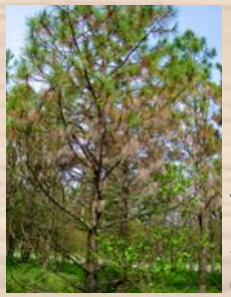
IDAHO DEPARTMENT OF LANDS

FOREST PEST FACT SHEET



Needle Diseases of Pines

The symptoms of needle diseases usually appear in early spring as needle spots, tip dieback, or needle death. The diseases usually affect only one age class of needles, most often the previous year's needles. Symptoms become less obvious as affected needles are often shed soon after new growth begins. Needle diseases are usually confined to the lower crown, and usually cause little harm. Growth losses can result from severe or continued infections and mortality is rare. Unique symptoms include those caused by elytroderma needle cast that can cause branch clustering (witch's brooms) similar to those caused by dwarf mistletoe; and pine shoot blight often results in branch death and in severe cases can kill tree tops. Susceptibility to needle diseases can vary widely between trees of the same species.

Life Cycle

Foliage diseases of pines are usually spread by spores produced on infected needles and twigs. The spores infect newly emerging or young needles during periods of cool, moist weather. Symptoms often don't appear until early in the growing season following infection. Disease occurrence and intensity varies with annual weather patterns. The most severe symptoms appear following years with cool, moist growing seasons. The fungi that cause elytroderma needle cast and pine shoot blight will usually infect branch tissue and become perennial , which results in continuing infections.

Management

Fungicides can be used to control needle disease in ornamental pines, but their use is not practical in the forest. Needle diseases are most severe on cool, moist sites such as low-lying areas with high humidity and poor air circulation. Therefore, avoid planting these sites with pine, especially with seed collected from upland sites. Maintain open canopies and tree spacing in existing stands to allow good air movement. Preferentially remove symptomatic trees during any harvest and do not select symptomatic trees as a seed source. Light infections of elytroderma can be removed by pruning infected branches.

For more information:

IDL Forest Health website: http://www.idl.idaho.gov/forestry/insects-and-diseases

U.S. Forest Service Management Guide: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5186684.pdf

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Needle Disease	Hosts	Signs & Symptoms	Signs & Symptoms	Typical Damage	Management Strategy
Pine needle casts 	Ponderosa pine White pine Lodgepole pine	Last year's needles turn brown 		Discolored needles, defoliation, growth loss. Mortality is rare.	Thin to remove symptomatic species & trees. Avoid regenerating ponderosa pine on cool moist sites with poor air circulation
Red band needle blight 	Ponderosa pine Lodgepole pine	Red spots or bands on older needles 		Dead & discolored needles remain on trees, thin crowns, reduced growth	Avoid managing ponderosa pine on sites with prolonged high humidity. Remove symptomatic trees when harvesting
Elytroderma needle cast 	Ponderosa pine, occasionally Lodgepole pine	Black lines on dead needles 		Dead needles remaining on trees, abnormal clumping & curving of branches producing witch's brooms	Harvest infected trees. Maintain open spacing between trees. Prune infected branches
Pine shoot blight 	Ponderosa pine, non-native ornamental pines	New needles are stunted & discolored, dead needles remain attached		Branch tip dieback. Kills entire branches & occasionally tree tops.	Thin to remove symptomatic trees.

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