



Plant Health
AUSTRALIA

Sudden oak death

EXOTIC PEST – CALL THE EXOTIC PLANT PEST HOTLINE IF SUSPECTED

What is sudden oak death?

Sudden oak death (*Phytophthora ramorum*) is a serious invasive disease which affects over 100 plant species including hardwood and conifer trees, shrubs, herbaceous plants and ferns. The disease impacts the stem, shoots and leaves of infected hosts, and cool moist conditions favour its survival, infection and spread.

What symptoms should I look for?

Symptoms of sudden oak death on large trees include cankers on the lower trunk that have brown or black discoloured outer bark and bleeding sap. Sunken or flattened cankers may occur beneath these bleeding areas.

When the outer bark is removed from bleeding cankers, mottled areas of necrotic (dead) and discoloured inner-bark tissue can be seen. Black lines known as 'zone lines' are often present within and around edges of the dead areas. Cankers develop before symptoms on leaves become evident and crown death happens rapidly after infection.

Leaf blight also occurs leading to darkening and necrosis (death) of the leaves. The necrosis frequently starts at the leaf tip where moisture can accumulate and remain for long periods of time encouraging infection. Eventually entire leaves turn brown to black and may fall early. Sudden oak death also causes shoot dieback, which is characterised by blackened shoots, with or without foliage attached.

What can it be confused with?

An expert will be needed to identify a sudden oak death incursion as other factors can lead to similar symptoms.

Other pathogens and *Phytophthora* species can cause bleeding cankers with dark stained wood under the bark on the trunks of several plant species in Australia. However, sudden oak death appears to attack only above ground plant parts, symptoms have not been detected below the soil line.

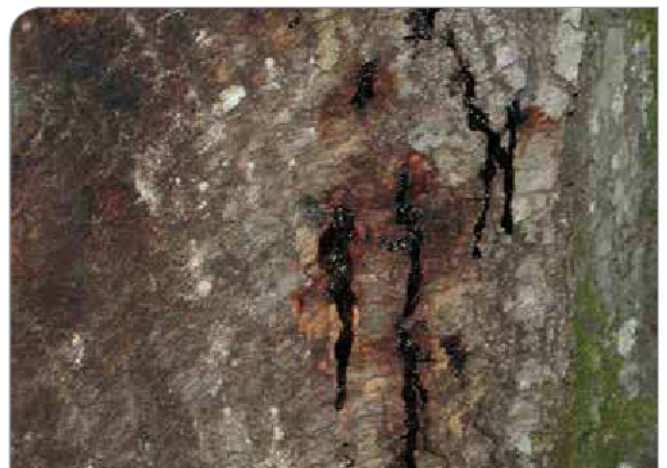
A fungus called Elsinoë scab can also cause loss of yield and red scabs but is distinguishable from sudden oak death by grey-beige spots at the centre of red-purple lesions.

Fungal *Armillaria* species can cause bleeding cankers like sudden oak death but can be easily distinguished by the white fans of thread-like fungus under the bark of infected trees.



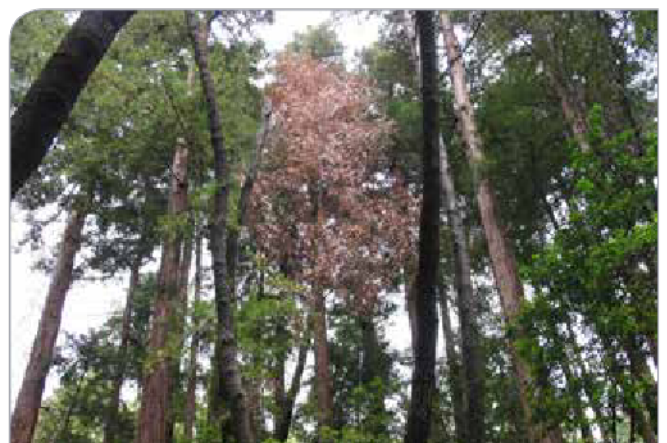
Infected leaves often show black 'zone lines' surrounding the edges of dead areas.

Joseph O'Brien, USDA Forest Service, Bugwood.org



Bleeding canker infections generally result in tree death.

Bruce Moltzan, Missouri Department of Conservation, Bugwood.org



Sudden oak death resulting in tree death.

Joseph OBrien, USDA Forest Service, Bugwood.org

Other groups of plant-damaging moulds and fungi (*Phytophthora*, *Colletotrichum*, *Botryosphaeria* and *Botrytis*) may cause leaf symptoms like those of sudden oak death dieback.

Physical factors such as sunburn may also give similar symptoms but unlike sudden oak death there will be a clear edge between affected and unaffected areas.

How does it spread?

Sudden oak death is highly invasive because it spreads rapidly, persists in the natural environment and has a broad host range. The disease spreads in wind and rain, and can be carried downstream in rivers and streams. It is also dispersed through the movement of infected soil and plants by humans. In the USA, sudden oak death has spread widely through the movement of symptomless but infected nursery stock.

Where is it now?

Sudden oak death is present in the USA, Canada, Belgium, Croatia, Czech Republic, Denmark, Germany, Greece, Ireland, Netherlands, Norway, Poland, Serbia, Spain, Switzerland and the UK.

How can I protect my plantation from sudden oak death?

Check your property for the presence of new pests and diseases and all plants coming in from nurseries and other plantations. Make sure you are familiar with common tea tree pests so you can identify the presence of something unusual in your plantation.

Due to its wide host range, sudden oak death is likely to be difficult to manage effectively once it is established so the best approach is to monitor your property regularly to increase the chance of early detection and eradication of the disease.

To monitor for sudden oak death, check your crop regularly for symptoms such as black spots on leaves, dieback and dark bleeding cankers above the soil line. Pay attention during and after wet periods as this is when the disease is most infectious. It is important to report suspected symptoms early because it can be difficult to distinguish sudden oak death from other diseases.



Dark stains can be seen underneath the bark of infected trees.

Joseph O'Brien, USDA Forest Service, United States



Sudden oak death affects above ground plant parts causing wilting and dieback.

Joseph O'Brien, USDA Forest Service, Bugwood.org

**IF YOU SEE ANYTHING UNUSUAL,
CALL THE EXOTIC PLANT PEST HOTLINE**

1800 084 881

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