

Pacific Southwest Research Station



Sudden Oak Death



Thousands of oaks have been killed in 12 infested counties in California.

Issue:

This recently recognized plant disease poses a potential nationwide threat and raises national and international concerns for forest, horticultural, and agricultural interests and economies.

Key Points:

- Sudden Oak Death is a new disease to the U.S. caused by a previously undescribed pathogen. Sudden Oak Death was so named because of the rapid rate oak hosts appeared to be killed.
- Affects 22 forest and nursery-plant hosts in the U.S. Currently known to be present in California and Oregon and in 7 European countries.
- Classified as a “high-risk disease” by North American Forestry Commission protocols.
- Human transport of infested plant materials is a serious concern. Quarantines have been implemented in California, Oregon, and across the U.S. by USDA Animal and Plant Health Inspection Service (APHIS). International quarantines have been imposed by Canada, European Union, Australia, and South Korea.
- Large segments of eastern- and central-U.S. forests are potentially at risk. Laboratory results indicate that two common eastern-forest species (northern red oak and pin oak) are highly susceptible.
- The broad host range, observed disease severity, and general lack of understanding raise national and international interest and concern to a high level.



Bark-canker host symptoms



Background:

Sudden Oak Death was first recognized in the U.S. in the San Francisco Bay Area in 1995. Confirmed as *Phytophthora ramorum* in 2000. Identified in The Netherlands in 1993. Europe does not appear to be the source of the U.S. infestation.

The disease results in a variety of symptoms and effects on different hosts. Bark-canker hosts frequently die. These include tanoaks and three oak (*Quercus*) species. Foliar hosts become infected, are not necessarily killed, and may serve as a primary source of new infection.

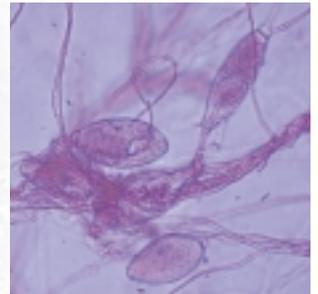
Host response varies with geographic location. The 22 known hosts in California include a variety of forest trees and horticultural plants, examples include species such as *Rhododendron*, honeysuckle, and poison oak to coast redwood and Douglas-fir. Three hosts are primarily affected in Oregon (tanoak, *Rhododendron*, and evergreen huckleberry). In Europe, only *Rhododendron* and *Viburnum* appear to be affected; there is no known occurrence on oak or in wildland settings.

Approximately 60 species of *Phytophthora* are known worldwide. *Phytophthora* species are responsible for several devastating plant diseases including the infamous Irish potato famine in the 1840's, and serious forest diseases affecting Eucalyptus in Australia and Port-Orford cedar in Oregon. *P. ramorum* spores provide a mechanism for long-term survival and long distance spread.

There is no known broad-scale control treatment. Eradication treatments have been applied in the one county known to be infested in southwestern Oregon.



Typical foliar host symptoms



Phytophthora ramorum spores

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