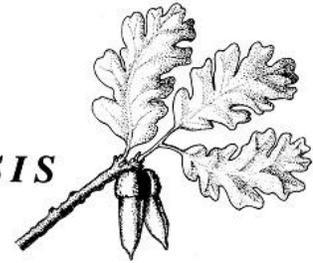


## PLANT DISEASE DIAGNOSIS

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# Phytophthora Root Rot



*Phytophthora cinnamomi* on coast live oak

### Symptoms

A tree or shrub infected with *Phytophthora* root and crown rot will show symptoms of decline throughout the entire plant. The tree or shrub slowly declines, with the foliage becoming gradually thinner and chlorotic. Wilt may be present. Twigs and branches will start to die back from the tips.

These visible symptoms in the branches and foliage are the result of the decay of the crown and root system caused by the fungus, *Phytophthora*. There may be oozing on the bark. If the outer bark is cut away, dark, dead wood is visible.

### Biology

All *Phytophthora* species require high soil moisture. The most serious pathogen in ornamental trees and shrubs is *P. cinnamomi*, which is favored by warm, moist conditions. Other species require cool, moist soil. *Phytophthora* can survive for long periods (years) in the soil. *Phytophthora* does not produce any visible fruiting structures. Laboratory isolation is necessary to confirm diagnosis.

### Host Range

Several *Phytophthora* species infect a wide range of California ornamental trees and shrubs. Native oaks in ornamental situation where summer watering occurs are particularly susceptible.



Bark removed showing dark, dead tissue

### Management

The most effective management technique is to prevent excess soil moisture. Reduce irrigation and improve drainage as much as possible. Large trees such as native oaks may be saved if summer watering is discontinued. No plants (bedding plants or shrubs) that require summer water should be planted under native oaks. Trunks should be exposed by removing any soil that may have been added. Raising the soil level around a trunk favors the disease.

*Phytophthora* may be present on a tree or shrub when it is purchased. In the nursery, the disease is suppressed but not killed by fungicides. In the home landscape the disease may become active again

Fungicides may be helpful in saving a valuable tree if used in addition to the above-mentioned cultural methods of control. Subdue Maxx (mefenoxam) and Aliette (fosetyl-Al) may be helpful. Follow all label instructions.

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