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June 9, 2020

Tara McKnight P.O. Box 637 Whitethorn, CA 95589

Re: APN 108-151-021 / Application No. 13157

The following is an evaluation of potential timberland conversion on cannabis cultivation sites and associated areas included in the Humboldt County Cannabis Permit Application #13157. Please accept this letter as the RPF's written report required by Humboldt County Code, Ordinance No. 2559 (Commercial Medical Marijuana Land Use), Section 55.4.12.2.4 as sited below.

"Where existing or proposed operations occupy sites created through prior unauthorized conversion of timberland, if the landowner has not completed a civil or criminal process and/or entered into a negotiated settlement with CALFIRE, the applicant shall secure the services of a registered professional forester (RPF) to evaluate site conditions and conversion history for the property and provide a written report to the Planning Division containing the RPF's recommendation as to remedial actions necessary to bring the conversion area into compliance with provisions of the Forest Practices Act. The Planning Division shall circulate the report to CAL-FIRE for review and comment."

Timberland Resource Consultants (TRC) inspected and evaluated the cultivation site on June 5, 2020. The RPF exercised due diligence in reviewing all sites and associated areas and available resources to fully assess potential timberland conversion and consequential impacts. This report evaluates the cultivation sites and associated areas for timber operations only. The scope of this report does not include: all other land alteration (such as grading, construction, and other permit-regulated activities), all property features and sites unrelated to cultivation activities, or any proposed, planned, or absent cultivation-related project sites. All findings are summarized in the report.

Project Location

APN: <u>108-151-021</u> Acreage: 42 acres

Legal Description: SE 1/4 of Section 6,

Township 5 South, Range 2 East,

Humboldt Base & Meridian, Humboldt County

Located on USGS 7.5' Quadrangle: <u>Briceland</u> Humboldt County Zoning: <u>Timber Production</u> Site Address: <u>1300 Hungry Gulch Road</u>

Landowner/Timber Owner: Tara McKnight Trust

The project is located at 1300 Hungry Gulch Road. The property is located approximately 11/4 air miles southwest of the Whitethorn Post Office.

Parcel Description & Timber Harvest History

Note: The property background has been summarized using personal accounts of the current landowner, digital orthographic quadrangle (DOQ) imagery, Humboldt County Web GIS, CAL FIRE Watershed Mapper v2, and Historic Aerials. To avoid speculation and maintain relevancy, the property background focuses mainly on the past 10-15 years.

The property consists of second growth tanoak with a minor component of Douglas-fir. Review of 1948 aerial imagery shows the property and surrounding areas composed of old growth Douglas-fir with scattered patches of younger tanoak and brush; presumably fire related. Review of subsequent 1968 historic aerial imagery revealed that portions of the subject property was harvested in the late 1950's/early 1960's as evidenced by fresh skid roads, landings, truck roads, and a distinct change in stand structure. The RPF observed old growth Douglas-fir stumps and second growth timber within the property confirming that timber was harvested in the late 1950's/early 1960's. There have been no commercial harvests on the property since the initial entry as recorded by Cal Fire (Watershed Mapper v2 http://egis.fire.ca.gov/watershed mapper/). The current owner purchased the property from the Briceland Corporation on 12-19-2011.

Project Description

One cultivation site was inspected during the field assessment within APN 108-151-021. The following table lists the inspected site and its acreage; see detailed site description below.

Cultivation Site	Total Acreage	Converted?	Converted Acreage
Cultivation Site	0.67	Yes	0.67
TOTAL	0.67		0.67

Cultivation Site

Review of Google and NAIP aerial imagery reveals that the graded flat containing the cultivation site, cabin, water tanks, solar arrays, and other cultivation related infrastructure was initially developed between 1998 and 2005. The site was slightly/incrementally expanded over the course of years between 2005 and 2016. The site was again slightly expanded in May 2018 (approximately 0.10 acres), but this was in association with the remediation of over-steepened and unstable cut slopes in the extreme northern end of the site. The 2018 regrade occurred throughout the site for the purposes of stabilizing perched and unstable fill slopes and over-steepened cut slopes. The 2018 grading gives the appearance of an expansion on aerial imagery; however close inspection of the entire graded site by the RPF reveals that the footprint of the site containing the cultivation site, cabin, and other improvements did not increase in size. The lessening of the cut slopes in the northern portion of the site required removal of trees to create a planar and more stable cut slope.

The cultivation-related activities observed impede the use of this space for current timber growth and harvesting; in this way, the landowner has effectively converted the single use of this space from timber production to cannabis cultivation.

Timberland Conversion Summary

TRC observed approximately 0.67 acres of potential timberland conversion for cultivation-related purposes.

Limitations and Considerations for Timberland Conversion Activities

Watercourses and Water Resources

14CCR 1104.1(a)(2)(F): "No timber operations are allowed within a watercourse and lake protection zone unless specifically approved by local permit (e.g., county, city)."

No conversion areas exist within a Watercourse and Lake Protection Zone (WLPZ).

Slash, Woody Debris, and Refuse Treatment

14 CCR 914.5(b): "Non-biodegradable refuse, litter, trash, and debris resulting from timber operations, and other activity in connection with the operations shall be disposed of concurrently with the conduct of timber operations."

14CCR 1104.1(a)(2)(D) - Treatment of Slash and Woody Debris

- 1) Unless otherwise required, slash greater than one inch in diameter and greater than two feet long, and woody debris, except pine, shall receive full treatment no later than April 1 of the year following its creation, or within one year from the date of acceptance of the conversion exemption by the Director, whichever comes first.
- 2) All pine slash three inches and greater in diameter and longer than four feet must receive initial treatment if it is still on the parcel, within 7 days of its creation.
- 3) All pine woody debris longer than four feet must receive an initial treatment prior to full treatment.
- 4) Initial treatment shall include limbing woody debris and cutting slash and woody debris into lengths of less than four feet, and leaving the pieces exposed to solar radiation to aid in rapid drying.
- 5) Full treatment of all pine slash and woody debris must be completed by March 1 of the year following its creation, or within one year from the date of acceptance of the conversion exemption by the Director, whichever comes first.
- 6) Full slash and woody debris treatment may include any of the following:
 - a) Burying;
 - b) Chipping and spreading;
 - c) Piling and burning; or
 - d) Removing slash and woody debris from the site for treatment in compliance with (a)-(b). Slash and woody debris may not be burned by open outdoor fires except under permit from the appropriate fire protection agency, if required, the local air pollution control district or air quality management district. The burning must occur on the property where the slash and woody debris originated.
- 7) Slash and woody debris, except for pine, which is cut up for firewood shall be cut to lengths 24 inches or less and set aside for drying by April 1 of the year following its creation. Pine slash and woody debris which is cut up for firewood shall be cut to lengths 24 inches or less and set aside for drying within seven days of its creation.
- 8) Any treatment which involves burning of slash or woody debris shall comply with all state and local fire and air quality rules.

The RPF observed no slash and/or woody debris at or near the Cultivation Site from past conversion activities.

Limitations and Considerations for Timberland Conversion Activities (Cont.)

Biological Resources and Forest Stand Health

14 CCR 1104.1 (2)(H): "No sites of rare, threatened or endangered plants or animals shall be disturbed, threatened or damaged and no timber operations shall occur within the buffer zone of a sensitive species as defined in 14 CCR 895.1"

A query of the California Natural Diversity Database (CNDDB) on June 5, 2020 revealed no observations of sensitive, rare, threatened, or endangered species or species of special concern within a 0.7-mile radius biological assessment area (BAA) surrounding the cultivation site/conversion area.

The query of the CNDDB NSO Database revealed no known Northern Spotted Owl (NSO) Activity Centers within a 0.7-mile radius biological assessment area (BAA) surrounding the cultivation site/conversion area.

No major forest health issues were observed during the field assessment. The property is located within Humboldt County, a Zone of Infestation (ZOI) for Sudden Oak Death (SOD) but the RPF observed no symptoms, signs, and evidence of oak mortality within the property. The conversion areas did not appear to include late successional stands, late seral stage forests, or old growth trees. The conversion areas did not include any trees that existed before 1800 A.D. and are greater than sixty (60) inches in diameter at stump height for Sierra or Coastal Redwoods and forty-eight (48) inches in diameter at stump height for all other tree species.

Cultural Resources

14 CCR 1104.1 (2)(I): "No timber operations are allowed on significant historical or archeological sites."

No archeological sites were observed during the TRC field assessment. The RPF conducted pre-field research for the project's geographic location and closely surveyed the converted sites and surrounding undisturbed areas for presence or evidence of prehistoric or historic sites. The archaeological survey was conducted by Chris Carroll, a certified archaeological surveyor with current CALFIRE Archeological Training (Archaeological Training Course #575). The survey consisted of examining boot scrapes, rodent disturbances, natural and manmade areas of exposed soils, and road and cultivation site surfaces.

923.4. Construction and Reconstruction of Logging Roads and Landings.

14CCR 923.4(e): "Logging Roads and Landings shall not be constructed with overhanging banks."

14CCR 923.4(h): "Waste organic material, such as uprooted stumps, cull logs, accumulations of limbs and branches, and unmerchantable trees, shall not be buried in Logging Road or Landing fills. Wood debris or cull logs and chunks may be placed and stabilized at the toe of fill to restrain excavated soil from moving downslope."

While its recognized that the cultivation site is not a log landing; construction and maintenance of the graded flats should (at a minimum) meet or exceed similar requirements stated in the Forest Practice Rules for log landings. Compliance with Humboldt County's grading ordinance, State Water Resources Control Board Order WQ 2019-0001-DWQ, and other regulations will require even higher standards. Therefore, this report shall assess the Cultivation Site's graded flat to the standards of a log landing. The landowner disclosed that the cultivation site was reconstructed in May 2018 removing perched fill material on slopes greater than 50%, and stabilizing over-steepened cut slopes.

The reconstructed fill slope, albeit a little "lumpy" and still prone to surface erosion without erosion control, is now planar and blends into the native hillslope without signs of overhanging fill, and/or buried organic material. The cultivation site complies with the Forest Practice Rules. The overhanging bank per 14CCR 895.1 in the northern portion of the site has been corrected

923.5. Erosion Control for Logging Roads and Landings

923.5(q)(2): In addition to the provisions listed under 14 CCR § 923.2(d)(2), all permanent and seasonal Logging Roads with a grade of 15 percent or greater that extend 500 continuous feet or more shall have specific erosion control measures stated in the plan.

It's unknown whether the permanent rocked road accessing the cabin and cultivation site was constructed concurrent with the site's initial development and thus subject to 14CCR 923.5(q)(2). The construction and maintenance of the access road should (at a minimum) meet or exceed requirements stated in the Forest Practice Rules despite its non-timber use. Compliance with Humboldt County's grading ordinance, State Water Resources Control Board Order WQ 2019-0001-DWQ, and other regulations may require even higher standards. The access road is relatively steep with an estimated average grade greater than 15% for approximately 600 feet. The road is extremely rocky and only requires installation of lead-out ditches and/or drainage facilities installed prior to the winter period when the site is inactive. During the inspection, the RPF did not identify any Significant Existing or Potential Erosion Sites per 14CCR 895.1. There are no locations along the section of road where sediment is discharging to watercourses in quantities that violate Water Quality Requirements or result in significant individual or cumulative adverse impacts to the beneficial uses of water. The road is not hydrologically connected to a watercourse.

Sudden Oak Death

No major forest health issues were observed during the field assessment. The property is located within Humboldt County, a Zone of Infestation (ZOI) for Sudden Oak Death (SOD) and the RPF observed symptoms, signs, and evidence of oak mortality along Hungry Gulch Road. Preliminary research has shown that trees infected or killed by SOD are prone to rapid decay and unpredictable failure. The RPF's professional experience and opinion is that these particular trees will die and topple over into the cultivation site and their removal is recommended to minimize hazard. Proper disposal of infested SOD material contributes toward limiting pathogen spread. Removal of SOD debris from the property is not recommended. Whenever possible, leave SOD tree debris on site in a safe area where woody debris will not become dislodged, contaminate uninfected hosts, or constitute a fire hazard. When infected oaks are cut down and left on site, chip the branches and cut and split the wood. To prevent pathogen spread via muddy boots or equipment, avoid chipping in wet weather. Stack woodpiles in sunny locations to promote rapid drying. Do not leave firewood and chips in an area where they might be transported to another location. Leaving infected trees intact on site may benefit wildlife. If chipping is not possible, reduce fire hazard by lopping and scattering branches so they lay close to the ground at least 30 feet away from any structure, driveway, roadside, or propane tank (consult your local fire department). See attachment titled A Homeowners Guide to Sudden Oak Death.

PRC 4290 & 4291 - Defensible Space

State law requires a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall at all times maintain defensible space of 100 feet from each side and from the front and rear of the structure. See attached Public Resource Code Section 4291.

The trees and vegetation surrounding the cultivation site and cabin are fuel for a fire. Even the greenhouses themselves are considered fuel. Research and experience have shown that fuel reduction around a building or structure increases the probability of it surviving a wildfire. Good defensible space allows firefighters to protect and save buildings or structures safely without facing unacceptable risk to their lives. Fuel reduction through vegetation management is the key to creating good defensible space.

Given that the greenhouse structures are associated with a permitted, commercial operation; defensible space requirements apply (PRC 4290). Cal Fire's *General Guidelines for Creating Defensible Space, February 8, 2006* (attached) specifically requires the following:

Dead and dying woody surface fuels and aerial fuels within the Reduced Fuel Zone shall be removed. Loose surface litter, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches, shall be permitted to a depth of 3 inches. This guideline is primarily intended to eliminate trees, bushes, shrubs and surface debris that are completely dead or with substantial amounts of dead branches or leaves/needles that would readily burn.

Maintain a firebreak by removing and clearing away all flammable vegetation and other combustible growth within 30 feet of each building or structure, with certain exceptions pursuant to PRC§4291(a). Single specimens of trees or other vegetation may be retained provided they are well spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a building or structure.

The legislature did not enact this law intending that landowners apply for a permit from Cal Fire for non-commercial tree harvesting operations for the purposes of creating defensible space. The landowner is encouraged to maintain defensible space around the cultivation site and cabin, and to consult with TRC or another RPF prior to <u>any</u> tree removal to ensure compliance with the Commercial Medical Marijuana Land Use Ordinance.

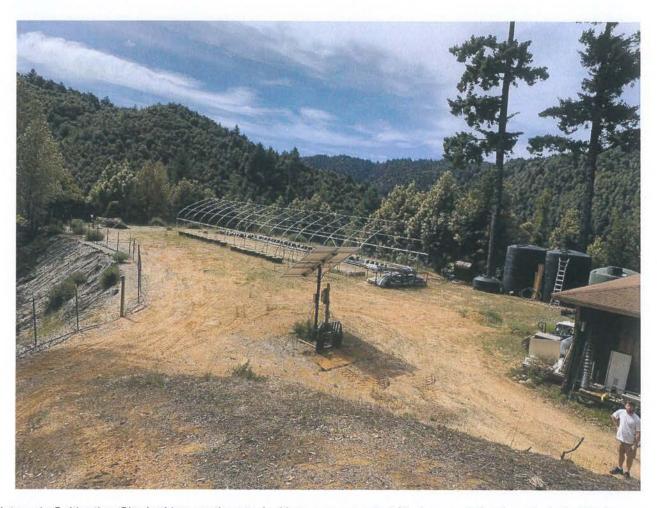
Recommendations

In summary, a total of 0.67 acres of unauthorized timberland conversion has occurred within APN 108-151-021 in association with cannabis cultivation. This total does not exceed the three-acre conversion exemption maximum. The past conversion activities conducted on the property complies with the California Forest Practice Act and the California Forest Practice Rules. The RPF has no recommendations.

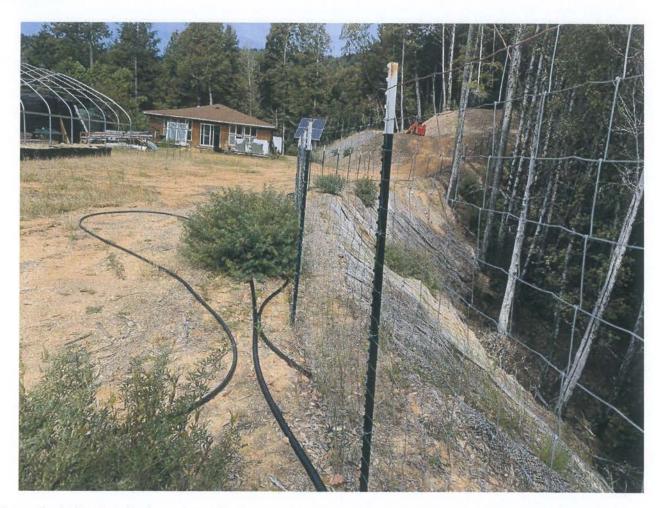
Sincerely,



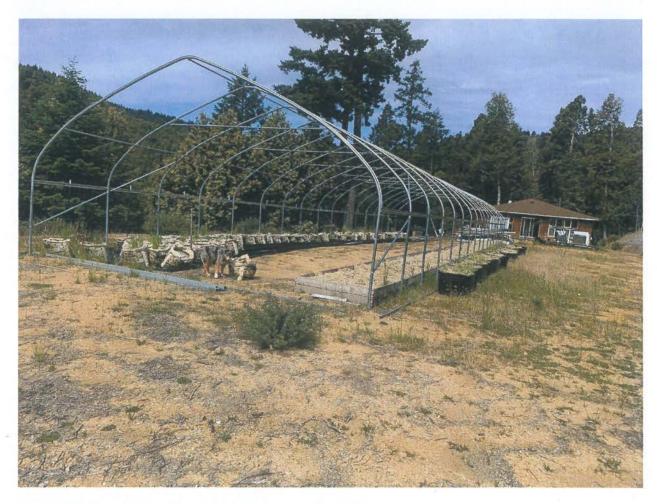
Chris Carroll, RPF #2628 Timberland Resource Consultants



Picture 1: Cultivation Site looking southeasterly. Note reconstructed fill slope on left edge of photo. Photo date 6-5-2020.



Picture 2: Cultivation Site's northern fill slope, which was formerly perched/overhanging. Photo date 6-5-2020.

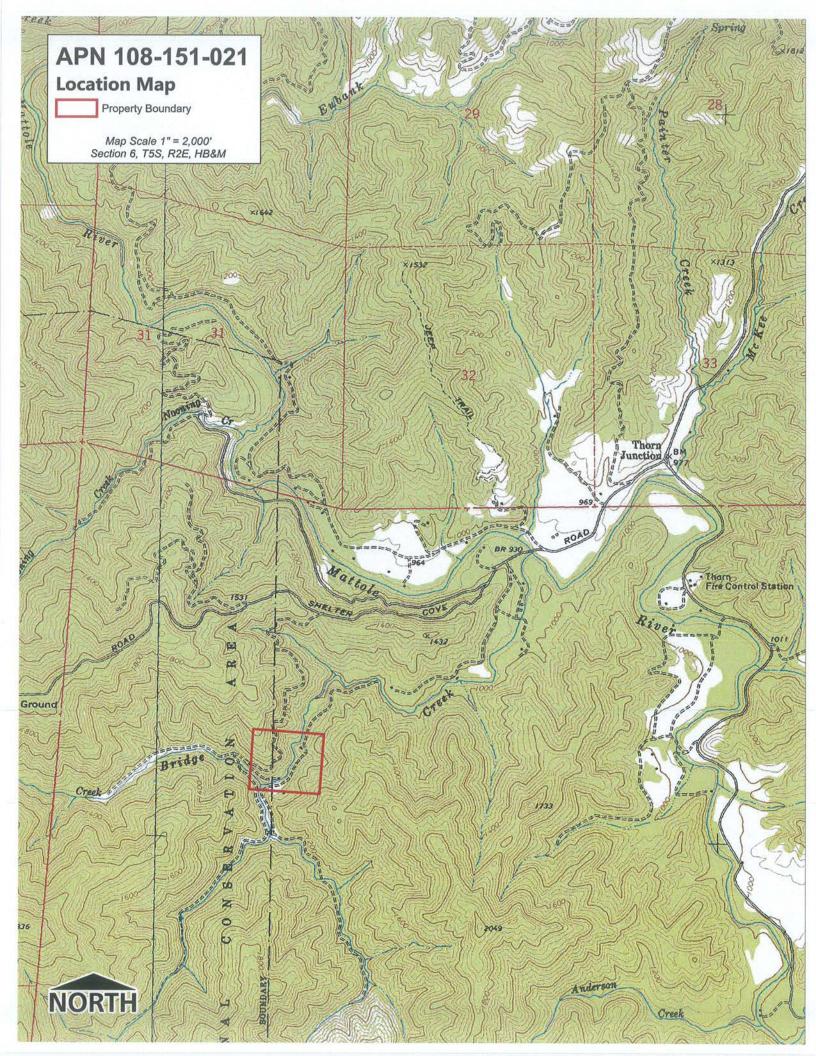


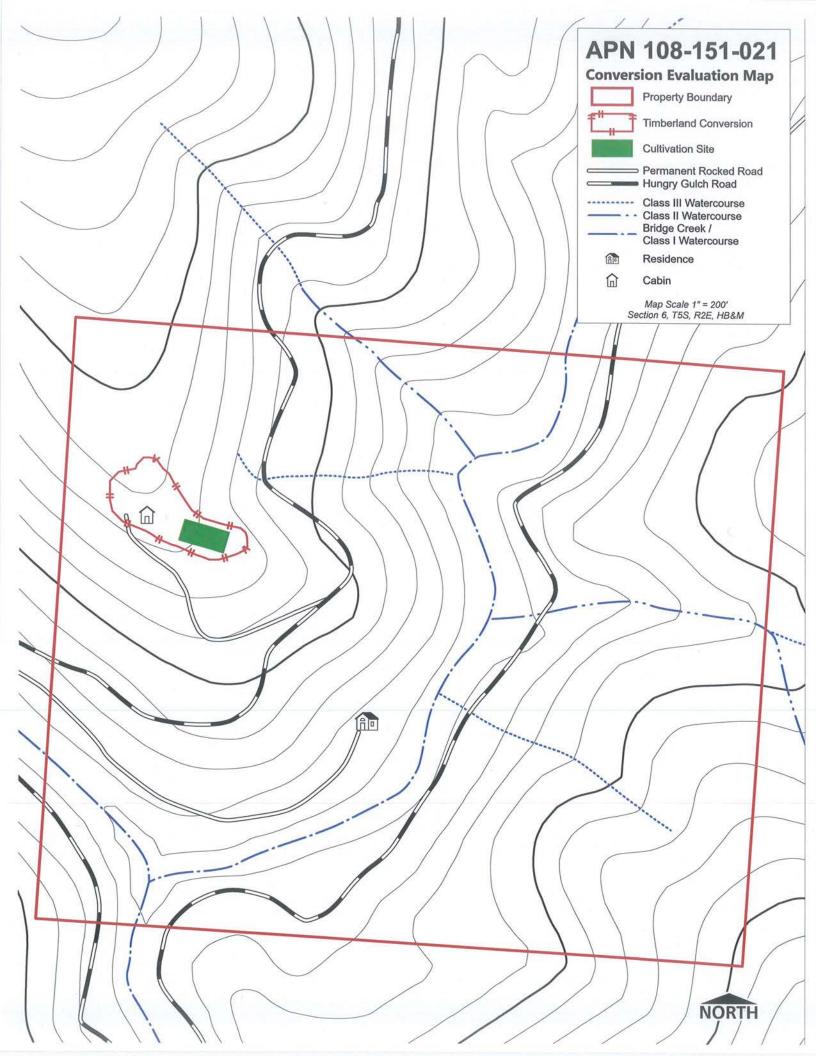
Picture 3: Cultivation Site looking westerly. Photo date 6-5-2020.

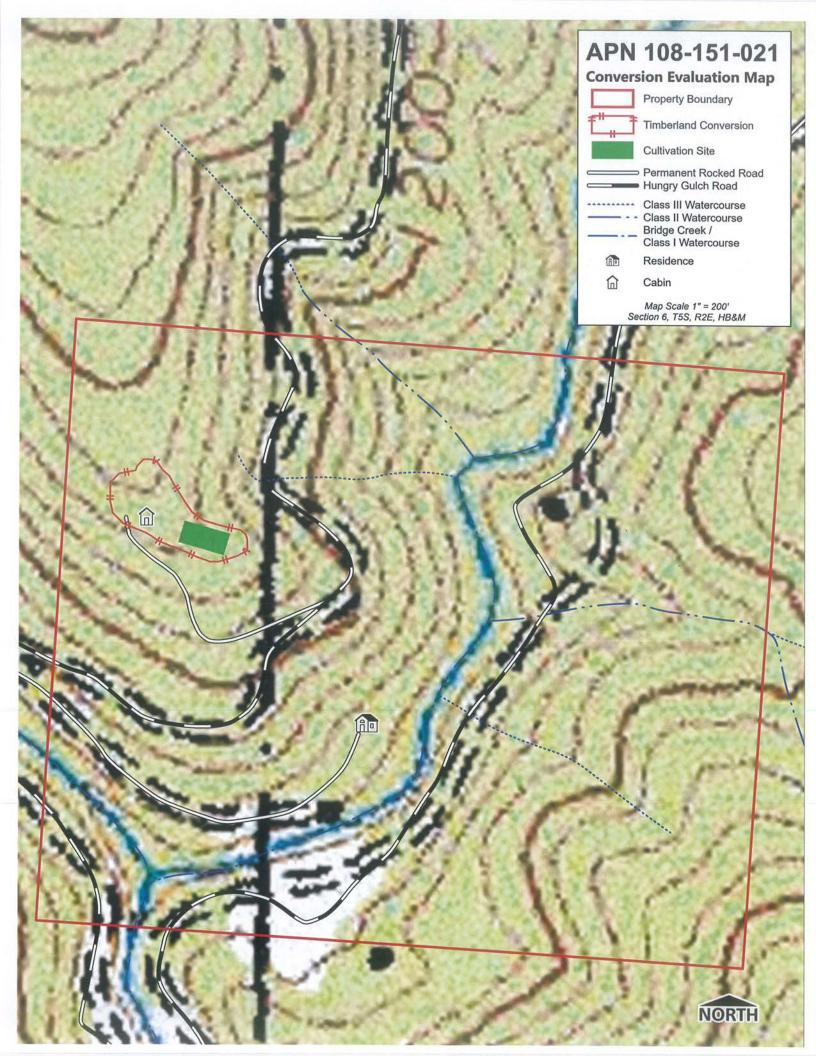


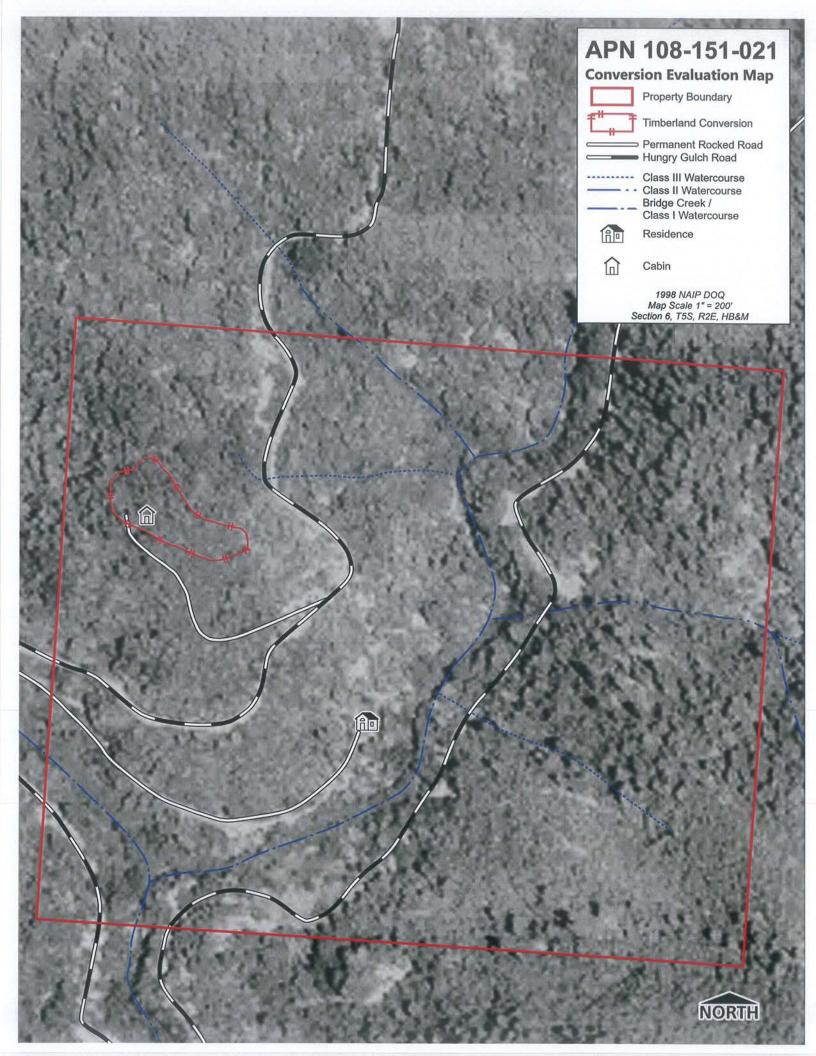
Picture 4: Reconstructed cut slopes in background of this photograph, which resulted in tree removal in May 2018. Photo date 6-5-2020.

MAPS

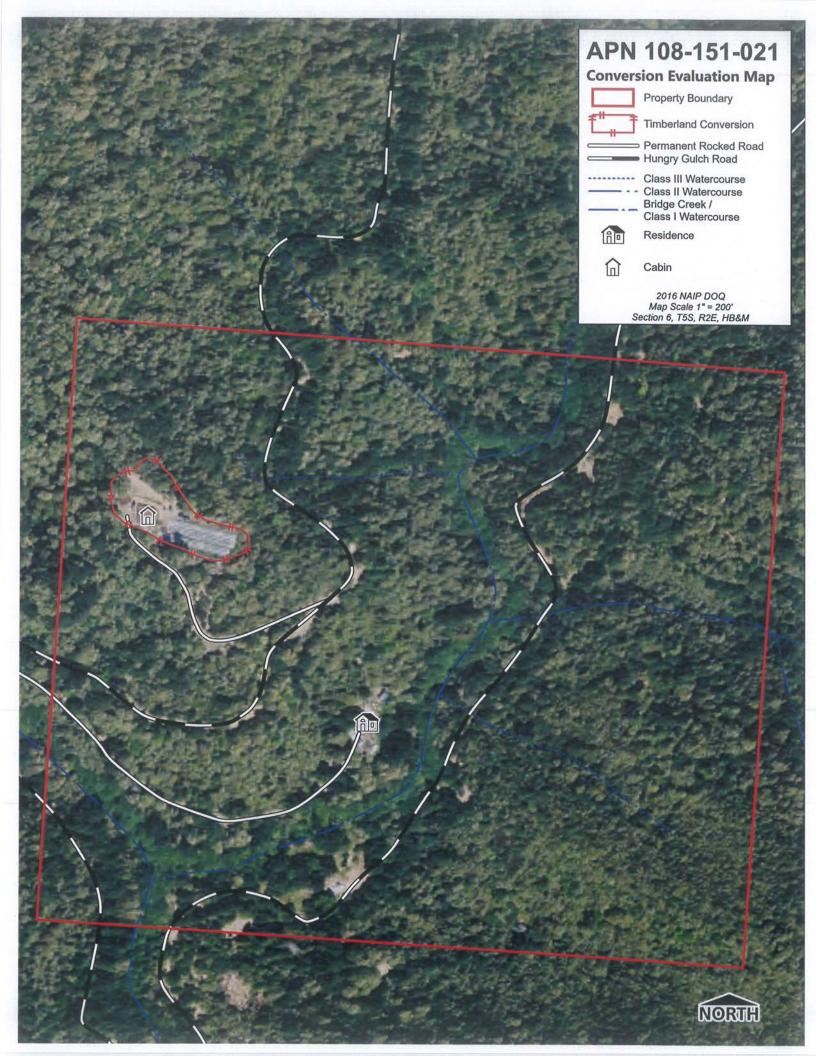




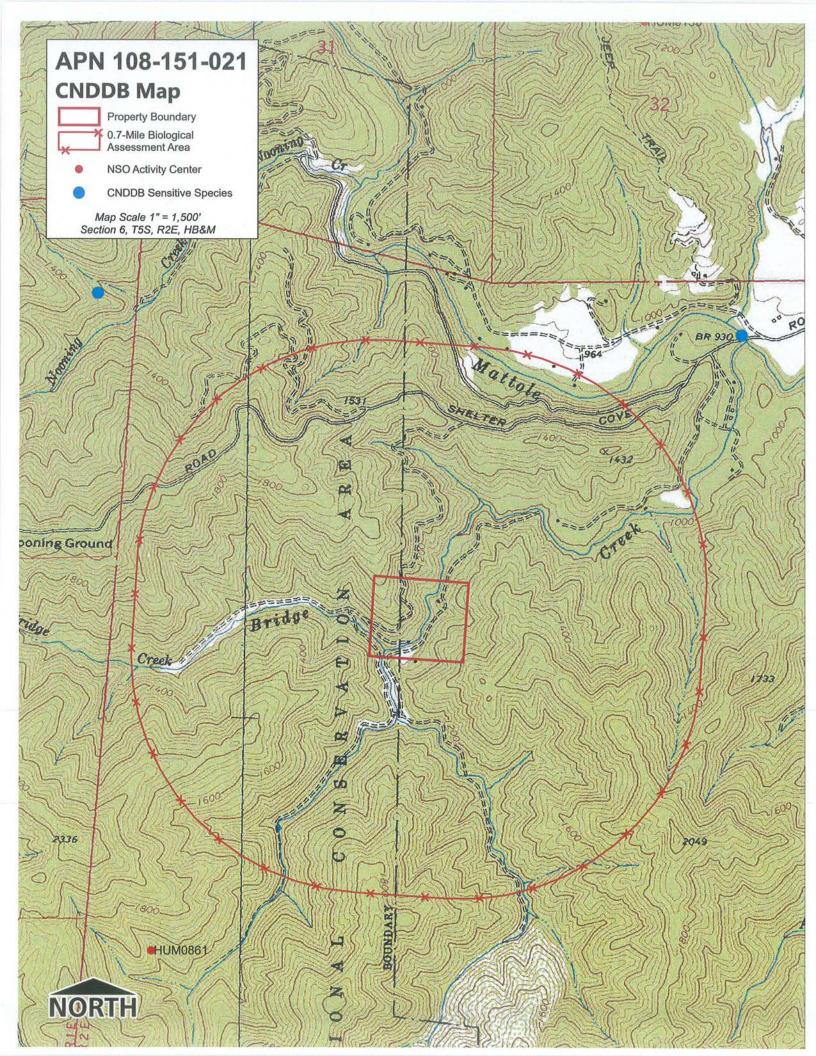












ATTACHMENTS

A Homeowner's Guide to Sudden Oak Death

A plant disease commonly called Sudden Oak Death is threatening coastal forests in California and Oregon. Currently found in coastal California counties from Monterey to Humboldt and in a small portion of southwest Oregon, the disease is caused by the pathogen *Phytophthora ramorum* (pronounced Fi-TOFF-thor-ra ra-MOR-um). Sudden Oak Death has resulted in the death of millions of tanoak and coast live oak trees. In addition, more than 35 other plant species are susceptible to the pathogen, yet most of these species suffer only minor damage, limited to leaf spots or twig dieback. Though Sudden Oak Death is a forest disease, it is common in urban-wildland interface areas, so it presents many challenges for homeowners. This guide addresses homeowner concerns, including diagnosing infected trees, disposing of contaminated material, and understanding treatment options that are available.

What is the connection between Sudden Oak Death and nursery plants?

Many common horticultural plants are hosts for *Phyrophthora ramorum*; consequently, nurseries in California, other states, and other countries, have found the pathogen on their plants. Plants are shipped all across the country, but they are strictly regulated. All *P. ramorum* host plants in California's

regulated counties must be inspected and approved prior to shipment out of the regulated area. Nevertheless, carefully inspect the leaves of host plants for symptoms before making a purhase, and refrain from planting these horticultural hosts near susceptible oaks in your yard.

Because *P. ramorum* may be spread through the movement of infested soil and plant materials, State and federal regulations are in place to control the potential spread of the pathogen to uninfested areas. *P. ramorum* host species plant material is regulated by the California Department of Food and Agriculture (CDFA) and the U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS). Quarantine regulations are in place for the infested counties, and before moving susceptible plant material out of the regulated area, you must contact your Agricultural Commissioner for a permit.

If my oak tree has Sudden Oak Death, what are the chances it will die?

There is no way to determine if an individual tree will live or die after contracting Sudden Oak Death. Each tree responds differently to infection: experience tells us that it is rare for a tree pathogen to kill all of the trees it infects. Depending on a number of factors, some trees may never become infected, some may become infected and survive for various lengths of time, and others may become infected and die quickly. Because Sudden Oak Death is a relatively new disease in California, it will take time to determine just how likely different outcomes are for different tree species. Initial observations tell us that once infected, tanoak has a high probability of being killed by P. ramorum, but some individuals are still likely to survive. Coast live oaks appear to have a lower probability of being killed, though many have been killed by the disease. There is little mortality information on California black oak at this time, so it is difficult to predict how this tree species will fare.



Hosts, Symptoms, & Diagnosis

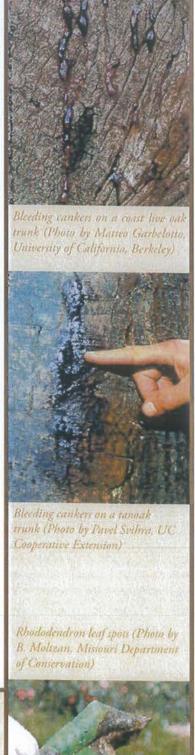
Phytophthora ramorum affects different species in different ways. It can be lethal to tanoak, coast live oak, California black oak, Shreve oak, canyon live oak, and madrone saplings, while it may cause only a minor leaf or needle disease for other hosts such as California bay laurel, coast redwood, and Douglas-fir. The list of species and varieties known to be susceptible to this plant pathogen continues to grow; check suddenoakdeath.org for the latest updated host list.

How can I confirm that my oak tree has Sudden Oak Death?

Because other organisms and injuries can produce symptoms on oaks that look similar to Sudden Oak Death, homeowners will not be able to diagnose their trees by themselves with absolute certainty. However, there are some steps that can help you determine if *Phytophthora ramorum* is likely.

- (1) Determine if your oak tree is a susceptible species. To date, Sudden Oak Death has only been found on the following tree species in California: tanoak, coast live oak, Shreve oak, canyon live oak, and California black oak. Of these, tanoak is the species most likely to be killed.
- (2) Determine if you are in an infested area. Check the Sudden Oak Death mapping and monitoring site or contact staff in your local County Extension, Agricultural Commissioner, or California Department of Forestry and Fire Protection (CDF) offices. If you are outside of an infested area, your tree could still be infected with *Phytophthora ramorum*, but it would be less likely.
- (3) Compare the symptoms of Sudden Oak Death with those on your oak tree. Check other susceptible tree and shrub species nearby. Do they have leafspots or other symptoms of *P. ramorum*? California bay laurel is the best indicator of the risk and presence of the disease. Photos of symptoms on oaks, California bay laurel, and other hosts can be found at suddenoakdeath.org.

The probability that your tree is infected with *Phytophthora ramorum* will be greater if your tree is a susceptible species, exhibits typical symptoms, and is located in an infested area where other trees and plants are showing symptoms. Although positive confirmation can only be done through laboratory testing, diagnosis of *Phytophthora ramorum* based on visual symptoms can justify taking preventative action if you live in a generally infested area. If you ask a tree care professional to make such a judgment, determine what training or qualifications enable them to do this.





(Left) California bay laurel showing leaf spots typical of P. ramorum (Photo by Bruve Moltzan, Missouri Department of Conservation)
(Right) California bay laurel leaf spots (Photo by Matteo Garbelotto, University of California, Berkeley)



Treatments: A phosphonate compound is registered as a preventative treatment for *Phythophthora ramorum*, for use on individual, high-value tanoak and oak trees. This treatment is NOT a cure, but can help protect trees from infection, as well as suppress disease progression in very early infections. However, fungicide treatment of *P. ramorum*-infected trees is not always appropriate. Trees with advanced symptoms cannot be saved.

The phosphonate compound may be injected or mixed with a surfactant and sprayed on the trunk for absorption through bark. The optimal treatment routine for coast live oaks calls for two applications the first year followed by one application annually thereafter. It is recommended to treat in either the fall then spring, or spring then fall the first year. Follow up treatments should be only in the fall annually (avoid treatments when temperatures are very low). If risk is minimal, meaning low abundance of infections or host species in the area, follow up treatments can be bi-annual.

Since the treatment must be made to healthy trees, and the pathogen's distribution and activity is patchy and somewhat unpredictable, it is difficult to determine which trees need to be treated. Generally, you should treat healthy, high-value oak or tanoak trees within 150ft of other infested plants. You may want to treat healthy, high-value oaks or tanoaks if they are surrounded by healthy California bay laurel and there are known

Who should I hire to treat my trees?

The COMTF has held many training sessions for tree care professionals in California. A list of those training participants can be found on the COMTF website. Go to suddenoakdeath, org to find a professional in your area who has attended a general diagnostic training session or a training session on applying the registered preventative chemical treatment. While they have been trained, it is still important to ask for references, as well as to interview the arborist and applicator to see if they are up-to-date on the latest Phytophthora ramorum management strategies.

infections between 150ft and 1000ft away. Treatment is NOT recommended in areas where infested plants are not already present. Although these treatments are best used as a preventative approach, it may be possible to prolong the life of trees already infected by *P. ramorum*. Research results indicate that treatments are effective only if trees are treated within the first two months of infection. Treatment of trees having displayed symptoms for six months or longer is not recommended.

Exactly how the pathogen spreads to oak trees is unknown, but it is suspected that neighboring non-oak host plants may be a source of infection for oak trees. However, because this relationship is poorly understood, large-scale removal of non-oak host plants is not being recommended as a way to prevent disease spread. Currently, it may be best to plant non-*Phtytophthora ramorum* hosts under or adjacent to oak trees. Rhododendron, for example, is a commonly planted ornamental that is a host for *P. ramorum*, and it is possible that an infested rhododendron could infect a nearby oak. Additionally, the summer watering necessary to keep lawns and non-native ornamental shrubs, such as camellias, alive under an oak tree severely predisposes the oak to other diseases.

The use of insecticides to prevent *P. ramorum* infection is unjustified and without merit. However, the treatment of individual, high-value landscape trees displaying early bleeding symptoms of Sudden Oak Death may be justified to control damage from secondary bark beetle attacks. If an insecticide is to be used, apply it only if the disease is not at an advanced stage and realize it may only prolong the life of the tree for a relatively short period of time.

Tree Removal: A tree with Sudden Oak Death needs to be considered and treated differently than a tree without the disease, but the disease alone is not justification for removing a tree. Current information indicates that non-oak foliar hosts contribute the most to disease spread, so removing infected oak trees will probably have little or no impact on local disease levels and spread. However, an important consideration with respect to any tree is whether or not it presents a hazard to life or property. All trees present some hazard, depending on the tree's structural integrity and its potential to do harm should it fail or portions break off. Preliminary research has shown that trees infected or killed by *P. ramorum* are prone to rapid decay and unpredictable failure. Green infected trees, as well as trees already dead from *P. ramorum* and/or secondary pests, are at increased risk of trunk and limb breakage.

The decision to remove a hazardous tree ultimately lies with the property owner. In order to get an objective assessment of hazardous conditions, contact a certified arborist or other qualified professional. Any dead tree has an increased risk of failure, but even dead trees have value, and if there is not a risk to life or property, consider leaving it standing. Standing dead trees provide important wildlife habitat, and after they fall and decay, they are a source of nutrients to be recycled into the soil.

Always consult regulatory officials regarding local tree ordinances before deciding to remove trees. Experienced tree service technicians should conduct tree felling, as infected trees may have an abundance of structural wood decay. If there is an acute emergency, contact your city arborist, local fire, or police department.

What should be planted to replace a tree that was killed by *Phytophthora ramorum*?

If you want to replant, it is important to choose a plant that will suit your needs and adapt well to the site. There are many resources available that can guide you in making the right choice. Check to see if there are any local ordinances or guidelines that govern tree replacement or planting.

Resistance to *P. namorum* in oak trees is just beginning to be explored. Resistant planting stock is not available at this time, nor is it known if it will ever be available. If you want to replant the same species of tree that was lost, there is a tisk that the new tree may also suffer from the disease. If you have space for replanting many trees, consider replanting the same species in combination with other trees that don't get the disease. Thus, if some trees are lost to *P. namorum* there will still be other trees that survive. Coast live oaks do not seem to be infected by *P. namorum* until they reach about 4" in diameter, so new trees should be immune for a number of years, and high value trees can be treated if necessary once they reach a susceptible age. Species in the white oak group such as valley oak, Garry oak, and blue oak are not susceptible to *P. ramorum*.

Many common ornamental plants, such as rhododendrons, azaleas, and camellias, are also known hosts of *P. ramorum*. These plants not only can host spores that may infect oak trees, but their watering requirements are vastly different than those of California native oaks. We do not recommend planting these species under or near native oaks.

If I have an infected oak tree cut down, what should be done with the wood?

The simplest and best way to deal with infested wood is to leave it on site, chipping the smaller pieces of wood for use as mulch, and splitting the larger pieces of wood for firewood. Do not stack oak firewood next to living oak trees since this can lead to insect attack on the living trees. If the stack must be next to living trees, consider seasoning the logs beneath a rightly sealed, clear plastic tarp to prevent the buildup of destructive insects.

If infected wood is removed from your property, make sure it is utilized or disposed of in a way that does not spread the disease. Avoid leaving wood next to roads where it could be picked up and transported off-site by unauthorized parties, Regulations prohibit the movement of host plants and plant parts out of the quarantined area. If you have infected trees cut down, make sure the wood and other tree parts are not moved outside of the quarantine area.

Debris Disposal:

Disposal of infested material is extremely important because branches, twigs, and leaves from California bay laurel, rhododendron and other host plants may harbor *P. ramorum*, even after they are removed from the plant. If infested plant debris

or infected live plants are moved, they may inadvertently transfer the pathogen to uninfested areas. Unfortunately, *P. ramorum* has been present in many areas of coastal California for a decade or longer, making complete eradication impossible. In infested areas, the best option is to leave infested material on site, chipping the small material (for use as ground cover) and using larger pieces for firewood. Composting can also successfully kill the pathogen, but the compost must reach temperatures that are probably not possible or practical in a home composting site. Since innoculum levels are already thought to be high, leaving the additional innoculum from the infested plant material on site will not significantly worsen the local disease conditions. Plant debris removal from the property is only recommended if it is the first infected tree to be detected in the area, or if fire risk is high.

General Guidelines for Creating Defensible Space

State Board of Forestry and Fire Protection (BOF)
California Department of Forestry and Fire Protection

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A. Purpose of Guidelines

Recent changes to Public Resources Code (PRC) 4291 expand the defensible space clearance requirement maintained around buildings and structures from 30 feet to a distance of 100 feet. These guidelines are intended to provide property owners with examples of fuel modification measures that can be used to create an area around buildings or structures to create defensible space. A defensible space perimeter around buildings and structures provide firefighters a working environment that allows them to protect buildings and structures from encroaching wildfires as well as minimizing the chance that a structure fire will escape to the surrounding wildland. These guidelines apply to any person



Effective defensible space

who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining any mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material, and located within a State Responsibility Area.

The vegetation surrounding a building or structure is fuel for a fire. Even the building or structure itself is considered fuel. Research and experience have shown that fuel reduction around a building or structure increases the probability of it surviving a wildfire. Good defensible space allows firefighters to protect and save buildings or structures safely without facing unacceptable risk to their lives. Fuel reduction through vegetation management is the key to creating good defensible space.

Terrain, climate conditions and vegetation interact to affect fire behavior and fuel reduction standards. The diversity of California's geography also influences fire behavior and fuel reduction standards as well. While fuel reduction standards will vary throughout the State, there are some common practices that guide fuel modification treatments to ensure creation of adequate defensible space:

- Properties with greater fire hazards will require more clearing. Clearing requirements will be greater for those lands with steeper terrain, larger and denser fuels, fuels that are highly volatile, and in locations subject to frequent fires.
- Creation of defensible space through vegetation management usually means reducing the amount
 of fuel around the building or structure, providing separation between fuels, and or reshaping
 retained fuels by trimming. Defensible space can be created removing dead vegetation, separating
 fuels, and pruning lower limbs.
- In all cases, fuel reduction means arranging the tree, shrubs and other fuels sources in a way that
 makes it difficult for fire to transfer from one fuel source to another. It does not mean cutting down
 all trees and shrubs, or creating a bare ring of earth across the property.
- A homeowner's clearing responsibility is limited to 100 feet away from his or her building or structure or to the property line, which ever is less, and limited to their land. While individual property owners are not required to clear beyond 100 feet, groups of property owners are encouraged to extend clearances beyond the 100 foot requirement in order to create communitywide defensible spaces.
- Homeowners who do fuel reduction activities that remove or dispose of vegetation are required to
 comply with all federal, state or local environmental protection laws and obtain permits when
 necessary. Environmental protection laws include, but are not limited to, threatened and
 endangered species, water quality, air quality, and cultural/archeological resources. For example,
 trees removed for fuel reduction that are used for commercial purposes require permits from the

California Department of Forestry and Fire Protection. Also, many counties and towns require tree removal permits when cutting trees over a specified size. Contact your local resource or planning agency officials to ensure compliance.

The methods used to manage fuel can be important in the safe creation of defensible space. Care should be taken with the use of equipment when creating your defensible space zone. Internal combustion engines must have an approved spark arresters and metal cutting blades (lawn mowers or weed trimmers) should be used with caution to prevent starting fires during periods of high fire danger. A metal blade striking a rock can create a spark and start a fire, a common cause of fires during summertime.

Vegetation removal can also cause soil disturbance, soil erosion, regrowth of new vegetation, and introduce non-native invasive plants. Always keep soil disturbance to a minimum, especially on steep slopes. Erosion control techniques such as minimizing use of heavy equipment, avoiding stream or gully crossings, using mobile equipment during dry conditions, and covering exposed disturbed soil areas will help reduce soil erosion and plant regrowth.

Areas near water (riparian areas), such as streams or ponds, are a particular concern for protection of water quality. To help protect water quality in riparian areas, avoid removing vegetation associated with water, avoid using heavy equipment, and do not clear vegetation to bare mineral soil.

B. Definitions

Defensible space: The area within the perimeter of a parcel where basic wildfire protection practices are implemented, providing the key point of defense from an approaching wildfire or escaping structure fire. The area is characterized by the establishment and maintenance of emergency vehicle access, emergency water reserves, street names and building identification, and fuel modification measures.

Aerial fuels: All live and dead vegetation in the forest canopy or above surface fuels, including tree branches, twigs and cones, snags, moss, and high brush. Examples include trees and large bushes.

Building or structure: Any structure used for support or shelter of any use or occupancy.

Flammable and combustible vegetation: Fuel as defined in these guidelines.

Fuel Vegetative material, live or dead, which is combustible during normal summer weather. For the purposes of these guidelines, it does not include fences, decks, woodpiles, trash, etc.

Homeowner: Any person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining any mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material, and located within a State Responsibility Area.

Ladder Fuels: Fuels that can carry a fire vertically between or within a fuel type.

Reduced Fuel Zone: The area that extends out from 30 to 100 feet away from the building or structure (or to the property line, whichever is nearer to the building or structure).

Surface fuels: Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, forbs, low and medium shrubs, tree seedlings, heavier branches and downed logs.

C. Fuel Treatment Guidelines

The following fuel treatment guidelines comply with the requirements of 14 CCR 1299 and PRC 4291. All persons using these guidelines to comply with CCR 1299 and PRC 4291 shall implement General Guidelines 1., 2., 3., and either 4a or 4b., as described below.

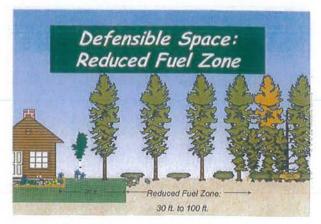
General Guidelines:

- 1. Maintain a firebreak by removing and clearing away all flammable vegetation and other combustible growth within 30 feet of each building or structure, with certain exceptions pursuant to PRC §4291(a). Single specimens of trees or other vegetation may be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a building or structure.
- 2. Dead and dying woody surface fuels and aerial fuels within the Reduced Fuel Zone shall be removed. Loose surface litter, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches, shall be permitted to a depth of 3 inches. This guideline is primarily intended to eliminate trees, bushes, shrubs and surface debris that are completely dead or with substantial amounts of dead branches or leaves/needles that would readily burn.
- 3. Down logs or stumps anywhere within 100 feet from the building or structure, when embedded in the soil, may be retained when isolated from other vegetation. Occasional (approximately one per acre) standing dead trees (snags) that are well-space from other vegetation and which will not fall on buildings or structures or on roadways/driveways may be retained.
- 4. Within the Reduced Fuel Zone, one of the following fuel treatments (4a. or 4b.) shall be implemented. Properties with greater fire hazards will require greater clearing treatments. Combinations of the methods may be acceptable under §1299(c) as long as the intent of these guidelines is met.

4a. Reduced Fuel Zone: Fuel Separation

In conjunction with General Guidelines 1., 2., and 3., above, minimum clearance between fuels surrounding each building or structure will range from 4 feet to 40 feet in all directions, both horizontally and vertically.

Clearance distances between vegetation will depend on the slope, vegetation size, vegetation type (brush, grass, trees), and other fuel characteristics (fuel compaction, chemical content etc.). Properties with greater fire hazards will require greater separation

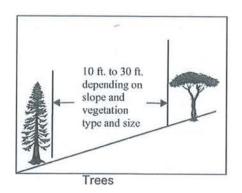


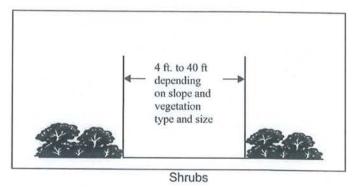
between fuels. For example, properties on steep slopes having large sized vegetation will require greater spacing between individual trees and bushes (see Plant Spacing Guidelines and Case Examples below). Groups of vegetation (numerous plants growing together less than 10 feet in total foliage width) may be treated as a single plant. For example, three individual manzanita plants growing together with a total foliage width of eight feet can be "grouped" and considered as one plant and spaced according to the Plant Spacing Guidelines in this document.

Grass generally should not exceed 4 inches in height. However, homeowners may keep grass and other forbs less than 18 inches in height above the ground when these grasses are isolated from other fuels or where necessary to stabilize the soil and prevent erosion.

Clearance requirements include:

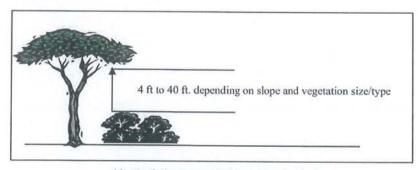
 Horizontal clearance between aerial fuels, such as the outside edge of the tree crowns or high brush. Horizontal clearance helps stop the spread of fire from one fuel to the next.





Horizontal clearance between aerial fuels

 Vertical clearance between lower limbs of aerial fuels and the nearest surface fuels and grass/weeds. Vertical clearance removes ladder fuels and helps prevent a fire from moving from the shorter fuels to the taller fuels.



Vertical clearance between aerial fuels



Effective vertical and horizontal fuel separation

Photo Courtesy

Plumas Fire Safe

Council.

Plant Spacing Guidelines

Guidelines are designed to break the continuity of fuels and be used as a "rule of thumb" for achieving compliance with Regulation 14 CCR 1299.

Trees	Minimum horizontal space from edge of one tree canopy to the edge of the next			
	Slope	Spacing		
	0% to 20 %	10 feet		
	20% to 40%	20 feet		
	Greater than 40%	30 feet		
	Minimum horizontal space between edges of shrub			
	Slope	Spacing		
Shrubs	0% to 20 %	2 times the height of the shrub		
	20% to 40%	4 times the height of the shrub		
	Greater than 40%	6 times the height of the shrub		
Vertical Space	Minimum vertical space between top of shrub and bottom of lower tree branches: 3 times the height of the shrub			

Adapted from: Gilmer, M. 1994. California Wildfire LandscapingLandscaping

Case Example of Fuel Separation: Sierra Nevada conifer forests

Conifer forests intermixed with rural housing present a hazardous fire situation. Dense vegetation, long fire seasons, and ample ignition sources related to human access and lightning, makes this home vulnerable to wildfires. This home is located on gentle slopes (less than 20%), and is surrounded by large mature tree overstory and intermixed small to medium size brush (three to four feet in height).

Application of the guideline under 4a. would result in horizontal spacing between large tree branches of 10 feet; removal of many of the smaller trees to create vertical space between large trees and smaller trees and

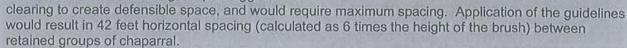


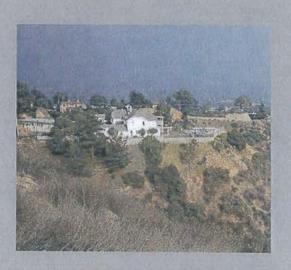
horizontal spacing between brush of six to eight feet (calculated by using 2 times the height of brush).

Case Example of Fuel Separation: Southern California chaparral

Mature, dense and continuous chaparral brush fields on steep slopes found in Southern California represents one of the most hazardous fuel situations in the United States. Chaparral grows in an unbroken sea of dense vegetation creating a fuel-rich path which spreads fire rapidly. Chaparral shrubs burn hot and produce tall flames. From the flames come burning embers which can ignite homes and plants. (Gilmer, 1994). All these factors results in a setting where aggressive defensible space clearing requirements are necessary.

Steep slopes (greater than 40%) and tall, old brush (greater than 7 feet tall), need significant modification. These settings require aggressive





Case Example of Fuel Separation: Oak Woodlands

Oak woodlands, the combination of oak trees and other hardwood tree species with a continuous grass ground cover, are found on more than 10 million acres in California. Wildfire in this setting is very common, with fire behavior dominated by rapid spread through burning grass.

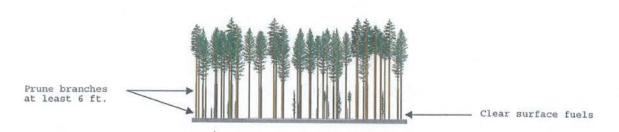
Given a setting of moderate slopes (between 20% and 40%), wide spacing between trees, and continuous dense grass, treatment of the grass is the primary fuel reduction concern. Property owners using these guidelines would cut grass to a maximum 4 inches in height, remove the clippings, and consider creating 20 feet spacing between trees.



4b. Reduced Fuel Zone: Defensible Space with Continuous Tree Canopy

To achieve defensible space while retaining a stand of larger trees with a continuous tree canopy apply the following treatments:

- Generally, remove all surface fuels greater than 4 inches in height. Single specimens of trees
 or other vegetation may be retained provided they are well-spaced, well-pruned, and create a
 condition that avoids spread of fire to other vegetation or to a building or structure.
- Remove lower limbs of trees ("prune") to at least 6 feet up to 15 feet (or the lower 1/3 branches for small trees). Properties with greater fire hazards, such as steeper slopes or more severe fire danger, will require pruning heights in the upper end of this range.



Defensible Space retaining continuous trees



Photo Courtesy Plumas Fire Safe Council.



Defensible space with continuous tree canopy by clearing understory and pruning

Authority cited: Section 4102, 4291, 4125-4128.5, Public Resource Code. Reference: 4291, Public Resource Code; 14 CCR 1299 (d).



PUBLIC RESOURCES CODE - PRC

DIVISION 4. FORESTS, FORESTRY AND RANGE AND FORAGE LANDS [4001 - 4958] (
Division 4 repealed and added by Stats. 1965, Ch. 1144.)

PART 2. PROTECTION OF FOREST, RANGE AND FORAGE LANDS [4101 - 4789.7] (Part 2 added by Stats. 1965, Ch. 1144.)

CHAPTER 3. Mountainous, Forest-, Brush- and Grass-Covered Lands [4291 - 4299] (Chapter 3 added by Stats. 1965, Ch. 1144.)

- (a) A person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material, shall at all times do all of the following:
- (1) Maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line except as provided in paragraph (2). The amount of fuel modification necessary shall take into account the flammability of the structure as affected by building material, building standards, location, and type of vegetation. Fuels shall be maintained in a condition so that a wildfire burning under average weather conditions would be unlikely to ignite the structure. This paragraph does not apply to single specimens of trees or other vegetation that are well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to a structure or from a structure to other nearby vegetation. The intensity of fuels management may vary within the 100-foot perimeter of the structure, the most intense being within the first 30 feet around the structure. Consistent with fuels management objectives, steps should be taken to minimize erosion. For the purposes of this paragraph, "fuel" means any combustible material, including petroleum-based products and wildland fuels.
- (2) A greater distance than that required under paragraph (1) may be required by state law, local ordinance, rule, or regulation. Clearance beyond the property line may only be required if the state law, local ordinance, rule, or regulation includes findings that the clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure. Clearance on adjacent property shall only be conducted following written consent by the adjacent landowner.
- (3) An insurance company that insures an occupied dwelling or occupied structure may require a greater distance than that required under paragraph (1) if a fire expert, designated by the director, provides findings that the clearing is necessary to significantly reduce the risk of transmission of flame or heat sufficient to ignite the structure, and there is no other feasible mitigation measure possible to reduce the risk of ignition or spread of wildfire to the structure. The greater distance may not be beyond the property line unless allowed by state law, local ordinance, rule, or regulation.
- (4) Remove that portion of a tree that extends within 10 feet of the outlet of a chimney or stovepipe.
- (5) Maintain a tree, shrub, or other plant adjacent to or overhanging a building free of dead or dying wood.
- (6) Maintain the roof of a structure free of leaves, needles, or other vegetative materials.
- (7) Prior to constructing a new building or structure or rebuilding a building or structure damaged by a fire in an area subject to this section, the construction or rebuilding of which requires a building permit, the owner shall obtain a certification from the local building official that the dwelling or structure, as proposed to be built, complies with all applicable state and local building standards, including those described in subdivision (b) of Section 51189 of the Government Code, and shall provide a copy of the certification, upon request, to the insurer providing course of construction insurance coverage for the building or structure. Upon completion of the construction or rebuilding, the owner shall obtain from the local building official, a copy of the final inspection

- $leginfo. legislature. ca.gov/faces/printCodeSectionWindow.xhtml?lawCode=PRC\§ionNum=4291. \&op_statues=2018\&op_chapter=641...$
- report that demonstrates that the dwelling or structure was constructed in compliance with all applicable state and local building standards, including those described in subdivision (b) of Section 51189 of the Government Code, and shall provide a copy of the report, upon request, to the property insurance carrier that insures the dwelling or structure.
- (b) A person is not required under this section to manage fuels on land if that person does not have the legal right to manage fuels, nor is a person required to enter upon or to alter property that is owned by any other person without the consent of the owner of the property.
- (c) (1) Except as provided in Section 18930 of the Health and Safety Code, the director may adopt regulations exempting a structure with an exterior constructed entirely of nonflammable materials, or, conditioned upon the contents and composition of the structure, the director may vary the requirements respecting the removing or clearing away of flammable vegetation or other combustible growth with respect to the area surrounding those structures.
- (2) An exemption or variance under paragraph (1) shall not apply unless and until the occupant of the structure, or if there is not an occupant, the owner of the structure, files with the department, in a form as the director shall prescribe, a written consent to the inspection of the interior and contents of the structure to ascertain whether this section and the regulations adopted under this section are complied with at all times.
- (d) The director may authorize the removal of vegetation that is not consistent with the standards of this section. The director may prescribe a procedure for the removal of that vegetation and make the expense a lien upon the building, structure, or grounds, in the same manner that is applicable to a legislative body under Section 51186 of the Government Code.
- (e) The department shall develop, periodically update, and post on its Internet Web site a guidance document on fuels management pursuant to this chapter. Guidance shall include, but not be limited to, regionally appropriate vegetation management suggestions that preserve and restore native species that are fire resistant or drought tolerant, or both, minimize erosion, minimize water consumption, and permit trees near homes for shade, aesthetics, and habitat; and suggestions to minimize or eliminate the risk of flammability of nonvegetative sources of combustion such as woodpiles, propane tanks, decks, and outdoor lawn furniture.
- (f) As used in this section, "person" means a private individual, organization, partnership, limited liability company, or corporation.

 (Amended by Stats. 2018, Ch. 641, Sec. 7. (AB 2911) Effective January 1, 2019.)

Where can I get more information?

Contact your closest CAL FIRE Resource Management office for additional information.

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Contact a private Registered Professional Forester (RPF):

Check the phone book for consulting foresters or the Board of Forestry website and click on Registered Foresters:

http://bofdata.fire.ca.gov/

A Licensed Timber Operator (LTO) can be found in the phone book or at the CAL FIRE website:

http://calfire.ca.gov

CAL FIRE Resource Management Offices

Bridgeville 38697 Kneeland Road Bridgeville, CA 95526 (707) 777-1720

Crescent City 1025 Highway 101 Crescent City, CA 95531 707-464-4969

Fortuna 118 N. Fortuna Blvd Fortuna, CA 95540 (707) 726-1253

Trinidad

842 Patrick's Point Drive
Trinidad, CA 95570
(707) 677-0761

Weott 330 Newton Road Weott, CA 95571 (707) 946-2204

Tree Removal FAQs





"The Department of Forestry and Fire Protection serves and safeguards the people and protects the property and resources of California."



When do I need a permit to remove trees?

- When you are going to permanently remove commercial species from timberland for the purpose of converting the site to another use.
- When you are going to offer commercial tree species for sale, barter, trade, or exchange.

Do I need a permit for personal use?

- A permit is usually not needed from CAL FIRE for harvesting trees for personal use as long as timberland conversion is not involved in the project.
- Permits may be required from the city or county depending on your zoning.

What is timberland conversion?

It is the conversion of timberland to another use, including, but not limited to residential or commercial development, agricultural use, utility construction, or new road construction.



Does this just apply to Timberland Production Zone (TPZ)?

No, it applies regardless of the property's zoning. Timberland is nonfederal land which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.

What if I'm converting timberland but not selling or trading the trees?

A permit is still required. The Forest Practice Rules require a conversion permit where a project involves the process of clearing timberland where commercial species are naturally growing, capable of growing, or have grown naturally in the recorded past.

What are commercial species?

coast redwood, Douglas-fir, grand fir, western hemlock, western red cedar, bishop pine, Sitka spruce, incense cedar, Port-Orford cedar, California red fir, white fir, Jeffrey pine, ponderosa pine, sugar pine, or western white pine

The following species are included where they are found with the above conifer species that are now growing naturally or have grown naturally in the recorded past:

tanoak, red alder, white alder, Pacific madrone, golden chinkapin, pepperwood, Oregon white oak, California black oak or Monterey pine