

United States  
Department of  
Agriculture

Forest  
Service

**Forest  
Pest  
Management**

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# Forest Insect and Disease Conditions in the United States 1985

# Mountain Pine Beetle

In 1985, mountain pine beetle (*Dendroctonus ponderosae*) activity remained high. Outbreaks, which covered 3.6 million acres in 1983 and 3.3 million acres in 1984, occurred on 3.34 million acres in 1985.

Acres of lodgepole, ponderosa, and other pines with mountain pine beetle infestations were as follows:

## Northern Region

Montana	933,000
Northern Idaho	8,000
Total	941,000

## Rocky Mountain Region

Colorado	260,000
Eastern Wyoming	104,000
South Dakota	7,000
Total	371,000

## Southwestern Region

Arizona	100
New Mexico	900
Total	1,000

## Intermountain Region

Southern Idaho	19,000
Utah	477,000
Western Wyoming	11,000
Total	507,000

## Pacific Southwest Region

California	20,000
Total	20,000

## Pacific Northwest Region

Oregon	1,400,000
Washington	100,000
Total	1,500,000

## 1985 Mountain Pine Beetle Outbreak Areas



# Western Spruce Budworm

In 1985, western spruce budworm (*Choristoneura occidentalis*) defoliation increased to a record 12.8 million acres. The Pacific Northwest Region reported an especially large increase. In the Northern Region, defoliation topped the 2-million-acre mark for the fourth year in a row.

The acres of aerially detected defoliation attributed to the budworm in each Region and State follow:

Northern Region	
Montana	2,675,000
Northern Idaho	11,000
Total	2,686,000

Rocky Mountain Region	
Colorado	1,567,000
Eastern Wyoming	22,000
Total	1,589,000

Southwestern Region	
Arizona	102,640
New Mexico	529,484
Total	632,124

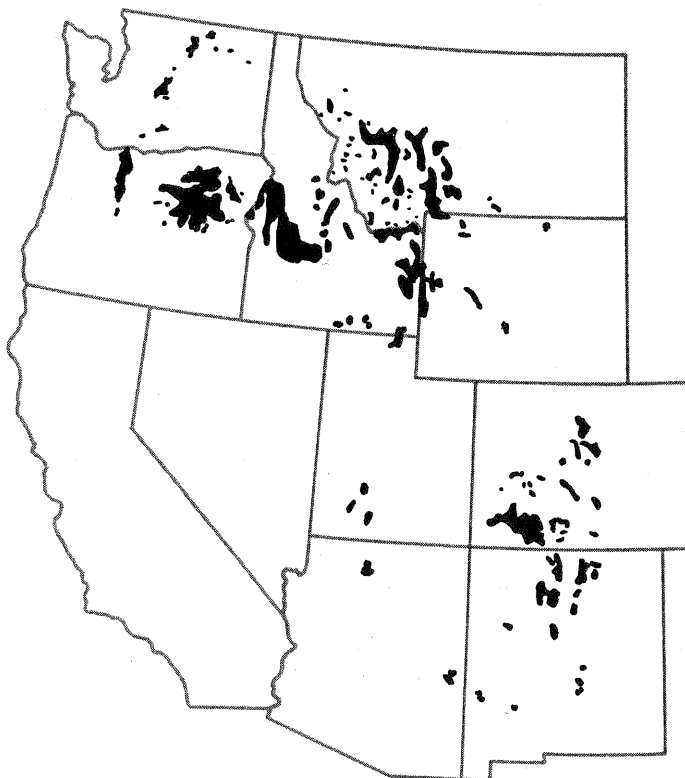
Intermountain Region	
Southern Idaho	2,620,300
Utah	87,600
Western Wyoming	198,500
Total	2,906,400

Pacific Southwest Region	
California	0
Total	0

Pacific Northwest Region	
Oregon	4,567,390
Washington	415,290
Total	4,982,680

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## 1985 Western Spruce Budworm Defoliation



# 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	<p>Douglas-fir beetle damage was up east of the Cascade Range: losses in Douglas-fir occurred on 10,670 acres (245,730 cubic feet). However, current damage levels are still far below what they were in the 1970's. The greatest damage in 1985 was on the Wallowa-Whitman National Forest in the Snake River National Recreation Area.</p> <p>West of the Cascades, losses decreased significantly. Although damage was reported on 17,720 acres in 1985 compared with 11,000 acres in 1984, volume loss fell from 2.2 million cubic feet in 1984 to 1.2 million cubic feet in 1985.</p>
Douglas-fir bud moth <u>Zeiraphera hesperiana</u>	Douglas-fir	Oregon	<p>Light to heavy defoliation was reported on 99,860 acres of mature Douglas-fir. Most of the defoliation was on the Siuslaw National Forest and adjoining State, private, and Bureau of Land Management lands. Smaller areas of defoliation occurred on the Willamette National Forest. This is the first reported defoliation caused by this insect since the mid-1960's.</p>
Fir engraver <u>Scolytus ventralis</u>	True firs	Oregon, Washington	<p>A substantial increase in fir engraver activity was noted in Oregon and Washington. Most of the fir engraver damage occurred on sites infected with either laminated root rot, armillaria root disease, or amnosus root disease, diseases which weaken true firs, making them susceptible to beetle attacks. Total losses occurred on 11,470 acres (198,020 cubic feet) as compared to 4,080 acres (79,500 cubic feet) in 1984.</p>

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

Insect	Host	Location	Remarks
Gypsy moth <u>Lymantria dispar</u>	Conifers, various hard- woods	Oregon, Washington	Adult trap catches increased in Washington from 161 in 1984 to 175 in 1985. An eradication project was conducted in Bellingham, WA, utilizing the inherited sterility technique. In Oregon, adult trap catches were over 19,000 in 1984 but 1,537 in 1985. An eradication project using <u>B.t.</u> was conducted in Lane County on 227,000 acres. A 200,000-acre eradication project is proposed for 1986.
Modoc budworm <u>Choristoneura</u> <u>retiniana</u>	Douglas-fir, true firs	Southern Oregon	Modoc budworm defoliation increased in southern Oregon in true fir stands on the Fremont and Winema National Forests. Acres of visible defoliation increased from 483,630 in 1984 to 503,400 in 1985. Results of the fall 1985 egg mass survey indicate continued defoliation in 1986.
Mountain pine beetle <u>Dendroctonus</u> <u>ponderosae</u>	Lodgepole pine, ponderosa pine, western white pine, other pines	Oregon, Washington	In Washington, losses continued at about the same level. In Oregon, losses have intensified on the Deschutes, Fremont, and Winema National Forests in Oregon. Losses decreased on the Wallowa-Whitman, Malheur, and Umatilla National Forests, primarily because the most suitable host trees have already been killed.  The 1985 beetle losses occurred on 1.3 million acres (49.6 million cubic feet) of lodgepole pine; 188,000 acres (3.8 million cubic feet) of ponderosa pine; 19,930 acres (814,350 cubic feet) of western white pine; and about 680 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 <u>Ips</u> sp.	Ponderosa pine	Oregon, Washington	Pine engraver activity increased to 2,720 acres. Most of the activity was on the Ochoco National Forest.

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

Insect	Host	Location	Remarks
Spruce beetle <u>Dendroctonus</u> <u>rufipennis</u>	Engelmann spruce	Oregon, Washington	Spruce beetle activity in Engelmann spruce stands in Oregon and Washington was very low this year. Losses occurred on 1,500 acres (18,300 cubic feet). A major outbreak is developing on the Wallowa-Whitman National Forest near Halfway, OR.
Western pine beetle <u>Dendroctonus brevicornis</u>	Ponderosa pine	Oregon, Washington	Tree mortality caused by the western pine beetle increased in Oregon and Washington from 780,600 cubic feet in 1984 to 4.9 million cubic feet in 1985. Greatest losses occurred on the Deschutes National Forest.
Western spruce budworm <u>Choristoneura</u> <u>occidentalis</u>	Douglas-fir Engelmann spruce, true firs, western larch	Oregon, Washington	<p>In the Pacific Northwest Region, visible defoliation caused by the western spruce budworm increased from 3.1 million acres in 1984 to 5.0 million acres in 1985.</p> <p>In Oregon, budworm continued to increase 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.</p> <p>In Washington, the size of the budworm infestation on the Okanogan National Forest and adjacent State and private lands increased in 1985. Defoliation discovered on the Wenatchee National Forest in 1984 expanded in 1985. Results of the fall 1985 egg mass survey indicate continued defoliation in 1986. In 1985, 40,000 acres were treated with <u>B.t.</u> on the Malheur National Forest.</p>

# Pacific Northwest Region—Diseases

Pacific Northwest Region—Status of diseases in Oregon and Washington

Disease	Host	Location	Remarks
<b>STEM AND BRANCH DISEASES</b>			
Dwarf mistletoes <u>Arceuthobium</u> spp.	Various conifers	Oregon, Washington	As stand management intensifies, losses due to this group of disease-causing organisms are declining. Dwarf mistletoes caused an estimated loss of 132 million cubic feet of timber in Oregon and Washington in 1985. Programs for handheld programmable calculators are being used to project reductions in yield and perform economic analyses for dwarf mistletoe-infected 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 as wounding of residual trees during stand entries both activates dormant infections and creates excellent 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 use of handheld programmable calculator programs for predicting infection hazard occurred during 1985.
<b>ROOT DISEASES</b>			
	Various conifers	Oregon, Washington	Root diseases are among the most serious pest problems in Oregon and Washington forests. 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 over 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</u>  <u>amosum</u></p>	Western hemlock, white fir	Oregon, Washington	Amnosus root disease is responsible for extensive losses in many partial-cut white fir stands in southern and eastern Oregon. Most loss is due to outright tree mortality. Evidence points to extensive infection throughout eastern Oregon and Washington. Losses in western hemlock stands can be minimized by short (100-year) rotations and wound prevention.
<p>Amillaria root disease  <u>Amillaria</u> spp.</p>	Various conifers	Oregon, Washington	The most serious losses to this disease occur east of the Cascades. Losses west of the Cascades 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>Black stain root disease  <u>Ceratocystis wagneri</u>  <u>[Verticicladiella</u>  <u>wagneri]</u></p>	Douglas-fir	Oregon, Washington	In southwestern Oregon, this is by far the most commonly encountered disease in Douglas-fir plantations. It appears to be especially damaging where disturbances have occurred, especially in roadside Douglas-firs cut back by mechanical choppers. Losses are also greater on tractor-logged sites, which have greater soil compaction, than on cable-logged sites.
<p>Laminated root rot  <u>Phellinus weirii</u></p>	Douglas-fir, grand fir, white fir	Oregon, Washington	Laminated root rot is estimated to have removed about 5 percent of the Douglas-fir type west of the Cascades from full production. The total acreage infested may be closer to 10 percent of the Douglas-fir. Damage is also severe in some grand and white fir stands with true fir overstory.
<p>Port-Orford-cedar root disease  <u>Phytophthora lateralis</u></p>	Port-Orford-cedar	Southwestern Oregon	Port-Orford-cedar root disease continues to cause widespread mortality of Port-Orford-cedar in southwestern Oregon.



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

Disease	Host	Location	Remarks
FOLIAGE DISEASES			
Dothistroma needle blight <u>Mycosphaerella pini</u> [ <u>Dothistroma septospora</u> (= <u>Dothistroma pini</u> )]	Douglas-fir, lodgepole pine, ponderosa pine	Oregon, Washington	The incidence of several foliage diseases was reduced from the 1984 level.
Douglas-fir needle cast <u>Rhabdocline pseudotsugae</u>			
Elytroderma disease <u>Elytroderma deformans</u>			
NURSERY DISEASES			
Douglas-fir canker diseases <u>Phoma eupyrena</u> <u>Fusarium roseum</u> <u>Botrytis cinerea</u> <u>Phomopsis</u> spp.	Douglas-fir	Oregon, Washington	Damage is scattered, with less than 1 percent of crop affected in most nurseries. Fungicide applications are helpful when cankers are above ground and not covered with soil collars.
Fusarium root and hypocotyl rots <u>Fusarium oxysporum</u>	Various conifers	Oregon, Washington	Scattered losses for most species; continued heavy mortality in sugar pine.
Larch needle cast <u>Meria laricis</u>	Western larch	Washington	Dry weather and fungicide treatments resulted in little infection or defoliation during 1985.
Phytophthora root rot <u>Phytophthora</u> spp.	Douglas-fir, other conifers	Oregon, Washington	Unusually dry weather throughout summer, fall, and winter caused disease severity to be lower in 1985. Seedbed seedling damage is confined primarily to low, poorly drained areas of nursery beds.