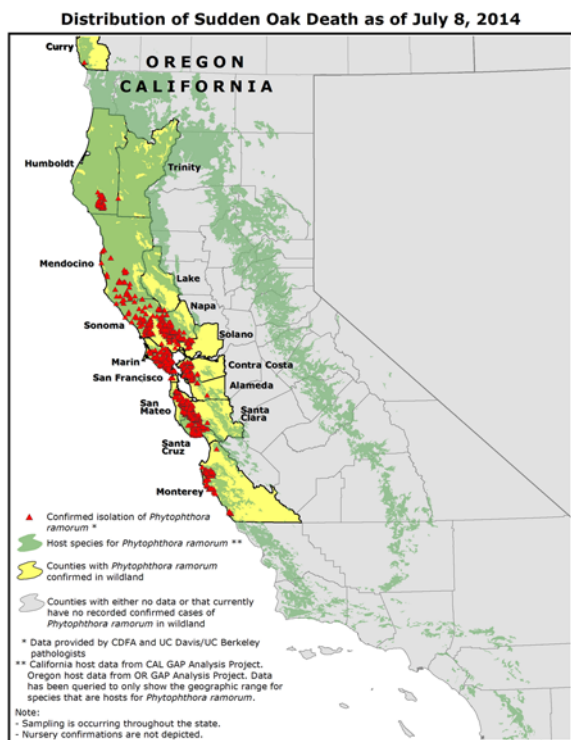


A guide for plant gatherers: Simple precautions to prevent the spread of Sudden Oak Death

A relatively new plant disease known as Sudden Oak Death is threatening the coastal forests of California and Oregon. Currently found in 15 coastal counties from Monterey to Humboldt, the disease is caused by the pathogen *Phytophthora ramorum* (pronounced Fi-TOFF-thor-ra ra-MOR-um). 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; most of these species suffer only minor damage, limited to leaf spots or twig dieback.

Phytophthora ramorum may be transported to new areas when infected plants or infested soil is collected and moved. Many commonly gathered plants may be carriers, such as California bay laurel (also called pepperwood or Oregon myrtle), California hazelnut, and rhododendron. While these plants are generally not killed, moving their infected leaves to new areas may cause new and deadly infections in oaks and tanoaks. This guide provides simple, practical information on how to gather and use host plants of *Phytophthora ramorum* without unintentionally moving the organism from one area to another. These suggested practices may be useful to people that work, gather, or live in areas that are infested by this potentially devastating disease.



The following California counties have confirmed *Phytophthora ramorum* findings and are therefore under State and federal quarantine regulations: 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.

To gather plants without accidentally spreading this organism, it is important to understand its preferred environment. *Phytophthora ramorum* prefers wet or moist climates, cool temperatures, and living plants. High temperatures and dry conditions are unfavorable for its survival. Its spores can be found in soil and water as well as plant material. The risk of movement and spread of the organism is greatest in muddy areas and during rainy weather.

California and the federal government have quarantines in effect for *Phytophthora ramorum*.

This document only provides recommendations to minimize the risk of spreading Sudden Oak Death while gathering plant material and does not address quarantine requirements. For more information on State and federal quarantines, go to suddenoakdeath.org or call your County Agricultural Commissioner.



Symptoms

The symptoms of Sudden Oak Death can be dramatic (Photo 1), killing large and small tanoaks, or fairly subtle (Photo 2), where California bay laurel leaves only show signs of the disease through leaf spots. Symptoms on the different plant species can vary greatly, from leaf spots to the death of mature trees. (A complete list of plants known to be susceptible to *Phytophthora ramorum* is available at suddenoakdeath.org.)

California bay laurel/pepperwood 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 (Photo 3), 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. When gathering, a good rule is to avoid collecting leaves from areas where leaf spots are present. By avoiding trees with leaf spots you will reduce the risk of spreading disease-causing organisms that may be present.

If you see bleeding and wilting tanoaks (Photos 4a & 4b) next to huckleberry plants that have lost a lot of leaves (Photo 5), or adjacent to several symptomatic host plants (Photos 6 & 7), you may be in an infested area.

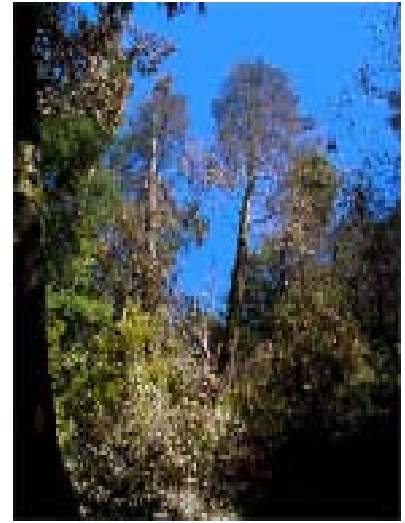


Photo 1. Forest in Marin County with tanoak trees killed by *Phytophthora ramorum*. (Photo by B. Tkacz, USDA Forest Service.)



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



Photo 3. Close-up of leaf spots on California bay laurel (Photo by Matteo Garbelotto, University of California, Berkeley.)



Photo 5. Huckleberry dieback. (Photo by Dave Rizzo, University of California, Davis.)



Photo 4a (top). Bleeding cankers on a tanoak trunk. Photo 4b (bottom). Drooping tanoak leaves. (Photos by Pavel Svihra, UC Cooperative Extension.)



Photo 6. Rhododendron leaf spots. (Photo by B. Moltzan, Missouri Department of Conservation.)



Photo 7. Symptoms on Douglas-fir. (Photo by Dave Rizzo, University of California, Davis.)

Recommendations

Where to go:

- If possible avoid traveling through and collecting plants in areas that appear diseased.
- If you cannot avoid infested areas, follow the sanitation practices listed below when working or gathering in the known infested areas.
- If you don't know if the site is infested or not, play it safe and assume that it is.

When to go:

- During wet periods, the pathogen seems to be most active; therefore, it is most likely to start a new infection if infested plant material is moved during this time.
- If possible, do not gather during wet, rainy, and cool times of the year.

How to prevent spread:

- Become familiar with the symptoms of Sudden Oak Death on oaks and tanoaks as well as the leaf spot symptoms on California bay laurel and other plants.
- Learn to recognize disease symptoms on the plant parts that you intend to collect and do not collect those that look diseased.
- Avoid working in muddy conditions.
- If possible, remove all soil from shoes, boots, tires, etc. before leaving collection sites. If this is not feasible, stop as soon as possible and wash soil from vehicles. Keep in mind that the soil you wash off may contain material that could start an infestation in the new area.
- Remove all visible soil with soap and water. If you also use Lysol® or a 10% bleach solution to clean shoes and boots before leaving an infested site, you will increase the likelihood that the organism is killed.
- If you are frequently in and out of forested areas in infested counties, consider committing footwear for use in that environment only that can be removed and cleaned before leaving the area.
- Remove all plant material (needles and leaves) from your body, baskets, vehicles, or other containers before leaving the site.
- Do not collect and transport water from streams, lakes, or rivers from known infested sites.

When gathering and processing known host plants for food, medicine, ceremonies, industrial uses, crafts or other purposes:

- There is no evidence to suggest that eating host material such as nuts, fruits, leaves, or berries poses a health risk to humans or animals.
- Drying, heating, or cooking plant material at high temperatures kills the organism and reduces the risk of spreading the disease.
- If possible, process and cook or dry the material as soon as possible. When storing material, keep it dry and out of any standing water. Remember that the pathogen prefers moist/wet areas and cool temperatures, so avoid keeping host material in such conditions.
- If host plant material is soaked, such as in basket making or food preparation, the water and other waste materials can become contaminated. Boiling the water will kill any organisms and reduce the risk of spread.
- If bark is stripped 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 spreading the pathogen since the organism is killed in the fire.