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Pacific Forest Research Centre
506 West Burnside Road , Victoria , B.C. V8Z 1M5

MID-SEASON SUMMARY OF

FOREST PEST CONDITIONS

IN BRITISH COLUMBIA

R.O. Wood and R.L. Fiddick

Mountain pine beetles continue to be the major insect problem in 1979. As predicted, the number of beetle-killed lodgepole pine increased dramatically in the Flathead River area of the Nelson Region. Mountain Pine beetles still pose serious threats in the Prince Rupert, Prince George, Kamloops and Cariboo regions despite some high overwintering mortality of beetle broods. Western spruce budworm populations in Douglas-fir stands declined in most areas, but some defoliation of Douglas-fir persists in the Kamloops and Vancouver Region. Larch casebearer infestations expanded and intensified in the Nelson Region. European pine shoot moth was present in higher numbers in the Okanagan area. A number of diseases were worthy of note during this period, paticularly some leaf and needle diseases, and tree rusts, and dwarf mistletoes and root rot remains perennial problems.

Mountain Pine Beetle, *Dendroctonus ponder-osae.*

In the Nelson Region, the beetle continued its depredation of lodgepole pine stands in the White River - Kootenay River Area, the upper Elk River Valley and the Flathead River Valley, including the tributaries of Sage, Nettie, Cabin and Kishinena Creeks. Beetle-killed western white pine trees were evident in small groups at Summit Creek and Kitchener near Creston. In West Kootenay existing infestations in some areas increased by 20 to 50% in numbers of trees killed and there were several new small spot infestations. Logging reduced beetle populations and hence the number of trees attacked at Moody, Bitter, Nicholson, Fiva, Goathide, Treadmill and Clements creeks and Arlington Lakes and King Solomon Mountain.

In the Cariboo Region, 90% of the overwintering beetles were killed in the McIntyre, Drummond, Tatla, Cariboo lakes and Big Creek areas and the number of trees attacked in 1979 should be much lower than in the past 2 years. A much lower mortality of beetles occurred at Jesmond, Tyee Lake, Likely, Chilanko, Eagle Lake, Razor Creek, Gaspard Creek and Skelton Lake and infestations will probably continue at epidemic levels in these areas.

In the Kamloops Region, examination of overwintering beetle broods indicated an increase in the population in the Gold Bridge area and a decrease near Blue River.

Scattered patches of recently killed lodgepole pine trees were recorded at Stuart, Trembleur and Takla lakes in the Prince George Region. The beetle has been active in this area in the past and current infestations began several years ago but the climate in this northern area may prevent the beetle from becoming epidemic.

In the Prince Rupert Region, populations are expected to increase at Seeley Lake and Woodcock. In the Cranberry River area, numerous green trees were attacked, almost doubling the infestation size. A southward movement of infestations along the Skeena River should be curtailed by large tracts of "no host" territory, by coastal climatic conditions and younger existing pine stands.

Douglas-fir Beetle, *Dendroctonus pseudotsugae*

In the Kamloops Region, a few Douglas-fir trees have been killed by bark beetles at Soap Lake in an area previously infested by spruce budworm. In the Vancouver region, trap tree programs at Squamish River, Devine, Anderson River and Nahatlatch Lake apparently have been effective, with no fresh attacks recorded on standing trees and most trap trees absorbing the beetles. In other regions of the Province, Douglas-fir beetle populations were at low or endemic levels.

Spruce Beetle, *Dendroctonus rufipennis*

Fresh attacks were found in the Bowron Lake - Kibbee Lake blowdown area.

In the Kamloops Region, surveys at Tadpole Lake indicated a low population, and in the Fly Hills, where fringe blowdown was being logged, fresh beetle attacks occurred on scattered standing trees. Occasional attacks also occurred on scattered Engelmann spruce trees from Bridge Lake north to Monticola Lake, the site of 800 ha blowdown in 1977. Several patches are yet to be salvaged and many downed trees are heavily infested with spruce beetles.

In the Prince George Region, recent blowdown and slash material throughout the Bowron, Willow and Naver rivers drainages south of Prince George have been absorbing spruce beetle attacks. Similar conditions exist to the north of Prince George at Weedon Lake and along the Parsnip River, although occasional standing trees have been attacked along the Parsnip River. Beetles were active in blowdown at Tezzeron and Takla lakes north of Fort St. James.

In the Prince Rupert Region, beetle attacks occurred in pockets of 10 to 30 trees along Cranberry and Nass rivers near Bowser Lake and McInnes Creek.

In the Nelson Region, no new attacks were recorded at Campbell Creek near Beaverdell. Woodpecker predation of the 1978 larvae reduced beetle numbers, and logging and trap tree programs should prevent a population buildup. At McLatchie Creek, a localized population occurred in a small area of blowdown.

Western Spruce Budworm, *Choristoneura occidentalis*

Although larval numbers were generally much reduced, budworm populations persisted at several locations in the Vancouver and Kamloops forest regions. Light to moderate and occasionally severe defoliation occurred along the Hope-Princeton highway from Rhododendron Flats to Cedar Creek, in the Fraser Canyon at Gilt, Siwash and Mowhokam creeks, in the Coquihalla River Valley at Ladner, Dewdney and Boston Bar creeks and north along Coquihalla River, in the Silver-Skagit Valley at Shawatum Creek and north along the Skagit River toward Hope-Princeton Highway. West of Kamloops, significant areas of light to moderate defoliation occurred in a number of valleys from Indian Gardens off the Tunkwa Lake road to the Thompson River and south to Lytton, and north of Cache Creek to Scottie Creek. Numerous budworm moths were noted in flight in July in a number of locations in the Fraser Canyon and Kamloops area. Egg mass surveys

will be conducted in the fall as a basis for predicting 1980 populations.

The infestation in the southwest corner of the Cariboo Region declined, although light to moderate defoliation of mature Douglas-fir occurred along Hart Ridge south of Clinton. Bordering Highway 17 west of Hart Ridge, winter damage, combined with the spruce budworm feeding, caused severe defoliation which could result in some tree mortality.

In the Nelson Forest Region, light defoliation of the mature Douglas-fir occurred on only about 200 ha at Johnstone Creek.

Two-year-cycle Spruce Budworm, *Choristoneura biennis*

Infestations have persisted for several years in the upper North Thompson Valley, where currently moderate to severe defoliation of alpine fir and Engelmann spruce occurred on more than 5,000 ha along Lempriere Creek. Trees were stripped of the 1979 growth and the tops of many regeneration and pole-sized trees were completely defoliated. Elsewhere, smaller areas of light and moderate defoliation occurred at Gosnell, 380 ha; Clemina Creek, 170 ha; Allan Creek, 80 ha; and Chappell Creek, 160 ha.

In the Cariboo Region, larvae defoliated more than 75% of the new foliage of white spruce, Engelmann spruce and alpine fir in the Hendrix Lake - Horsefly River area, at Bowron Lake, along the north arm of Quesnel Lake and in the Big Valley area.

Infestations continued in the Nelson Region, with severe defoliation and discoloration of current year's growth of Engelmann spruce and alpine fir in the north fork of the White River Valley, extending eastward into the headwaters and in the east fork from Stork Creek to Monroe Lake. Elsewhere in the region, defoliation was moderate at St. Mary River and Lapointe Creek, very light at Bugaboo Creek, moderate at McMurdo Creek and moderate on understory trees at Glenogle Creek and in the Blaeberry River Valley.

In the Prince George Region, up to 90% of the new growth of alpine fir was consumed along the upper drainage of Holmes River near McBride and at Moose Lake near Mount Robson. Budworm larvae were found more frequently than in recent years in samples taken in the valleys of the Skeena, Kitimat and Kitwanage rivers in the Prince Rupert Region.

Larch Casebearer, *Coleophora laricella*

In the Nelson Region, areas of defoliation of western larch expanded and increased in severity in 1979. At Gibbs and McCrae creeks, defoliation now extends to 3,500 feet elevation. Severe feeding occurred from Blewett to Crescent Valley, along Arrow Lake and Pend-d'Oreille River, from Creston east to Kitchener, southwest of Cranbrook to Moyie and along Gold Creek between Wardner and Jaffray. Populations increased at Ram Creek and in the areas of the White and Kootenay rivers. In the Kamloops Region, light defoliation occurred from Wolf Cub Creek to Anarchist Mountain and Shuttleworth Creek.

Pine Needle Sheathminer, *Zelleria haimbachi*

Feeding on new foliage of lodgepole pine was severe over 1,200 ha in the Thompson River Valley near Clearwater. Affected areas were: Vavenby, 630 ha; Reg Christie Creek, 250 ha; Trout Creek, 190 ha and Clearwater River, 130 ha. Smaller isolated patches of defoliation occurred in the Fraser Canyon from Yale to Spuzzum.

Lodgepole Pine Terminal Weevil, *Pissodes terminalis*

The frequency of dead, discolored leaders increased in 14- to 25-year-old lodgepole pine stands in the Cariboo Region. More than 25% of the trees in the Alex Graham burn and around Eagle Lake had attacked terminals and higher frequencies of attack were noted in the Big Creek area, Taseko Lakes road and

Bechers Prairie.

On a 15-year-old burn near Uslika Lake, north of Germansen Landing, the terminals of 130 lodgepole pine trees along 1 km of road had been attacked.

In the East Kootenay, 10% of the trees were infested on a small area in Forster Creek near Wilmer.

Northeast of Telegraph Creek, some 40% of the trees, 2-5 metres high, were infested over 60 ha.

Aspen Defoliators

Trembling aspen along the Alaska Highway were severely defoliated by the large aspen tortrix, *Choristoneura conflictana,* west of Fort Nelson and over a large area near Kledo Creek.

Larvae caused moderate and severe defoliation of large areas of mature aspen along the Yukon River north of Carmacks and near Dawson, McQuesten and Mayo. Light defoliation of younger aspen occurred along the Yukon River near Whitehorse and from km 1525 to km 1545 west of Whitehorse.

The Bruce spanworm, *Operophtera bruceata,* defoliated trembling aspen on 5 to 20 ha areas in the Smithers - Burns Lake area at Glacier Gulch, Round Lake, Quick and Decker Lake. Heavy defoliation occurred between Perow and Knockholt and near Germansen Landing.

Extensive areas of aspen were defoliated south of Fort St. John and along the Peace River bench lands near Dawson Creek.

Conifer Sawflies, *Neodiprion spp.*

On the Queen Charlotte Islands, there was light defoliation of old foliage of western hemlock regeneration on some 50 ha near South Bay and at Pallant Creek on Moresby Island.

Along the south coast of the Prince Rupert Region, larvae were common in western hemlock collections, generally up to 100 larvae, with a high of 300 larvae in Carlson Inlet.

South of Kelsey Bay on Vancouver Island, western hemlock trees around Keta Lake were noticeably defoliated.

There was light defoliation of understory and intermediate western hemlock between Noisy Creek and the Enderby-Mabel Lake road north of Vernon.

European Pine Shoot Moth, *Rhyacionia buoliana*

An extensive cooperative survey for this insect was again conducted from Osoyoos to Kamloops by B.C. Forest Service, Canadian Forestry Service, and Plant Quarantine personnel. Infested pines were found at 39 locations in 1979, 32 in Kelowna, 3 in Kamloops and 4 in Summerland. Pheromone-baited traps were used in Nelson, Kamloops and Vancouver regions to aid in determining the distribution of the moth.

Spruce Weevil, *Pissodes strobi*

This weevil was noticeably present in most regeneration spruce stands in the Yahk River Valley and Moyie River and Lamb Creek areas in the Nelson Region. However, damage in any of these areas was restricted to less than 10% of the terminals.

In the Prince George Region, the weevil damaged more than 30% of spruce terminals on a 500 ha plantation at Genevieve Lake.

Approximately 35% of the Sitka spruce 2 to 7 metres high were infested over 2 ha at Alice Creek, and 10% were infested in a small plantation near Kalum Lake in the Prince Rupert Region.

Table 1. Other Noteworthy Insects

Insect	Host(s)	Forest Region	Locality	Remarks
Western blackheaded budworm *Acleris gloverana*	Fir, alpine Spruce, white	Prince Rupert	Bell Irving River	Light defoliation of current growth
Cooley spruce gall aphid *Adelges cooleyi*	Douglas-fir Spruce, Sitka	Vancouver	Saanich	Severe infestation of Douglas-fir in tree seed orchard
Birch leaf miner *Bucculatrix sp.*	Birch, western, white	Nelson	Radium to Revelstoke	Leaves severely discolored
		Kamloops	North Thompson Valley	
Saddle-back looper *Ectropis crepuscularia*	Hemlock, western Cedar, western red	Prince Rupert	General in western portion of district	Increase from 1978
Spruce aphid *Elatobium abietinum*	Spruce, Sitka	Prince Rupert	Queen Charolotte Islands	Causing needle drop of shoreline trees
Striped alder sawfly *Hemichroa crocea*	Alder, red	Prince Rupert	Graham Island	Severe defoliation on Kwaikans Island and at Skidegate Mission
Hemlock looper *Lambdina f. lugubrosa*	Hemlock, western	Nelson	Arrow Lakes, Slocan, Christina L.	Up to 14 larvae/ collection. Increase from last year
Green-striped forest looper *Melanolophia imitata*	Hemlock, western Cedar, western red	Prince Rupert	South coast	Present in small numbers south of Prince Rupert to Bella Coola

Table 1 contd.

Insect	Host(s)	Forest Region	Locality	Remarks
Pitch twig moth *Petrova sp.*	Pine, lodgepole	Nelson, Prince George	South Slocan	50 girdled twigs on most trees over 20 ha
			Genevieve L.	Up to 20% of trees on 1,000 ha infested
Aspen Leaf miner *Phyllocnistis populiella*	Aspen, trembling	Nelson	Albert Canyon to Revelstoke	Up to 100% of leaves mined giving trees silvery appearance
Spruce sawfly *Pikonema sp.*	Spruce, Engelmann	Nelson	Kuskanax Cr.	30% of trees infested on 40 ha
Poplar and willow borer *Sternochetus lapathi*	Willow	Nelson Prince Rupert	Widespread Terrace, Kitimat	Killing many willow trees

Weather Damage

Foliage discoloration and branch dieback from winter damage was common throughout the Province. In the Nelson Region, damage occurred along Slocan and Arrow Lakes and near Salmo where western hemlock, western red cedar and western white pine regeneration were most severely affected.

Douglas-fir, in parts of the Fraser Valley and along the east coast of Vancouver Island, had numerous dead branches and discolored (red) foliage as a result of drying winter winds.

In the Cariboo Region, young lodgepole pine and Douglas-fir in exposed areas and on fringes of older stands have frequently been affected and red-belt occurred in lodgepole pine stands at higher elevations north of Jesmond, on the south side of Canim Lake, at Horsefly River and Lake, Quesnel Lake, Loon Lake, Knot Lake and Creek, Klinanklini River, Calwell Creek, and Bruce Creek near Taseko Lake.

North of Kamloops, discolored foliage of lodgepole pine, caused by winter drying, occurred on 450 ha along the Clearwater River, and heavy browning of western red cedar occurred over much of the species range in the Kamloops Region, with areas of particularly severe discoloration at East Barriere Lake, Kwikoit Creek, Mad River and Murtle and Humamilt lakes.

Dwarf Mistletoes, *Arceuthobium spp.*

In the Vancouver Region, severe infections were recorded on mountain hemlock along Hollyburn Ridge in the Cypress Bowl Provincial Park. In the Prince Rupert Region, most of the lodgepole pine trees were infected on a small area south of Woodcock. Along Khutzeymateen Inlet, inspection of three helicopter logging sites disclosed mistletoe infections on one site where residuals had been left.

In the Nelson Region, this disease was common in most lodgepole pine stands in the eastern areas, notably the Upper Elk River Valley, and Douglas-fir over 30 ha was severely infected at Morrissey Creek near Grand Forks.

On Meadow Mountain above Lardeau, 80% of the western larch between 750 and 1,000 metres were severely infected with mistletoe.

Larch Needle Blight, *Hypodermella laricis*

In the Kamloops Region, moderate infection of immature western larch occurred over 200 ha at White Lake and on about 250 ha at the junction of Cherry, Currie and Monashee creeks. In the Nelson Region, foliar browning was widespread throughout the host range, especially in the Creston PSYU, the Whiteswan -White - Kootenay river areas, Skookumchuck, Teepee Creek - Gold Creek and along the Flathead access road. Patches of severe infection occurred at Beaverdell, Crouse, Damfino, Lemon and Caribou creeks, Halfway River and Conkle Lake.

Pine Needle Cast, *Lophodermella concolor*

Lodgepole pine trees throughout much of the Interior of the Province were infected. Generally, the previous year's needles turn brown and drop, and after several years of infection only the current year's needles remain on the tree. Severe infection occurred in many stands in the Nelson Region, the most severe damage occurring in immature, dense stands. In the western portion of Nelson Region, most of the 1978 foliage of lodgepole pine was discolored from Slocan to Slocan Park, at Boundary, Blueberry, Monashee, Beaverdell and Bitter creeks.

In the Kamloops Region open-growing trees were moderately infected at Mission Creek and for 1 km along the Three Forks road. At Ashnola River, there were scattered patches of severe infection between Km 50 and 55.

Aspen Leaf and Shoot Blight, *Venturia macularis*

Browning of trembling aspen foliage was moderate to severe from Fraser Lake to Endako and on the north side of Stuart Lake near the Tachie River in the Prince George Region. Small areas of light infection were noted in the McLeod Lake - Mackenzie areas and along Williston Lake.

In the Prince Rupert Region, severe infection was present on 200 ha near Doreen and in small scattered pockets on both sides of the Skeeena River from Skeena Crossing to Hazelton. At Aiyansh, light to moderate infection occurred on several hundred hectares. The disease was common along Highway 16 from Terrace to Prince George, particularly at Smithers, Telkwa, Houston, Burns Lake, Hazelton, Hicks Hill and Tintagel to Sheraton.

Swiss Needle Cast, *Phaeocryptopus gaeumannii*

In the Franklin River area on Vancouver Island, a needle cast caused moderate and severe needle drop of planted and naturally grown Douglas-fir saplings over 1,000 ha in the upper Klanawa River Valley. In extreme cases, little but the 1979 foliage remained on the trees.

Pine Stem Canker, *Atropellis piniphila*

East of Penticton, near an old burn in Penticton Creek Valley, young lodgepole pine 15 to 20 cm dbh were severely infected

between km 15 and 20, possibly covering an area of 800 ha. On a 12-chain strip, run at right angles to the contour, 96% of the trees were infected with an average of four cankers per tree.

Table 2. Other Noteworthy Diseases

Disease	Host(s)	Forest Region	Locality	Remarks
Shoestring root rot *Armillaria mellea*	Douglas-fir Fir, alpine	Nelson	Mica Pondage, Harvey Cr.	Individual, scattered trees killed
Bud necrosis *Camarosporium strobilinum*	Spruce, white	Prince Rupert	Ganokwa Creek	20% of buds infected in plantation
Spruce cone rust *Chrysomyxa pirolata*	Pine,	Prince Rupert	Houston, Smithers	From 4 to 46% of cones infected
Stalactiform rust *Cronartium coleosporioides*	Pine, lodgepole	Prince Rupert	Byman Cr., Burns Lake	35-40% of trees with stem or branch cankers
Blister rust *Cronartium ribicola*	Pine, whitebark	Nelson	McLatchie Cr.	Up to 95% of regeneration infected
Tip dieback of yellow cedar *Kabatina thujae*	Cedar, yellow	Prince Rupert	Diana Lake	10 to 50% of foliage infected
Pine needle cast *Leptomelanconium cinereum*	Pine, ponderosa	Nelson	Elko to Canal Flats	Older foliage discolored
Douglas-fir needle cast *Rhabdocline pseudotsugae*	Douglas-fir	Nelson	Flathead	Up to 95% needle loss on individual trees