

# *Phellinus noxius* root rot



1. Characteristic stem stocking caused by *Phellinus noxius* root rot

*Phellinus noxius* is a fungus that causes the disease brown root rot in trees. It attacks tree roots causing decay, which cuts off water and nutrient supply to the crown resulting in tree death. It is a natural component of rainforests, and can be found in commercial plantation forests, fruit orchards and urban areas.

## Where is it found?

It is found naturally in subtropical and tropical rainforests in Asia, South America, Caribbean, Australia and Africa. In Australia, it occurs along the east coast from Cape York to northern New South Wales. The fungus has spread to cultivated trees in plantations and orchards, as well as remanent amenity trees and new plantings. It is particularly a problem in urban and amenity environments killing some iconic specimens within city gardens.

## What are the hosts?

*Phellinus noxius* has a wide host range of more than 200 species including native and introduced trees, shrubs and palms such as fig, poinciana, leopard tree, avocado and hoop pine.

## What is the impact?

The most significant impacts are **decay and tree death**, increasing **tree failure in urban areas** and **productivity loss in horticulture and forestry**. The disease is difficult to control and can remain viable in the soil for many years. The presence of the disease will often indicate structural damage through extensive wood decay and subsequent tree failure (2).

## What are the symptoms?

Tree death is often rapid in young trees with wilting often the first obvious symptom. In older trees decline is more gradual and the leaves turn chlorotic followed by thinning of the crown and eventual tree death (3). These symptoms and rate of development can vary considerably, with tree death potentially taking years to occur.



2. Internal wood decay can cause trees to fall without warning



3. Yellowing, chlorotic crown in a severely infected tree

The presence of *Phellinus noxius* can generally be recognised by a ‘stocking’ that forms on the roots and tree trunk (1). When actively growing, the stocking has a white advancing margin which turns a cinnamon colour and then dark brown as it ages. Soil and debris can often be seen adhering to the stocking on the tree roots and trunk. It is important to note that not all trees will display this stocking, or the stocking if present may be hard to find without excavation of the roots.

Two forms of fruit bodies can be found, although they only form after extended periods of rainfall. The ‘resupinate’ form is smooth and flat, and grows flush with the underside of logs or buttress roots (4). The bracket fruiting bodies (5) can be leathery or woody and hard. They are dark brown to black on top with a rough texture, and the underside is a charcoal grey colour. Both forms produce air-borne basidiospores that can spread the disease.

## How is it spread?

Brown root rot spreads most commonly by root to root contact, although potentially, it can spread with air-borne basidiospores. Stumps from infected trees are the original source of the infection and the fungus can remain viable in the soil for up to 60 years. Other trees then become infected when their roots come into contact with infected stumps or root material.



4. Flat, ‘resupinate’ fruiting body

## How is it managed?

- Remove the entire infected tree and as much roots as possible. Dispose of infected tree by composting according to the following specifications:
  - Compost time of at least 16 weeks, with piles to reach 75°C and be turned over regularly.
  - Material greater than 18 mm is sieved out of final product before use.
- Install root barriers around the infected site to reduce rate of spread.
- Do not use infected trees for mulch without composting as detailed above.

**Planting in infested sites without removal of the infection source may result in rapid death of new plantings.**

## Further information

If you have found *Phellinus noxius* on council land, contact Brisbane City Council 07 3403 8888 | [www.brisbane.qld.gov.au](http://www.brisbane.qld.gov.au)

For more information contact us on 13 25 23



5. Bracket fruiting bodies