

# Forest Disease Management Notes

United States  
Department of  
Agriculture

Forest Service  
Pacific Northwest  
Region



## Comandra Blister Rust

Comandra blister rust caused by the fungus, *Cronartium comandrae* is an important disease only in local areas of the ponderosa pine type in the Pacific Northwest. It kills branches, tops, and entire trees.

**Hosts:** Primary hosts- hard pines, most serious on ponderosa pines; alternate host- bastard toadflax (Comandra).

**Recognition:** Spindle-shaped, often inconspicuous swellings are formed on pine stems and branches; infections break open and produce a cracked and pitted canker or lesion with abundant resin flow; rodents frequently gnaw bark from infections; "hags" (dead branches with discolored foliage attached) and dead tops are common; the fungus grows slowly down infected stems causing progressive dying-, tree mortality may occur, especially in young trees.

On pines, inconspicuous reddish-orange ooze or drops (pycnia) appear on swellings in the summer 1 to 3 years after infection; dark orange spore pustules (aecia) rupture through bark in the spring of the following year. On bastard toadflax leaves yellow spots with yellow spore pustules (uredia) and brownish hairlike structures (telia) occur throughout the summer and fall.

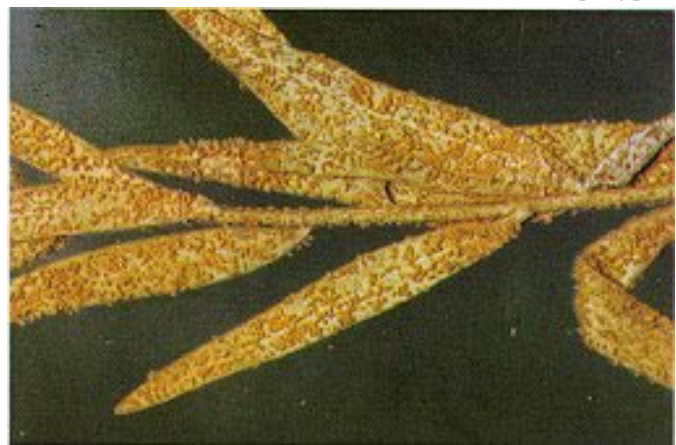
**Disease Spread:** Beginning in late spring, aeciospores are released from pine hosts and are carried by wind to infect bastard toadflax; aeciospore production continues until fall but tapers off the season progresses; uredia and telia are produced within a few weeks to a month on bastard toadflax leaves; urediospores reinfect bastard toadflax causing intensification of the disease; pines are infected by windborne spores in the late summer or fall; comandra rust is favored by cool, moist conditions at the time of infection of both hosts; pine infection tends to occur in wave years when weather conditions are especially favorable (wet summers).

**Management:** Concentrate on removing infected trees during thinning and stand improvement operations; log severely infected stands; replace susceptible pines with less susceptible species in area where plantations have failed due to heavy infection. Control of bastard toadflax is impractical,

**May be Confused With:** Insect attack, animal damage, dwarf mistletoe, environmental damage.



Typical comandra rust infection with aecia on sapling pine



Bastard toadflax infected with comandra rust



Dead top caused by comandra rust