

# PROVINCE OF BRITISH COLUMBIA

## FOREST INSECT SURVEY

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### INTRODUCTION

A number of forest insects attracted attention during the 1958 field season. The 1-year-cycle spruce budworm outbreak in the Lillooet and Fraser River valleys appeared to be maintaining itself as there was no significant decrease in the number of eggs laid in 1958. The 2-year-cycle spruce budworm infestation in the Babine Lake area enlarged and the number of egg masses increased. Activity of the Douglas-fir beetle increased in the Interior but the Engelmann spruce beetle appeared to be decreasing. The black-headed budworm showed a small increase in abundance on the Queen Charlotte Islands, but the outbreak on northern Vancouver Island has subsided.

One of the outstanding features of the year was the discovery of the balsam woolly aphid in amabilis fir stands in the Vancouver mainland district. Identification of the aphid was verified by Dr. R. E. Balch of the Fredericton Laboratory. Also of interest were significant increases in several species of geometrids, particularly the western hemlock looper and the green-striped forest looper.

Forest closures in the coastal regions affected several ranger districts for prolonged periods during July and August. This precaution seriously hampered insect and disease surveys in many areas.

The Victoria Laboratory received 2,235 insect collections and the Vernon sub-laboratory 2,902 for a total of 5,137. The collections submitted by the British Columbia Forest Service and by other co-operators are acknowledged with thanks. The use of aircraft provided by the British Columbia Forest Service and forest industries for special surveys and reconnaissance work was appreciated and of great assistance.

Collections received during 1958 were distributed among the principal tree species as follows:

Coniferous trees	Collections	Broad-leaved trees	Collections
Douglas fir.....	906	Poplar	
Hemlock—		Trembling aspen.....	253
Western hemlock.....	813	Black cottonwood.....	112
Mountain hemlock.....	8	Silver poplar.....	10
Eastern hemlock.....	1	Balsam poplar.....	4
		Lombardy poplar.....	4
		Miscellaneous poplars.....	9
	822		392
Spruce		Alder	
White spruce.....	404	Red alder.....	76
Englemann spruce.....	148	Mountain alder.....	65
Sitka spruce.....	84	Sitka alder.....	35
Black spruce.....	40	Green alder.....	9
Miscellaneous spruces.....	10	Miscellaneous alders.....	16
	686		201

Coniferous trees	Collections	Broad-leaved trees	Collections
Pine		Birch	
Lodgepole pine.....	395	White birch.....	59
Ponderosa pine.....	156	Dwarf birch.....	28
Western white pine.....	53	Western white birch.....	10
Scots pine.....	3	Water birch.....	9
White bark pine.....	3	Miscellaneous birches.....	38
Miscellaneous pines.....	3		
	613		144
Fir		Willow.....	266
Alpine fir.....	201	Cherry.....	49
Grand fir.....	58	Garry oak.....	37
Amabilis fir.....	48	Maple.....	15
Balsam fir.....	1	Hawthorn.....	13
	308	Dogwood.....	11
Larch		Apple.....	10
Western larch.....	70	Miscellaneous broad-leaved trees.....	16
Tamarack.....	35		
European larch.....	1	Total.....	1,154
	106		
Juniper			
Rocky mountain juniper...	33		
Common juniper.....	20		
	53		
Western red cedar.....	103		
Miscellaneous coniferous trees.....	2		
	3,599		
Total.....	3,599	Miscellaneous hosts or no hosts specified.....	384
		Grand Total.....	5,137

### IMPORTANT INSECTS

**Spruce Budworm, *Choristoneura fumiferana* (Clem.)**—The total area of the spruce budworm infestation in the Lillooet River and Lake and the Fraser River regions was 653 square miles, an increase since 1957 of 155 square miles. This increase was caused by extensions up valleys and hillsides, particularly from Tisdall to Alta Lake, and by a 48 square mile area around Boston Bar which was not mapped last year. Of the total area 92 square miles were classified as heavy defoliation, 41 square miles as medium, and 520 square miles as light.

Heavy defoliation in 1958 occurred in several localized areas scattered throughout the infestation. The heaviest feeding occurred from Tenas Lake to Gowan Creek, around Blackwater Lake, and in spots along Anderson and Seton lakes, and Fraser River below Lillooet, and in the upper Anderson River Valley. At the Skookumchuck (between Tenas Lake and Gowan Creek) many trees lost all of their 1958 foliage, much of last year's needles, and up to 15 feet of the tops were completely stripped. Over 75 per cent of the current year's growth was lost in areas along the Blackwater Creek road, Seton Lake, and in the Anderson River Valley.

In many areas the foliage was not more than 3 years old due to previous defoliation. In some cases the 1958 needles comprised 50 per cent of the total foliage now on the trees. Therefore, in these areas, the loss of all current growth was particularly serious. However, the percentage of buds killed was low in all areas, and the trees should produce some new growth in 1959.

The average number of egg masses per 100 square feet of foliage surface decreased from 31 to 26 in the plots along the Lillooet River and Lake. A general decrease was also recorded at random sampling points along Anderson and Seton lakes and the Fraser River. However, the decrease in the number of egg masses was not significant. This was the first year since 1955 that the number of egg masses has not decreased by approximately 50 per cent.

Egg parasitism was low; only 0.7 per cent of the egg masses in the Lillooet River and Lake area contained one or more parasites compared with about 9 per cent in 1957. Larval and pupal parasitism remained about the same at 39.5 and 32.4 per cent respectively. In the Anderson Lake-Fraser River area no egg parasites were found compared with 4 per cent of the egg masses parasitized in 1957. Larval parasitism was 31 per cent.

As the decrease in the egg counts was not significant, the infestation in general cannot be considered as decreasing in intensity. The outlook for 1959 is for continued generally light defoliation with medium to heavy defoliation in localized areas.

The 1-year-cycle budworm was slightly more abundant on Douglas fir in the Interior, but, with the exception of the Lillooet area, did not reach outbreak proportions. The Smith River infestation recurred on white spruce trees between mile 510 and 516 of the Alaska Highway near the Yukon border but apparently has declined in intensity.

The area of the 2-year-cycle spruce budworm infestation in the Prince Rupert Forest District was calculated at 1,286 square miles in 1958, an increase of 294 square miles compared with 1956. Defoliation of white spruce and alpine fir was heavy in most areas; in 10 permanent plots the loss of current foliage ranged from 75 to 100 per cent and averaged 95 per cent; the total loss of foliage older than one year averaged 43 per cent. Top kill ranging from 4 to 54 per cent of the trees was recorded in 6 plots with the heaviest top kill at Sunnyside and opposite Fort Babine on Babine Lake. Dead tops ranged from 1 to 9 feet in length.

Egg counts were made throughout the infestation area on white spruce, alpine fir, and lodgepole pine trees. The average number of egg masses per 18-inch branch sample was: alpine fir, 4.4; white spruce, 4.6; lodgepole pine, 6.1. The samples from alpine fir and white spruce were taken from the lower crown, and those from lodgepole pine from the upper crown. Ten plots set out in 1956 were resampled this year. The average number of egg masses increased from 2.2 in 1956 to 3.7 in 1958.

Parasitism was almost non-existent. No larval parasites were obtained from insectary rearings. Ten out of 93 pupae in a collection from west of Babine Lake were parasitized. No other parasites were recorded.

The egg mass counts indicate a general increase in spruce budworm population levels in the Babine Lake area in 1959.

The 2-year-cycle budworm also caused light to medium defoliation in a few areas in the Prince George Forest District; elsewhere in the Interior numbers were low. The most severe infestation in the Prince George District was along the western slopes from Tabor Mountain to the Naver Creek watershed. Up to 70 per cent of the new foliage of alpine fir and white spruce trees along the southwestern side of Takla Lake was destroyed. Other extensive areas of light infestation were observed at Takla Narrows, Dominion Point, and north of Timber Bay. Collections: Coast 138, Interior 125.

**Black-headed Budworm, *Acleris variana* (Fern.)**—The black-headed budworm infestation on northern Vancouver Island collapsed in 1957 and remained at a very low level in 1958. Egg counts were made in 34 localities,

32 of which were established in 1955. The British Columbia Loggers' Association assisted by providing 10 hours flying time. The average egg count per 10-inch branch tip based on five tips from the upper crown of three trees from each sample point was only 0.024, a drop of 85 per cent compared with 1957. The number of sample points at which eggs were found also decreased from 17 to 9. The three main areas where eggs were found were at Holberg, between Port Hardy and Port McNeil, and in the Nimpkish River Valley. No defoliation is expected in 1959.

The trees in the infestation area are still thin as a result of severe feeding from 1955 to 1957, but in general the stands are recovering well. Top killing in reproduction stands is prevalent at Beaver Cove; 90 out of 200 trees examined had died back from 1 to 10 feet.

Black-headed budworm larvae were found in small numbers on southern Vancouver Island, in the Bella Coola area, and on the southern mainland. The largest collection was from Hope where 40 larvae were collected in one 3-tree beating sample.

The population level increased appreciably on the Queen Charlotte Islands in 1958. Larvae and pupae were collected on the northern end of Graham Island at Naden Harbour, Masset Sound and in Masset Inlet, but the largest collections were taken on Moresby Island. Thirty-seven larvae and pupae were collected in one 3-tree beating sample at Jedway, 33 south of Bigsby Inlet, and 17 at Lockeport. While these numbers are not large they represent a considerable increase over 1957.

At Stewart, stands which had been heavily attacked by the black-headed budworm from 1950-54, were re-examined. At Bear Lake, where defoliation had been severe, 76 per cent of the intermediate crown class trees had dead tops ranging up to 10 feet. It was estimated that about 20 per cent of the intermediate trees in the Stewart area had dead tops.

Black-headed budworm larvae were collected in small numbers from many points in the Interior of British Columbia and in the Yukon. The largest collections were from the Kamloops Forest District.

Larvae were numerous on hemlock at Keen Creek, Nelson Forest District, but became scarce by mid July. A localized light infestation was observed in an alpine fir stand along Cabin Creek. Collections: Coast 82, Interior 169.

**Douglas-fir Beetle, *Dendroctonus pseudotsugae* Hopk.**—Red-topped trees killed by the Douglas-fir beetle in some regions of the Kamloops Forest District and in the Quesnel area of the Prince George Forest District were more evident in 1958 than for several years. The incidence of attack was greatest near sawmills and logging operations.

There was a reduction of Douglas-fir beetle damage in the "winter damage" (1952-53) area about Helena and Place lakes. In 1958 infestations of several year's duration were discovered in the Nelson Forest District at Whiteswan Lake and Wigwam River. Small outbreaks occurred on the north end of Perry Ridge southwest of Slocan and 6 miles north of Nakusp on Upper Arrow Lake. There was also a general increase in these areas particularly in Douglas fir stands suffering from various diseases.

In the coastal region Douglas-fir beetle activity was much reduced. A few fresh attacks were noted on Vancouver Island between Boswer and Qualicum, and in the Van West Logging operations near Comox.

**Mountain Pine Beetle, *Dendroctonus monticolae* Hopk.**—A general increase in the number of infested white pine trees occurred from Arrow Park northward along Upper Arrow Lake and in the Slocan Valley. A previously

**Green-striped Forest Looper**, *Melanolophia imitata* Wlk.—This looper increased in numbers in 1958. Hosts were western hemlock, Douglas fir, and balsam. Although recorded from all coastal ranger districts most of the collections were from the Vancouver Forest District. Larvae were collected in most watersheds on Vancouver Island in numbers up to 51 per 3-tree beating sample. The largest numbers were found in the South Vancouver District at Stave Falls and in Stanley Park. In the latter area, up to 450 larvae per sample were collected, and this species, in conjunction with the western hemlock looper and other insects, caused noticeable defoliation to the overstory trees. Understory hemlock and Douglas fir trees were up to 70 per cent defoliated. Although it was impossible to sample the overstory trees the heavy frass drop indicated the presence of large numbers of larvae. About 600 acres of Stanley Park were sprayed with 10 per cent DDT by Skyway Air Services Ltd. on July 26. Beating samples taken 2 days after spraying showed a decrease in numbers, but in many places a heavy midstory of vine maple prevented the understory trees from receiving a dosage heavy enough to kill all the larvae. However, further defoliation of the valuable overstory trees was prevented. Larval parasitism was very light, averaging less than 2 per cent. Collections: Coast 354, Interior 97.

**Forest Tent Caterpillar**, *Malacosoma disstria* Hbn.—In 1958 the average defoliation was about 50 per cent in a 700-acre aspen stand at the north end of Adams Lake. Egg counts indicate that this infestation has declined further, although sufficient eggs are present to forecast moderate defoliation in 1959.

The light to moderate infestation in the McBride area enlarged to a total of 50,000 acres. Egg counts indicate that the infestation may increase in severity and expand in area during 1959.

Alder, cottonwood, and willow in the South Vancouver District were defoliated from Ladner to Murrayville south of the Trans Canada Highway to the International Border. Small groups of trees within this area were completely stripped. Light to heavy defoliation of cottonwood, alder, and willow also occurred between 18 and 22 miles north of Pemberton in the upper Lillooet River Valley. Collections: Coast 11, Interior 15.

**Western Tent Caterpillar**, *Malacosoma pluviale* (Dyar)—The infestation on the Saanich Peninsula declined again in 1958. Feeding was inconspicuous. A small infestation around Youbou near Cowichan Lake remained active but decreased in intensity. This species was also found in association with the forest tent caterpillar north of Pemberton.

The western tent caterpillar infestation in the Skeena River Valley continued in 1958. A total of 527 tents were counted on one side of a 1-mile stretch of the Remo Road near Terrace. Another count also near Terrace yielded 1,209 tents. Hosts were birch, trembling aspen, and black cottonwood with birch suffering the heaviest defoliation.

In the Interior tents were abundant on antelope bush near Fort Steele and Elko in the Nelson Forest District; elsewhere tents were less common.

The form on dwarf birch and willow in the Prince George District was not collected in 1958. Collections: Coast 44, Interior 6.

**Douglas-fir Needle Miner**, *Contarinia* spp.—There was a continued decrease of Douglas-fir needle miners in much of the Interior. At present they are at a light infestation level.

These needle miners were found in nearly all Douglas fir stands in the Vancouver Forest District. Attacks ranged from light to heavy. Collections: Coast 73, Interior 130.

**Conifer Sawflies**, *Neodiprion* spp.—Some species of *Neodiprion* were again numerous in parts of the Kamloops and Nelson forest districts. A light infestation was present on ponderosa pine at Walhachin. Medium to severe defoliation of lodgepole pine recurred in 1958 at the Little Shuswap Indian Reserve. Another species lightly defoliated Douglas fir terminals in the same Reserve. Douglas fir trees about Postill Lake and Long Mountain in the Kamloops District and at Kuskanook, Nelson Forest District, were discolored by *Neodiprion* feeding. *Neodiprion* sawflies increased in several mature and overmature hemlock stands in the Interior, notably in the Nelson Forest District. In an overmature stand along Leadville Creek, northeast of Kitchener, medium defoliation extended for 1½ miles. The lower crowns of hemlock trees along Wilson Creek were lightly defoliated.

Sawfly larvae were common throughout the coastal forests, but in smaller numbers than in 1957. The only noticeable defoliation was observed on balsam at Lorenzetta Creek between Chilliwack and Hope on the Fraser River. Collections: Coast 294, Interior 325.

**Pine Needle Scale**, *Phenacaspis pinifoliae* (Fitch)—The pine needle scale infestations between Naramata and Okanagan Falls persisted on ponderosa pine. This scale was most abundant in 70 acres of ponderosa pine west of Summerland and in a smaller stand east of Oliver. A severe outbreak appeared between Winfield and the south end of Woods Lake and a localized moderate infestation developed on ponderosa pine at Nicola.

The most northerly occurrence of this insect was on lodgepole pine at Tete Jaune.

A heavy infestation of pine needle scale on Douglas fir trees was observed at Elko Junction and between Canal Flats and Springbrook. A predacious lady-bird beetle, *Chilocorus* sp., was abundant in both localities.

**Black Pine Leaf Scale**, *Nuculaspis californica* (Coleman)—The black pine leaf scale infestation at Campbell Mountain and East Penticton persisted. A few lightly infested trees were discovered ½ mile south of Cascade, the first infestation record for this species in the Nelson Forest District.

**Western Winter Moth**, *Erranis vancouverensis* Hlst.—Two localized outbreaks of this looper occurred in the Vancouver Forest District. In Victoria, Garry oaks from Cedar Hill Cross Road to Mt. Douglas, and along Beach Drive were heavily defoliated in early June. Other broad-leaved trees as well as shrubs and plants were attacked. Forty per cent of the larvae collected were parasitized.

Vine maple in the Skookumchuck area on the Lillooet River was heavily defoliated. More than 100 larvae per 3-tree beating sample were collected. Larval parasitism was over 45 per cent. Collections: Coast 17, Interior 5.

**Green Velvet Looper**, *Epirrita autumnata* (Gn.)—Up to 45 larvae per sample were collected between Jordan River and Port Renfrew on Vancouver Island, and larvae were common in collections throughout the remainder of the Vancouver Forest District. The principal hosts were western hemlock and balsam. This was the first time since 1951 that this looper has been so common. Collections: Coast 108, Interior 11.

**Oak Looper**, *Lambdina somniaria* Hulst—A localized infestation of the oak looper caused severe defoliation to about 4 acres of Garry oak in Victoria. This is the first time in 6 years that this insect has been present in large numbers. No parasites were obtained from mass rearings. Collections: Coast 7.

**Yellow-lined Forest Looper**, *Nyctobia limitaria* Wlk.—This looper was common in collections throughout the Vancouver Forest District, but was most numerous on northern Vancouver Island where up to 26 larvae were collected per sample. Collections: Coast 117, Interior 91.

**Poplar and Willow Borer**, *Sternochetus lapathi* (L.)—An infestation of this borer was first observed in 1958, covering some 250 acres of mature willows along the Thompson River near Tranquille. Most of the willows are now dead. Tree mortality may possibly be attributed to combined flooding and weevil attack. On July 21 living adults were observed in their galleries above the flood level; those below the high water mark had drowned in the larval stage.

Severe damage also occurred in the Nelson Forest District, notably at Skookumchuck Prairie, west of Jaffray, and 12 miles north of Fernie.

This species was common on southern Vancouver Island and in the Fraser and Anderson River valleys where it was found up to altitudes of 3,500 feet. Damage was noticeable along Silver Creek from the Trans Canada Highway to the International Border, in a small area 4 miles east of Agassiz, and near Hope. In the latter locality most of the willows in an area of 1 square mile were heavily infested and many trees were killed.

**Aspen Leaf Miner**, *Phyllocnistis populiella* Cham.—In 1958 the aspen leaf miner was again abundant throughout much of the range of trembling aspen in the Province. Vast numbers of moths were observed at many localities during July, notably among conifers adjoining aspen stands.

**Leaf Miners on Willow and Cottonwood**, *Phyllocnistis* spp.—A species of *Phyllocnistis* was abundant on black cottonwood in some localities along the Alaska Highway in British Columbia, notably between mile 500 and 570 where up to 100 per cent of the foliage was infested. The same species was found on black cottonwood in a few localities in the central part of the Nelson Forest District where up to 85 per cent of the foliage was infested.

Black cottonwood in the Upper Skeena River Valley along the Kitimat River, and at Stewart, were heavily attacked by a miner tentatively identified as *Phyllocnistis* sp. poss. *populiella*. Another miner, *Lithocolletis* sp. was found in association with *Phyllocnistis* on cottonwood.

Another species of *Phyllocnistis* infested up to 38 per cent of willow leaves at some places along the Alaska Highway.

**Satin Moth**, *Stilpnotia salicis* (L.)—The satin moth has become a prominent pest of poplar shade trees throughout the Okanagan Valley. Severe defoliation occurred in and near the major residential centers of the Okanagan; numerous infested shade trees were sprayed in Penticton, Kelowna, and Vernon shortly after the period of egg hatch.

Satin moths were abundant in scattered poplar groves from Stump Lake northward to and eastward along the South Thompson River; a few specimens were taken at Celista and Salmon Arm.

On the Coast some silver poplar, Lombardy poplar, and aspen trees were defoliated at Nanaimo and Victoria. Larvae in some localities were heavily parasitized, larvae often being covered with many eggs. Only 71 parasites emerged from the 1,366 reared. Larval mortality, however, was high presumably from extreme competition among parasites. Collections: Coast, 12, Interior 6.

**Spruce Aphid**, *Neomyzaphis abietina* (Wlkr.)—Sitka spruce and blue spruce trees on the southern tip of Vancouver Island and in the Fraser River

Valley from Vancouver to Chilliwack were heavily attacked by this aphid. Some natural stands were infested, but heaviest damage was confined to ornamentals and shelter belts. In nearly all areas some spruces lost all their old foliage, and some trees died in Victoria, in North and West Vancouver, and in Chilliwack.

**Silver-spotted Tiger Moth**, *Halisidota argentata* Pack.—The silver-spotted tiger moth, which was not found in the southern portion of Vancouver Island in 1957, reappeared in 1958. Webs were observed along the highway from the Malahat to Courtenay, and on North Pender, Mayne, Valdes, Galiano, Salt Spring, and Denman islands. Colony counts made in October indicate a considerable increase in 1959. Collections: Coast 13.

**Striped Alder Sawfly** *Hemichroa crocea* (Fourc.)—The infestation in the Coquitlam Valley, South Vancouver District, continued in 1958. Defoliation was less severe than in 1957. Collections: Coast 11, Interior 1.

**Fall Webworm**, *Hyphantria cunea* (Drury)—The fall webworm was more common on chokecherry, black cottonwood, and other broad-leaved trees in the Kamloops Forest District and in the western portion of the Nelson Forest District.

The fall webworm was also common throughout the southwestern coastal area. Heavy feeding occurred along both sides of the lower Fraser River Valley on alder, cottonwood, willow, and fruit trees, but was most severe between Hope and Rosedale where many young alders were completely defoliated. Up to 10 tents were found on individual trees. Collections: Coast 7, Interior 14.

**Douglas-fir Tussock Moth**, *Hemerocampa pseudotsugata* McD.—There was a slight increase in the numbers of larvae in the Lillooet area. Collections: Interior 10.

**Sequoia Pitch Moth**, *Vespa mima sequoiae* (Hy. Edw.)—Considerable damage was caused to lodgepole pines along the Lillooet River from Lillooet Lake to Port Douglas. Trees up to 6 inches D.B.H. were attacked, some in as many as six places on the stem, and many trees were completely girdled.

**Engelmann-spruce Weevil**, *Pissodes engelmanni* Hopk.—The Engelmann-spruce weevil persisted in widely separated localities of the Interior. In the East Kootenay district this weevil had attacked spruce reproduction on 4-acre sample plots as follows: at Michel Creek 67 per cent of the stems showed old damage and 47 per cent were currently infested; at Hawkins Creek 62 per cent showed old damage and 35 per cent were currently infested.

**A Pine Root Weevil**, *Hylobius* sp.—In the Kettle River Valley north of Westbridge, lodgepole pine saplings up to 4 inches D.B.H. had been killed by *Hylobius* larvae feeding on the root collar. Mature lodgepole pine trees along Damfino Creek apparently injured by these weevils have recently succumbed to attack by *Dendroctonus monticolae*.

**Sawyer Beetles**, *Monochamus* sp.—Larvae of the genus *Monochamus* caused severe deterioration of mature white spruce timber that had been killed by fires north of Prince George. An average of 1.2 larval entrance holes per square foot of wood surface was recorded in trees killed by a fire that began on May 24, 1958, and an average of 0.8 entrance holes per square foot in timber killed by a fire that began on June 5. Maximum penetration of tunnels in sample blocks cut in October, 1958, was 5¼ inches.

**Large Aspen Tortrix**, *Choristoneura conflictana* (Wlkr.)—This defoliator was again numerous in some trembling aspen along the Alaska Highway. On

the Mayo-Dawson Road defoliation was 75 to 90 per cent between mile 105 and 106. The infestation in the Salmon River Valley along the Hart Highway remained at a high level, with an average defoliation of 50 per cent. Collections: Interior 1.

**Larch Sawfly**, *Pristiphora erichsonii* (Htg.)—Only a few colonies were found on eastern larch as follows: near Moberly Lake, along the Hart Highway, at various points along the Alaska Highway south of the Yukon border, and at Cluculz Lake. No larvae were collected in the western larch stands of the southern Interior. Collections: Interior 6.

**Blotch Miners**, *Lithocolletis* spp.—A blotch miner of trembling aspen was numerous in widely scattered localities. Medium to severe infestations were observed near Stewart Crossing, Y.T. Light infestations were observed from Vanderhoof north to Pinchi Lake and west to Endako. Patches of trees with 30 to 50 per cent of the leaves infested occurred in the eastern part of the Nelson Forest District.

Another species of *Lithocolletis* was abundant on black cottonwood at a few localities on Okanagan and Kalamalka lakes.

**A Willow Leaf Blotch Miner**, *Lyonetia saliciella* Busck—A medium to heavy infestation of miners persisted in willows in the Nelson Forest District. They were also numerous in northern B.C., notably west of Atlin and between mile 524 and 602 on the Alaska Highway.

*Lyonetia* sp. was abundant on birch at Trout Lake, and on black cottonwood at Summit Lake, east of Nakusp.

**Ugly-nest Caterpillar** *Archips cerasivoranus* (Fitch)—Webs were again numerous on chokecherry shrubs along the South Thompson River from Savona to Chase and along the North Thompson to Birch Island. Very few were observed in the Nelson Forest District. Collections: Interior 8.

**A Ponderosa-pine Cone Borer**, *Dioryctria auranticella* (Grt.)—There was a general increase in the percentage of cones infested by *Dioryctria auranticella* in the Okanagan and the Thompson River valleys. From 50 to 100 per cent of the cones sampled were infested. In the Merritt Valley the infestation declined considerably.

Cone damage was light in Nelson Forest District.

**A Douglas-fir Cone Moth**, *Barbara colfaxiana* Kft.—This pest was present in moderate numbers in the Okanagan Valley. In the neighborhood of Kamloops an average of 20 per cent of the cones were infested.

Severe infestations were noted near Roosville and Invermere in the Nelson Forest District.

**Pine Needle Miner**, *Zelleria haimbachi* Busck—The majority pure stands of ponderosa pine between Venables Valley and Twaal Creek near Ashcroft were infested by this miner. Many of the trees 2 to 4 inches D.B.H. had most of the terminals damaged.

This miner was also common in the Southern Kootenays on ponderosa pine.

**Birch Skeletonizer**, *Bucculatrix canadensisella* Chamb.—Once again birch foliage was skeletonized by *Bucculatrix* larvae along the upper Canoe River and as far north as Tête Jaune. About 80 per cent of the leaves were infested.

**Ambrosia Beetles**, *Trypodendron lineatum* (Oliv.)—Trees killed by the Douglas-fir beetle were moderately infested by ambrosia beetles near Lazaroff Lake north of Quesnel. In the coastal area ambrosia beetles continued to attack favourable felled and cold-decked timber.

**Pine Tube Moth**, *Argyrotaenia pinatubana* (Kft.)—The infestation in lodgepole pine saplings in the eastern Nelson Forest District persisted and appeared to increase. Larvae were most abundant south of Kimberley Airport, north of Springbrook, and along the Premier Lake Road, Nelson Forest District.

**Leaf-eating Beetles**, *Chrysomelidae*—Leaf-eating beetles caused noticeable defoliation of cottonwoods, willows, alders, and birches in the Nelson Forest District. *Altica* spp. feeding resulted in discoloration of the foliage of mountain alder in the Creston Ranger District, birch near Fort Steele, and cottonwoods near Boswell and Gray Creek.

*Altica* sp. caused light to medium damage to alders along Trepanege River and south of Kelowna airport.

*Galerucella* sp. caused noteworthy defoliation of willows in the upper Kettle River Valley north of Westbridge and throughout East Kootenay.

Severe skeletonization and defoliation of cottonwood reproduction by *Chrysomela* sp. was observed along Bucking Horse River in northern British Columbia.

**Sawflies on Spruce**, *Pikonema* spp.—*Pikonema alaskensis* Roh. and *P. dimmockii* Cress. caused light defoliation of white spruce trees from Vanderhoof west to Endako and Francois Lake. *P. alaskensis* caused moderate defoliation of Engelmann spruce at Wasa Lake. Collections: Interior 168.

**Variiegated Cutworm**, *Peridroma margaritosa* (Haw.)—This cutworm, usually associated with non-forest hosts, caused considerable damage to several beds of Douglas fir seedlings at the Duncan nursery on Vancouver Island. Eggs collected off silver poplar hatched and were reared through to adults, establishing a new host record for British Columbia. Collections: Coast 8.

**Bruce Spanworm**, *Operophtera bruceata* Hulst—In 1958 the Bruce spanworm attained severe infestation proportions in trembling aspen stands along the Hart Highway and along the southern part of the Alaska Highway. Aspen stands at the following locations were completely denuded of leaves: Little Prairie, East Pine, Dawson Creek, south of Fort St. John and between mile 1 and 2 on the Hudson Hope Road. Collections: Interior 26.

**Mourning-cloak Butterfly**, *Nymphalis antiopa* L.—Larval colonies were common on willow and other hosts in the Interior; they were particularly abundant in the Yellowhead Pass. The most northerly infestation occurred on willow and aspen at Mayo, Y.T. Collections: Coast 3, Interior 24.

**Aphids on Ponderosa Pine Needles**, *Essigella* spp.—Dr. K. Graham, of the University of British Columbia reported the occurrence of a severe infestation of *Essigella* sp. on ponderosa pines near Hat Creek. Other severe infestations of *Essigella* on ponderosa pine trees were recorded at Sweets Bridge, Glenemma Range, and along lower Whiteman Creek. Specimens collected at Sweets Bridge were identified as *E. gillettii* Hottes.

**A Woolly Aphid on Larch**, *Adelges oregonensis* Annand—Young open-grown larch stands over several square miles between Rock Creek Canyon and Camp McKinney, Nelson Forest District, were heavily infested by *Adelges oregonensis*. The aphids were so numerous that some trees appeared whitish.

**A Cicada, *Okanagana rimosa* (Say)**—This species was more abundant than usual in the western part of the Nelson Forest District. Oviposition damage was observed on birch, willows, forest shrubs, and on Douglas-fir.

**A Webworm on Juniper, *Phalonia* sp.**—For the first time the Survey reared adults of this species from common juniper near Fort Steele. Some junipers were severely infested and turned brown in June. Collections: Interior 4.

**Mites on Ponderosa Pine,**—Tetranychid and Tenuipalpid mites caused noticeable damage to the needles of ponderosa pine in the southern Okanagan Valley.

*[The following text is extremely faint and largely illegible, appearing to be bleed-through from the reverse side of the page. It contains several paragraphs of scientific text, including mentions of 'Aphids on Ponderosa Pine Needles', 'A Woolly Aphid on Birch', and 'Aphids on Douglas Fir'. Some legible words include 'University of British Columbia', 'specimens collected', and 'interior 4'.]*