

FOREST INSECT AND DISEASE CONDITIONS

Vancouver Forest District British Columbia, 1975

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Infestations of western spruce budworm continued at high levels in the northeastern and eastern parts of the Vancouver Forest District. Populations of mountain pine beetle were high in the Klinaklini River drainage and resulted in extensive mortality of lodgepole pine.

A survey of laminated root rot showed considerable losses in a Douglas-fir stand near Okeover Arm.



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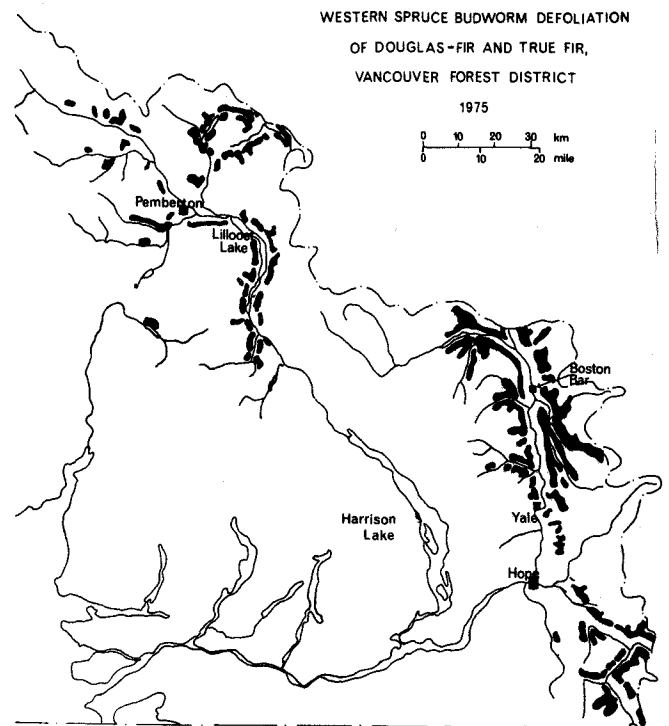
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DEFOLIATION OF DOUGLAS-FIR AND TRUE FIR TREES BY WESTERN SPRUCE BUDWORM, *Choristoneura occidentalis*, IN THE VANCOUVER FOREST DISTRICT INCREASED TO A TOTAL OF 201,440 ACRES (85,017 ha) IN 1975.



Larval development had been retarded by inclement spring weather and subsequently larvae were about two weeks later in completing development than in 1974. During July, populations were moderate to high throughout the infestations.

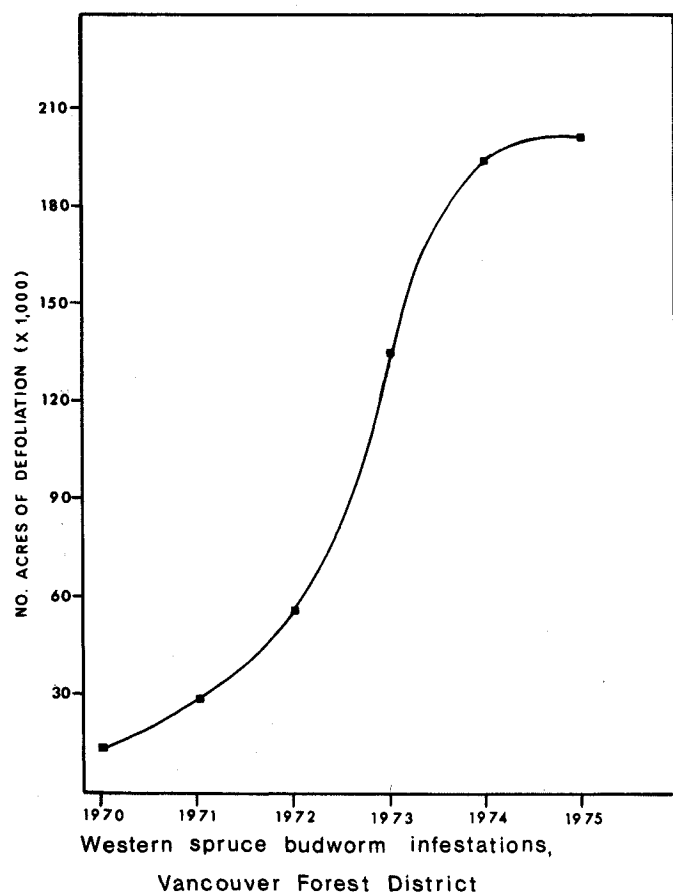


Aerial reconnaissance in August showed a decrease in the extent of areas of defoliation along the Lillooet River northwest of Pemberton, but showed new infestations along Lillooet Lake and Lillooet River southward toward Harrison Lake. The older infestations in the Fraser Canyon, from Hope to Manning Park and along the Skagit River expanded (see map). A greater proportion of the defoliation in 1975 was moderate to severe. Of the total defoliation mapped, 98,880 acres were light, 79,680 were moderate and 22,880 were severe.

Tree mortality was evident in some of the older infestations. On damage appraisal plots 1% of the trees at Haylmore Creek and 3% at Sumallo River were dead and the uppermost crowns of 30% of the trees were completely defoliated. At Railroad Creek, where defoliation of individual trees ranged from 55% to 95% annually since 1970, 8% of the trees were dead.

Egg populations were assessed at 11 points in the District and indicated that populations will continue at moderate to high levels in 1976. Flight traps baited with an attractant caught moderate numbers of adult males, although the average per trap was reduced from 1974 levels in most areas.

The graph illustrating the expansion of spruce budworm infestations since 1970 shows that the greatest increase in areas of defoliation occurred in 1973 and that the spread of infestations may be reaching a peak. However, egg counts indicate that moderate to severe defoliation in 1976 is likely to occur at Birkenhead Lake, Gates River, Nahatlatch and Anderson rivers, Manning Park and Skagit River. Top-kill and tree mortality will no doubt increase if there is another year of even moderate defoliation where extensive defoliation has occurred annually for the last few years, such as at Railroad and Haylmore creeks and Sumallo River.



WESTERN WHITE AND LODGEPOLE PINE TREE MORTALITY CAUSED BY MOUNTAIN PINE BEETLE, *Dendroctonus ponderosae*, INCREASED SUBSTANTIALLY IN 1975. The number of beetle-killed trees in white pine stands increased to 3,600 from 1,900 in 1974. The largest numbers of dead trees recorded were as follows: Cheakamus Lake and River - 160; Tenquille Creek - 100; Birkenhead Lake - Blackwater Creek - 420; Joffre Creek - 150; Skagit River - 165; Sumallo River - 100; Nahatlatch Lake and River - 910; Kookipi Creek - 800; East Anderson River - 250. Groups of up to 50 red-tops were noted at other scattered locations in the District.

The largest numbers of red-topped lodgepole pine were observed in the Klinaklini River drainage where there was an increase from 10,300 in 1974 to an estimated 40,000 in 1975. Most of this tree mortality occurred between Knot and Calwell creeks but there were a few small pockets of dead trees south of Frontier Creek.

About 300 red-topped lodgepole pines were observed at Haylmore Creek southeast of Anderson Lake.

DOUGLAS-FIR BEETLE, *Dendroctonus pseudotsugae*, populations were moderate to high in a few blowdown Douglas-fir trees at Cathedral Grove on Vancouver Island.

On the Mainland, there were 400 beetle-killed Douglas-fir trees in groups of 5 to 150 along Silverhope Creek and Skagit River.

Light beetle attacks occurred on a few Douglas-fir trees defoliated by spruce budworm at Skagit River, Sumallo River and Haylmore Creek. At Railroad Creek, where spruce budworm have defoliated trees annually since 1970, more than 7% of 431 tagged trees were dead, presumably from spruce budworm defoliation.

WESTERN TENTCATERPILLAR, *Malacasoma californicum pluviale*, populations were greatly increased in the Greater Victoria area, on the Gulf Islands, along the east coast of Vancouver Island and in the Port Alice area. Defoliation of alder, willow and other deciduous hosts was moderate to severe. Infestations will probably recur in 1976.

BRUCE SPANWORM, *Operophtera bruceata*, populations on oak, maple and other deciduous hosts were high in scattered localities in the Greater Victoria region, and defoliation of some trees was 100%. Populations are expected to be high again in 1976 since there was a heavy emergence of moths during the third and fourth weeks of November.

SATIN MOTH, *Stilpnotia salicis*, infestations resulted in light to moderate defoliation of trembling aspen and black cottonwood at two locations in Victoria and one in Nanaimo.

On the Mainland, the 3-acre infestation on black cottonwood at Birkenhead Lake persisted with no change in size. However, a second small outbreak occurred on the north shore of the lake south of the original infestation.

The parasite, *Apanteles solitarius*, was present at all locations where satin moth larvae were found.

POPLAR-AND-WILLOW BORER, *Cryptorhynchus lapathi*, was much more common in the District than in previous years. Dead and dying willow and black cottonwood were scattered over an estimated 50 to 100 acres of logged and replanted forest along the Mamquam River. Lesser numbers of infested trees were observed from Boston Bar to Vancouver, in the Pemberton Valley, and along the Sechelt Peninsula on the Mainland, and along the east coast of Vancouver Island.

SURVEYS FOR BALSAM WOOLLY APHID, *Adelges piceae*, were conducted on an intensive scale along the Sechelt Peninsula and in parts of Vancouver Island in 1975. Aphids were found on Mt. Elphinstone northwest of Gibson's Landing and at Lyons Lake above Halfmoon Bay, expanding the previous known boundary of the insect northward of Garibaldi Park.

During aerial surveys, extensive areas of apparently dead amabilis and alpine fir were observed along the upper Lillooet River, at Rutherford Creek and south of Cheakamus Lake. Examination of amabilis fir branches from the Lillooet River and Rutherford Creek forest showed branch gouting typical of the aphid but no specimens were found.

On Vancouver Island, balsam woolly aphid nymphs were found in a new area at Weeks Lake.

A LEAF BLOTCH MINER, *Lyonetia saliciella*, caused severe defoliation of western white birch in the upper Fraser Valley. The heaviest damage occurred between Agassiz and Hope where 75 to 100% of the leaves on many trees were skeletonized.

WESTERN BLACKHEADED BUDWORM, *Acleris gloverana*, populations remained at low levels on Vancouver Island. No defoliation has been observed since populations collapsed in 1972. However, flight traps baited with a sex attractant indicated that endemic populations still exist in the Loss Creek area in the southern part of the Island and near Port Alice in the north.

CONIFER SAWFLIES, *Neodiprion* spp., severely defoliated western hemlock on about 5 acres at Coqueis Creek on the west side of Neroutsos Inlet.

Populations of these sawflies were moderate to high throughout most of Vancouver Island with light defoliation of amabilis fir occurring at scattered locations.

BLACK VINE WEEVILS, *Brachyrhinus sulcatus*, killed 500 of a block of 1,200 one-year-old Douglas-fir seedlings at the Pacific Forest Research Centre in Victoria. Seedling mortality, caused by root feeding and stem girdling, occurred from January to mid-February.

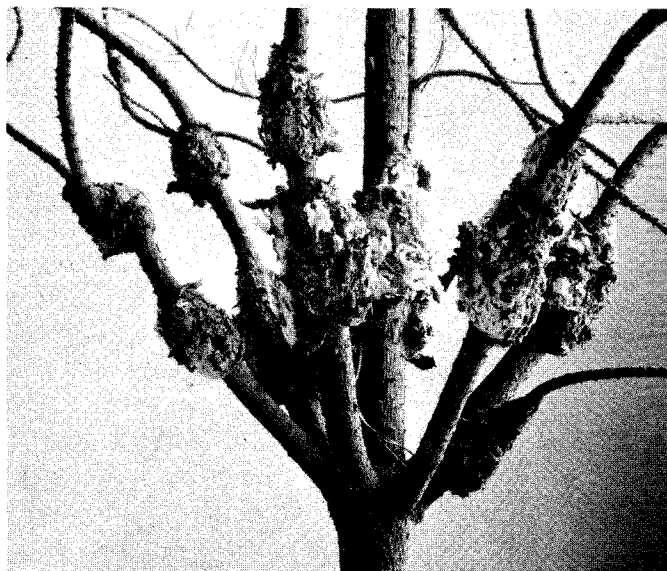
In addition, black vine weevils caused some seedling mortality in the B.C. Forest Service nursery at Mesachie Lake near Cowichan.

LAMINATED ROOT ROT, *Phellinus (Poria) weirii*, was widely distributed in a 50- to 60-year-old stand of Douglas-fir near Okeover Arm. During a survey in September, trees on 164 prism plots were examined. Root rot foci varying from 0.02 to 1 acre were found in 15% of the plots. Within the infested plots up to 50% of the trees were dead, reducing the volume by about 40% and representing a loss equal to about twenty 12-inch dbh trees per acre. Further losses will occur before the stand reaches harvestable age.



Windthrow and tree mortality caused by *P. weirii* was present in mature Douglas-fir stands near Woss Camp and at other locations on Vancouver Island.

GLOBOSE GALL RUST, *Endocronartium harknessii*, is the most common, most conspicuous and most destructive rust of hard pines in western Canada. Its life cycle is the simplest of the tree rusts, being transmittable from pine to pine without any secondary host.



To determine the occurrence and intensity of the rust, plots were established randomly throughout the Province in 1975. The highest infection level in the District occurred in a localized area at Chilliwack Lake where 95% of the trees examined were infected, 66% with stem infection. Some tree mortality can be expected at this location since the stand is young and the rate of stem infection is high.

DWARF MISTLETOE, *Arceuthobium tsugense*, on western hemlock is widespread in the coastal range of this tree species.

On Turnour Island, a 108-acre patch, clear cut in 1971-72, was examined to determine the incidence of dwarf mistletoe on residual trees. Of the 172 residuals examined, ranging up to 10 feet in height, about 15% supported mistletoe plants. There has been a 60% stocking of natural regeneration on most of the setting. Infections in this age hemlock, while possible, are usually quite rare because of the rather limited seed production capability after logging and the small target size of the potential host.

Additional sanitation cutting was recommended for the area.

SHOESTRING ROOT ROT, *Armillaria mellea*, continues to cause mortality of Douglas-fir and other conifers in plantations and natural regeneration sites at widespread locations throughout Vancouver Island. Mortality does not exceed 15% of the total trees in any one area.



Trees most susceptible to infection are 5- to 25-years old, usually predisposed by poor site, drought, frost, etc. The disease is almost impossible to eradicate once established in a young stand. However, its impact lessens as the stand exceeds 25 to 30 years of age. All native conifers are susceptible to infection, but infection may be minimized on good sites by using vigorous stock and good planting methods.

SHOOT BLIGHT, *Sirococcus strobilinus*, caused some mortality of white spruce container seedlings in 11 seed lots at the Surrey Nursery. The disease was also present on western hemlock at Marion Lake north of Haney.

A TOP BLIGHT, *Fusarium* sp., caused mortality of about 20% to one-year-old Douglas-fir at the Surrey Nursery in 1975.

WINTER DRYING CAUSED FOLIAR discoloration over an estimated 1,500 acres in the Cameron River Valley. About 50% of the Douglas-fir trees in some 4-to 5-year-old plantations were affected. The discoloration was limited to the 1974 foliage and only on the southern exposure of individual trees.

STATUS OF FOREST PESTS IN PACIFIC REGION 1975

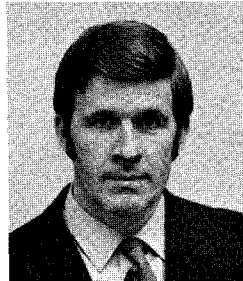
PEST	DISTRICTS						
	PRINCE RUPERT	PRINCE GEORGE	VANCOUVER	CARIBOO	KAMLOOPS	NELSON	YUKON
MOUNTAIN PINE BEETLE	epidemic Kitwanga to Burns Lake	light attacks Stuart-Takla Lakes	severe tree mortality along Klinaklini R	epidemic, Cariboo L Tyee L, Bull Mtn Bald Mtn Klinaklini R	epidemic in Okanagan Va	epidemic, Elk Cr-White R, Blackwater Ridge,	not found
SPRUCE BEETLE	low populations	low populations	not common	low populations in wind-throw	localized infestation at Birk Cr	low populations	not found
DOUGLAS-FIR BEETLE	not found	low populations	scattered light attacks	patches red-tops Williams Lake to Dog Creek along Fraser R	increase scattered light attacks	increased attacks Columbia and Kettle R Valleys	no host
SPRUCE BUDWORM ONE-YEAR-CYCLE	low populations near Bell-Irving R Trace at Kitimat	epidemic Liard R area	epidemic in Lillooet, Fraser and Sumallo R Valleys	light defoliation Becher's Prairie	epidemic Lillooet, Adams L Manning Pk	low populations	trace
SPRUCE BUDWORM TWO-YEAR-CYCLE	low populations	low populations	not found	high populations MacKay River, Bowron circle	not found	epidemic at McMurdo and Bobbie Burns Cr., Spillimacheen R	not found
DOUGLAS-FIR TUSsock MOTH	not found	not found	not found	adults in traps only, no larvae collected in beatings	infestations N and W of Kamloops	low populations near Cascade	no host
FALSE HEMLOCK LOOPER	not found	not found	not found	not found	decrease, due to parasitism and pesticide	infestations at Columbia and Windermere Lakes	not found
BLACK ARMY CUTWORM	low populations	not found	not found	not found	localized infestation, little seedling damage	epidemic at Beaverfoot R and Symond Cr	not found
WESTERN BLACK-HEADED BUDWORM	decreased population, Q.C.I. and mainland	decreased population	low populations	low populations	low populations	low populations Upper Arrow Lake	low populations

FOREST DISTRICT RANGER ASSIGNMENTS 1976

Canadian Forestry Service
Pacific Forest Research Centre
506 West Burnside Road
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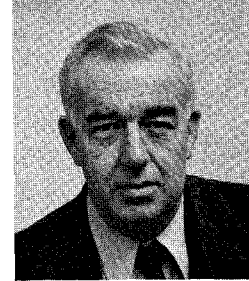
BC-X-132 Jan. 1976

VANCOUVER



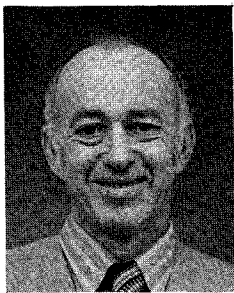
Ernie Morris

KAMLOOPS

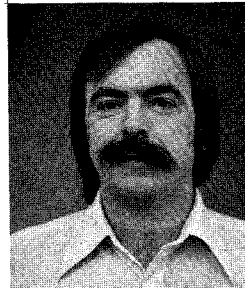


Dick Andrews

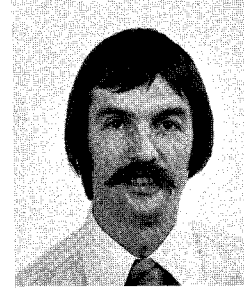
CARIBOO



Stan Allen



Colin Wood



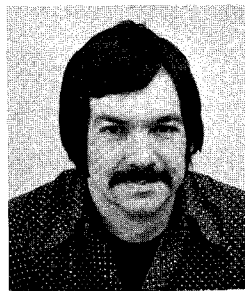
Jack Monts

PRINCE GEORGE & YUKON TERRITORY



Roly Wood

PRINCE RUPERT

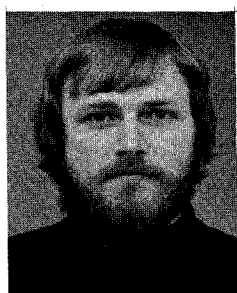


Don Doidge

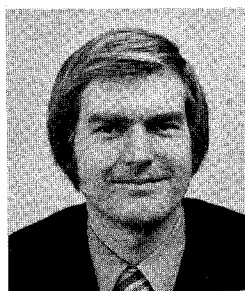
NELSON



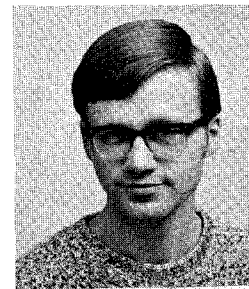
Cliff Cottrell



Leo Unger



Peter Koot



Bob Erickson