Forest Insect and Disease Conditions

Vancouver Forest Region

British Columbia, 1978

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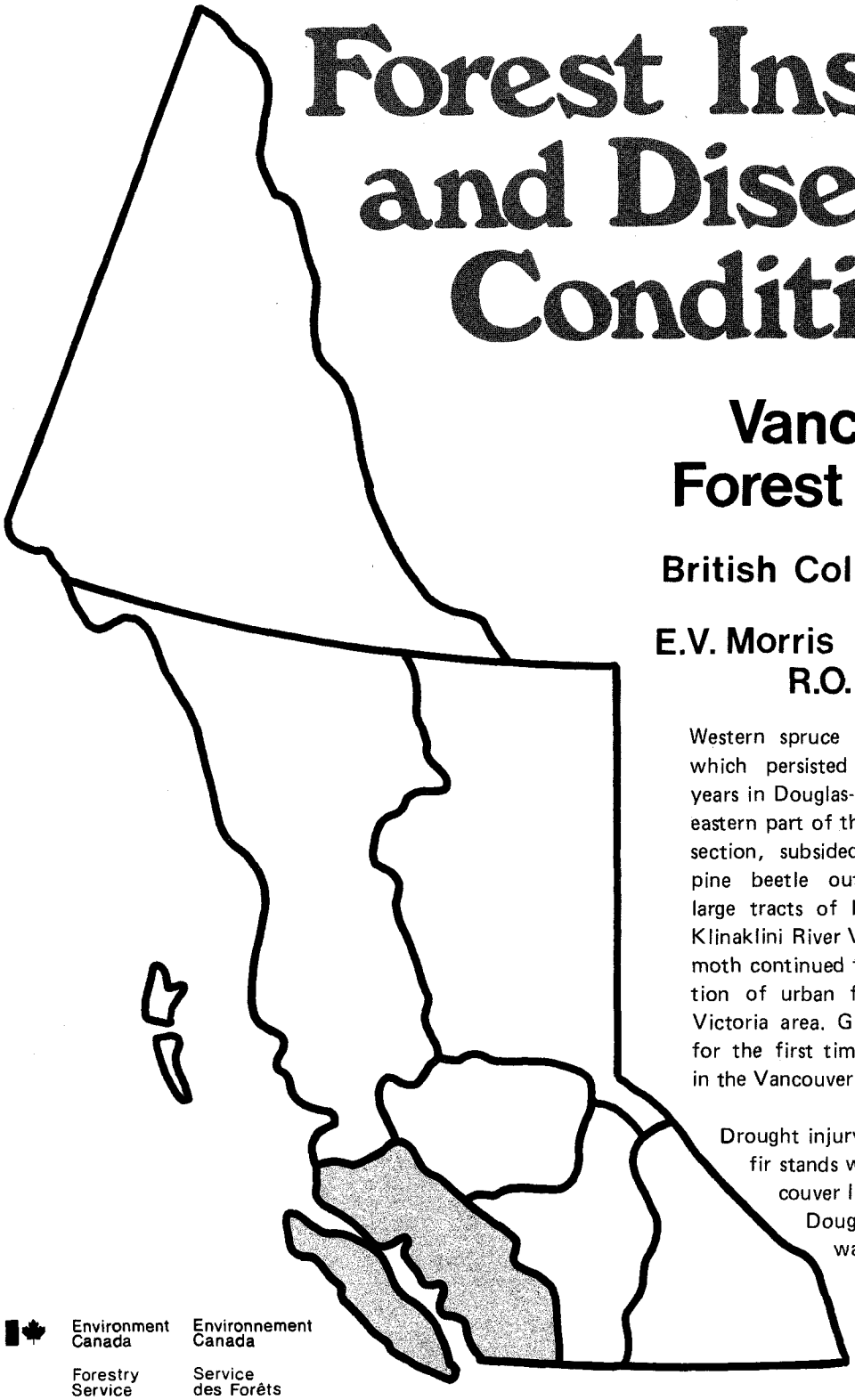

Western spruce budworm infestations, which persisted for the past several years in Douglas-fir stands in the south-eastern part of the Vancouver Mainland section, subsided in 1978. Mountain pine beetle outbreaks, which killed large tracts of lodgepole pine in the Klinaklini River Valley, declined. Winter moth continued to cause heavy defoliation of urban forests in the Greater Victoria area. Gypsy moth was found for the first time in British Columbia, in the Vancouver area.

Drought injury in immature Douglas-fir stands was widespread on Vancouver Island and the Mainland. Douglas-fir dwarf mistletoe was found for the first time in coastal British Columbia, at Slesse Creek in the Chilliwack River Valley.

Environment Canada Forestry Service
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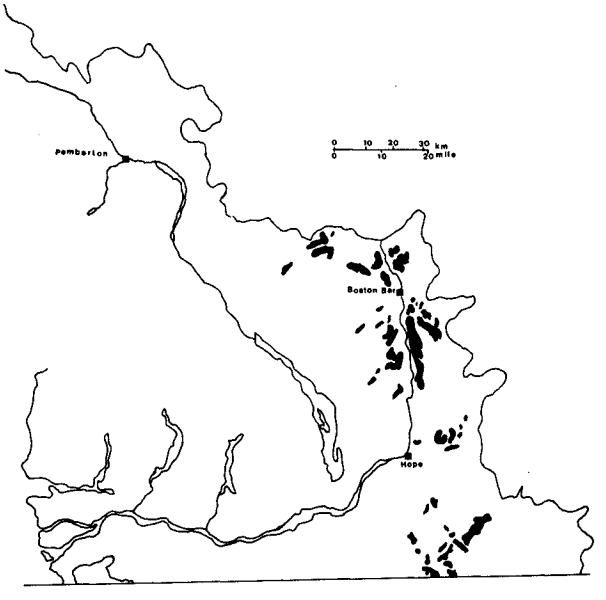
WESTERN SPRUCE BUDWORM, Choristoneura occidentalis, infestations in Douglas-fir stands in the southeastern part of the Vancouver Mainland section subsided in 1978 (Fig. 1). Budworm defoliation occurred on 25 200 ha in 1978, compared to 90 000 ha in 1977. Of this defoliation, 500 ha were classed heavy, 8 600 moderate and 16 100 light. The largest reductions occurred in the heavy and moderate defoliation categories (Fig. 2). Light to moderate defoliation was recorded along the Skagit River Valley, Coquihalla River and in the Fraser Canyon and tributary valleys, from north of Yale to Nahatlatch River. Small patches of heavy defoliation occurred at Mowhokam Creek and Keefers (Map 3). Some light defoliation was observed during ground surveys at Owl and Haylmore creeks, and Birkenhead Lake.

Generally, tree mortality was not significant in most of the infested areas. Substantial mortality occurred in a few 40 to 250 ha stands, which were severely defoliated early in the infestation, at Trafalgar and Tsileuh creeks in the Fraser Canyon and Rutherford Creek near Pemberton.

Top-kill occurred in 35- to 90-year-old stands defoliated for more than 2 consecutive years and generally increased with the number of years and severity of feeding. Recovery of normal height growth and the development of a dominant leader will probably require several years, varying with the severity of the top-kill.

Eggs were present in 9 of 34 locations sampled, a substantial reduction compared to 1977. The largest number of eggs were found at Rhododendron Flats, Sumallo River and Mowhokam Creek, where light to moderate defoliation could occur in 1979.

WESTERN SPRUCE BUDWORM DEFOLIATION
OF DOUGLAS-FIR
VANCOUVER FOREST REGION
1978



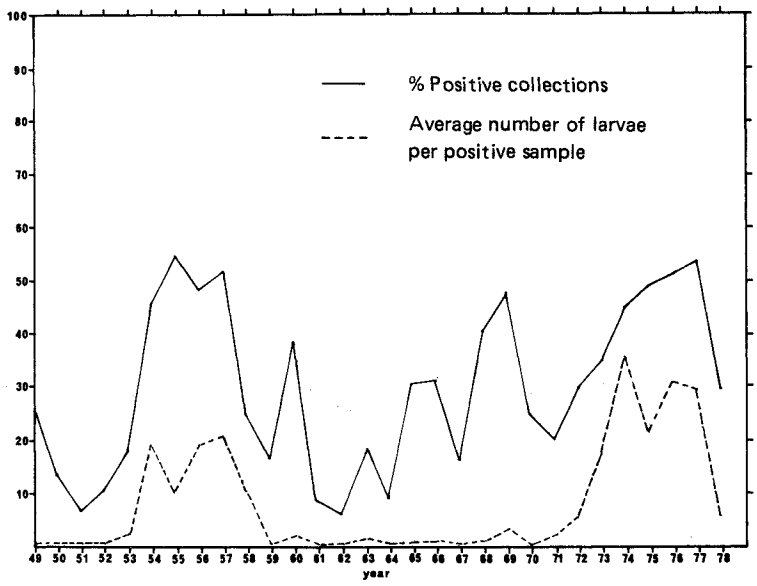


Figure 1

POPULATION FLUCTUATIONS OF WESTERN SPRUCE BUDWORM

VANCOUVER FOREST REGION

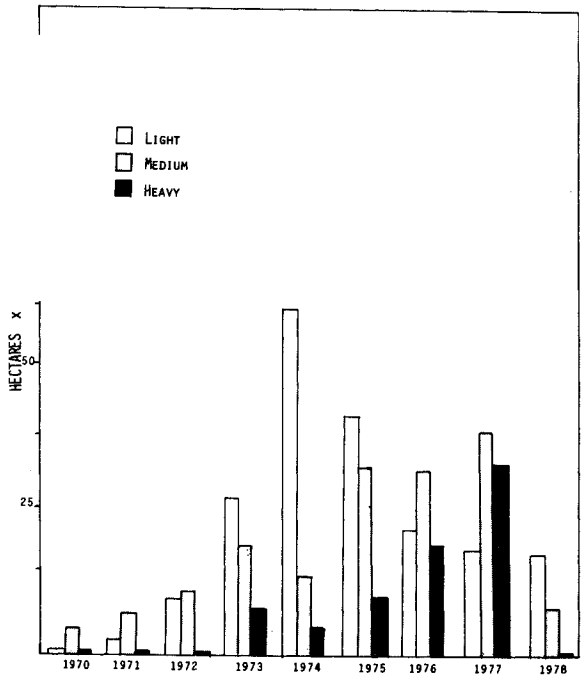


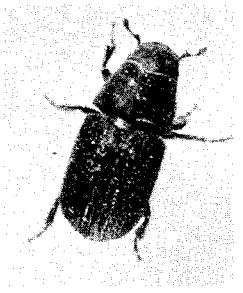
Figure 2

SPRUCE BUDWORM DEFOLIATION

VANCOUVER FOREST REGION,

1970 - 1978

DOUGLAS-FIR BEETLE, Dendroctonus pseudotsugae, populations remained low in 1978. Recently killed Douglas-fir trees totalled 480, as follows: East Anderson River (38), Anderson River (21), Uztlius Creek (33), Snass Creek (60), Skagit River (184), Skaist River (13), Spuzzum Creek (6), Tsileuh Creek (22), Scuzzy Creek (9), Speyum Creek (15), Pemberton Meadows (28), Railroad Creek (30), and Lillooet Lake (22).



Douglas-fir beetle adult

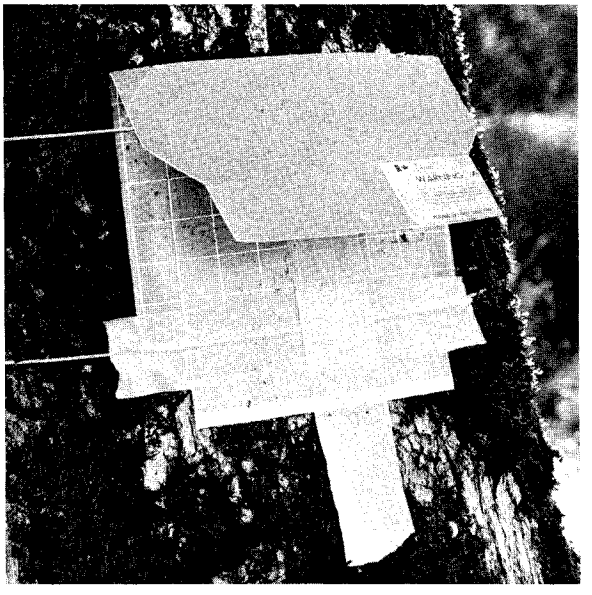
Generally, Douglas-fir beetle attacks on spruce budworm defoliated trees have not been significant. At Tsileuh Creek, 12% of the trees in a 250 ha stand were killed to date, and 4% were attacked in 1978. Current beetle attacks were observed along Nahatlatch River, where 5% of the trees were attacked, Gilt Creek 1 and 2%, East Anderson River 3%, and Skagit River 2%.

A special bark beetle survey by the British Columbia Forest Service indicated that a trap tree program is not feasible in the light of the low number of infested trees and the small brood production. The sole exception was at Shovelnose Creek in the Squamish area, where 115 infested trees were found in a drought-damaged 50- to 80-year-old stand.

WINTER MOTH, Operophtera brumata, again caused extensive defoliation of Garry oak, maple and other deciduous trees on southern Vancouver Island. The most severe feeding occurred in Greater Victoria, particularly around Gonzales Point, Cattle Point, and from Mount Tolmie to Christmas Hill. Smaller, scattered patches of defoliation were recorded in Sidney, south of Elk and Prospect lakes, and in Esquimalt and Metchosin. There was no evidence of disease in the larval population.

Large moth flights were observed in many parts of the infested area, indicating a continuing infestation in 1979.

In cooperation with the Plant Quarantine Division of Agriculture Canada, 483 traps were set at commercial nurseries at Sooke, and from Victoria to Campbell River. Adult male moths were trapped in Victoria, Central Saanich, and at Duncan and Nanaimo, which is an extension of the known range of winter moth on Vancouver Island.



Winter moth trap

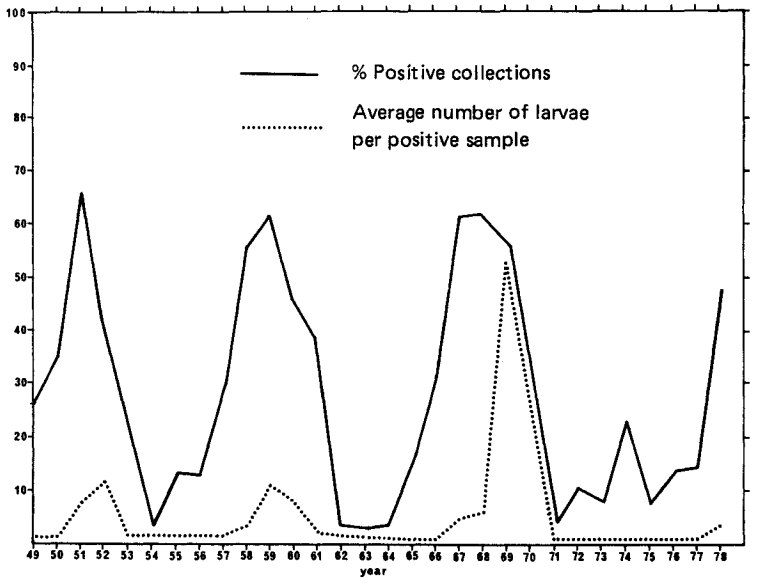


Figure 3

POPULATION FLUCTUATIONS OF GREEN-STRIPED FOREST LOOPER ON WESTERN HEMLOCK, VANCOUVER FOREST REGION

GREEN-STRIPED FOREST LOOPER, Melanolophia imitata, larvae were common in small numbers in hemlock-cedar stands throughout the Vancouver Forest Region. On Vancouver Island, 3 tree beating samples containing from 15 to 40 larvae were taken in an area forming a rough triangle from Parksville to Courtenay to Port Alberni. In the Mainland section, the largest populations occurred from Sechelt to Lund.

Historically, large population build-ups have occurred in mature stands at approximately 10-year intervals, the last having subsided in 1969 after several years of severe defoliation and significant tree mortality.

In the past, the number of samples containing larvae increased 2 or 3 years before the average number of larvae per sample (Fig. 3), which indicates a possible population buildup.

MOUNTAIN PINE BEETLE, Dendroctonus ponderosae, infestations declined along the Klinaklini River Valley in 1978. An estimated 1,500 recently killed lodgepole pine trees were recorded from Remote Creek to Klinaklini Lake, compared to 4,000 in 1977. In the 5 years of this infestation, more than 70,000 trees have been killed over 2 500 ha. At Mowhokam Creek in the Fraser Canyon, 350 lodgepole pine trees have been killed. At Haylmore and Spruce creeks near Anderson Lake, 530 dead lodgepole pine were counted, and a total of 150 western white pine trees were killed in the Birkenhead Lake area and at Joffre Creek near Lillooet Lake.

A CONIFER SAWFLY, Neodiprion sp., caused heavy defoliation of western hemlock and amabilis fir trees on northern Vancouver Island at Schoen Creek, Kelsey Bay, and Cormorant and Pearse islands. Light to moderate defoliation occurred at Schoen and Haihte lakes, Holberg and Port Alice, and near Rheinhart Lake and Green Mountain on southern Vancouver Island.

A GYPSY MOTH, Porthetria dispar, survey carried out in Vancouver by Agriculture Canada, Plant Quarantine Division, resulted in the capture of five male moths in the Kitsilano district. This is the first record of gypsy moth in British Columbia. No moths were trapped at 10 localities in the Fraser Valley or near Victoria by the Canadian Forestry Service. In subsequent egg surveys, in the area where the moths were trapped, more than 30 egg masses were found on five properties in the York-Larch street vicinity. An intensive pheromone trap survey is planned for Vancouver Island and the Mainland in 1979.

Gypsy moth pheromone trap

WESTERN BLACKHEADED BUDWORM, Acleris gloverana, populations have increased 5-fold since 1974 in western hemlock and amabilis fir stands on the west coast of Vancouver Island, from Tofino to Brooks Peninsula, but defoliation is light. Larval populations on the Vancouver Mainland remained low.

Between 1926 and 1973, there were four major outbreaks in the Region, but natural factors reduced the populations after 2 or 3 years of heavy defoliation and usually only limited tree mortality occurred.

PINE BUTTERFLY, Neophasia menapia, adults were noted in large numbers around mature Douglas-fir trees from Port Alberni to Parksville, especially in Cathedral Grove (MacMillan Park). Adults were also common in Sooke, Victoria, Sidney and the Gulf Islands. No appreciable defoliation was observed. The last major outbreak, resulting in defoliation, occurred in the Nimpkish Valley in 1965 and in Cathedral Grove from 1959 to 1961.

STRIPED ALDER SAWFLY, Hemichroa crocea, severely defoliated red alder on Salt Spring Island, from Fulford Harbour to Isabella Point. Moderate skeletonizing also occurred for the third consecutive year in coastal areas, from Mill Bay to Cherry Point and Cowichan Bay.

DOUGLAS-FIR DWARF MISTLETOE, Arceuthobium douglasii, found for the first time in coastal British Columbia, infected a single Douglas-fir tree at Slesse Creek in the Chilliwack River Valley. The tree has since been cut and destroyed.

WESTERN GLOBOSE GALL RUST, Endocronartium harknessii, is a continuing and common problem throughout much of the range of shore pine. Infections, particularly common at the north end of Chilliwack Lake and at Long Beach, caused branch flagging of mature trees and mortality of some saplings.

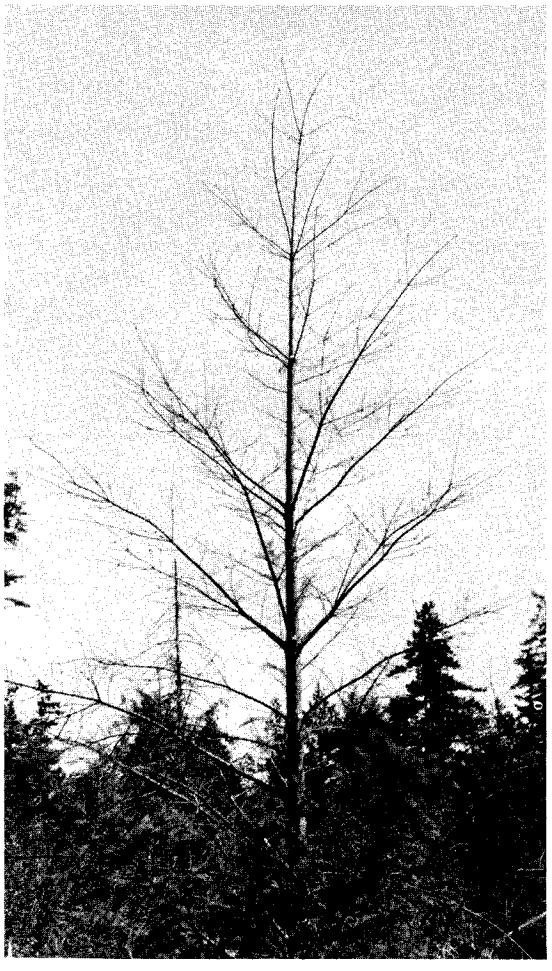
EUROPEAN PINE SHOOT MOTH, Rhyacionia buoliana, caused minor tree deformity of ornamental pine trees on southern Vancouver Island and the lower Fraser Valley. Shore pines at Langara Golf Course, in the City of Vancouver, again sustained moderate to heavy damage, and infested ornamental pines were found east of Vancouver as far as Abbotsford. Shoot moth populations have become concentrated in small, localized centers, where the major threat is in residential areas, although there is a danger of the insect becoming established in native pine stands.

DROUGHT CONDITIONS resulted in top-dieback of 1 to 6 m and some tree mortality in young Douglas-fir stands in the Pemberton, Boston Bar and Chilliwack River areas. Small groups of 1 to 5 trees were affected. This is the second year injury has occurred in these areas.

In the Squamish River Valley, at Shovelnose Creek, 50 ha of 50- to 80-year-old Douglas-fir showed symptoms of drought damage, with top dieback and sparse foliage. More than 100 trees were attacked by Douglas-fir beetles.

On Vancouver Island, similar damage occurred in groups of 1 to 5 trees scattered throughout immature Douglas-fir stands in the Ash River Valley near Port Alberni, in the vicinity of Nanaimo lakes, the Sayward Forest near Campbell River, and in the Nimpkish Valley. The result was top-kill and mortality.

Large areas of mature shore pine, western hemlock, western red cedar and Douglas-fir on Cortes and surrounding islands and west of Campbell River were severely damaged by drought.



Drought damaged Douglas-fir tree

WINTER DAMAGE to Douglas-fir, western red cedar, and ornamentals on residential properties was evident in the Fraser Valley, from Abbotsford to Yale. Most of the affected foliage and branch flagging occurred on the north and east sides of the trees. A sudden temperature drop and strong outflow winds from the interior for several days in December 1977 was probably responsible for the injury.

BALSAM WOOLLY APHID, Adelges piceae, surveys completed during May, in southern coastal areas, showed that the aphid had not spread beyond the known infestation boundaries.

A LEAF BLOTCH MINER, Lyonetia saliciella, mined western white birch leaves in many parts of the Fraser Valley and Lower Mainland, particularly in the Hope-Yale area and along the Deas Island Freeway, where infestations have persisted for 5 years. Many of the birch stands had a brown, scorched appearance by mid-summer.

WHITE PINE BLISTER RUST, Cronartium ribicola, continued to cause top-killing of mature western white pine trees near the headwaters of the Skagit River, along Silverhope Creek, and in the Blackwater Creek-Birkenhead Lake areas. Mortality of white pine saplings occurred at scattered points along the west coast of Vancouver Island.

DISCOLORATION OF BROADLEAF MAPLE FOLIAGE was again widespread on Vancouver Island and the Lower Mainland. This condition, although not as severe in 1978, has persisted for the past 4 years.

STATUS OF FOREST PESTS IN PACIFIC REGION 1978

PEST	FOREST REGIONS						
	PRINCE RUPERT	PRINCE GEORGE	VANCOUVER	CARIBOO	KAMLOOPS	NELSON	YUKON
SPRUCE BEETLE	17 000 ha infestations mainly in the Babine Lake and Morice R. areas	Extensive areas of tree mortality	Localized attacks Mowhokam Cr.	Low population in northeastern corner of Region	Localized infestations, upper Lambly Cr., Lawless Cr., Olivine Cr. Increasing populations in blow down areas	New, spot infestations	Low populations Haines Jct area
MOUNTAIN PINE BEETLE	Widespread infestation, Cedarvale to Smithers	Active in widely separated areas	Infestation declined Klinaklini R. Localized infestations Haylmore and Mowhokam Creeks	Heavy infestation in scattered areas throughout Region	Heavy infestations Trout Cr., Gun Lake area. Increased populations, Below Mission Cr., Stein R. Ashnola R.	Increasing in West Kootenay exploding in East Kootenay	Not found
DOUGLAS-FIR BEETLE	Not found	Low frequency of tree mortality near McBride	Light attacks Fraser Canyon, Silver Skagit, Pemberton	Low population	Increased populations Tranquille Cr. Heffley Cr., Dairy Cr. and along Carpenter L.	Small pockets	No host
WESTERN SPRUCE BUDWORM (1-YEAR-CYCLE)	Low populations	Low populations	Populations declined sharply in many areas of the infestation	Medium population, lighter than 1977	Significant decrease in most infested areas. Light to moderate populations near Ashcroft	Small populations holding steady	Low population
SPRUCE BUDWORM (2-YEAR-CYCLE)	Low populations	Increasing populations some current defoliation	Not found	Medium to high population, eastern part of Region	Medium population near Lempriere Cr.	Increasing populations	Not found
WESTERN BLACKHEADED BUDWORM	Minor defoliation Bell-Irving R.	Very low populations	Population increase, west coast Vancouver Island	Low population	Very low populations	Low populations	Low population
CONIFER SAWFLIES *Neodiprion* spp.	Moderate defoliation 1300 ha wH, alF at at Carrigan and Ironside creeks	Infestations subsided	High populations on northern Vancouver Isl.	Low populations	Infestation collapse near Vavenby and Clearwater R.	Low populations	Low population
FOREST TENT CATERPILLAR	Not found	General collapse of infestation	Not found	Not found	Low populations	Low populations	Not found
ASPEN LEAF AND SHOOT BLIGHT	Heavy infection Houston area	Extensive widespread damage	Not found	Light to moderate incidence Big Lake to Canim L	Severe browning of foliage at Clearwater R Avola and Monashee Cr	Widespread light infection of aspen	Low incidence

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