

## Needle Cast Diseases of Conifers

Primary Hosts	Fungus/Disease Name	Infection Period/Fruiting Bodies	Symptoms	Needles Shed Timing
Scots pine, ponderosa pine	Lophodermium	Late summer - early fall Small, gray or black, football-shaped hysterothecia visible to the naked eye. When mature, these protrude slightly, and the epidermis ruptures to form a slit.	Winter- early spring Yellow and reddish-brown spots on the needles, some of which may have yellow margins. Eventually, the entire needle will turn yellow, then reddish brown.	Mid-late spring
Ponderosa, lodgepole pines	Elytroderma	Mid - late summer Long black slit in epidermis near needle base	Early spring  Needles red-brown at tips, base remain green, witches brooms	12-20 months after infection
Ponderosa, Austrian, mugo pines	Dothistroma (Mycosphaerella)	Spring Black dots erupting thru epidermis in bands	Late summer - early fall Distinct red transverse banding on tan needles	Summer
Lodgepole pine , limber pine	Lophodermella	Late spring - early summer Small depressions in leaf surface	Early – late spring Dead, reddish-brown, then straw colored.	Summer
Douglas fir	Rhabdocline	Late spring – summer Tan slits on underside of needles	Late summer - early fall Yellow lesions followed by purple-brown spots and bands	Summer
Douglas fir	Swiss Needle cast	Late spring – early summer The tiny black dots emerge through the stomata in rows on the underside on either side of the midrib.	Within a year New needles become yellow overall although they occasionally turn brown general chlorosis or red-brown tips	1-3 years after infection
Fir	Lirula	Summer Dark, elongate pycnidia down center of lower surface of needles . Brown line on upper surface. Pustule like.	Spring Needles become pale and patchy green and slowly turn brown.	2 years after infection
Spruce	Rhizosphaera/ Stigmina	Spring – Fall Black dots in stomata in rows	Late winter-early spring Yellow to reddish-purple to brown	Late summer - Fall
Spruce	Sudden Needle Drop	Unknown Black specks (perithecia) on twigs	Unknown (late winter – early spring) Older needles are affected. Turn yellow to reddish-purple to brown similar to other spruce diseases	Unknown (late summer – early fall)
All species	Seasonal Needle Cast	None	Fall Inner most needles suddenly turn brown. Needle retention depends on species and environment.	Fall