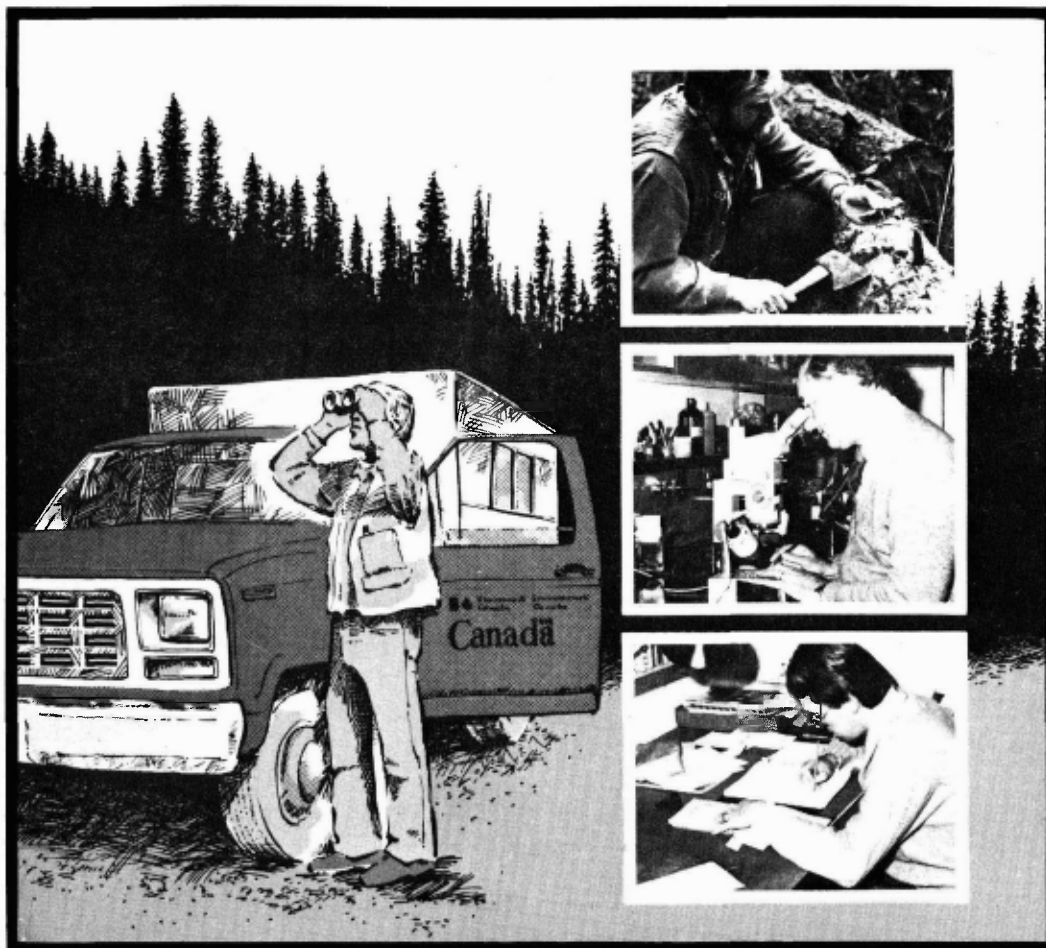


Forest Insect and Disease Conditions

Yukon Territory
1983

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SUMMARY

This report outlines the status of forest insect and disease conditions in the Yukon for 1983, and emphasizes pests capable of sudden damaging outbreaks. Pests are listed by host, in order of importance.

The number of spruce beetle-attacked mature white spruce declined to 25 in road construction areas near Teslin Lake and Johnson Crossing.

A brown cubical rot severely infected several 2 ha patches of white spruce, along Kluane Lake which resulted in campsite closures and tree removal.

A pine needle cast lightly infected 1982 needles of lodgepole pine throughout much of the Yukon.

Trace to light defoliation of trembling aspen by the large aspen tortrix was common in the southwestern area of the Territory. A leaf roller was common on trembling aspen throughout most of its range in the Yukon, but no significant damage occurred.

The 1983 field survey commenced on June 20 and was completed July 7. The survey consisted of monitoring pest populations at 50 permanent sample plots (Map), the examination of large aspen tortrix infestations, and a pheromone trap program to monitor the incidence of Fir-spruce budworm in the Yukon.

Two special surveys were conducted, one a 3.5 hr. helicopter flight in co-operation with Parks Canada at Kluane National Park, and the other an examination of the Robert Service Campground in co-operation with the City of Whitehorse.

Yukon Forest Service personnel were contacted at Whitehorse for a general overview of conditions in the Yukon and at Watson Lake and Haines Junction to discuss pest problems in their respective districts.

SPRUCE PESTS

Spruce beetle, Dendroctonus rufipennis

Partial current (1983) attacks by spruce beetle were recorded on 25 mature standing white spruce, damaged by road construction, ditching and flooding at several locations from Teslin Lake to Johnson Crossing. No new attacks were found at areas attacked in 1982 from Carmacks to Ross River, and in stands along the Frances-Hyland rivers. Populations which are expected to be on a two-year cycle could prove a threat to mature stands of adjacent white spruce in 1985.

Brown cubical rot, Coniophera puteana

The root and butt rot severely infected 30% of the mature white spruce in several 2 ha patches from Horseshoe Bay to Congdon Creek along Kluane Lake. Old and recent blowdown in these areas indicate well established pockets, which have caused significant tree mortality for several years. Campsite closure and tree removal was necessary.

Fir-Spruce Budworms, Choristoneura spp.

A survey to record the incidence of fir-spruce budworms throughout the Yukon using a pheromone trapping program, was completed in co-operation with research staff at PFRC (Table 1). Pheromone baited traps spaced 20 metres apart in a circle or straight line were set out at five locations, with ten traps per location. At each location 5 traps contained C. orae pheromone (acetate A) and 5 traps contained C. fumiferana pheromone (aldehyde B). A total of 239 C. orae were trapped, 82% at Haines Junction; a total of 1075 C. fumiferana were trapped, 81% at Watson Lake.

TABLE 1. Location of spruce budworm trap sites, total and average number of moths caught per species per trap site, larvae per 100 bud count and three-tree beating. Yukon Territory, 1983.

| Location | Number of Moths Caught | | Species | 100 Bud Count | Three-tree Beating |
|-----------------|---------------------------|------|----------------------|------------------|-----------------------|
| | Total | Avg. | | | |
| Dawson City | A 14 | 2.8 | <u>C. orae</u> | - | negative |
| | B 196 | 39.2 | <u>C. fumiferana</u> | - | |
| Beaver Creek | A 29 | 5.8 | <u>C. orae</u> | - | negative |
| | B - | - | <u>C. fumiferana</u> | - | |
| Haines Junction | A 196 | 39.2 | <u>C. orae</u> | - | negative |
| | B 6 | 1.2 | <u>C. fumiferana</u> | 3 | |
| Watson Lake | A 476 | 95.2 | <u>C. fumiferana</u> | 3 | negative |
| | B 397 | 79.4 | <u>C. fumiferana</u> | | |

The traps located at Watson Lake were left out longer than traps at other locations, which may account for the higher number of moths caught. Although defoliation did not occur at any of the five trap sites, based on the large number of moths caught at Watson Lake defoliation could occur there in 1984.

Blackheaded budworm, Acleris gloverana

Blackheaded budworm populations remained at endemic levels in fir-spruce stands throughout the Yukon. At Mush Lake and Bates Portage in Kluane Park, two larvae were collected in 100 buds on three trees. Defoliation is not expected in 1984.

CONE AND SEED INSECTS

White and black spruce cone samples were collected at five locations throughout the Territory to identify insect damage. Although the cone crop was extremely heavy, the incidence of attack was low. However, most of the cones were still immature at the time of sampling, and therefore, further damage was expected when they matured. The most common insect found was a seed worm, Cydia strobilella.

TABLE 2. Location, number of spruce cones examined, species of insect and number found per 20-cone collection, Yukon Territory, 1983.

| Location | Tree Species | No. of cones examined | Percent infected | Insect |
|--------------------------------------|--------------|-----------------------|------------------|------------------------------|
| Stewart Crossing | Ws | 20 | 5% | 1- <u>Hylemya anthracina</u> |
| Jakes Corner | Ws | 20 | 5% | 1- <u>Cydia strobilella</u> |
| Whitehorse (Wolf Creek Park) | Ws | 20 | 65% | 13- <u>Cydia strobilella</u> |
| Dawson | bS | 20 | - | negative |
| Haines Junction (Pine Creek Park) | wS | 20 | - | negative |

PINE PESTS

A pine needle cast, Lophodermella concolor

This needle cast lightly infected two-year old needles on lodgepole pine throughout the Territory. Infected areas were 5 ha or less with 1% of 1982 needles affected on 2-5% of the trees.

TREMBLING ASPEN PESTS

Large aspen tortrix, Choristoneura conflictana

The large aspen tortrix was present in small numbers throughout the southwest region of the Yukon. Light defoliation was noted on 4 ha west of Teslin, and on 3 to 5 ha patches southwest of Tagish towards Carcross. Trace defoliation occurred along the Aishihik River to the Snag Airport, at Haines Junction and south towards the B.C.-Alaska border along the Haines Road.

A leaf roller, Compsolechia niveopulvella

This leaf roller was common throughout the range of trembling aspen in the Yukon. Trace to light defoliation covered 2-10 ha areas from Km 1365 (Johnson Crossing), west to Haines Junction, north to Beaver Creek, east to Whitehorse and to the southeast to Watson Lake. Although this insect historically has caused similar levels of defoliation, no permanent damage has been recorded. Populations are expected to remain at similar levels in 1984.

Aspen leaf and shoot blight, Venturia sp.

Approximately 1% of the aspen were lightly infected in twelve 1-5 ha areas for 40 km along the South Carol Highway between Ross River and Quiet Lake. This was a decline from 1982.

Mechanical damage

An estimated 5% of the roadside aspen were killed along 5 km of the Klondike Highway, south of Carmacks. Tree mortality was attributed to ground disturbance from road construction equipment.

PESTS OF YOUNG STANDS

Four lodgepole pine plantations were examined at Lake Laberge, Tagish, Watson Lake, and Tarfu Lake Park to assess the incidence and extent of forest pests. At Lake Laberge there was light rodent damage to 10% of the stems over 1 ha. At Watson Lake western gall rust - Endocronartium harknessii, infected 2% of the trees examined. Tagish and Tarfu Lake Park were free of damage.

SPECIAL SURVEYS

Pest Assessment in Kluane National Park

At the request of the Park Warden, a 3.5 hour helicopter survey of the park was conducted to make recommendations concerning management for insect and disease prevention.

The park contains 518 000 ha of green belt, of which 259 000 ha is timbered. White spruce comprises 90% of the timber type; most of this is mature and overmature.

No significant problems that would affect development in the park at this time were recorded. Current insect and disease problems in the park included a small .5 ha patch of blackheaded budworm in spruce at Mush Lake - Bates Portage, and brown cubical rot - Coniophora puteana in mature spruce trees from Km 1724 Horseshoe Bay campsite, north to Congdon Creek campsite along Kluane Lake.

Spruce beetle, Dendroctonus rufipennis, currently at very low levels in the park could potentially be a major problem in overmature white spruce stands particularly in the southern part of the park, where outbreaks occurred in the 1940's. Recommendations for prevention of spruce beetle buildup includes immediate removal of spruce at time of falling or in the event of blowdown. Areas of park development will be monitored periodically.

Robert Service Campground - City of Whitehorse

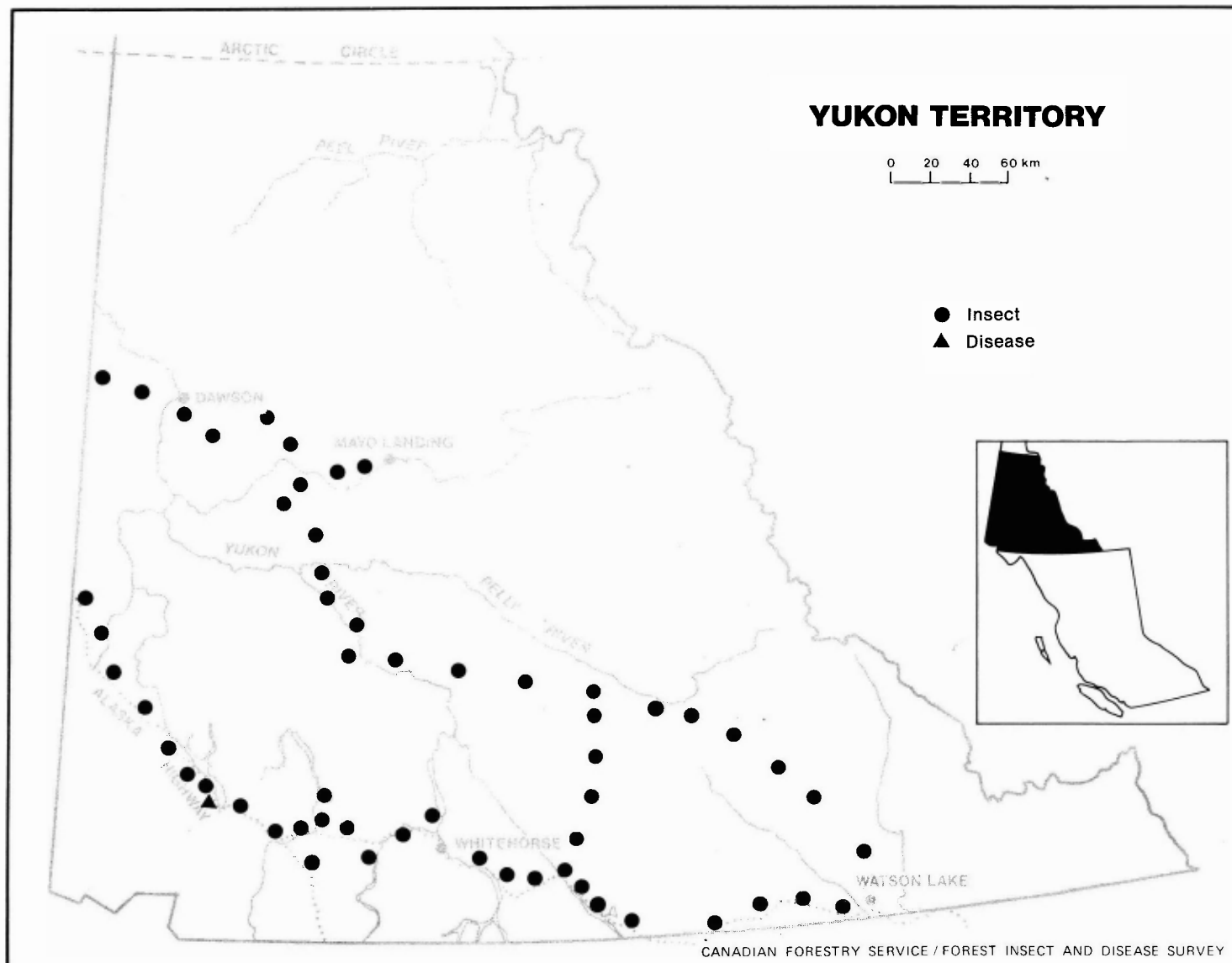
In response to a request by the Recreation Director of the City of Whitehorse, an inspection of the campground was completed to evaluate and make recommendations for the following concerns:

- 1) damage to trees from calcium chloride applications
- 2) damage to trees from root compaction
- 3) damage to spruce trees from a variety of rusts (Chrysomyxa arctostaphyli, C. ledicola).

Damage by calcium chloride was confined to a section of the campground which borders the main road into Whitehorse; trees were affected along a 2-3 band adjacent to the road. Damage from compaction was due to the eradication of low water holding areas in the park. The spruce broom rust, Chrysomyxa arctostaphyli, was common throughout the park with 15% of the trees having two or more brooms. Labrador tea rust, C. ledicola, infected 2% of the branches on 5% of the trees.

Recommendations:

- 1) reduce applications of calcium chloride
- 2) prevent land fills around base of trees and remove dying trees already affected by root compaction.
- 3) if economically feasible, remove brooms, alternate host Arctostaphylos spp. (Bear Berry) of C. arctostaphylli, and the alternate host Ledum decumbens (Labrador tea) of C. ledicola.



Locations where one or more forest insect or disease samples were collected, 1983

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