

Cypress decline in Victoria

December 2013

Many dead or dying cypress trees have been reported around Victoria during the past couple of years, particularly in southern regions.

The Department of Environment and Primary Industries (DEPI) has identified a range of fungal diseases that are causing cypress decline in south and west Gippsland, the Mornington Peninsula and the Western District.

Unfortunately there is no proven cure for some of these diseases on cypresses once infection has occurred.

What organisms are causing the decline?

DEPI investigations have shown that cypress trees are affected by a range of fungi (pathogens), including cypress canker (*Seiridium sp.*), *Botryosphaeria sp.*, *Phomopsis sp.* and *Pestalotiopsis sp.*

These fungi have the potential to cause dieback symptoms, particularly following environmental conditions that place trees under stress.

They are a mixture of primary pathogens (which can attack intact plants) and secondary pathogens (which usually attack plants at sites where another infection already exists).

The most significant of the pathogens found is **cypress canker** (*Seiridium sp.*), which is a serious primary pathogen of exotic conifers of the Cupressaceae family.

Cypress canker is found in many parts of the world, including the United States and Europe, and has been present in Victoria for more than 50 years.

Why has cypress canker appeared recently?

In Victoria, it is believed that the previous drought weakened the cypresses, leaving them vulnerable to infection. Over the past few years, a shift in environmental conditions (increased rainfall and temperature, waterlogged soils, high humidity) has allowed the pathogens to develop into disease outbreaks.

How does cypress canker infection occur?

Cypress canker infects a plant through spores (conidia) which are carried on the wind, in water droplets or by insects.

Spores that land on healthy foliage can germinate under warm, moist conditions and infection occurs through natural fissures in the bark or through scars caused by mechanical damage (e.g. pruning, animals or falling branches).

The pathogen then girdles twigs, branches and the main trunk, interfering with the sap-conducting system and causing the foliage to die. Death may occur progressively from branch to branch.

How can cypress canker be recognised?

After the initial infection, the fungus kills the plant's vascular tissue, causing characteristic sunken, lens-shaped cankers and ringbarking. This eventually causes death above the wound.

Reddish cankers form at the infection site and resin often exudes from around the edges of the cankers or through cracks in the bark. Individual cankers can be elongated and there may be many along each infected branch.



Cypress cankers and resin on a Leyland cypress. Elizabeth Bush, Virginia Polytechnic Institute and State University, Bugwood.org

The spore-producing structures of the fungus can be identified on the surface of the bark as small, circular, black dots on the canker surface.

Branches die rapidly, yellowing almost overnight as the foliage is starved of sap. If the infection is not managed, it can eventually lead to the death of the whole plant.



Cypress branches and whole trees affected by cypress canker

Hot, humid weather, drought and insects (e.g. bark beetles) can hasten the decline of trees infected with cypress canker, due to splitting bark and poor wound responses from the tree.

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How can cypress canker be managed?

There is no proven cure for cypress canker.

In significantly affected trees, replacement with tolerant cypress species or varieties may be the only long-term management option.

For lists of tolerant and susceptible species, visit www.depi.vic.gov.au/agriculture-and-food/pests-diseases-and-weeds/plant-diseases/shrubs-and-trees/cypress-decline

Cypresses can also be replaced with unrelated plant species, such as Australian natives, including for use as shelterbelts.

For information on shelterbelts, visit

www.dpi.vic.gov.au/agriculture/farming-management/soil-water/erosion/lc0136-shelterbelt-design

In re-planted or existing cypresses, canker damage can be minimised by ensuring trees are well-sited and well-managed; for example:

- **Avoid planting susceptible species on disease-prone sites**, such as those with high levels of nitrogen.
- **Keep trees healthy to improve their natural defences against an initial infection.** If fertilisers are required, they should be evenly distributed around the drip line of the trees. Watering may be needed during dry spells.
- **Reduce the chances of branch or stem wounding** e.g. by fencing off trees from livestock.
- **Prune infected branches a minimum of 10 centimetres below the canker** to help prevent infection spreading to the main stems (but take care not to over-prune). Pruning should preferably be done in winter or following dry weather, when spores are less likely to infect pruning wounds. After pruning, wound dressings may help to prevent spore infection. All pruning tools should be sterilised before and after use with either alcohol or dilute bleach.
- **Remove and destroy severely diseased plants** by deep burial or burning to help to reduce the risk of neighbouring trees becoming infected.

Management of cypress canker is the responsibility of the land owner/manager.

Chemical use

There are no fungicides registered for the control of cypress canker and limited science about off-label options. **For enquiries about chemical use, contact your local DEPI Chemical Standards Officer – telephone 136 186.**

What other plants could be affected?

Cypress canker can affect at least 25 conifer species of the Cupressaceae family with varying susceptibility, but it is not known to affect other plant families.

Is the movement of host plants restricted?

Cypress canker is not a regulated disease in Victoria and there are no legal restrictions on the movement of host plant material. However, to minimise the risk of spreading the disease, infected material should not be moved from the property unless it is covered or in a sealed container.

Reporting

If you wish to report cypresses affected by disease, please forward the details to plant.protection@depi.vic.gov.au and attach photographs if possible.

Further information

Visit www.depi.vic.gov.au/agriculture-and-food/pests-diseases-and-weeds/plant-diseases/shrubs-and-trees/cypress-decline

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