

Forest Insect and Disease Conditions

Yukon Territory
1988

R. Turnquist



Forestry
Canada

Forêts
Canada

CONTENTS

	PAGE
INTRODUCTION	1
SUMMARY	3
SPRUCE PESTS	5
Spruce budworms	5
Spruce bark beetle	6
A spruce budmoth	6
Spruce broom rust	6
Spruce burls	6
PINE PESTS	6
Comandra blister rust	6
A pine needle cast	6
Winter flecking	7
Joint Canada-Sweden lodgepole pine trials.	7
Pests of young lodgepole pine stands	7
LARCH PESTS	8
Larch sawfly	8
Cone and seed pests	8
DECIDUOUS TREE PESTS	9
Large aspen tortrix	9
An aspen leaf disease	9
A birch foliar dieback	9

INTRODUCTION

This report summarizes forest insect and disease conditions in the Yukon Territory in 1987. Pests are listed by host with emphasis given to those capable of sudden damaging outbreaks.

During the 15-day survey in late June and early July over 75 insect and disease samples were collected at over 45 permanent and 30 random sites (Map 1) in stands from Watson Lake west to the Haines Road and the Alaska border, along the Klondike and portions of the Robert Campbell Highways and along the lower Canol Road. Thirty-four percent of beating samples at permanent sampling stations were positive, up from 15% in 1987, but still low, reflecting the cool damp late spring and early summer weather. Special surveys included: assessments of spruce beetle populations near Kusawa Lake; larch sawfly populations north of Watson Lake; Svenska Cellulose lodgepole pine trials near Takhini; a cooperative spruce budworm pheromone trapping program; further collections of an aspen leaf disease found for the first time in the Yukon in 1987; and pests of young stands.

Yukon Forest Service personnel were contacted at Whitehorse where two meetings were held with Headquarters staff to discuss pest problems. Contact was also made with the Yukon Forest Service at Carmacks and Watson Lake. Don White of the Yukon Forest Service sent in several additional pest samples, including cone and seed pests mentioned in this report.

Forest Insect and Disease Survey (FIDS) is a nation-wide network within Forestry Canada with the responsibility of producing an overview of forest pest conditions and their implications; maintaining records and surveys to support quarantines and facilitate predictions; supporting forestry research with records, insect collections and herbaria; providing advice on forest insect and disease conditions; and developing and testing survey techniques and conducting related biological studies.

During the field season, correspondence and inquiries with respect to forest pest problems in the Yukon Territory can be directed to the Forest Insect and Disease Survey (FIDS) Ranger at:

Forest Insect and Disease Survey
Forestry Canada
P.O. Box 687
Prince George, B.C.
V2L 4S8 Ph. 963-7394

During the remainder of the year, the ranger is based at:

Pacific Forestry Centre
Forestry Canada
506 West Burnside Road
Victoria, B.C.
V8Z 1M5 Ph. 388-0600

Detailed copies of maps, pest reports, leaflets and monographs, as well as regional pest histories, are available from the above address.

Appendices - Available on request from the Forest Insect and Disease Survey at the above address.

- I. Summary of Svenska Cellulose lodgepole pine trials in B.C. and the Yukon.
- II. Summary of data on distribution of Choristoneura sp. in B.C., Alberta, Yukon, N.W. Territories and Alaska.

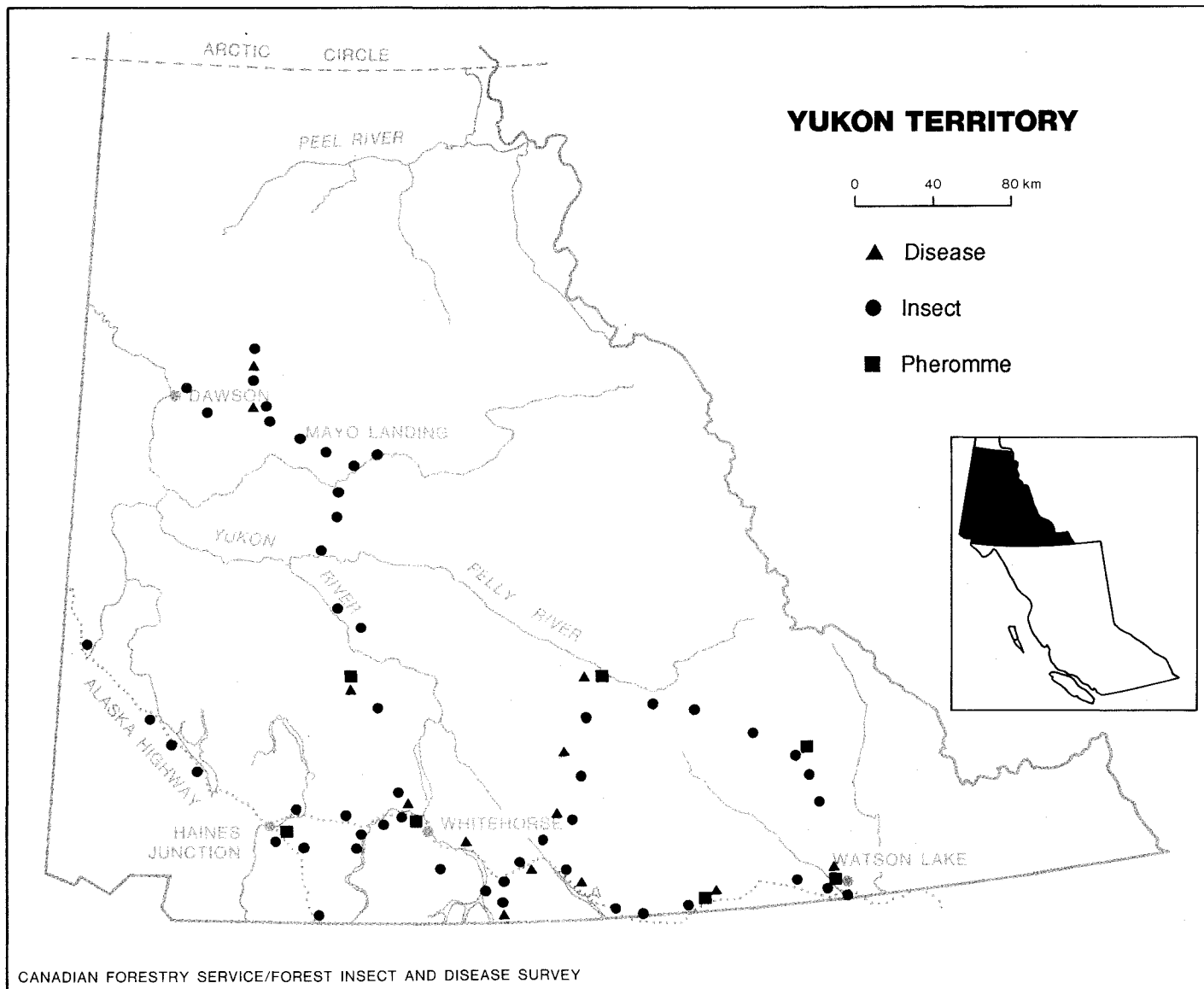
SUMMARY

Spruce beetle populations were low; no new infestations were found during the annual survey. Eastern spruce budworm populations declined; no defoliation was reported in the La Biche River Valley. Spruce broom rust commonly infected white and black spruce throughout the Territory, particularly along the lower Canol Road, north of Quiet Lake. A spruce budmoth caused light defoliation of current foliage on white spruce in the Watson Lake-Liard River area. Burls were common on all ages of white spruce along the Nordenskiöld River, south of Carmacks.

Winter kill and frost damage in 1987 combined with secondary fungi caused top dieback and mortality of young lodgepole pine and Siberian larch at a joint Canada-Sweden lodgepole pine trial near Takhini. Pest problems in young stands were few; the most notable were Comandra blister rust, winter flecking and a pine needle cast.

For the second consecutive year larch sawfly populations were active in tamarack stands in the Tuchitua area, north towards Frances and Finlayson lakes and along the Tungsten Road.

Large aspen tortrix populations moderately and severely defoliated approximately 1000 ha of trembling aspen in the Takhini area. This is the first recorded outbreak since 1984. Further collections of an aspen leaf spot were made to increase distribution records and as further material for ongoing study. An unidentified foliar dieback was common on white birch along the lower Canol Road, north of Johnsons Crossing. Two tree diseases were recorded by FIDS in the Yukon for the first time, both on coniferous hosts; these represent new host and distribution records.



Map 1. Areas where one or more forest insect and disease samples were collected and pheromone-baited sticky traps were located in 1988.

SPRUCE PESTS

Spruce budworms
Choristoneura spp.

No active spruce budworm populations were encountered during surveys in the Yukon Territory. No defoliation was reported in the extreme southeastern corner of the territory, an area where about 1000 ha of defoliation was reported last year. Attempts at mass collections for Dr. G.T. Harvey of the Great Lakes Forestry Centre at Sault Ste. Marie, made at Watson Lake and Haines Junction, were negative.

As part of an ongoing taxonomic and distribution study, spruce budworm distribution sticky traps were placed at seven locations (3 traps of each pheromone type per location) in the Yukon Territory (Table 1). This is the fifth time since 1983 that adult male populations of the two principal species of budworm, Choristoneura orae and C. fumiferana, were monitored with pheromone traps near Watson Lake. To date, no distribution patterns have emerged from the data collected at Watson Lake.

Table 1. Location and average number of adult male Choristoneura spp. caught in pheromone-baited traps, Yukon Territory, 1988.

Location	Pheromone ¹	Avg. no moths/trap	Species
Watson Lake	A	0.3	<u>C. orae</u>
	B	13.7	<u>C. f.o.b.</u> ²
Rancheria ³	A	0	<u>C. orae</u>
	B	0	<u>C. f.o.b.</u>
Whitehorse	A	7.3	<u>C. orae</u>
	B	0	<u>C. f.o.b.</u>
Carmacks	A	2.7	<u>C. orae</u>
	B	11.7	<u>C. f.o.b.</u>
Ross River	A	17.7	<u>C. orae</u>
	B	6.7	<u>C. f.o.b.</u>
Frances Lake	A	2.7	<u>C. orae</u>
	B	6	<u>C. f.o.b.</u>
Haines Junction	A	2.7	<u>C. orae</u>
	B	13	<u>C. f.o.b.</u>

¹A - acetate formulation, chemicals used - trans-11-tetradecenyl + cis-11-tetradecenyl + trans-11-tetradecenol

B - aldehyde formulation, chemicals used - trans-11-tetradecenal + cis-11-tetradecenal

²C. fumiferana, C. occidentalis and C. biennis are all attracted to the same pheromone.

³Traps at this location in pine stand; all other trap locations in spruce-fir stands.

Information on distribution of Choristoneura spp. in the Yukon will be available from the Pacific Forestry Centre at a later date.

Spruce bark beetle
Dendroctonus rufipennis

No active spruce beetle populations were found in the Yukon in 1988. Surveys in the Kusawa Lake area, where some populations were found in 1987, found no evidence of active beetle. The sanitation/cleanup program carried out in this area (as suggested by FIDS) appears to have been successful. Some Ips tridens, an engraver beetle, were found in firewood bolts in this area; however, these are not generally considered to be a serious threat, especially in light of the ongoing sanitation work.

A spruce budmoth
Zeiraphera fortunana

Trace defoliation on buds of most of white spruce occurred in the Watson Lake-Liard River area by this species of Zeiraphera. The damage was not heavy and is not expected to have any lasting effect. Populations will be monitored in 1989.

Spruce broom rust
Chrysomyxa arctostaphyli

This perennial disease is common and widespread on white spruce throughout the Yukon Territory. It is particularly heavy on white spruce along the lower Canol Road south of Ross River.

Spruce burls

Burls, in all ages of white spruce, were common south of Carmacks along the Nordenskiold River. The cause of these burls is unknown; however, some infectious agents such as bacteria and viruses and some insects are suspected as the causal agents.

PINE PESTS

Comandra blister rust
Cronartium comandrae

Approximately 1% of young lodgepole pine stems between Whitehorse and Johnsons Crossing were infected by Cronartium comandrae. In the Teslin area, 5% of young pine stems were infected by this disease. There was no evidence of infection on the alternate host, Comandra livida, in these areas this year when visited in July.

A pine needle cast
Davisomycella montana

In the Gravel Creek area along the lower Canol Road, and in the Rancheria area, 100% of lodgepole pine had an average of 15% of the foliage infected by Davisomycella montana. These collections are a first record of this species on any host in the Yukon. Winter flecking was also present, particularly in the Rancheria area.

Winter flecking

Winter flecking, causing discoloration and premature casting of older needles, was common on most lodgepole pine in the Takhini Forest Reserve, in the Tarfu Lake area (near the B.C./Yukon border on the Atlin Road) and in the Squanga Lake area between Johnsons Crossing and Jakes Corner.

Joint Canada-Sweden lodgepole pine trial

Pest conditions in the two-year-old lodgepole pine trials in the Takhini Forest Reserve were again evaluated by FIDS during the annual Yukon survey.

Ten percent of lodgepole pine seedlings were dead and 60% were top-killed (result of last year's winter damage) in the Svenska trial at the Takhini Reserve near Whitehorse. Sclerophoma pithyophila, a microfungus, generally a secondary organism, was isolated from pine samples taken from this location. All the Siberian larch were top-killed, and a Sclerophoma sp., isolated from samples submitted, is a new record on larch in the Yukon. Also, all the Norway spruce in the plantation appear to have been killed by the winter damage found in 1987.

Assessments of pest conditions in this, the most northerly of five such experimental plantations in the Pacific Region, will continue.

Pests of young lodgepole pine stands

Stem rust, winter flecking and needle cast were the most common pests in five naturally regenerated young lodgepole pine stands examined in the southern part of the Territory in 1988. The surveys concentrated on the occurrence of insect and disease problems that could adversely affect growth and yield; results are summarized in Table 2.

Table 2. Pests of young lodgepole pine stands, Yukon Territory, 1988.

Location	Pest	Remarks
Atlin Road, near Tarfu Lake	winter flecking	light infections on 90% of old foliage
	poor form	20% of stems with crook, twist or fork
	browse	12% of trees affected, causing stunted, bushy growth and multiple tops
Squanga Lake, near Johnsons Crossing	Comandra blister rust, <u>Cronartium comandrae</u>	1% of stand infected, branch and stem cankers
	winter flecking	light infection on 90% of foliage
Takhini Forest Reserve	winter flecking	light infection, low incidence

Location	Pest	Remarks
Deadmans Creek, north of Teslin	Comandra blister rust, <u>C. comandrae</u>	<5% of stand infected, branch and stem cankers
Gravel Creek, on lower Canal Road	A pine needle cast, <u>Davisomycella montana</u> winter flecking	average 15% infection on 100% of trees. A new host and distribution record. light infection, low incidence

LARCH PESTS

Larch sawfly Pristiphora erichsonii

Larch sawfly populations were active, for the second consecutive year, in the Finlayson-Frances lakes, Tuchtua, Tungsten Road areas. Population levels at the time of sampling indicate the potential for scattered light to moderate defoliation throughout the infested area. No further assessment is available as aerial surveys were not conducted. As part of a cooperative research program, a mass collection of about 200 larvae was made north of Tuchtua Junction for an American scientist studying larch sawfly genetics. Further monitoring of larch sawfly populations will continue next year.

Cone and seed pests

Several insects were found feeding on white spruce cones collected by the Yukon Forest Service. The following were the most common insects:

- A spruce-cone maggot - Strobilomyia neanthracinum [=Lasiomma anthracina]
- A spruce-cone axis midge - Dasineura rachiphaga
- A spruce-cone gall midge - Dasineura canadensis
- A spruce-seed moth - Cydia strobilella
- A spruce-seed midge - Mayetrola carpophaga
- A cone scale midge - Resseliella sp.

Inland cone rust, Chrysomyxa pirolata, was reported to be common on white spruce, particularly in the Stewart Lake area.

DECIDUOUS TREE PESTS

Large aspen tortrix
Choristoneura conflictana

Approximately 1000 ha of trembling aspen was defoliated by this pest, the first recorded major outbreak in the Yukon since 1984. Defoliation was visible for approximately 10 kilometers, from the Takhini River Bridge on the Alaska Highway east towards the Klondike Highway junction. Ground observations estimate some 800 ha of severe defoliation, and about 200 ha of light to moderate defoliation. Some small patches of defoliation were also observed west of the Takhini River along the Alaska Highway. There was no sign of this pest elsewhere in the Yukon Territory. Further monitoring of populations in this area will continue next year.

An aspen leaf disease
Pollaccia borealis

This disease, first discovered in the Yukon in 1987, causes discoloration and a "shot-hole" effect on aspen foliage. It was common between Dawson City and Stewart Crossing, between Faro and Ross River and in the Watson Lake area. Taxonomic work by Dr. Funk to identify the fungal causal agent continues.

A birch foliar dieback

This condition, causing browning and wilting of birch foliage, was found wherever birch grew along the lower Canol Road. No causal agent has been isolated or identified for samples from this area.
