

Forest Disease Management Notes

United States
Department of
Agriculture

Forest Service
Pacific Northwest
Region



Spruce Cone Rust

Spruce cone rust is caused by two fungi, *Chrysomyxa pirolata* and *C. monesis*. Incidence of this disease is sporadic in the Pacific Northwest. It can cause considerable damage to spruce seed crops in local areas.

Hosts: Primary hosts- spruces; alternate hosts- winter green and single delight.

Recognition: On spruce, causes malformation, browning, and premature opening of cones accompanied by destruction of seeds; yellow spore masses (aecia) develop between cone scales; on alternate host, may cause slight atrophy, yellowing of foliage, or no visible symptoms; yellow spore pustules (uredia and telia) form on leaves, petioles, stems, peduncles, and flowers of alternate host in spring, summer, and fall.

Disease Spread: Both spruce and alternate hosts are required for completion of the pathogen's life cycle, but perennial infections and continuing urediospore production make long-term survival, intensification, and inoculum buildup possible on the alternate hosts; spores that infect both hosts are windborne; spore germination and infection are favored by moist conditions in summer.

Management: Remove alternate hosts within 500' of spruce seed orchards if the disease has been a problem in the past.

May be Confused With: Insect damage.



Spruce cones infected by
Chrysomyxa pirolata