Humboldt County Resource Conservation District

5630 South Broadway Eureka, CA 95503
(707) 442-6058 Ext. 5 | info@hcrcd.org

ADDENDUM #1

RELEASE DATE: May 19, 2026

PROJECT TITLE: Humboldt Redwoods State Park Salmon-Canoe Unit Forest Health – Mechanical and Manual Services

The purpose of this Addendum is to modify the Contract Documents for the subject project.

This Addendum shall become part of said Contract Documents.

Each bidder shall acknowledge receipt of this addendum in his/her bid proposal.

THE FOLLOWING ITEMS REFER TO THE REQUEST FOR PROPOSALS:

Item 1. REVISION: Change to Project Area on page 2 of the Request for Proposals dated April 27, 2026 with the following:

The project area consists of 243 acres of second growth timber, grassland, oak woodland and thick regrowth within the 2003 Canoe fire footprint, on a prominent ridgeline that borders the Salmon Creek and Canoe Creek watersheds. All work will occur on Humboldt Redwood State Park land~~; access is through adjacent Private Land~~. **There are two ways to access the project site, one through Private Land and one through California State Parks Land via Perimeter Road.** The project area cannot be accessed from public roads, and HCRCD will not coordinate access to the site outside of the mandatory pre-proposal meeting on May 8, 2026; therefore, interested respondents are required to attend the pre-proposal meeting in order to view the project site and access constraints. Project area maps and site characterization photos can be found in Attachment A.

Item 2. REVISION: Change of Funding Details on page 4 of the Request for Proposals dated April 27, 2026 with the following:

Funding for this project is provided by the California Department of Forestry and Fire Protection's Forest Health Grant Programs and other funding sources as determined by the HCRCD. Up to **$900,000** is available to complete this project.

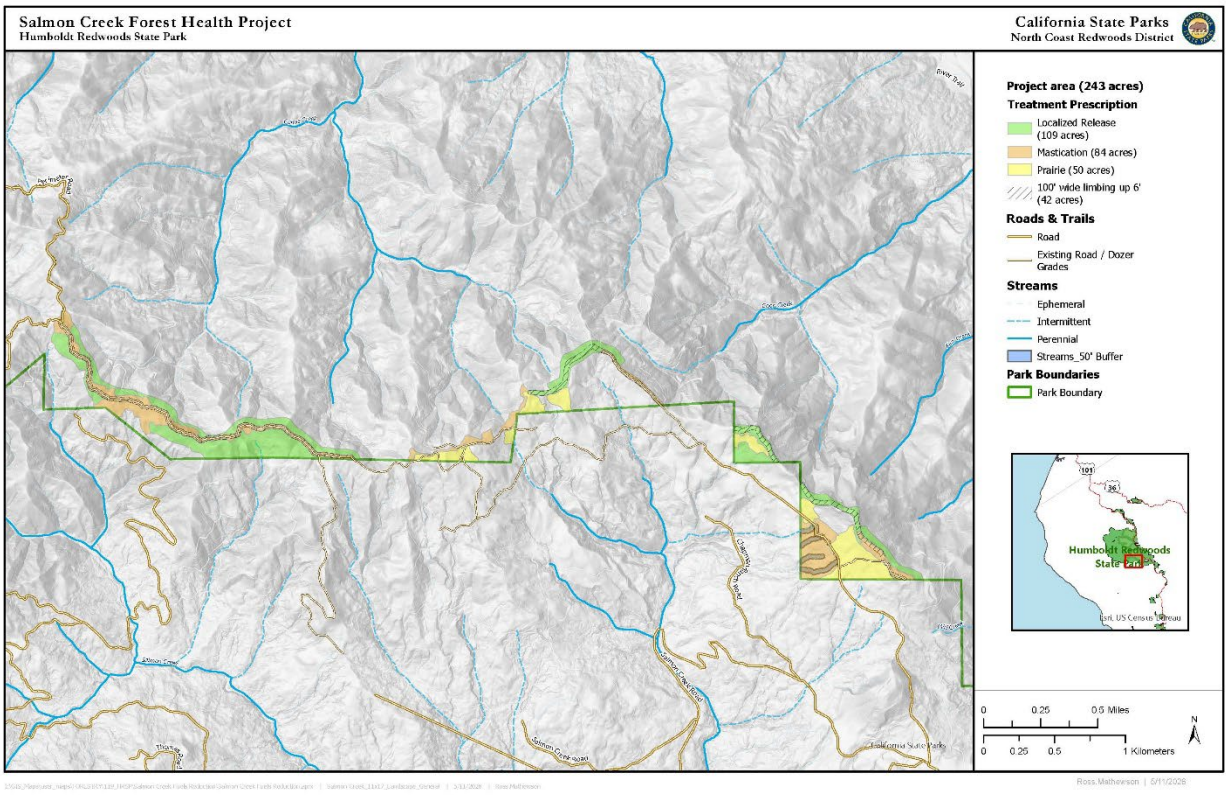
HCRCD expects approximate rates such as the following per treatment type:

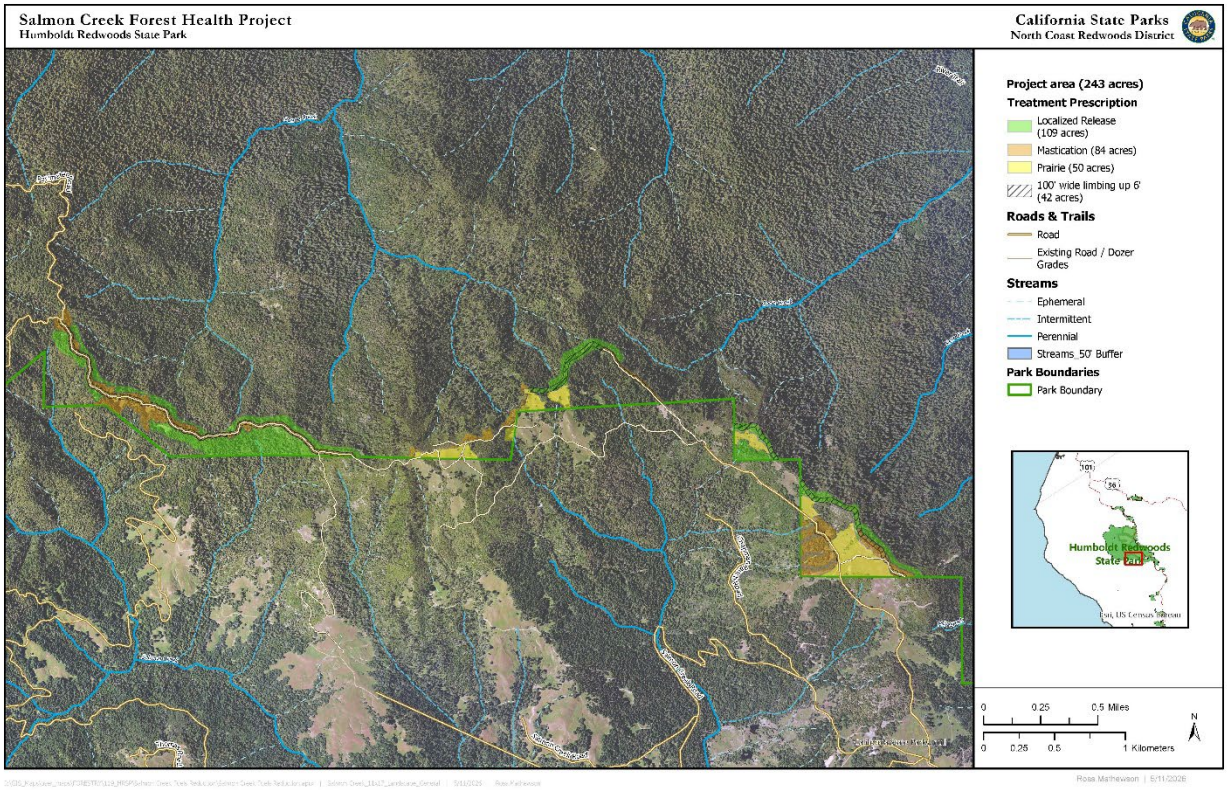
Localized released: $5,000/acre

Prairie restoration: $2,000/acre

Mechanical work: $3,500/acre

Item 3: REVISON: Change to Attachment A: Project Area Map with the following:





THE FOLLOWING ITEM REFERS TO ATTACHMENT B:

Item 4. REVISION: Change to Attachment B: Prescription to the Request for Proposals dated April 27, 2026. Page numbers below refer to the updated Attachment B included in this Addendum.

Attachment B – Pages 3 - 4: Revision of requirement to install water bars and/or pushouts language; drainage structure installation only required if road or structures are damaged during work period.

Attachment B – Page 4: Addition of Fire Danger Language for safety equipment requirements and weather conditions necessitating temporary work shutdowns.

Attachment B – Page 4: Addition of Redwood trees to 1st Priority Leave Trees.

Attachment B – Page 5: Addition of Wood Rat Nest Avoidance Measures.

THE FOLLOWING ITEMS HAVE BEEN PROVIDED FOR INFORMATIONAL PURPOSES:

Item 4. INFORMATIONAL: Bidders' Questions and HCRCD Responses.

1. *Question: Is there a need for drone work for this project – to document the changes from the air before, during, and/or after the project?*
   Response: No, drone work is not allowed in this project.

2. *Question: Will the work be subject to prevailing wage?*
   Response: Please see page 2 of Request For Proposals.

3. *Question: What are the operating hours of work?*
   Response: Crews may operate during daylight hours Monday – Friday. Heavy Equipment with adequate lighting may start operations no earlier than 5am with CA State Parks or HCRCD prior approval. Contractor may request alternative or additional work hours, which would be subject to District review and approval.

4. *Question: Can a Contractor bid the project with a sub-contractor who didn't attend the bid walk?*
   Response: Sub-contractors did not have to attend the bid walk. The primary contractor must have attended.

5. *Question: Is there a known and approved place where water trucks can be refilled?*
   Response: No water access is included in this project. Please draft water from other sources.

6. *Question: Will a georeferenced map of the project area be provided?*
   Response: Yes, operational georeferenced maps will be provided to the Contractor.

Item 5. INFORMATIONAL: The mandatory pre-bid meeting sign-in sheet has been attached.

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Humboldt Redwoods State Park Salmon-Canoe Unit Forest Health – Mechanical and Manual Services
Mandatory Pre-proposal Meeting
May 8, 2026
9:00 a.m.

Name	Company	Email & Phone Number
Tyler Lewis	Lewis Land Development Inc.	707-223-3937 lewislanddevelopment@gmail.com
Aaron Etherton	Etherton Land Management	707-601-9179 etherton landmanagement llc@gmail.com
Dustin Brantley	coleman environmental	(530) 693-0477 DustinBrantley@colemanenv.com
Adam Jorgensen	Jorgensen Logging	530 784 7601 Jorgensenlogging@yahoo.com
William Etter	William J Etter	707 499-8603 bill.etter@yahoo.com
RAY WILCOX	G.R Wilcox Enterprises inc	GRWilcox186@gmail.com
ZAC CURTIS	PACIFIC COAST CONTRACTING INC	541 941 3165 PCCONTRACTING@YAHOO.COM
Josh Black	Tree Tactics	Treetactics@yahoo.com 707-616-2929
Karl Benemann	Karl Benemann Contracting	lostcoastmadman@gmail.com - 707 x707 672 3050 499
Matt Magers	Martin MS Inc	wesleyamon@martinms.com 6252
Jonathan Lehman 707-496-9607	Lost Coast Tree & Habitat	lostcoasttreeandhabitat@gmail.co
Garrett Gradin	Gradin Land Management	garrettgradin@gmail.com (707) 223-4595

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Name	Company	Email & Phone Number
Joe Snipes	Forestscapes	Joescgd3@gmail.com 707 382 8762
Joseph Sandoval/Chris Henry	Mattole Restoration Council	Joseph@mattole.org 707.629.3514
Luis Juarez	US Constructshinn	westonshinn@yahoo.com (707)499-6425
Noah Sears	I Noah Guy	Inoahguyexcavation@gmail.com 707 496-0689
Lucas Vogt	Pacific Earthscape	lucas@pacificearthscape.com 707-498-715
Stefano Cipollone	burnbot	Stefano@burnbot.com
Patrick Queen	Patrick Queen Const.	Pqueen construction@gmail.com
BRETT VAN METER	VAN METER LOGGING INC.	707-223-0311 BRETT@VANMETERCONSTRUCTIONCO.COM
Ryan Young	Young General Engineering	ryoung@youngge.com 707.599.9921
Hugh McGee	Native Ecosystems Inc	hugh@nat-eco.net 707-599-7814

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May 8, 2026
9:00 a.m.

Name	Company	Email & Phone Number
Logan Edwards	Edwards Excavation and Rigging	Edwards Excavation@Hotmail.com 707-496-3353
Willie Grover	Elk Ridge Tree Service elkridgescafe@gmail.com	elkridgescafe@gmail.com 707-223-1910
Scott Rosenthal	Rosenthal Fire Mitigation	Redwoodmerc@Gmail.com
Sheldon Smith	Corner Bit excavation	Sheldon@cornerbitexcavation.com 707-354-0120
Gene Wixson	Gene Wixson Ent. Inc.	gwwixson@yahoo.com 707 354 0282

Salmon Creek Forest Health Project Prescription

Humboldt Redwoods State Park

Project Description

The salmon creek forest health project is located along the southern border of Humboldt Redwoods State Park. The project area consists of 243 acres of second growth timber, grassland, oak woodland and thick regrowth within the 2003 Canoe fire footprint. The treatments will consist of mechanical fuels reduction and lop and scatter manual thinning. The treatments will reduce potential wildfire severity by reducing live fuel loading, vegetation continuity and ladder fuels. Treatments will benefit forest health and resilience by increasing spacing of remaining trees and promoting vegetation heterogeneity. Prairies within the treatment area will be maintained and restored by cutting encroaching Douglas-fir trees.

Treatment Prescriptions

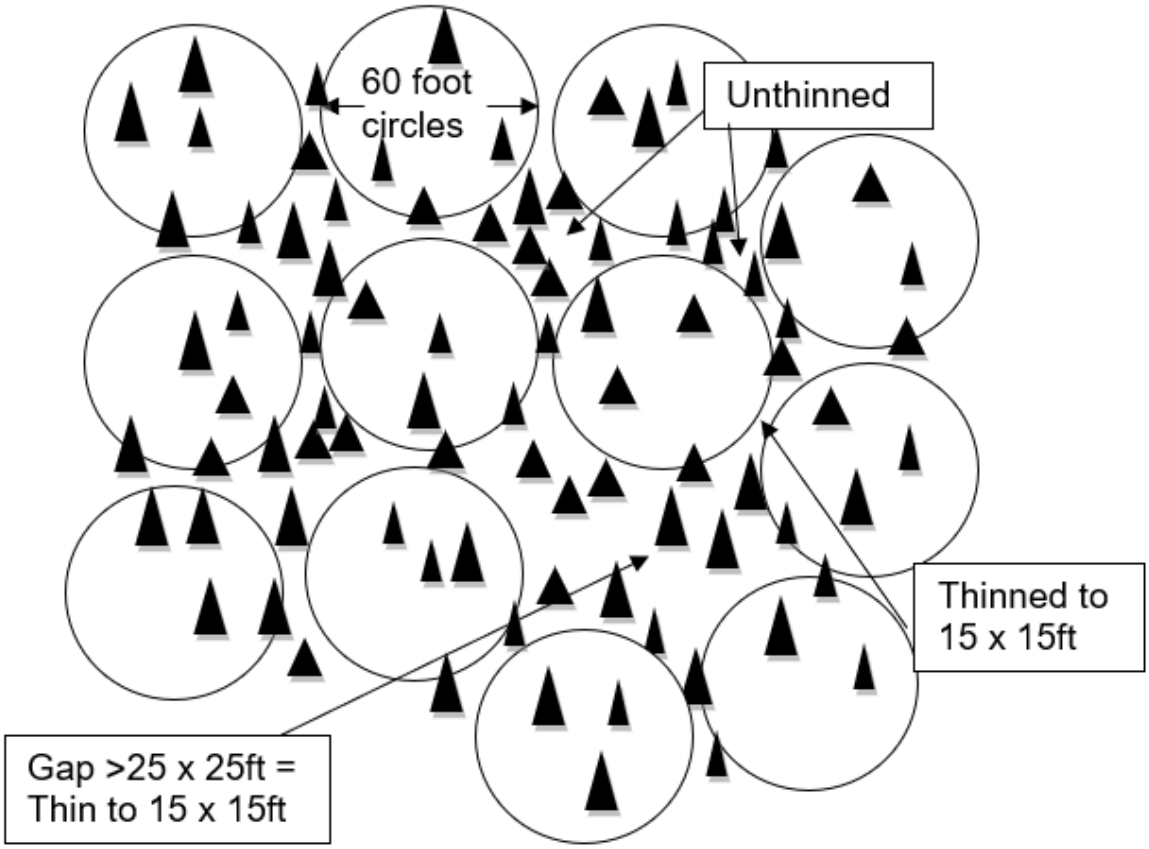
Localized Release Rx- ~ (109 acres) (L.R. Circles, see Figure 1)

Objective: Increase Forest heterogeneity. Increase resource availability for remaining trees by increasing tree spacing. Reduce live fuel continuity.

1. Thinning operations will consist of crew members cutting circles with a 30' radius
2. Choose a location 30 feet from the edge of the stand as the center of a circle.
3. Choose 3 trees within the circle for retention using the "priority of reserve trees" criteria outlined below, and cut down all other trees <12"dbh within the circle. The 3 trees can be anywhere within the circle.
    a. Trees <4" dbh count as a half tree (0.5 trees)
        - If circle only contains trees <4" dbh then leave 6 trees per circle
    b. Do not cut any trees over 12" dbh
        - There may be more than 3 leave trees per circle if there are more than 3 trees over 12" dbh trees within the circle
    c. Cut 80% of brush within circles, leaving 20% of existing brush cover, prioritizing cutting brush adjacent to leave trees.

4. Additional circles will be placed as close to other circles and/or the stand boundary as possible while still leaving a tree or row of trees between adjacent circles and roads.
5. The row of trees between 2 circles should be thinned to leave trees at 15 foot spacing.
6. Areas between more than 2 circles will not be thinned except if the area is greater than 25 x 25 feet then they will be thinned to 15 foot spacing +/-5 feet.
7. Half circles or larger can be placed at the edge of the stand where full circles will not fit, however a row of trees along the edge of the stand will remain.
8. Sawyers must be able to identify where the center of their circle is at all times, and may be asked to do so by a Park representative.
9. Slash depth will be lopped and scattered to less than 24" from ground level, unless along ridgeline or identified roads etc. (see prescriptions that apply to all #8)

Figure 1. Localized Release example where 3 trees are retained in 30 foot radius circles. Areas between 2 circles are thinned to 15 foot spacing and areas between more than 2 circles are unthinned, except if area is over 25 x 25 feet.



Prairie Rx- (50 acres)

Objective: Maintain Prairie habitat. Reduce the encroachment of woody vegetation into prairies.

1. Cut all Douglas-fir, tanoak and madrone trees in prairies and designated polygons <12" diameter. Larger trees may be cut at Park representative's discretion.
2. In areas next to forest edge lop and scatter slash to less than 12" under forested areas. If slash depths of 12" cannot be met due to large accumulations of cut material, make piles according to prescription below (3)
3. In areas away from forest edge, make piles <10'X10' with slash less than 4" diameter
    a. Keep piles out of dripline of remaining trees
    b. Place piles only on slopes less than 20%
    c. Lop and Scatter fuels if slopes are >20%
    d. Slash may need to be dragged to lower slope areas or areas with less fuel accumulation – maximum drag length will be less than 75' slope distance

<u>Mechanical Fuels Reduction</u> - (84 acres)

Use of Masticator on designated road grades and slopes less than 40%

Objectives: Reduce hazardous fuels along the ridgeline, roads, old road grades and gentle slope areas. Prepare the ridge to function as a control line for Rx fire and wildfire management.

1. Within the identified polygons cut or masticate trees less than 8" diameter to an average 20' +/- 5' spacing

    a. The +/- 5 foot spacing is to allow the contractor to select the most desirable tree using the "priority of reserve trees" criteria outlined below

    b. Gap openings up to 50X50 may be created on no more than 20% of unit areas to create heterogeneity of vegetation
        a. Gap opening edges must be at least 100' from other gap openings Maximum of one gap opening per acre unless otherwise agreed upon by parks representative.

    c. Approximately 20% of unit area shall be skipped due to machinery access issues (eg. Slopes >40%, drainages and to avoid large logs and other obstructions) or for heterogeneity
        a. Skip areas will generally be less than 50'X50', with exception of watercourse protection zones, and areas where slope exceeds 40%
            i. Skip areas may have irregular shapes
        b. Skip areas must be at least 100' apart from each other unless machine access is the issue or if approved by a Park representative.
    d. Push over or masticate snags <12" and masticate material <6" diameter
        a. Leave granary trees/ snags standing- Trees with holes drilled by woodpeckers for acorn storage

2. Slash must be within 12" of the ground
    a. Masticate or chip slash less than 6" diameter
    b. Chip depth shall not exceed 8" from ground level
    c. Chip depth shall not exceed 2" depth within 2' of remaining trees

3. Masticating on old roads, old road grades / skid trails and dozerline:

    a. Maintain existing drainage structures and road condition (outslope, drain swales, rolling dips, pushouts)
        i. Any damage to road and drainage structures must be fixed to preexisting condition before rains and before leaving general work area
    b. Push/ flatten berms created on roadway by operations to allow water to drain off road
    c. Cover identified old road grades, skid trails and dozerlines with slash from operations to dissipate water and prevent erosion. (<1' depth)

    d. Remove generated slash and chips from drivable roads designated by State Park Representative or HCRCD Representative
4. Equipment exclusion zones will be identified on maps provided by CSP and avoided by contractors
5. Fire tools required to be with masticator at all times:
    a. One serviceable 10lb UL listed B-C fire extinguisher with up to date tag
    b. Full and serviceable fire water backpack or water can with functional sprayer (at least 4 gallons)
    c. One round point shovel (at least 46" length)
6. On high fire danger days avoid Masticating during fire season after 2pm (see Protection Measure HAZ-10)
7. Masticator must have approved spark arrestor on exhaust system

Priority of Leave Trees

1. 1st priority: Leave all deciduous oaks and Redwood trees no matter the spacing
2. 2nd Priority leave largest live oak tree, Incense Cedar or Pine Tree
3. 3rd Priority leave largest Douglas fir tree
4. 4th priority: Leave a variety of species alternating by leaving the largest madrone and tanoak trees

Prescriptions that apply to all areas

(Above Prescriptions supersedes where standards are inconsistent)

1. Do not cut any deciduous oak trees and Redwood trees of any size or spacing
2. Cut all trees <12" DBH that are within the canopy dripline and within 10' the canopy of any size deciduous oaks or other hardwoods greater than 18" DBH.
3. Cut all snags less than 12" DBH within project areas where operationally safe and feasible
    a. Leave granary trees/ snags standing- Trees with holes drilled by woodpeckers for acorn storage
    b. In Mastication units push snags <12" over and masticate material <6" diameter
    c. Cut 4 snags per acre from 12"-18" DBH if safe and feasible
        a) Snags within this range may be left standing at State parks personnel discretion
4. Cut trees hung up from operations to contact the ground where safe and feasible
5. Within 50' from the centerline of drivable roads, skid trails and ridgelines:
    a. Cut limbs of Douglas fir, tanoak and madrone trees at least 6' from ground
    b. When limbing - leave at least 3/4th of live crown of all remaining trees intact
6. In any undesignated prairie opening area greater than 50'X50':
    a. Cut all Douglas-firs <12" dbh within 50' of grass edge
    b. Cut all Madrone and Tanoak trees <6" dbh within 50' of grass edge

7. Cut all brush that is in contact with residual trees and cut brush acting as ladder fuels to remaining trees
    a. Maintain 20% of area as brush and prioritize leaving uncommon brush species
8. Slash mitigation
    a) Slash along roads will be masticated or lopped and scattered to within 12" of ground level within 50' from centerline of roads and main ridge
    b) Cut and pull slash out of the dripline of deciduous oak trees and 10 feet from deciduous oak seedling and saplings (exceptions for mastication to avoid damaging the oak tree)
    c) Trees with DBH greater than 8" felled by operations must have the majority of the bole in contact with the ground.
        1. Do not buck up boles of trees into rounds
    d) When cutting trees into prairie openings pull slash <4"diameter into forested areas where feasible
9. Flush cut stumps
    a) No stumps or stobs will be left greater than 4" from the ground, measured from the uphill side
10. Keep vehicles and heavy equipment off slopes greater than 40%
11. Leave designated roads drivable at all times. Along roads, drivable skid trails and old road grades, leave a path 8' wide free of slash – unless directed by CSP staff otherwise
12. No heavy equipment will be used on or off seasonal roads during periods of wet weather according to wet weather operations guidelines
13. Do not cut, fall or drag trees on to Black and yellow striped or avoidance flagging
14. Avoid disturbing woodrats nests where operationally feasible
    a. Avoid felling trees on top of woodrats nests
    b. Avoid cutting vegetation within 5' of woodrats nests
15. Any damage made by contractor to project access roads and parks or private infrastructure will be repaired to preexisting condition by contractor

Additional Protection measures

(Above Prescription supersedes where standards are inconsistent)

Element/Title	Requirement
AIR-1	**Equipment maintenance.** All diesel- and gasoline-powered equipment engines will be maintained in good condition, in proper tune (according to manufacturer's specifications), and in compliance with all state and federal requirements.
AIR-2	**Watering to minimize fugitive dust.** Prior to use of roads and/or landings for hauling and yarding activities, sufficient water must be applied to the area to be disturbed to minimize fugitive dust emissions. Exposed areas will not be overwatered such that watering results in runoff. Water will not be sprayed on bridge running surfaces. Water sources and drafting specifications will be identified per permit requirements. Alternatively, unpaved areas subject to hauling and yarding activities could be stabilized through the effective application of gravel or treated with biodegradable dust suppressant. Any dust suppressant product used must be environmentally benign (i.e., non-toxic to plants and shall not negatively impact water quality) and its use shall not be prohibited by the California Air Resources Board, U.S. Environmental Protection Agency, or State Water Resources Control Board.
AIR-3	**Idling restrictions.** All motorized heavy equipment will be shut down when not in use. Idling of equipment and haul trucks will be limited to 5 minutes.
BIO-1	**Rare plants will be flagged by Park staff for avoidance by contractors.**
BIO-2	**Forest Thinning.** No trees over 30 inches DBH will be removed without approval from a Park representative.
BIO-3	**Timing restrictions and surveys for nesting migratory birds.** Any work performed between May 1 and July 31 must be approved at least one week in advance so that Park biologists may survey for breeding birds. If nests are detected, then no cut/no operations buffer zones will be flagged around the nests until the birds have fledged.
BIO-4	**Tree protection.** Equipment operators conducting work will be required to avoid striking residual old growth trees or trees identified by park staff.
BIO-5	**Wildlife tree retention.** All designated wildlife trees will be retained that are associated with forest thinning unless they pose a safety risk and cutting is approved by a Park representative. A wildlife tree will have one or more of the following characteristics: 1. Large lateral branches: greater than 5 inches in diameter 2. Cavities: wood voids with (estimated) small-to-medium interior dimensions and an entrance opening of at least 1.5 inches suitable for use by a variety of small mammal and bird species 3. Hollow: Wood voids with (estimated) large interior dimension and a large (6 inches or larger) entrance opening suitable for use by a variety of small mammal and bird species 4. Decay: Extensive decayed wood as evidence by large and/or extensive fungal fruiting bodies (conk), lichen, cavity entrances, and sloughing wood and/or bark 5. Broken top: Trees with a minimum diameter at the ordinal break of 12 inches or larger 6. Multiple tops: Trees with two or more leaders near the top of the tree that provide opportunities for resting, denning, or nesting

	7. Snag top: Trees where the top the tree is dead with the lowest portion of the dead top is at least 12 inches in diameter
CULT-1	**Suspend work for the inadvertent discovery of an archaeological resource.** In the unlikely event that previously undocumented archaeological resources, including but not limited to flaked stone artifacts (arrowheads or flakes), shellfish, bone, deposits of old bottles and cans, and wooden or rock structural debris, are encountered during project implementation, work in that location will be immediately suspended until an archaeologist meeting the Secretary of the Interior's standards has evaluated the find in consultation with the State Historic Preservation Office (SHPO) and appropriate Tribe.
CULT-2	**Stop work for inadvertent discovery of human remains.** For ground-disturbing activities, in the event that human remains or suspected human remains are discovered, work will cease immediately within 100 feet of the find (or as needed based on topography and access points to protect the find) and the project manager/site supervisor will notify the Project Archaeologist and the District Superintendent. The human remains and/or funerary objects will not be disturbed and will be protected by covering with soil or other appropriate methods. The District Superintendent (or authorized representative) will notify the County Coroner (in accordance with Section 7050.5 of the California Health and Safety Code) and Native American Heritage Commission (NAHC). The District Superintendent (or authorized representative) will also notify the local tribal representative. The County Coroner will determine whether the human bone is of Native American origin. If the Coroner determines the remains represent Native American interment, the Native American Heritage Commission will be consulted to identify the most likely descendant and appropriate disposition of the remains. Work will not resume in the area of the find until proper disposition is complete (PRC Section 5097.98). No human remains or funerary objects will be cleaned, photographed, analyzed, or removed from the place of discovery prior to determination and consultation with the most likely descendant. If it is determined that the find indicates a sacred or religious site, the site will be avoided to the maximum extent practicable. Formal consultation with the SHPO and review by the Native American Heritage Commission, as well as appropriate tribal representatives, will occur as necessary to define additional site mitigation or future restrictions.
GEO-1	**Unstable area buffer.** No trees will be cut within a 50-foot-wide buffer around unstable areas (areas that appear to have recent soil movement, as evidenced by characteristics such as conifers with excessive sweep, tilted stumps, scarps, cracks, hummocky or benched terrain, or slide debris) regardless of percent slope. Unstable areas also include inner gorges, convergent headwalls, or bedrock hollows with slopes greater than 35° (70%), the toes, hummocky areas, gully systems, and areas of deep-seated landslides with unstable characteristics described above, and the outside of river meander bends along valley walls or high terraces. Unstable areas will be marked by park staff with training and expertise in geologic and watershed processes. Landslides within a project area will be mapped by park staff; this will trigger evaluation and approval for use by an earth sciences/physical sciences professional if the feature is related to travel routes or operations. Heavy equipment and/or vehicles or one-end cable yarding will not be allowed to cross unstable areas (as defined above) without approval from an earth sciences/physical sciences professional.
GEO-2	**Slope limitations for traditional ground-based equipment.** Traditional ground-based equipment will be limited to slopes less than 22° (40%).

	Operations within the riparian management zone will be restricted as described in Table 1 below.
GEO-4	**Winterization requirements and timing restrictions on activities causing soil erosion.** Project work will typically be completed during the normal operating season between June 15 and October 15. If more than 0.5 inch of rain is forecast in the next 24 hours during the normal operating season, project operations will temporarily cease, and sites will be winterized. Within riparian management zones, areas with disturbed soils must be stabilized prior to the beginning of the winter period subject to extensions provided by dry weather, and/or prior to the sunset, if the National Weather Service forecast is a “chance” (30% or more) of rain within the next 24 hours, or at the conclusion of operations, whichever is sooner. Implementation activities may continue past the end of the normal operating season if the work can be completed within a window of dry weather as predicted by the National Oceanic and Atmospheric Administration’s Fall Transition Season Precipitation and Hydrology Decision Support Service notifications. Work sites, including roads and landings, will be winterized before the end of the normal operating season. Winterization includes: 1) grading exposed road and landing surfaces to allow water to freely drain across them without concentrating, ponding or rilling; 2) installing rolling dips/drains to drain steeper sections of road; 3) clearing clogged drainage ditches or culverts; 4) installing silt fences and other erosion control devices where necessary to convey concentrated water across exposed road and landing surfaces; 5) removing road-stream crossings that do not meet 100-year flood discharge standard for flow, sediment, and debris; and 6) mulching all exposed soil surfaces beyond road driving surface. Operations may be started prior to the normal operating season when the soil is dry throughout the entire top 8 inches of the soil profile, as evidenced by the field guide for soil moisture described in the *Wet Weather Operations Standards for Heavy Equipment Use and Log Hauling for Redwood National and State Parks* guidelines. Roads and landings used outside of the normal operating season or after significant rain events will be winterized. Prevention measures will occur before damage occurs, or the area will be avoided until it is sufficiently dry for use. All road use will comply with the Park Seasonal Road Use Policy (March 11, 2011, version or later), and *Wet Weather Operations Standards for Heavy Equipment Use and Log Hauling for Redwood National and State Parks* guidelines, which prohibit any road use that will cause rutting or other road deformation. Roads not currently listed as all season may be brought up to that standard if winter travel is necessary.
GEO-5	**Requirements for existing and used landings.** Existing landings that were constructed for commercial logging operations prior to park establishment will be used when practicable. Reopening old landings will include shrub and small tree removal, minimal grading, and stump removal. New landings (fewer than two per 50 acres) may need to be constructed for yarding equipment. New landings will be located outside of geologically unstable areas, and the grade will not exceed 15%. Individual landings will not be larger than 0.25 acre. New landings or equipment pull outs will not be placed within 100 feet of streams except where existing roads occur within this threshold distance and there is no other place to land logs. The total number of landings created within 100 feet of a stream will not cumulatively make up more than 35% of the total number of new landings needed in the project area. Existing roads and skid trails will be used to access the break-in-slope where cable yarders can set up. Landings will be kept to the minimum size needed to accomplish the job and existing road and skid trail surfaces will be used as much as practicable.

GEO-6	**Skid trail erosion control measures.** On skid trails with no measurable fill cross section, tire tracks, skidding ruts, and other depressions and surface irregularities will be removed and restored to a non-sediment delivery status. Erosion control measures such as outsloping (preferred) or water bars in conjunction with slash placement on skid trails and disturbed soils will be implemented where the potential exists for erosion and delivery of sediment to waterbodies, floodplains, and wetlands. Slash generated from forest restoration will be spread uniformly as mulch.
GEO-7	**Wet weather operations.** All roads and landings must be adequately rocked (with compacted Class 2 1.5-inch aggregate base) and winterized to be considered for use during wet weather. No ground-based yarding operations will occur during wet weather as defined in the *Wet Weather Operations Standards for Heavy Equipment Use and Log Hauling in* guidelines.
GEO-8	**Restrictions on new road and landing alignments.** All new road and/or landing alignments and subsequent construction will be supervised by an earth sciences/physical sciences professional. Grades will generally not exceed 15% or exceed 10% for more than 500 continuous feet. No roads will be constructed on slopes over 50%. Riparian Management Zones will be avoided whenever possible. Exceptions to these standards will only occur if stated by a Forester and agreed to by the Natural Resources Program Supervisor and/or their designated specialist staff.
HAZ-1	**Equipment storage, servicing, and fueling limitations.** All equipment will be stored, serviced, and fueled at least 150 feet from any stream channel and 50 feet outside of riparian areas and away from unstable slopes. Fuel tankers will be stored outside of riparian areas. When long stretches of road are entirely within riparian areas, smaller refueling devices (under 200 gallons) may be used to refuel large equipment. In such cases, drip pads/pans or other protective devices may be placed under the fueling area.
HAZ-2	**Spill prevention, monitoring, and response requirements.** All equipment, including hand tools, heavy equipment, and cable yarding equipment, will be checked daily for leaks and equipment with leaks will not be used until leaks are repaired. State Parks staff will ensure a spill kit is always maintained on site. Additionally, contractors will equip each piece of heavy equipment with a spill response kit. Should leaks develop in the field, they will be repaired immediately, or work with that equipment will be suspended until repairs are made. In the event of any spill or release of any chemical in any physical form on or immediately adjacent to the project sites or within the project area during operations, the contractor will immediately notify the appropriate State Parks staff (e.g., the project inspector). All contaminated water, sludge, spill residue, or other hazardous compounds will be contained and disposed of outside the boundaries of the project area at a lawfully permitted or authorized destination.
HAZ-3	**Equipment requirements for spark arrestors and fire extinguishers.** All equipment will be required to include spark arrestors or turbo chargers that eliminate sparks in exhaust and to have fire extinguishers on site. One shovel or one serviceable fire extinguisher will be in the immediate vicinity of all persons operating chain saws or heavy equipment during the dry season. All heavy equipment will be required to carry a 10-pound fire extinguisher with a valid inspection tag and one shovel or fire hand tool for fire suppression
HAZ-4	**Vehicle parking restrictions.** Crews will park vehicles a minimum of 10 feet from flammable material such as dry grass or brush.
HAZ-5	**Radio dispatch requirements in case of fire.** State Parks personnel will have a State Parks radio at the park unit which allows direct contact with a centralized

	dispatch center to facilitate the rapid dispatch of control crews and equipment in case of a fire.
HAZ-6	**Road access requirements.** All project roads with active operations must be made passable as soon as reasonable and practicable for emergency vehicles and Park staff.
HAZ-7	**Fire hazard reduction requirements.** All felled trees will be brought to the ground and will not be left suspended or hanging in crowns of other trees. Slash created by trees knocked down by operations will be lopped and scattered to not exceed 24” of ground.
HAZ-8	**Roadside Fire hazard reduction requirements.** Slash created by trees knocked down by operations will be lopped and scattered within 100 feet of the edge of publicly accessed roads to within 12” of the ground. Within 50’ of the edge of private access roads slash created by trees knocked down by operations must be lopped and scattered to within 12” of the ground.
HAZ-9	**Fire Hazard Inspection requirements.** The Operator or his/her agent shall conduct a diligent aerial or ground inspection within the first two hours after cessation of felling, Yarding, or loading operations each day during the dry period when fire is likely to spread. The person conducting the inspection shall have adequate communication available for prompt reporting of any fire that may be detected.
HAZ-10	**High Fire danger shutdown requirements.** Operations may be shut down due to Calfire’s assessment very high fire danger, Red flag warning or if on site relative humidity is less than 30% and 10 hour fuel moistures drop below 9%. CSP or HCRD personnel will assess conditions on site and inform contractor of plans to shutdown operations due to fire danger.
HYDRO-1	**Riparian buffers.** Equipment exclusion zones around riparian corridors will be established as defined in Table 1.
HYDRO-2	**Equipment decontamination.** Decontamination of heavy equipment will occur prior to delivery onto park lands. Heavy equipment will be thoroughly power washed prior to delivery to the park. Equipment will be free of woody and organic debris, soil, grease, and other foreign matter. The engine compartment, cab, and other enclosed spaces will also be free of the aforementioned debris. Equipment will be thoroughly inspected by an agency representative upon delivery and may be rejected if, in the opinion of the representative, the equipment does not meet decontamination standards. If a piece of equipment is removed from the park for unrelated work or work not identified as part of implementation, it will be re-inspected upon re-entry to the park. Decontamination will take place off site upon demobilization.
HYDRO-3	**Water drafting requirements.** If water drafting becomes a necessary component of the proposed project, drafting will be conducted as described in the National Marine Fisheries Service (NMFS) *Water Drafting Specifications* (NMFS 2001). Screening devices will be used for water drafting pumps to minimize removal of aquatic species, including juvenile fish, amphibian egg masses, and tadpoles, from aquatic habitats. Drafting sites will be planned to avoid adverse effects to special-status aquatic species and associated habitat, in-stream flows, and depletion of pool habitat. If water drafting becomes a necessary component of the proposed project, drafting will be conducted as described in the NMFS *Water Drafting Specifications* (NMFS 2001). These specifications include the following:

	• Screening devices no greater than 3/32 inch will be used for water drafting pumps to avoid removal of aquatic species, including juvenile fish, amphibian egg masses, and tadpoles, from aquatic habitats. • Drafting sites will be planned to avoid adverse effects to special-status aquatic species and associated habitat, in-stream flows, and depletion of pool habitat. • All drafting sites will occur outside of occupied Coho habitat. • Seek streams and pools where water is deep and flowing, as opposed to streams with low flow and small isolated pools. • Pumping rate shall not exceed 350 gallons per minute (gpm). • The pumping rate shall not exceed 10% of the stream flow as measured by a visual observation of water level in relation to a moss line or rock to determine if stream level is dropping due to pumping. Operators shall keep a log on the truck containing the following information: Operator's Name, Date, Time, Pump Rate, Filling Time, Screen Cleaned (Y or N), Screen Condition, and Comments.
PSR-NOISE-1	**Notification requirements to off-site noise-sensitive receptors.** Written notification of project activities will be provided to all off-site noise-sensitive receptors (e.g., residential land uses) located within 1,500 feet of work locations. Notification will include anticipated dates and hours during which activities are anticipated to occur and contact information of the project representative, including a daytime telephone number.
SPR-NOISE-2	**Power equipment use and maintenance requirements.** All powered heavy equipment and power tools will be used and maintained according to manufacturer specifications. All diesel- and gasoline-powered equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.

Table 1. Riparian Buffers Zone Widths, Zone Restrictions, Canopy Cover Retention Levels

Riparian Zone	Fish Bearing (may be perennial or intermittent) and Perennial Non-Fish Bearing		Non-fish Bearing and Evidence of Scour or Deposition (intermittent or ephemeral)		
Inner Zone Width[1]	30 feet from confined channel, or channel migration zone		30 feet or break in slope or other feature that prevents sediment delivery to watercourse, whichever is less		
Inner Zone Canopy Cover Retention[2]	80%		60%		
Inner Zone Restrictions	Equipment exclusion zone, no tree removal[4,5]		Equipment exclusion zone, no tree removal[4,5]		
Outer Zone Width[1]	130 feet from outer edge of inner zone		20 feet from outer edge of inner zone		
Outer Zone Canopy Retention[2]	60%		60%		
Outer Zone Slope	>35%	<35%	>85%	35% to 85%	<35%
Outer Zone Restrictions	Equipment exclusion zone[4,5]	Equipment exclusion zone, unless sediment delivery is prevented by a break in slope or another barrier such a bench[3,4,5]	Equipment exclusion zone	Equipment exclusion zone, except tethered equipment that does not increase sediment delivery potential over one-end, cable suspension systems[4,5]	Equipment exclusion zone, unless sediment delivery is prevented by a break in slope or another barrier such as a bench[3,4,5]

Notes:

1. Zone width measured in slope distance.
2. Canopy cover averaged across 1,000-foot sections of streams.
3. If there is a bench or break in slope that is closer and prevents sediment delivery, then the outer zone can be less than 160 feet from the stream channel.
4. Heavy equipment will be used in inner zone areas for other restoration actions. Thinning actions when combined with other restoration activities (e.g., large wood loading or stream crossing removal) may reduce inner zone canopy cover to 60%.
5. Any felled trees will be retained on site.

Wet Weather Operations Standards for Heavy Equipment Use for the North Coast Redwoods District

Heavy equipment used for restoration activities such as removing roads and hauling logs or heavy equipment for forest thinning and aquatic restoration operations has the potential to damage roads that typically only receive traffic from lite duty vehicles often used by park staff and others working on park lands. General road use by park staff, other agency staff, and contractors driving lite duty (under 1 ton) vehicles on park maintained roads is described in the Seasonal Road Use Policy for North Coast Redwoods District, dated March 16, 2016, and is attached hereto and herein incorporated by reference. This document, however, is intended to prevent road damage and sediment transport from heavy equipment and log hauling operations within the parks.

The Normal Operating Season (NOS) is June 15 – October 15, but roads may be used outside of the normal operating season, depending on precipitation, road and soil conditions, and potential for sediment transport from the road. The Parks' Road Maintenance Chiefs or his/her designee (hereafter referred to as Park Staff) will monitor ground conditions and make a determination when activities normally limited to the NOS may be extended. Park Staff assigned to evaluate, monitor, and prescribe treatments to roads or landings and all related components shall be experienced in road engineering and construction.

Heavy equipment and log hauling use may be conducted outside the Normal Operating Season, however, certain Wet Weather Operation Standards (WWOS) must be met in order to have operations proceed during the period outside of the NOS.

The following WWOS will be used to determine when operations may begin, what monitoring is required during operations, and when operations should be suspended. These standards provide for additional measures that are needed to protect the transportation system, maintain water quality, and preserve the soil resource. These criteria also apply within the NOS when prolonged periods of wet weather are encountered.

GENERAL STANDARDS

All roads must be adequately rocked and winterized to be considered for use during wet weather. Winterization is defined as:

1) grading exposed road and landing surfaces to allow water to freely drain across them without concentrating, ponding or rilling;
2) installing rolling dips/drains to drain steeper sections of road;
3) clearing clogged drainage ditches or culverts;

4) installing silt fences and other erosion control devices where necessary to convey concentrated water across exposed road and landing surfaces;
5) removing road-stream crossings that do not meet 100-year flood discharge standard for flow, sediment, and debris; and
6) mulching all exposed soil surfaces beyond road driving surface.

All Contractors must notify Park Staff one week before any operations begin. Park Staff will document start-up and shutdown of wet weather operations. All operations shall be conducted reasonably to minimize soil erosion. Equipment shall not be operated when ground conditions are such that an immediate threat of damage to park facilities or resources will occur such as excessive soil compaction and soil displacement. Operations will be suspended by Park Staff if monitoring reveals an immediate threat of damage to park resources.

Operations shall be continually monitored by Park Staff and equipment operators. If detrimental effects to the transportation system, water quality, or soil resources are encountered, Park Staff shall be notified by Contractor immediately. The Contractor and Park Staff will work together to develop actions necessary to alleviate these effects. All actions will be approved by Park Staff.

No sediment flow into natural drainages resulting from operations (including roads, landings, skidding/yarding) will be permitted at any time. If preventative measures fail, then straw bales or other sediment-catching devices may be placed at the outlet of erosion control structures to control sediment discharge.

ROADS

Roads must be determined to be suited for wet weather hauling. Factors to consider include: surface and subsurface material, soil type, drainage condition, stream crossings, safety hazards, loaded vehicle size/weight, and number of trips. If the roadway can be used safely and can support vehicles without causing deformation of the road surface, soil displacement, damage to drainage structures, and with no off-site sediment movement due to water flow, it can be used. If not, the road will remain closed. Roads requiring special hauling restrictions shall be delineated prior to operations.

1. Areas where soil has been disturbed by project activities, including within riparian zones, and anywhere that the sediment could be introduced to the stream, must be winterized by close of business on October 15th. If NOAA's Fall Transition Season Precipitation and Hydrology Decision Support Service notifications confirm that dry conditions will continue past the NOS, then the site will be left in a winterized condition each day work is performed prior to the onset of fall rain. All winterization structures must be in place and functioning prior to precipitation events.
2. Required road work for pre-haul must be accomplished prior to the wet season.

The road shall be properly graded and ditched. Grading shall not occur after the road surface becomes too wet for compaction. If placement of aggregate surface is required for wet weather hauling, it shall be accomplished before the material becomes too wet for compaction.

3. Park Staff will complete a condition survey (including confirming the presence of rock base and gravel and adequate drainage) prior to and after wet season haul to determine usability before use and the extent of the damage, if any, after.
4. Roads damaged during wet season operations shall be repaired once Park Staff determine that conditions are such that additional damage to the resources will not occur. The road may be out of service for the remainder of the wet season and may require additional work during the following dry season. If Contractor causes deformation of the road surface during wet weather operations, they shall be responsible for the cost of repairing the damaged section(s) of road when it is dry enough to do so.
5. During the wet season, routine maintenance (e.g. culvert and ditch cleaning,) will be performed as required. Maintenance requirements will be determined by Park Staff.
6. Sediment shall not be allowed to extend more than 20 feet from the outlet of a drivable drainage dip or lead-off ditch.

Operations will be suspended by Park Staff if monitoring reveals an immediate threat of damage to park resources (such as excessive soil compaction and soil displacement). Operations will generally occur within the NOS, but may start earlier or start later if conditions allow. The following conditions must be met for heavy equipment to operate outside of the NOS.

If NOAA's *Fall Transition Season Precipitation and Hydrology Decision Support Service* notifications confirm that dry conditions will continue past the NOS, and winterization measures are in place, then biomass removal operations may continue. Starting operations prior to the NOS can only be conducted if the soil is sufficiently dry as defined below.

Ground-based Operations:

1. "Normal" unrestricted operations may occur when the soil is dry throughout the entire top 8 inches of the profile, as evidenced by the soil test described below.
2. No operations shall occur during measurable precipitation events or when any of the top 4 inches of soil is moist or wet. (Refer to the field guide for soil moisture below)
3. Restricted operations, as defined below, may occur when the top 4 inches of soil is dry throughout, but the soil is moist or wet below. (Refer to the soil moisture field guide)
    a. **Conventional equipment** (track laying or rubber-tired). Skidding may

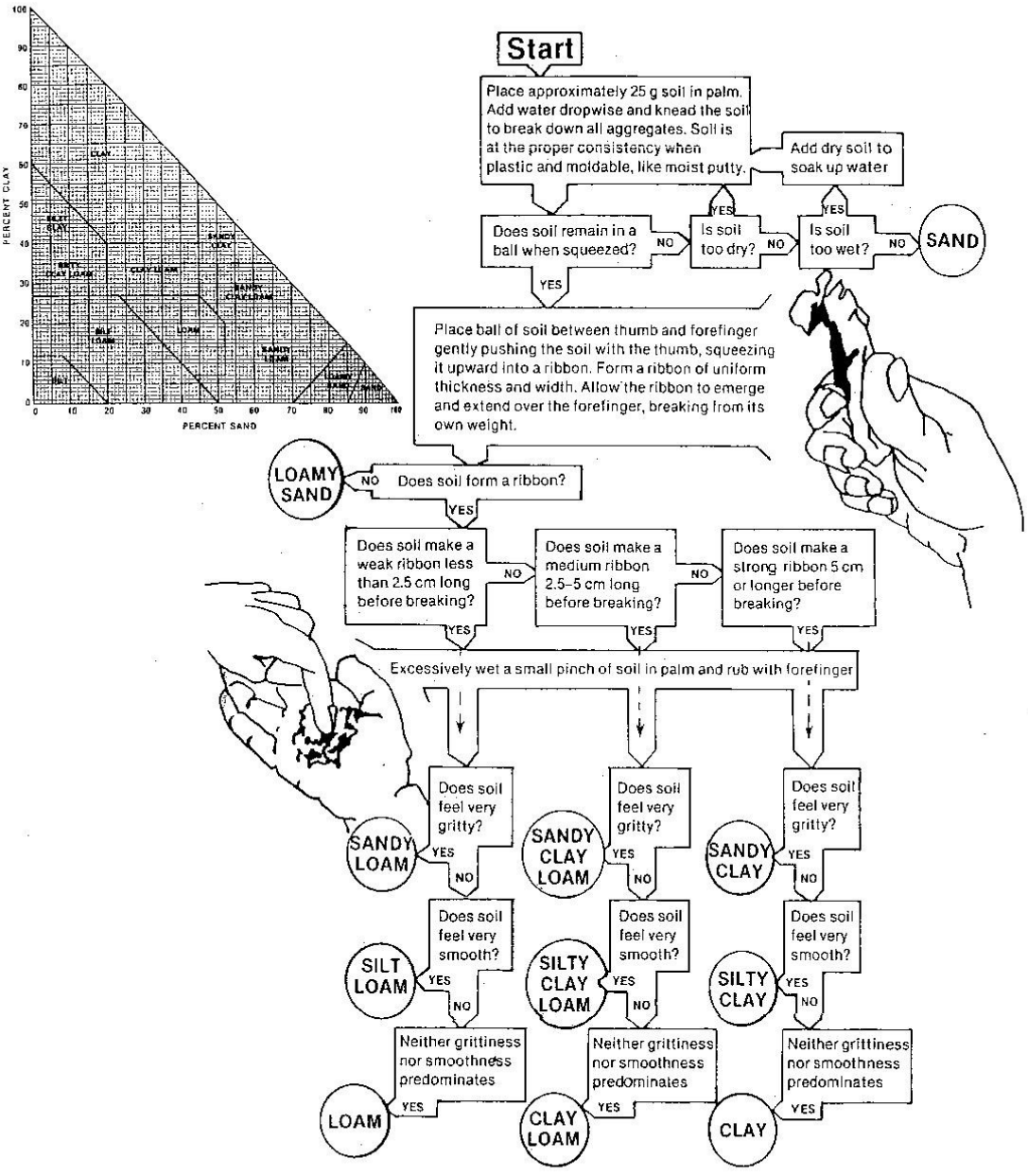
occur on designated skid trails spaced an average of 75 feet apart. Endlining shall be used to move material to the designated skid trails.

b. **Cut-to-length. (Ponsse machine)** Processing of material by a harvester may occur on designated skid trails spaced an average of 40 feet apart. Harvesters may retrieve material from off of skid trails by limiting access to 1 or 2 passes over the same piece of ground. Forwarders shall be limited to designated skid trails covered with a minimum of 6 inches of slash.

c. **Feller-Buncher.** Feller-bunchers may retrieve material from off of skid trails by limiting access to 1 or 2 passes over the same piece of ground. Skidding equipment shall be limited to designated skid trails spaced an average of 75 feet apart.

4. Landings shall be constructed to facilitate proper drainage and monitored to ensure that drainage is effective. Sediment shall not be allowed to extend past the landing. If a landing will be used for wet weather/winter operations, the landing shall first be rocked during the dry season. Additional backing rock (2”-6”) and road base (1-1/2” compacted aggregate) may be applied as needed during wet weather operations provided it is not during a measurable precipitation event and ground is not already too saturated for compaction.

Instructional diagram for determining soil texture by feel

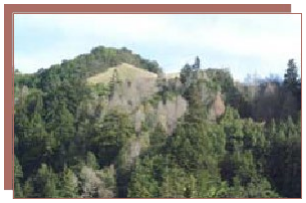


▶ Originally published in the *Journal of Agronomic Education* 8:54–56.

Figure 1 –Instructions for determining soil texture in the field

STEPS TO DETERMINE IF SOIL IS DRY ENOUGH FOR HEAVY EQUIPMENT OPERATIONS

1. Dig a small pit and sample 4 to 6 inches below the mineral soil surface (below the surface litter).
2. To determine soil textures refer to Figure 1 for step by step instructions.
3. Collect enough soil to form a 1 to 2 inch ball by molding with hand pressure. Pick out excessive rock fragments and squeeze with 6 directional squeezes.
4. If a ball is formed that holds together after repeated tosses (1-2 feet in the air) then the soil is too wet for equipment operations.
5. Interpret results of soil texture using Field Guide to Soil Moisture Conditions Relative to Operability of Logging Equipment shown below in Figure 2.



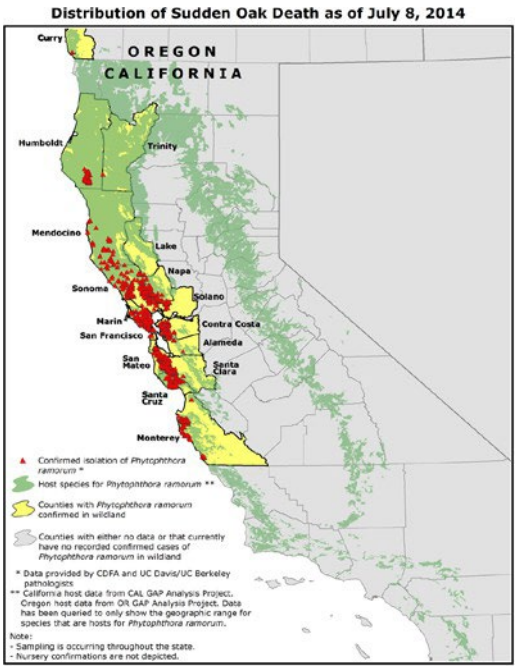
Sudden Oak Death Guidelines for Forestry

A plant disease known as Sudden Oak Death is threatening coastal forests in California and Oregon. Currently found in 15 coastal counties from Monterey to Humboldt, the disease is caused by the pathogen *Phytophthora ramorum*. To date, hundreds of thousands of tanoak and oak have been killed by this disease. In addition, more than 30 other native tree and shrub species are susceptible to the organism, yet most of these species suffer only minor damage, limited to leaf spots or twig dieback. *P. ramorum* may be transported to new areas when infected plants, infested soil, or contaminated water are moved. This guide provides simple, practical information on how to work in forests without unintentionally moving the pathogen from one area to another.

Regulations

The following California counties have confirmed *Phytophthora ramorum* findings and are under State and federal quarantine: Alameda, Contra Costa, Humboldt, Trinity, Lake, Marin, Mendocino, Monterey, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. The organism has also been found in Curry County, southwestern Oregon. These quarantined areas are subject to regulations regarding the movement and use of susceptible plants. County Agricultural Commissioners enforce both California and federal regulations.

The California State Board of Forestry and Fire Protection has approved the establishment of a Zone of Infestation (ZOI) for Sudden Oak Death (SOD) covering all portions of the 14 infested counties identified in the CDFA Section 3700 regulations. Pursuant to 14 CCR 917.9(a) [All Districts], the RPF shall identify feasible measures to mitigate adverse infestation or infection impacts from timber operations (PCR 4527). Long-term plans such as NTMP's should re-assess Sudden Oak Death mitigations within each proposed Notice of Timber Operations (14 CCR 1090.7). Other CDF permitted projects, such as Exemptions, are required to follow all operational rules, and must therefore be conducted in a manner that minimizes the spread of SOD.



Before moving susceptible plant material outside the regulated area you must contact your local County Agricultural Commissioner for a permit, or have an active harvest plan that either includes SOD mitigations or has a currently valid, negative finding, "free-from" survey. USDA Forest Service and other agency firewood permits may serve as your permit or compliance agreement. Current California regulations require a permit for movement of any regulated article from the 15 county regulated area to anywhere outside of those 15 counties. Current federal regulations require a permit (certificate) or treatment before moving any regulated plant material from the 15 infested counties to areas out of the state. Federal rules regulate soil movement from infested counties out of the state, but California does not currently regulate soil movement within the state. Currently there is no provision that allows moving any host material out-of-state under the federal regulations without removing all bark, or an approved treatment prior to shipment out-of-state. Even when bark is removed, a certificate must be obtained prior to shipment. State and Federal regulations apply when infected hosts are removed during timber operations. Regulated

California Oak Mortality Task Force

host material cannot not leave the ZOI except as authorized through an approved harvest document with either a valid "free-from" survey or where mitigations have been addressed minimizing the spread of the pathogen. Mitigation measures must be discussed in harvest documents due to the declarations of the 15-county area as a Zone of Infestation by the Board of Forestry and Fire Protection Regulations even when host logs are not being moved offsite. NOTE: a free-from survey is allowed only if the regulated articles are not moved interstate. The free-from survey is valid for a period of one year from the date of survey if no symptomatic hosts are found, or one year from the date of negative lab findings of symptomatic host samples.

Photo 1. Forest in Marin County with tanoak trees killed by Phytophthora ramorum. *(Photo by B. Tkacz, USDA Forest Service.)*

Hosts, Symptoms, and Diagnosis

The symptoms of Sudden Oak Death can be dramatic (Photo 1), as with the mortality of large and small tanoaks, or fairly subtle (Photo 2), such as leaf spots on California bay laurel. The nature and progression of the infection varies in each host species, and even within a given species. *P. ramorum* symptoms are difficult to distinguish from a number of other common diseases. Foresters may be more confident in their preliminary diagnosis and the need for laboratory analysis if they observe multiple external and inner bark symptoms as well as symptoms on other hosts in the immediate area. If you see several symptomatic host plants (Photos 3 & 4) next to bleeding oaks and tanoaks (Photos 5 & 6) you may be in an infested area.

Photo 2. California bay laurel (also called pepperwood, or Oregon Myrtle) showing leaf spots typical of Phytophthora ramorum. *(Photo by Bruce Moltzan, Missouri Department of Conservation.)*

California bay laurel is a good indicator plant to check for symptoms. Although damage is limited to leaf spots, these trees are often the first plants to show symptoms in a newly infested area. Note that on California bay laurel, leaf spots are typically near the leaf tip, they are not on every leaf, and they may be hard to see from far away. While inspecting for leaf spots, focus on lower branches as this is where the disease is commonly found and leaves are more accessible.

A more thorough guide to symptoms and list of susceptible species is available at www.suddenoakdeath.org. You can also find listings for upcoming diagnosis and treatment training sessions online.

Photo 3. Bay laurel leaf spots. (Photo by Matteo Garbelotto, University of California, Berkeley.)
Photo 4. Rhododendron leaf spots. (Photo by B. Moltzan, Missouri Department of Conservation.)

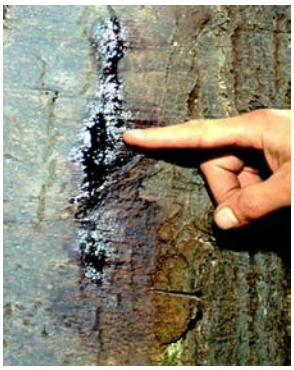


Photo 5. Bleeding cankers on a coast live oak trunk. (Photo by Matteo Garbelotto, University of California, Berkeley.)
Photo 6. Bleeding cankers on a tanoak trunk. (Photo by Pavel Svihra, UC Cooperative Extension.)

Photo 7. Canker under bark on coast live oak trunk. (Photo by Matteo Garbelotto, University of California, Berkeley.)

Mitigation & Management Recommendations

Infested forests

If possible, avoid working in areas that are known or appear to be diseased. If you cannot avoid infested areas, follow the sanitation practices below when working in the known infested areas. If you don't know if the site is infested, play it safe and assume that it is. Maps of infested areas are available online (see Resources). These maps do not note every diseased area but can give you a general idea of the infested areas in California.

Pathogen biology and risk of spread

Phytophthora ramorum prefers moist environments and cool temperatures, and can be found in living, dying, or recently dead plants. During wet periods, the organism seems to be most active and therefore most likely to start new infections. Its spores can be found in soil, water, and plant material. The risk of movement and spread of the organism is greatest in muddy areas and during rainy weather. If possible do not work in infested forests during the wet, rainy and cool times of the year. Generally, avoid working in muddy conditions.

Sanitation and Recommendations

Timber operations which minimize or avoid the introduction, build-up, or spread of SOD are considered Best Management Practices (BMPs). Specific state and federal regulations must be followed, but BMPs should be incorporated, and could act as timber harvest plan mitigations. Infected host material (especially foliage) can be carried on logging equipment and vehicles, and transferred to other sites. Mitigation measures to minimize the unintended movement of host material are recommended. The following (or similar) mitigation measures should be implemented to the extent practical and may be required for timber operations regulated by the State. Even if regulated articles do not move from the ZOI and are therefore not subject to state or federal regulations, CCR 919.9(a) still requires mitigation in timber harvest plans on state or private property for a pest covered by a ZOI.

• RPF (or LTO for most Exemptions) should inform personnel that they are working in an area with Sudden Oak Death disease, unauthorized movement of plant material is prohibited, and the intent of mitigation measures is to prevent disease spread (14 CCR 1035.2). If some sites in the general operating area are found to be disease-free or have a low incidence of disease, consider initiating operations on these sites before moving to more heavily infested sites.

• To the extent practical and feasible, route equipment away from host plants and trees, especially in areas with disease symptoms.. Locate landings, log decks, logging roads, tractor roads, and other sites of equipment activity away from host plants, especially areas with disease symptoms.

• Each time equipment or vehicles leave the site, the equipment or vehicles should be inspected by operations personnel for host plant debris (leaves, twigs, and branches). Host plant debris should be removed from equipment and vehicles prior to their departure. This applies to all equipment and vehicles associated with the operation, including logging equipment, log-hauling trucks, pick-up trucks, employee's personal vehicles, etc. An exception will be granted for equipment or vehicles that leave the site temporarily and will be not be traveling to uninfested areas prior to their return.

• Conduct operations during the dry season. Utilize paved and rocked roads and landings to the extent possible.

• After working in an infested area, remove or wash off accumulations of soil, mud, and organic debris from shoes, boots, vehicles and heavy equipment, etc. before traveling to an area that is not infested with Sudden Oak Death. Lysol® or a bleach solution can be used to disinfect shoes and boots after cleaning.

• Inspect loads of logs and equipment leaving the site to ensure that no host material is being transported without a permit. This may require cleaning mud from vehicle to remove host plant material imbedded in mud depending on conditions when the timber harvest is conducted. Consider establishing an equipment power wash

station. The station should be: located within the generally infested area; paved or rocked; well-drained so that vehicles exiting the station do not become contaminated by the wash water; located where wash water and displaced soil does not have the potential to carry fines to a watercourse (see "Saturated Soil Conditions" in 14 CCR 895.1); pay particular attention to sites where soil and organic debris may accumulate.

Firewood

If firewood from host material is being removed from the regulated area for commercial or private use, a compliance agreement must be in place. The information as to where and what is being removed, how it will be transported, specifically where it will be moved to, and during what time period should be included in the harvest document if the document will act as the compliance agreement. If this information is not included in the plan, a separate compliance agreement may be necessary. Contact your local County Agricultural Commissioner to obtain any necessary compliance agreements not covered by the plan. Always secure loads completely when transporting firewood or other materials.

Treatments

There are treatments or processing protocols that can be done to minimize the risk of spread. Removing the bark allows the wood to dry and permits movement within the state and out of state with a certificate. If bark is removed or other parts are not used, burn the excess materials if possible. If burning is done, make sure it is done in a safe and approved manner. Burning poses no risk of spread since the organism is killed in the fire. When storing material, keep it dry and out of any standing water. Kiln drying also will kill the organism.

Drafted water

Infested water has not been proven to be a pathway for *P. ramorum* to cause new infections in forested areas, but has been shown to cause new infections in nurseries. Hence, drafted water has the potential to spread spores of the pathogen onto roadside hosts during dust abatement operations. Spores of the pathogen have been recovered from water collected beneath infected hosts, as well as from creeks and streams in infested areas.

Water is not regulated under either state or federal quarantine regulations. However, the following practices may minimize the unintentional introduction of the pathogen:

• If water is drafted and used for dust control, draft water from areas upstream of known infestations or from uninfested drainages.

• If drafting from known infested watercourses, do not water roads with that source in areas that are not known to be infested.

• If water is being drafted under a 1600 Series agreement with the California Department of Fish and Game and or used in both infested and non-infested areas, they may require treatment with Ultra Clorox, similar to the recommended water treatment for *P. lateralis*, which causes Port-Orford Cedar Root Disease. The registration rate is 1 gallon of Ultra Clorox Bleach per 1,000 gallons of drafted water.

• Do not use untreated water from infested areas for irrigation of host species nursery stock. Off-road approaches to drafting sites should be sufficiently rocked to minimize accumulating infested soil on drafting vehicles.

Snag retention

As stem-infected oaks and tanoaks decline and die, they are invaded by other wood decaying organisms and bark beetles. Such trees are prone to early structural failure, often breaking off several feet above ground. When selecting snags or recruitment trees for snags as a benefit for wildlife use, do not select SOD-infected trees.