

ANNUAL DISTRICT REPORT
FOREST INSECT AND DISEASE SURVEY
BRITISH COLUMBIA, 1971
PART II, PRINCE RUPERT FOREST DISTRICT

by
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INTRODUCTION

This report outlines the status of forest insect and disease conditions in the Prince Rupert Forest District for 1971, and attempts to forecast pest populations capable of sudden, damaging outbreaks.

Reports of forest pest outbreaks to the Forest Insect and Disease Survey by public or private cooperators help in the interpretation of the general pest situation and in gauging population trends.

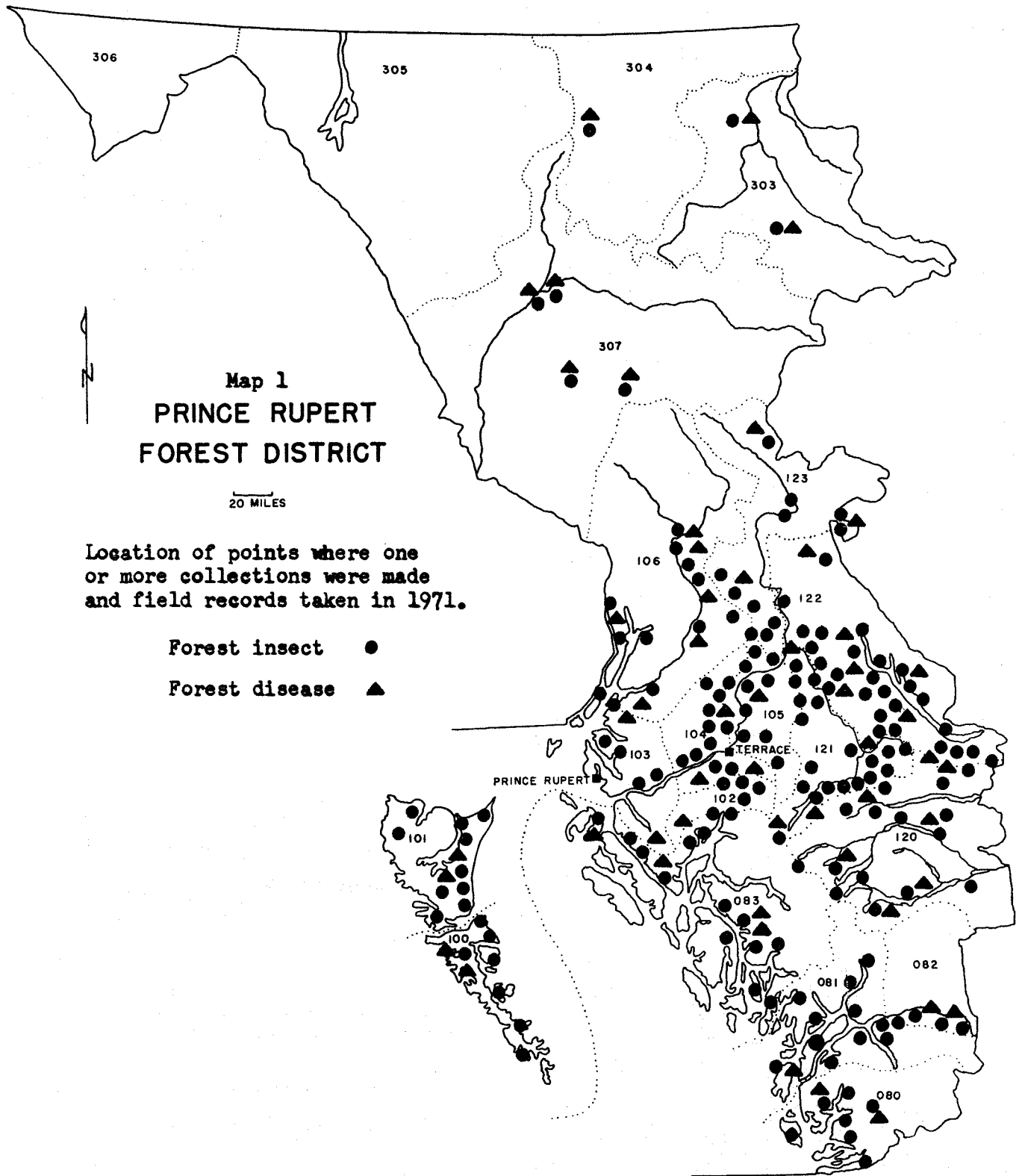
Regular field work in the District extended from the end of May to the end of August. Special surveys were carried out for mountain pine beetle, western tent caterpillar and spruce budworm. Aerial surveys were carried out in the coastal and interior portions of the District.

A total of 533 insect and 141 disease collections were submitted in 1971. Map 1 shows the collection localities and drainage divisions.

Numbers of larval defoliators found in field collections decreased greatly from 1970, possibly due to severe and extended winter conditions. In 1971, 44 and 60% of beating collections in the western and eastern parts of the District, respectively, contained larvae.

Mountain pine beetle infestations increased in intensity and extent in the Kispiox and Kitwanga River areas. The western balsam bark beetle and an associated disease continued to cause moderate to heavy mortality of alpine fir in the forests of the Upper Nass, Skeena and Telkwa rivers. Spruce budworm populations in the Kitimat area declined further in 1971.

A shoot and foliage blight continued to infect trembling aspen from Burns Lake to Cedarvale. Moderate to heavy infections by needle diseases were predominant on amabilis and alpine fir in the interior portions of the District.



FOREST INSECT CONDITIONS

Currently Important Insects

Bark Beetles

Mountain pine beetle, Dendroctonus ponderosae

Distribution of 1,000 red-topped lodgepole pine, killed by mountain pine beetle, was limited to Weegett and Burdick creeks in 1970. In 1971, 1,950 red-topped trees were counted from Kitwanga east to Hazelton and 1,600 north of Kispiox Village in the Kispiox River Valley.

At Babine Lake, a chronic area for mountain pine beetle infestations in the past, 110 red-topped trees were counted.

Strip cruises were run near Seeley Lake, Carnaby and Kitwanga. Of 286 trees, over six inches in diameter, examined at Seeley Lake, 39% were healthy, 46% were currently attacked, 12% had been attacked in 1970, and 3% had been attacked before 1970. At Carnaby, of 286 merchantable trees examined, 34% were healthy, 48% were currently attacked, 17% had been attacked in 1970, and 1% had been attacked before 1970. At Kitwanga, of 194 merchantable trees examined, 28% were healthy, no current attack was encountered, 10% had been attacked in 1970, and 62% had been attacked before 1970.

Beetle populations and tree mortality are expected to be higher in 1972, with attack more widely distributed.

Alpine fir mortality caused by the Dryocoetes-Ceratocystis Complex

Large volumes of alpine fir have been killed by this insect-disease complex in the past 10 or more years. In valleys of the Upper Nass, Skeena and Telkwa rivers, an estimated 35% of the volume in the stands has been killed. Other areas of notable current mortality are Sedan - Mill Creeks, 1,000 trees; McKendrick Creek, 1,500; Gabriel Creek, 150, and Troitsa Lake, 130.

Defoliators

Spruce budworm, Choristoneura spp.

Spruce budworm populations remained light in 1971. The one-year-cycle budworm, Choristoneura fumiferana, caused moderate defoliation of white spruce and alpine fir near the junction of the Liard and Kechika rivers and extended east to Liard Hot Springs. The infestation is discussed in greater detail in the Prince George District report.

The one-year-cycle budworm, C. orae, caused no visible defoliation in the Kitimat area, where there was a light population on amabilis fir, Sitka spruce and Douglas-fir. Egg counts made in August indicated a light larval population in 1972.

Black-headed budworm, Acleris gloverana

Populations of black-headed budworm remained light in the District. A single collection from alpine fir at Whitesail Portage contained 15 larvae. Near Topley Landing, there was an average of 2.5 larvae in four positive collections.

Western tent caterpillar, Malacosoma californicum pluviale

Western tent caterpillars caused moderate to heavy defoliation of black cottonwood and other species of deciduous trees and shrubs along the Skeena River from Thornhill to Shames. Heavy defoliation of birch trees occurred in the Lava Lake area and along the Nass River in small patches from Grenville to the Cranberry River.

In 1970, most defoliation of Populus sp. in the Nass River area was attributed to the forest tent caterpillar M. disstria. Very few larvae were collected in this area in 1971.

Leaf beetles, Galerucella sp.

Willow bushes were again moderately defoliated on 50-100 acres in an old burn along the Nelson River north of Terrace. Leaf beetle damage has been observed in this area for the past several years.

Sucking Insects

Cooley spruce gall aphid, Adelges cooleyi

Twenty-six acres of coastal provenance Douglas-fir planted during 1957 and 1960 in the Nelson River area were heavily infested by this aphid. Examination in 1970 indicated a continuing population on Douglas-fir and adjacent Sitka spruce. Interior Douglas-fir was found to be relatively free of attack and damage.

In 1971, the heavily infested coastal provenance trees were destroyed to lessen severity of attack on the adjacent Sitka spruce. A smaller area of Interior provenance Douglas-fir planted within a mile of the control-cut was left standing. Only a trace of gall aphid was found infesting these trees although white spruce adjacent to the plantation was moderately infested.

A plantation weevil, Steremnius carinatus

This weevil, considered a scavenger until 1961, has been recognized as a pest of coniferous plantations and natural regeneration in coastal British Columbia and in the Interior wet belt areas. Damage has been recorded in damp, cool sites on Vancouver and Queen Charlotte islands.

In response to a report from McMillan Bloedel, Juskatla Logging Division, an examination was made of an insect-damaged plantation of Sitka spruce near Juskatla on Graham Island. Inspection of 250 container-planted trees, planted in 1969, showed 40% of the seedlings had been attacked by this weevil and 25% mortality had occurred. The area had been slash-burned in 1964.

Cone insects

Cones on most major tree species were scarce in 1971, after an above average crop in 1970. Cones were collected from white spruce in five locations and from black spruce at one location in the interior portion of the District. From 10 to 100% of the cones were infested with four species of cone insects (Table 1).

Table 1. Per cent infestation of white and black spruce cones, Prince Rupert District, 1971

Tree species	Locality	<u>Hylemya anthracina</u>	<u>Laspeyresia youngana</u>	<u>Dasineura rachiphaga</u>	<u>Dasineura canadensis</u>
white spruce	Chapman L	25	65	20	60
	Skins L	55	30	15	15
	Uncha L	30	80	10	35
	Wistaria	10	75	10	0
	Nadina R	10	100	5	25
black spruce	Burns L	30	10	20	0

Table 2. Other insects of current minor significance

Insect	Host	Locality	Remarks
<u>Dendroctonus rufipennis</u> Spruce beetle	White spruce	Corral Cr	Bark beetle. Light population at base of white spruce trees.
<u>Erannis vancouverensis</u> Western winter moth	Willow	Oliver Cr	Defoliator. Moderate defoliation of fringe willow over 1-2 acres.
<u>Lambdina f. lugubrosa</u> Western hemlock looper	Western hemlock, Sitka spruce, Amabilis fir	Drainage Divisions 102, 083	Defoliator. Low population.
<u>Neodiprion</u> sp. Sawflies	Lodgepole pine	Porphyry Cr.	Defoliator. Light population.
<u>Phyllocnistis populiella</u> Aspen leaf miner	Trembling aspen	General	Leaf miner. Populations light in western area and moderate in eastern portion of District.
<u>Pleroneura borealis</u> Balsam shoot-boring sawfly	Alpine fir, Amabilis fir	Ganowka Cr, Onion L	Tip borer. Up to 20% of tips infested on reproduction trees.

FOREST DISEASE CONDITIONS

The organisms currently causing much of the tree mortality, growth loss, and quality reduction attributed to diseases are mistletoes and stem and root rot fungi. These organisms, once established in a stand, persist for many years. They usually intensify at a slow rate, making annual summaries of their status repetitious; for this reason, the following report may omit mention of some of the more important diseases. Emphasis is placed on new outbreaks, the status of the annually varying foliage diseases and abnormal weather conditions, i.e., frosts, drought, snow damage, etc., which immediately affect tree appearance and often cause dieback and mortality. Other aspects of the Disease Survey dealing with mortality, growth loss, and factors influencing the occurrence of the more important diseases are summarized elsewhere.

Stem Diseases

Dwarf mistletoe, Arceuthobium tsugense

Collections of dwarf mistletoe from western hemlock were made in 10 areas of the District, expanding the known distribution south to Bella Coola on the Mainland, and on the Queen Charlotte Islands.

Foliage Diseases

Fir-fireweed needle rust, Pucciniastrum epilobii

Moderate to heavy infection of current year's growth of alpine fir was found over much of the interior portion of the District.

A needle rust, Uredinopsis sp.

Moderate to heavy infection of amabilis and alpine fir was common along the Nass River Valley from Kseaden Creek to Meziadin Lake.

Poplar leaf and shoot blight, Venturia populina

Foliage discoloration and early defoliation of trembling aspen has occurred for the past three years in the eastern portion of the District. In 1968, the disease was reported on aspen in the Burns Lake area. Since then it has spread westward to Cedarvale near the Skeena River.

Alpine fir needle cast, Lirula abietis-concoloris

Light to moderate infection of previous year's needles of alpine fir was noticeable in small groups of trees from Mt. Preston area in the southeastern portion of the District to Kedahda Lake in the northern section.

Table 3. Other diseases of current minor significance

Organism	Host	Locality	Remarks
<u>Biatorrella</u> <u>resinae</u>	Lodgepole pine	Tlell	Canker. New record. Not usually causing serious damage.
<u>Camarosporium</u> <u>strobilinum</u>	Alpine fir	Tumeka L	Canker. Distribution record.
<u>Cronartium</u> <u>coleosporioides</u>	Lodgepole pine	Legate Cr, Mi. 40 Meziadin Rd, Eutsuk L, Owen L	Stem rust. Extended distribution records.
<u>Cronartium</u> <u>comandrae</u>	Lodgepole pine	Eutsuk L	Stem rust. Heavy in small localized area.
<u>Cronartium</u> <u>comptoniae</u>	Lodgepole pine	Mi. 40 Meziadin Rd	Stem rust. Light infection.
<u>Chrysomyxa</u> <u>arctostaphyli</u>	White spruce	Buck Flats, Aeroplane L, Blue R, Buckley L	Spruce broom rust. Common but light infection.
<u>Chrysomyxa</u> <u>empetri</u>	Cranberry, white spruce	Kedahda L, Oona R, Buckley L, Tumeka L	Needle rust. New distribution records. Serious only when infection continues for several years.
<u>Chrysomyxa</u> <u>ledicola</u>	Labrador tea, Sitka spruce	Buckley L, Oona R	Needle rust. New distribution records.
<u>Chrysomyxa</u> <u>weirii</u>	Sitka spruce	Draney Inlet, Atli Inlet	Needle rust. Common.
<u>Chrysomyxa</u> <u>woroninii</u>	White spruce	Denetiah L, Aeroplane L	Spruce shoot rust. Northern rust.
	Black spruce	Buckley L	Common N of 55th latitude. Causing adventitious budding.
<u>Cytospora</u> sp.	Alpine fir	Tumeka L	Canker. Branches may be killed in one year. Severely attacked trees in 2 to 3 years.

Table 3. (Continued)

Organism	Host	Locality	Remarks
<u>Cytospora</u> sp.	Alpine fir	Tumeka L	Causes dieback. Light occurrence.
<u>Davisomycella ampla</u>	Lodgepole pine	Blue R, Tlell R	Needle cast. Light occurrence. New distribution area.
<u>Endocronartium harknessii</u>	Lodgepole pine	Oona R, Blunt Cr, Blue R	Gall rust. Common on lodgepole pine.
<u>Encoeliopsis</u> sp.	Alpine fir	14 mi W of Hazelton	Canker. New record.
<u>Epipolaeum tsugae</u>	Western hemlock	Burnaby Strait, Meziadin L	Needle cast. Common.
<u>Helotium resinicolum</u>	Western hemlock	Hardy Inlet	Needle cast. Moderate in small area.
<u>Isthmiella abietis</u>	Alpine fir	Kedahda L, Tumeka L	Needle cast. Light damage.
<u>Isthmiella crepidiformis</u>	White spruce	Aeroplane L	Needle cast. Distribution record.
<u>Isthmiella quadrispora</u>	Alpine fir	McKendrick Cr, Bear L, Gunnanoot L	Needle cast. Distribution record.
<u>Lachnellula pseudotsugae</u>	Douglas-fir	S Bentinck Arm	Needle cast. Light damage.
<u>Lirula macrospora</u>	Sitka spruce	S Bentinck Arm, Aeroplane L	Needle cast. Light intensity with wide distribution.
<u>Lophodermella concolor</u>	Lodgepole pine	Blue R	Needle cast. Distribution record.
<u>Lophodermella montivaga</u>	Lodgepole pine	Denetiah L, Blue R	Needle cast. Distribution records.
<u>Lophodermium pinastri</u>	Lodgepole pine	Buckley L, Oona R	Needle cast. More prevalent in pure stands.

Table 3. (Concluded)

Organism	Host	Locality	Remarks
<u>Lophodermium piceae</u>	Sitka spruce	S Bentinck Arm, Oona R, Swan L	Needle cast. Not usually causing serious damage.
<u>Lophodermium uncinatum</u>	Amabilis fir	Green Inlet	Needle cast.
<u>Lophomerum autumnale</u>	Alpine fir	McKendrick Cr, Driftwood Cr, Gunnanoot L, Tumeka L	Needle cast. Distribution records. 2 - 5% of needles infected.
<u>Melampsorella caryophyllacearum</u>	Amabilis fir	Onion L	Fir broom rust.
<u>Melampsora epitea</u> <u>f. sp. tsugae</u>	Western hemlock	Onion L, Tseax R, Legate Cr	Hemlock-willow rust. Light occurrence.
<u>Pucciniastrum goeppertianum</u>	Huckleberry, alpine fir	Oona R, Tumeka L	Blueberry broom rust.
<u>Pucciniastrum vaccinii</u>	Western hemlock	Tseax R	Needle rust. Distribution record.
<u>Potebniamyces balsamicola</u>	Alpine fir	Blunt Cr	Dieback. Of 20 trees examined 9 were infected.
<u>Sarcotrochila</u> sp.	Lodgepole pine	Tlell R	Needle rust. Estimated 10% of needles infected on 40% of trees in small area.
<u>Scirrhia pini</u>	Lodgepole pine	Oona R	Needle cast.
<u>Scleroderris abieticola</u>	Alpine fir	Tumeka L	Canker. Annual canker occurring on twigs, branches and trunks of saplings.
<u>Sclerophoma</u> sp.	Alpine fir	Topley Ldg.	Causes blue stain in wood.
<u>Stegopezizella balsameae</u>	Alpine fir	Kehdahda L	Needle disease. Damage light.
<u>Taphrina japonica</u>	Alder	Juskatla	Leaf curl of alder. Common over small area.