

United States
Department of
Agriculture

**Forest
Service**

May 1985

Forest Insect and Disease Conditions in the United States 1984

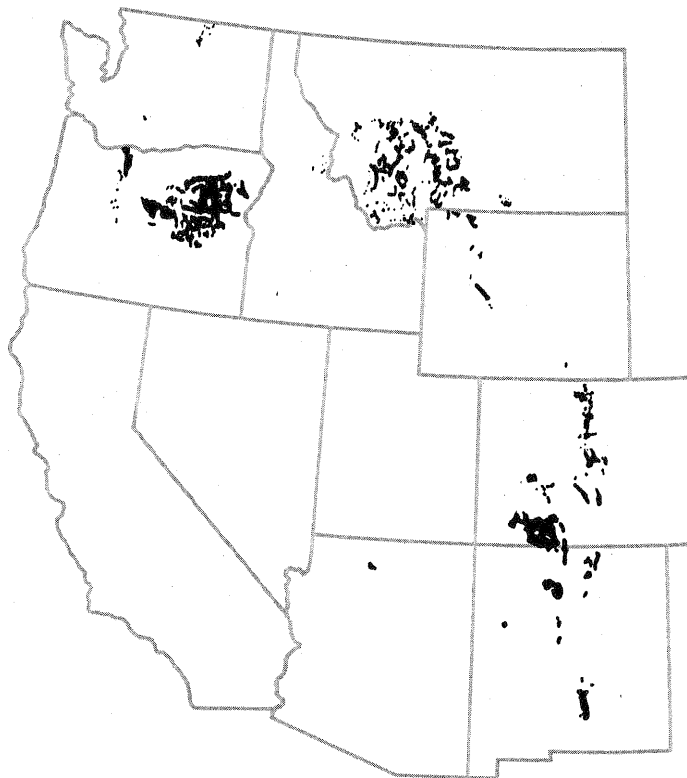
Western Spruce Budworm

In 1984, western spruce budworm (*Choristoneura occidentalis*) defoliation remained static, at a high level. About 10.6 million acres of visible defoliation were recorded in 1984.

Acres of aerially detected defoliation caused by the western spruce budworm in the United States

Region	1983	1984
	<u>Acres</u>	
Northern (R-1)	2,600,000	2,250,000
Rocky Mountain (R-2)	2,750,311	2,220,000
Southwest (R-3)	371,549	692,100
Intermountain (R-4)	2,800,000	2,375,000
Pacific Southwest (R-5)	0	0
Pacific Northwest (R-6)	2,477,000	3,096,650
Total	10,998,860	10,633,750

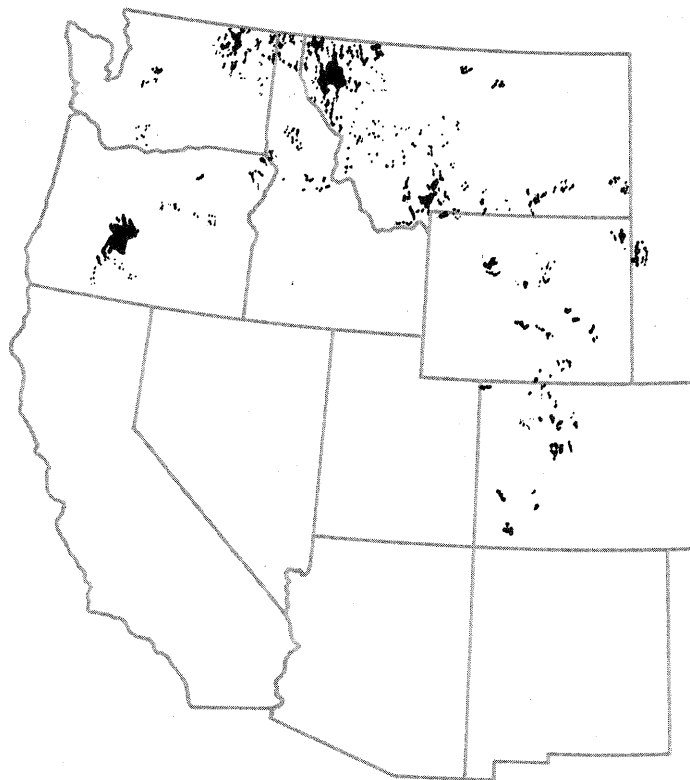
1984 Western Spruce Budworm Defoliation



Mountain Pine Beetle

Mountain pine beetle activity remained static at a high level in 1984. While outbreaks in some areas are collapsing, new areas of attack appear. Outbreak areas covered approximately 3.3 million acres in 1984.

1984 Mountain Pine Beetle Outbreak Areas



Pacific Northwest Region—Insects

Pacific Northwest Region—Status of insects in Oregon and Washington

Insect	Host	Location	Remarks
Douglas-fir beetle <u>Dendroctonus</u> <u>pseudotsugae</u>	Douglas-fir	Oregon, Washington	East of the Cascades, Douglas-fir beetle damage was down. Levels are still far below what they were in the 1970's. The greatest damage occurred in the Snake River area of the Wallowa-Whitman National Forest. Losses in Douglas-fir east of the Cascades were 89.98 thousand cubic feet on 2,650 acres. West of the Cascades, losses increased; 2,255.14 thousand cubic feet of Douglas-fir was lost on 10,890 acres.
Fir engraver <u>Scolytus ventralis</u>	True firs	Oregon, Washington	A substantial decrease in fir engraver activity was noted in both States. Most of the fir engraver damage occurred on sites infected with either laminated root rot, armillaria root disease, or amnosus root disease—diseases that weaken true firs making them susceptible to beetle attacks. Total losses were 79.54 thousand cubic feet on 4,080 acres.
Gypsy moth <u>Lymantria dispar</u>	Various hard- woods and conifers	Oregon, Washington	Adult trap catches declined in Washington from 1,307 in 1983 to 161 moths in 1984; eradication projects were conducted in Tacoma, Seattle, and Bellingham. In Oregon, traps caught 161 adults in 1983 and over 19,000 adults in 1984. Eradication projects were conducted in Gresham, Portland, and Salem. In forested areas of Lane County, egg mass searches revealed over 1,000 egg masses per acre.
Modoc budworm <u>Choristoneura</u> <u>retiniana</u>	Douglas-fir, true firs	Southern Oregon	Defoliation increased in true fir on the Fremont and Winema National Forests. Visible defoliation increased from 126,610 acres in 1983 to 483,630 acres in 1984. Results of the fall 1984 egg mass survey indicate continued defoliation in 1985.

Pacific Northwest Region—Status of insects in Oregon and Washington—Continued

Insect	Host	Location	Remarks
Mountain pine beetle <u>Dendroctonus ponderosae</u>	Lodgepole pine, ponderosa pine, white pine, other pines	Oregon, Washington	Losses continued about the same in Washington, but they have intensified in Oregon on the Deschutes, Fremont, and Winema National Forests. Losses on the Wallowa-Whitman, Malheur, and Umatilla National Forests continue to decrease, primarily because most of the suitable host trees have already been killed. In 1984, the losses included 46,607.24 thousand cubic feet of lodgepole pine on 1,249,790 acres; 2,149.66 thousand cubic feet of ponderosa pine on 88,880 acres; 925.36 thousand cubic feet of western white pine on 21,630 acres; and about 820 acres of various other pines. Intense losses are expected to continue in south-central Oregon and north-central Washington and to decrease elsewhere.
Pine engraver beetles <u>Ips</u> spp.	Ponderosa pine	Oregon, Washington	Activity of the pine engraver decreased significantly. Most of the activity was on the Ochoco National Forest. A total of 1,370 acres were affected.
Spruce beetle <u>Dendroctonus rufipennis</u>	Engelmann spruce	Washington	Spruce beetle activity in Engelmann spruce stands in northeast Washington was very low this year. Losses include 4.6 thousand cubic feet over 140 acres.
Western pine beetle <u>Dendroctonus brevicomis</u>	Ponderosa pine	Oregon, Washington	Tree mortality caused by the western pine beetle declined in Washington and Oregon. Greatest losses occurred on the Deschutes National Forest. 1984 losses totalled 780.6 thousand cubic feet.

Pacific Northwest Region—Status of insects in Oregon and Washington—Continued

Insect	Host	Location	Remarks
Western spruce budworm <u>Choristoneura</u> <u>occidentalis</u>	Douglas-fir, Engelmann spruce, true firs, western larch	Oregon, Washington	In the Pacific Northwest, the area of visible defoliation increased from 2,477,000 acres in 1983 to 3,096,650 acres. Budworm populations continue to increase in Oregon on the Malheur, Wallowa-Whitman, Mt. Hood, Deschutes, Ochoco, and Umatilla National Forests, on the Warm Springs Indian Reservation, and on intermingled State and private lands. In Washington, the size of the budworm infestation on the Okanogan National Forest and adjacent State and private lands increased in 1984, and new defoliation was discovered on the Wenatchee National forest. Results of the fall 1984 egg mass survey indicate continued defoliation in 1985.

Pacific Northwest Region—Diseases

Pacific Northwest Region—Status of diseases in Oregon and Washington

Disease	Host	Location	Remarks
STEM AND BRANCH DISEASES			
Dwarf mistletoes <u>Arceuthobium</u> spp.	Various conifers	Oregon, Washington	As stand management intensifies, losses attributed to this group of parasitic plants are declining. In 1984, dwarf mistletoes caused an estimated loss of 132 million cubic feet of timber. Handheld programmable calculators are being used to project reductions in yield and to perform economic analyses of stand management alternatives for dwarf mistletoe-infected stands of lodgepole pine in central Oregon.
Stem decay	Various conifers	Oregon, Washington	Stem decay fungi still consume enormous volumes of wood. Most losses occur in younger stands when wounding of residual trees during stand entries both activates dormant infections and creates infection courts. Programs for handheld calculators have been developed to estimate percentages of infection and decay in white and grand fir understories, two of the most defective species in the Region.
White pine blister rust <u>Cronartium ribicola</u>	Sugar pine, western white pine	Oregon, Washington	Annual losses of western white and sugar pines from blister rust in Oregon and Washington are estimated to be 15 million cubic feet. Additional training and followup on the use of handheld programmable calculator programs for predicting infection hazard occurred during 1984.
ROOT DISEASES	Various conifers	Oregon, Washington	Root diseases are among the most serious pest problems. The incidence of root disease is increasing, often in direct response to human activity. Annual losses to root diseases on all ownerships are estimated at about 130 million cubic feet.

Pacific Northwest Region—Status of diseases in Oregon and Washington—Continued

Disease	Host	Location	Remarks
<p>Amnosus root disease <u>Heterobasidion annosum</u></p>	<p>Western hemlock, white fir</p>	<p>Oregon, Washington</p>	<p>This disease causes extensive losses in many partial-cut white fir stands in southern and eastern Oregon. Most losses are attributed to outright tree mortality. On the Fremont National Forest, the greatest amount of amnosus root disease-related mortality—17 percent of all true firs—occurred in stands having multiple entries. Stands of true firs with one or no entries had only 6- or 2-percent mortality, respectively. In western hemlock stands, losses can be minimized by short, 100-year rotations and wound prevention.</p>
<p>Armillaria root disease <u>Armillaria mellea</u></p>	<p>Various conifers</p>	<p>Oregon, Washington</p>	<p>The most serious losses occur east of the Cascades. Serious losses on the west side are usually confined to stressed stands, for example, off-site plantings. Direct control through stump and root removal is being practiced in severely infected stands in eastern Washington.</p>
<p>Black stain root disease <u>Ceratocystis wageneri</u></p>	<p>Douglas-fir</p>	<p>Oregon, Washington</p>	<p>In southwestern Oregon, where black stain is the most commonly encountered disease in Douglas-fir plantations, the disease appears to be especially damaging if disturbances have occurred, especially to roadside Douglas-firs cut back by mechanical choppers. Because of the soil compaction, losses are also greater on tractor-logged than on cable-logged sites.</p>

Pacific Northwest Region—Status of diseases in Oregon and Washington—Continued

Disease	Host	Location	Remarks
Laminated root rot <u>Phellinus weirii</u>	Douglas-fir, grand fir, white fir	Oregon, Washington	Laminated root rot is estimated to have removed about 5 percent of the Douglas-fir west of the Cascades from full production. The infested acreage, however, may be closer to 10 percent. Damage is also severe in some grand and white fir stands with true fir overstory. Laminated root rot killed 23 percent of the true fir in this kind of stand on the Ochoco National Forest in eastern Oregon.
Phytophthora root rot <u>Phytophthora lateralis</u>	Port-Orford- cedar	Southwestern Oregon	Phytophthora root rot continues to cause widespread mortality.
FOLIAGE DISEASES			
Dothistroma needle blight <u>Dothistroma pini</u>	Douglas-fir, lodgepole pine, ponderosa pine	Oregon, Washington	The incidence of several foliage diseases continued to increase during 1984. Thousands of acres of ponderosa and lodgepole pines east of the Cascades were affected by dothistroma needle blight. Elytroderma disease increased over most of the ponderosa pine. Rhabdocline needle blight affected Douglas-firs in central and southwestern Oregon.
Elytroderma disease <u>Elytroderma deformans</u>			
Rhabdocline needle blight <u>Rhabdocline pseudotsugae</u>			
NURSERY DISEASES			
Douglas-fir tip blight <u>Phoma</u> sp.	Douglas-fir	Oregon, Washington	Disease damaged up to 10 percent of 1-0 Douglas-fir crop in some nurseries. Fungicide applications appear to help.
Fusarium root disease <u>Fusarium oxysporum</u>	Various conifers	Oregon, Washington	In forest nurseries, scattered losses for most species; continued heavy mortality for sugar pines.
Meria needle disease <u>Meria laricis</u>	Western larch	Washington	Defoliation of entire 2-0 crop resulted in mortality and reduced growth.
Phytophthora root rot <u>Phytophthora</u> sp.	Douglas-fir, other conifers	Oregon, Washington	Transplant mortality high, particularly Douglas-fir. Seedling damage is confined primarily to low, poorly drained areas of nursery beds.