



FOREST PEST FACT SHEET

DWARF MISTLETOE

Dwarf mistletoes are small leafless flowering plants that infect western larch, Douglas-fir, ponderosa pine and lodgepole pine in Idaho. They survive by extracting water and nutrients from their hosts. Dwarf mistletoe infections can be identified by the presence of clusters of yellow to green colored shoots 1-4 in. long, swellings on branches or trunk, and abnormal clustering of branches, twigs and foliage called witches' brooms. Severe infections can produce large brooms that significantly alter crown shapes and result in growth loss proportional to the amount of infection. Mortality is rare but severe infections can kill trees.

Life Cycle



Dwarf mistletoe plant clusters are either male or female and are wind or insect pollinated. Mature seeds are expelled from mature fruit by water pressure and rarely travel over 40 feet horizontally. The sticky seeds adhere to whatever they hit and are then washed down onto twigs by rain. Seeds germinate in the spring, infect the twigs, and develop root-like systems that absorb water and nutrients from the trees. Aerial shoots emerge 2-3 years later with seed production following 2-3 years after that. New dwarf mistletoe shoots will continue to be produced from the swollen infection sites as long as the host tissue is alive.

Management



With the occasional exception of larch and lodgepole pine dwarf mistletoes, each species infects only one conifer species. Dwarf mistletoe infections spread slowly within trees and stands, averaging only 1-2 ft. per year. The 6-point dwarf mistletoe rating system (DMR) was developed to quantify infection levels to aid management decisions (see reverse side). Significant growth loss occurs only after infection levels exceed DMR 3. Mortality can occur as DMRs approach 6. It requires about 15 years for infections to increase one rating level. Since dwarf mistletoes can only survive on living trees and branches, control options include:

- Cut or kill heavily infected trees.
- Favor/regenerate non-host conifers.
- Create non-host buffers around stands to reduce mistletoe invasion.
- Leave uninfected seed trees.
- Cut or kill infected overstory seed & shelter trees ASAP.



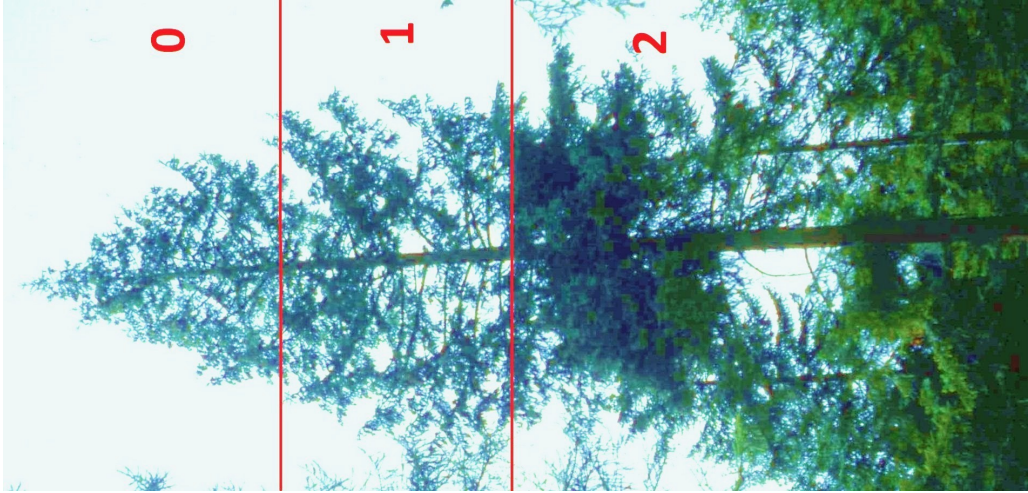


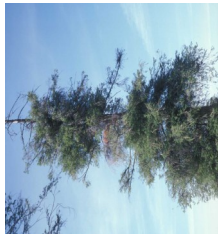


For more information:

IDL website: <https://www.idl.idaho.gov/forestry/forester-forums/>

U.S. Forest Service Management Guide: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5187427.pdf



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DWARF MISTLETOE		HOSTS	SIGNS & SYMPTOMS	HAWKSWORTH DWARF MISTLETOE RATING SYSTEM (DMR)	
Ponderosa pine 	Principal host Ponderosa pine Secondary host None		<p>Instructions</p> <p>Step 1 - Divide live crown into thirds.</p> <p>Step 2 - Rate each third separately with a rating of 0, 1, or 2 as described below.</p> <p>0 = No visible infections</p> <p>1 = Light infection - 1/2 or less of total number of branches in the third infected.</p> <p>2 = Heavy infection - more than 1/2 of total number of branches in the third infected.</p> <p>Step 3 - Sum the three ratings for a tree total.</p> <p>The rating for the tree in this example is 3. 0 + 1 + 2 = 3</p>		6/20
Lodgepole pine 	Principal host Lodgepole pine Secondary host Western larch				
Douglas-fir 	Principal host Douglas-fir Secondary host None				
Western larch 	Principal host Western larch Secondary hosts Lodgepole pine Subalpine fir	