

ANNUAL DISTRICT REPORT  
FOREST INSECT AND DISEASE SURVEY  
BRITISH COLUMBIA, 1971  
PART III, PRINCE GEORGE FOREST DISTRICT

by  
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## INTRODUCTION

This report outlines the status of forest insect and disease conditions in the Prince George Forest District for 1971, and attempts to forecast pest population trends. Emphasis is placed on the level of pest populations capable of sudden, damaging outbreaks.

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

Regular field work in the District began May 25 and ended September 22. Special surveys were: spruce beetle overwintering mortality studies, May 25 to June 3; aerial surveys of beetle and defoliator infestations, July 26-30, and ground surveys for spruce beetle, September 13-20.

Totals of 469 insect and 78 disease collections were submitted in 1971. Map 1 shows the collection localities and drainage divisions.

Numbers of defoliators found in beating collections increased slightly over 1970.

Bark beetles attacking white spruce, Douglas-fir and lodgepole pine remained at a low level in 1971. Western balsam bark beetles were active but caused less tree mortality than in 1970.

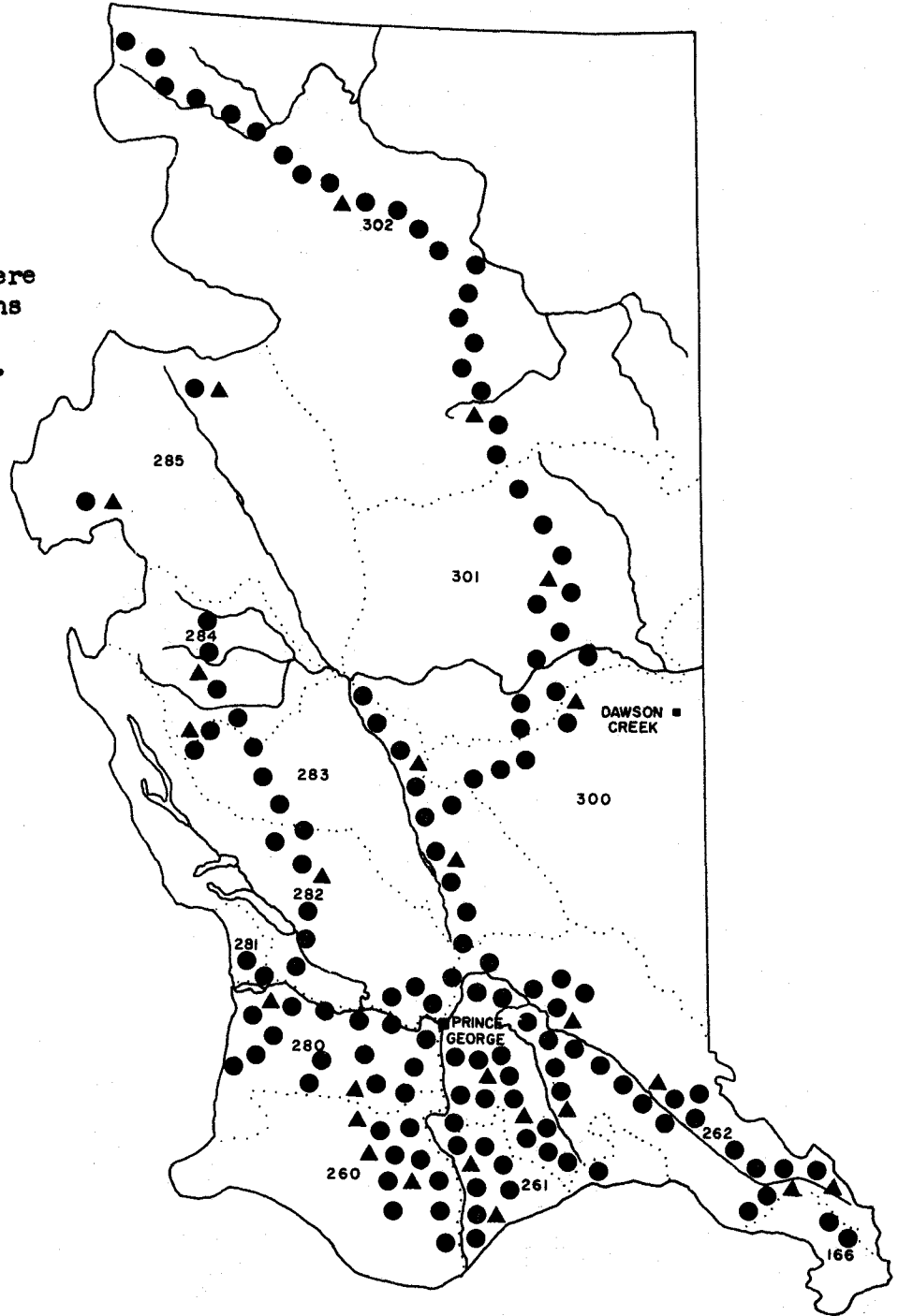
One-year-cycle spruce budworm caused moderate to heavy defoliation of white spruce and alpine fir. Large areas of trembling aspen were defoliated by the large aspen tortrix and white birch was attacked by a leaf blotch miner.

**Map 1**  
**PRINCE GEORGE**  
**FOREST DISTRICT**

20 MILES

Location of points where  
one or more collections  
were made and field  
records taken in 1971.

- Forest insect
- ▲ Forest disease



FOREST INSECT CONDITIONS

Currently Important Insects

Bark Beetles

Spruce beetle, Dendroctonus rufipennis

Spruce beetles were scarce in former infestation areas where white spruce windfalls, logs and standing trees were examined. Small numbers of beetles were found between the McGregor and Willow River valleys. No beetles were found in recent windfall at Benson Lake. Of 685 trees examined at seven locations during September, 109 were killed before 1970 and 576 were unattacked. Since windfall was generally scarce, and attacks were lighter than in 1970, no significant attack is expected in 1972.

Douglas-fir beetle, Dendroctonus pseudotsugae

The number of recently killed Douglas-fir trees found mainly in the Narcosli Valley, decreased from 110 in 1970 to 50 in 1971.

Mountain pine beetle, Dendroctonus ponderosae

Pine mortality due to beetle attack remained light in the District. Only 150 red-topped white pine trees were counted in the vicinity of Windfall Creek in the Canoe River valley.

Western balsam bark beetle, Dryocoetes confusus

This beetle, in association with a lesion-causing disease, Ceratocystis dryocoetidis, continued to cause moderate mortality of alpine fir throughout higher elevations in the Prince George Forest District but infestation levels were much lower than in 1970 (Table 1).

Table 1. Number of alpine fir trees killed by Dryocoetes-Ceratocystis complex as determined by aerial surveys, Prince George Forest District

Drainage	No. red-tops counted in	
	1970	1971
Misinchinka/Pine R	2,900	250
Parsnip R	800	320
Crooked R	200	15
Stuart/Takla L	1,150	0
Fraser R, Prince George to Moose L	3,400	160
Fraser R, Prince George to Quesnel	825	20
Willow R	2,375	140
Bowron R	1,250	0
Swift R	1,500	10
Canoe R	200	121
Total	14,600	1,036

### Defoliators

#### One-year-cycle spruce budworm, Choristoneura fumiferana

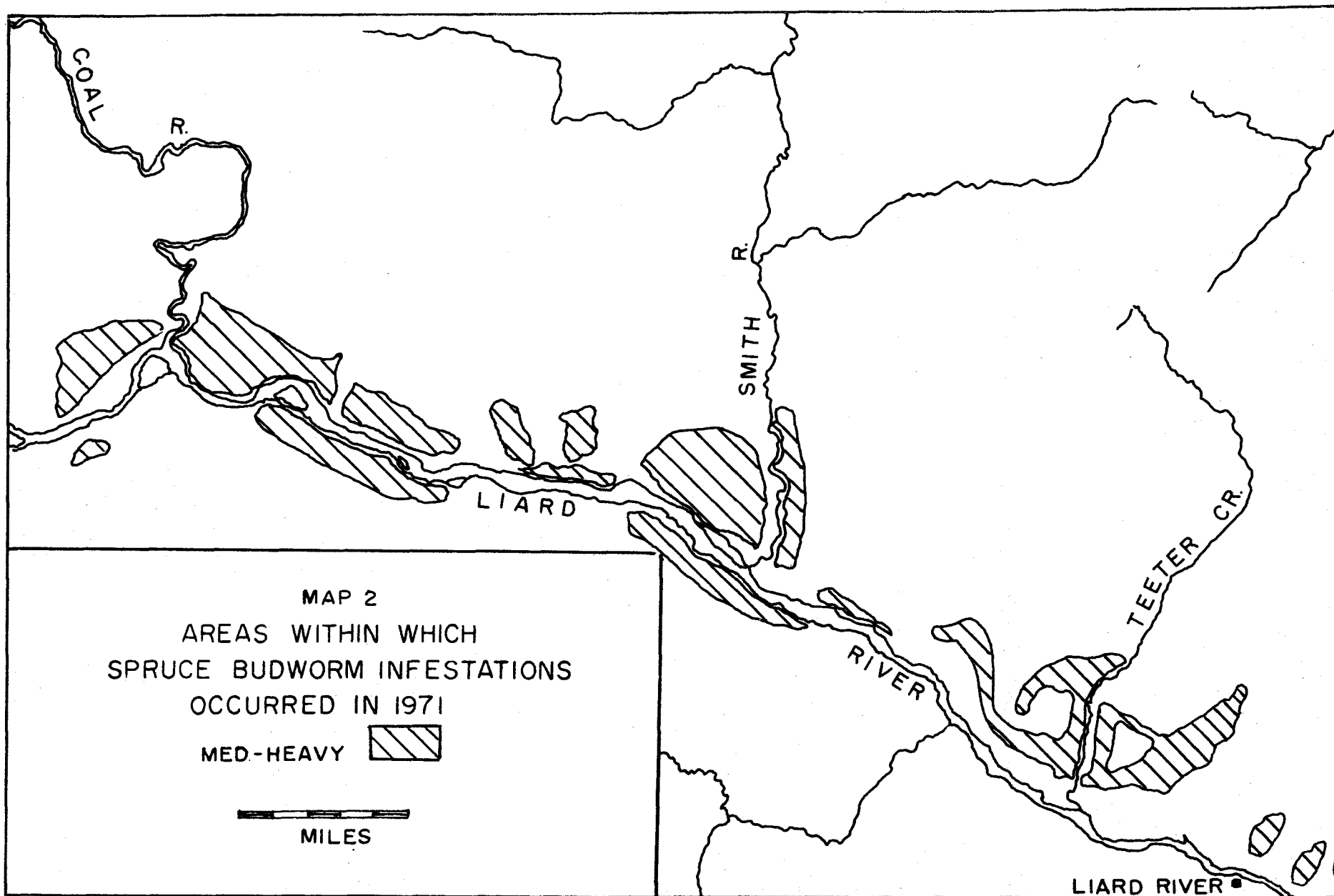
Larval populations increased substantially from 1970 and caused moderate to heavy defoliation of mature white spruce and understory alpine fir over some 34,000 acres between Liard Hot Springs and Fireside along the Alaska Highway (Map 2). Defoliation occurred mostly in the upper crowns of overstory white spruce. Understory alpine fir trees were defoliated up to 70%.

The increase in 1971 followed a three-year decline, although high populations and defoliation have been recorded in the area since 1957; further defoliation can be expected in 1972 in the Liard area.

There was a small population at mile 247, Alaska Highway, near Parker Creek, but defoliation was not apparent.

#### Two-year-cycle spruce budworm, Choristoneura biennis

Two-year-cycle spruce budworm larvae were scarce throughout the District in 1970 and 1971. No major infestations have occurred in the District since 1964.



Large aspen tortrix, Choristoneura conflictana

High larval populations severely defoliated approximately 22,000 acres of trembling aspen in the Fraser Lake, Vanderhoof, Kenny Dam and McBride areas, an increase from 5,000 acres in 1970. Small areas of light to moderate defoliation were recorded from Prince George to Endako and from Strathnaver to Quesnel. Pupal counts indicate that defoliation will occur in 1972 over a larger area, but at lower intensities.

Defoliation and feeding damage are shown in Figures 1 and 2.

A leaf blotch miner, Lyonetia saliciella

Foliage of white birch was infested from McBride to Yellowhead and from Tête Jaune Cache south to Hugh Allan Creek for the fifth consecutive year. Leaves turned brown and fell prematurely, but no tree mortality is likely to occur.

Table 2. Other insects of current minor significance

Insect	Host	Locality	Remarks
<u>Acleris gloverana</u> Black-headed budworm	White spruce, alpine fir, western hemlock	Throughout District	Defoliator; light population, small increase.
<u>Adelges cooleyi</u> Cooley spruce gall aphid	White spruce, Douglas-fir	South half of District	Sucking insect; decline in attack.
<u>Lambdina fiscellaria</u> <u>lugubrosa</u> Western hemlock looper	White spruce, alpine fir, western hemlock	Bowron River, McBride	Defoliator; light population, slight increase.
<u>Laspeyresia youngana</u> A cone moth	White spruce	Throughout District	Seed insect; high incidence of damage to light crop.
<u>Neodiprion</u> spp. Conifer sawflies	White spruce, alpine fir, western hemlock, lodgepole pine, Douglas-fir	Throughout District	Defoliator; 25 larvae at Strathnaver, other samples very light; 12% of samples contained larvae.
<u>Phyllocnistis</u> <u>populiella</u> Aspen leaf miner	Trembling aspen	Throughout District	Leaf miner; light to moderate occurrence.
<u>Pissodes strobi</u> A weevil	White spruce	Aleza Lake	Terminal borer; 10% current attack, decrease from 40% in 1970.
<u>Pissodes terminalis</u> Lodgepole pine terminal weevil	Lodgepole pine	Slough Creek	Terminal borer; approximately 5% stems attacked.





Fig. 1. Defoliation of trembling aspen by large aspen tortrix. Prince George District, June, 1971. C.S. Wood.

Fig. 2. Leaf rolling and feeding damage of trembling aspen foliage by large aspen tortrix. Prince George District, June, 1971. C.S. Wood.

## FOREST DISEASE CONDITIONS

The organisms currently causing tree mortality, growth loss and quality reduction attributed to diseases are dwarf 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 which makes annual summaries of their status repetitious; for this reason, mention will not be made of some of the more important diseases. Emphasis is placed on new outbreaks, the status of 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 involving the occurrence of the more important diseases are summarized elsewhere.

### Currently Important Diseases

#### Stem Diseases

Dwarf mistletoe of lodgepole pine, Arceuthobium americanum

A survey to determine the distribution of dwarf mistletoe continued in 1971. Infections were recorded in stands in the Pelican, Anzus and Boreal lakes areas, Batnuni and Bazaeko road areas in the Nazko region and near the Oslinka River in the northern part of the District.

#### Physiological Diseases

##### Red belt

Red belt winter injury was severe over large areas from Kersley to Muncho Lake, causing reddening and foliage loss of lodgepole pine and Douglas-fir. Damage occurred in the Quesnel area over some 33,000 acres at between 2,000 and 4,000 feet elevation. Defoliation intensity ranged from 20 to 80%.

Mortality from winter injury was rare, and late summer observations indicated that most of the trees would recover.

##### Snow and Ice Damage

Extensive bending and breakage of trembling aspen, lodgepole pine and white birch trunks and branches occurred at 2,000 feet elevation, east of Highway 97 between Marguerite and Kersley, particularly in areas adjacent to recent clear-cut logging. Severe storms were recorded during an inversion period in January, when the temperature remained around freezing, and freezing rain built up heavy layers of ice on the trees.

### Discoloration of Western Red Cedar

Discoloration of western red cedar foliage occurred on 47,000 acres in the Fraser River Valley from Goat River to Castle Creek in the vicinity of McBride. Most of the trees had been affected in 1970 and had not shed their dead foliage. New foliage development was scant in 1971. The condition could have been caused by unseasonable low temperature or prolonged low temperature which may have killed the new buds.

### Other Noteworthy Diseases

A canker disease on lodgepole pine seedlings, Sirococcus strobilinus

This disease caused tip dieback and mortality of some lodgepole pine 1.0 seedlings at the B. C. Forest Service nursery at Red Rock in 1971.

The initial attack probably occurs on the juvenile needles. The infection spreads into succulent stem tissues where it causes a small purplish canker. The canker enlarges longitudinally; the needles in the cankered area redden and small black pycnidia begin to appear on the dead needles; the shoot tip curls over to form a crook as the canker girdles the stem, and the tips die around mid-July.

Leaf and shoot blight of poplar, Venturia populina

The epidemic of this blight declined, affecting up to 60% of the foliage over 150 acres east of Punchaw Ranch. In 1968, it occurred over 1.7 million acres, gradually declining through 1969 and 1970 to its present status.

Fir-fireweed rust, Pucciniastrum epilobii

Light to heavy infections of current alpine fir foliage occurred in localized areas from Prince George to Pine Pass, from Eaglet Lake to McGregor River and in the Bowron River Valley south to Benson Lake. In some areas, all the 1971 needles were infected on lower branches.

Table 3. Other diseases of current minor significance

Organism	Host	Locality	Remarks
<u>Chrysomyxa pirolata</u>	White spruce <u>Pyrola</u> spp.	Northern and western parts of District	Cone scale rust, causes seed mortality. Light infection. Heavy in 1970 on heavy cone crop.
<u>Atropellis piniphila</u>	Lodgepole pine	Tatuk Lake, Sukunka River	Atropellis canker, causes stem-flattening and wood discoloration. Additional distribution records.