



PEST REPORT

Pacific and Yukon Region • Pacific Forestry Centre • 506 West Burnside Road • Victoria, B.C. • V8Z 1M5

Pest Report 91-14

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SUMMARY OF FOREST PEST CONDITIONS YUKON TERRITORY, 1991

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This summary is a brief report of some important forest insect and disease conditions in the Yukon Territory in 1991. A more detailed report on these and other pests is currently in progress and will be available soon.

SPRUCE PESTS

Eastern spruce budworm, Choristoneura fumiferana

Aerial surveys conducted to map budworm defoliation of white spruce in the Liard and Fort Nelson river drainages in the northern Fort Nelson Forest District, found damage to be considerably reduced this year. Though no aerial surveys were conducted in the La Biche River Valley in the extreme southeast corner of the Yukon, populations have historically risen and fallen in synchrony with those in the Liard.

Defoliation by spruce budworm can cause growth loss and repeated severe defoliation can cause branch mortality and top-kill.

PINE PESTS

A pine needle cast, Lophodermella concolor

An average of 80% of the 1990 foliage was killed on 90% of the understory lodgepole pine, 5 km east of Watson Lake along the Alcan Highway. Overstory trees were only lightly infected. Localized infections of Hendersonia pinicola in association with L. concolor killed an average of 20% of the 1990 needles (up to 90%) in understory fringe trees, 10 km north of Watson Lake along the Robert Campbell Highway. On some trees, repeated infections had resulted in "lions tails", with only the current foliage remaining on the branch tips.

Severe repeated infections can result in a considerable loss of growth potential.

Lodgepole pine terminal weevil, Pissodes terminalis

A single killed leader containing weevil larvae was found in a young lodgepole pine stand north of Watson Lake. This is the northern most distribution record for this insect and is only the second time, (the first was in 1990), that the insect has been found in the Yukon.

Weevils attack developing terminals, killing them down to the first branch whorl. High incidences and repeated attacks over time can result in significant growth loss, but damage on this scale is not anticipated in the Yukon.

LARCH PESTS

Larch sawfly, Pristiphora erichsonii

Larch sawfly populations remained low after declining significantly in 1990. Early season examinations were conducted in late June to determine the frequency of oviposition (adult egg laying) in elongating lateral shoots. In stands along Hwy. 37 near the B.C. - Yukon border, an average of 2% of the shoots of all understory trees were crooked due to oviposition. In stands along the Robert Campbell Hwy. north of Watson Lake, only small numbers of branches were attacked on between 1 and 10% of the trees.

Larvae that hatch from a single oviposition site can defoliate one or more branches before reaching maturity, and even such a low frequency of oviposition as seen in the border stands can result in trace-to-light defoliation on immature and understory trees. Severe defoliation can result in significant loss of growth potential. No noticeable damage was expected in stands north of Watson Lake. Historical fluctuation patterns suggest that populations will remain low in 1992.

MULTIPLE HOST PESTS

Winter Damage

Winter cold and wind desiccation are two of the most common and recurrent agents of damage in Yukon forests. The damage has been expressed in many ways, from needle discoloration to top and branch dieback and full tree mortality.

For at least five years white spruce decline has been an evident and expanding problem in a number of locations within the Territory. All age class spruce along Little Atlin Lake, stretching south into B.C. were in varying stages of decline, with some scattered mortality comprising less than 1% of the trees. Identical symptoms were intermittently evident in roadside spruce along the Alcan Highway from Burwash Landing to Beaver Creek and along the Klondike Highway from north of Stewart Crossing to Carmacks. The decline is slow and progressive with the browning and shedding of needles beginning in the upper crowns and branch tips. Samples sent to Pacific Forestry Centre for analysis revealed no signs of

any insect or disease activity and damage is thought to be a result of combined drought and winter climatic stress.

Physical damage to foliage resulting from winter cold was common and widespread throughout the Yukon. The most severe damage, most likely caused by cold desiccating winds, reddened the entire crowns of over 500 young lodgepole pine in 10 or more small patches on high rocky outcrops above the east side of Little Atlin Lake. The trees are not expected to recover. Winter drying caused the discoloration of about 5% of the needles of the larger lodgepole pine in a young plantation in the Takhini Forest Reserve. The damage had been caused by a southerly wind since only needles on the south side of the trees were affected.

"Winter flecking" damage discolored an average of 40% (range 10-80%) of the older needles on lodgepole pine for 5 km centered at km 1367 of the Alcan Highway. The damage is thought to be connected with reflected light through frozen water droplets on the needles, but no direct cause-effect relationship has yet been determined.

An average of 20% (range 0 - 100%) of the 1990 needles on 20% of the alpine fir were winter killed in a localized stand along the Canol Road, 20 km north of Johnsons Crossing.

Late spring frosts killed an average of 10% of the newly flushed foliage on eastern larch along the Campbell Highway, 20 km north of Watson Lake.

MAMMAL DAMAGE

In addition to climatic damage, prevalent and damaging forest pests in the Yukon include small mammals such as the snowshoe hare, squirrels and voles.

Snowshoe hares girdled 300-plus roadside sapling-sized lodgepole pine along the Canol Road just north of Johnsons Crossing and along adjacent stretches of the Alcan Highway, while in a few localized areas, up to 80% of the trees were killed. Scattered mortality of pine also occurred in a large uniform young stand along the Klondike Highway. Damage to trees also occurred within and adjacent to an experimental lodgepole pine trial in the Takhini Forest Reserve, and up to 30% of young aspen were girdled in a stand just south of Stewart Crossing and at Fox Lake.

Lodgepole pine branch tip damage characteristic of that caused by **squirrels** was seen in young stands near Lake Laberge and between Swift River and Watson Lake, wherever young pine predominated. The reddened branch tips resulted from immature cones being stripped from near the ends of branches by the squirrels, virtually girdling them. The damage was highly visible early in the season, especially in stands near Swift River where 10 or more branch tips were killed on some trees and up to 50% of the trees supported damage.

Vole damage was minimal due to a recent collapse in the population but characteristic shallow tendrils were seen associated with light feeding

to lodgepole pine regeneration near km 1367 of the Alcan Highway. Populations are cyclic and are expected to remain low for the next few years.

SPECIAL DIRECTED SURVEY

Joint Canada-Sweden lodgepole pine trial

Pest conditions in the five-year-old lodgepole pine trials in the Takhini Forest Reserve were evaluated by the Forest Insect and Disease Survey during the annual Yukon survey.

Survival in the replicates of lodgepole pine was very uniform in the interior of the plantation with an average of 6% mortality (range 5-9%), most of which occurred in the first few years due to planting shock and winter cold. Around the perimeter, however, particularly the western edge, trees have been repeatedly damaged by snowshoe hare feeding. The stems of up to 60% of trees had been clipped, and, as though the trees remained alive, in many instances, only the bottom whorl of branches remained.

In the four replicates of Siberian larch, an average of 22% of the trees had died (range 9-33%), due primarily to harsh climatic factors. The size and vigour of the trees has been severely limited by hare feeding damage. After five growing seasons, the average height of the surviving larch seedlings was only 10 cm.

This is the most northerly of five similar experimental plantations established in the Pacific and Yukon Region in cooperation with Svenska Cellulose, a Swedish forest company. Lodgepole pine in the plots were grown from seed produced in Swedish seed orchards. The parent trees had been grown from seed which originated from various northern B.C. provenances. The purpose of the trials is to determine how the trees, one generation removed from their native environment, respond when reintroduced. Pest conditions at the plot will be re-assessed in 1992.

DECIDUOUS TREE PESTS

Large aspen tortrix, Choristoneura conflictana

Large aspen tortrix populations continued at moderately high levels, causing mostly light defoliation of trembling aspen over a broad area. However, there was a significant decline of visible defoliation in and around the City of Whitehorse. Current feeding damage occurred in patches from Teslin as far west as the Takhanne River crossing along the Haines Road. Severe defoliation was limited to two separate patches totaling about 30 ha just east of Tagish along Highway 8, and a 10-ha patch along the Alcan Highway adjacent to Marsh Lake. Primarily light defoliation with some patches of moderate occurred between Carcross and Tagish, along the Alcan Highway between Jakes Corner and Whitehorse and north of the city from the Takhini River crossing to beyond Fox Lake. Smaller patches of light defoliation occurred farther west near Champagne, Aishihik, Haines Junction, and from Dezadeash Lake south to the B.C. border.

Up to 10% of the rolled leaves examined at Takhini contained only larval head capsules, which is indicative of predation. An additional 5% of the larvae supported the egg masses of a parasite, probably Diptera sp.

Other insects were found associated with the tortrix infestation, and some contributed in a minor way to the damage to the aspen foliage. These included the leaf skeletonizer, Chrysomela falsa, a leaf miner, Phyllocnistis populiella, and a small leaf roller, Phyllocolpa sp., and Eriophyes sp., bladder gall mites. Also common were sucking insects such as small green aphids and leafhoppers.

Defoliation is expected to continue in 1992. Additional defoliation may cause growth loss and may kill branches or with repeated severe defoliation, kill trees or tops.

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