

**Mitigation Measures to prevent the spread of Sudden Oak Death (SOD)
During Timber Harvest Operations under Department of Food and Agriculture
Regulation and Zone of Infestation.**

State Regulations for movement of host material apply to all EXISTING harvest activities

Hosts of SOD in California: Check the most current list of regulated plants at <http://pi.cdfa.ca.gov/pgm/manual/455.htm>. Common forest hosts wherein all plants parts are regulated are: **tanoak** (*Lithocarpus densiflorus*), **coast live oak** (*Quercus agrifolia*), **Shreve oak** (*Q. parvula* var. *shrevei*), **black oak** (*Q. kelloggii*), **bay laurel** (*Umbellularia californica*), **madrone** (*Arbutus menzesii*), **California buckeye** (*Aesculus californica*), **rhododendron** (*Rhododendron* sp.), **huckleberry** (*Vaccinium ovatum*), **honeysuckle** (*Lonicera hispidula*), **manzanita** (*Arctostaphylos manzanita.*), **bigleaf maple** (*Acer macrophyllum*), **coffeeberry** (*Rhamnus californica*), **toyon** (*Heteromeles arbutifolia*), **rhododendron** (*all Rhododendron species*), and **western starflower** (*Trientalis latifolia*).

Forest hosts wherein only portions of the plant are regulated are: **coast redwood** (*Sequoia sempervirens*)-- only the spouts, live burls, needles and branches less than 1" in diameter are the only parts of the plant that are regulated; **Douglas-fir** (*Pseudotsuga menziesii*) and **canyon live oak** (*Quercus crysolepis*)-- leaves/ needles, and branches less than 1" in diameter are the only regulated plant parts on these species.

Regulated Area (entire counties): Currently, (March 2005) the following counties are within the state's (CDFA) Regulated Area: Alameda, Contra Costa, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Francisco, Santa Clara, Santa Cruz, San Mateo, Solano, and Sonoma. The California Board of Forestry and Fire Protection's (the Board) Sudden Oak Death Zone of Infestation covers the identical area. As counties are added to CDFA's Regulated Area, the Board amends its ZOI to match the Regulated Area.

Distribution of SOD: check the website <http://www.cnr.berkeley.edu/comtf/> for known infested areas. Information on local distribution may also be obtained from the County Agricultural Commissioner's office or CDF.

State Regulation: The SOD pathogen, *Phytophthora ramorum*, can be spread via host material. Therefore, plants, plant parts, unprocessed wood and wood products, and other products of the above mentioned hosts cannot be moved from counties infested with SOD without authorization of CDF through the harvest document approval process. See <http://pi.cdfa.ca.gov/pgm/manual/455.htm> for California Department of Food and Agriculture's (CDFA) regulations regarding commodities covered. For regulated articles leaving the state, federal regulations also cover soil as a medium for pathogen transport.

Forest Practice Regulations

The California State Board of Forestry and Fire Protection has approved the establishment of a Zone Of Infestation for sudden oak death covering all portions of the current (or future) infested counties identified in the CDFA Section 3700 regulations (see above link). Pursuant to 14 CCR 917.9(a) [All Districts], the RPF shall identify feasible measures to mitigate adverse infestation or infection impacts from the timber operations (PCR 4527). Long-term plans such as NTMP's should reassess SOD mitigations within each proposed Notice of Timber Operations (14 CCR 1090.7). Additionally, 14 CCR 917.10 requires the locating and reporting of insect and disease outbreaks. RPFs, LTOs, and timber owners are all responsible for assisting the State in locating outbreaks. A formal survey for SOD may only be required once per year, but new discoveries of dying hosts and/or obviously symptomatic hosts should be reported whenever they are found.

Although standard timber harvest plans have RPFs involved in plan preparation, some harvest documents do not. Most Exemptions are submitted by LTOs. However, the commercial timber operations must still be conducted according to the Forest Practice Rules (PRC 4583), with mitigations included not only to minimize the introduction or adverse build-up and spread of forest pests (14 CCR 917.9), but also specifically for those pests associated with a Board-declared Zone of Infestation (14 CCR 917.9(a)).

Within all currently Regulated counties, except Humboldt and Lake Counties, 14 CCR 917.9(a) mandates **additional** mitigation for **pitch canker**, as the Coastal Pitch Canker Zone of Infestation extends from Mendocino County south through portions of San Diego Co. For a description of the Coastal Pitch Canker ZOI, see:

http://frap.cdf.ca.gov/pitch_canker/prevention_management/resolution.html.

Regulations versus Best Management Practices.

The plan-preparing RPF is mandated to include appropriate state or federal regulations. However, there are several other Best Management Practices, if incorporated into the THP's mitigations, which could greatly reduce the risk of pathogen spread. Some of these involve equipment and shoe sanitation, crew communication, timing of entries, water drafting for dust abatement, and removing mud from vehicles and equipment.

Together, the mandated regulations coupled with the inclusion of appropriate Best Management Practices comprise THP **mitigations**.

MITIGATION SCENARIOS

State and federal regulations do not apply unless regulated articles are moved **from** the Regulated Area. However, even if regulated articles are **not** transported **from** the Regulated Area, timber harvest plans are still mandated (14 CCR 917.9(a)) to mitigate for SOD within the SOD Zone of Infestation.

If regulated articles move **intrastate** from the Regulated Area, state regulations must be applied. If regulated articles move **interstate** from the Regulated Area, federal regulations must be applied.

If regulated articles remain in-state, the level of SOD mitigation may be dependent upon presence or absence within the plan area. To determine if there is no SOD present, and thus reduce the amount of SOD mitigation:

- 1) A “free from” survey can be conducted and, if no infected hosts are found, no additional mitigations may be necessary. If the survey is conducted, it must be conducted by an RPF that has attended training for survey and sampling, and the plan must explain how the survey was conducted as explained in the training. The “free from” certification and the approved harvest document explaining the survey process acts as the compliance agreement and the SOD mitigation measures. The 1-year status of a “free-from” survey begins with the date of the survey completion (if no symptoms were found), or from the date of the reply from the CDFA lab that submitted, symptomatic samples were negative. To continue timber operations beyond the 1-year period, an additional survey must be conducted and, if also proven negative, submitted as a minor amendment.
 - *Currently there is no provision that allows moving any host material out-of-state under the federal regulations without removing all bark prior to shipment out-of-state. Even when the bark is removed a compliance agreement is required for movement out-of-state. Free-from surveys are not valid for regulated materials leaving the state.*
 - *There is a provision for movement of biomass material out of the regulated area under special use permit issued by the county agricultural commissioner.*
- 2) If a “free from” survey is not conducted and the operation is within the regulated area, all hosts are assumed to be infected, and SOD mitigations in approved harvest documents shall be discussed during the on-site RPF-LTO meeting (14 CCR 1035.2) prior to commencement of timber operations.

Mitigation measures to prevent the spread or introduction of SOD are warranted in the following situations where regulated articles are moved from the Regulated Area:

Scenario #1

- **Commercial harvest in the regulated area where infected trees are not being harvested.**

Regulations for movement of host material still apply even though you are not removing logs from the site. Infected host material (especially foliage) could be picked-up on logging equipment and transferred to other sites. Mitigation measures to minimize the unintended movement of host material are required. Inspection of loads of logs and equipment leaving the site shall be done 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.

RPF (or LTO for Exemptions) shall inform personnel that they are working in a SOD-infested area, unauthorized movement of plant material is prohibited, and the intent of mitigation measures is to prevent disease spread (14 CCR 1035.2).

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 plan if the plan will act as the compliance agreement. If this information is not included in the plan, a separate compliance agreement or an amendment to the plan will be required prior to movement of host material.

Scenario #2

- **Commercial harvest on an infested site where infected host trees will be harvested.**

State and Federal regulations apply. Host material cannot not leave the site except as authorized by CDF through mitigation measures specified in the approved harvest document. Infected host material (especially foliage) and contaminated soil could be picked-up on logging equipment and transferred to other sites. Mitigation measures to minimize the unintended movement of host material are required. Inspection of loads of logs and equipment leaving the site shall be done to ensure that no host material is being transported without a permit. This may require cleaning mud from vehicle to remove host plant material encrusted in mud, depending on conditions when the timber harvest is conducted.

RPF (or LTO for Exemptions) shall inform personnel that they are working in a SOD-infested area, unauthorized movement of plant material is prohibited, and the intent of mitigation measures is to prevent disease spread 914 CCR 1035.2).

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 plan if the plan will act as the compliance agreement. If this information is not included in the plan, a separate compliance agreement or an amendment to the plan will be necessary prior to movement of host material.

Recommended, Additional Mitigation Measures (Best Management Practices)

The basic premises to remember when designing timber operations to minimize risk of spread or introduction are:

- *Phytophthora ramorum* likes it cool and wet.
- *Phytophthora ramorum* does not like hot and dry.
- *Phytophthora ramorum* can survive in green plant material, soil, and water.
- *Phytophthora ramorum* can move from Point A to Point B in plant material, soil, and water.
- Stem-infected trees may be structurally weak and hazardous.

Mitigation measures/BMPs to minimize the unintended movement of **host material** from infested areas (These measures are recommended for operations on infested sites. Other equally effective measures may be proposed and used if approved by the Department).

- If some sites in the general operating area are found to be disease-free or have a low incidence of disease, initiate and complete operations on these sites before moving to more heavily infested sites.
- To the extent practical:
 - Locate landings, log decks, logging roads, tractor roads, and other sites of equipment activity away from host plants, especially areas with disease symptoms. Route equipment away from host plants and trees, especially areas with disease symptoms.
 - Each time equipment or vehicles leave the site, the equipment or vehicles must be inspected for host plant debris (leaves, twigs, and branches). Host plant debris must 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 not be traveling to uninfested areas prior to their return

Mitigation measures/BMPs to minimize the unintended movement of **host material, soil, and water** from infested areas (These measures are not specifically required for operations on infested sites, but the RPF must state and justify what measures will be used to minimize the unintended movement of infested host material.

The SOD pathogen resides in soil and, to some degree, duff in infested areas, and soil/duff is therefore a potential carrier of the disease. The greatest threat of disease spread occurs when wet soil is present. Soil movement should be addressed:

- Because wet soil and mud will readily adhere to vehicles, equipment, and boots: 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 SOD. 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.
- After brushing, wiping, or rinsing off soil and organic debris from shoes and equipment, treat with Lysol to sanitize. -- Or,
- Dedicate a set of shoes and or equipment to only be used in SOD areas. Before leaving the infested area, place these within containers/bags, and use a “clean” set elsewhere.
- Use of local water sources for drafting of water for use on roads etc. While water is currently not a regulated item, the SOD pathogen can survive long periods in water. In order to prevent the transfer of water from an infested watershed to an uninfested watershed or uninfested portion of the same watershed the following precautions should be considered.
 - In addition to following CDF&G water drafting guidelines (intake mesh size, uptake velocity, etc.), water should not be drafted from a watercourse in a SOD-infested drainage and used in an uninfested area or watershed. Where water is drafted in the infested watershed if possible, draft upstream from the area that is known to be infested.