SUDDEN OAK DEATH

Phytophthora ramorum

Hillside with dead coast live oaks

Photo: K. Peek, Alameda County Department of Agriculture

in Alameda County

COUNTY OF ALAMEDA · CALIFORNIA

Initially reported in 1995, coast live oaks, black oaks, and tanoaks have been dying in some coastal areas of Central California due to a disease known as Sudden Oak Death (SOD). This disease is caused by a newly identified pathogen, *Phytophthora ramorum*. Other SOD host plants include California bay laurel, madrone, coast redwood, Douglas-fir, rhododendron, California buckeye, and huckleberry (for a complete list of SOD hosts go to www.suddenoakdeath.org).

Sudden Oak Death in California as of 2-15-08

Confirmed cases of SOD have been reported in Alameda, Contra Costa, Humbolt, Lake, Marin, Mendocino, Monterey, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma counties, and for regulatory purposes these counties are considered infested.

California Department of Food and Agriculture regulations must be followed when transporting SOD host plant material from infested counties to non-infested counties. Contact the Alameda County Department of Agriculture for details.

PRIMARY TREE HOSTS OF CONCERN

Coast Live Oak

Coast Live Oak Quercus agrifolia

Black Oak Quercus kelloggii

Phytophthora ramorum primarily attacks the tree's vascular system just below the bark. This is the "plumbing" system that transports nutrients and water throughout the tree. A tree infected with SOD is weakened and may also be attacked by other tree pests such as fungi and bark beetles.

SUDDEN OAK DEATH SYMPTOMS

In oak trees the earliest symptom is the "bleeding" of a burgundy-red to tar-black thick sap that appears on the bark surface. Other fungal diseases may also cause similar symptoms.

Bleeding on Coast Live Oak

Removal of the outer bark from bleeding areas reveals a canker displaying dark patches of infected tissue surrounded by healthy tissue. Cankers usually occur on the trunk within ten feet from the ground.

A) Canker in Coast Live Oak; B) Sawdust and frass; C) Hypoxylon fruiting bodies

Trees weakened by SOD or other diseases are often attacked by beetles and fungi. Sawdust and exit holes from oak bark beetles and ambrosia beetles may be observed on the bark. Black fruiting bodies of *Hypoxylon sp.* fungi may also be present.

SOD infected bay laurel leaves

In bay laurel, rhododendron, and huckleberry, *Phytophthora ramorum* can cause leaf spot and twig dieback. Bay laurel, though not killed by the disease, is thought to be a major repository for *Phytophthora ramorum*.

SUDDEN OAK DEATH MANAGEMENT

Laboratory culture of *Phytophthora ramorum* is needed to confirm the diagnosis of SOD since many other pathogens cause similar symptoms. For diagnostic assistance, please contact Alameda County Department of Agriculture or University of California Cooperative Extension (UCCE).

The best defense against SOD is to promote tree health by using good management and sanitary practices:

- Avoid frequent irrigation of oak trees. Most established oaks do not require supplemental irrigation except under severe drought conditions.

- Do not damage the roots by activities such as paving and soil compaction in the root zone (the area under the canopy plus one-third of that area). The root zone is the vulnerable part of oaks and should be treated as a 'zone of no disturbance.'

- Prune dead, dying, and other branches as needed to maintain a safe canopy structure, in the dry summer months (June–September).

- Clean and disinfect all pruning, cutting, and chipping tools with a household disinfectant after pruning host plants.

- Protect the trunk and lower limbs from injury.

- Monitor oaks for bleeding symptoms year round. If bleeding symptoms are detected, seek confirmation that the cause is Phytophthora ramorum by contacting Alameda County Department of Agriculture or UCCE.

*NOTE: Not all bleeding on oak trunks and limbs is indicative of SOD. Other causal agents such as Phytophthora cinnamomi, wet wood, or insects, may be responsible.

REDUCING THE SPREAD OF SUDDEN OAK DEATH

- Avoid transporting host plant material from areas where SOD is known to occur.

- Before leaving SOD areas, clean soil and mud off of:
  - ✓ shoes
  - ✓ mountain bikes
  - ✓ automobiles
  - ✓ horses' hooves
  - ✓ pet's paws

- Clean and disinfect equipment (saws, shovels, pruning equipment, etc.) that has been used in SOD areas.

- Do not collect wood, plants or plant parts of SOD hosts, or soil, from infested areas.

- Stay on established trails and respect trail closures.

- Report host trees exhibiting symptoms of SOD to Alameda County Department of Agriculture or UCCE.

At this time there is no known cure for Sudden Oak Death. A number of materials are being tested, but only one is currently available for use in a residential setting. This phosphorous product acts mainly as a suppressant against Phytophthora ramorum, but does not kill the pathogen. There is still no feasible treatment for trees in a woodland setting. It is hoped that some trees will be resistant to SOD, and that good management practices and regulations will help slow the spread of this disease.

For more information, please contact:

Alameda County Department of Agriculture

(510) 670-5232
or
UCCE office at (831) 763-8012

Also, you can visit
www.suddenoakdeath.org
for additional information via web links.

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