

May 2005

14.6

WEB Mar 2010

By Blakey Lockman
US Forest Service

Topics

Damage	1
Life History	1
Identification	2
Management	2
Other Reading	3
Field Guide	
Management Guide Index	

Key Points

- Cankers kill the cambium resulting in a distortion of growth.
- Disease may reduce the volume in infected trees by as much as 50%.
- The wood behind cankers is often stained a blue-black color.

Management Guide for Atropellis Canker

Atropellis piniphila (Weir)Lohman and Cash)
Atropellis pinicola(Zeller and Goodding)

This canker is sporadic over much of the Northwest, but is rather common in northern Idaho and western Montana.

Primary Host:

A. piniphila

- Lodgepole pine

A. pinicola

- Western white pine

Occasional host:

- Ponderosa pine for both

Damage

The fungus causes cankers that kill the cambium resulting in a distortion of growth. On lodgepole pine, cankers often develop on the bole. On western white pine, cankers usually are found on small branches, and bole cankers are uncommon. The wood behind cankers is often stained a blue-black color.

Damage is most severe in densely stocked stands on low quality sites. The fungus does not grow quickly and is not an aggressive girdling agent. Single cankers may occasionally kill small trees. Mortality is uncommon in vigorous trees, and usually only occurs when multiple cankers happen to combine and eventually encircle the stem. If the incidence of infection is high in young trees, the disease may cause stands to stagnate, especially if the

stand is overly dense and the trees are slow growing. The disease may reduce the volume in infected trees by as much as 50%. The pulp value of affected wood is greatly reduced. The high resin content and the stain may cause chips to be rejected.



Branch canker on lodgepole pine.
Photo by Johns Sxhwandt

Life History

Infection usually occurs through undamaged bark near branch nodes or whorls. Rarely, the fungus will infect through pruning wounds on western white pine. Fruiting bodies

often form within 2-3 years on small suppressed trees, but it may take 15-20 years on large open-grown trees. Once spore production has started, it will continue throughout the life of the canker.

Life History (continued)

Spores are produced in early summer through early fall during wet weather, and are forcibly ejected into the air and may travel up to 300 feet. On dry sunny sites, spore production on dead trees will cease after a few weeks. If cankers

on dead trees remain moist or shaded, spore production may continue for 1-2 years.

Stem cankers are the most common symptom in lodgepole pine.

Identification

Sunken cankers are formed several years after infection and cause stem deformity. Dead branches or "flags" are obvious symptoms on western white pine (these may be mistaken for blister rust "flags"). Copious amounts of resin are produced in cankered areas. Stem cankers are the most common symptom in lodgepole pine and can be identified by the elongated areas of heavy resin production. If the bark in the cankered area is removed, the blue-black stain is visible. In a cross-section, the stain appears as a wedge, tapering toward the pith. Tiny (1/32" -1/16" diameter), black, cup-shaped fruiting bodies are usually present on older cankers.

Bark in the cankered areas clings tightly to the underlying wood.



Heavy resin production on lodgepole pine. Photo from US Forest Service Archives.

Management Considerations

Stocking level is closely associated with both disease incidence and growth loss.

A study of young lodgepole pine in British Columbia, Canada showed that the most significant reduction in disease incidence occurred when stands were thinned to 800 -1,000 trees per acre.

Ideally, stands should be thinned before the trees are 15-years-old because that is the age at which trees become susceptible to infection. If stands are thinned at a later age, attempts should be made to remove infected trees. However, it is very likely that many infected trees will be left because small and incipient infections are hard to detect.

Management Considerations (continued)

Removal of infected residuals within 300 feet of the young stand will greatly reduce the risk of new infections. Because the fungus can remain active on dead trees in moist and shaded areas, infected trees that are cut should be removed from the site, burned, or scattered in bright sunlight, which will cause the fungus to become inactive.

Other Reading

- Baranyay, I.A., T. Szabo, and K. Hunt. 1973. Effect of Atropellis canker on growth and utilization of lodgepole pine. Can. For. Servo Pac. Res. Cent. Info. Rpt BC-X-86. 22p.
- Callan, B. 1997. Atropellis cankers. *In*: Compendium of conifer diseases. Hansen, E.M., and K.I. Lewis eds. Amer. Phyto. Soc. St. Paul, MN. 101 p.
- Hopkins, J.C., and B.E. Callan. 1992. Atropellis canker. Can. For. Servo Pac. For. Res. Cent. Forest Pest Leaflet 25. 4p.
- Stanek, W.J. Hopkins, and C. Simmons. 1986. Effect of spacing in lodgepole pine stands on incidence of Atropellis canker. For. Chron. 62: 91-95.

Forest Health Protection and State Forestry Organizations

Assistance on State And Private Lands

Montana: (406) 542-4300
 Idaho: (208) 769-1525
 Utah: (801) 538-5211
 Nevada: (775) 684-2513
 Wyoming: (307) 777-5659

Assistance on Federal Lands

US Forest Service
 Region One
 Missoula: (406) 329-3605
 Coeur d'Alene: (208) 765-7342

US Forest Service
 Region Four
 Ogden: (801) 476-9720
 Boise: (208) 373-4227

