

## Red needle cast

### Description

Red needle cast (*Phytophthora pluvialis*) was first observed in Radiata pine (*Pinus radiata*) plantations in New Zealand in the late 2000s. Although the pathogen is present in Oregon in the United States, the disease it causes is only known to occur in New Zealand. It is characterised by pale-olive or khaki lesions with distinct dark resinous bands. Lesions eventually turn yellow then brown, with trees developing an overall reddish appearance. Symptoms are most common in autumn to late spring (in wet conditions), with defoliation common in late spring. The general appearance of the disease can be confused with *Dothistroma* needle blight, with symptoms and defoliation beginning in the lower crown.

### Primary hosts

Radiata pine (*P. radiata*) is the main species affected.

### Symptoms

The first obvious symptoms are a pale-olive or khaki colour anywhere on needles, but more common at the base of needles, which usually have small, distinct dark resinous bands. These lesions expand, turning yellow then brown, giving the trees an overall reddish appearance. Infected needles are quickly shed. The disease is more common in the lower crown, but moves up the crown when severe. Severe disease can almost completely defoliate affected trees, but recovery is common and in the following year the one-year foliage is unaffected.

### What it can be confused with

It can be confused with *Dothistroma* needle blight, due to the general appearance of needle blight; but needles infected with *Dothistroma septosporum* can be distinguished by characteristic red-banding. It can also be confused with *Cyclaneusma* needle cast, due to general appearance of chlorosis and needle blight; but needles infected with *Cyclaneusma minus* have a yellow-brown mottled appearance. Symptoms of Red needle cast, *Dothistroma* needle blight and *Cyclaneusma* needle cast may be present on a tree at the same time, and the presence of one may mask low level infection of another.



Red needle cast lesions on needles showing the pale-olive or khaki regions with the small, distinct dark resinous bands



Early symptoms of red needle cast. Needles are turning a dull green, reddish colour but are still attached to the tree.



Symptoms of red needle cast are similar to those of *Dothistroma* needle blight. However, the needles of red needle cast are easily shed from the tree, unlike those of *dothistroma* needle blight.



Symptoms are also similar to the exotic Daño foliar del pino, with the pale coloured lesions on needles and the dark resinous bands as well as overall reddish colour to trees. However, Red needle cast does not cause resin bleeding or lesions on woody tissues. Laboratory examination is required to distinguish between these two *Phytophthora* species. Any suspect symptoms should be reported.

### Plant part showing symptoms

Symptoms are visible on pine needles.

### Age of plant

Symptoms are more common on trees greater than four years old. Trees less than four years old can be infected but this usually happens when they are adjacent to heavily infected stands.

### Time of year pest is most likely to be seen

In New Zealand, Red needle cast generally occurs between autumn and spring in areas experiencing prolonged wet conditions. Once early needle lesions have been observed, the progression to reddening and defoliation tends to occur rapidly, within a few weeks. High risk areas tend to be those prone to mist and fog. The timing of disease expression and severity of the disease has differed between regions and years, and is likely dependent on climatic factors.

### Further information

Dick MA, Williams NM, Bader MK-F, Gardner JF and Bulman LS (2014) Pathogenicity of *Phytophthora pluvialis* to *Pinus radiata* and its relations with red needle cast disease in New Zealand. *New Zealand Journal of Forestry Science* 44: 6.

Farm forestry New Zealand. Pests and diseases of forestry in New Zealand: Red needle cast. Available from [www.nzffa.org.nz/farm-forestry-model/the-essentials/forest-health-pests-and-diseases/diseases/Needle-diseases/red-needle-cast/](http://www.nzffa.org.nz/farm-forestry-model/the-essentials/forest-health-pests-and-diseases/diseases/Needle-diseases/red-needle-cast/)



Infected needles are cast from the tree

**If you see anything unusual, call the Exotic Plant Pest Hotline**



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