

# **Forest Insect and Disease Conditions**

**Yukon Territory  
1985**

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## INTRODUCTION

This report outlines forest insect and disease conditions in the Yukon Territory in 1985, with emphasis on pests capable of sudden damaging outbreaks.

The 1985 survey consisted of monitoring pest populations at 25 permanent sampling sites and at random locations (Map 1) between June 25 and July 4. Additional surveys included large aspen tortrix population assessments, and the examination of two immature lodgepole pine stands surrounding potential planting sites for testing disease resistance of lodgepole pine selections made by Swedish foresters.

The cooperation and assistance of Yukon Lands and Forests (Y.L.F.) staff in collecting specimens and monitoring pest conditions is greatly appreciated.

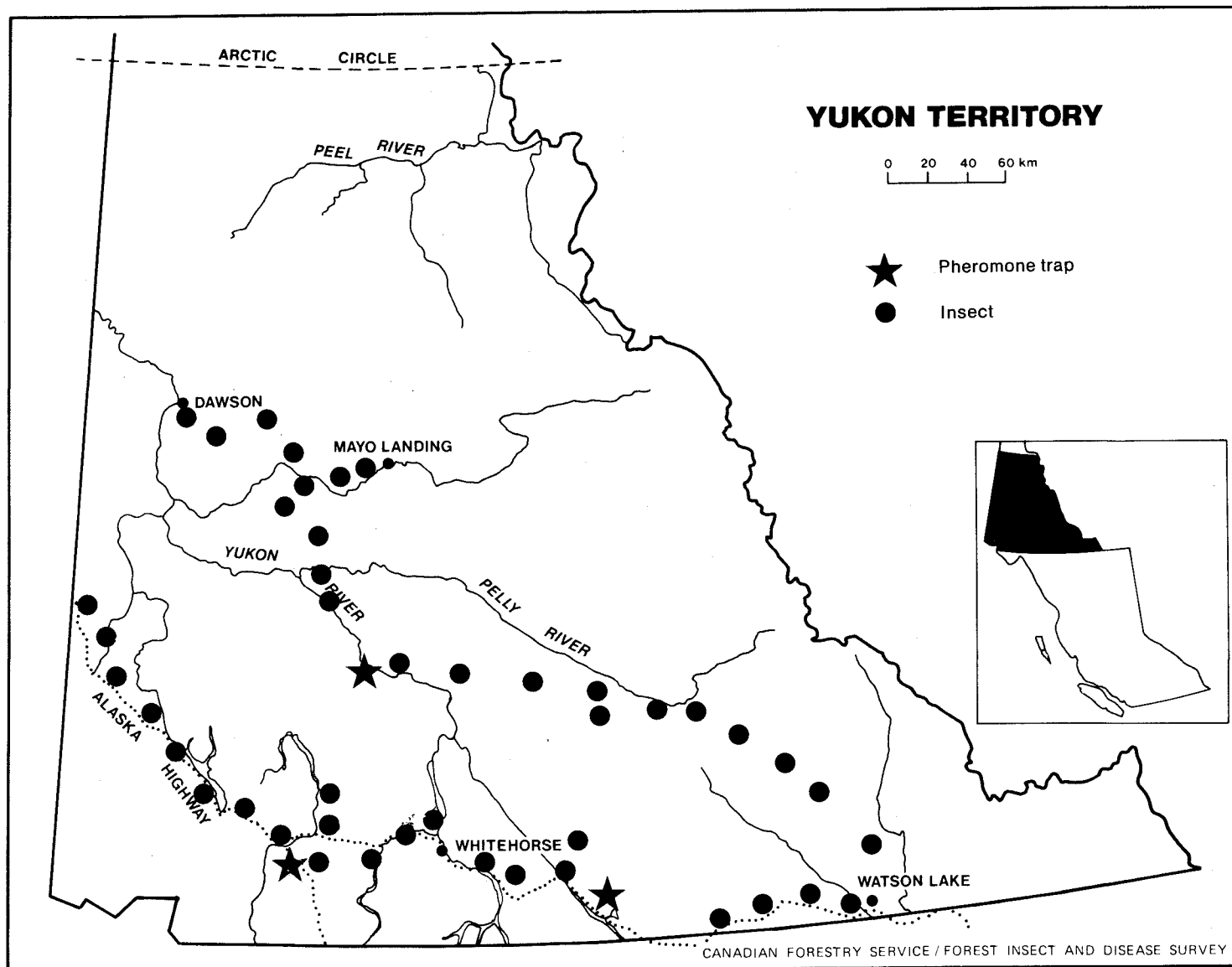
## SUMMARY

Increased fir-spruce budworm larval populations lightly defoliated localized stands in the La Biche River Valley, but populations remained low elsewhere. Results of an adult monitoring program, in its third consecutive year were inconclusive. Endemic spruce beetle populations infested white spruce in the La Biche River Valley, where Allegheny spruce beetle populations were recorded for the first time in more than 25 years.

Lodgepole pine beetle killed single predisposed mature lodgepole pine near Stewart Crossing and Mayo. Light bud mortality, premature needle loss and foliar browning of lodgepole pine from winter drying was common in localized stands from Watson Lake to Carmacks. Western gall rust and northern pitch twig moth lightly affected young lodgepole pine stands near Watson Lake.

Larch sawfly cocoons were collected in tamarack stands in the La Biche River Valley for the first time. However, there was no evidence of the sawfly in tamarack stands defoliated in 1984, north of Watson Lake and along the Tungsten Highway.

Trembling aspen stands south of Carmacks were lightly defoliated by declining populations of large aspen tortrix.



Map 1. Locations where one or more insect and disease samples were collected and fur-spruce budworm pheromone trap locations. 1985.

## SPRUCE PESTS

Fir-spruce budworms, Choristoneura spp.

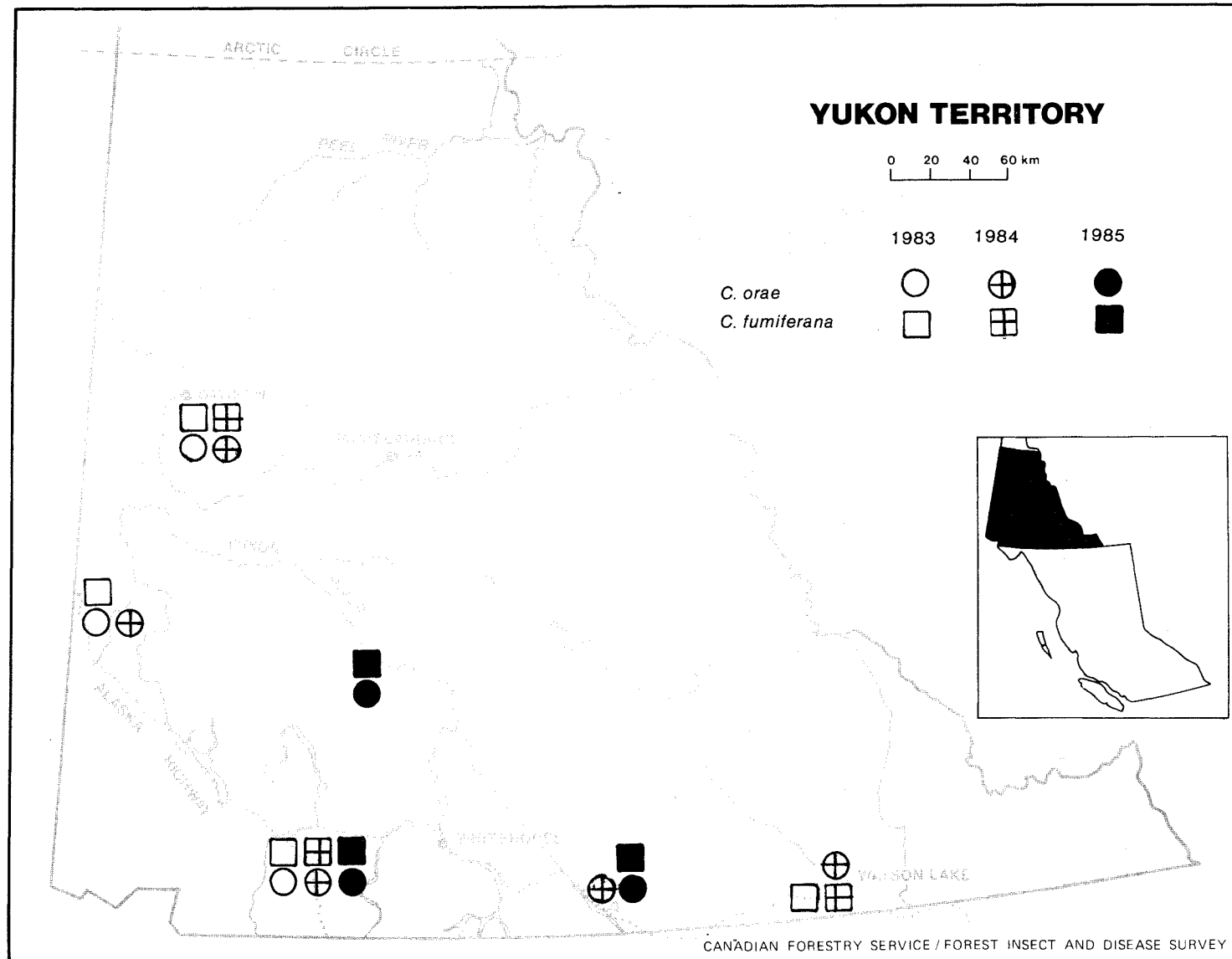
Increased populations very lightly defoliated white spruce in the La Biche River Valley which was surveyed by Y.L.F., producing the first record of the pest in the remote southeastern part of the Territory. A naturally occurring fungus, Beauveria bassiana infected two dead larvae from infested stands; the first record of the fungus from the Territory. Elsewhere, populations remained low in areas sampled along major access roads.

Adult male populations were monitored for the third successive year (Table 1), to determine population trends and for taxonomic research. Ten pheromone-baited traps, spaced 20 metres apart were set out in July at three locations (Map 1) and collected in October with the cooperation of Y.L.F. For the past three years, the coastal form, C. orae, was trapped at all six trap sites (Map 2); and eastern spruce budworm C. fumiferana at four. Except for indicating the presence or absence of male adults, results were inconclusive. Two budworms, Acleris emargana and Archippus sp., are closely related to fir-spruce budworms and were also attracted by the pheromone.

Table 1. Location and average number of fir-spruce budworm in pheromone-baited sticky traps, Yukon Territory, 1983-1985.

Location	Pheromone <sup>1</sup> (5% conc)	Avg. No. moths/trap			Species
		1983	1984	1985	
Beaver	A	6	106		<u>C. orae</u>
	B	0	0		<u>C. fumiferana</u>
			7		<u>Acleris emargana</u>
Carmacks	A			38	<u>C. orae</u>
	B			155	<u>C. fumiferana</u>
Dawson City	A	3	37		<u>C. orae</u>
	B	39	33		<u>C. fumiferana</u>
			1		<u>A. emargana</u>
Haines Jct.	A	39	63	44	<u>C. orae</u>
	B	1	18	6	<u>C. fumiferana</u>
			7	28	<u>A. emargana</u>
Teslin	A		83	89	<u>C. orae</u>
	B		0	0	<u>C. fumiferana</u>
			6	40	<u>A. emargana</u>
Watson Lake	A	95	44		<u>C. orae</u>
	B	79	81		<u>C. fumiferana</u>
			1		<u>A. emargana</u>
			3		<u>Archippus</u> sp.

<sup>1</sup>  
A - Acetate  
B - Aldehyde



Map 2. Fir-spruce budworm pheromone baited trap locations 1983 to 1985

Spruce beetles, Dendroctonus rufipennis, D. punctatus

Mature white spruce in a localized area of active logging in the La Biche River Valley, surveyed by Y.L.F., were infested by endemic populations of spruce beetle, D. rufipennis. Small numbers of Allegheny spruce beetle, D. punctatus infested mature spruce in the same area, the first recorded collection of the beetle in the Territory in more than 25 years. This beetle is a little known transcontinental species found principally in the southeast and far north. It attacks single stressed trees. Populations are expected to remain at endemic levels following control programs implemented by Y.L.F.

There was no evidence of spruce beetle during followup surveys by FIDS of previously beetle-infested stands adjacent to road construction, along Teslin Lake to Johnson Crossing. This indicated that populations were controlled effectively by timely removal and burning of infested and susceptible roadside trees.

#### PINE PESTS

Lodgepole pine beetle, Dendroctonus murrayanae

Five recently attacked mature lodgepole pine were recorded by Y.L.F. at Rusty Creek near Stewart Crossing and south of Mayo on the Ethyl Lake Road. Seed collection from felled trees had damaged and predisposed adjacent trees to attack by the beetle in both areas. Eradication of beetle broods from the butts of 1985-infested trees will reduce the chance of attacks occurring in 1986.

Winter drying

Warm air temperatures and frozen soil moisture resulted in desiccation of more than 75% of the older needles on more than 90% of the lodgepole pine in 1-2 ha pockets between Watson Lake and Carmacks along the Robert Campbell Highway. There was no evidence of tree mortality, even where trees were affected for the second consecutive year. About 6% of the immature lodgepole pine in provenance trials near Watson Lake were lightly affected. Trees normally regain full vigour following this type of damage.

A rust of pines, Cronartium comandrae

The rust infected stems and branches of numerous sapling and semi-mature lodgepole pine in selectively cut stands near Carcross and in the Hyland River Valley.

#### LARCH PESTS

Larch sawfly, Pristiphora erichsonii

Cocoons collected from the duff of a tamarack stand in the La Biche River Valley by Y.L.F. indicate a potential for very light defoliation in the area in 1986.

There was no evidence in early July, however, of current larval feeding in tamarack stands defoliated in 1984 along Simpson Lake, north of Watson Lake, or along the Tungsten Highway.

Evidence of parasitoids in the cocoons will be assessed later, following cold treatment.

Conifer-aspen rust, Melampsora medusae

Drier climatic conditions resulted in the decline of infections in tamarack along the Tungsten road, where light infections were common last year; there was no evidence of the needle disease elsewhere in the Territory.

#### CONE AND SEED PESTS

Cone crops were generally light. Cones collected from Siberian larch, Larix siberica in a plantation in the Takhini Forest Reserve near Whitehorse were free of cone and seed insects or disease.

A spruce cone rust, Chrysomyxa pirolata was common on the alternate host, Pyrola spp. in the Hyland River Valley, but there was no evidence of the rust on spruce cones in the area.

#### PESTS OF YOUNG STANDS

As part of a test of disease resistance, second generation Swedish lodgepole pine will be planted at selected sites in the Yukon in 1986. Potential sites and adjacent lodgepole pine stands near Whitehorse and provenance trials near Watson Lake were surveyed for the occurrence and severity of various pests.

Several sites in the Takhini Forest Reserve near Whitehorse were suitable for planting. However, rodent feeding which damaged about 25% of the regeneration lodgepole pine in adjacent stands could severely affect newly planted stock. Branch infections by western gall rust Endocronartium harknessii occurred on less than 1% of the adjacent immature lodgepole pine and less than 1% of the stems were infested by the northern pitch twig moth, Petrova sp.

An estimated 5% of the stems of immature lodgepole pine in a provenance trial area near Watson Lake were infected by E. harknessii (Table 2); dead galls were also evident. About 3% of the stems of young pine were currently infested by Petrova sp. About 6% of all the plot trees were lightly discolored by winter drying which also affected other stands between Watson Lake and Carmacks.



Table 2. Incidence of western gall rust, northern pitch twig moth and winter drying in lodgepole pine provenance trials near Watson Lake, Yukon Territory, 1985.

Plot No.	Trees			Western Gall Rust				Pitch Moth		Winter Drying
	Total	Healthy	Dead	% Active		% Dead		New	Old	
		%	%	Stem	Branch	Stem	Branch	%	%	%
1	110	70	0	0	4	2	3	7	5	9
2	98	72	5	5	0	1	6	1	5	5
3	98	51	26	5	0	3	5	5	5	5
Average		65	10	3	1	2	5	4	5	6

#### DECIDUOUS TREE PESTS

Large aspen tortrix, Choristoneura conflictana

Declining populations very lightly defoliated aspen stands south of Carmacks, where moderate to severe defoliation occurred over 6 400 ha in 1984. Defoliation was most common in patches between Km 90 and 147 along Highway 2. Populations remained low elsewhere, and historical trends suggest further population declines in 1986.

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