

Western gall rust

Description

Western gall rust (*Peridermium harknessii*) is a disease of two- and three-needle species of *Pinus*. It is restricted to continental North America. The disease is characterised by the appearance of small hemispherical, cylindrical or globose swellings in one year old stem and branch wood. These swellings develop from infection that took place in the previous year when the soft, new shoots were extending. The swellings enlarge in subsequent years to produce woody galls typically 1–10 cm in diameter, but sometimes up to 30 cm. Young seedlings can rapidly die following infection before any swellings develop. In older plants, galls developing in branches lead to shoot blight and branch dieback, while galls on the main stem result in swollen stem deformities. Heavy gall infestations on individual trees suppress their growth and leads to their premature death.

Primary hosts

Two- and three-needle *Pinus* species, including Radiata pine (*Pinus radiata*).

Symptoms

The site of initial infection in soft, expanding shoots develops localised reddening which may progress to localised tissue death. Needles near the infection site may die. Over the next year globose, hemispherical or spindle-shaped woody swellings develop at the infection site and grow to a diameter of 1–2 cm. These swellings continue to grow in size over successive years to produce woody galls. During the spring and early summer, the bark of galls two years and older sloughs off to expose a mass of yellow-orange spores.

What it can be confused with

Rounded woody swellings morphologically indistinguishable from young (not yet producing spores) Western gall rust galls have been seen on Radiata pine (*P. radiata*) in Australia. DNA testing is necessary to confirm the presence or absence of Western gall rust in such instances. Any suspect symptoms should be reported.

Swellings associated with native Australian mistletoe growing on *Pinus*, although rare, superficially look like those caused by Western gall rust.



Immature gall (less than 2 years old)



Bark splitting to expose yellow-orange spore mass in a mature gall



Mature non-sporulating gall



Plant part showing symptoms

Symptoms are observed on one year and older wood of the stem and branches.

Age of plant

The disease affects all ages from seedlings to mature trees but most new infections occur in trees younger than 15 years of age.

Time of year pest is most likely to be seen

Infection occurs in spring to coincide with shoot extension. However, visibly detectable swelling at the points of infection does not usually appear until the following year. Rupturing of the surface of mature galls (generally two years or more after infection) to expose the underlying mass of orange spores occurs in spring and early summer.

Further information

Allen E and Hiratsuka Y (1985) Artificial inoculation of young seedlings of Lodgepole pine with *Endocronatium harknessii*. *Canadian Journal of Botany* 63: 1168–1170.

Old KM (1981) Western gall rust, a serious disease of *Pinus radiata* in California. *Australian Forestry* 44: 178–184.

Sinclair WA, Lyon HH and Johnson WT (1987) *Diseases of Trees and Shrubs*. Cornell University Press.

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



Multiple galls on single tree



Early stages of infection on a Pine

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