherb	--	--	4.3	G3 G4	S3	July – August	Onagraceae Perennial herb	General Habitat: lower montane coniferous forest (serpentine) Elevation: 510 – 1200 m	None. No habitat above 19 m elevation; no potential habitat exists.
42	<i>Erigeron cervinus</i> Siskiyou daisy	--	--	4.3	G4	S4	June – August	Asteraceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, meadows and seeps Elevation: 25 – 1900 m	High. Potential habitat exists in seeps and within the forest.
43	<i>Eriogonum nudum</i> var. <i>paralinum</i> Del Norte buckwheat	--	--	2B.2	G5 T2	S1	June – September	Polygonaceae Perennial herb	General Habitat: coastal bluff scrub, coastal prairie Elevation: 5 – 80 m	None. No coastal bluff scrub, no coastal prairie; no potential habitat exists.
44	<i>Eriogonum pendulum</i> Waldo wild buckwheat	--	--	2B.2	G4	S2 S3	August – September	Polygonaceae Perennial herb	General Habitat: lower montane coniferous forest, upper montane coniferous forest Micro Habitat: serpentine Elevation: 230 – 1000 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
45	<i>Eriogonum ternatum</i> Ternate buckwheat	--	--	4.3	G4	S4	June – August	Polygonaceae Perennial herb	General Habitat: lower montane coniferous forest (serpentine) Elevation: 305 – 2225 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
46	<i>Erysimum concinnum</i> Bluff wallflower	--	--	1B.2	G3	S2	February – July	Brassicaceae Annual/Perennial herb	General Habitat: coastal bluff scrub, coastal dunes, coastal prairie Elevation: 0 – 185 m	None. No coastal bluff scrub, no coastal dunes, no coastal prairie; no potential habitat exists.

47	<i>Erythronium hendersonii</i> Henderson's fawn lily	--	--	2B.3	G4	S2	April – July	Liliaceae Perennial bulbiferous herb	General Habitat: lower montane coniferous forest Elevation: 300 – 1600 m	None. No habitat above 19 m elevation; no potential habitat exists.
48	<i>Erythronium howellii</i> Howell's fawn lily	--	--	1B.3	G3 G4	S2	April – May	Liliaceae Perennial bulbiferous herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest Micro Habitat: serpentinite (sometimes) Elevation: 200 – 1145 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
49	<i>Erythronium oregonum</i> Giant fawn lily	--	--	2B.2	G5	S2	March – June (July)	Liliaceae Perennial herb	General Habitat: cismontane woodland, meadows and seeps Micro Habitat: openings, rocky, serpentinite (sometimes) Elevation: 100 – 1150 m	None. No habitat above 19 m elevation; no potential habitat exists.
50	<i>Erythronium revolutum</i> Coast fawn lily	--	--	2B.2	G4 G5	S3	March – July (August)	Liliaceae Perennial bulbiferous herb	General Habitat: bogs and fens, broadleaved upland forest, North Coast coniferous forest Micro Habitat: mesic, streambanks Elevation: 0 – 1600 m	High. Potential habitat exists in mesic areas of the forest.
51	<i>Fissidens pauperculus</i> Minute pocket moss	--	--	1B.2	G3 ?	S2	--	Fissidentaceae Moss	General Habitat: North Coast coniferous forest (damp coastal soil) Elevation: 10 – 1024 m	High. Potential habitat exists within areas of exposed soil and cutbanks within the forest.
52	<i>Gentiana setigera</i> Mendocino gentian	--	--	1B.2	G2	S2	(April – July) August – September	Gentianaceae Perennial herb	General Habitat: lower montane coniferous forest, meadows and seeps Micro Habitat: mesic Elevation: 335 – 1065 m	None. No habitat above 19 m elevation; no potential habitat exists.

53	<i>Gilia capitata</i> ssp. <i>pacifica</i> Pacific gilia	--	--	1B.2	G5 T3	S2	April – August	Polemoniaceae Annual herb	General Habitat: coastal bluff scrub, chaparral (openings), coastal prairie, valley and foothill grassland Elevation: 5 – 1665 m	None. No coastal bluff scrub, no chaparral, no coastal prairie, no valley and foothill grassland; no potential habitat exists.
54	<i>Gilia millefoliata</i> Dark-eyed gilia	--	--	1B.2	G2	S2	April – July	Polemoniaceae Annual herb	General Habitat: coastal dunes Elevation: 20 – 30 m	None. No coastal dunes, no potential habitat exists.
55	<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i> American glehnia	--	--	4.2	G5 T5	S2 S3	May – August	Apiaceae Perennial herb	General Habitat: coastal dunes Elevation: 0 – 20 m	None. No coastal dunes, no potential habitat exists.
56	<i>Hesperevax sparsiflora</i> <i>var. brevifolia</i> Short-leaved evax	--	--	1B.2	G4 T3	S3	March – June	Asteraceae Annual herb	General Habitat: coastal bluff scrub (sandy), coastal dunes, coastal prairie Elevation: 0 – 215 m	None. No coastal bluff scrub (sandy), no coastal dunes, no coastal prairie; no potential habitat exists.
57	<i>Horkelia sericata</i> Silky horkelia	--	--	4.3	G3 G4	S3	June – August	Rosaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: clay, serpentinite Elevation: 180 – 1200 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no high percentage of clay in soils; no potential habitat exists.
58	<i>Hosackia gracilis</i> Harlequin lotus	--	--	4.2	G3 G4	S3	March – July	Fabaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, meadows and seeps, North Coast coniferous forest, valley and foothill grassland General Micro Habitat: wetlands Micro Habitat: roadsides Elevation: 0 – 700 m	High. Potential habitat exists throughout the ownership within mesic areas of the forest, seepage areas, as well as along roadsides entering the parcel.

59	<i>Iris bracteata</i> Siskiyou iris	--	--	3.3	G4 G5	S3	May – June	Iridaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 180 – 1070 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
60	<i>Iris innominata</i> Del Norte County iris	--	--	4.3	G4 G5	S3	May – June	Iridaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 300 – 2000 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
61	<i>Iris tenax ssp.</i> <i>klamathensis</i> Orleans iris	--	--	4.3	G4 G5 T4	S4	April – May	Iridaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (often disturbed areas) Elevation: 100 – 1400 m	None. No habitat above 19 m elevation; no potential habitat exists.
62	<i>Iris thompsonii</i> Thompson's iris	--	--	4.3	G3	S3	(March – April) May – June (July – August)	Iridaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest Micro Habitat: edges (often), mesic (usually), openings, roadsides (sometimes), serpentinite (often), streambanks (sometimes) Elevation: 90 – 600 m	None. No habitat above 19 m elevation; no potential habitat exists.
63	<i>Kopsiopsis hookeri</i> Small groundcone	--	--	2B.3	G4 ?	S1 S2	April – August	Orobanchaceae Perennial rhizomatous herb (parasitic)	General Habitat: North Coast coniferous forest Elevation: 90 – 885 m	None. No habitat above 19 m elevation; no potential habitat exists.
64	<i>Lasthenia californica</i> <i>ssp. macrantha</i> Perennial goldfields	--	--	1B.2	G3 T2	S2	January – November	Asteraceae Perennial herb	General Habitat: coastal bluff scrub, coastal dunes, coastal scrub Elevation: 5 – 520 m	None. No coastal bluff scrub, no coastal dunes, no coastal scrub; no potential habitat exists.

65	<i>Lathyrus delnorticus</i> Del Norte pea	--	--	4.3	G4	S3	June – July	Fabaceae Perennial herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest Micro Habitat: serpentinite (often) Elevation: 30 – 1450 m	Low. Although no habitat above 19 m elevation occurs, nor is serpentine parent bedrock present, potential habitat may exist within the forest.
66	<i>Lathyrus japonicus</i> Seaside pea	--	--	2B.1	G5	S2	May – August	Fabaceae Perennial rhizomatous herb	General Habitat: coastal dunes Elevation: 1 – 30 m	None. No coastal dunes, no potential habitat exists.
67	<i>Lathyrus palustris</i> Marsh pea	--	--	2B.2	G5	S2	March – August	Fabaceae Perennial herb	General Habitat: bogs and fens, coastal prairie, coastal scrub, lower montane coniferous forest, marshes and swamps, North Coast coniferous forest Micro Habitat: mesic Elevation: 1 – 100 m	High. Potential habitat exists within mesic areas of the forest.
68	<i>Leptosiphon latisectus</i> Broad-lobed leptosiphon	--	--	4.3	G4	S4	April – June	Polemoniaceae Annual herb	General Habitat: broadleaved upland forest, cismontane woodland Elevation: 170 – 1500 m	None. No habitat above 19 m elevation; no potential habitat exists.
69	<i>Lewisia oppositifolia</i> Opposite-leaved lewisia	--	--	2B.2	G3	S2	April – May (June)	Montiaceae Perennial herb	General Habitat: lower montane coniferous forest (mesic) Elevation: 300 – 1220 m	None. No habitat above 19 m elevation; no potential habitat exists.
70	<i>Lilium bolanderi</i> Bolander's lily	--	--	4.2	G4	S3 S4	June – July	Liliaceae perennial bulbiferous herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 30 – 1600 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.

71	<i>Lilium occidentale</i> Western lily	FE	CE	1B.1	G1 G2	S1	June – July	Liliaceae perennial bulbiferous herb	General Habitat: bogs and fens, coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, North Coast coniferous forest Elevation: 2 – 185 m	High. Potential habitat exists within the forest.
72	<i>Lilium pardalinum ssp.</i> <i>vollmeri</i> Vollmer's lily	--	--	4.3	G5 T4	S3	(June) July – August	Liliaceae perennial bulbiferous herb	General Habitat: bogs and fens, meadows and seeps (mesic) Elevation: 30 – 1680 m	None. No habitat above 19 m elevation; no potential habitat exists.
73	<i>Listera cordata</i> Heart-leaved twayblade	--	--	4.2	G5	S4	February – July	Orchidaceae Perennial herb	General Habitat: bogs and fens, lower montane coniferous forest, North Coast coniferous forest Elevation: 5 – 1370 m	High. Potential habitat exists within forest areas.
74	<i>Lomatium howellii</i> Howell's lomatium	--	--	4.3	G4 G5	S4	April – July	Apiaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 110 – 1705 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
75	<i>Lomatium tracyi</i> Tracy's lomatium	--	--	4.3	G4	S4	May – June	Apiaceae Perennial herb	General Habitat: lower montane coniferous forest, upper montane coniferous forest Micro Habitat: serpentinite Elevation: 455 – 1950 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
76	<i>Lycopodium clavatum</i> Running-pine	--	--	4.1	G5	S3	June – August (September)	Lycopodiaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (mesic), marshes and swamps, North Coast coniferous forest (mesic) Micro Habitat: edges (often), openings, roadsides Elevation: 45 – 1225 m	High. Potential habitat exists within roadsides, openings, edges, and mesic areas of the forest.

77	<i>Lysimachia europaea</i> Arctic starflower	--	--	2B.2	G5	S1	June – July	Myrsinaceae Perennial herb	General Habitat: bogs and fens, meadows and seeps Micro Habitat: coastal Elevation: 0 – 15 m	High. Potential habitat may exist within seepage areas of the forest.
78	<i>Micranthes marshallii</i> Marshall's saxifrage	--	--	4.3	G5	S3	March – August	Saxifragaceae Perennial rhizomatous herb	General Habitat: riparian forest Micro Habitat: rocky, streambanks Elevation: 90 – 2130 m	Low. Although no streams occur within the property, potential habitat may exist within rocky, mesic areas of the forest.
79	<i>Mitellastris caulescens</i> Leafy-stemmed mitrewort	--	--	4.2	G5	S4	(March) April – October	Saxifragaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, lower montane coniferous forest, meadows and seeps, North Coast coniferous forest Micro Habitat: mesic, roadsides (sometimes) Elevation: 5 – 1700 m	High. Potential habitat exists within roadsides, the forest, as well as mesic areas.
80	<i>Moneses uniflora</i> Woodnymph	--	--	2B.2	G5	S2	May – August	Ericaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, North Coast coniferous forest Elevation: 100 – 1100 m	Low. Although no habitat below 19 m elevation occurs on the property, the North Coast coniferous forest, abundant with bryo-mats, may provide suitable habitat.
81	<i>Monotropa uniflora</i> Ghost-pipe	--	--	2B.2	G5	S2	June – August (September)	Ericaceae Perennial herb (achlorophyllous)	General Habitat: broadleaved upland forest, North Coast coniferous forest Elevation: 10 – 550 m	High. Potential habitat exists within the forest.

82	<i>Montia howellii</i> Howell's montia	--	--	2B.2	G3 G4	S2	(February) March – May	Montiaceae Annual herb	General Habitat: meadows and seeps, North Coast coniferous forest, vernal pools Micro Habitat: vernally mesic, sometimes roadsides Elevation: 0 – 835 m	High. Potential habitat exists in vernally mesic areas, roadsides, and forested areas.
83	<i>Oenothera wolfii</i> Wolf's evening- primrose	--	--	1B.1	G2	S1	May – October	Onagraceae Perennial herb	General Habitat: coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest Micro Habitat: mesic (usually), sandy Elevation: 3 – 800 m	Low. No sandy areas occur on the property, however potential habitat may exist within mesic areas of the forest.
84	<i>Oxalis suksdorfii</i> Suksdorf's wood- sorrel	--	--	4.3	G4	S3	May – August	Oxalidaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, North Coast coniferous forest Elevation: 15 – 700 m	High. Potential habitat exists within the forest.
85	<i>Packera bolanderi</i> var. <i>bolanderi</i> Seacoast ragwort	--	--	2B.2	G4 T4	S2 S3	(January – April) May – July (August)	Asteraceae Perennial rhizomatous herb	General Habitat: coastal scrub, North Coast coniferous forest Micro Habitat: roadsides (sometimes) Elevation: 30 – 650 m	High. Potential habitat exists within roadsides and forested habitat.
86	<i>Packera macounii</i> Siskiyou Mountains ragwort	--	--	4.3	G5 ?	S3	June – July	Asteraceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: disturbed areas (often), serpentinite (sometimes) Elevation: 400 – 915 m	None. No habitat above 19 m elevation; no potential habitat exists.

87	<i>Perideridia gairdneri</i> <i>ssp. gairdneri</i> Gairdner's yampah	--	--	4.2	G5 T3 T4	S3 S4	June – October	Apiaceae Perennial herb	General Habitat: broadleaved upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools Micro Habitat: vernally mesic Elevation: 0 – 610 m	High. Potential habitat exists within vernally mesic areas of the forest.
88	<i>Phacelia argentea</i> Sand dune phacelia	--	PT	1B.1	G2	S1	June – August	Hydrophyllaceae Perennial herb	General Habitat: coastal dunes Elevation: 3 – 25 m	None. No coastal dunes, no potential habitat exists.
89	<i>Pinguicula macroceras</i> Horned butterwort	--	--	2B.2	G4	S2	April – June	Lentibulariaceae Perennial herb (carnivorous)	General Habitat: bogs and fens (serpentine) Elevation: 40 – 1920 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
90	<i>Piperia candida</i> White-flowered rein orchid	--	--	1B.2	G3	S3	(March) May – September	Orchidaceae Perennial herb	General Habitat: broadleaved upland forest, lower montane coniferous forest, North Coast coniferous forest Micro Habitat: serpentine (sometimes) Elevation: 30 – 1310 m	High. Potential habitat exists in the forested areas.
91	<i>Pityopus californicus</i> California pinefoot	--	--	4.2	G4 G5	S4	(March – April) May – August	Ericaceae Perennial herb (achlorophyllous)	General Habitat: broadleaved upland forest, lower montane coniferous, North Coast coniferous forest, upper montane coniferous forest Micro Habitat: mesic Elevation: 15 – 2225 m	High. Potential habitat exists in forested areas.

92	<i>Pleuropogon refractus</i> Nodding semaphore grass	--	--	4.2	G4	S4	(March) April – August	Poaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, meadows and seeps, North Coast coniferous forest, riparian forest Micro Habitat: mesic Elevation: 0 –1600 m	High. Potential habitat exists within mesic areas of the forest.
93	<i>Poa piperi</i> Piper's blue grass	--	--	4.3	G4	S3	April - May	Poaceae Perennial rhizomatous herb	General Habitat: Chaparral, Lower montane coniferous forest Micro Habitat: rocky, serpentinite Elevation: 100 – 1460 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
94	<i>Polemonium carneum</i> Oregon polemonium	--	--	2B.2	G3 G4	S2	April – September	Polemoniaceae Perennial herb	General Habitat: coastal prairie, coastal scrub, lower montane coniferous forest Elevation: 0 – 1830 m	High. Potential habitat exists within the forest.
95	<i>Potamogeton foliosus</i> <i>ssp. fibrillosus</i> Fibrous pondweed	--	--	2B.3	G5 T2 T4	S1 S2	Unknown	Potamogetonaceae Perennial rhizomatous herb (aquatic)	General Habitat: marshes and swamps (shallow freshwater) Elevation: 5 – 1300 m	None. No marshes or swamps within the ownership; no potential habitat exists.
96	<i>Primula pauciflora</i> Beautiful shootingstar	--	--	4.2	G5	S3	April – June	Primulaceae Perennial herb	General Habitat: Great Basin scrub, meadows and seeps, pinyon and juniper woodland Micro Habitat: mesic Elevation: 1000 – 2380 m	None. No habitat above 19 m elevation; no potential habitat exists.
97	<i>Pyrrocoma racemosa</i> <i>var. congesta</i> Del Norte pyrrocoma	--	--	2B.3	G5 T4	S2	August – September	Asteraceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 200 – 1000 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.

98	<i>Ramalina thrausta</i> Angel's hair lichen	--	--	2B.1	G5 ?	S2 S3	--	Ramalinaceae fruticose lichen (epiphytic)	General Habitat: North Coast coniferous forest General Habitat: on dead twigs and other lichens Elevation: 75 – 430 m	High. Although there is no habitat above 19 m elevation, potential habitat may exist within the North Coast coniferous forest.
99	<i>Ribes laxiflorum</i> Trailing black currant	--	--	4.3	G5 ?	S3	March – July (August)	Grossulariaceae Perennial deciduous shrub	General Habitat: North Coast coniferous forest Micro Habitat: roadsides (sometimes) Elevation: 5 – 1395 m	High. Potential habitat exists within roadsides and throughout the ownership within the forest.
100	<i>Romanzoffia tracyi</i> Tracy's romanzoffia	--	--	2B.3	G4	S2	March – May	Hydrophyllaceae Perennial herb	General Habitat: coastal bluff scrub, coastal scrub Micro Habitat: rocky Elevation: 15 – 30 m	None. No coastal bluff scrub, no coastal scrub; no potential habitat exists.
101	<i>Sabulina howellii</i> Howell's sandwort	--	--	1B.3	G4	S3	April – July	Caryophyllaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 550 – 1000 m	None. No habitat above 19 m elevation; no serpentine parent bedrock; no potential habitat exists.
102	<i>Sagittaria sanfordii</i> Sanford's arrowhead	--	--	1B.2	G3	S3	May – October (November)	Alismataceae Perennial rhizomatous herb (emergent)	General Habitat: marshes and swamps (shallow freshwater) Elevation: 0 – 650 m	None. No marshes and swamps within the ownership; no potential habitat exists.
103	<i>Salix delnortensis</i> Del Norte willow	--	--	4.3	G4	S4	April – May	Salicaceae Perennial deciduous shrub	General Habitat: riparian forest (serpentinite) Elevation: 90 – 500 m	None. No habitat above 19 m elevation; no serpentine parent bedrock within the ownership; no potential habitat exists.

104	<i>Sanguisorba officinalis</i> Great burnet	--	--	2B.2	G5 ?	S2	July – October	Rosaceae Perennial rhizomatous herb	General Habitat: bogs and fens, broadleaved upland forest, marshes and swamps, meadows and seeps, North Coast coniferous forest, riparian forest Micro Habitat: serpentinite (often) Elevation: 60 – 1400 m	High. Although no habitat above 19 m elevation occurs on the property, potential habitat may exist within the forest.
105	<i>Sanicula peckiana</i> Peck's sanicle	--	--	4.3	G4	S3	March - June	Apiaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite (often) Elevation: 150 – 800 m	None. No habitat above 19 m elevation, no serpentine parent bedrock; no potential habitat exists.
106	<i>Sedum flavidum</i> Pale yellow stonecrop	--	--	4.3	G3	S3	May – July	Crassulaceae Perennial herb	General Habitat: broadleaved upland forest, chaparral, lower montane coniferous forest, upper montane coniferous forest Micro Habitat: openings, rocky, serpentinite, talus, volcanic Elevation: 355 – 2155 m	None. No habitat above 19 m elevation, no serpentine parent bedrock, volcanic material, or talus slopes; no potential habitat exists.
107	<i>Sedum patens</i> Smith River stonecrop	--	--	1B.2	G2	S2	May – July	Crassulaceae Perennial herb	General Habitat: lower montane coniferous forest Micro Habitat: openings, rock crevices, rocky, talus, ultramafic Elevation: 90 – 210 m	None. No habitat above 19 m elevation, no ultramafic parent bedrock, rocky areas, or talus slopes; no potential habitat exists.
108	<i>Sidalcea elegans</i> Del Norte checkerbloom	--	--	3.3	G4 ?	S2 ?	May – July	Malvaceae Perennial rhizomatous herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 215 – 1365 m	None. No habitat above 19 m elevation, no serpentine parent bedrock; no potential habitat exists.

109	<i>Sidalcea malachroides</i> Maple-leaved checkerbloom	--	--	4.2	G3	S3	(March) April – August	Malvaceae Perennial herb	General Habitat: broadleaved upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, riparian woodland Micro Habitat: disturbed areas (often) Elevation: 0 – 730 m	High. Potential habitat exists in disturbed areas and within the forest.
110	<i>Sidalcea malviflora</i> <i>ssp. patula</i> Siskiyou checkerbloom	--	--	1B.2	G5 T2	S2	(March) May – August	Malvaceae Perennial rhizomatous herb	General Habitat: coastal bluff scrub, coastal prairie, North Coast coniferous forest General Micro Habitat: often roadcuts Micro Habitat: roadsides (often) Elevation: 15 – 1230 m	High. Potential habitat exists in forested areas.
111	<i>Sidalcea oregana ssp.</i> <i>eximia</i> Coast checkerbloom	--	--	1B.2	G5 T1	S1	June – August	Malvaceae Perennial herb	General Habitat: lower montane coniferous forest, meadows and seeps, North Coast coniferous forest Elevation: 5 – 1340 m	High. Potential habitat exists within the forest.
112	<i>Silene hookeri</i> Hooker's catchfly	--	--	2B.2	G4	S2	(March) May – July	Caryophyllaceae Perennial herb	General Habitat: chaparral, cismontane woodland, lower montane coniferous forest General Micro Habitat: often in grassy openings Micro Habitat: openings (often), rocky (sometimes), serpentinite (sometimes), slopes (sometimes) Elevation: 150 – 1260 m	None. No habitat above 19 m elevation; no potential habitat exists.

113	<i>Silene scouleri</i> ssp. <i>scouleri</i> Scouler's catchfly	--	--	2B.2	G5 T4 T5	S2 S3	(March – May) June – August (September)	Caryophyllaceae Perennial herb	General Habitat: coastal bluff scrub, coastal prairie, valley and foothill grassland Elevation: 0 – 600 m	None. No coastal bluff scrub, no coastal prairie, no valley and foothill grassland; no potential habitat exists.
114	<i>Silene serpentinicola</i> Serpentine catchfly	--	--	1B.2	G3	S3	May – July	Caryophyllaceae Perennial rhizomatous herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: gravelly (sometimes), openings, rocky (sometimes), serpentinite Elevation: 145 – 1650 m	None. No habitat above 19 m elevation; no potential habitat exists.
115	<i>Streptanthus howellii</i> Howell's jewelflower	--	--	1B.2	G2 G3	S2	July – August	Brassicaceae Perennial herb	General Habitat: lower montane coniferous forest (rocky, serpentinite) Elevation: 305 – 1500 m	None. No habitat above 19 m elevation, no serpentine parent bedrock; no potential habitat exists.
116	<i>Sulcaria spiralifera</i> Twisted horsehair lichen	--	--	1B.2	G3 G4	S2	--	Parmeliaceae fruticose lichen (epiphytic)	General Habitat: coastal dunes (SLO Co.), North Coast coniferous forest (immediate coast) Micro Habitat: usually on conifers Elevation: 0 – 90 m	High. Potential habitat exists within the forest on conifers.
117	<i>Tauschia glauca</i> Glaucous tauschia	--	--	4.3	G4	S4	April – June	Apiaceae Perennial herb	General Habitat: lower montane coniferous forest (gravelly, serpentinite) Elevation: 80 – 1700 m	None. No habitat above 19 m elevation, no serpentine parent bedrock; no potential habitat exists.
118	<i>Tiarella trifoliata</i> var. <i>trifoliata</i> Trifoliate laceflower	--	--	3.2	G5 T5	S2 S3	(May) June – August	Saxifragaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest General Micro Habitat: moist shady banks Micro Habitat: edges, streambanks Elevation: 170 – 1500 m	None. No habitat above 19 m elevation, no streambanks; no potential habitat exists.

119	<i>Usnea longissima</i> Methuselah's beard lichen	--	--	4.2	G4	S4	--	Parmeliaceae Fruticose lichen (epiphytic)	General Habitat: broadleaved upland forest, North Coast coniferous forest General Micro Habitat: on tree branches; usually on old growth hardwoods and conifers Elevation: 50 - 1460 m	High. Potential habitat exists in forested areas on old growth hardwoods and conifers.
120	<i>Vaccinium scoparium</i> Little-leaved huckleberry	--	--	2B.2	G5	S3	June – August	Ericaceae Perennial deciduous shrub	General Habitat: subalpine coniferous forest (rocky) Elevation: 1036 – 2200 m	None. No habitat above 19 m elevation, no potential habitat exists.
121	<i>Vancouveria chrysantha</i> Siskiyou inside-out- flower	--	--	4.3	G4	S3	June	Berberidaceae Perennial rhizomatous herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 120 – 1500 m	None. No habitat above 19 m elevation, no serpentine parent bedrock; no potential habitat exists.
122	<i>Veratrum insolitum</i> Siskiyou false- hellebore	--	--	4.3	G3	S4	June – August	Melanthiaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: clay Elevation: 45 – 1635 m	None. No habitat above 19 m elevation; no potential habitat exists.
123	<i>Viola langsдорffii</i> Langsdorf's violet	--	--	2B.1	G4	S1	May – July	Violaceae Perennial herb	General Habitat: bogs and fens (coastal) Elevation: 2 – 10 m	None. No habitat below 19 m elevation, no bogs and fens; no potential habitat exists.
124	<i>Viola palustris</i> Alpine marsh violet	--	--	2B.2	G5	S1 S2	March – August	Violaceae Perennial rhizomatous herb	General Habitat: bogs and fens (coastal), coastal scrub (mesic) Elevation: 0 – 150 m	High. Potential habitat exists within the forest.
125	<i>Viola primulifolia ssp. occidentalis</i> Western white bog violet	--	--	1B.2	G5 T2	S2	April – September	Violaceae Perennial rhizomatous herb	General Habitat: bogs and fens (serpentinite), marshes and swamps Elevation: 100 – 990 m	None. No habitat below 19 m elevation; no potential habitat exists.

Attachment B. Rank Definitions

CONSERVATION STATUS DEFINITIONS

Fed List*

This field indicates the plant's legal status under the Federal Endangered Species Act (ESA).

- FE** **Federally Endangered:** The classification provided to a plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.
- FT** **Federally Threatened:** The classification provided to a plant which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range.
- PE** **Proposed Endangered:** The classification provided to a plant that is proposed for federal listing as Endangered in the Federal Register under Section 4 of the Endangered Species Act.
- PT** **Proposed Threatened:** The classification provided to a plant that is proposed for federal listing as Threatened in the Federal Register under Section 4 of the Endangered Species Act.
- FC** **Federal Candidate:** The classification provided to a plant that has been studied by the United States Fish and Wildlife Service, and the Service has concluded that it should be proposed for addition to the list of Federally Endangered and Threatened species.
- None** The plant has no federal listing status under ESA.
- FD** **Federally Delisted:** The plant was previously listed as Endangered or Threatened but is no longer on the list of Federally Endangered and Threatened species.

State List*

This field indicates the plant's legal status under the California Endangered Species Act (CESA).

- CE** **State Listed as Endangered:** The classification provided to a native species or subspecies in serious danger of becoming extinct throughout all or a significant portion of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.
- CT** **State Listed as Threatened:** The classification provided to a native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.
- CR** **State Listed as Rare:** The classification provided to a native plant species, subspecies, or variety when, although not presently threatened with extinction, it occurs in such small numbers throughout its range that it may become endangered if its present environment worsens. This designation stems from the Native Plant Protection Act of 1977.
- CC** **Candidate for State Listing:** The classification provided to a native species or subspecies that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of endangered or threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of endangered or threatened species.
- None** The plant has no state listing status under CESA.
- CD** **State Delisted:** The plant was previously listed as Endangered, Threatened or Rare but is no longer listed by the State of California.

Global Rank*

The Global Rank (G-rank) is an indication of the overall condition and imperilment of an element throughout its global range. It is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, with weighting being heavier on the rarity factors. The Global Ranks are assigned by NatureServe in coordination with the state program(s) where the element occurs.

- GX** **Presumed Extinct** — Not located despite intensive searches and virtually no likelihood of rediscovery.
- GH** **Possibly Extinct** — Known from only historical occurrences but still some hope of rediscovery. There is evidence that the species may be extinct or the ecosystem may be eliminated throughout its range, but not enough to state this with certainty. Examples of such evidence include 1) that a species has not been documented in approximately 20–40 years despite some searching or some evidence of significant habitat loss or degradation; 2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range.

- G1** **Critically Imperiled** — At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
- G2** **Imperiled** — At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
- G3** **Vulnerable** — At moderate risk of extinction or elimination due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
- G4** **Apparently Secure** — Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5** **Secure** — Common; widespread and abundant.
- GNR** **Unranked** — Global rank not yet assessed.
- GU** **Unrankable** — Currently unrankable due to a lack of information or due to substantially conflicting information about status or trends.
- G#G#** **Range Rank** — A numeric range rank (e.g., G2G3) is used to indicate the range of uncertainty about the exact status of a taxon or community.
- G#T#** **Infraspecific Taxon** — The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' Global Rank. Rules for assigning T-ranks follow the same principles as those for Global Ranks. However, a T-rank cannot imply the subspecies or variety is more abundant than the species. In such cases, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety.
- ?** **Qualifier: Inexact Numeric Rank** — A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.
- Q** **Qualifier: Questionable Taxonomy** — The distinctiveness of this entity as a taxon or community at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority (numerically higher) conservation status rank.
- C** **Qualifier: Captive or Cultivated Only** — The taxon or community at present is presumed or possibly extinct or eliminated in the wild across its entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside its native range, or as a reintroduced population or ecosystem restoration, not yet established.

State Rank*

The State Rank (S-rank) is an indication of the condition and imperilment of an element throughout its range within the state. As with the G-rank, it is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, weighted more heavily on rarity. The State Ranks are assigned by the CNDDDB biologists using standard natural heritage methodology.

- SX** **Presumed Extirpated** — Species is believed to be extirpated from the state. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
- SH** **Possibly Extirpated (Historical)** — Species occurred historically in the state, and there is some possibility that it may be rediscovered. All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists.
- S1** **Critically Imperiled** — Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.
- S2** **Imperiled** — Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state.
- S3** **Vulnerable** — Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4** **Apparently Secure** — Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5** **Secure** — Common, widespread, and abundant in the state.
- SNR** **Unranked** — State conservation status not yet assessed.
- SU** **Unrankable** — Currently unrankable due to a lack of information or due to substantially conflicting information about status or trends.
- S#S#** **Range Rank** — A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community.
- ?** **Qualifier: Inexact or Uncertain** — A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.

Note: References to older ranks may contain a decimal "threat" rank of .1, .2, or .3, where .1 indicates very threatened status, .2 indicates moderate threat, and .3 indicates few or no current known threats.

CA Rare Plant Rank (CRPR)

California Rare Plant Ranks (CRPRs) are a ranking system developed by the California Native Plant Society (CNPS) to define and categorize rarity in the California flora. All plants that are assigned to a California Rare Plant Rank category are tracked by the CNDDDB; however, element occurrence (EO) information is only maintained for CRPR 1 and 2 plants, and some CRPR 3 plants. Most CRPR 3 and 4 plants that have EO information in this Inventory and the CNDDDB were previously assigned to CRPR 1 or 2; their EO data reflect their prior rank and have generally not been updated since the date of their change to CRPR 3 or 4.

Major changes to California Rare Plant Ranks (e.g., additions, changes, and deletions) undergo the CNPS Rare Plant Status Review process. This is a joint effort by CNPS, the CNDDDB, Regional Plant Status Review Groups, the Status Review Forum, and botanical experts throughout the world. Once consensus is reached, then additions, changes, or deletions in California Rare Plant Ranks are made to this Inventory and the CNDDDB. For a flow chart of the status review process, see Rare Plant Data in California: The Cooperative Relationship between the California Natural Diversity Database and the California Native Plant Society.

- 1A Presumed Extirpated or Extinct** — Plants presumed extirpated in California and either rare or extinct elsewhere. These plants have not been seen or collected in the wild in California for many years. A plant is extinct if it no longer occurs anywhere. A plant that is extirpated from California has been eliminated from California but may still occur elsewhere in its range.

All of the plants constituting California Rare Plant Rank 1A meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Should these taxa be rediscovered, any impacts to individual plants or their habitat must be analyzed during preparation of environmental documents relating to the California Environmental Quality Act (CEQA), or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 1B Rare or Endangered** — **Plants rare, threatened, or endangered in California and elsewhere.** These plants are rare throughout their entire range with the majority also being endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. California Rare Plant Rank 1B plants constitute the majority of taxa in the CNPS Inventory, with more than 1,000 plants assigned to this category of rarity.

All of the plants constituting California Rare Plant Rank 1B meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 2A Extirpated in California** — **Plants presumed extirpated in California but common elsewhere.** These plants are presumed extirpated because they have not been observed or documented in California for many years. This list only includes plants that are presumed extirpated in California but are common elsewhere in their range outside of the state.

All of the plants constituting California Rare Plant Rank 2A meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Should these species be rediscovered, any impacts proposed to individuals, or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 2B Rare or Endangered in California** — **Plants rare, threatened, or endangered in California but common elsewhere.** Except for being common beyond the boundaries of California, 2B plants would have been ranked 1B. From the federal perspective, plants common in other states or countries are not eligible for consideration under the provisions of the Federal Endangered Species Act. With California Rare Plant Rank 2B, we recognize the importance of protecting the geographic range of widespread species. In this way we protect the diversity of our own state's flora and help maintain evolutionary processes and genetic diversity within species.

All of the plants constituting California Rare Plant Rank 2B meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered

to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 3 Needs Review — Plants about which more information is needed.** These plants are united by one common theme—we lack the necessary information to assign them to one of the other ranks or to reject them. Nearly all of the plants constituting California Rare Plant Rank 3 are taxonomically problematic, yet if taxonomically valid would demonstrably qualify for rank 1B or 2B. For each California Rare Plant Rank 3 plant we have provided the known information and indicated in the "Notes" section of the Inventory record where assistance is needed. Data regarding distribution, endangerment, ecology, and taxonomic validity are welcomed and can be submitted by emailing the Rare Plant Program at rareplants@cnps.org.

Many of the plants constituting California Rare Plant Rank 3 meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat should be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they may meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 4 Uncommon in California — Plants of limited distribution, a watch list.** These plants are of limited distribution or infrequent throughout a broader area in California, and their status should be monitored regularly. Should the degree of endangerment or rarity of a California Rare Plant Rank 4 plant change, we will transfer it to a more appropriate rank.

Some of the plants constituting California Rare Plant Rank 4 meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and we strongly recommend that California Rare Plant Rank 4 plants be evaluated for significant impacts during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, based on CEQA Guidelines §15125 (c) and/or §15380. This may be particularly appropriate for:

- The type locality of a California Rare Plant Rank 4 taxon;
- Occurrences at the periphery of a species' range;
- Areas where the taxon is especially uncommon;
- Areas where the taxon has sustained heavy losses (declining);
- Occurrences exhibiting unusual morphology or occurring on unusual substrates;
- Species maintained on BLM, USFWS, or USFS sensitive species lists; and
- Taxa associated with a habitat that is declining in California at a significant rate.

To assist in evaluating CRPR 4 taxa for CEQA consideration, see the technical memorandum on Considerations for Including CRPR 4 Plant Taxa in CEQA Biological Resource Impact Analysis prepared by the Rare Plant Program Committee.

Threat Rank

California Rare Plant Ranks at each level also include a threat rank (e.g., CRPR 4.3) and are assigned as follows:

- 0.1 Seriously threatened in California** — Over 80% of occurrences threatened / high degree and immediacy of threat.
- 0.2 Moderately threatened in California** — 20-80% of occurrences threatened / moderate degree and immediacy of threat.
- 0.3 Not very threatened in California** — Less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known.

Notes:

Threat ranks do not are provided for general research purposes only and do not indicate differences in conservation assessment. For example, a CRPR 1B.3 plant has the same conservation status as a CRPR 1B.1 plant, and it is mandatory that both be fully considered during preparation of environmental documents relating to CEQA.

The threat ranking criteria described above represent only the starting point for the assessment of threat level. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are also considered in assigning threat ranks.

In many cases, the threat rank has not been reassessed since the date the taxon was first added to this Inventory or underwent its last Status Review. For these taxa, the assigned threat ranking may not accurately reflect the current level of threat.

Considered but Rejected

A category of Considered but Rejected (CBR) exists for plants that either previously had a CRPR, or that were considered for addition to this Inventory but were rejected for one or more reasons. Any plant that is deleted from a CRPR category in this Inventory is not fully removed and is instead changed to the CBR category. Rejected plants are searchable by selecting the “Considered But Rejected” button in the California Rare Plant Rank section of simple and advanced search. A brief description of the reason why the plant was rejected is included for each CBR entry.

Attachment C. General Location Map & CALVEG Map



Figure 1. General location map for the Bachelor Road Timber Harvest Plan.

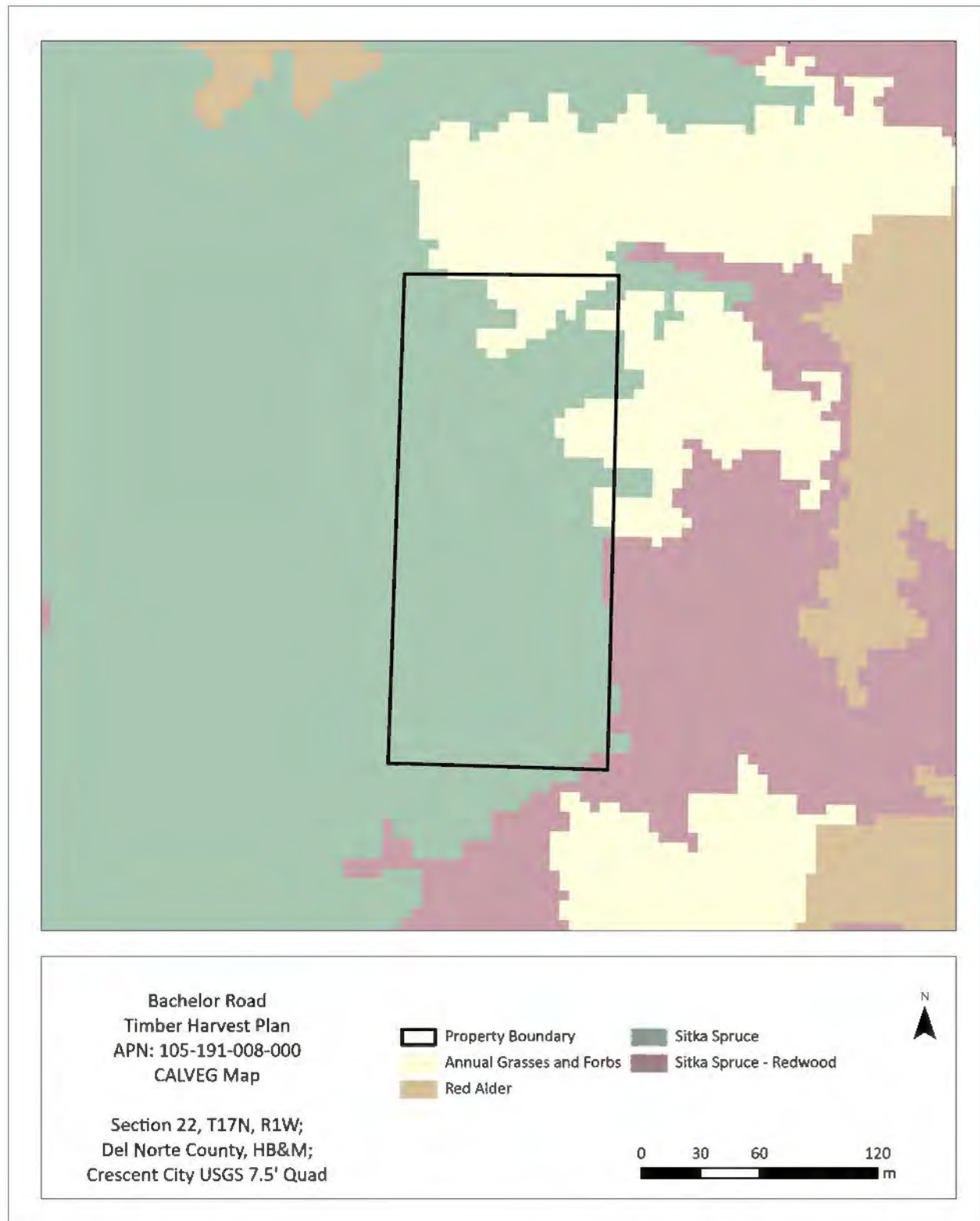
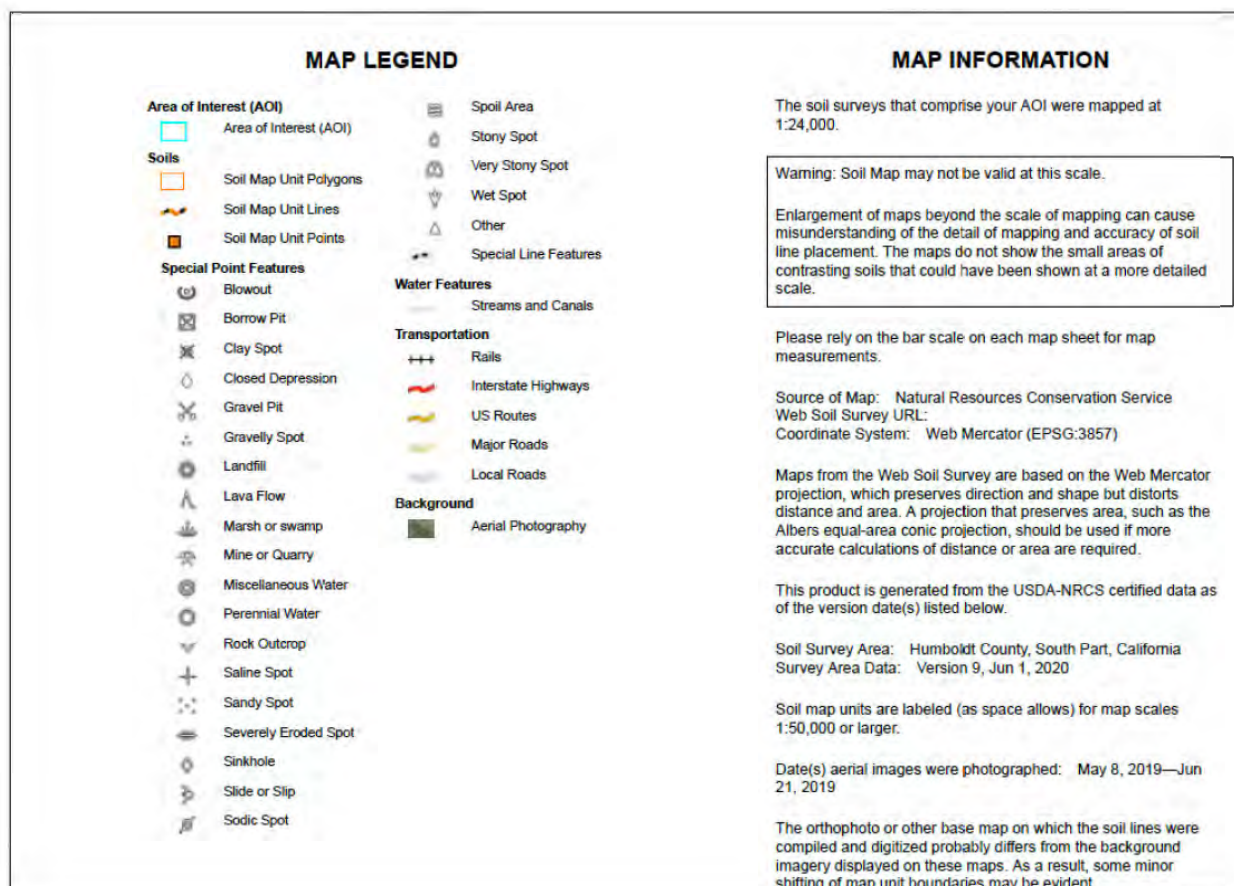


Figure 2. CALVEG map of the Bachelor Road Timber Harvest Plan.

Attachment D. Soil Map





Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
185	Timmons and Lepoil soils, 0 to 2 percent slopes	6.8	100.0%
Totals for Area of Interest		6.8	100.0%

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series. Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

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

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

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

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

Del Norte County, North Part, California

Bachelor Road Timber Harvest Plan

185—Timmons and Lepoil soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2dgkv

Elevation: 30 to 250 feet

Mean annual precipitation: 35 to 90 inches

Mean annual air temperature: 52 to 55 degrees F

Frost-free period: 275 to 325 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

*Timmons and similar soils:*45 percent

*Lepoil and similar soils:*40 percent

*Minor components:*15 percent

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

Description of Timmons

Setting

*Landform:*Marine terraces

*Landform position (two-dimensional):*Backslope

*Landform position (three-dimensional):*Tread

*Down-slope shape:*Linear

*Across-slope shape:*Linear

*Parent material:*Mixed marine deposits

Typical profile

Ap - 0 to 19 inches: loam

AB - 19 to 30 inches: loam

Bt - 30 to 60 inches: clay loam

Properties and qualities

*Slope:*0 to 2 percent

*Depth to restrictive feature:*More than 80 inches

*Drainage class:*Well drained

*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:*More than 80 inches

*Frequency of flooding:*None

*Frequency of ponding:*None

*Maximum salinity:*Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: C

Ecological site: F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam

Hydric soil rating: No

Description of Lepoil**Setting**

Landform: Marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mixed marine deposits

Typical profile

A - 0 to 10 inches: loam

AB - 10 to 22 inches: clay loam

Bt - 22 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: C

Ecological site: F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam

Hydric soil rating: No

Minor Components**Urban land, residential**

Percent of map unit: 5 percent

Landform: Marine terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Hutsinpillar

Percent of map unit: 4 percent

Landform: Alluvial fans, drainageways

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: Yes

Megwil,

Percent of map unit: 3 percent

Landform: Marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F004BX120CA - Redwood-Sitka spruce/California huckleberry-salmonberry/western swordfern-deer fern, marine terraces, loam

Hydric soil rating: No

Talawa

Percent of map unit: 3 percent

Landform: Marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436.
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual.

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook.

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelpdb1043084>

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI.

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix B. Photos



Picture 1. Part of the Easement that will be used to access parcel facing. 8/17/22.



Picture 2. Habitat in the center of the parcel. 8/17/22.



Pictures 3 & 4. Habitat within the Class I watercourse and wetland area. 8/17/22.



Picture 5 & 6. Edge habitat and clear-cut area to the west of the project area. 8/17/22.



Picture 7. Red-legged frog located on the southern portion of the project area. 8/17/22.

Appendix C. Rank Definitions

Listed below are definitions for interpreting NatureServe global (range-wide) conservation status ranks. These ranks are assigned by NatureServe scientists or by a designated lead office in the NatureServe network.

- G1** **Critically Imperiled** – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
- G2** **Imperiled** – At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.
- G3** **Vulnerable** – At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.
- G4** **Apparently Secure** – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5** **Secure** – Common; widespread and abundant.
- G#G#** **Range Rank** – A numeric range rank (e.g. G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).

Intraspecific Taxon Conservation Status Ranks

- T#** **Intraspecific Taxon** (trimonial) – The status of intraspecific taxa (subspecies or varieties) are indicated by a “T-rank” following the species global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species. For example, a G1T2 subrank should not occur. A vertebrate animal population, (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an intraspecific taxon and given a T-rank; in such cases a Q is used after the T-rank to denote the taxon’s informal taxonomic status.

Subnational (S) Conservation Status Ranks

- S1** **Critically Imperiled** – Critically imperiled in the jurisdiction because of extreme rarity or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the jurisdiction.
- S2** **Imperiled** – Imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from jurisdiction.
- S3** **Vulnerable** – Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4** **Apparently Secure** – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5** **Secure** – Common, widespread, and abundant in the jurisdiction.
- S#S#** **Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).

Rank Qualifiers

- ?** **Inexact Numeric Rank** – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status
- Q** **Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority (numerically higher) conservation status rank. The “Q” modifier is only used at a global level and not at a national or subnational level.

Appendix E. Northern Spotted Owl Summary



P.O. Box 733, Hydesville, CA 95547 . (707) 768-3743 . (707) 768-3747 fax

Northern Spotted Owl Summary

July 27, 2022

Hohman & Associates is preparing a THP consisting of 7.1 acres for Richard Anderson. The project is located in Section 22, T7N, R1W, HB&M, in Del Norte County. Northern spotted owl (NSO) findings are summarized in this document.

No CNDDDB NSO Activity Center sites occur within 0.7 miles of the plan area. See attached database search map showing the nearby activity centers downloaded from CNDDDB. 2022 was the first year of NSO surveys. Six surveys were completed at three call stations. Call Station #4 was dropped due to the proximity to Pelican Bay State Prison. A call station map is attached. NSO calls began on April 19, 2022 and were completed on June 19, 2022. NSO calls were initiated four days after the first critical period due to weather, but is not expected to impact the ability to detect NSO in the area. No NSO were detected during the six surveys. Call station placement is limited for this plan due to lack of access to bordering private lands, as well as fragmented habitat due to residential areas.

Canopy cover within the THP ranges from 80% to 95%. The THP consists of 6 acres of Nesting/Roosting Habitat, 0 acres of Foraging Habitat, and 0 acres of Non-habitat. The proposed timber operations would reduce approximately 7.1 acres of Nesting/Roosting Habitat to Non-habitat. Foraging Habitat will remain at 0 acres, and Non-habitat will increase to at 7.1 acres.

NSO Habitat was determined by following guidelines provided in "Attachment A: Take Avoidance Analysis for the California Coast Forest District" of the USFWS *Northern Spotted Owl Survey Protocol* (2012). Please see attachments as follows:

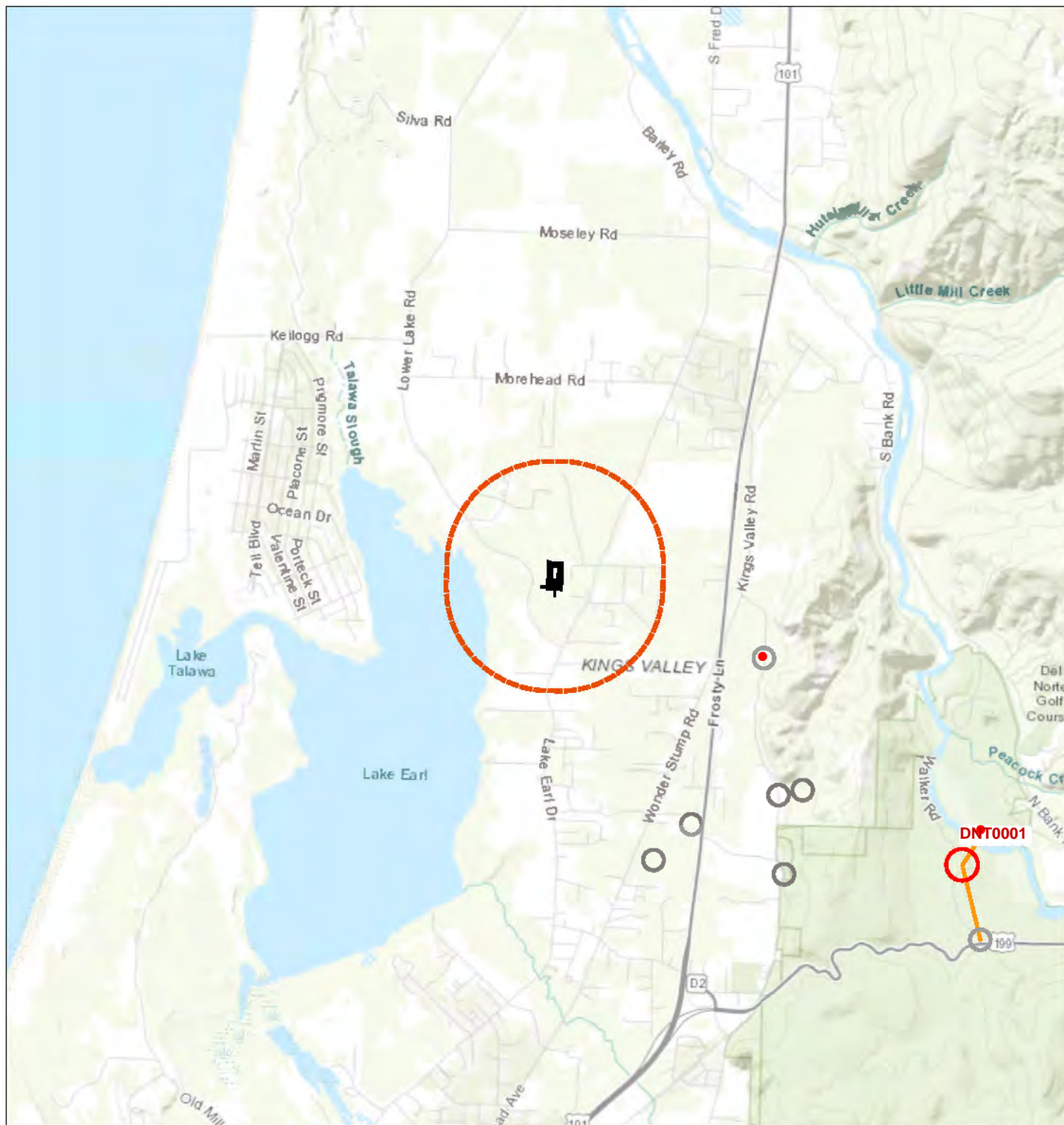
- NSO Database Check Map (CNDDDB)
- NSO Call Station Location Map
- 2022 NSO Surveys (6)
- THP Functional NSO Habitat Maps within 0.7mi
- Current NSO Database Check (Reports 1 and 2)

Please contact us by phone or email if you have any further questions.

Sincerely,

A handwritten signature in black ink that reads "Corrina Kamoroff". The signature is written in a cursive, flowing style.

Corrina Kamoroff
Biologist
Hohman & Associates Forestry Consultants



**Bachelor Rd THP
CNDDDB Database Map**

APN:105-191-008

Section 22; T7N; R1W; HB&M; Del Norte
County
Located on the Crescent City 7.5' USGS
Quadrangle

- Parcel Boundary
- 0.7 mi buffer
- Nest
- Young
- Pair
- Other Positive Observation

- Negative Observation
- Activity Center
- Abandoned Activity Center
- Not Valid Activity Center
- Spotted Owl Spider Diagram



0 2,350 4,700 9,400

Contour Interval: 40'
Feet 1 inch = 5,138 feet

Hohman And Associates Forestry Consultants
Date: 7/26/2022



**Bachelor Rd THP
NSO Call Stations**

APN:105-191-008

*Section 22; T7N; R1W; HB&M; Del Norte
County
Located on the Crescent City 7.5' USGS
Quadrangle*



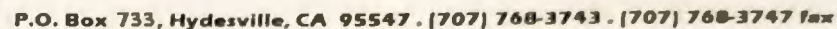
Parcel Boundary
NSO Call Stations



0 500 1,000 2,000
Feet

Contour Interval: 40'
1 inch = 1,115 feet

*Hohman And Associates Forestry Consultants
Date: 7/26/2022*



Northern Spotted Owl Survey Sheet

Date: 04/19/22

Harvest Plan: Bachelor Rd

Surveyor: M. S. [unclear]

Response Index	Precipitation	Wind
0=No response	0=None	0=Calm (0mph, No wind)
1=Four note call	1=Fog	1=Light air (1-3mph, cannot feel wind on face)
2=Monkey call	2=Mist	2=Light breeze (4-6mph, leaves rustle, can feel wind on face)
3=Whistle call	3=Light rain	3=Gentle breeze (7-10mph, leaves and twigs in constant motion)
4=Agitation call	4=Heavy rain	4=Moderate breeze (11-16mph, wind raises dust, small branches move)
	5=Snow	

0=No response

1=Four note call

2=Monkey call

3=Whistle call

4=Agitation call

0=None

1=Fog

2=Mist

3=Light rain

4=Heavy rain

5=Snow

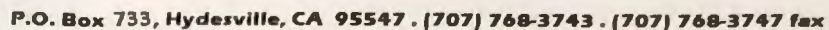
0=Calm (0mph, No wind)

1=Light air (1-3mph, cannot feel wind on face)

2=Light breeze (4-6mph, leaves rustle, can feel wind on face)

3=Gentle breeze (7-10mph, leaves and twigs in constant motion)

4=Moderate breeze (11-16mph, wind raises dust, small branches move)



Call #:

Date:

05/03/22

Location:**Harvest Plan:**

Bachelor

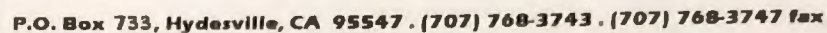
Surveyor:

M. Short

Response Index
0=No response
1=Four note call
2=Monkey call
3=Whistle call
4=Agitation call

Precipitation
0=None
1=Fog
2=Mist
3=Light rain
4=Heavy rain
5=Snow

Wind
0=Calm (0mph, No wind)
1=Light air (1-3mph, cannot feel wind on face)
2=Light breeze (4-6mph, leaves rustle, can feel wind on face)
3=Gentle breeze (7-10mph, leaves and twigs in constant motion)
4=Moderate breeze (11-16mph, wind raises dust, small branches move)



Northern Spotted Owl Survey Sheet

Date: 05/18/22

Location:

Harvest Plan:

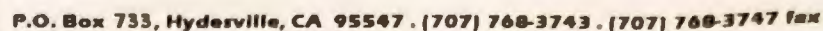
Surveyor:

Response Index	Precipitation	Wind
0=No response	0=None	0=Calm (0mph, No wind)
1=Four note call	1=Fog	1=Light air (1-3mph, cannot feel wind on face)
2=Monkey call	2=Mist	2=Light breeze (4-6mph, leaves rustle, can feel wind on face)
3=Whistle call	3=Light rain	3=Gentle breeze (7-10mph, leaves and twigs in constant motion)
4=Agitation call	4=Heavy rain	4=Moderate breeze (11-16mph, wind raises dust, small branches move)
	5=Snow	

0=No response
1=Four note call
2=Monkey call
3=Whistle call
4=Agitation call

0=None
1=Fog
2=Mist
3=Light rain
4=Heavy rain
5=Snow

0=Calm (0mph, No wind)
1=Light air (1-3mph, cannot feel wind on face)
2=Light breeze (4-6mph, leaves rustle, can feel wind on face)
3=Gentle breeze (7-10mph, leaves and twigs in constant motion)
4=Moderate breeze (11-16mph, wind raises dust, small branches move)



Call #: 04

Date: 05/27/22 Location:

Harvest Plan: Bachelor

Surveyor: M. Short

[illegible]

0=No response

1=Four note call

2=Monkey call

3=Whistle call

4=Agitation call

0=None

1=Fog

2=Mist

3=Light rain

4=Heavy rain

5=Snow

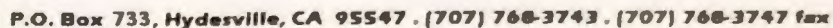
0=Calm (0mph, No wind)

1=Light air (1-3mph, cannot feel wind on face)

2=Light breeze (4-6mph, leaves rustle, can feel wind on face)

3=Gentle breeze (7-10mph, leaves and twigs in constant motion)

4=Moderate breeze (11-16mph, wind raises dust, small branches move)

**Call #:**

Date:

06/06/22

Location:

Harvest Plan:

Bachelor

Surveyor:

Response Index

0=No response

1=Four note call

2=Monkey call

3=Whistle call

4=Agitation call

Precipitation

0=None

1=Fog

2=Mist

3=Light rain

4=Heavy rain

5=Snow

Wind

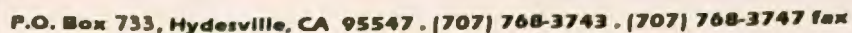
0=Calm (0mph, No wind)

1=Light air (1-3mph, cannot feel wind on face)

2=Light breeze (4-6mph, leaves rustle, can feel wind on face)

3=Gentle breeze (7-10mph, leaves and twigs in constant motion)

4=Moderate breeze (11-16mph, wind raises dust, small branches move)



Call #: 06

Date: 6/16/22

Location:

Harvest Plan:

Bachelor

Surveyor:

M. Short

[illegible]

0=No response

1 Four note call

2= Monkey call

3 = Whistle call

4=Agitation call

0=None

1=Fog

2=Mist

3=Light rain

4=Heavy rain

5=Snow

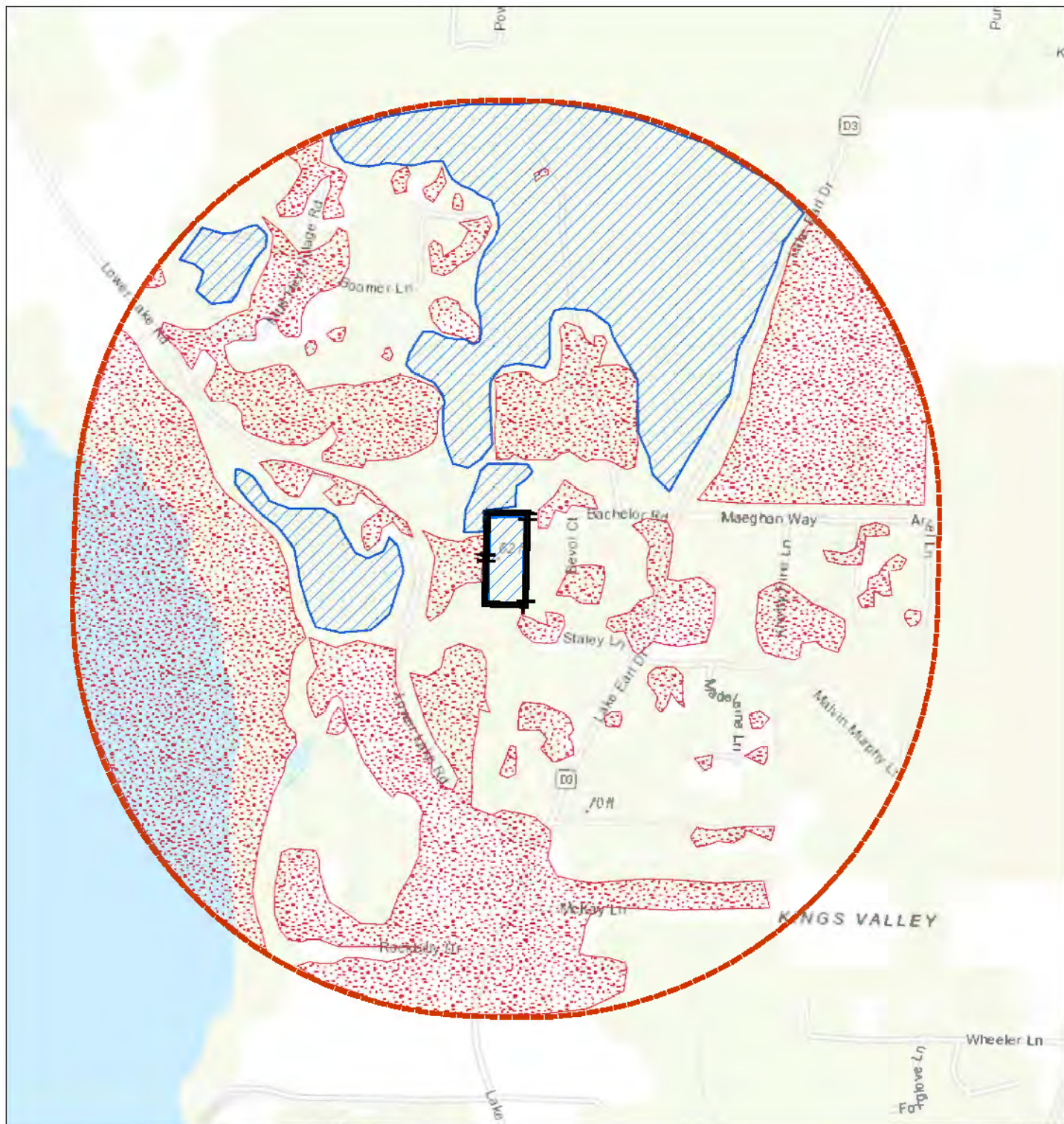
0=Calm (0mph, No wind)

1=Light air (1-3mph, cannot feel wind on face)

2=Light breeze (4-6mph, leaves rustle, can feel wind on face)

3=Gentle breeze (7-10mph, leaves and twigs in constant motion)






4=Moderate breeze (11-16mph, wind raises dust, small branches move)



**Bachelor Rd THP
NSO Functional Habitat
Pre-Harvest**

APN:105-191-008

Section 22; T7N; R1W; HB&M; Del Norte
County
Located on the Crescent City 7.5' USGS
Quadrangle

-  Parcel Boundary
-  0.7 mi buffer
-  Foraging Habitat
-  Nesting/Roosting Habitat
-  Non-Habitat

NSO Functional Habitat within 0.7 Mile Buffer

Nesting/Roosting Habitat: 200 Acres
Foraging Habitat: 500 Acres
Non-Habitat: 492 Acres

NSO Functional Habitat within Parcel Boundary

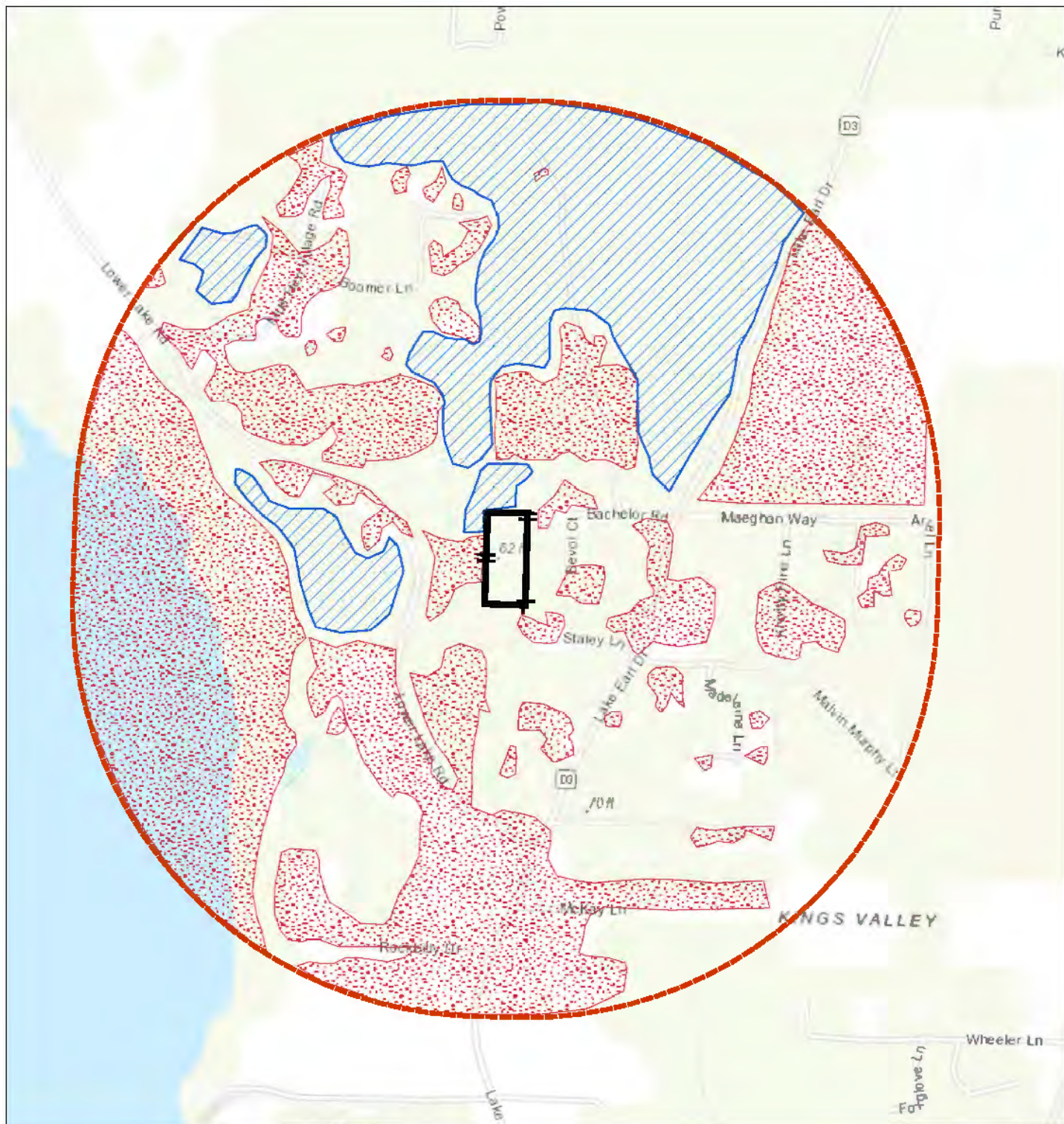
Nesting/Roosting Habitat: 6 Acres
Foraging Habitat: 0 Acres
Non-Habitat: 0 Acres



0 550 1,100 2,200
Feet

Contour Interval: 40'
1 inch = 1,288 feet






Hohman And Associates Forestry Consultants
Date: 7/26/2022



**Bachelor Rd THP
NSO Functional Habitat
Post-Harvest**

APN:105-191-008

Section 22; T7N; R1W; HB&M; Del Norte
County
Located on the Crescent City 7.5' USGS
Quadrangle

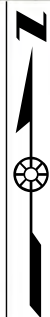
-  Parcel Boundary
-  0.7 mi buffer
-  Foraging Habitat
-  Nesting/Roosting Habitat
-  Non-Habitat

NSO Functional Habitat within 0.7 Mile Buffer

Nesting/Roosting Habitat: 194 Acres
Foraging Habitat: 500 Acres
Non-Habitat: 498 Acres

NSO Functional Habitat within Parcel Boundary

Nesting/Roosting Habitat: 0 Acres
Foraging Habitat: 0 Acres
Non-Habitat: 6 Acres



0 550 1,100 2,200
Feet

Contour Interval: 40'
1 inch = 1,288 feet

Hohman And Associates Forestry Consultants
Date: 7/26/2022

Data Version Date:
06/29/2022

Report Generation Date:
7/26/2022

Report #1 - Spotted Owl Sites Found
Known Spotted Owl sites having observations
within the search area.



Meridian, Township, Range, Section (MTRS) searched:

H_17N_01W Sections(22);

<i>Masterowl</i>	<i>Subspecies</i>	<i>LatDD NAD83</i>	<i>LonDD NAD83</i>	<i>MTRS</i>	<i>AC Coordinate Source</i>
No Spotted Owl Sites found.					



Data Version Date:
06/29/2022

Report Generation Date:
7/26/2022

Report #2 - Observations Reported

List of observations reported by site.

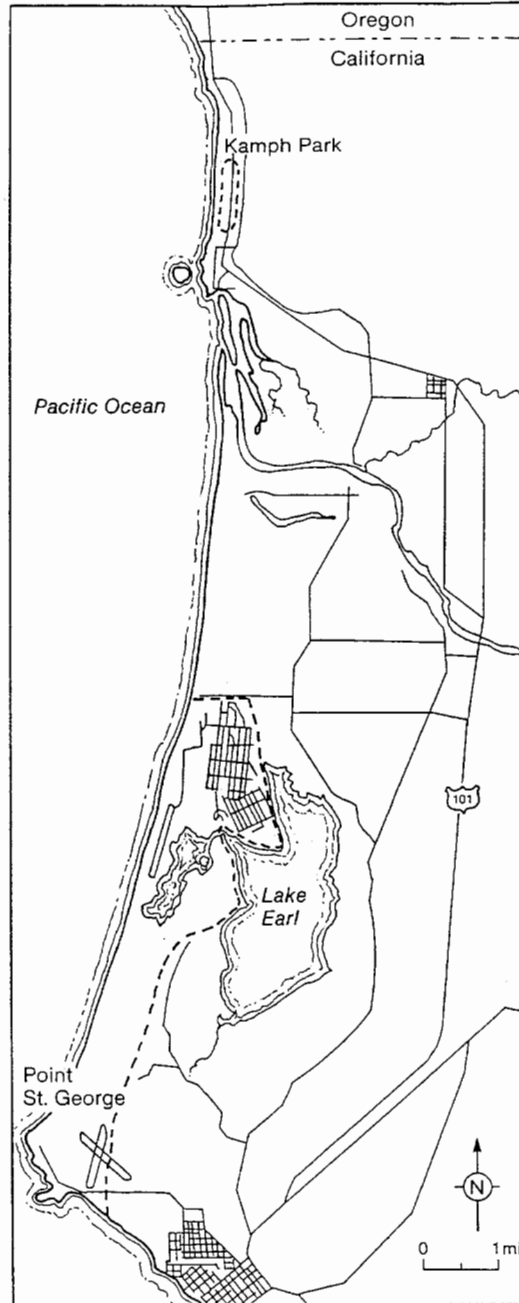
Meridian, Township, Range, Section (MTRS) searched:

H_17N_01W Sections(22);

<i>Type</i>	<i>Date</i>	<i>Time</i>	<i>#Adults</i>	<i>Age/Sex</i>	<i>Pair</i>	<i>Nest</i>	<i>#Young</i>	<i>Latitude DD NAD83</i>	<i>Longitude DD NAD83</i>	<i>MTRS</i>	<i>Coordinate Source</i>
-------------	-------------	-------------	----------------	----------------	-------------	-------------	---------------	------------------------------	-------------------------------	-------------	------------------------------

No Spotted Owl sites or observations found.

Appendix F. Oregon Silverspot Butterfly Conservation Areas



Del Norte Habitat Conservation Area designated for the Oregon Silverspot Butterfly



P.O. Box 733, Hydesville, CA 95547 . (707) 768-3743 . (707) 768-3747 fax

Botanical Survey Report Bachelor Road Timber Harvest Plan

Prepared by

Caitlyn Allchin

6/5/23

Hohman and Associates
Hydesville, CA

Signature:

A handwritten signature in black ink that reads "Caitlyn Allchin". The signature is written in a cursive, flowing style.

Date: 6/5/23

Setting

The Bachelor Road THP (APN: 105-191-008-000) (Figures 1-2, Pg 47-48) is located in Section 22 Township 17 North, Range 1 West HB&M; Del Norte County, on the Crescent City USGS 7.5' quadrangle. The project area is approximately 6 miles due north of the town of Crescent City, CA, off Bachelor Road, and approximately 0.5 miles east of Lake Earl. The biogeographic region can be described using a three-tiered hierarchy of province, region, and sub-region. This site lies within the California Floristic Province, Northwestern California region, and North Coast (NCo) sub-region. The property is currently designated as Rural Residential Agriculture (RRA-3) under Del Norte County Code. The ownership lies at approximately 62 ft, or 19 m in elevation. The geology consists of marine and nonmarine (continental) sedimentary rocks derived from alluvium, lake, playa, and terrace deposits. The property is a North Coast coniferous forest composed of a Redwood (*Sequoia sempervirens*) Forest & Woodland Alliance dominated by coastal redwood (*Sequoia sempervirens*) (S3.2 G3) with less than 20% of Sitka spruce (*Picea sitchensis*), Douglas fir (*Pseudotsuga menziesii*), and grand fir (*Abies grandis*). The Bachelor Road THP is approximately 6.8 acres.

Methods

The botanical surveys for the Bachelor Road Timber Harvest Plan were conducted by Caitlyn Allchin on 29 June 2022 and 5 April 2023. Caitlyn holds a B.S. in Botany from Cal Poly Humboldt, where she is currently a biology graduate student. Caitlyn has taken relevant courses including plant taxonomy, lichens and bryophytes, fleshy fungi, introductory soils, introductory geology, and principles of ecology, and conducted her senior directed study on the pollination biology of Western coltsfoot (*Petasites frigidus* var. *palmatus*) in Arcata, CA. She has 5 years of botany experience in Northern California.

The surveys were floristic in nature and seasonally appropriate, with an initial survey conducted during the spring to catch early blooming species, and a follow-up during the summer for later-blooming species. For the 2022 + 2023 field season, approximately 2 field hours were spent conducting field surveys, with a survey rate of 3.4 acres/hour. An additional 1.25 hours were spent documenting the limited distribution rare plants occurring within the parcel. Surveys included systematic assessment of all potential habitats in the area based on maps, aerial photos, and visible environmental features such as canopy cover, slope, soil texture, aspect, hydrologic features, and associated vegetation. This survey protocol is based on the Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018). A list of potential threatened, endangered, rare, or limited distribution plants on CNPS lists 1 - 4 found within the 9 – quad area as listed in CNPS Rare Plant Inventory and CDFW BIOS is available in Attachment A. Attachment B contains habitat photos. Attachment C lists all plants identified from botanical surveys. Attachment D contains rare plant rank definitions. Attachment E contains a general location map and a map of botanical survey routes taken along

with locations of limited distribution rare plants. Attachment F contains a soil map of the project area. Attachment G contains an aquatic resources delineation report of the project area.

Project Description

The Bachelor Road Timber Harvest Plan has approximately 6.8 acres of North Coast Coniferous Forest included within the project area. The silviculture method for the parcel is clear cut. There is a residential area adjacent to the property to the east, and a recent clearcut along the western boundary of the project area.

Results

The Bachelor Road Timber Harvest Plan contains multiple detections of the limited distribution trailing black currant (*Ribes laxiflorum*, (RILA) CRPR 4.3) (Photo 1A-1C, Figure 2). Plants with a California Rare Plant Rank (CRPR) of a 4 are known as limited distribution plants, which are defined as being uncommon within the state of California, are intermittent throughout a broader area in the state, and are therefore on a watch list (CNPS 2021). A CRPR 4 is the least sensitive CRPR ranking for a rare plant, with a scale from 1 (most rare, threatened, and endangered) to a 4 (least rare, threatened, or endangered); please see Pg 42 for more information regarding details on CA Rare Plant Rank (CRPR) definitions.

The trailing black currant is distinguishable from lookalikes by its stalked glandular hairs on the lower surface of the leaves and ovaries, a leaf blade 5-10 cm wide that is deeply 5-7-lobed, + - round-toothed, and a trailing habit (Baldwin et al. 2012). Four *Ribes laxiflorum* detections were found growing intermixed with *Rubus* species including salmon berry (*Rubus spectabilis*), Pacific blackberry (*Rubus ursinus*), thimbleberry (*Rubus parviflorus*), along with sword fern (*Polystichum munitum*), and redwood sorrel (*Oxalis oregana*). No other rare, threatened, or endangered species were found on the property.

The forested habitat on the parcel consists of a North Coast coniferous forest dominated by coastal redwood (*Sequoia sempervirens*) (S3.2 G3) intermixed with less than 20% of Sitka spruce (*Picea sitchensis*), Douglas fir (*Pseudotsuga menziesii*), grand fir (*Abies grandis*), and western hemlock (*Tsuga heterophylla*) (Photo 2-3). The understory is a mosaic of redwood sorrel (*Oxalis oregana*) and sword fern (*Polystichum munitum*) (Photo 2), as well as salmon berry (*Rubus spectabilis*), thimbleberry (*Rubus parviflorus*), salal (*Gaultheria shallon*), and evergreen huckleberry (*Vaccinium ovatum*) (Photo 3-4). Minor components of slough sedge (*Carex obnupta*) also occur on the property in small clusters (Photo 4). Vegetative slough sedge was growing intermixed with upland plants (Photo 4) and is distinguished from other sedges by its coppery leaf bases and ladder-fibrillose leaf sheath (Baldwin et al. 2012).

Due to the presence of slough sedge, an aquatic resources delineation was conducted on May 23, 2023, by Jonathan Foster of Foster Consulting and botanist Caitlyn Allchin of Hohman and Associates. No aquatic resources were detected on the property or within the road R/W. See Attachment G (Pg 59) for a final report of aquatic resource delineation for the project area. For aquatic resources mapped beyond the property boundary to the southwest of the parcel, see Figure 3, Pg 49.

English ivy (*Hedera helix*, CAL-IPC Rank *High*) was found growing pervasively in the northwestern portion of the project area. Older individuals had stems up to 3" thick and were covered in adventitious roots that were embedded within the tree trunks (Photo 5A-5B). Multiple young European Holly individuals (*Ilex aquifolium*, CAL-IPC Rank *Limited*) were also found growing within the understory.

All potential rare plant habitats were surveyed, and false negative surveys are unlikely.

Impacts

Clear-cut silviculture will likely impact a variety of shade tolerant organisms due to a change in canopy and understory structure. Multiple species, including angiosperms, lichens, bryophytes, and fungi will be susceptible in the forest due to an alteration in hydrology, the introduction of fuels from equipment, invasive species, pathogens, or a change in groundwater and soil pH. Heavy equipment can compact soils and may alter microorganismal communities.

Ribes laxiflorum individuals prefer conditions ranging from full sun to partial shade (SevenOaks Native Nursery 2023), and therefore the alteration in canopy structure should not be detrimental to their viability given their capacity to flourish in sunny conditions. Additionally, if mitigations include relocation of the northwestern-most RILA detections on the property into the protected habitat of the southeastern-most RILA detections, the transplanting will likely prove to be successful based on translocation efforts conducted at Fern Hill Nursery and Botanical Sanctuary (2023) for RILA individuals.

Mitigations

RILA detections have all been flagged above the immediate detections with pink Native Plant Protect flagging as well as a 35-foot No Harvest Equipment Exclusion Zone (EEZ) buffer delineated with Equipment Exclusion Zone flagging.

If deemed appropriate, the northwestern-most RILA detections may be translocated by a professional botanist prior to road construction into the southeastern RILA protected 35-ft No Harvest EEZ buffer, which will be sufficiently protected from road construction.

- No blading of vegetation shall occur within the 35-ft No Harvest EEZ buffers.
- No skid trails shall be made within the 35-foot No Harvest EEZ buffers of the RILA detections.
- The trees shall be felled away from all RILA detections.
- There shall be no ignition of fuels or site preparation within 35-feet of RILA detections.
- There shall be no harvesting of biomass or down wood within 35-feet of RILA detections.
- There shall be no application of herbicides within 35-feet of RILA detections.
- All spoils from road construction shall be placed at least 35-feet away from the RILA detections.

Due to the road Right of Way, there will be a minor reduction (33 m²) along the northern edge of the protected habitat for the northeastern-most RILA detections. To compensate for this minor reduction, an increase in protected habitat along the eastern edge of the same northeastern-most RILA detections will occur (an additional 164 m²) (see Figure 2, Pg 48).

Additionally, the English ivy (*Hedera helix*, Cal-IPC High) on the property will be managed prior to harvest activities. Approximately 0.34 acres (1393 m²) of invaded habitat by English ivy in the northwestern portion of the property will be mitigated to reduce the spread of non-native invasive individuals (Figure 2, Pg 48).

All climbing English ivy shall be cut 6 feet above the ground so that it cannot re-root into the substrate. Vines shall be collected and taken to a green-waste facility (DiTomaso et al. 2013). Young plants and runners on the ground shall be hand-pulled when the soil is moist, to ensure all roots are removed (DiTomaso et al. 2013). Repeated treatments of removal over multiple years are required for successful management. English Holly (*Ilex aquifolium*, Cal-IPC Limited), wherever found on the property, should be removed by handsaw for larger shrubs/small trees and with a weed wrench for smaller detections. Material should be taken to green-waste facilities.

References

- Baldwin, B.G., D.H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, editors.
2012. The Jepson Manual: Vascular Plants of California, second edition. University of California Press, Berkeley.
- California Department of Conservation [DOC]. 2019. [Interactive geological map of California].
Geologic Map of California. Retrieved from <https://maps.conservation.ca.gov/cgs/gmc/>.
- California Department of Fish and Wildlife [CDFW]. 2018. "Protocol for Surveying and
Evaluating Impacts to Special Status Native Plant Populations and Natural Communities"
State of California.
- California Department of Fish and Wildlife [CDFW]. 2020. "Natural Communities List Arranged
Alphabetically by Life Form," Natural Communities. Sacramento, CA. Accessed June

2022. < <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#natural%20communities%20lists>>

California Department of Fish and Wildlife, Natural Diversity Database, BIOS. 2021. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, CA. Accessed June 2022.

California Invasive Plant Council [Cal-IPC]. 2021. The Cal-IPC Inventory. (Online edition). Berkeley, CA. <<https://www.cal-ipc.org>>.

California Native Plant Society, Rare Plant Program [CNPS]. 2021. Inventory of Rare and Endangered Plants of California (online edition, v9-01 0.0). Website <https://www.rareplants.cnps.org> [Accessed June 2022].

DiTomaso, J.M., Kyser, G.B., Oneto, S.R., Wilson, R.G., Orloff, S.B., Bachelor Road, L.W., Wright, S.D., Roncoroni, J.A., Miller, T.L., Prather, T.S. and C. Ransom. 2013. Weed control in natural areas in the western United States. Weed Research and Information Center, University of California, 544.

Humboldt County Weed Management Area. 2010. Invasive Weeds of Humboldt County: A Guide for Concerned Citizens (2nd Edition). Arcata, California.

Jepson Flora Project (eds.) 2021. Jepson eFlora, <http://ucjeps.berkeley.edu/eflora/> [Accessed June 2022].

Malcom, B., Malcom, N. Shevock, J., and Norris, D. 2009. California mosses. Micro-Optics Press.

McCune, B., Geiser, L. 2009. Macrolichens of the Pacific Northwest. Corvallis, OR: Oregon State University Press.

Niehaus, T.F., 1976. A field guide to Pacific States wildflowers: Washington, Oregon, California and adjacent areas. Houghton Mifflin.

Pojar, J. and MacKinnon, A., 1994. Plants of the Pacific Northwest coast. Lone Pine, Vancouver, BC.

“Ribes laxiflorum trailing black currant.” *Seven Oaks Native Nursery*, 2023, <https://www.sevenoaksnativenursery.com/native-plants/shrubs/ribes-laxiflorum/>. Accessed 20 May 2023.

“Ribes laxiflorum.” *Fern Hill Nursery and Botanical Sanctuary: Edible, medicinal, and native plants for the Pacific Northwest*, 2023, <https://www.fernhillnursery.com/plants/currant/stream-currant>. Accessed 20 May 2023.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A Manual of California Vegetation Online, 2nd edition. California Native Plant Society, Sacramento, CA. Accessed June 2022. <<http://vegetation.cnps.org/>>.

Sharnoff, S. 2014. A field guide to California lichens. Yale University Press.

Smith Jr, J.P., 2014. Field guide to grasses of California (Vol. 110). Univ of California Press.

Stuart, J.D. and Sawyer, J.O., 2001. Trees and shrubs of California (Vol. 62). Univ of California Press.

United States Department of Agriculture [USDA], Natural Resources Conservation Service [NRCS]. 2021. Custom Soil Resource Report for Del Norte County, North Part, California.

Attachment A. Potentially Occurring Sensitive Plant Species

Rare Plant Table

#	Species	Status					Blooming Period	Family and Lifeform	Habitat and Elevation	Potential for Occurrence
		Federal	State	CRPR	Global Rank	State Rank				
1	<i>Abronia umbellata</i> <i>var. breviflora</i> Pink sand-verbena	--	--	1B.1	G4 G5 T2	S2	June – October	Nyctaginaceae Annual herb	General Habitat: coastal dunes Elevation: 0 - 10 m	None. No coastal dune habitat on the property; no potential habitat exists.
2	<i>Angelica lucida</i> Sea-watch	--	--	4.2	G5	S3	April – September	Apiaceae Perennial herb	General Habitat: coastal bluff scrub, coastal dunes, coastal scrub, marshes and swamps Elevation: 0 – 150 m	None. No coastal bluff scrub, coastal dunes, coastal scrub, or marshes and swamps on the property; no potential habitat exists.
3	<i>Antennaria suffrutescens</i> Evergreen everlasting	--	--	4.3	G4	S3	January – July	Asteraceae Perennial stoloniferous herb	General Habitat: lower montane coniferous forest Elevation: 500 – 1600 m	None. No habitat above 19 m elevation occurs on the property, no lower montane coniferous forest; no potential habitat exists.
4	<i>Anthoxanthum nitens</i> <i>ssp. nitens</i> Vanilla-grass	--	--	2B.3	G5 T5	S2	April – July	Poaceae Perennial rhizomatous herb	General Habitat: meadows and seeps Elevation: 1500 – 1895 m	None. No habitat above 19 m elevation occurs on the property, no meadows or seeps; no potential habitat exists.

5	<i>Arabis aculeolata</i> Waldo rockcress	--	--	2B.2	G4	S2	April – June	Brassicaceae Perennial herb	General Habitat: broadleaved upland forest, lower montane coniferous forest, upper montane coniferous forest Micro Habitat: serpentinite Elevation: 410 – 1800 m	None. No habitat above 19 m elevation occurs on the property, broadleaved upland forest, lower montane coniferous forest, upper montane coniferous forest, or serpentinite habitat; no potential habitat exists.
6	<i>Arabis mcdonaldiana</i> McDonald's rockcress	FE	CE	1B.1	G3	S3	May – July	Brassicaceae Perennial herb	General Habitat: lower montane coniferous forest, upper montane coniferous forest Micro Habitat: serpentinite Elevation: 135 – 1800 m	None. No habitat above 19 m elevation occurs on the property, lower montane coniferous forest, upper montane coniferous forest, or serpentinite habitat; no potential habitat exists.
7	<i>Arctostaphylos hispidula</i> Howell's manzanita	--	--	4.2	G4	S3	March – April	Ericaceae Perennial evergreen shrub	General Habitat: chaparral (sandstone, serpentinite) Elevation: 120 – 1250 m	None. No habitat above 19 m elevation occurs on the property, no chaparral habitats; no potential habitat exists.
8	<i>Arctostaphylos nortensis</i> Del Norte manzanita	--	--	4.3	G2	S2	February	Ericaceae Perennial evergreen shrub	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite (often) Elevation: 500 – 800 m	None. No habitat above 19 m elevation occurs on the property, chaparral, lower montane coniferous forest, or serpentinite (often); no potential habitat exists.
9	<i>Arnica cernua</i> Serpentine arnica	--	--	4.3	G5	S4	April – July	Asteraceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 500 – 1920 m	None. No habitat above 19 m elevation occurs on the property, lower montane coniferous forest, or serpentinite habitat; no potential habitat exists.

10	<i>Arnica spathulata</i> Klamath arnica	--	--	4.3	G3 ?	S3	May – August	Asteraceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (serpentine) Elevation: 640 – 1800 m	None. No habitat above 19 m elevation occurs on the property, lower montane coniferous forest, or serpentine habitat; no potential habitat exists.
11	<i>Asplenium</i> <i>trichomanes</i> ssp. <i>trichomanes</i> Maidenhair spleenwort	--	--	2B.1	G5 T5	S1	May – July	Aspleniaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest Elevation: 185 – 200 m	None. No habitat above 19 m elevation occurs on the property or lower montane coniferous forest; no potential habitat exists.
12	<i>Boechera koehleri</i> Koehler's stipitate rockcress	--	--	1B.3	G3 G4	S3	(March) April – July	Brassicaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: rocky, serpentine Elevation: 155 – 1660 m	None. No habitat above 19 m elevation occurs on the property, chaparral, lower montane coniferous forest, or rocky, serpentine habitats; no potential habitat exists.
13	<i>Calamagrostis</i> <i>crassiglumis</i> Thurber's reed grass	--	--	2B.1	G3 Q	S2	May – August	Poaceae Perennial rhizomatous herb	General Habitat: coastal scrub (mesic), marshes and swamps (freshwater) Elevation: 10 – 60 m	None. No mesic coastal scrub, no freshwater marshes or swamps on the property; no potential habitat exists.
14	<i>Calicium adpersum</i> Spiral-spored gilded- head pin lichen	--	--	2B.2	G3 G4	S1	--	Caliciaceae Crustose lichen (epiphytic)	General Habitat: lower montane coniferous forest, North Coast coniferous forest General Micro Habitat: often restricted to old-growth bark of conifers that are over 200 years in age Elevation: 200 – 200 m	Potential. No habitat above 19 m elevation occurs on the property, however, potential habitat may exist on any old-growth stumps that remain in the understory within the southern portion of the property boundary.

15	<i>Calystegia atriplicifolia</i> <i>ssp. buttensis</i> Butte County morning-glory	--	--	4.2	G5 T3	S3	May – July	Convolvulaceae Perennial rhizomatous herb	General Habitat: chaparral, lower montane coniferous forest, valley and foothill grassland Micro Habitat: roadsides (sometimes), rocky Elevation: 565 – 1524 m	None. Although roadside habitat does occur on the property, optimal habitat does not exist for this alpine adapted rare plant. No habitat above 19 m elevation occurs on the property, chaparral, lower montane coniferous forest, valley or foothill grassland, or rocky habitats; no potential habitat exists.
16	<i>Cardamine angulata</i> Seaside bittercress	--	--	2B.2	G4 G5	S3	(January) March – July	Brassicaceae Perennial herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest General Micro Habitat: wet areas Micro Habitat: streambanks Elevation: 15 – 915 m	None. Although North Coast coniferous forest habitat does occur on the property, optimal habitat does not exist. No streambanks or wet areas occur within the project area; no potential habitat exists within the forest.
17	<i>Cardamine nuttallii</i> <i>var. gemmata</i> Yellow-tubered toothwort	--	--	3.3	G5 T3 Q	S2	April – May (June)	Brassicaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest Micro Habitat: serpentinite Elevation: 100 – 700 m	None. No serpentinite, no habitat above 19 m elevation occurs on the property; no potential habitat exists.
18	<i>Carex arcta</i> Northern clustered sedge	--	--	2B.2	G5	S1	June – September	Cyperaceae Perennial herb	General Habitat: bogs and fens, North Coast coniferous forest (mesic). Elevation: 60 – 1400 m	None. No bogs, fens, or mesic areas within the North Coast coniferous forest; no potential habitat exists.
19	<i>Carex lenticularis</i> var. <i>limnophila</i> Lagoon sedge	--	--	2B.2	G5 T5	S1	June – August	Cyperaceae Perennial herb	General Habitat: bogs and fens, marshes and swamps, North Coast coniferous forest General Micro Habitat: shores, beaches Micro Habitat: gravelly (often) Elevation: 0 – 6 m	None. No bogs, fens, marshes, swamps, shores, beaches, or gravelly habitat occurs on the property; no potential habitat exists within the forest.

20	<i>Carex lyngbyei</i> Lyngbye's sedge	--	--	2B.2	G5	S3	April – August	Cyperaceae Perennial rhizomatous herb	General Habitat: marshes and swamps (brackish, freshwater) Elevation: 0 – 10 m	None. No brackish or freshwater marshes or swamps occur on the property; no habitat below 19 m elevation occurs; no potential habitat exists.
21	<i>Carex praticola</i> Northern meadow sedge	--	--	2B.2	G5	S2	May – July	Cyperaceae Perennial herb	General Habitat: meadows and seeps (mesic) Elevation: 0 – 3200 m	None. No mesic meadows or seeps occur on the property; no potential habitat exists.
22	<i>Carex scabriuscula</i> Siskiyou sedge	--	--	4.3	G3 G4	S4	May – July	Cyperaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, meadows and seeps, upper montane coniferous forest Micro Habitat: mesic, seeps (sometimes), serpentinite (sometimes) Elevation: 701 – 2345 m	None. No habitat above 19 m elevation occurs on the property, no lower montane coniferous forest, meadows, seeps, upper montane coniferous forest, mesic habitats, seeps, or serpentinite habitat; no potential habitat exists.
23	<i>Carex serpenticola</i> Serpentine sedge	--	--	2B.3	G4	S3	March – May	Cyperaceae Perennial rhizomatous herb	General Habitat: meadows and seeps (mesic, serpentinite) Elevation: 60 – 1200 m	None. No habitat above 19 m elevation occurs, no mesic meadows or seeps, no serpentine parent bedrock; no potential habitat exists.
24	<i>Carex sheldonii</i> Sheldon's sedge	--	--	2B.2	G4	S2	May – August	Cyperaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, marshes and swamps, riparian scrub Elevation: 1200 – 2012 m	None. No habitat above 19 m elevation occurs on the property, no lower montane coniferous forest, marshes, swamps, or riparian scrub; no potential habitat exists.

25	<i>Carex viridula</i> ssp. <i>viridula</i> Green-yellow sedge	--	--	2B.3	G5 T5	S2	(June) July – September (November)	Cyperaceae Perennial herb	General Habitat: bogs and fens, marshes and swamps (freshwater), North Coast coniferous forest (mesic) Elevation: 0 – 1600 m	None. No bogs, fens, freshwater marshes or swamps, or mesic habitat within the forest; no potential habitat exists within the forest.
26	<i>Cascadia nuttallii</i> Nuttall's saxifrage	--	--	2B.1	G4 ?	S1	May	Saxifragaceae Perennial rhizomatous herb	General Habitat: North Coast coniferous forest (mesic, rocky) Elevation: 40 – 75 m	None. No rocky, mesic areas, no habitat above 19 m elevation occurs on the property; no potential habitat exist within the forest.
27	<i>Castilleja ambigua</i> var. <i>ambigua</i> Johnny-nip	--	--	4.2	G4 T4	S3 S4	March – August	Orobanchaceae annual herb (hemiparasitic)	General Habitat: coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools Elevation: 0 – 435 m	None. No coastal bluff scrub, coastal prairie, coastal scrub, marshes or swamps, valley and foothill grassland, or habitats showing signs of vernal mesic areas within the forest or surrounding habitat; no potential habitat exists.
28	<i>Castilleja brevilobata</i> Short-lobed paintbrush	--	--	4.2	G4	S3	April – July	Orobanchaceae Perennial herb (hemiparasitic)	General Habitat: lower montane coniferous forest (edges, openings, serpentine) Elevation: 120 – 1700 m	None. No habitat above 19 m elevation occurs on the property, no lower montane coniferous forest or serpentine habitat; no potential habitat exists.
29	<i>Castilleja elata</i> Siskiyou paintbrush	--	--	2B.2	G3	S2 S3	May – August	Orobanchaceae Perennial herb (hemiparasitic)	General Habitat: bogs and fens, lower montane coniferous forest (seeps) Micro Habitat: serpentine (often) Elevation: 0 – 1750 m	None. No bogs, fens, seeps, lower montane coniferous forest, or serpentine; no potential habitat exists.

30	<i>Castilleja litoralis</i> Oregon coast paintbrush	--	--	2B.2	G3	S3	June	Orobanchaceae Perennial herb (hemiparasitic)	General Habitat: coastal bluff scrub, coastal dunes, coastal scrub Micro Habitat: sandy Elevation: 15 – 100 m	None. No coastal habitat occurs on the property, no coastal bluff scrub, coastal dunes, or coastal scrub; no sandy areas; no potential habitat exists.
31	<i>Chrysosplenium glechomifolium</i> Pacific golden saxifrage	--	--	4.3	G5 ?	S3	February – June	Saxifragaceae Perennial herb	General Habitat: North Coast coniferous forest, riparian forest Micro Habitat: roadsides (sometimes), seeps (sometimes), streambanks Elevation: 10 – 220 m	None. Although North Coast coniferous forest habitat is present on the property, no optimal habitat occurs on the property; No riparian forest, streambanks, seeps, or appropriate mesic roadside conditions to host this species; no potential habitat exists.
32	<i>Cochlearia groenlandica</i> Greenland cochlearia	--	--	2B.3	G4	S1	May – July	Brassicaceae Annual herb	General Habitat: coastal bluff scrub (basaltic sea stacks) Elevation: 0 – 50 m	None. No coastal bluff scrub, no basaltic sea stacks; no potential habitat exists.
33	<i>Coptis laciniata</i> Oregon goldthread	--	--	4.2	G4 ?	S3 ?	(February) March – May (September – November)	Ranunculaceae Perennial rhizomatous herb	General Habitat: meadows and seeps, North Coast coniferous forest (streambanks) Micro Habitat: mesic Elevation: 0 – 1000 m	None. No streambanks, mesic meadows, or seeps; no potential habitat exists.
34	<i>Cypripedium californicum</i> California lady's- slipper	--	--	4.2	G3	S4	April – August (September)	Orchidaceae Perennial rhizomatous herb	General Habitat: bogs and fens, lower montane coniferous forest Micro Habitat: seeps, serpentinite (usually), streambanks Elevation: 30 – 2750 m	None. No bogs, fens, seeps, streambanks, or serpentinite; no potential habitat exists.

35	<i>Cypripedium montanum</i> Mountain lady's-slipper	--	--	4.2	G4 G5	S4	March – August	Orchidaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, cismontane woodland, lower montane coniferous forest, North Coast coniferous forest Elevation: 185 – 2225 m	None. Although North Coast coniferous forest habitat occurs on the property, no habitat above 19 m elevation occurs within the project area, therefore suitable habitat does not exist; additionally, no broadleaved upland forest, cismontane woodland, or lower montane coniferous forest; no potential habitat exists.
36	<i>Darlingtonia californica</i> California pitcherplant	--	--	4.2	G4	S4	April – August	Sarraceniaceae Perennial rhizomatous herb (carnivorous)	General Habitat: bogs and fens, meadows and seeps Micro Habitat: mesic, seeps (usually), serpentinite (usually) Elevation: 0 – 2585 m	None. No bogs, fens, meadows, seeps, or serpentinite; no potential habitat exists.
37	<i>Dicentra formosa ssp. oregana</i> Oregon bleeding heart	--	--	4.2	G5 T4	S3	April – May	Papaveraceae Perennial herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 425 – 1485 m	None. No habitat above 19 m elevation; no serpentine parent bedrock within the ownership or lower montane coniferous forest; no potential habitat exists.
38	<i>Doellingeria glabrata</i> Siskiyou aster	--	--	4.3	G4	S3	June – September	Asteraceae Perennial herb	General Habitat: lower montane coniferous forest, upper montane coniferous forest Micro Habitat: openings, rocky Elevation: 120 – 2705 m	None. No openings or rocky areas, no habitat above 19 m elevation, no lower or upper montane coniferous forest; no potential habitat exists.
39	<i>Downingia willamettensis</i> Cascade downingia	--	--	2B.2	G4	S2	June – July (September)	Campanulaceae Annual herb	General Habitat: cismontane woodland, valley and foothill grassland, vernal pools Elevation: 15 – 1110 m	None. No cismontane woodland, valleys, foothill grasslands, and no habitats showing signs of vernal mesic areas within the forest or surrounding habitat; no potential habitat exists.

40	<i>Empetrum nigrum</i> Black crowberry	--	--	2B.2	G5	S1 ?	April – June	Empetraceae Perennial evergreen shrub	General Habitat: coastal bluff scrub, coastal prairie Elevation: 10 – 200 m	None. No coastal bluff scrub, no coastal prairie; no potential habitat exists.
41	<i>Epilobium rigidum</i> Siskiyou Mountains willowherb	--	--	4.3	G3 G4	S3	July – August	Onagraceae Perennial herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 510 – 1200 m	None. No habitat above 19 m elevation, no lower montane coniferous forest or serpentinite habitat; no potential habitat exists.
42	<i>Erigeron cervinus</i> Siskiyou daisy	--	--	4.3	G4	S4	June – August	Asteraceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, meadows and seeps Elevation: 25 – 1900 m	None. No habitat above 19 m elevation occurs on the property, no lower montane coniferous forest, meadows, or seeps; no potential habitat exists.
43	<i>Eriogonum nudum</i> var. <i>paralinum</i> Del Norte buckwheat	--	--	2B.2	G5 T2	S1	June – September	Polygonaceae Perennial herb	General Habitat: coastal bluff scrub, coastal prairie Elevation: 5 – 80 m	None. No coastal bluff scrub, no coastal prairie; no potential habitat exists.
44	<i>Eriogonum pendulum</i> Waldo wild buckwheat	--	--	2B.2	G4	S2 S3	August – September	Polygonaceae Perennial herb	General Habitat: lower montane coniferous forest, upper montane coniferous forest Micro Habitat: serpentinite Elevation: 230 – 1000 m	None. No habitat above 19 m elevation; no lower or upper montane coniferous forest, and no serpentine parent bedrock; no potential habitat exists.
45	<i>Eriogonum ternatum</i> Ternate buckwheat	--	--	4.3	G4	S4	June – August	Polygonaceae Perennial herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 305 – 2225 m	None. No habitat above 19 m elevation; no serpentine parent bedrock or lower montane coniferous forest; no potential habitat exists.
46	<i>Erysimum concinnum</i> Bluff wallflower	--	--	1B.2	G3	S2	February – July	Brassicaceae Annual/Perennial herb	General Habitat: coastal bluff scrub, coastal dunes, coastal prairie Elevation: 0 – 185 m	None. No coastal bluff scrub, no coastal dunes, no coastal prairie; no potential habitat exists.

47	<i>Erythronium hendersonii</i> Henderson's fawn lily	--	--	2B.3	G4	S2	April – July	Liliaceae Perennial bulbiferous herb	General Habitat: lower montane coniferous forest Elevation: 300 – 1600 m	None. No habitat above 19 m elevation, no lower montane coniferous forest; no potential habitat exists.
48	<i>Erythronium howellii</i> Howell's fawn lily	--	--	1B.3	G3 G4	S2	April – May	Liliaceae Perennial bulbiferous herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest Micro Habitat: serpentinite (sometimes) Elevation: 200 – 1145 m	None. Although North Coast coniferous forest habitat does occur within the property, no habitat above 19 m elevation occurs, no serpentine parent bedrock, or lower montane coniferous forest; no potential habitat exists.
49	<i>Erythronium oregonum</i> Giant fawn lily	--	--	2B.2	G5	S2	March – June (July)	Liliaceae Perennial herb	General Habitat: cismontane woodland, meadows and seeps Micro Habitat: openings, rocky, serpentinite (sometimes) Elevation: 100 – 1150 m	None. No habitat above 19 m elevation, no cismontane woodland, meadows or seeps, rocky areas, or serpentinite habitat; no potential habitat exists.
50	<i>Erythronium revolutum</i> Coast fawn lily	--	--	2B.2	G4 G5	S3	March – July (August)	Liliaceae Perennial bulbiferous herb	General Habitat: bogs and fens, broadleaved upland forest, North Coast coniferous forest Micro Habitat: mesic, streambanks Elevation: 0 – 1600 m	None. Although North Coast coniferous forest habitat does occur on the property, no optimal habitat exists, no bogs, fens, broadleaved upland forest, streambanks, or mesic areas; no potential habitat exists.
51	<i>Fissidens pauperculus</i> Minute pocket moss	--	--	1B.2	G3 ?	S2	--	Fissidentaceae Moss	General Habitat: North Coast coniferous forest (damp coastal soil) Elevation: 10 – 1024 m	Potential. Potential habitat exists within areas of exposed soil within the forest.

52	<i>Gentiana setigera</i> Mendocino gentian	--	--	1B.2	G2	S2	(April – July) August – September	Gentianaceae Perennial herb	General Habitat: lower montane coniferous forest, meadows and seeps Micro Habitat: mesic Elevation: 335 – 1065 m	None. No habitat above 19 m elevation, no lower montane coniferous forest, meadows, or seeps; no potential habitat exists.
53	<i>Gilia capitata</i> ssp. <i>pacifica</i> Pacific gilia	--	--	1B.2	G5 T3	S2	April – August	Polemoniaceae Annual herb	General Habitat: coastal bluff scrub, chaparral (openings), coastal prairie, valley and foothill grassland Elevation: 5 – 1665 m	None. No coastal bluff scrub, chaparral, no coastal prairie, valleys, or foothill grassland; no potential habitat exists.
54	<i>Gilia millefoliata</i> Dark-eyed gilia	--	--	1B.2	G2	S2	April – July	Polemoniaceae Annual herb	General Habitat: coastal dunes Elevation: 20 – 30 m	None. No coastal dunes, no potential habitat exists.
55	<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i> American glehnia	--	--	4.2	G5 T5	S2 S3	May – August	Apiaceae Perennial herb	General Habitat: coastal dunes Elevation: 0 – 20 m	None. No coastal dunes, no potential habitat exists.
56	<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i> Short-leaved evax	--	--	1B.2	G4 T3	S3	March – June	Asteraceae Annual herb	General Habitat: coastal bluff scrub (sandy), coastal dunes, coastal prairie Elevation: 0 – 215 m	None. No coastal bluff scrub (sandy), coastal dunes, or coastal prairie; no potential habitat exists.
57	<i>Horkelia sericata</i> Silky horkelia	--	--	4.3	G3 G4	S3	June – August	Rosaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: clay, serpentinite Elevation: 180 – 1200 m	None. No habitat above 19 m elevation, chaparral, lower montane coniferous forest, serpentine parent bedrock, or high percentage of clay in soils; no potential habitat exists.

58	<i>Hosackia gracilis</i> Harlequin lotus	--	--	4.2	G3 G4	S3	March – July	Fabaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, meadows and seeps, North Coast coniferous forest, valley and foothill grassland General Micro Habitat: wetlands Micro Habitat: roadsides Elevation: 0 – 700 m	None. Although North Coast coniferous forest habitat occurs on the property, no wetlands or optimal conditions exist; no broadleaved upland forest, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal prairie, coastal scrub, marshes or swamps, meadows and seeps, valley and foothill grassland, or wetlands; no potential habitat exists within the project area.
59	<i>Iris bracteata</i> Siskiyou iris	--	--	3.3	G4 G5	S3	May – June	Iridaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 180 – 1070 m	None. No habitat above 19 m elevation; no serpentine parent bedrock, broadleaved upland forest or lower montane coniferous forest; no potential habitat exists.
60	<i>Iris innominata</i> Del Norte County iris	--	--	4.3	G4 G5	S3	May – June	Iridaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (serpentinite) Elevation: 300 – 2000 m	None. No habitat above 19 m elevation; no serpentine parent bedrock or lower montane coniferous forest; no potential habitat exists.
61	<i>Iris tenax ssp. klamathensis</i> Orleans iris	--	--	4.3	G4 G5 T4	S4	April – May	Iridaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (often disturbed areas) Elevation: 100 – 1400 m	None. No habitat above 19 m elevation, no lower montane coniferous forest; no potential habitat exists.

62	<i>Iris thompsonii</i> Thompson's iris	--	--	4.3	G3	S3	(March – April) May – June (July – August)	Iridaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest Micro Habitat: edges (often), mesic (usually), openings, roadsides (sometimes), serpentinite (often), streambanks (sometimes) Elevation: 90 – 600 m	None. Although North Coast coniferous forest habitat does exist within the project area, there is no habitat above 19 m elevation, and therefore optimal habitat does not occur; no potential habitat exists.
63	<i>Kopsiopsis hookeri</i> Small groundcone	--	--	2B.3	G4 ?	S1 S2	April – August	Orobanchaceae Perennial rhizomatous herb (parasitic)	General Habitat: North Coast coniferous forest Elevation: 90 – 885 m	None. Although North Coast coniferous forest habitat does exist within the project area, there is no habitat above 19 m elevation, and therefore optimal habitat does not occur; no potential habitat exists.
64	<i>Lasthenia californica</i> <i>ssp. macrantha</i> Perennial goldfields	--	--	1B.2	G3 T2	S2	January – November	Asteraceae Perennial herb	General Habitat: coastal bluff scrub, coastal dunes, coastal scrub Elevation: 5 – 520 m	None. No coastal bluff scrub, coastal dunes, or coastal scrub; no potential habitat exists.
65	<i>Lathyrus delnorticus</i> Del Norte pea	--	--	4.3	G4	S3	June – July	Fabaceae Perennial herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest Micro Habitat: serpentinite (often) Elevation: 30 – 1450 m	None. Although North Coast coniferous forest habitat does exist within the project area, there is no habitat above 19 m elevation or serpentinite habitat, and therefore optimal habitat does not occur; no potential habitat exists.
66	<i>Lathyrus japonicus</i> Seaside pea	--	--	2B.1	G5	S2	May – August	Fabaceae Perennial rhizomatous herb	General Habitat: coastal dunes Elevation: 1 – 30 m	None. No coastal dunes, no potential habitat exists.

67	<i>Lathyrus palustris</i> Marsh pea	--	--	2B.2	G5	S2	March – August	Fabaceae Perennial herb	General Habitat: bogs and fens, coastal prairie, coastal scrub, lower montane coniferous forest, marshes and swamps, North Coast coniferous forest Micro Habitat: mesic Elevation: 1 – 100 m	None. Although North Coast coniferous forest does exist on the property, optimal habitat does not exist; no bogs, fens, coastal prairie, coastal scrub, lower montane coniferous forest, marshes, swamps, or mesic areas; no potential habitat exists.
68	<i>Leptosiphon latisectus</i> Broad-lobed leptosiphon	--	--	4.3	G4	S4	April – June	Polemoniaceae Annual herb	General Habitat: broadleaved upland forest, cismontane woodland Elevation: 170 – 1500 m	None. No habitat above 19 m elevation, no broadleaved upland forest or cismontane forest; no potential habitat exists.
69	<i>Lewisia oppositifolia</i> Opposite-leaved lewisia	--	--	2B.2	G3	S2	April – May (June)	Montiaceae Perennial herb	General Habitat: lower montane coniferous forest (mesic) Elevation: 300 – 1220 m	None. No habitat above 19 m elevation, no mesic lower montane coniferous forest habitat; no potential habitat exists.
70	<i>Lilium bolanderi</i> Bolander's lily	--	--	4.2	G4	S3 S4	June – July	Liliaceae perennial bulbiferous herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 30 – 1600 m	None. No habitat above 19 m elevation; no serpentine parent bedrock, chaparral, or lower montane coniferous forest; no potential habitat exists.
71	<i>Lilium occidentale</i> Western lily	FE	CE	1B.1	G1 G2	S1	June – July	Liliaceae perennial bulbiferous herb	General Habitat: bogs and fens, coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, North Coast coniferous forest Elevation: 2 – 185 m	Potential. Although no bogs, fens, coastal bluff scrub, coastal prairie, coastal scrub, marshes, or swamps occur, potential habitat may exist within the North Coast coniferous forest habitat on the property.

72	<i>Lilium pardalinum ssp. vollmeri</i> Vollmer's lily	--	--	4.3	G5 T4	S3	(June) July – August	Liliaceae perennial bulbiferous herb	General Habitat: bogs and fens, meadows and seeps (mesic) Elevation: 30 – 1680 m	None. No habitat above 19 m elevation, no bogs, fens, mesic meadows or seeps; no potential habitat exists.
73	<i>Listera cordata</i> Heart-leaved twayblade	--	--	4.2	G5	S4	February – July	Orchidaceae Perennial herb	General Habitat: bogs and fens, lower montane coniferous forest, North Coast coniferous forest Elevation: 5 – 1370 m	Potential. Although no bogs, fens, or lower montane coniferous forest exists within the project area, potential habitat exists within the North Coast coniferous forest.
74	<i>Lomatium howellii</i> Howell's lomatium	--	--	4.3	G4 G5	S4	April – July	Apiaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 110 – 1705 m	None. No habitat above 19 m elevation; no serpentine parent bedrock, chaparral, or lower montane coniferous forest; no potential habitat exists.
75	<i>Lomatium tracyi</i> Tracy's lomatium	--	--	4.3	G4	S4	May – June	Apiaceae Perennial herb	General Habitat: lower montane coniferous forest, upper montane coniferous forest Micro Habitat: serpentinite Elevation: 455 – 1950 m	None. No habitat above 19 m elevation; no serpentine parent bedrock, lower or upper montane coniferous forest; no potential habitat exists.
76	<i>Lycopodium clavatum</i> Running-pine	--	--	4.1	G5	S3	June – August (September)	Lycopodiaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest (mesic), marshes and swamps, North Coast coniferous forest (mesic) Micro Habitat: edges (often), openings, roadsides Elevation: 45 – 1225 m	None. Although North Coast coniferous forest habitat occurs on the property, no optimal habitat exists; no lower montane coniferous forest (mesic), marshes and swamps, mesic North Coast coniferous forest, mesic edges, openings, or mesic roadsides; therefore, no potential habitat exists.

77	<i>Lysimachia europaea</i> Arctic starflower	--	--	2B.2	G5	S1	June – July	Myrsinaceae Perennial herb	General Habitat: bogs and fens, meadows and seeps Micro Habitat: coastal Elevation: 0 – 15 m	None. No coastal bogs, fens, meadows, or seeps; no potential habitat exists.
78	<i>Micranthes marshallii</i> Marshall's saxifrage	--	--	4.3	G5	S3	March – August	Saxifragaceae Perennial rhizomatous herb	General Habitat: riparian forest Micro Habitat: rocky, streambanks Elevation: 90 – 2130 m	None. No rocky areas or streambanks, no riparian forest; no potential habitat exists.
79	<i>Mitellastrum caulescens</i> Leafy-stemmed mitrewort	--	--	4.2	G5	S4	(March) April – October	Saxifragaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, lower montane coniferous forest, meadows and seeps, North Coast coniferous forest Micro Habitat: mesic, roadsides (sometimes) Elevation: 5 – 1700 m	None. Although North Coast coniferous forest habitat occurs on the property, no mesic habitat exists; no broadleaved upland forest, lower montane coniferous forest, meadows and seeps, mesic North Coast coniferous forest, or mesic roadsides; therefore, no potential habitat exists.
80	<i>Moneses uniflora</i> Woodnymph	--	--	2B.2	G5	S2	May – August	Ericaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, North Coast coniferous forest Elevation: 100 – 1100 m	Potential. Although no habitat below 19 m elevation occurs on the property, the North Coast coniferous forest, abundant with bryo-mats, may provide suitable habitat.
81	<i>Monotropa uniflora</i> Ghost-pipe	--	--	2B.2	G5	S2	June – August (September)	Ericaceae Perennial herb (achlorophyllous)	General Habitat: broadleaved upland forest, North Coast coniferous forest Elevation: 10 – 550 m	Potential. Potential habitat exists within the North Coast coniferous forest habitat on the property.

82	<i>Montia howellii</i> Howell's montia	--	--	2B.2	G3 G4	S2	(February) March – May	Montiaceae Annual herb	General Habitat: meadows and seeps, North Coast coniferous forest, vernal pools Micro Habitat: vernally mesic, sometimes roadsides Elevation: 0 – 835 m	Potential. Potential habitat exists within the North Coast coniferous forest habitat as well as within roadsides.
83	<i>Oenothera wolfii</i> Wolf's evening- primrose	--	--	1B.1	G2	S1	May – October	Onagraceae Perennial herb	General Habitat: coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest Micro Habitat: mesic (usually), sandy Elevation: 3 – 800 m	None. No coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest, sandy, or mesic areas occur on the property; no potential habitat exists.
84	<i>Oxalis suksdorfii</i> Suksdorf's wood- sorrel	--	--	4.3	G4	S3	May – August	Oxalidaceae Perennial rhizomatous herb	General Habitat: broadleaved upland forest, North Coast coniferous forest Elevation: 15 – 700 m	Potential. Potential habitat exists within the North Coast coniferous forest.
85	<i>Packera bolanderi</i> var. <i>bolanderi</i> Seacoast ragwort	--	--	2B.2	G4 T4	S2 S3	(January – April) May – July (August)	Asteraceae Perennial rhizomatous herb	General Habitat: coastal scrub, North Coast coniferous forest Micro Habitat: roadsides (sometimes) Elevation: 30 – 650 m	Potential. Although no habitat above 19 m elevation exists, potential habitat exists within roadsides and North Coast coniferous forest habitat.
86	<i>Packera macounii</i> Siskiyou Mountains ragwort	--	--	4.3	G5 ?	S3	June – July	Asteraceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: disturbed areas (often), serpentinite (sometimes) Elevation: 400 – 915 m	None. No habitat above 19 m elevation, no chaparral, lower montane coniferous forest, or serpentinite habitat; no potential habitat exists.

87	<i>Perideridia gairdneri</i> <i>ssp. gairdneri</i> Gairdner's yampah	--	--	4.2	G5 T3 T4	S3 S4	June – October	Apiaceae Perennial herb	General Habitat: broadleaved upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools Micro Habitat: vernal mesic Elevation: 0 – 610 m	None. No broadleaved upland forest, chaparral, coastal prairie, valley and foothill grassland, and no habitats showing signs of vernal mesic areas within the forest or surrounding habitat; no potential habitat exists.
88	<i>Phacelia argentea</i> Sand dune phacelia	--	PT	1B.1	G2	S1	June – August	Hydrophyllaceae Perennial herb	General Habitat: coastal dunes Elevation: 3 – 25 m	None. No coastal dunes, no potential habitat exists.
89	<i>Pinguicula macroceras</i> Horned butterwort	--	--	2B.2	G4	S2	April – June	Lentibulariaceae Perennial herb (carnivorous)	General Habitat: bogs and fens (serpentine) Elevation: 40 – 1920 m	None. No habitat above 19 m elevation; no serpentine parent bedrock, bogs, or fens; no potential habitat exists.
90	<i>Piperia candida</i> White-flowered rein orchid	--	--	1B.2	G3	S3	(March) May – September	Orchidaceae Perennial herb	General Habitat: broadleaved upland forest, lower montane coniferous forest, North Coast coniferous forest Micro Habitat: serpentine (sometimes) Elevation: 30 – 1310 m	Potential. Although no habitat above 19 m elevation occurs on the property, potential habitat may exist in the North Coast coniferous forest habitat.
91	<i>Pityopus californicus</i> California pinefoot	--	--	4.2	G4 G5	S4	(March – April) May – August	Ericaceae Perennial herb (achlorophyllous)	General Habitat: broadleaved upland forest, lower montane coniferous forest, North Coast coniferous forest, upper montane coniferous forest Micro Habitat: mesic Elevation: 15 – 2225 m	None. Although North Coast coniferous forest habitat occurs on the property, no mesic habitat exists, no broadleaved upland forest, or lower or upper montane coniferous forest; therefore, potential habitat does not exist.

92	<i>Pleuropogon refractus</i> Nodding semaphore grass	--	--	4.2	G4	S4	(March) April – August	Poaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, meadows and seeps, North Coast coniferous forest, riparian forest Micro Habitat: mesic Elevation: 0 –1600 m	None. Although North Coast coniferous forest habitat occurs on the property, no mesic habitat exists, no meadows, seeps, riparian forest, or lower montane coniferous forest; therefore, potential habitat does not exist.
93	<i>Poa piperi</i> Piper's blue grass	--	--	4.3	G4	S3	April - May	Poaceae Perennial rhizomatous herb	General Habitat: Chaparral, Lower montane coniferous forest Micro Habitat: rocky, serpentinite Elevation: 100 – 1460 m	None. No habitat above 19 m elevation; no serpentine parent bedrock, rocky areas, chaparral, or lower montane coniferous forest; no potential habitat exists.
94	<i>Polemonium carneum</i> Oregon polemonium	--	--	2B.2	G3 G4	S2	April – September	Polemoniaceae Perennial herb	General Habitat: coastal prairie, coastal scrub, lower montane coniferous forest Elevation: 0 – 1830 m	None. No coastal prairie, coastal scrub, or lower montane coniferous forest; no potential habitat exists.
95	<i>Potamogeton foliosus</i> <i>ssp. fibrillosus</i> Fibrous pondweed	--	--	2B.3	G5 T2 T4	S1 S2	Unknown	Potamogetonaceae Perennial rhizomatous herb (aquatic)	General Habitat: marshes and swamps (shallow freshwater) Elevation: 5 – 1300 m	None. No marshes or swamps within the ownership; no potential habitat exists.
96	<i>Primula pauciflora</i> Beautiful shootingstar	--	--	4.2	G5	S3	April – June	Primulaceae Perennial herb	General Habitat: Great Basin scrub, meadows and seeps, pinyon and juniper woodland Micro Habitat: mesic Elevation: 1000 – 2380 m	None. No habitat above 19 m elevation, no Great Basin scrub, mesic meadows, seeps, or pinyon and juniper woodland; no potential habitat exists.
97	<i>Pyrrocoma racemosa</i> <i>var. congesta</i> Del Norte pyrrocoma	--	--	2B.3	G5 T4	S2	August – September	Asteraceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 200 – 1000 m	None. No habitat above 19 m elevation; no serpentine parent bedrock, chaparral, or lower montane coniferous forest; no potential habitat exists.

98	<i>Ramalina thrausta</i> Angel's hair lichen	--	--	2B.1	G5 ?	S2 S3	--	Ramalinaceae fruticose lichen (epiphytic)	General Habitat: North Coast coniferous forest General Habitat: on dead twigs and other lichens Elevation: 75 – 430 m	Potential. Although there is no habitat above 19 m elevation, potential habitat may exist within the North Coast coniferous forest on dead twigs and other lichens.
99	<i>Ribes laxiflorum</i> Trailing black currant	--	--	4.3	G5 ?	S3	March – July (August)	Grossulariaceae Perennial deciduous shrub	General Habitat: North Coast coniferous forest Micro Habitat: roadsides (sometimes) Elevation: 5 – 1395 m	Potential. Potential habitat exists within roadsides and within the North Coast coniferous forest. Multiple detections were observed within the northern portion of the project area, growing intermixed with <i>Rubus</i> spp.
100	<i>Romanzoffia tracyi</i> Tracy's romanzoffia	--	--	2B.3	G4	S2	March – May	Hydrophyllaceae Perennial herb	General Habitat: coastal bluff scrub, coastal scrub Micro Habitat: rocky Elevation: 15 – 30 m	None. No coastal bluff scrub, rocky habitat, or coastal scrub; no potential habitat exists.
101	<i>Sabulina howellii</i> Howell's sandwort	--	--	1B.3	G4	S3	April – July	Caryophyllaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 550 – 1000 m	None. No habitat above 19 m elevation; no serpentine parent bedrock, chaparral, or lower montane coniferous forest; no potential habitat exists.
102	<i>Sagittaria sanfordii</i> Sanford's arrowhead	--	--	1B.2	G3	S3	May – October (November)	Alismataceae Perennial rhizomatous herb (emergent)	General Habitat: marshes and swamps (shallow freshwater) Elevation: 0 – 650 m	None. No freshwater marshes or swamps occur within the ownership; no potential habitat exists.
103	<i>Salix delnortensis</i> Del Norte willow	--	--	4.3	G4	S4	April – May	Salicaceae Perennial deciduous shrub	General Habitat: riparian forest (serpentinite) Elevation: 90 – 500 m	None. No habitat above 19 m elevation; no riparian forests or serpentinite parent bedrock within the ownership; no potential habitat exists.

104	<i>Sanguisorba officinalis</i> Great burnet	--	--	2B.2	G5 ?	S2	July – October	Rosaceae Perennial rhizomatous herb	General Habitat: bogs and fens, broadleaved upland forest, marshes and swamps, meadows and seeps, North Coast coniferous forest, riparian forest Micro Habitat: serpentinite (often) Elevation: 60 – 1400 m	None. Although North Coast coniferous forest habitat does occur on the property, no optimal habitat with mesic conditions occurs; no bogs, fens, broadleaved upland forest, marshes, swamps, meadows, seeps, riparian forest, or serpentinite; no potential habitat exists.
105	<i>Sanicula peckiana</i> Peck's sanicle	--	--	4.3	G4	S3	March - June	Apiaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite (often) Elevation: 150 – 800 m	None. No habitat above 19 m elevation, no serpentine parent bedrock, no chaparral, or lower montane coniferous forest; no potential habitat exists.
106	<i>Sedum flavidum</i> Pale yellow stonecrop	--	--	4.3	G3	S3	May – July	Crassulaceae Perennial herb	General Habitat: broadleaved upland forest, chaparral, lower montane coniferous forest, upper montane coniferous forest Micro Habitat: openings, rocky, serpentinite, talus, volcanic Elevation: 355 – 2155 m	None. No habitat above 19 m elevation, no serpentine parent bedrock, broadleaved upland forest, chaparral, lower or upper montane coniferous forest, upper montane coniferous forest, volcanic material, rocky habitats, or talus slopes; no potential habitat exists.
107	<i>Sedum patens</i> Smith River stonecrop	--	--	1B.2	G2	S2	May – July	Crassulaceae Perennial herb	General Habitat: lower montane coniferous forest Micro Habitat: openings, rock crevices, rocky, talus, ultramafic Elevation: 90 – 210 m	None. No habitat above 19 m elevation, no lower montane coniferous forest, ultramafic parent bedrock, rocky areas, or talus slopes; no potential habitat exists.
108	<i>Sidalcea elegans</i> Del Norte checkerbloom	--	--	3.3	G4 ?	S2 ?	May – July	Malvaceae Perennial rhizomatous herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 215 – 1365 m	None. No habitat above 19 m elevation, no serpentine parent bedrock, chaparral, or lower montane coniferous forest; no potential habitat exists.

109	<i>Sidalcea malachroides</i> Maple-leaved checkerbloom	--	--	4.2	G3	S3	(March) April – August	Malvaceae Perennial herb	General Habitat: broadleaved upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, riparian woodland Micro Habitat: disturbed areas (often) Elevation: 0 – 730 m	Potential. Potential habitat exists in disturbed areas and within the North Coast coniferous forest.
110	<i>Sidalcea malviflora</i> <i>ssp. patula</i> Siskiyou checkerbloom	--	--	1B.2	G5 T2	S2	(March) May – August	Malvaceae Perennial rhizomatous herb	General Habitat: coastal bluff scrub, coastal prairie, North Coast coniferous forest General Micro Habitat: often roadcuts Micro Habitat: roadsides (often) Elevation: 15 – 1230 m	Potential. Potential habitat exists in North coast coniferous forest habitat, especially roadsides.
111	<i>Sidalcea oregana ssp.</i> <i>eximia</i> Coast checkerbloom	--	--	1B.2	G5 T1	S1	June – August	Malvaceae Perennial herb	General Habitat: lower montane coniferous forest, meadows and seeps, North Coast coniferous forest Elevation: 5 – 1340 m	Potential. Potential habitat exists in North coast coniferous forest habitat.
112	<i>Silene hookeri</i> Hooker's catchfly	--	--	2B.2	G4	S2	(March) May – July	Caryophyllaceae Perennial herb	General Habitat: chaparral, cismontane woodland, lower montane coniferous forest General Micro Habitat: often in grassy openings Micro Habitat: openings (often), rocky (sometimes), serpentinite (sometimes), slopes (sometimes) Elevation: 150 – 1260 m	None. No habitat above 19 m elevation, no chaparral, cismontane woodland, lower montane coniferous forest, grassy openings, rocky areas, serpentinite habitat, or slopes; no potential habitat exists.

113	<i>Silene scouleri</i> ssp. <i>scouleri</i> Scouler's catchfly	--	--	2B.2	G5 T4 T5	S2 S3	(March – May) June – August (September)	Caryophyllaceae Perennial herb	General Habitat: coastal bluff scrub, coastal prairie, valley and foothill grassland Elevation: 0 – 600 m	None. No coastal bluff scrub, no coastal prairie, no valley and foothill grassland; no potential habitat exists.
114	<i>Silene serpentinicola</i> Serpentine catchfly	--	--	1B.2	G3	S3	May – July	Caryophyllaceae Perennial rhizomatous herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: gravelly (sometimes), openings, rocky (sometimes), serpentinite Elevation: 145 – 1650 m	None. No habitat above 19 m elevation, no chaparral, lower montane coniferous forest, gravelly areas, openings, rocky habitats, or serpentinite; no potential habitat exists.
115	<i>Streptanthus howellii</i> Howell's jewelflower	--	--	1B.2	G2 G3	S2	July – August	Brassicaceae Perennial herb	General Habitat: lower montane coniferous forest (rocky, serpentinite) Elevation: 305 – 1500 m	None. No habitat above 19 m elevation, no serpentine parent bedrock, rocky habitats, or lower montane coniferous forest; no potential habitat exists.
116	<i>Sulcaria spiralifera</i> Twisted horsehair lichen	--	--	1B.2	G3 G4	S2	--	Parmeliaceae fruticose lichen (epiphytic)	General Habitat: coastal dunes (SLO Co.), North Coast coniferous forest (immediate coast) Micro Habitat: usually on conifers Elevation: 0 – 90 m	Potential. Potential habitat exists within the North Coast coniferous forest on conifers.
117	<i>Tauschia glauca</i> Glaucous tauschia	--	--	4.3	G4	S4	April – June	Apiaceae Perennial herb	General Habitat: lower montane coniferous forest (gravelly, serpentinite) Elevation: 80 – 1700 m	None. No habitat above 19 m elevation, no serpentine parent bedrock, gravelly habitat, or lower montane coniferous forest; no potential habitat exists.

118	<i>Tiarella trifoliata</i> var. <i>trifoliata</i> Trifoliate laceflower	--	--	3.2	G5 T5	S2 S3	(May) June – August	Saxifragaceae Perennial rhizomatous herb	General Habitat: lower montane coniferous forest, North Coast coniferous forest General Micro Habitat: moist shady banks Micro Habitat: edges, streambanks Elevation: 170 – 1500 m	None. Although North Coast coniferous forest habitat occurs on the property, no mesic habitat, moist shady banks, or streambanks exist; no habitat above 19 m elevation; no potential habitat exists.
119	<i>Usnea longissima</i> Methuselah's beard lichen	--	--	4.2	G4	S4	--	Parmeliaceae Fruticose lichen (epiphytic)	General Habitat: broadleaved upland forest, North Coast coniferous forest General Micro Habitat: on tree branches; usually on old growth hardwoods and conifers Elevation: 50 - 1460 m	Potential. Although no habitat below 19 m elevation or old growth conifers or hardwoods exist on the property, personal experience indicates potential habitat may still exist within the North Coast coniferous forest on hardwoods and conifers.
120	<i>Vaccinium scoparium</i> Little-leaved huckleberry	--	--	2B.2	G5	S3	June – August	Ericaceae Perennial deciduous shrub	General Habitat: subalpine coniferous forest (rocky) Elevation: 1036 – 2200 m	None. No habitat above 19 m elevation, subalpine coniferous forest, or rocky habitat; no potential habitat exists.
121	<i>Vancouveria</i> <i>chrysantha</i> Siskiyou inside-out- flower	--	--	4.3	G4	S3	June	Berberidaceae Perennial rhizomatous herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: serpentinite Elevation: 120 – 1500 m	None. No habitat above 19 m elevation, no serpentine parent bedrock, chaparral, or lower montane coniferous forest; no potential habitat exists.
122	<i>Veratrum insolitum</i> Siskiyou false- hellebore	--	--	4.3	G3	S4	June – August	Melanthiaceae Perennial herb	General Habitat: chaparral, lower montane coniferous forest Micro Habitat: clay Elevation: 45 – 1635 m	None. No habitat above 19 m elevation, chaparral, lower montane coniferous forest, or high percentages of clay within the soil; no potential habitat exists.

123	<i>Viola langsdorffii</i> Langsdorf's violet	--	--	2B.1	G4	S1	May – July	Violaceae Perennial herb	General Habitat: bogs and fens (coastal) Elevation: 2 – 10 m	None. No habitat below 19 m elevation, no bogs or fens; no potential habitat exists.
124	<i>Viola palustris</i> Alpine marsh violet	--	--	2B.2	G5	S1 S2	March – August	Violaceae Perennial rhizomatous herb	General Habitat: bogs and fens (coastal), coastal scrub (mesic) Elevation: 0 – 150 m	None. No bogs, fens, or mesic coastal scrub; no potential habitat exists.
125	<i>Viola primulifolia</i> ssp. <i>occidentalis</i> Western white bog violet	--	--	1B.2	G5 T2	S2	April – September	Violaceae Perennial rhizomatous herb	General Habitat: bogs and fens (serpentine), marshes and swamps Elevation: 100 – 990 m	None. No habitat below 19 m elevation; no potential habitat exists.

Attachment B. Habitat Photos



Photo 1A, 1B, + 1C. The trailing black currant (*Ribes laxiflorum*, CRPR 4.3) was found growing in multiple areas of the Bachelor Road THP. Note the glandular ovaries and the trailing, vining habit. Photos taken on April 5, 2023; credit C. Allchin.



Photo 2. The Bachelor Road THP was dominated by coastal redwood (*Sequoia sempervirens*) (S3.2 G3). Natural communities with a rank of S3 or lower are considered Sensitive in the state of California. The understory consisted predominantly of sword fern (*Polystichum munitum*) and redwood sorrel (*Oxalis oregana*). Photo taken on April 5, 2023; credit C. Allchin.



Photo 3. Densely vegetated areas in the understory consisted of western swordfern (*Polystichum munitum*), salmon berry (*Rubus spectabilis*), thimbleberry (*Rubus parviflorus*), salal (*Gaultheria shallon*), evergreen huckleberry (*Vaccinium ovatum*), redwood sorrel (*Oxalis oregana*), and red elderberry (*Sambucus racemosa*). Photo taken on April 5, 2023; credit C. Allchin.



Photo 4. Vegetation in the understory consisted of western swordfern (*Polystichum munitum*), salal (*Gaultheria shallon*), redwood sorrel (*Oxalis oregana*), and the minor amounts of slough sedge (*Carex obnupta*) in select locations. Photo taken on June 29, 2022; credit C. Allchin.



Photo 5A & 5B. Old growth English ivy (*Hedera helix*, CAL-IPC Rating *High*) was found growing in multiple areas in the northwestern corner of the property. Photos taken on June 29, 2022; credit C. Allchin.

Attachment C. Plant Species Observed

Habit	Scientific Name	Common Name	Status	Family	Date Observed
Trees	<i>Alnus rubra</i>	Red alder	native	Betulaceae	6/29/2022
	<i>Frangula purshiana</i>	Cascara sagrada	native	Rhamnaceae	6/29/2022
	<i>Picea sitchensis</i>	Sitka spruce	native	Pinaceae	6/29/2022
	<i>Sequoia sempervirens</i>	Coast redwood	native	Cupressaceae	6/29/2022
	<i>Thuja plicata</i>	Western red cedar	native	Cupressaceae	6/29/2022
	<i>Tsuga heterophylla</i>	Western hemlock	native	Pinaceae	6/29/2022
Shrubs	<i>Cotoneaster pannosus</i>	Woolly cotoneaster	invasive non-native	Rosaceae	4/5/2023
	<i>Gaultheria shallon</i>	Salal	native	Ericaceae	4/5/2023
	<i>Hedera helix</i>	English ivy	invasive non-native	Araliaceae	6/29/2022
	<i>Ilex aquifolium</i>	Holly	invasive non-native	Aquifoliaceae	6/29/2022
	<i>Lonicera involucrata</i>	Coast twinberry	native	Caprifoliaceae	6/29/2022
	<i>Oemleria cerasiformis</i>	Oso berry	native	Rosaceae	4/5/2023
	<i>Ribes laxiflorum</i>	Trailing black currant	rare, native	Grossulariaceae	4/5/2023
	<i>Rubus leucodermis</i>	White bark raspberry	native	Rosaceae	4/5/2023
	<i>Rubus parviflorus</i>	Thimbleberry	native	Rosaceae	6/29/2022
	<i>Rubus spectabilis</i>	Salmon berry	native	Rosaceae	6/29/2022
	<i>Rubus ursinus</i>	California blackberry	native	Rosaceae	6/29/2022
	<i>Sambucus racemosa</i>	Red elderberry	native	Adoxaceae	6/29/2022
	<i>Vaccinium ovatum</i>	Evergreen huckleberry	native	Ericaceae	6/29/2022
	<i>Vaccinium parvifolium</i>	Red huckleberry	native	Ericaceae	6/29/2022
Herbaceous	<i>Aira caryophyllea</i>	Silvery hairgrass	non-native	Poaceae	6/29/2022
	<i>Anthoxanthum odoratum</i>	Sweet vernal grass	invasive non-native	Poaceae	6/29/2022
	<i>Aphanes occidentalis</i>	Ladie's mantle	native	Rosaceae	6/29/2022
	<i>Athyrium filix-femina</i>	Common ladyfern	native	Dryopteridaceae	6/29/2022
	<i>Bellis perennis</i>	English lawn daisy	non-native	Asteraceae	6/29/2022
	<i>Calypso bulbosa</i>	Fairy slipper	native	Orchidaceae	6/29/2022
	<i>Cardamine oligosperma</i>	Idaho bittercress	native	Brassicaceae	4/5/2023

Herbaceous	<i>Carex hendersonii</i>	Henderson's sedge	native	Cyperaceae	4/5/2023
	<i>Carex leptopoda</i>	Slender-footed sedge	native	Cyperaceae	5/23/2023
	<i>Carex obnupta</i>	Slough sedge	native	Cyperaceae	6/29/2022
	<i>Cerastium glomeratum</i>	Large mouse ears	non-native	Caryophyllaceae	6/29/2022
	<i>Cirsium vulgare</i>	Bullthistle	invasive non-native	Asteraceae	6/29/2022
	<i>Claytonia sibirica</i>	Candy flower	native	Montiaceae	6/29/2022
	<i>Dactylis glomerata</i>	Orchardgrass	invasive non-native	Poaceae	6/29/2022
	<i>Digitalis purpurea</i>	Foxglove	invasive non-native	Plantaginaceae	6/29/2022
	<i>Dryopteris arguta</i>	Wood fern	native	Dryopteridaceae	6/29/2022
	<i>Dryopteris expansa</i>	Spreading wood fern	native	Dryopteridaceae	4/5/2023
	<i>Epilobium ciliatum</i>	Slender willow herb	native	Onagraceae	6/29/2022
	<i>Euphorbia peplus</i>	Petty spurge	non-native	Euphorbiaceae	4/5/2023
	<i>Festuca perennis</i>	Italian rye grass	invasive non-native	Poaceae	6/29/2022
	<i>Galium triflorum</i>	Sweet bedstraw	native	Rubiaceae	6/29/2022
	<i>Gamochaeta ustulata</i>	Featherweed	native	Asteraceae	6/29/2022
	<i>Geranium dissectum</i>	Wild geranium	invasive non-native	Geraniaceae	6/29/2022
	<i>Holcus lanatus</i>	Common velvetgrass	invasive non-native	Poaceae	4/5/2023
	<i>Hypochaeris glabra</i>	Smooth cats ear	invasive non-native	Asteraceae	6/29/2022
	<i>Hypochaeris radicata</i>	Hairy cats ear	invasive non-native	Asteraceae	6/29/2022
	<i>Iris douglasiana</i>	Douglas iris	native	Iridaceae	4/5/2023
	<i>Juncus bufonius</i>	Common toad rush	native	Juncaceae	6/29/2022
	<i>Juncus planifolius</i>	Flat-leaved rush	non-native	Juncaceae	6/29/2022
	<i>Lamium purpureum</i>	Purple dead nettle	non-native	Lamiaceae	4/5/2023
	<i>Lapsana communis</i>	Common nipplewort	non-native	Asteraceae	6/29/2022
	<i>Leucanthemum vulgare</i>	Oxe eye daisy	invasive non-native	Asteraceae	4/5/2023
	<i>Luzula comosa</i>	Hairy wood rush	native	Juncaceae	6/29/2022
	<i>Luzula parviflora</i>	Small-flowered wood rush	native	Juncaceae	6/29/2022
	<i>Lysimachia arvensis</i>	Scarlet pimpernel	non-native	Myrsinaceae	6/29/2022
	<i>Maianthemum dilatatum</i>	Pacific may lily	native	Ruscaceae	6/29/2022
	<i>Oxalis oregana</i>	Redwood sorrel	native	Oxalidaceae	6/29/2022
	<i>Plantago lanceolata</i>	Ribwort	invasive non-native	Plantaginaceae	4/5/2023
	<i>Plantago major</i>	Common plantain	non-native	Plantaginaceae	6/29/2022
	<i>Polypodium glycyrrhiza</i>	Licorice fern	native	Polypodiaceae	6/29/2022

Herbaceous	<i>Polystichum munitum</i>	Western sword fern	native	Dryopteridaceae	6/29/2022
	<i>Prosartes smithii</i>	Largeflower fairybells	native	Liliaceae	6/29/2022
	<i>Ranunculus repens</i>	Crowfoot, creeping buttercup	invasive non-native	Ranunculaceae	6/29/2022
	<i>Raphanus sativus</i>	Jointed charlock	invasive non-native	Brassicaceae	6/29/2022
	<i>Rumex crispus</i>	Curly dock	invasive non-native	Polygonaceae	6/29/2022
	<i>Senecio jacobaea</i>	Tansy ragwort	invasive non-native	Asteraceae	6/29/2022
	<i>Sonchus asper</i>	Spiny sowthistle	non-native	Asteraceae	6/29/2022
	<i>Sonchus oleraceus</i>	Sow thistle	non-native	Asteraceae	6/29/2022
	<i>Stachys rigida</i>	Rough hedgenettle	native	Lamiaceae	6/29/2022
	<i>Stellaria media</i>	Chickweed	non-native	Caryophyllaceae	6/29/2022
	<i>Struthiopteris spicant</i>	Deer fern	native	Blechnaceae	6/29/2022
	<i>Taraxacum officinale</i>	Red seeded dandelion	non-native	Asteraceae	4/5/2023
	<i>Trifolium repens</i>	White clover	non-native	Fabaceae	6/29/2022
	<i>Trillium ovatum</i>	Western wakerobin	native	Melanthiaceae	6/29/2022
	<i>Vicia sativa</i>	Spring vetch	non-native	Fabaceae	6/29/2022
Cryptogams	<i>Buckiella undulata</i>	Waved silk-moss	native	Plagiotheciaceae	6/29/2022
	<i>Chrysothrix sp.</i>	Gold dust lichens	native	Chrysothricaceae	4/5/2023
	<i>Clavulina sp.</i>	Coral fungus	native	Hydnaceae	4/5/2023
	<i>Exidia sp.</i>	Jelly Fungus	native	Auriculariaceae	4/5/2023
	<i>Frullania sp.</i>	Scalewort	native	Frullaniaceae	4/5/2023
	<i>Hypnum circinale</i>	Coiled-leaf claw-moss	native	Hypnaceae	4/5/2023
	<i>Hypogymnia sp.</i>	Tube lichen	native	Parmeliaceae	6/29/2022
	<i>Kindbergia oregana</i>	Oregon beaked moss	native	Brachytheciaceae	6/29/2022
	<i>Lepraria sp.</i>	Dust lichens	native	Stereocaulaceae	4/5/2023
	<i>Lunularia cruciata</i>	Crescent-cup liverwort	native	Lunulariaceae	6/29/2022
	<i>Mycena pura</i>	Lilac bonnet	native	Mycenaceae	6/29/2022
	<i>Neckera douglasii</i>	Douglas' Neckera moss	native	Neckeraceae	6/29/2022
	<i>Nidula sp.</i>	Bird's nest fungus	native	Nidulariaceae	6/29/2022
	<i>Ochrolechia sp.</i>	Crabseye lichen	native	Ochrolechiaceae	4/5/2023
	<i>Parmelia sulcata</i>	Shield lichen	native	Parmeliaceae	6/29/2022
	<i>Parmotrema sp.</i>	Ruffle lichens	native	Parmeliaceae	6/29/2022

Cryptogams	<i>Peltigera membranacea</i>	Membranous pelt lichen	native	Peltigeraceae	4/5/2023
	<i>Peziza sp.</i>	Cup fungus	native	Pezizaceae	4/5/2023
	<i>Picipes badius</i>	Black-footed polypore	native	Polyporaceae	4/5/2023
	<i>Pleurotus ostreatus</i>	Oyster mushroom	native	Pleurotaceae	6/29/2022
	<i>Pseudisothecium stoloniferum</i>	Cat's Tail moss	native	Lembophyllaceae	6/29/2022
	<i>Stereum hirsutum</i>	False turkeytail	native	Stereaceae	4/5/2023
	<i>Tapinella sp.</i>	Tapinella	native	Tapinellaceae	4/5/2023
	<i>Trametes versicolor</i>	Turkey tail	native	Polyporaceae	6/29/2022
	<i>Usnea sp.</i>	Beard lichens	native	Parmeliaceae	6/29/2022

Attachment D: Rank Definitions

CONSERVATION STATUS DEFINITIONS

Fed List*

This field indicates the plant's legal status under the Federal Endangered Species Act (ESA).

- FE** **Federally Endangered:** The classification provided to a plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.
- FT** **Federally Threatened:** The classification provided to a plant which is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range.
- PE** **Proposed Endangered:** The classification provided to a plant that is proposed for federal listing as Endangered in the Federal Register under Section 4 of the Endangered Species Act.
- PT** **Proposed Threatened:** The classification provided to a plant that is proposed for federal listing as Threatened in the Federal Register under Section 4 of the Endangered Species Act.
- FC** **Federal Candidate:** The classification provided to a plant that has been studied by the United States Fish and Wildlife Service, and the Service has concluded that it should be proposed for addition to the list of Federally Endangered and Threatened species.
- None** The plant has no federal listing status under ESA.
- FD** **Federally Delisted:** The plant was previously listed as Endangered or Threatened but is no longer on the list of Federally Endangered and Threatened species.

State List*

This field indicates the plant's legal status under the California Endangered Species Act (CESA).

- CE** **State Listed as Endangered:** The classification provided to a native species or subspecies in serious danger of becoming extinct throughout all or a significant portion of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.
- CT** **State Listed as Threatened:** The classification provided to a native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.
- CR** **State Listed as Rare:** The classification provided to a native plant species, subspecies, or variety when, although not presently threatened with extinction, it occurs in such small numbers throughout its range that it may become endangered if its present environment worsens. This designation stems from the Native Plant Protection Act of 1977.
- CC** **Candidate for State Listing:** The classification provided to a native species or subspecies that the Fish and Game Commission has formally noticed as being under review by the Department of Fish and Wildlife for addition to the list of endangered or threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to the list of endangered or threatened species.
- None** The plant has no state listing status under CESA.
- CD** **State Delisted:** The plant was previously listed as Endangered, Threatened or Rare but is no longer listed by the State of California.

Global Rank*

The Global Rank (G-rank) is an indication of the overall condition and imperilment of an element throughout its global range. It is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, with weighting being heavier on the rarity factors. The Global Ranks are assigned by NatureServe in coordination with the state program(s) where the element occurs.

- GX** **Presumed Extinct** — Not located despite intensive searches and virtually no likelihood of rediscovery.
- GH** **Possibly Extinct** — Known from only historical occurrences but still some hope of rediscovery. There is evidence that the species may be extinct or the ecosystem may be eliminated throughout its range, but not enough to state this with certainty. Examples of such evidence include 1) that a species has not been documented in approximately 20–40 years despite some searching or some evidence of significant habitat loss or degradation; 2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range.

- G1** **Critically Imperiled** — At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
- G2** **Imperiled** — At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
- G3** **Vulnerable** — At moderate risk of extinction or elimination due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
- G4** **Apparently Secure** — Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- G5** **Secure** — Common; widespread and abundant.
- GNR** **Unranked** — Global rank not yet assessed.
- GU** **Unrankable** — Currently unrankable due to a lack of information or due to substantially conflicting information about status or trends.
- G#G#** **Range Rank** — A numeric range rank (e.g., G2G3) is used to indicate the range of uncertainty about the exact status of a taxon or community.
- G#T#** **Infraspecific Taxon** — The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' Global Rank. Rules for assigning T-ranks follow the same principles as those for Global Ranks. However, a T-rank cannot imply the subspecies or variety is more abundant than the species. In such cases, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety.
- ?** **Qualifier: Inexact Numeric Rank** — A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.
- Q** **Qualifier: Questionable Taxonomy** — The distinctiveness of this entity as a taxon or community at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower-priority (numerically higher) conservation status rank.
- C** **Qualifier: Captive or Cultivated Only** — The taxon or community at present is presumed or possibly extinct or eliminated in the wild across its entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside its native range, or as a reintroduced population or ecosystem restoration, not yet established.

State Rank*

The State Rank (S-rank) is an indication of the condition and imperilment of an element throughout its range within the state. As with the G-rank, it is a letter+number score that reflects a combination of Rarity, Threat and Trend factors, weighted more heavily on rarity. The State Ranks are assigned by the CNDDDB biologists using standard natural heritage methodology.

- SX** **Presumed Extirpated** — Species is believed to be extirpated from the state. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
- SH** **Possibly Extirpated (Historical)** — Species occurred historically in the state, and there is some possibility that it may be rediscovered. All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists.
- S1** **Critically Imperiled** — Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.
- S2** **Imperiled** — Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state.
- S3** **Vulnerable** — Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4** **Apparently Secure** — Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5** **Secure** — Common, widespread, and abundant in the state.
- SNR** **Unranked** — State conservation status not yet assessed.
- SU** **Unrankable** — Currently unrankable due to a lack of information or due to substantially conflicting information about status or trends.
- S#S#** **Range Rank** — A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community.
- ?** **Qualifier: Inexact or Uncertain** — A question mark represents a rank qualifier, denoting an inexact or uncertain numeric rank.

Note: References to older ranks may contain a decimal "threat" rank of .1, .2, or .3, where .1 indicates very threatened status, .2 indicates moderate threat, and .3 indicates few or no current known threats.

CA Rare Plant Rank (CRPR)

California Rare Plant Ranks (CRPRs) are a ranking system developed by the California Native Plant Society (CNPS) to define and categorize rarity in the California flora. All plants that are assigned to a California Rare Plant Rank category are tracked by the CNDDDB; however, element occurrence (EO) information is only maintained for CRPR 1 and 2 plants, and some CRPR 3 plants. Most CRPR 3 and 4 plants that have EO information in this Inventory and the CNDDDB were previously assigned to CRPR 1 or 2; their EO data reflect their prior rank and have generally not been updated since the date of their change to CRPR 3 or 4.

Major changes to California Rare Plant Ranks (e.g., additions, changes, and deletions) undergo the CNPS Rare Plant Status Review process. This is a joint effort by CNPS, the CNDDDB, Regional Plant Status Review Groups, the Status Review Forum, and botanical experts throughout the world. Once consensus is reached, then additions, changes, or deletions in California Rare Plant Ranks are made to this Inventory and the CNDDDB. For a flow chart of the status review process, see Rare Plant Data in California: The Cooperative Relationship between the California Natural Diversity Database and the California Native Plant Society.

- 1A Presumed Extirpated or Extinct** — Plants presumed extirpated in California and either rare or extinct elsewhere. These plants have not been seen or collected in the wild in California for many years. A plant is extinct if it no longer occurs anywhere. A plant that is extirpated from California has been eliminated from California but may still occur elsewhere in its range.

All of the plants constituting California Rare Plant Rank 1A meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Should these taxa be rediscovered, any impacts to individual plants or their habitat must be analyzed during preparation of environmental documents relating to the California Environmental Quality Act (CEQA), or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 1B Rare or Endangered** — **Plants rare, threatened, or endangered in California and elsewhere.** These plants are rare throughout their entire range with the majority also being endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. California Rare Plant Rank 1B plants constitute the majority of taxa in the CNPS Inventory, with more than 1,000 plants assigned to this category of rarity.

All of the plants constituting California Rare Plant Rank 1B meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 2A Extirpated in California** — **Plants presumed extirpated in California but common elsewhere.** These plants are presumed extirpated because they have not been observed or documented in California for many years. This list only includes plants that are presumed extirpated in California but are common elsewhere in their range outside of the state.

All of the plants constituting California Rare Plant Rank 2A meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Should these species be rediscovered, any impacts proposed to individuals, or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 2B Rare or Endangered in California** — **Plants rare, threatened, or endangered in California but common elsewhere.** Except for being common beyond the boundaries of California, 2B plants would have been ranked 1B. From the federal perspective, plants common in other states or countries are not eligible for consideration under the provisions of the Federal Endangered Species Act. With California Rare Plant Rank 2B, we recognize the importance of protecting the geographic range of widespread species. In this way we protect the diversity of our own state's flora and help maintain evolutionary processes and genetic diversity within species.

All of the plants constituting California Rare Plant Rank 2B meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered

to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 3 Needs Review — Plants about which more information is needed.** These plants are united by one common theme—we lack the necessary information to assign them to one of the other ranks or to reject them. Nearly all of the plants constituting California Rare Plant Rank 3 are taxonomically problematic, yet if taxonomically valid would demonstrably qualify for rank 1B or 2B. For each California Rare Plant Rank 3 plant we have provided the known information and indicated in the "Notes" section of the Inventory record where assistance is needed. Data regarding distribution, endangerment, ecology, and taxonomic validity are welcomed and can be submitted by emailing the Rare Plant Program at rareplants@cnps.org.

Many of the plants constituting California Rare Plant Rank 3 meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code and are eligible for state listing. Impacts to these species or their habitat should be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they may meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380.

- 4 Uncommon in California — Plants of limited distribution, a watch list.** These plants are of limited distribution or infrequent throughout a broader area in California, and their status should be monitored regularly. Should the degree of endangerment or rarity of a California Rare Plant Rank 4 plant change, we will transfer it to a more appropriate rank.

Some of the plants constituting California Rare Plant Rank 4 meet the definitions of the California Endangered Species Act of the California Department of Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and we strongly recommend that California Rare Plant Rank 4 plants be evaluated for significant impacts during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, based on CEQA Guidelines §15125 (c) and/or §15380. This may be particularly appropriate for:

- The type locality of a California Rare Plant Rank 4 taxon;
- Occurrences at the periphery of a species' range;
- Areas where the taxon is especially uncommon;
- Areas where the taxon has sustained heavy losses (declining);
- Occurrences exhibiting unusual morphology or occurring on unusual substrates;
- Species maintained on BLM, USFWS, or USFS sensitive species lists; and
- Taxa associated with a habitat that is declining in California at a significant rate.

To assist in evaluating CRPR 4 taxa for CEQA consideration, see the technical memorandum on Considerations for Including CRPR 4 Plant Taxa in CEQA Biological Resource Impact Analysis prepared by the Rare Plant Program Committee.

Threat Rank

California Rare Plant Ranks at each level also include a threat rank (e.g., CRPR 4.3) and are assigned as follows:

- 0.1 Seriously threatened in California** — Over 80% of occurrences threatened / high degree and immediacy of threat.
- 0.2 Moderately threatened in California** — 20-80% of occurrences threatened / moderate degree and immediacy of threat.
- 0.3 Not very threatened in California** — Less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known.

Notes:

Threat ranks do not are provided for general research purposes only and do not indicate differences in conservation assessment. For example, a CRPR 1B.3 plant has the same conservation status as a CRPR 1B.1 plant, and it is mandatory that both be fully considered during preparation of environmental documents relating to CEQA.

The threat ranking criteria described above represent only the starting point for the assessment of threat level. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are also considered in assigning threat ranks.

In many cases, the threat rank has not been reassessed since the date the taxon was first added to this Inventory or underwent its last Status Review. For these taxa, the assigned threat ranking may not accurately reflect the current level of threat.

Considered but Rejected

A category of Considered but Rejected (CBR) exists for plants that either previously had a CRPR, or that were considered for addition to this Inventory but were rejected for one or more reasons. Any plant that is deleted from a CRPR category in this Inventory is not fully removed and is instead changed to the CBR category. Rejected plants are searchable by selecting the "Considered But Rejected" button in the California Rare Plant Rank section of simple and advanced search. A brief description of the reason why the plant was rejected is included for each CBR entry.

Attachment E. General Location Map & Botanical Survey Map



Figure 1. General location map for Bachelor Road THP.

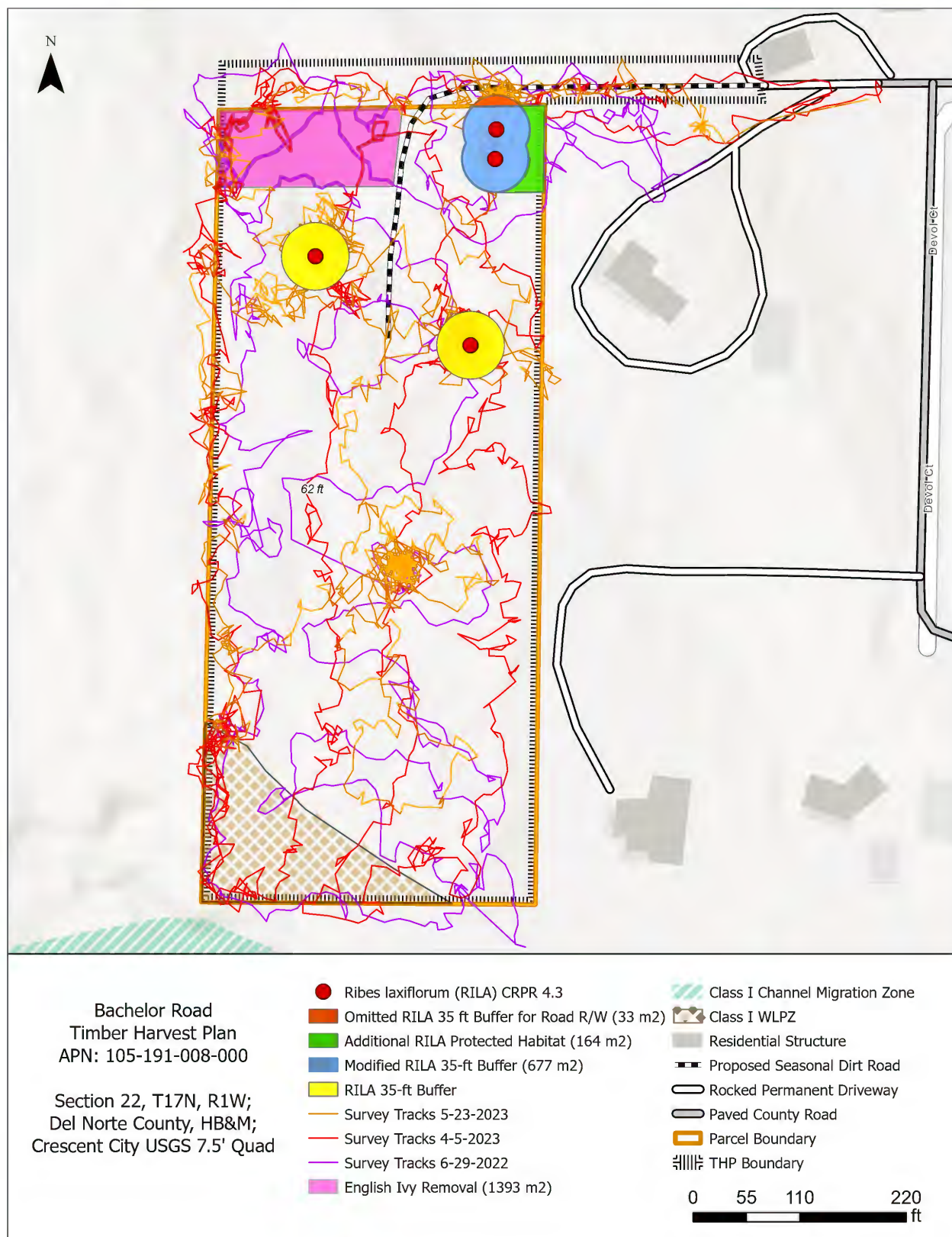


Figure 2. Map of the Bachelor Road THP with botanical survey routes taken, locations of *Ribes laxiflorum*, CRPR 4.3 rare plant populations, as well as the proposed management area for the removal of the invasive, non-native English ivy (*Hedera helix*, CAL-IPC High Rating).

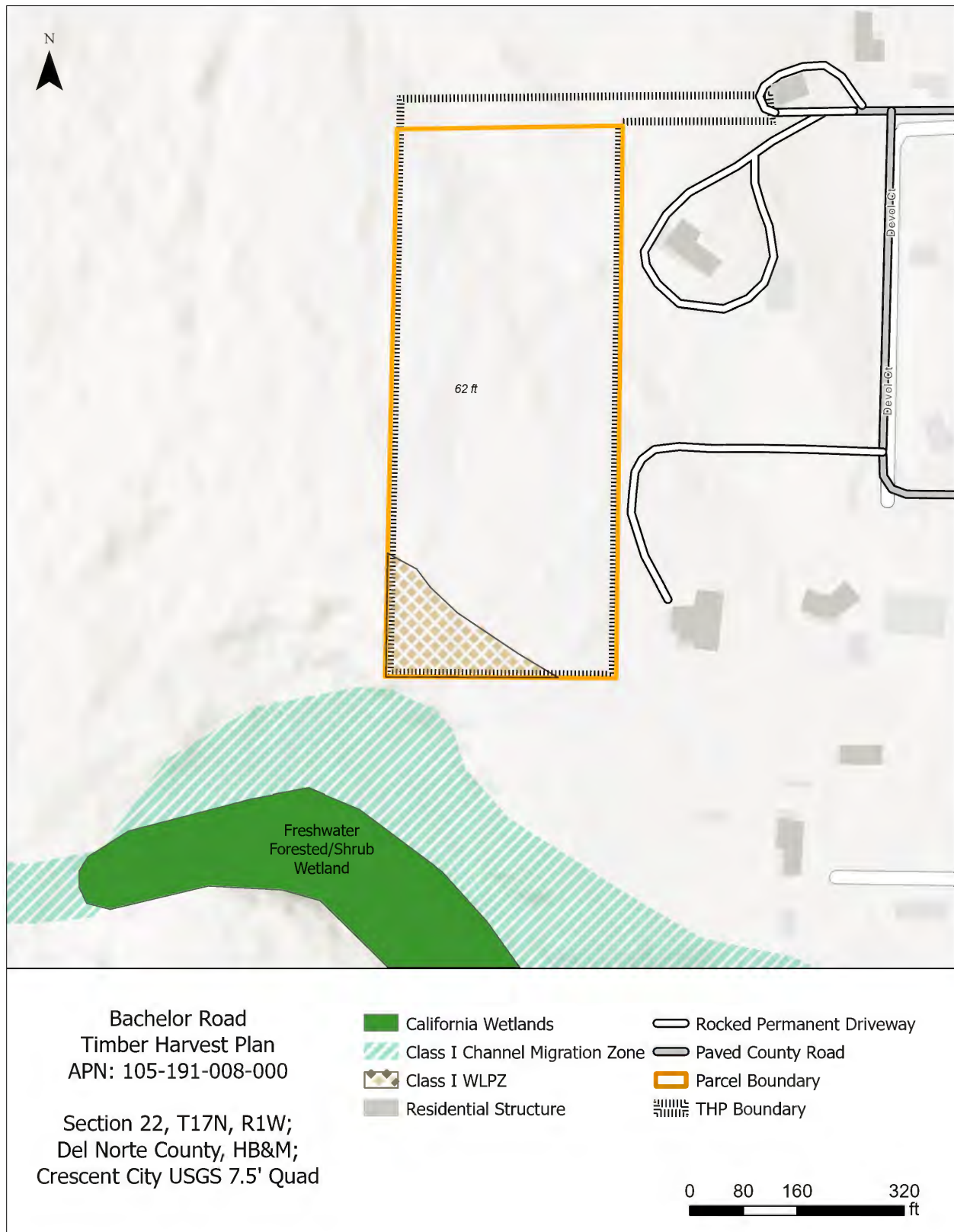
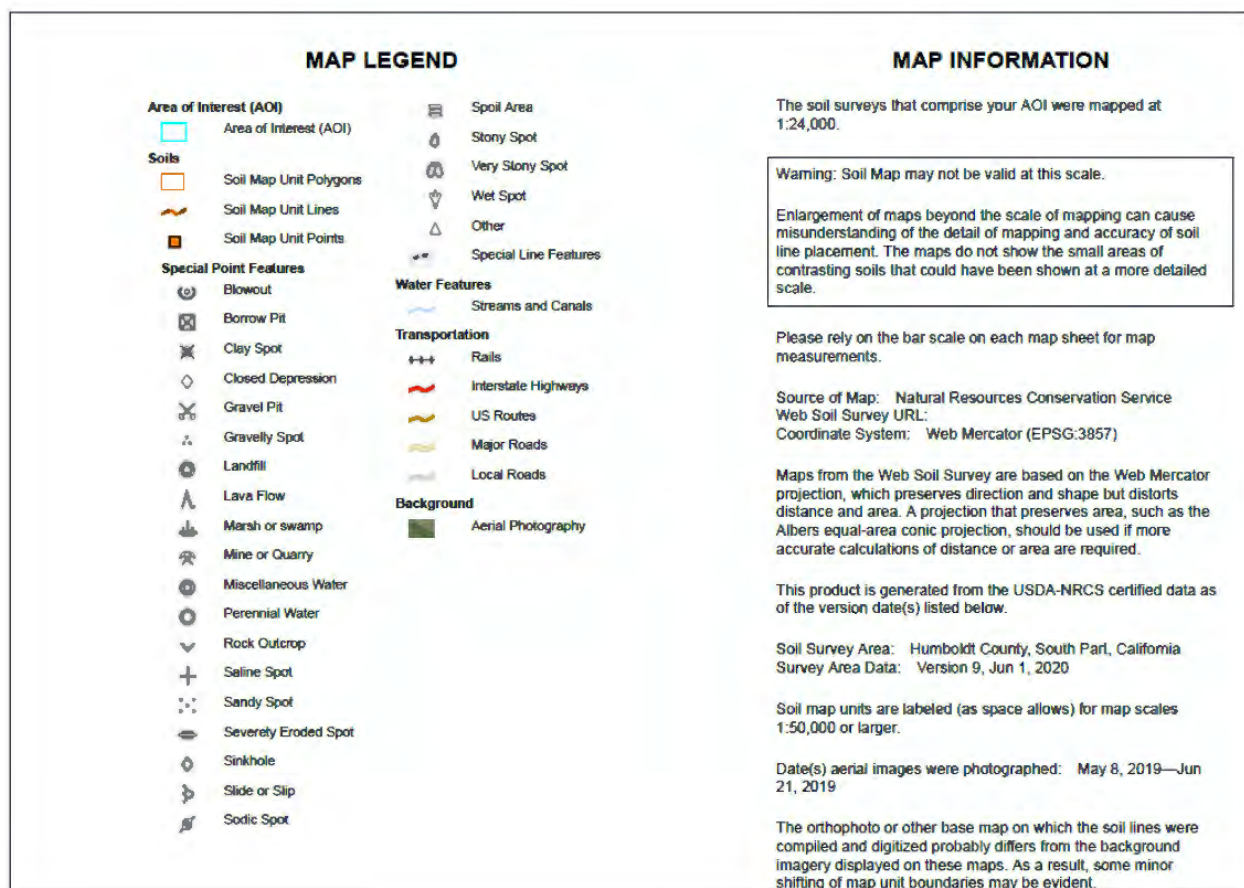


Figure 3. Map of the Bachelor Road THP showing the Class I Watercourse Water & Lake Protection Zone (WLPZ) buffer for the Class I Channel Migration zone, along with the mapped California Wetlands freshwater forested/ shrub wetland habitat offset from the southwestern corner of the property boundary.

Attachment F: Soil Map of Bachelor Road Timber Harvest Plan





Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
185	Timmons and Lepoil soils, 0 to 2 percent slopes	6.8	100.0%
Totals for Area of Interest		6.8	100.0%

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into soil phases. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series. Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

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

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

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

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

Del Norte County, North Part, California

Bachelor Road Timber Harvest Plan

185—Timmons and Lepoil soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2dgkv

Elevation: 30 to 250 feet

Mean annual precipitation: 35 to 90 inches

Mean annual air temperature: 52 to 55 degrees F

Frost-free period: 275 to 325 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

*Timmons and similar soils:*45 percent

*Lepoil and similar soils:*40 percent

*Minor components:*15 percent

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

Description of Timmons

Setting

*Landform:*Marine terraces

*Landform position (two-dimensional):*Backslope

*Landform position (three-dimensional):*Tread

*Down-slope shape:*Linear

*Across-slope shape:*Linear

*Parent material:*Mixed marine deposits

Typical profile

Ap - 0 to 19 inches: loam

AB - 19 to 30 inches: loam

Bt - 30 to 60 inches: clay loam

Properties and qualities

*Slope:*0 to 2 percent

*Depth to restrictive feature:*More than 80 inches

*Drainage class:*Well drained

*Capacity of the most limiting layer to transmit water (Ksat):*Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:*More than 80 inches

*Frequency of flooding:*None

*Frequency of ponding:*None

*Maximum salinity:*Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 11.2 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: C

Ecological site: F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam

Hydric soil rating: No

Description of Lepoil**Setting**

Landform: Marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mixed marine deposits

Typical profile

A - 0 to 10 inches: loam

AB - 10 to 22 inches: clay loam

Bt - 22 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: C

Ecological site: F004BX121CA - Redwood-Sitka spruce/salal-California huckleberry/western swordfern, marine terraces, marine deposits, sandy loam and loam

Hydric soil rating: No

Minor Components**Urban land, residential**

Percent of map unit: 5 percent

Landform: Marine terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Hutsinpillar

Percent of map unit: 4 percent

Landform: Alluvial fans, drainageways

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: Yes

Megwil,

Percent of map unit: 3 percent

Landform: Marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F004BX120CA - Redwood-Sitka spruce/California huckleberry-salmonberry/western swordfern-deer fern, marine terraces, loam

Hydric soil rating: No

Talawa

Percent of map unit: 3 percent

Landform: Marine terraces

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436.
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual.

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook.

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelpdb1043084>

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI.

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Attachment G. Aquatic Resource Delineation Report



Foster Consulting

Bachelor Road Timber Harvest Plan



Aquatic Resources Delineation Report

APN #105-191-008-000

Del Norte County, California

May 2023

Table of Contents

	Page
Introduction.....	3
Contact Information	3
Driving Directions	3
Location & Ownership.....	3
Setting	4
Climate.....	4
Hydrology	4
Soils	4
Vegetation Types	5
National Wetlands Inventory	5
Methods	6
Results.....	6
Discussion	7
References.....	8

Appendix A. Aquatic Resources Delineation Drawings and Figures

Appendix B. Routine Wetland Determination Data Forms

Appendix C. Plant Species Observed in the Survey Area

Appendix D. Representative Site Photographs

Introduction

This report presents the results of a delineation of aquatic resources survey for the Bachelor Road Timber Harvest Plan, located in Del Norte County, near Crescent City, California (Figure 1). The approximately 7.5-acre survey area consists of a property located on parcel (APN: 105-191-008-000) and a proposed access road to the property.

This report describes site characteristics, the methods used to delineate potentially jurisdictional areas, and the characteristics of the survey area. Appendices to the report provide additional detail.

- Appendix A: Delineation Drawing and Figure 1. Survey Area
- Appendix B: Routine Wetland Determination Forms
- Appendix C: Plant Species Observed in the Survey Area
- Appendix D: Representative Photographs

Contact Information

The contact information for the property owner and the report preparer is provided below.

Property Owner	Report Preparer
Richard Anderson 210 Douglas Park Drive Crescent City, CA 95531	Jonathan Foster, Wetland Ecologist Foster Consulting 5427 Valleyridge Drive Redding, CA 96003 Phone: (530) 710-4059 Email: Foster.Envconsulting@gmail.com

Driving Directions

From the Arcata-Eureka area in California, take US-101 North, approximately 80 miles to Crescent City and turn left onto Northcrest Drive. Continue onto Northcrest Drive and it will become Lake Earl Drive (approximately 5 miles), then turn left onto Bachelor Road until the end, this is the beginning of the proposed access road and the survey area. The drive time is approximately 1 hour and 40 minutes from the Humboldt Bay. Please note this is private property and access should be arranged prior to any site visits.

Location & Ownership

The survey area is located off Bachelor Road near Crescent City, California on the Crescent City Geological Survey (USGS) 7.5-minute quadrangle (Figure 1 – Appendix A) in portions of Section 22, Township 17 North, Range 1 West, HB&M at coordinates 41° 50' 49" N, -124° 09' 56" W. The survey area is located within a parcel owned by Richard Anderson (APN: 105-191-008-000).

Setting

The survey area is within the North Coast sub-region of the Northwestern California region of the California Floristic Province (Baldwin 2012). Topography is composed of gentle terrain with surrounding coastal forest at an elevation of approximately 67 feet above mean sea level. The site is surrounded by rural land uses including residences, timber harvest, and open space recreation areas in Del Norte County. The habitat within the survey area is comprised of mixed coniferous forest including coastal redwood (*Sequoia sempervirens*), Sitka spruce (*Picea sitchensis*), and red alder (*Alnus rubra*).

Climate

The climate in the survey area is characterized by temperate summers and cool, wet winters. There were three National Weather Service Cooperative Network weather stations close to the survey area, including Fort Dick (CA 043173 - active 1951 to 1988), Crescent City 7 ENE (CA 042148 – active 1951 to 2002) and Crescent City (CA 042147 active 1893 to 2013). Based on these stations, the mean annual precipitation ranges from approximately 70 to 85 inches of rain per year (Western Regional Climate Center 2023). The average air temperature is 45 to 61 degrees Fahrenheit with a growing season of approximately 275-325 days per year (NRCS 2023).

Hydrology

The survey area is within the Smith River watershed (Hydrologic Unit Code [HUC] 18010101) (USGS 2023). Lake Earl is approximately 0.5 aerial miles from the property boundary. No surface water, streams, ponds, or wetlands are present in the survey area.

Soils

One soil unit has been mapped in the survey area (NRCS 2023), Timmons & Lepoil (185) 0-2% slopes. This soil series is not considered a hydric soil, is well drained, and is not associated with flooding or ponding. See Table 1. for details on these soil series below.

Table 1. Soil Map Units in the Survey Area

Soil Map Unit	Soil Map Unit Name	Dominant Soil Texture	Landform	Depth to Restrictive Layer	Drainage Class	Hydric Soil?
185	Timmons & Lepoil (0-2% slopes)	Loam	Marine Terraces	>80 inches	Well drained	No

Vegetation Types

The survey area and surrounding lands are dominated primarily by native plant species. The surrounding area is dominated by mixed conifer forest with patches of open grasslands in the coastal plains along with mixed use residential properties. Vegetation types in the survey are described below.

North Coast Coniferous Forest

The vegetation in the survey area is forested and comprised primarily of coastal redwood (*Sequoia sempervirens* - UPL) with inclusions of red alder (*Alnus rubra* - FAC), Sitka spruce (*Picea sitchensis* - FAC), and an understory containing redwood sorrel (*Oxalis oregana* - FACU), sword fern (*Polystichum munitum* - FACU), salmon berry (*Rubus spectabilis* - FAC), thimbleberry (*Rubus parviflorus* - FACU), salal (*Gaultheria shallon* - FACU), and evergreen huckleberry (*Vaccinium ovatum* - FACU).

National Wetland Plant List Indicator Rating Definitions

OBL (Obligate Wetland Plants) - Almost always occur in wetlands.

FACW (Facultative Wetland Plants) - Usually occur in wetlands, but may occur in non-wetlands.

FAC (Facultative Plants) - Occur in wetlands and non-wetlands.

FACU (Facultative Upland Plants) - Usually occur in non-wetlands, but may occur in wetlands.

UPL (Upland Plants)- Almost never occur in wetlands.

National Wetlands Inventory

The National Wetlands Inventory (NWI) provides maps and information on the status, extent, characteristics, and functions of wetland, riparian, deepwater, and related aquatic habitats. The mapping is provided at a scale of 1:24,000 and uses the U.S. Fish and Wildlife Service's wetland definition, which differs from the USACE definition in that requires the presence of only a single wetland parameter compared to USACE's requirement of positive indicators of all three wetland factors. The NWI shows the extent of wetlands and deepwater habitats that can be determined with remotely sensed data, and originates from 1977 to the present. The NWI mapping can provide useful background information on the broad types of wetland and riparian vegetation communities, but cannot be used to delineate wetlands and other waters of the United States.

There were not any mapped features in the online NWI mapper (USFWS 2023).

Methods

Fieldwork for the delineation survey was conducted on May 23, 2023, by wetland ecologist Jonathan Foster of Foster Consulting and botanist Caitlyn Allchin of Hohman and Associates. The surveyors used the routine on-site determination methods described in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987 Manual) (Environmental Laboratory 1987), and supplemented by the 2010 Western Mountains, Valleys, and Coast Region Supplement (U.S. Army Corps of Engineers 2010).

In accordance with the 1987 Manual and the 2010 Western Mountains, Valleys, and Coast Region Supplement, data on vegetation, soil, and hydrology characteristics were collected and recorded on data forms (Appendix B).

A *Bad Elf GNSS Surveyor* global positioning system (GPS) with capable sub-meter accuracy was used to record the location of the data points. This unit and receiver system collect corrected GNSS data in real time. The data were downloaded and superimposed onto color orthorectified aerial photographs and edited as necessary to generate the delineation map (Appendix A) in compliance with USACE minimum standards (USACE SPD 2016) and for purposes to describe the survey area.

Methods and standards conform to the USACE San Francisco District's Information Required for Verification of Corps Jurisdiction (U.S. Army Corps of Engineers, San Francisco District 2016) and Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (U.S. Army Corps of Engineers, South Pacific Division 2016) which have also been accepted regularly by the California Department of Fish and Wildlife, Regional Water Quality Control Boards, U.S. Fish & Wildlife Service, and the California Coastal Commission.

Results

There were no aquatic resources identified in the survey area. Based on general observations and data collected related to vegetation, soils and hydrology, none of the landscape within the survey area mapped out as a three-parameter or even one-parameter wetland and no surface water features, including streams, lakes, or ponds were observed or are adjacent to the survey area.

Appendix A depicts the survey area and three data points mapped on a 2022, orthorectified true-color aerial photograph. Supporting wetland determination data forms documenting the upland points are located in Appendix B. A list of plant species observed in the survey area was compiled, and the scientific name and wetland indicator status of each species are provided (USACE 2020 - Appendix C). Photographs were taken to show representative views of the survey area and data points (Appendix D). Further discussion on the results are presented in the section below.

Discussion

This report provides an environmental baseline related to aquatic resources for proposed project planning and is intended for agency review and if needed, verification by and not limited to the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and the California Coastal Commission.

Since there were six plant species typically associated with wetland habitats identified during previous botanical surveys within the survey area in 2022 (Allchin 2023 DRAFT), it was determined that an aquatic resources delineation study should be performed. We would expect to find at least one aquatic feature to evaluate when there is plant diversity ranging from facultative to obligate wetland species, but it was not the case during our survey in this forest. We focused our primary data collection on the locations where hydrophytic plant species occurred.

Wetland Plants Species

As described in the vegetation types section above, the survey area contained a mosaic of mixed populations of upland (UPL), facultative upland (FACU), and facultative (FAC) plant species thriving alongside small inclusions of facultative wetland (FACW) and four small populations of an obligate wetland species, slough sedge (*Carex obnupta* - OBL).

The slough sedge is a common, native species typically associated with growing on the edges of a variety of perennial wetland habitats. It is also known to act as an invasive species on small sites in the coastal northwest (Wilson 2014). It has deep rhizomes and is often a dominant species in wet habitats. However, in this study area, it is sparse, not dominant and found in four small areas growing alongside upland understory species, including redwood sorrel (*Oxalis oregana* - FACU) in well drained soils with no adjacent surface water.

Common riparian species, such as red alder (*Alnus rubra* - FAC) and Sitka spruce (*Picea sitchensis* - FAC), were found in the survey area but were not associated with any water courses on or off-site. These species and some of the associated shrubs are expected to potentially be able to reach the water table and are also likely receiving very adequate precipitation and fog moisture to thrive in this coastal forest. The root system of red alder can be well developed and grow deep in soils with good drainage (OSU 2023). Additionally, red alder is an early successional species that establishes quickly after disturbance such as logging or fire. Red alder can help soils with their input of organic matter and nitrogen via their roots.

Soils & Hydrology

The site has a relatively uniform gradient with micro-topography, mostly associated with larger redwood trees. Well-drained loam soils are uniform throughout the site which provided for very easy hand excavation. We dug over a dozen exploratory holes, looking for any evidence of ponding, redoximorphic coloration, and any indicators of anerobic conditions. Additionally,

there were no areas that had any indicators of primary or secondary hydrology (standing water, algal matting, drainage patterns, etc.).

Two minor components of the Timmons & Lepoil 0-2% soil series (185) are considered hydric soils, but were not observed in the survey area. These minor components include Talawa, 3% in the map unit (associated with marine terraces) and Hutsinpillar, 4% in map unit (associated with linear drainages). Talawa (191) soils are associated with aquatic features and can be found beyond the survey area to the south and nearby, adjacent to Lake Earl (NRCS 2023).

Summary

The overall ecology of this site appears to be functioning, healthy, and under normal circumstances. It has a majority of native plant species in a forest that receives between 70 and 85 inches of rain per year and our survey followed a relatively normal, wet winter. Factors including precipitation levels, humidity, moisture from fog, a mature forest canopy, well drained soils, and a water table that may range from 60-80 inches below the surface (NRCS 2023) appears to allow for a rich diversity of plant species with varying water regime needs. There was not any evidence that this site had been drained in the past or manipulated to keep water in or out of the area.

Based on our observations, data collection, and current regulatory guidelines none of the landscape in the survey area meets any state or federal programs or jurisdictions for aquatic resources including wetland habitat.

References

- Allchin, C. Hohman & Associates Forestry Consultants. *Botanical Survey Report – Bachelor Road Timber Harvest Plan*. Hydesville, CA. May 16, 2023. DRAFT.
- Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.). 2012. *The Jepson Manual: Vascular Plants of California*. Second edition. Berkeley, CA: University of California Press.
- Calflora. 2023. *Information on wild California plants*. Available online at <http://www.calflora.org>.
- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service. FWS/OBS-79/31.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. (Technical Report Y-87-1.) Vicksburg, MS: U.S. Army Waterways Experiment Station.
- Natural Resources Conservation Service. 2023. Soil Survey Staff, United States Department of Agriculture. Web Soil Survey (SSURGO). Available online at <https://websoilsurvey.nrcs.usda.gov/>.

- Macbeth G. 2000 (revised). *Munsell Soil Color Chart*. New Windsor, New York.
- Mitsch, W. J., and Gosselink, J. G. 2000. *Wetlands*. Third edition. New York: John Wiley & Sons, Inc.
- Oregon State University College of Forestry 2023. Wood Innovation Center. Available online at <https://owic.oregonstate.edu/red-alder-alnus-rubra>.
- U.S. Army Corps of Engineers. 2020. *The National Wetland Plant List version 3.5*. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. Available: <http://wetland-plants.usace.army.mil/>
- U.S. Army Corps of Engineers. 2016. *Jurisdictional Determinations*. Regulatory Guidance Letter No. 16-01. October 31. Available: http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl_16-01.pdf?ver=2016-11-01-093306-010.
- U.S. Army Corps of Engineers, San Francisco District. 2016. *Information Requested for Verification of Corps Jurisdiction*. Last revised: April 2016. Available: <http://www.spn.usace.army.mil/Portals/68/docs/regulatory/2%20-%20Info%20Req.pdf>.
- U.S. Army Corps of Engineers, South Pacific Division. 2016. Updated Map and Drawing Standards for the South Pacific Division Regulatory Program. February 10. Available: <http://www.spd.usace.army.mil/Missions/Regulatory/PublicNoticesandReferences/tabid/10390/Article/651327/updated-map-and-drawing-standards.aspx>.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coastal Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers. 2005. *Ordinary High Water Mark Identification*. Regulatory Guidance Letter No. 05-05. December 7. (Letter 05-05.)
- U.S. Fish and Wildlife Service. 2023. National Wetlands Inventory. On-line resources. Available: www.wetlands.fws.gov.
- U.S. Geological Survey. 2023. Hydrologic Unit Map. Water Resources of the United States. Available: <https://water.usgs.gov/GIS/regions.html>
- Western Regional Climate Center. 2023. Western U.S. Climate Historical Summaries. Climatological Data Summaries: Period of Record Monthly Climate Summary. Available: <https://wrcc.dri.edu>.
- Wilson, B. L., R. E. Brainerd, D.L. Lytjen, B. Newhouse, and N. Otting (of the Carex Working Group). 2014. *Field Guide to the Sedges of the Pacific Northwest*. Second edition. Corvallis, OR: Oregon State University Press.

Appendix A: Aquatic Resources Delineation Drawing and Figure 1. Project Location




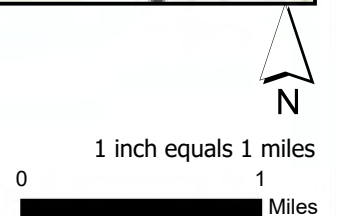
 Survey Area (7.5 ac.)

Figure 1. Project Location
 Bachelor Road Timber Harvest Plan
 Crescent City 7.5' USGS Quad
 Portion of Section 22, T17N, R1W, HB&M
 Latitude 41°50'49"N, Longitude 124°9'57"W





Study Area (7.5 ac.)

Data Point

Soils

185 Timmons and Lepoil soils, 0 to 2 percent slopes

Appendix A. Bachelor Road THP Delineation Drawing

No aquatic resources present within the project area.

Crescent City 7.5' USGS Quad

Portion of Section 22, T17N, R1W, HB&M

Elevation data derived from 3DEP

Imagery From Maxar 2022

Site visit 23 May, 2023 by Jonathan Foster

Latitude 41°50'49"N, Longitude 124°9'57"W

1 inch equals 150 feet

0 150

US Feet



Appendix B: Routine Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Bachet Road THP City/County: Del Norte Sampling Date: 5/23/23
 Applicant/Owner: Richard Anderson State: CA Sampling Point: 1
 Investigator(s): Foster / Allchin Section, Township, Range: S22, T17N, R1W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1
 Subregion (LRR): A Lat: 41°50'49.70"W Long: 124°09'57.25"W Datum: WGS
 Soil Map Unit Name: Timmons & Lepail 0-2 % slopes (185) NWI classification: —
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Upland point in lowland area dominated by red alder</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10 ft.²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. <u>Alnus rubra</u>	<u>75</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Frangula purshiana</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	
4. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	
<u>80</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10 ft.²</u>)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. <u>Frangula purshiana</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Sambucus racemosa</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. <u>R. spectabilis</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>R. parviflorus</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
5. <u>R. urticifolius</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
<u>75</u> = Total Cover				
Herb Stratum (Plot size: <u>10 ft.²</u>)				
1. <u>A. pilosa - femina</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
2. <u>Physicium minutum</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. <u>Claytonia sibirica</u>	<u><1</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
4. <u>Stachys rigida</u>	<u><1</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
<u>25</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>—</u>)				
1. <u>—</u>				
2. <u>—</u>				
<u>25%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>25%</u>				

Remarks:

Much like the entire site, there is a vast mixture of veg types, typical for coastal forest.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-18	7.5 YR 4/3	100	NONE			loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

matches description of soil series

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except
 MLRA 1, 2, 4A, and 4B)

- ☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2,
 4A, and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____Water Table Present? Yes _____ No ☒ Depth (inches): _____Saturation Present? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Bachelor Rd THP City/County: Del Norte Sampling Date: 5/23/23
Applicant/Owner: Richard Andersson State: CA Sampling Point: 2
Investigator(s): Foster/Allchin Section, Township, Range: S22, T17N, R1W
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): A Lat: 41°50'46.56"N Long: 124°09'56.20"W Datum: NAD83
Soil Map Unit Name: Timons & Lepoil 0-2% slopes (105) NWI classification: —
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks:

Upland point w/ slough sedge (OBL) population - mixed veg.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10ft ²)		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1.	<i>Sequoia sempervirens</i>	50	(Y)	UPL	Number of Dominant Species That Are OBL, FACW, or FAC:	1 (A)
2.	<i>Alnus rubra</i>	5	N	FAC	Total Number of Dominant Species Across All Strata:	4 (B)
3.	<i>Picea sitchensis</i>	>1	N	FAC	Percent of Dominant Species That Are OBL, FACW, or FAC:	25% (A/B)
4.	<i>Fraxinus purshiana</i>	>1	N	FAC		
		55	= Total Cover			
Sapling/Shrub Stratum (Plot size: 10ft ²)					Prevalence Index worksheet:	
1.	<i>Rubus spectabilis</i>	15	(Y)	FAC	Total % Cover of:	Multiply by:
2.	<i>Sambucus racemosa</i>	5	N	FACW	OBL species	5 x 1 = 5
3.	<i>Vaccinium parvifolium</i>	5	N	FACW	FACW species	0 x 2 = 0
4.	<i>Vaccinium ovatum</i>	5	N	FACW	FAC species	20 x 3 = 60
5.	<i>Rubus ursinus</i>	>1	N	FACW	FAC species	90 x 4 = 360
		30	= Total Cover		UPL species	50 x 5 = 250
					Column Totals:	165 (A) 675 (B)
Herb Stratum (Plot size: 10ft ²)					Prevalence Index = B/A = 4.09	
1.	<i>Polystichum munitum</i>	15	(Y)	FACW	Hydrophytic Vegetation Indicators:	
2.	<i>Anthoxanthum odoratum</i>	>1	N	FACW	1 - Rapid Test for Hydrophytic Vegetation	
3.	<i>Oxalis oregana</i>	60	(Y)	FACW	2 - Dominance Test is >50%	
4.	<i>Carex obnupta</i>	5	N	OBL	3 - Prevalence Index is ≤3.0 ¹	
5.					4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
6.					5 - Wetland Non-Vascular Plants ¹	
7.					Problematic Hydrophytic Vegetation ¹ (Explain)	
8.					Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
9.						
10.						
11.						
		80	= Total Cover			
Woody Vine Stratum (Plot size:)					Hydrophytic Vegetation Present?	
1.					Yes No	
2.						
			= Total Cover			
% Bare Ground in Herb Stratum		≤5%				

Remarks:

Remarks: 12 clumps of rough sedge - Rhizomatous Plant ~ 5-10 plants / clump - healthy pops

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-10	7.5 YR4/3	100	NONE				loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) (except MLRA 1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

Matched soil series description

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Tilled Soils (C6)
☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____Water Table Present? Yes _____ No ☒ Depth (inches): _____Saturation Present? (includes capillary fringe) Yes _____ No ☒ Depth (inches): _____Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Bachelor Rd. City/County: Dal Norte Sampling Date: 5/23/25
 Applicant/Owner: R. Anderson State: CA Sampling Point: 3
 Investigator(s): Foster/Allchin Section, Township, Range: S 22, T 17 N, R 1 W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1
 Subregion (LRR): A Lat: 41°50'51.86"N Long: 124°09'54.30"W Datum: WGS
 Soil Map Unit Name: Timmons & Lepoil 185 NWI classification: -

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Edge of historic & proposed access rd. - upland point w/ mix veg</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10 ft²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
1. <u>Fraxinus purshiana</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
2. <u>Alnus rubra</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Sequoia sempervirens</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
4. <u>Picea sitchensis</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
<u>35</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10 ft²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>15</u> x 5 = <u>75</u> Column Totals: <u>155</u> (A) <u>575</u> (B) Prevalence Index = B/A = <u>3.7</u>
1. <u>Rubus ursinus</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Sambucus racemosa</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
3. <u></u>	<u></u>	<u></u>	<u></u>	
4. <u></u>	<u></u>	<u></u>	<u></u>	
5. <u></u>	<u></u>	<u></u>	<u></u>	
<u>30</u> = Total Cover				
Herb Stratum (Plot size: <u>10 ft²</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0' 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Arthaxanthum peltatum</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Holcus latifolius</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Banuculus repens</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4. <u>Stachys rigida</u>	<u><1</u>	<u>N</u>	<u>FACW</u>	
5. <u>Polystichum munitum</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
6. <u>Athyrium filix-femina</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
7. <u></u>	<u></u>	<u></u>	<u></u>	
8. <u></u>	<u></u>	<u></u>	<u></u>	
9. <u></u>	<u></u>	<u></u>	<u></u>	
10. <u></u>	<u></u>	<u></u>	<u></u>	
11. <u></u>	<u></u>	<u></u>	<u></u>	
<u>90</u> = Total Cover				
Woody Vine Stratum (Plot size: <u></u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. <u></u>	<u></u>	<u></u>	<u></u>	
2. <u></u>	<u></u>	<u></u>	<u></u>	
<u><5</u> = Total Cover				
% Bare Ground in Herb Stratum <u><5</u>				

Remarks:
Mixed veg, old road may hold water for a day after heavy rain, but still very well-drained soils

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ☒

Remarks:

matches soil series

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, |
| <input type="checkbox"/> High Water Table (A2) | MLRA 1, 2, 4A, and 4B) | 4A, and 4B) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Frost-Heave Hummocks (D7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | | |

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): 12

Saturation Present? Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C. Plants Species in the Bachelor Road THP Survey Area

Observations from Caitlyn Allchin, Hoham & Associates (April 2022, June 2022, and May 2023 site visits)

OBL – Obligate Wetland; FACW – Facultative Wetland; FAC- Facultative; FACU – Facultative Upland; UPL – Upland

Trees		
<i>Alnus rubra</i>	Red alder	FAC
<i>Frangula purshiana</i>	Cascara sagrada	FAC
<i>Picea sitchensis</i>	Sitka spruce	FAC
<i>Sequoia sempervirens</i>	Coast redwood	UPL
<i>Thuja plicata</i>	Western red cedar	FAC
<i>Tsuga heterophylla</i>	Western hemlock	FACU
Shrubs		
<i>Cotoneaster pannosus</i>	Woolly cotoneaster	UPL
<i>Gaultheria shallon</i>	Salal	FACU
<i>Hedera helix</i>	English ivy	FACU
<i>Ilex aquifolium</i>	Holly	FACU
<i>Lonicera involucrata</i>	Coast twinberry	FAC
<i>Oemleria cerasiformis</i>	Oso berry	FACU
<i>Ribes laxiflorum</i>	Trailing black currant	FACU
<i>Rubus leucodermis</i>	White bark raspberry	FACU
<i>Rubus parviflorus</i>	Thimbleberry	FACU
<i>Rubus spectabilis</i>	Salmon berry	FAC
<i>Rubus ursinus</i>	California blackberry	FACU
<i>Sambucus racemosa</i>	Red elderberry	FACU
<i>Vaccinium ovatum</i>	Evergreen huckleberry	FACU
<i>Vaccinium parvifolium</i>	Red huckleberry	FACU

Herbaceous		
<i>Aira caryophyllea</i>	Silvery hairgrass	FACU
<i>Anthoxanthum odoratum</i>	Sweet vernal grass	FACU
<i>Aphanes occidentalis</i>	Ladie's mantle	UPL
<i>Athyrium filix-femina</i>	Common ladyfern	UPL
<i>Bellis perennis</i>	English lawn daisy	UPL
<i>Calypso bulbosa</i>	Fairy slipper	FACU
<i>Cardamine oligosperma</i>	Idaho bittercress	FAC
<i>Carex hendersonii</i>	Henderson's sedge	FAC
<i>Carex obnupta</i>	Slough sedge	OBL
<i>Cerastium glomeratum</i>	Large mouse ears	FACU
<i>Cirsium vulgare</i>	Bullthistle	FACU
<i>Claytonia sibirica</i>	Candy flower	FAC
<i>Dactylis glomerata</i>	Orchardgrass	FACU
<i>Digitalis purpurea</i>	Foxglove	FACU
<i>Dryopteris arguta</i>	Wood fern	UPL
<i>Dryopteris expansa</i>	Spreading wood fern	FACW
<i>Epilobium ciliatum</i>	Slender willow herb	FACW
<i>Euphorbia peplus</i>	Petty spurge	UPL
<i>Festuca perennis</i>	Italian rye grass	UPL
<i>Galium triflorum</i>	Sweet bedstraw	FACU
<i>Gamochaeta ustulata</i>	Featherweed	UPL
<i>Geranium dissectum</i>	Wild geranium	UPL
<i>Holcus lanatus</i>	Common velvetgrass	FAC
<i>Hypochaeris glabra</i>	Smooth cats ear	UPL
<i>Hypochaeris radicata</i>	Hairy cats ear	UPL
<i>Iris douglasiana</i>	Douglas iris	UPL

<i>Juncus bufonius</i>	Common toad rush	FACW
<i>Juncus planifolius</i>	Flat-leaved rush	FACW
<i>Lamium purpureum</i>	Purple dead nettle	UPL
<i>Lapsana communis</i>	Common nipplewort	FACU
<i>Leucanthemum vulgare</i>	Oxe eye daisy	FACU
<i>Luzula comosa</i>	Hairy wood rush	FAC
<i>Luzula parviflora</i>	Small-flowered wood rush	FAC
<i>Lysimachia arvensis</i>	Scarlet pimpernel	FAC
<i>Maianthemum dilatatum</i>	Pacific may lily	FAC
<i>Oxalis oregana</i>	Redwood sorrel	FACU
<i>Plantago lanceolata</i>	Ribwort	FACU
<i>Plantago major</i>	Common plantain	FAC
<i>Polypodium glycyrrhiza</i>	Licorice fern	UPL
<i>Polystichum munitum</i>	Western sword fern	FACU
<i>Prosartes smithii</i>	Largeflower fairybells	UPL
<i>Ranunculus repens</i>	Creeping buttercup	FAC
<i>Raphanus sativus</i>	Jointed charlock	UPL
<i>Rumex crispus</i>	Curly dock	FAC
<i>Senecio jacobaea</i>	Tansy ragwort	UPL
<i>Sonchus asper</i>	Spiny sowthistle	FACU
<i>Sonchus oleraceus</i>	Sow thistle	UPL
<i>Stachys rigida</i>	Rough hedgenettle	FACW
<i>Stellaria media</i>	Chickweed	FACU
<i>Struthiopteris spicant</i>	Deer fern	UPL
<i>Taraxacum officinale</i>	Red seeded dandelion	FACU
<i>Trifolium repens</i>	White clover	FAC
<i>Trillium ovatum</i>	Western wakerobin	FACU
<i>Vicia sativa</i>	Spring vetch	UPL

Appendix D: Representative Survey Area Photographs

Photo 1. Bachelor Road THP survey area overview.



Photo 2. Data Point 1 (DP-1) upland area, well-drained, loam soils typical throughout the site.



Photo 3. Data Point 2 (DP-2) upland point with mixed herbaceous and woody plant understory dominants.



Photo 4. Edge of survey area and recent timber harvest on adjacent property.



Photo 5. Data Point 3 (DP-3) upland area along proposed and historic access road.



Photo 6. Proposed and historic access road (where vehicle is parked) at the end of Bachelor Road.



Photo 7. Proposed and historic access road at the Bachelor Road THP.



Photo 8. Survey area overview.



Photo 9. End of Bachelor Road and beginning of proposed access road.



Photo 10. Proposed and historic access road at Bachelor Road THP.



Photo 11. Survey area overview.



Photo 12. One of the four areas where Slough sedge (*Carex obnupta* – OBL) is located (DP-2) with dominant understory of redwood sorrel (*Oxalis oregana* – FACU).



LEE TROMBLE ENGINEERING
240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

December 6, 2022

Richard Anderson
210 Douglas Park Drive
Crescent City, CA 95531

re: On-Site Sewage Disposal Evaluation
APN 105-191-008

Dear Mr. Anderson:

This is to report on my on-site sewage disposal evaluation of Assessor Parcel 105-191-008, Del Norte County. It is my understanding that you propose to subdivide this property into four (4) parcels and a Remainder Parcel. It is intended that each of those parcels will be used for a single family residence. It is further my understanding that the water supply will be from private wells.

This evaluation report assumes that for each proposed parcel the estimated on-site waste water discharge will be 450 gallons per day which is typical design criteria for a three (3) bedroom residence.

The portion of the property now proposed as Parcel 2, as shown on the attached map, was previously evaluated and approved for on-site sewage disposal. As a result, no further evaluation of Parcel 2 was necessary.

The evaluation consisted of a site inspection, the examination of eight (8) backhoe excavated exploratory pits, (2 pits per proposed parcel), the collection and testing for textural qualities of representative soil samples, and the review of data and reports for nearby properties which I have previously evaluated. Attached for your information is an evaluation summary, location map, exploratory logs, and the laboratory results of the soil samples.

The textural analysis of the soil samples (which are representative of all parcels) indicate soil percolation qualities suitable for on-site disposal of septic tank quality effluent. The qualities of the soils are such that field percolation tests were not necessary. In the absence of the percolation tests, I recommend the EPA long term loading rate of 0.7 gallons per day per square foot for the design of the disposal fields.

Ground water, or evidence thereof, was not encountered in any of the excavations to depth of 8.5 feet. Soil on the site had in excess of 15% silt and clay which requires a 5 foot separation between the bottom of the leaching trenches and the "highest anticipated ground water". As a result, I recommend that your leaching trenches be no more than 3.5 feet in total depth.

Based on my field work and data analysis, it is my opinion that all the proposed parcels as shown on the attached map are suitable for a conventional on-site sewage disposal system (septic tank/leach field system) within specified limitations and subject to system specifications.

For all proposed parcels with a three (3) bedroom residence, it is my recommendation that a 1200 gallon septic tank conforming to the requirements of the Uniform Plumbing Code be used. It is further my recommendation that for all proposed parcels the disposal field consist of 140 lineal feet of leaching trench as shown on the attached sketch. In each case the leach field can be installed in the general area of the respective test pits. Because site conditions are uniform, utilization of other areas on the parcels for on-site sewage disposal is possible, but must be reviewed and approved by the engineer.

As stated above, it is my opinion that all proposed parcels are suitable for a conventional on-site sewage disposal system (septic tank/leach field system) within some specified limitations and subject to certain system specifications. If a change in conditions occurs such as a change in the size of the project, change in the location of the disposal field, change in the disposal system specifications, a substantial physical change to the property or other similar change, it will be necessary to review this report and the data herein in the context of those changes. This could require additional field and laboratory work to confirm site suitability and/or to modify the specifications for the on-site sewage disposal system.

If you need any additional information on this matter or if we can be of further assistance please feel free to call.

Very truly yours,

Lee Tromble



LEE TROMBLE ENGINEERING240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

SITE EVALUATION SUMMARY

OWNER: RICHARD ANDERSON DATE: 12/6/22
ADDRESS: 210 DOUGLAS PARK DRIVE
CRESCENT CITY, CA 95531 APN 105-191-008
LOCATION: END OF BACHELOR ROAD - SOUTH SIDE

LOT SIZE: 0.28 AC WATER SYSTEM: PRIVATE WELLGROUND SLOPE: SLIGHT - SOUTH PTN OF REMAINDER NOT INCLUDED

SETBACKS	SEPTIC TANK	LEACH FIELD
Well	<u>100'</u>	<u>100'</u>
Stream	<u>100'</u>	<u>100'</u>
Drainage Channel	<u>50'</u>	<u>50'</u>
Ocean, Lake, etc.	<u>100'</u>	<u>100'</u>
Bluff or Cutbank	<u>25'</u>	<u>25'</u>

EXCAVATION PRIMARY AREA: HOLES 1-1, 1-2; 3-1, 3-2; 4-1, 4-2; 5-1, 5-2EXCAVATION REPLACEMENT AREA: " " " " " " " " " "OTHER EXCAVATIONS: PRIOR EVAL - LOT 2 AS SHOWNDEPTH TO HARDPAN, BEDROCK, ETC.: NONE TO 8.5'DEPTH TO GROUNDWATER: NONE TO 8.5'DEPTH TO MOTTILING: NONE TO 8.5'OTHER FACTORS: SEE ATTACHEDSOILS ANALYSIS ZONE: 2 PERCOLATION RATE: -DEPTH OF SOIL UNDER LEACH
FIELD REQUIRED: 3' ACTUAL: >3'REPLACEMENT AREA AVAILABLE: YESADEQUATE: YES

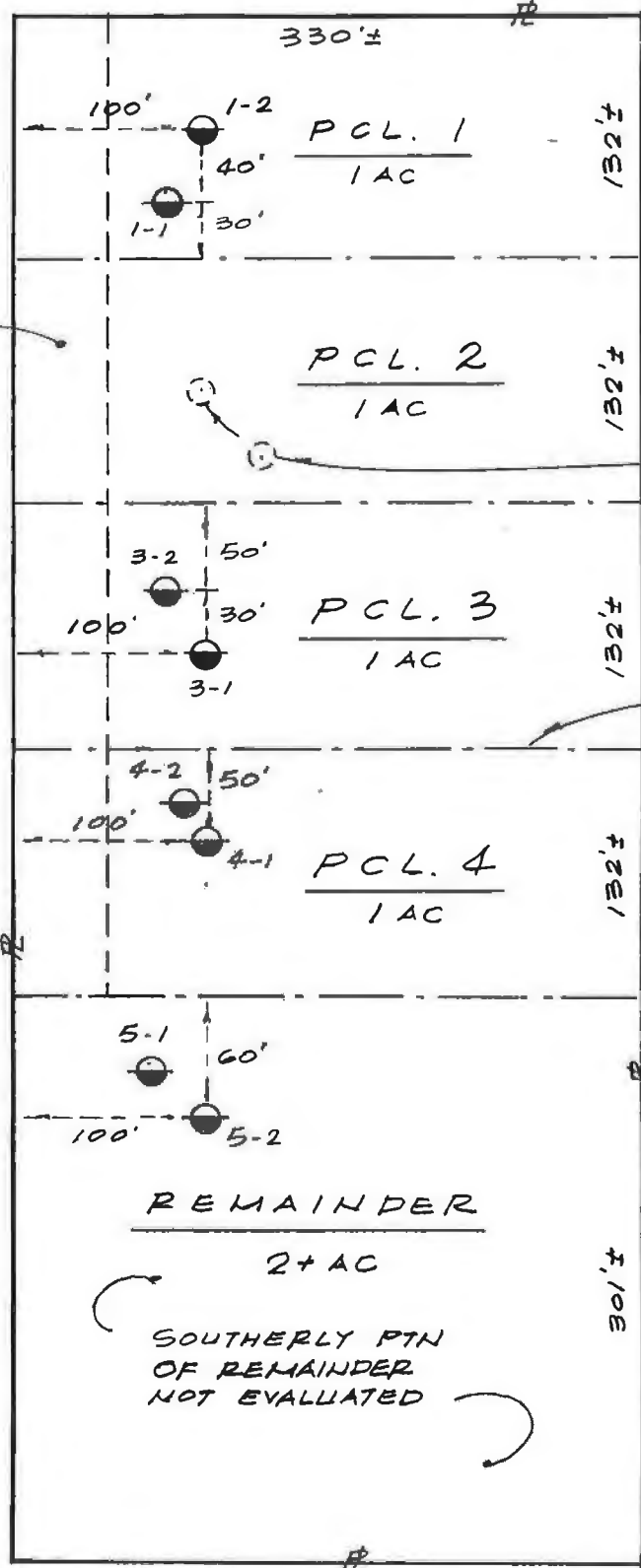
BACHELOR ROAD R/W



NORTH

1" = 100'

50' ROAD &
UTIL EASE-
MENT



● BACKHOE EXCAVATED
EXPLORATORY TEST
HOLE - DIMENSIONS
TO TEST HOLES ARE
APPROX.

TEST HOLES FROM
3/26/90 EVALUATION

• ALL EVALUATED AREAS
ARE NEAR LEVEL
TO GENTLY SLOPING

PROPOSED DIVISION
LINE

LOCATION

MAP

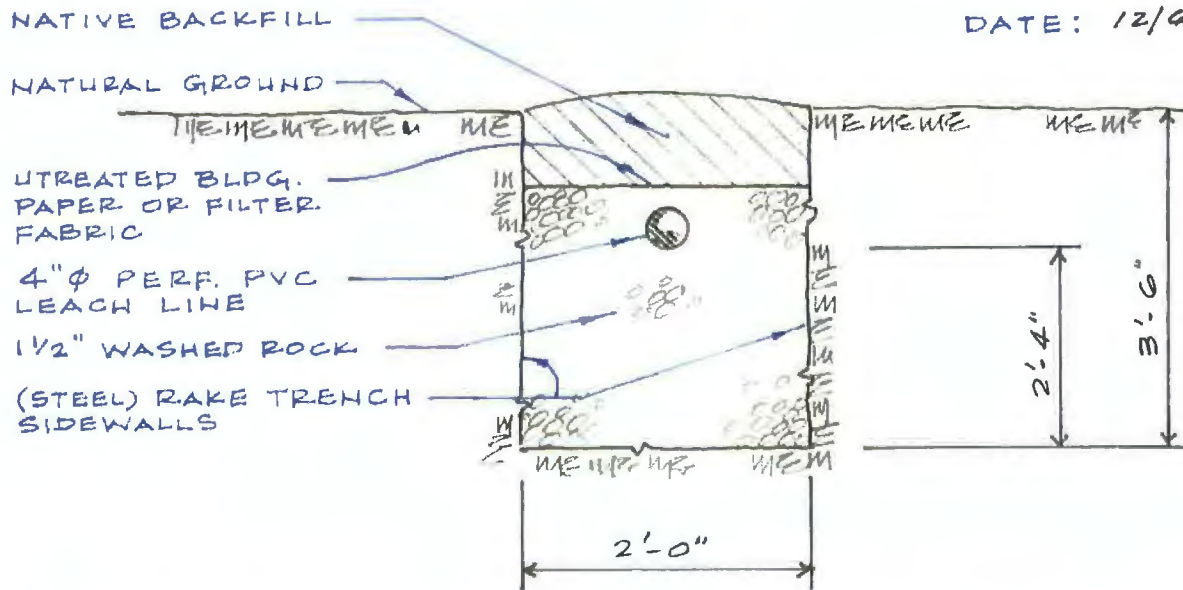
APN 105-191

-008

PARCELS 1, 2, 3, 4 & REMAINDER

APN: 105-191-008

DATE: 12/6/22



SECTION - DISPOSAL TRENCH

NO SCALE

FLOW: (3) BEDROOM HOME, 150 GPD/BDRM

$$Q = 3(150) = 450 \text{ GPD}$$

LOADING RATE:

$$\text{USE } 0.7 \text{ GPD/FT}^2$$

ABSORPTION AREA:

$$AA = \frac{450}{0.7} = 643 \text{ FT}^2$$

TRENCH:

$$L = \frac{643}{2.33(2)} = \underline{140 \text{ LIN. FT}}$$

2 x 70
OR
3 x 47

NOTES:

1. USE (2) - 70' LONG TRENCHES, 10' CENTER TO CENTER.
2. USE DISTRIBUTION BOX FOR EQUAL FLOW DISTRIBUTION BETWEEN TRENCHES.
3. TRENCHES SHALL PARALLEL NATURAL GROUND CONTOURS.

LEE TROMBLE ENGINEERING

240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

EXPLORATION LOG

OWNER RICHARD ANDERSON APN 105-191-008
ADDRESS 210 DOUGLAS PARK DRIVE DATE 11/17/22
CRESCENT CITY, CA 95531 LOG BY LT
JOB NO. 22069 HOLE NO. 1-1
REMARKS BACKHOE

DEPTH (FT.)	DESCRIPTION / REMARKS	COLOR	MOIST.	SAMPLE
0	LOAM TOPSOIL, FRIABLE	MED DK BRN.	DRY	NO
1	1.3'			
2	SANDY CLAY LOAM, BLOCKY FRIABLE	LIGHT REDDISH OR BRN	DAMP	NO
3	2.8'			
4	SANDY LOAM			
5	FRIABLE, BLOCKY TO GRANULAR W/ DEPTH	BRN	DAMP	NO, SIM TO
6	INCR SAND W/ DEPTH	TO		(3) & (4)
7	SOME CEMENTED CLOBS W/ DEPTH BELOW 6'±	TO LIGHT YR		
8				
9	NO EVIDENCE OF GROUND WATER TO 8.5'±			
10	(BOTTOM OF HOLE - TYP.)			

LEE TROMBLE ENGINEERING240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

EXPLORATION LOG

OWNER RICHARD ANDERSONAPN 105-191-008ADDRESS 210 DOUGLAS PARK DRIVEDATE 11/17/22CRESCENT CITY, CA 95531LOG BY LTJOB NO. 22069HOLE NO. 1-2REMARKS BACKHOE

DEPTH (FT.)	DESCRIPTION / REMARKS	COLOR	MOIST.	SAMPLE
0	///		///	
1	LOAM TOPSOIL, FRIABLE ROOTS TO 1.3'	MED DK BRN.	DRY	NO
2	SANDY CLAY LOAM, BLOCKY, FRIABLE	LIGHTER BRN	DAMP	NO
3				
4	SANDY LOAM FRIABLE, BLOCKY TO GRANULAR W/ DEPTH	BRIGHT YELLOW BRN TO LIGHT YB	DAMP	NO, SIM. TO ③ & ④
5	INCR SAND W/ DEPTH			
6				
7	SOME CEMENTED CLUMPS W/ DEPTH BELOW 6.5'			
8				
9	WATER NO EVIDENCE OF GROUND WATER TO 8.5'			
10				

LEE TROMBLE ENGINEERING

240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

EXPLORATION LOG

OWNER RICHARD ANDERSON

APN 105-191-008

ADDRESS 210 DOUGLAS PARK DRIVE

DATE 11/17/22

CRESCENT CITY, CA 95531

LOG BY LT

JOB NO. 22069

HOLE NO. 3-1

REMARKS BACKHOE

DEPTH (FT.)	DESCRIPTION / REMARKS	COLOR	MOIST.	SAMPLE
0	LOAM TOPSOIL, FRIABLE	MED DK BRN.	DRY	NO
1	BLOCKY MASSIVE ROOTS TO 18" SCATTERED BELOW	W/ RED OR TINT W/ DEPTH		
2	2.1' SANDY CLAY LOAM / SANDY LOAM			
3	BLOCKY, FRIABLE TRANSITION TO	DULL DK YEL. OR BRN		
4	SANDY LOAM FRIABLE, BLOCKY TO	TO LIGHTER	DAMP	YES (3)
5	GRANULAR W/ DEPTH INCR SAND W/ DEPTH	YEL BAN		
6	MORE GRANULAR W/ SOME CEMENTED CLODS W/ DEPTH			
7				
8				
9	NO EVIDENCE OF GROUND WATER TO 8.5' + (BOTTOM OF HOLE)			
10				

LEE TROMBLE ENGINEERING
240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

EXPLORATION LOG

OWNER RICHARD ANDERSON APN 105-191-008
ADDRESS 210 DOUGLAS PARK DRIVE DATE 11/17/22
CRESCENT CITY, CA 95531 LOG BY LT
JOB NO. 22069 HOLE NO. 3-2
REMARKS BACKHOE

DEPTH (FT.)	DESCRIPTION / REMARKS	COLOR	MOIST.	SAMPLE
0	///		///	
1	LOAM TOPSOIL, FRIABLE BLOCKY MASSIVE ROOTS TO 18"± SCATTERED BELOW	MED DK BRN. w/ RED OR TINT w/ DEPTH	DRY	NO
2	2.2'			
3	SANDY CLAY LOAM / SANDY LOAM BLOCKY, FRIABLE TRANSITION TO	DULL DK YEL. OR BRN		
4	SANDY LOAM			
5	FRIABLE, BLOCKY TO GRANULAR w/ DEPTH INCR SAND w/ DEPTH	TO LIGHTER YEL BAN	DAMP	NO, SIMILAR TO (3)
6	MORE GRANULAR w/ SOME CEMENTED CLODS w/ DEPTH			
7				
8				
9	MEASUREMENT NO EVIDENCE OF GROUND WATER TO 8.5'±			
10				

LEE TROMBLE ENGINEERING240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

EXPLORATION LOG

OWNER RICHARD ANDERSONAPN 105-191-008ADDRESS 210 DOUGLAS PARK DRIVEDATE 11/17/22CRESCENT CITY, CA 95531LOG BY LTJOB NO. 22069HOLE NO. 4-1REMARKS BACKHOE

DEPTH (FT.)	DESCRIPTION / REMARKS	COLOR	MOIST.	SAMPLE
0	LOAM TOPSOIL, FRIABLE	MED DK BRN.	DRY	No
1	TO			
2	SANDY CLAY LOAM BLOCKY, FRIABLE	PULL LIGHT BRN	DAMP	No
3	2.5'			
4	SANDY LOAM	PULL YELLOW BRN	DAMP	YES
5	FRIABLE, BLOCKY TO GRANULAR W/ DEPTH INCR SAND W/ DEPTH	LIGHTER W/ DEPTH		(4)
6	SOME CEMENTED CLOBS BELOW 6' ±			
7				
8				
9	NO EVIDENCE OF GROUND WATER TO 8.5' ±			
10				

LEE TROMBLE ENGINEERING
240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

EXPLORATION LOG

OWNER RICHARD ANDERSON APN 105-191-008
ADDRESS 210 DOUGLAS PARK DRIVE DATE 11/17/22
CRESCENT CITY, CA 95531 LOG BY LT
JOB NO. 22069 HOLE NO. 4-2
REMARKS BACKHOE

DEPTH (FT.)	DESCRIPTION / REMARKS	COLOR	MOIST.	SAMPLE
0	LOAM TOPSOIL, FRIABLE	MED DK BRN	DRY	NO
1	TO			
2	SANDY CLAY LOAM BLOCKY, FRIABLE	DULL LIGHT BRN	DAMP	NO
2.7'	ROOTS TO 2'±			
3				
4	SANDY LOAM			
5	FRIABLE, BLOCKY TO GRANULAR W/ DEPTH	DULL YELLOW BRN	DAMP	NO, SIM TO
6	INCR SAND W/ DEPTH	LIGHTER W/ DEPTH		(4)
7	SOME CEMENTED CLOBS BELOW 6'±			
8				
9	NO EVIDENCE OF GROUND WATER TO 8.5'±			
10				

LEE TROMBLE ENGINEERING
240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

EXPLORATION LOG

OWNER RICHARD ANDERSON
ADDRESS 210 DOUGLAS PARK DRIVE
CRESCENT CITY, CA 95531
JOB NO. 22069
REMARKS BACKHOE

APN 105-191-008
DATE 11/17/22
LOG BY LT
HOLE NO. 5-1

DEPTH (FT.)	DESCRIPTION / REMARKS	COLOR	MOIST.	SAMPLE
0	/// // //		///	
1	LOAM TOPSOIL, FRIABLE ROOTS	MED DK BRN.	DRY	NO
2	SANDY CLAY LOAM, BLOCKY FRIABLE ROOTS	REDISH OR BRN	DAMP	NO
3	2.5'			
4	SANDY LOAM FRIABLE, BLOCKY TO GRANULAR W/ DEPTH	LIGHT YELLOW BRN	DAMP	NO, LIKE
5	INCR SAND W/ DEPTH			(4)
6				
7	SOME CEMENTED CLODS W/ DEPTH - GRANULAR			
8				
9	NO EVIDENCE OF GROUND WATER TO 8.5' +			
10				

LEE TROMBLE ENGINEERING

240 Douglas Park Drive
Crescent City, CA 95531

Phone (707) 464-1293

EXPLORATION LOG

OWNER RICHARD ANDERSON

APN 105-191-008

ADDRESS 210 DOUGLAS PARK DRIVE

DATE 11/17/22

CRESCENT CITY, CA 95531

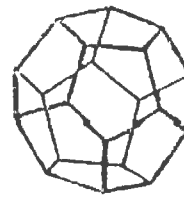
LOG BY LT

JOB NO. 22069

HOLE NO. 5-2

REMARKS BACKHOE

DEPTH (FT.)	DESCRIPTION / REMARKS	COLOR	MOIST.	SAMPLE
0	///		///	
1	LOAM TOPSOIL, FRIABLE ROOTS	MED DK. BRN.	DRY	No
2	1.3' SANDY CLAY LOAM, BLOCKY FRIABLE ROOTS	REDISH OR BRN	DAMP	No
3	2.5'			
4	SANDY LOAM FRIABLE, BLOCKY TO GRANULAR W/ DEPTH	LIGHT YELLOW BRN	DAMP	No, LIKE
5	INCR SAND W/ DEPTH			(4)
6				
7	SOME CEMENTED CLODS W/ DEPTH - GRANULAR			
8				
9	MEAS NO EVIDENCE OF GROUND WATER TO 8.5'+			
10				



NORTH COAST
LABORATORIES LTD.

Date: 12/01/2022

Report to: Lee Tromble
240 Douglas Park Dr.
Crescent City, CA, 95531

Attn: Lee Tromble

NCL#: 2211331-01A

AP#: NA **Hole#:** NA **Depth:** N/A
Project Name/Number: 22069
Date Received: 11/18/2022

Sample Description: 22069-3
Sampled by: Lee Tromble
Date Sampled: 11/18/2022

SOIL EXAMINATION FOR SOIL PERCOLATION SUITABILITY

Textural Analysis	61 %	Sand
(2 sig. figs.)	23 %	Clay
	16 %	Silt
	0 %	Coarse Fragments by Volume
Bulk density N/Q* g/cc		Zone Classification: 2

Comments:

Zone 1 - Soils in this zone are very high in sand content. They readily accept effluent, but because of their low silt and clay content they provide minimal filtration. These soils demand greater separation distances from ground water.

Zone 2 - Soils in this zone provide adequate percolation rates and filtration to effluent. They are suitable for use of a conventional system without further testing.

Zone 3 - Soils in this zone are expected to provide filtration of effluent, but their ability to accept effluent at a suitable rate is questionable. These soils require wet-weather percolation tests to verify their suitability for effluent disposal by conventional leach field methods.

Zone 4 - Soils in this zone are unsuitable for a conventional leach field because of their severe limitations for accepting effluent.

*The bulk densities of the samples were not quantifiable (NQ) due to lack of naturally occurring soil clods.

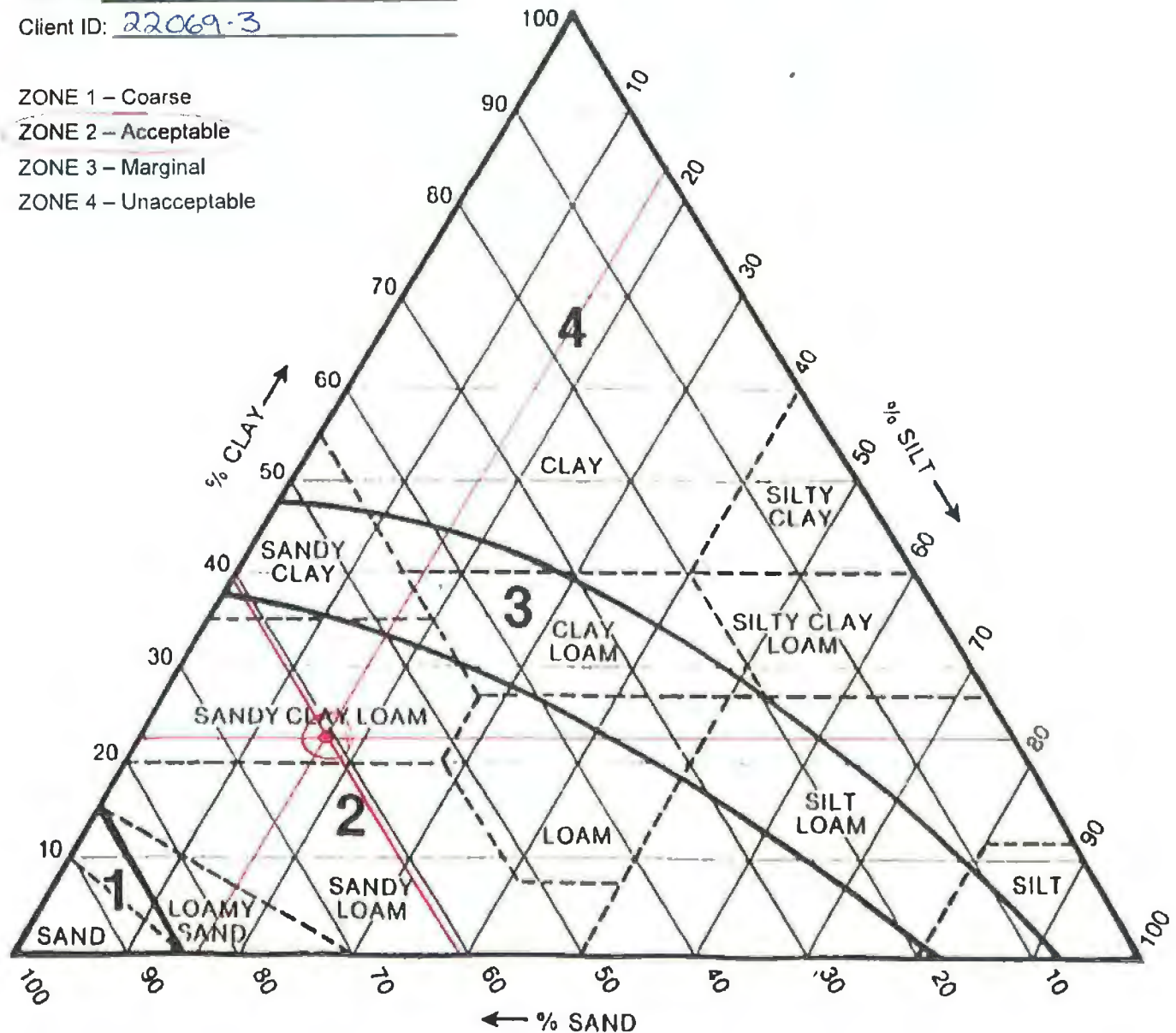
NCL ID: 2211331-01AClient ID: 22069-3

ZONE 1 – Coarse

ZONE 2 – Acceptable

ZONE 3 – Marginal

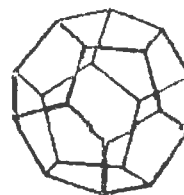
ZONE 4 – Unacceptable



1. Plot texture on triangle based on percent sand, silt, and clay as determined by hydrometer analysis.
2. Adjust for coarse fragments by moving the plotted point in the sand direction an additional 2 % for each 10 % (by volume) of fragments greater than 2 mm in diameter.
3. Adjust for compactness of soil by moving the plotted point in the clay direction an additional 15 % for soils having a bulk density greater than 1.7 g/cc.
4. For soils falling in sand, loamy sand, or sandy loam classification bulk density analysis will generally not affect suitability and analysis will not be necessary.

Results

61 % SAND 23 % CLAY 16 % SILT 0 % Coarse Fragments Bulk Density: N/A g/cc



NORTH COAST
LABORATORIES LTD.

Date: 12/01/2022

Report to: Lee Tromble
240 Douglas Park Dr.
Crescent City, CA, 95531

Attn: Lee Tromble

NCL#: 2211331-02A

AP#: NA **Hole#:** NA **Depth:** N/A
Project Name/Number: 22069
Date Received: 11/18/2022

Sample Description: 22069-4
Sampled by: Lee Tromble
Date Sampled: 11/18/2022

SOIL EXAMINATION FOR SOIL PERCOLATION SUITABILITY

Textural Analysis	64 %	Sand
(2 sig. figs.)	20 %	Clay
	16 %	Silt
	0 %	Coarse Fragments by Volume
Bulk density N/Q* g/cc		Zone Classification: 2

Comments:

Zone 1 - Soils in this zone are very high in sand content. They readily accept effluent, but because of their low silt and clay content they provide minimal filtration. These soils demand greater separation distances from ground water.

Zone 2 - Soils in this zone provide adequate percolation rates and filtration to effluent. They are suitable for use of a conventional system without further testing.

Zone 3 - Soils in this zone are expected to provide filtration of effluent, but their ability to accept effluent at a suitable rate is questionable. These soils require wet-weather percolation tests to verify their suitability for effluent disposal by conventional leach field methods.

Zone 4 - Soils in this zone are unsuitable for a conventional leach field because of their severe limitations for accepting effluent.

*The bulk densities of the samples were not quantifiable (NQ) due to lack of naturally occurring soil clods.

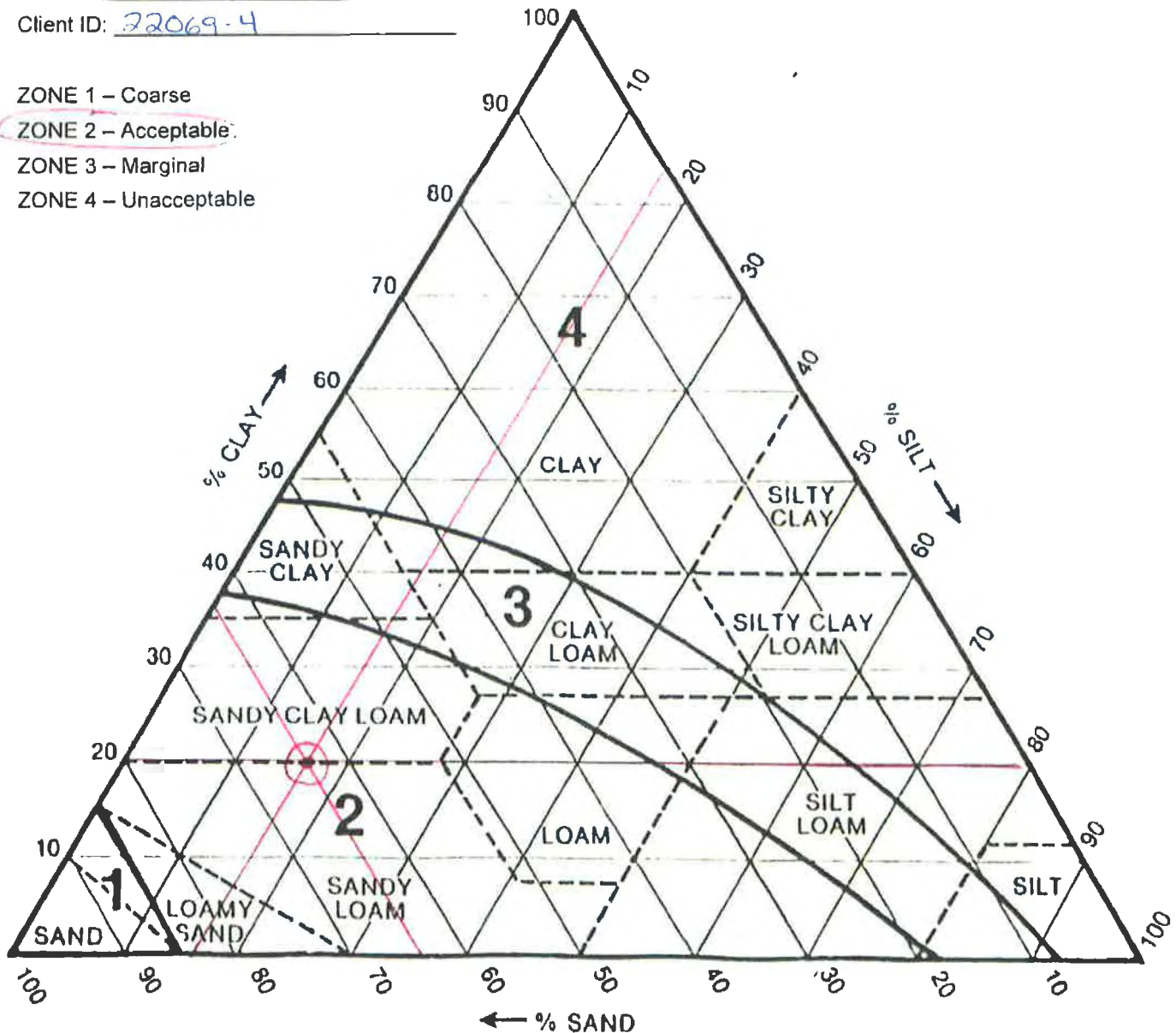
NCL ID 2211331-02AClient ID: 22069-4

ZONE 1 – Coarse

ZONE 2 – Acceptable

ZONE 3 – Marginal

ZONE 4 – Unacceptable



1. Plot texture on triangle based on percent sand, silt, and clay as determined by hydrometer analysis.
2. Adjust for coarse fragments by moving the plotted point in the sand direction an additional 2 % for each 10 % (by volume) of fragments greater than 2 mm in diameter.
3. Adjust for compactness of soil by moving the plotted point in the clay direction an additional 15 % for soils having a bulk density greater than 1.7 g/cc.
4. For soils falling in sand, loamy sand, or sandy loam classification bulk density analysis will generally not affect suitability and analysis will not be necessary.

Results

64 % SAND 20 % CLAY 16 % SILT 0 % Coarse Fragments Bulk Density: N/A g/cc



P.O. Box 733, Hydesville, CA 95547 . (707) 768-3743 . (707) 768-3747 fax

ESHA – Development Criteria

Re: Proposal for reduction in protected habitat for *Ribes laxiflorum*
(CRPR 4.3) for APN: 105-191-008-000

June 20, 2023

1) Biological Significance of adjacent lands. There are no significant functional relationships beyond the property, aside from the current habitat that the *Ribes laxiflorum* occurrences have been documented within. According to several horticultural resources, *Ribes laxiflorum* can occur in a variety of habitat types, including shaded habitats and sunny roadside conditions. The current protective measures of a 35' buffer incorporates additional adjacent habitat that abuts the property boundary. Therefore, the modified 35' buffer provides adequate protection. Furthermore, *Ribes laxiflorum* is not considered locally rare. *Ribes laxiflorum* is a rank 4.3, meaning the plant is limited in distribution in its range, and that it should be monitored. However, it is not rare, threatened, or endangered, in California or elsewhere. The plant's primary range in CA is the coastal northern counties, including Del Norte and Humboldt. Numerous occurrences of *Ribes laxiflorum* have been documented in Humboldt and Del Norte County according to CalFlora.org. Combined with observations from other databases including iNaturalist and Green Diamond Resource Company, there are well over 100 occurrences along the North coast. The presence of numerous (4) occurrences of this plant throughout this parcel gives good indication that the distribution of this species is even more widespread in this area than indicated in regional and state mapping tools. This implies that the defined functional relationships exist in a variety of habitat types surrounding the parcel, including roadside conditions that will persist after timber harvest and development.

2) Sensitivity of species to disturbance. Since *Ribes laxiflorum* is able to thrive in conditions ranging from shady, partial shade, to full sun, it can succeed in a variety of habitats. *Ribes laxiflorum* is likely to flourish in sunny conditions and does not need the forest overstory for viability. A setback reduced to 35' will be sufficient to protect this plant from disturbance. Several sources indicate that *Ribes laxiflorum* can be successful in disrupted habitats, including roadside habitats that are frequently impacted by human activity. *Ribes laxiflorum* is therefore not under threat of significant disturbance with a 35' protective buffer, given its impact tolerance.

3) Susceptibility of parcel to erosion. This parcel is flat and well drained. Both the Aquatic Resources Delineation Report (Foster) and the On-site Sewage Disposal Evaluation (Tromble) for APN 105-191-008 agree that the water table is low here and suggest outstanding percolation based on soil horizon composition. Because of this, hydrologic erosion is unlikely. Other types of erosion are also not likely due

to a flat parcel with no alteration in topography. A reduced buffer for *Ribes laxiflorum* will not be negatively impacted by erosion events.

4) Use of natural topographic features to locate development. The parcel is flat and there is minimal topographic variation present. Although no topographic features exist to help segregate development from occurrences of *Ribes laxiflorum*, the residential parcels are large enough to site development at least 35' away from each occurrence. A 35' buffer is sufficient to protect the *Ribes laxiflorum* from high intensity development like clear cut timber harvest and roadbuilding and therefore, by maintaining that buffer and placing physical barriers around the plant occurrences (like split rail fencing), detections will be adequately protected through the eventual residential development phase (which is arguably less intense).

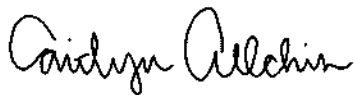
5) Use of existing cultural features to locate buffer zones. There are no existing cultural features present on the project parcel, such as roads and dikes, that could be used to buffer the habitat of the *Ribes laxiflorum* occurrences on the parcel. The parcel contains no features that could provide a natural buffer to the *Ribes laxiflorum* habitat. The installation of protective barriers, including rebar, can provide an alternative to cultural resources that are lacking on the property and adequately delineate and protect the *Ribes laxiflorum* detections.

6) Lot configuration and location of existing development. The proposed lots are rectangular in shape, running lengthwise east/west. Due to the shape of the lots, the buffer for each occurrence of *Ribes laxiflorum* allows development to be sited away from occurrences of the plant. The planting of native vegetation may be employed for additional protection for the *Ribes laxiflorum* detections on the parcel.

7) Type and scale of development proposed. This is a minor subdivision, local coastal program amendment, and zone reclassification of a rural residential agriculture zoned lot. The lot is theoretically already large enough to subdivide into two lots. The applicant is looking at matching zoning and land use densities to the immediate east of the parcel where one acre lots are currently developed with residences. This is not a large-scale development and would only place up to three additional homes from what the parcel's current zoning and land use allow for.

Sincerely,

Caitlyn Allchin

A handwritten signature in black ink that reads "Caitlyn Allchin". The signature is written in a cursive, flowing style.

Botanist

Hohman & Associates