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.