

MESSAGE SCAN FOR IRAL R. RAGENOVICH

To W01C:FPM  
CC IRR  
CC JLJ  
CC EMG  
CC KWS

From: Director, FPM                      Host: R06C  
Postmark: Mar 15,93 5:13 PM            Delivered: Mar 15,93 5:13 PM

Subject: 1992 ANNUAL CONDITIONS REPORT

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Comments:  
ON PAGE 4 TO END, PRINT LANDSCAPE

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United States  
Department of  
Agriculture

Forest  
Service

R6

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Reply to: 3400

Date: March 15, 1993

Subject: 1992 Annual Conditions Report

To: Chief

Enclosed is the Pacific Northwest Region 1992 Annual Conditions Report. Included are the Insect and Disease Conditions Summary, the Forest Pest Information System (FPIS) Report, and two copies each of maps showing the occurrence of mountain pine beetle and western spruce budworm defoliation in the Region.

If you have any questions, please contact Keith Sprengel or Ellen Goheen at 503-326-2728.

/S/MAX M. OLLIEU

MAX M. OLLIEU  
Director of Forest Pest Management

Enclosures

cc:  
I.Ragenovich, FPM  
J.Johnson, FPM  
E.Michaels Goheen, FPM  
K.Sprengel, FPM

Summary  
Part II  
Insect Conditions in the Pacific Northwest Region  
Prepared by Keith Sprengel

Below normal precipitation persisted in the Pacific Northwest Region. Drought, fire exclusion, and past management practices continue to exert their influences in parts of the Region in terms of host susceptibility and population build-ups.

Western spruce budworm caused defoliation increased slightly in Washington. Greatest increases in activity occurred on the Colville Indian Reservation and on state and private land east of the Columbia River and southwest of the town of Colville. Oregon experienced a significant decrease in affected acres (1.9 million acres in 1992, down from 3.7 million acres in 1991). Northeastern Oregon had an early summer hail storm which destroyed some of the aeriaily observable foliar symptoms. Acres of defoliation, region-wide, were down from 4.7 million acres in 1991 to 3.3 million acres in 1992. An aerial suppression project was conducted on 116,344 acres of the Wallowa-Whitman and Umatilla National Forests using Bacillus thuringiensis.

Douglas-fir beetle activity increased significantly throughout the Region, with an especially notable increase on forests west of the Cascade crest. Detection of fir engraver activity in Washington decreased from 146,542 acres in 1991 to 17,998 acres in 1992. Mountain pine beetle activity decreased slightly in Washington, but increased in Oregon. Mountain pine beetle attributed mortality of sugar pines on the Winema and Fremont National Forests increased to 39,705 acres (representing an average of one tree in every five acres) from 2,341 acres reported in 1991.

Five hundred acres near Cave Junction, Oregon were treated for European gypsy moth. Two small ground treatments were conducted in Washington. Pheromone traps located Region-wide yielded a catch of 501 males.

Increased trapping for the Asian gypsy moth in 1991 followed detection of egg masses on Siberian grain ships. Treatments of 116,000 acres near Tacoma, Washington and 8,000 acres in North Portland, Oregon were conducted in response to the trapping of ten moths. Trapping will continue in 1993 around treatment and port areas.

Summary  
Part II  
Disease Conditions in the Pacific Northwest Region  
Prepared by Ellen Michaels Goheen

Root diseases are among the most serious pests in forests of the Pacific Northwest. They are diseases of the site and thus may intensify from one rotation to the next and are difficult to control. Reports of root disease incidence increase as use of stand examinations to detect root disease becomes more common. Approximately 8.5% of the acreage of commercial forest land on all ownerships is affected by root disease. It is estimated that production is reduced by 50% on those affected acres. Laminated root rot is the most serious disease of forests west of the Cascade crest and accounts for 60% of all root disease losses. Armillaria root disease, annosus root disease, and black stain root diseases all cause significant damage in some locations. East of the Cascade crest Armillaria root disease, annosus root disease, and laminated root rot are common. Mortality was severe in drought-stricken stands where root diseases and bark beetles work together in pest complexes. Reports of black stain root disease affecting pines on eastside sites are increasing. Port-Orford-cedar root rot causes damage in southwestern Oregon.

The impact from dwarf mistletoes changes little from year to year, however long-term losses in timber values in unmanaged stands are great. Annual losses are estimated at 131 million cubic feet. Douglas-fir dwarf mistletoe is the most serious disease in stands east of the Cascades.

Damage from needle diseases decreased from 1991 levels due to dry microclimatic conditions during the spring of 1992.

1992 CONDITIONS REPORT  
PACIFIC NORTHWEST REGION

PACIFIC NORTHWEST REGION INSECTS  
Prepared by Keith Sprengel

Insect	Host	Location	Remarks
<b>Douglas-fir beetle</b> <u>Dendroctonus</u> <u>pseudotsugae</u>	Douglas-fir	Oregon, Washington	Douglas-fir beetle activity increased significantly throughout the Region, most notably on forested lands west of the Cascade crest. Affected areas increased from 103,021 acres in 1991 to 171,951 acres in 1992 (an average of one tree killed per acre). Most significant increases occurred on the Mt. Hood, Willamette, and Umatilla National Forests. Drought and root diseases contributed to host susceptibility.
<b>Douglas-fir tussock moth</b> <u>Orgyia pseudotsugata</u>	Douglas-fir, True firs	Eastern Oregon	Aerial survey detected 7,546 acres affected by Douglas-fir tussock moth; approximately 6,000 acres affected were on the Malheur National Forest. Early warning trapping and population sampling in the summer and fall of 1992 indicated that the population has collapsed in most areas. Minor amounts of visible defoliation could occur in 1993. No Regionwide outbreaks are expected in 1993. Observation of defoliation could have been obscured due to it's concurrence with defoliation caused by western spruce budworm. Observable signs of defoliation were also destroyed by an early summer hail and rain storm in parts of eastern and northeastern Oregon.

Insect	Host	Location	Remarks
<b>Fir engraver</b> <u>Scolytus ventralis</u>	True firs	Oregon, Washington	Fir engraver activity in Washington decreased from 146,542 acres in 1991 to 17,998 acres in 1992. In Oregon it decreased from 397,985 acres to 307,457 acres. Most notable population levels occurred in central and south central Oregon, there was, however, a slight over-all average decrease in these areas. The most significant detected increase was on the Malheur National Forest (26,346 acres in 1991 to 74,716 acres in 1992).
<b>Gypsy moth</b> (European form) <u>Lymantria dispar</u>	Conifers, Hardwoods	Oregon, Washington	Five hundred acres were treated with <u>Bacillus thuringiensis</u> three times near Cave Junction, Oregon. Two 70 acre areas were treated three times from the ground (one in Mt. Vernon, Washington., and one in Colville, Washington). Forty-seven adult gypsy moth males were trapped in Oregon in 1992, and 454 were trapped in Washington. None was identified as the Asian strain. Detection trapping will continue throughout Oregon and Washington in 1993. Thirteen sites in Washington and four sites in Oregon are proposed for ground treatment in 1993; one 450 acre site in Oregon is proposed for aerial treatment.

Insect	Host	Location	Remarks
<b>Western spruce budworm</b> <u>Choristoneura</u> <u>occidentalis</u>	Douglas-fir, Engelmann spruce, True firs, Western larch	Oregon Washington	<p>Areas of visible defoliation decreased from 4.75 million acres in 1991 to 3.28 million acres in 1992. The most significant decrease occurred in Oregon. The observable signs of defoliation in eastern and northeastern Oregon were destroyed in some areas by an early summer hail and rain storm. The decrease in defoliated area may also be due to budworm population declines due to disrupted larval diapause caused by a warm fall, unusually warm, short winter, and an early warm spring; and asynchrony between development of larvae and host foliage. An aerial suppression project was conducted on 116,344 acres of the Wallowa-Whitman and Umatilla National Forests using the biological insecticide <u>Bacillus thuringiensis</u> (B.t.) at a rate of 24 BIU's per acre.</p>

Disease	Host	Location	Remarks
<b>STEM AND BRANCH DISEASES</b>			
Dwarf mistletoes <u>Arceuthobium</u> spp.	Various conifers	Oregon, Washington	The impact from dwarf mistletoes in Washington and Oregon changes little from year to year, however, long-term losses in unmanaged stands are great. All conifer species are affected to some degree. Most of the damage occurred east of the Cascade crest. Douglas-fir dwarf mistletoe was the most damaging tree disease in stands east of the Cascades. Western larch dwarf mistletoe causes serious damage in northcentral Washington and northeastern Oregon.
Branch cankers <u>Phomopsis</u> spp. <u>Sclerophoma</u> spp. <u>Dermea</u> spp. <u>Cytospora</u> spp.	Douglas-fir True firs	Oregon Washington	Top, branch, and whole tree mortality associated primarily with drought and secondarily with complexes of canker fungi occurred in plantations and pole-size stands across Washington and Oregon. Canker fungi were found in association with true fir dwarf mistletoe throughout the Region.
Stem decay <u>Phellinus pini</u> <u>Echinodontium tinctorium</u> Others	Various conifers	Oregon, Washington	Stem decay fungi still consume enormous volumes of wood. Most losses occurred in younger stands of thin-bark species, which are susceptible to wounding during stand entries. Wounding of residual trees both activates dormant infections and creates excellent infection courts.
White pine blister rust <u>Cronartium ribicola</u>	Sugar pine, Western white pine	Oregon, Washington	White pine blister rust caused mortality throughout the range of western white pine and sugar pine and prevented the management of susceptible trees on high hazard sites. Annual losses in Oregon and Washington are estimated to be 15 million cubic feet. Rust-resistant planting stock is available for regenerating stands. Interest in pruning white pine stands continues to increase.



Insect	Host	Location	Remarks
ROOT DISEASES	Various conifers	Oregon, Washington	Root diseases are among the most serious pest problems in Oregon and Washington forests because of the magnitude of losses and the difficulty of treatment. Recognizing root disease in forest stands continues to be a data acquisition concern although reports of root disease incidence increase as use of stand examinations to detect root disease increase. Annual losses to root diseases on all ownerships are estimated at over 185 million cubic feet. Tolerant, resistant, and immune tree species were planted on some affected sites to limit future losses.
Annosus root disease <u>Heterobasidion</u> <u>annosum</u>	True firs, Western hemlock Ponderosa pine	Oregon, Washington	Annosus root disease was responsible for extensive losses in many partially cut white and grand fir stands in southern and eastern Oregon and eastern Washington. Mortality was high where annosus root disease and fir engraver beetles operate as a complex. Evidence points to extensive infection throughout eastern portions of the Region. Many stands were harvested 10 to 20 years ago and the fungus is currently spreading to trees surrounding those stumps. Disease severity in these conditions is expected to increase with time. Annosus root disease was observed with increasing frequency in predominantly ponderosa pine stands on dry sites in eastern Washington and eastern Oregon. Concern regarding the impacts of annosus root disease on mountain hemlock and Pacific silver fir in high elevation stands in the Cascades increased. Over the Region, use of borax as a stump protectant to prevent annosus root disease on susceptible conifers, increased.

Insect	Host	Location	Remarks
Armillaria root disease <u>Armillaria ostoyae</u>	Various conifers	Oregon, Washington	<p>The most serious losses to this disease occurred east of the Cascades in mixed-conifer stands. In some stands in northeastern Oregon where soils are compacted or displaced, mortality was high. In localized areas, ponderosa pine was seriously damaged. Losses west of the Cascades were usually confined to young, often stressed trees. Planting or favoring tolerant or resistant species was recommended as a control measure.</p>
- Laminated root rot <u>Pheelinus weirii</u>	Douglas-fir, Grand fir, White fir	Oregon, Washington	<p>Laminated root rot was the most serious forest tree disease west of the Cascades in Washington and Oregon. Where the disease occurs, Douglas-fir and true fir productivity has been reduced 50 percent. West of the Cascade Mountains, an estimated 8 percent of the area in susceptible species is affected. In some locations, surveys indicate that 15-20 percent of the area available for timber management requires treatment to minimize losses from this disease. East of the Cascades, reports of laminated root rot increased as awareness increased. Grand and white fir stands experienced severe damage. Tolerant, resistant, and immune species were favored or planted.</p>
Tomentosus Root Rot <u>Inonotus tomentosus</u>	Engelmann spruce	Washington Oregon	<p>Tomentosus root and butt rot was found commonly in stands dominated by mature and older Engelmann spruce. Trees are predisposed to windthrow or collapse but are seldom killed outright.</p>

Insect	Host	Location	Remarks
Port-Orford-cedar root disease <u>Phytophthora lateralis</u>	Port-Orford-cedar Pacific yew	Southwestern Oregon	Port-Orford-cedar root disease causes mortality of Port-Orford-cedar in southwestern Oregon. Approximately 12,200 acres containing diseased trees were mapped during the annual aerial detection survey. Resistance to the fungus is being tested using artificial inoculation techniques. Occurrence of the fungus on Pacific yew has thus far been limited to locations where Port-Orford-cedar and yew are intermingled within the same project areas.
VASCULAR WILTS AND DECLINES			
Black Stain Root Disease <u>Ophiostoma wagneri</u>  [ <u>Leptographium wagneri</u> ]	Douglas-fir Ponderosa pine	Oregon Washington	In southwestern Oregon, black stain root disease was the most commonly encountered disease in Douglas-fir plantations. It was particularly damaging where disturbances such as road building or soil compaction had occurred or where roadside Douglas-fir was cut by mechanical choppers. Black stain root disease on ponderosa pine was observed with increasing frequency in eastern Oregon. Numerous centers were located on the Malheur, Ochoco and Fremont National Forests.

Insect	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 decreased from 1991 levels due to drier microclimatic conditions during spring.
Douglas-fir needle cast <u>Rhabdocline pseudotsugae</u>			
Swiss needle cast <u>Phaeocryptopus gaeumannii</u>			
Elytroderma disease <u>Elytroderma deformans</u>			
Larch needle cast <u>Meria laricis</u>			
NURSERY DISEASES			
Damping-off	Most conifers	Oregon Washington	Loss of seedlings before and shortly after emergence averaged approximately 1% in two Pacific Northwest bareroot nurseries. Fumigation, deep watering, and delayed fertilization helped control damping-off.
Fusarium root and hypocotyl rots <u>Fusarium oxysporum</u>	Sugar pine Douglas-fir Ponderosa pine Western larch	Oregon, Washington Oregon	Scattered losses for most species at two nurseries. Partly due to a mild winter and hot weather during sowing, Fusarium damping-off and later hypocotyl rot destroyed over 50% of several conifer species in one field at one nursery.

Insect	Host	Location	Remarks
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 was scattered, with less than 1 percent of crop lost in most nurseries. Fungicide applications were helpful when cankers were above ground and not covered with soil collars.
Gray mold <u>Botrytis cinerea</u>	Douglas-fir	Oregon Washington	Damage by gray mold has been kept low (less than 1% of crop damaged) through applications of preventative fungicide, regulation of seedbed densities, and prompt removal of dead material, including pruned tops, from nursery beds.
Larch needle cast <u>Meria laricis</u>	Western larch	Washington	Isolated pockets of severe defoliation resulted in less than 10% loss at one nursery.
Phytophthora root rot <u>Phytophthora</u> spp.	Douglas-fir, other conifers	Oregon, Washington	Seedbed seedling damage was confined primarily to nursery beds with poor drainage or compaction layers in the rooting zone. Soil wrenching maintained a well-drained, loose soil profile at one nursery, nearly eliminating <u>Phytophthora</u> problems.

Forest Pest Information System Data Entry Form

Region: 6      Date: 2/16/93      Name of preparer: K.Sprengel/Julie Johnson

Pest	State	Land Ownership Class	(thousands)	(MCF)	(thousands)	Number of SPB Spots
			Acres Infested (thousands) (1 decimal)	Volume Killed (MCF) (1 decimal)	Number of Trees Killed	
MOUNTAIN PINE BEETLE	OREGON	National Forest	217.5	4,301.5	314.5	
		Other Federal	8.3	183.4	11.7	
		State & Private	77.2	1,057.6	76.1	
MOUNTAIN PINE BEETLE	WASH.	National Forest	65.6	2,822.3	112.2	
		Other Federal	13.4	469.1	14.3	
		State & Private	46.2	953.9	69.1	
DOUGLAS FIR BEETLE	OREGON	National Forest	130.5	18,716.3	139.4	
		Other Federal	4.2	1,074.0	2.5	
		State & Private	16.2	1,512.1	9.1	
DOUGLAS FIR BEETLE	WASH.	National Forest	15.4	2,707.9	18.5	
		Other Federal	1.8	184.6	1.2	
		State & Private	3.9	581.1	3.7	
FIR ENGRAVER	OREGON	National Forest	234.7	4,716.4	393.9	
		Other Federal	7.8	88.3	6.7	
		State & Private	64.9	602.6	49.9	
FIR ENGRAVER	WASH.	National Forest	9.2	97.4	8.6	
		Other Federal	1.1	19.8	1.7	
		State & Private	7.7	71.1	6.3	
ALL OTHER BARK BEETLES	OREGON	National Forest	161.4	13,293.0	103.0	
		Other Federal	14.8	397.4	5.8	
		State & Private	50.0	1,983.6	22.7	

Pest	State	Land Ownership Class	(thousands)	(MCF)	(thousands)	Number of SPB Spots
			Acres Infested (thousands) (1 decimal)	Volume Killed (MCF) (1 decimal)	Number of Trees Killed	
ALL OTHER BARK BEETLES	WASH.	National Forest	2.4	101.3	1.3	
		Other Federal	5.4	204.3	3.7	
		State & Private	16.0	1,094.8	15.0	
WESTERN SPRUCE BUDWORM	OREGON	National Forest	1,497.0			
		Other Federal	92.2			
		State & Private	348.5			
WESTERN SPRUCE BUDWORM	WASH.	National Forest	433.7			
		Other Federal	431.8			
		State & Private	464.0			

PEST INFORMATION SYSTEM INPUT FORM

REGION 6

DATE 1992

PEST	STATE	LAND CLASS	ACRES (thousands)	VOLUME (mcf)	NO. TREES KILLED <sup>1</sup>
SPOTS <sup>2</sup>		National			
		Forest	815	58077	
Root		Other			
Diseases	Oregon	Federal	155	10440	
		State &			
		Private	748	32839	
		National			
		Forest	370	31246	
Root		Other			
Diseases	Wash.	Federal	13	9195	
		State &			
		Private	890	44697	
		National			
Dwarf		Forest	2703	21831	
Mistletoes	Oregon	Other			
		Federal	505	3924	
		State &			
		Private	2470	12344	
		National			
		Forest	1137	10124	
Dwarf		Other			
Mistletoes	Wash.	Federal	43	2979	
		State &			
		Private	2760	14482	



PEST	STATE	LAND CLASS	ACRES (thousands)	VOLUME	NO. TREES (mcf)	KILLED <sup>1</sup>
SPOTS		National				
		Forest	11481		1058	
Other	Oregon	Other				
		Federal	2175		190	
		State &				
		Private	10514		599	
		National				
		Forest	5194		532	
Other	Wash.	Other				
		Federal	179		156	
		State &				
		Private	12538		762	