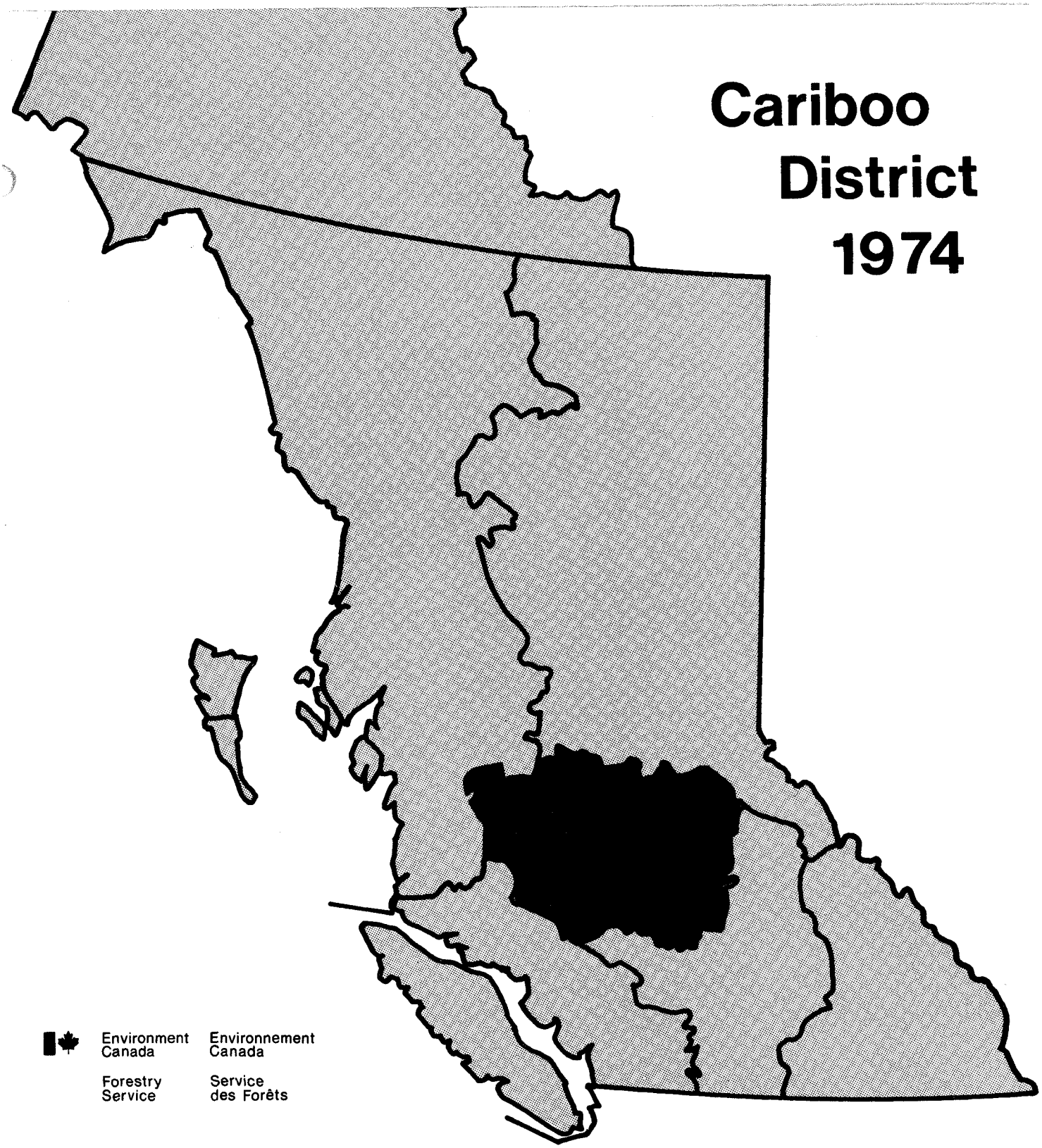
Cariboo District 1974



Environment Canada / Environnement Canada

Forestry Service / Service des Forêts

Forest Insect & Disease Conditions

CARIBOO DISTRICT

(summer address)

P. O. Box 4354
Williams Lake
B. C.

Phone: 392-6708

IMPORTANT NOTICE

Pests and damage at low levels and of minor consequence are not mentioned herein, but the data on these and additional details on the important pests are recorded and preserved in the form of File Reports. Such reports and those relative to other districts in the Pacific Region are available on request by contacting:

CANADIAN FORESTRY SERVICE

PACIFIC FOREST RESEARCH CENTRE

506 WEST BURNSIDE ROAD

VICTORIA, B. C.

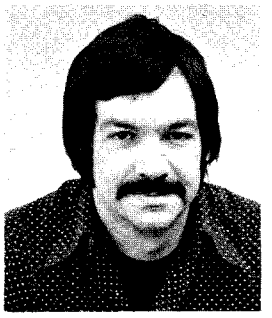
V8Z 1M5

Phone 388-3811

FOREST INSECT AND DISEASE CONDITIONS 1974

CARIBOO DISTRICT

by



Don Doidge
Survey Ranger

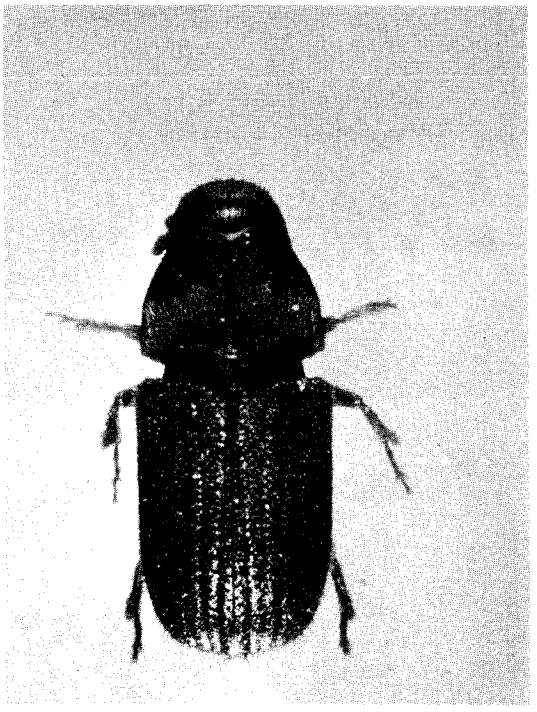
CONTENTS

INTRODUCTION

Spring in the Cariboo District was cold and wet, the summer warm and dry, and the fall had above normal temperatures. Douglas-fir and mountain pine beetles and spruce budworm were the most important insects. Red-topped Douglas-fir trees, killed by the Douglas-fir beetle, quadrupled along the Fraser River and near Williams Lake. Lodgepole pine trees were killed by the mountain pine beetle in the Cariboo Lake and Klinaklini River areas. Two-year-cycle spruce budworm defoliated 100,000 acres (40,000 ha) of alpine fir and spruce in the interior wetbelt portion of the District.

Winter drying affected 40,000 acres (16,000 ha) of lodgepole pine, cedar and spruce throughout the District. A needle cast moderately infected ponderosa pine near Clinton. Mistletoe and stem rusts were the most noticeable perennial diseases of lodgepole pine.

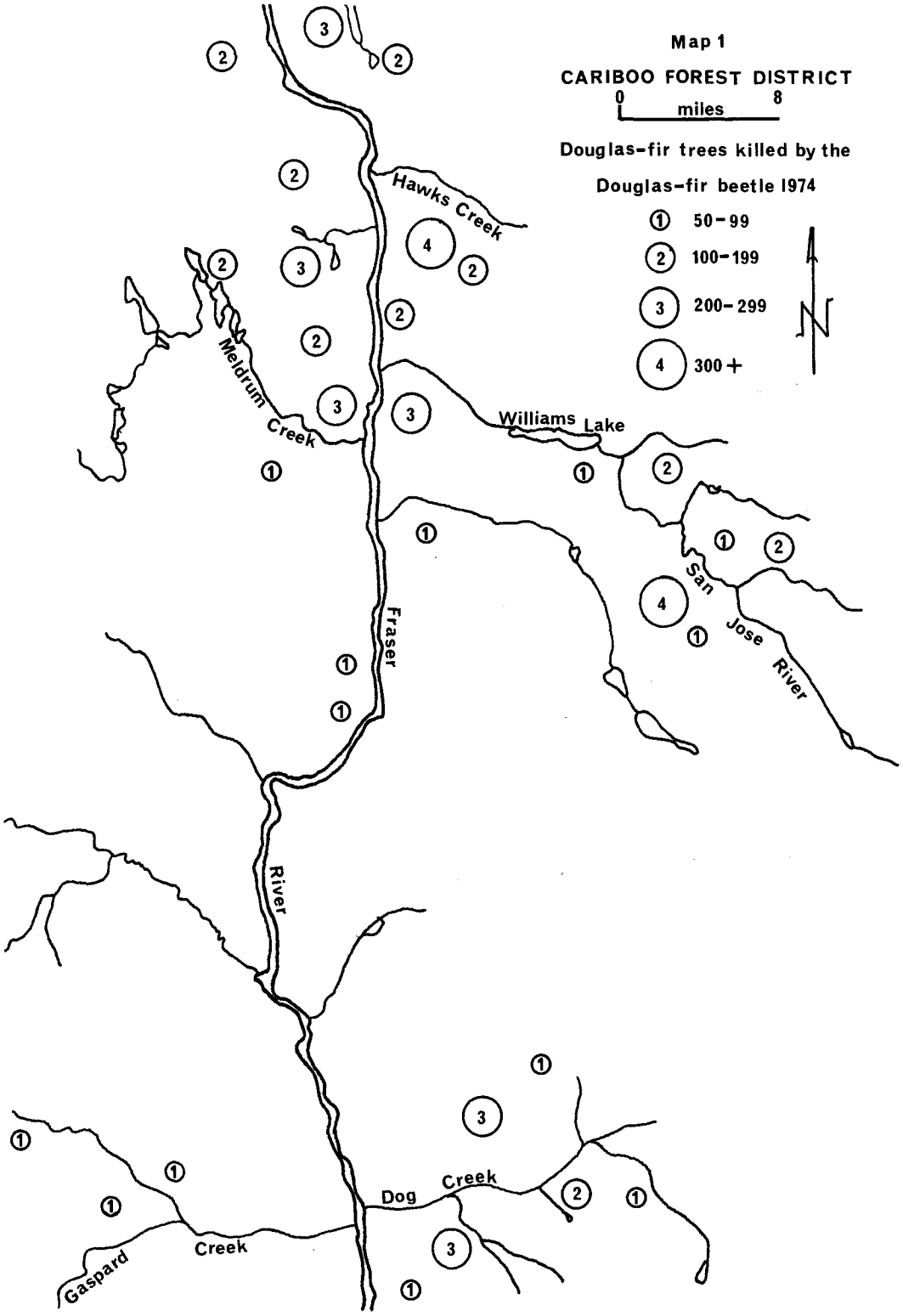
Aerial survey time was provided by the British Columbia Forest Service, including a helicopter reconnaissance of the mountain pine beetle infestation along the Klinaklini River.

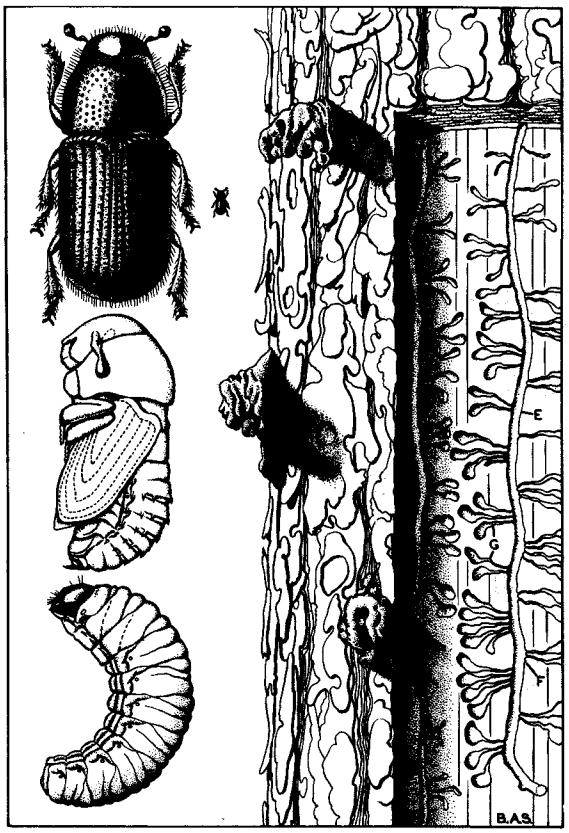


BEETLE-KILLED DOUGLAS-FIR QUADRUPLED

The numbers of red-topped Douglas-fir trees increased sharply for the fourth consecutive year. There were 7,500 dead Douglas-fir in 1974, compared with 1,700 in 1973, more than a fourfold increase. The hot, dry summer of 1973 probably weakened the Douglas-fir to some extent, causing them to be more susceptible to the increasing populations of the beetle. The main concentrations of dead trees were: Dog Creek area (830), San Jose River - Knife Creek area southeast of Williams Lake (825), Buckskin Lake and Creek (720), Meldrum Creek to the Fraser River (670), Hawks Creek Valley (680), Gaspard Creek (310), Williams Lake River (275), McLeese Lake (250), Gulatch Creek (200), Chimney Lake (200), Fraser River across from Buckskin Creek (200), Yorston Lake (200), Duckworth Creek (200), Alexis Creek (200). Additional patches of from 20-150 red-tops were scattered throughout the District (Map 1).

Greater populations of bark beetles are predicted for 1975, although severe cold temperatures combined with light snow cover could reduce the population.


Map 1
CARIBOO FOREST DISTRICT
0 miles 8
Douglas-fir trees killed by the
Douglas-fir beetle 1974
1 50-99
2 100-199
3 200-299
4 300+
N
Hawks Creek
Meldrum Creek
Williams Lake
San Jose River
Fraser River
Dog Creek
Gaspard Creek



MOUNTAIN PINE BEETLES

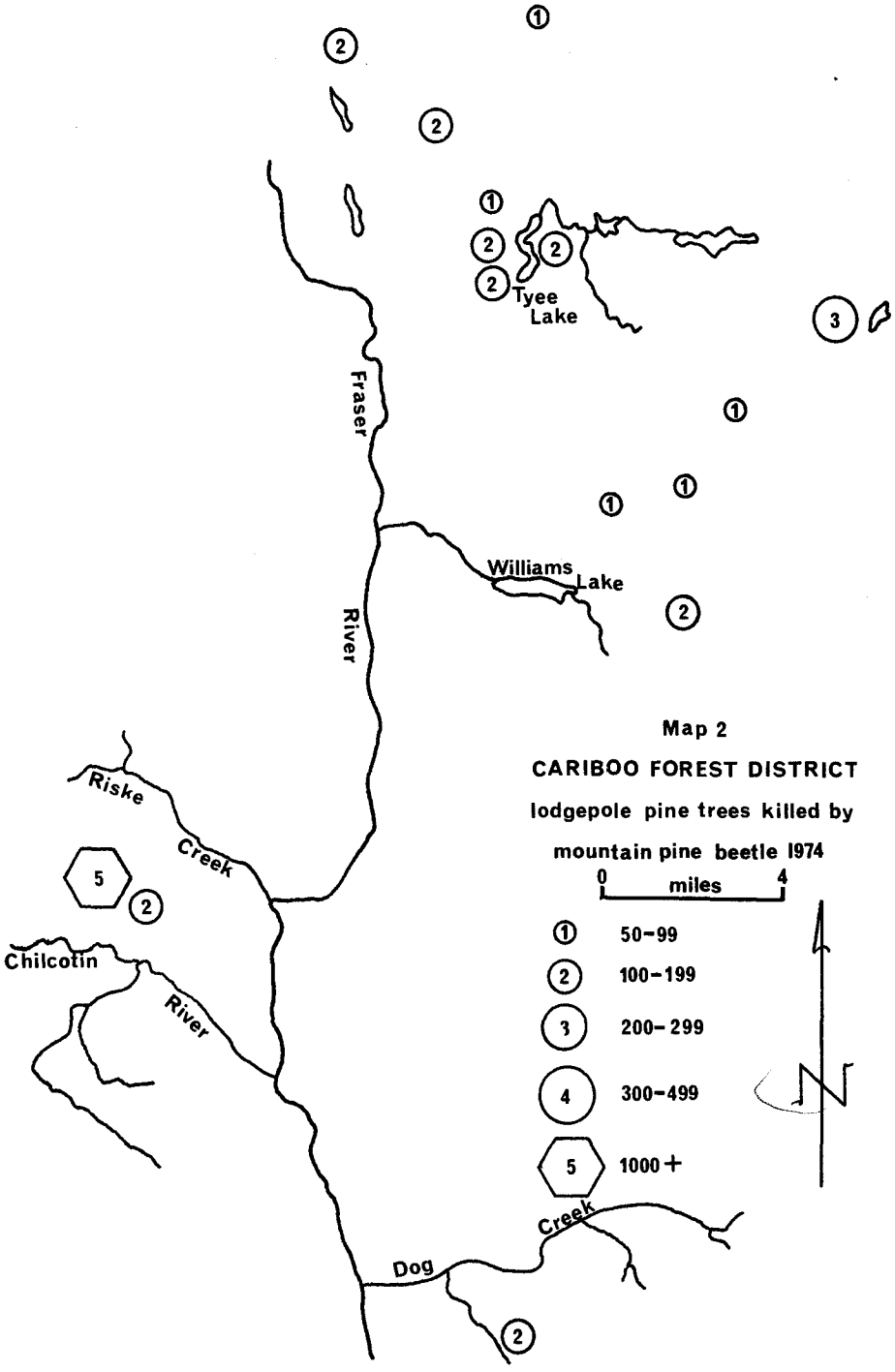
INCREASE

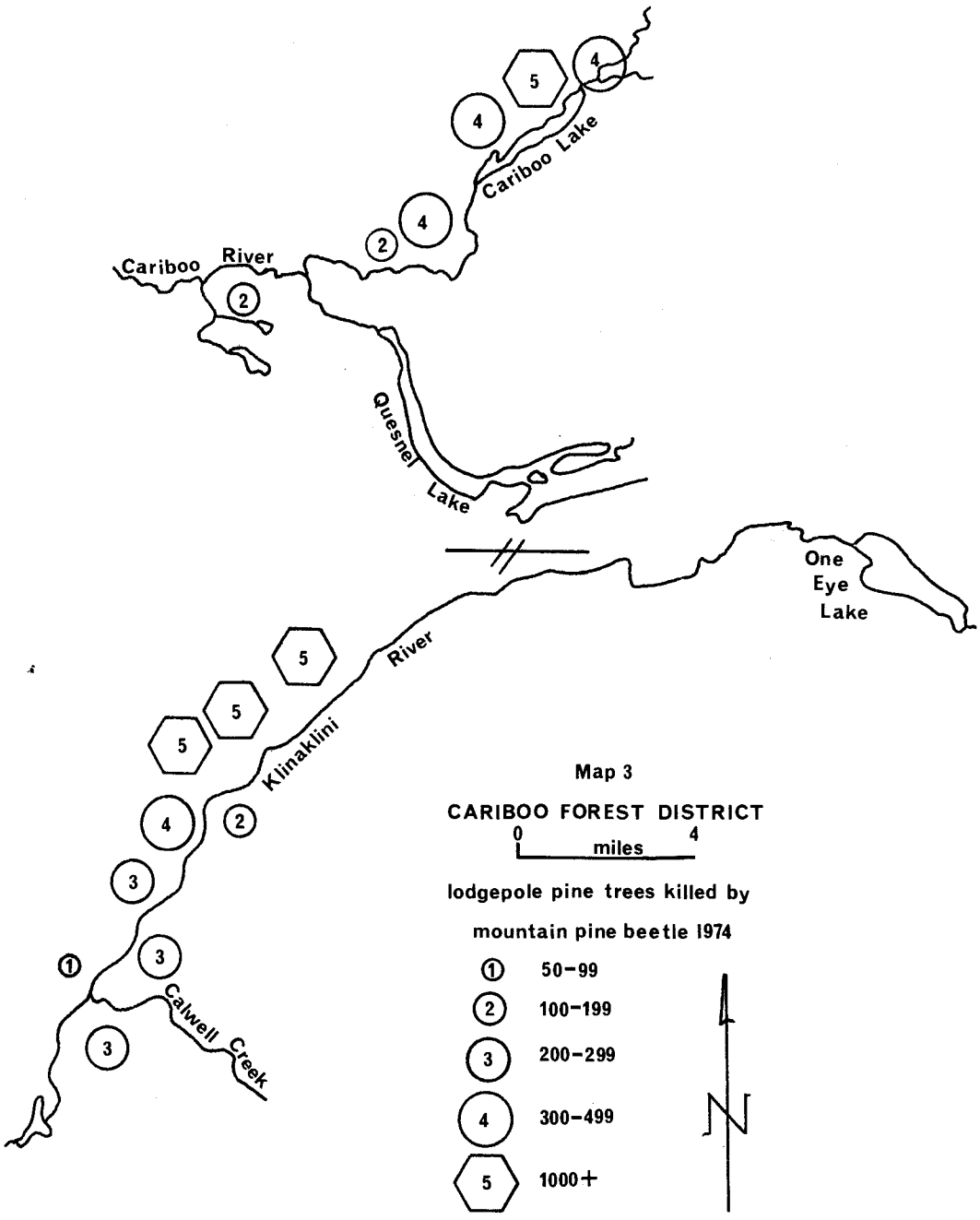
The number of lodgepole pine killed by the mountain pine beetle increased in the District in 1974. Aerial surveys in August revealed 9,700 red-topped pines (Maps 2 and 3). Cariboo Lake and Klinaklini River are chronic beetle areas, but the infestation at Bald Mountain southwest of Riske Creek is new. Areas of red-tops were: Klinaklini River (3,650), Cariboo River - north end of Cariboo Lake (1,500), Bald Mountain (1,150), Cariboo Lake - Ditch Creek (700), Tyee Lake (700), Little River mouth (400), Beaveridge Lake (250), Little Lake (200), and Tinmusket Creek (200). Additional patches of from 70-150 red-tops were scattered throughout the District.

A further increase is expected in 1975, particularly since there were large areas of winter-damaged lodgepole pine in 1973-74. This damaged pine may provide attractive host material for the beetle.

Guidance to the management of pine stands may be obtained from a Technical Report (Safranyik et al.)[1/] available from the Pacific Forest Research Centre.

[1/] Safranyik, L., Shrimpton, D.M., and Whitney, H.S. 1974. Management of lodgepole pine to reduce losses from the mountain pine beetle.


Tyee Lake
Fraser River
Williams Lake
Riske Creek
Chilcotin River
Dog Creek
Map 2
CARIBOO FOREST DISTRICT
lodgepole pine trees killed by
mountain pine beetle 1974
0 miles 4
1 50-99
2 100-199
3 200-299
4 300-499
5 1000+


Cariboo River
Cariboo Lake
Quesnel Lake
One Eye Lake
Klinaklini River
Calwell Creek
Map 3
CARIBOO FOREST DISTRICT
0 miles 4
lodgepole pine trees killed by mountain pine beetle 1974
1 50-99
2 100-199
3 200-299
4 300-499
5 1000+
N

WESTERN BALSAM BARK BEETLE EXPANDS

Alpine fir in high elevation stands has frequently been attacked by the western balsam bark beetle. In 1974, 1,100 dead trees were counted during aerial surveys, specifically at: Moffat Lakes (500), Sovereign Creek (400) and Buster Lake (200). Since this bark beetle kills trees in association with a fungus, a light beetle attack can cause tree mortality. The fungus causes lesions which destroy the cambium.

A further increase in population is expected in 1975. In the winter of 1973-74, large areas of high elevation timber suffered winter damage, which may cause the alpine fir to be more susceptible to attack by an increasing beetle population.

TWO-YEAR-CYCLE SPRUCE BUDWORM EXPANDS

This species, unlike the western spruce budworm, has a two-year life cycle, with the result that during an outbreak the heaviest defoliation may be expected every second year. For this reason, the species is seldom as damaging, but complete defoliation and mortality of regeneration is common.

For the past decade, populations have been at very low levels, but during 1973, rising numbers were observed at Hendrix Lake, which signified the current outbreak. During 1974, defoliation of alpine fir, Engelmann and white spruce occurred on over 100,000 acres (40,000 ha), of which 13,000 acres (4,500 ha) were considered moderately defoliated (Table 1). Principal areas affected were: Hendrix - Bosk - Gotchen - McNeil lakes, 21,000 acres (8,500 ha); MacKay - Horsefly rivers, 32,000 acres (13,000 ha); Little River, 8,000 acres (3,200 ha); Cunningham Creek, 15,200 acres (6,000 ha), and Bowron Lake circle, 24,000 acres (9,700 ha) (Maps 4, 5 and 6).

Understory trees at Little River, up to 10 feet in height, were 80-100% defoliated in scattered patches. In early July, alpine fir at Spectacle Lake up to two feet high were 100% defoliated; trees 10-20 feet, 50%, and the overstory, consisting of white spruce and alpine fir, had 100% current and 20% total defoliation. At Hendrix Creek, there was 100% defoliation of new growth and approximately 15-30% of the total foliage, with some top-stripping of Engelmann spruce and alpine fir.

Traps baited with a sex attractant were set out near Umiti Creek, Wells, Barkerville and Hendrix Creek to attract adult male budworm. The traps were successful in attracting male moths, even in areas of light populations, indicating heavier populations than shown by larval collections.

Egg samples, taken in September from five areas, indicated that infestations will continue at Spectacle Lake, Hendrix Lake, Horsefly River, Little River and Barkerville.

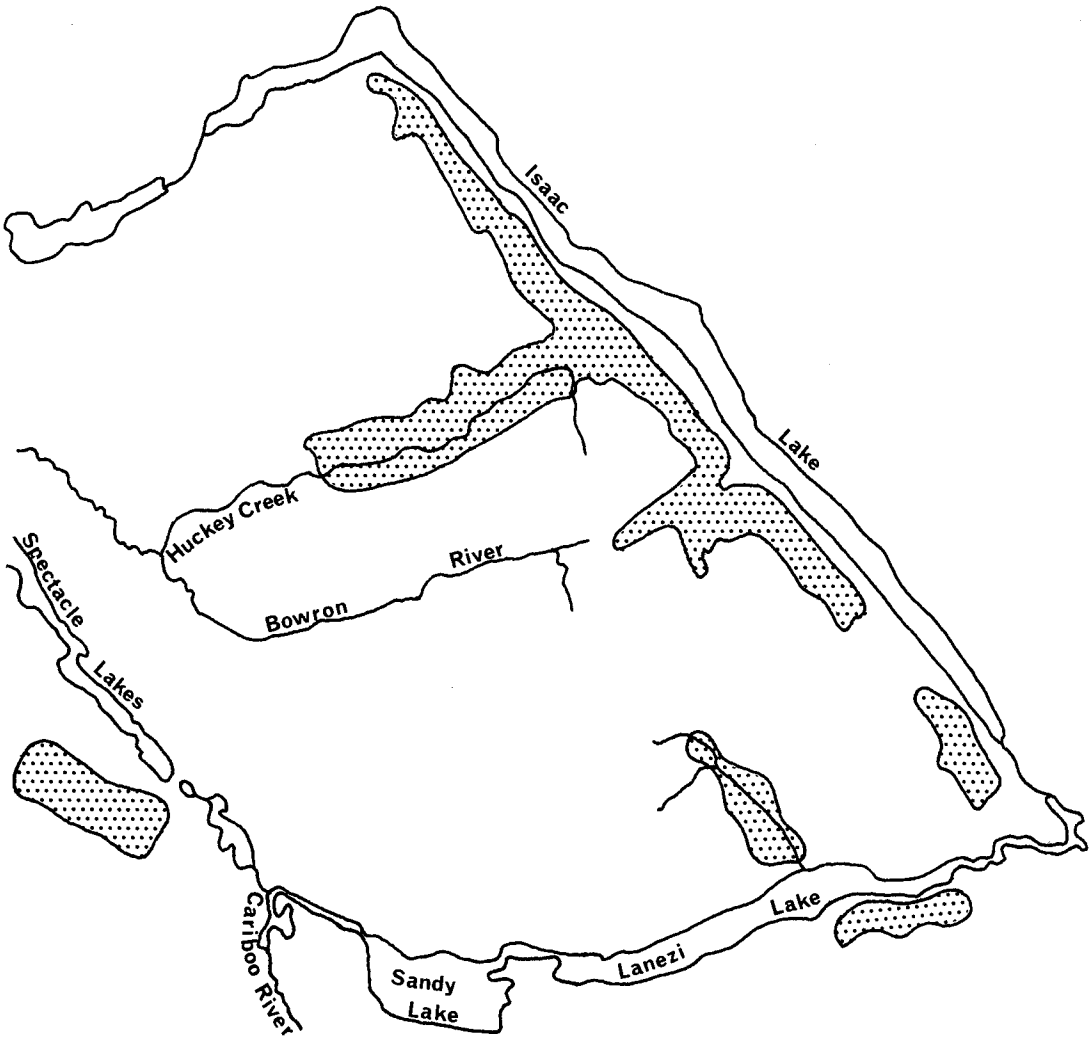
Table 1. Areas of alpine fir, Engelmann and white spruce defoliated by two-year-cycle spruce budworm, Cariboo District, 1974

Location	Areas of defoliation by intensity (acres)	
	Light	Moderate
Hendrix Cr	3,200	1,800
Hendrix L	2,000	1,900
Bosk L	600	0
Gotchen L	0	4,500
McNeil L	4,600	2,300
MacKay R	29,200	0
Horsefly R	1,300	1,600
Little R	8,000	0
Cunningham Cr	14,200	1,000
Spectacle L	2,900	0
Turner Cr	1,900	0
Lanezi L	1,400	0
S. end Isaac L	1,500	0
S.W. side Isaac L and Huckey Cr	16,300	0
Totals (acres)	87,100	13,100
" (ha)	35,260	5,300
Grand total (acres)	100,200	
" " (ha)	40,567	

Trap baited with budworm sex attractant

In consideration of the two-year life cycle, defoliation in 1975 is likely to be light, as larvae will be only half grown before hibernation. Larvae will mature in 1976 and predictions are for severe defoliation and subsequent higher populations.

Moths entangled on sticky inner surface of trap



Map 4

CARIBOO FOREST DISTRICT

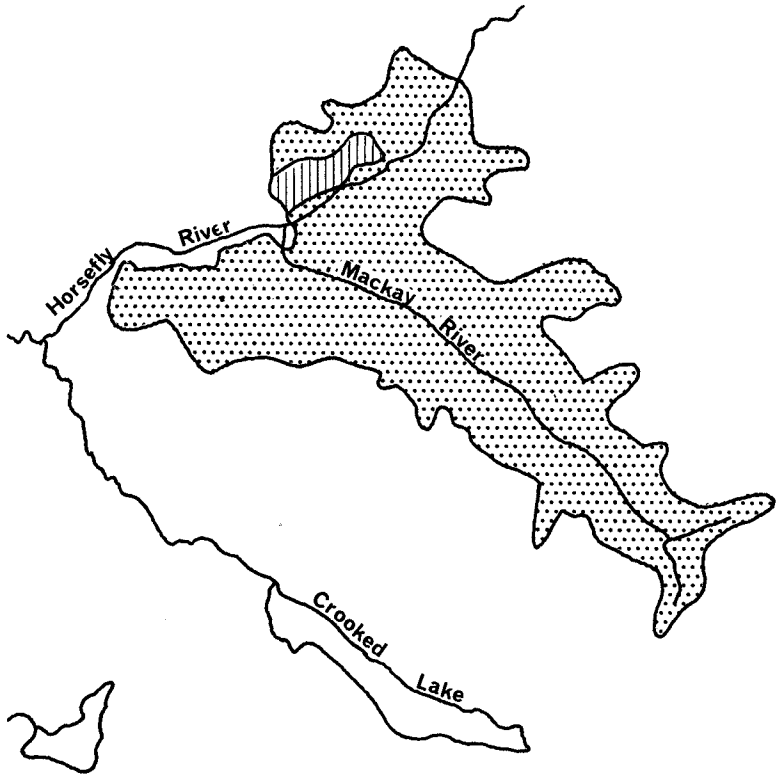
0 miles 4

spruce budworm infestations

1974

light

moderate



Map 5

CARIBOO FOREST DISTRICT

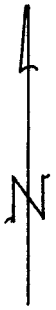
0 miles 4

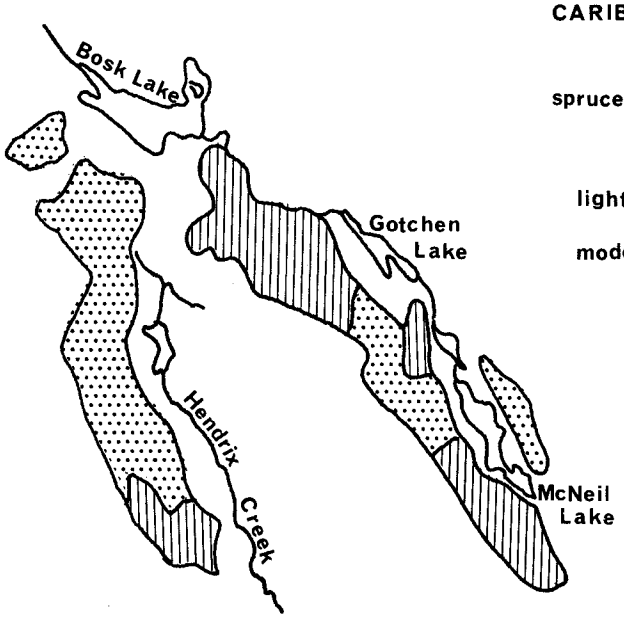
spruce budworm infestations

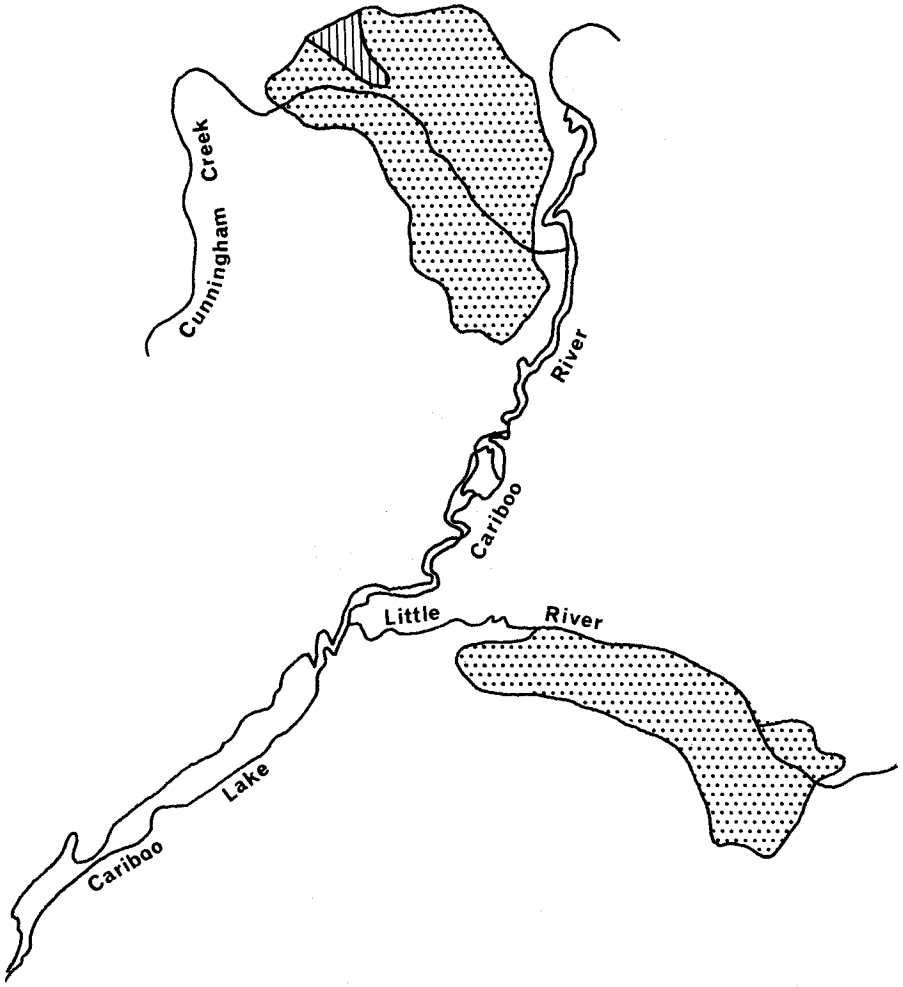
1974

light

moderate







Map 6

CARIBOO FOREST DISTRICT

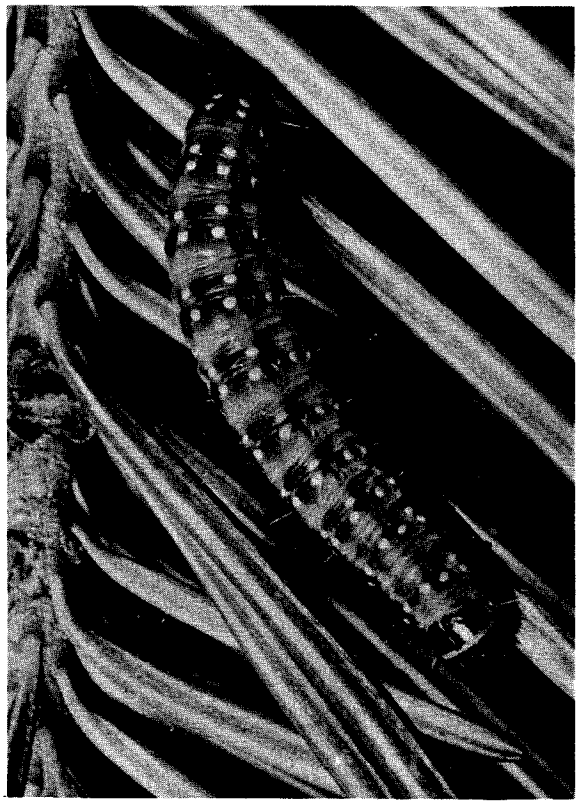
0 miles 4

spruce budworm infestations

light

moderate

N



WESTERN SPRUCE BUDWORM lightly defoliated Douglas-fir at Kelly Lake near Clinton. This was the only area where damage was noticeable, even though 40% of the collections contained one or more larvae. As in 1973, traps baited with a sex attractant were set out near Stuie on the western border of Tweedsmuir Park and were successful in attracting adult male moths, even though the population was light.

A continuing light population is predicted for 1975.

FOREST TENT CATERPILLAR infestations collapsed, with only 3,300 acres (1,300 ha) of trembling aspen defoliated, compared with 175,000 acres (70,000 ha) in 1973. In 1973, the defoliation was in two main areas, along the Fraser River centered around Quesnel, and along the Horsefly River. Defoliation in 1974 was in scattered patches along the Fraser River from Macalister to Cottonwood Canyon north of Quesnel. The population was light at Horsefly River. Specific areas of defoliated trembling aspen were: Charleson Creek, 1,300 acres (500 ha); Cottonwood Canyon, 1,100 acres (450 ha); Hill Lake, 500 acres (200 ha); Dragon Mountain, 300 acres (130 ha), and Macalister, 100 acres (40 ha).

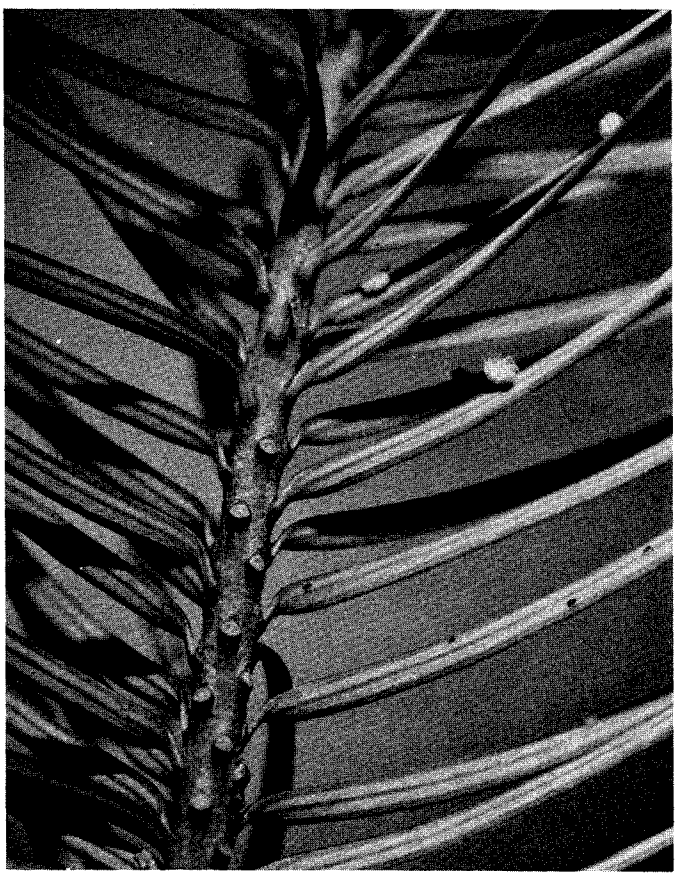
High populations forecast for 1974 failed to materialize because a nuclear polyhedral virus infected the larvae, contributing to the population collapse.

Egg sampling in 1974 indicated that populations will be light in 1975, although there will probably still be scattered patches of moderate defoliation of trembling aspen on the periphery of the present infestations.

CONIFER SAWFLIES caused light tip defoliation of Engelmann spruce trees at Ruth, Buffalo, Hawkins and Timothy lakes. Throughout the District, this insect was the most common in the beating collections.

No increase is expected in 1975.

GREEN ROSE CHAFERS caused 20-40% defoliation of the current growth of lodgepole pine on about 200 acres (80 ha) in a 10-year-old burn near Horn Lake, south of Tatla Lake. No permanent damage is expected.

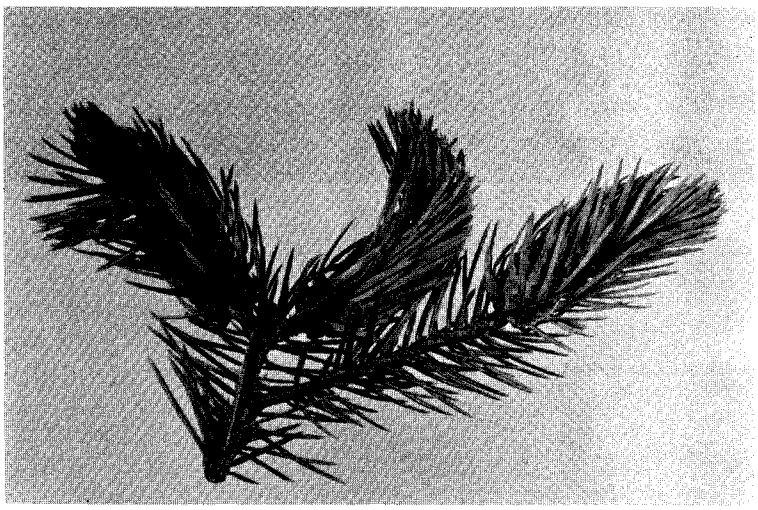


COOLEY SPRUCE GALL APHID

HEAVY ON

DOUGLAS-FIR

Cooley spruce gall aphid, a sucking insect, attacks Douglas-fir and spruce. As this insect is a pest of Douglas-fir Christmas trees, five permanent study plots were established in the District to monitor the population. All the plots supported a heavy population; an average of 80% of the needles examined were infested by aphids. There were heavy populations of the aphid on mature Douglas-fir near Williams, Horn and Chilko lakes. No permanent damage is expected at the plots, or on the mature trees. No serious damage was noted on spruce in 1974.



WINTER DRYING WIDESPREAD

In 1974, 40,000 acres (16,000 ha) of lodgepole pine, western red cedar and some white spruce suffered winter drying. The largest single area of damage was 10,000 acres (4,000 ha) along the east side of the Marble Range near Clinton. Other general areas affected were: 8,200 acres (3,300 ha) of lodgepole pine and cedar around the Bowron Lake circle; 4,500 acres (1,800 ha) of lodgepole pine and cedar along the Klinaklini River; 4,500 acres (1,800 ha) of lodgepole pine in the Chilcotin; 4,200 acres (1,700 ha) of lodgepole pine, cedar and white spruce near Cariboo Lake; 4,200 acres (1,700 ha) of lodgepole pine in the Quesnel area; 2,200 acres (900 ha) of lodgepole pine near Horsefly; 1,500 acres (600 ha) of lodgepole pine, cedar and white spruce near Wells-Barkerville and 1,200 acres (500 ha) of lodgepole pine near Loon Lake.

Normally, trees affected by winter drying don't suffer permanent damage; however, in the past, some areas in the District have been hit two years in a row and lodgepole pine have died as a result.

The accessible areas will be checked in 1975 to determine if damaged trees have been attacked by bark beetles.

STALACTIFORM RUST COMMON

This rust was prevalent on one- to three-foot lodgepole pine along roadsides and in burns in the Cariboo and Chilcotin. At present, infection centers are small and scattered through the District. Along the Likely road, 25% of the pine were infected; at Bluff Lake 40%, Chilko Lake 30%, and at Tatlayoko Lake 20%. Stalactiform rusts cause branch and tree mortality by girdling. The disease is perennial and will continue until the host is dead.

WESTERN GALL RUST INFECTS SMALL PINES

This gall rust is a perennial problem of lodgepole pine. No specific survey was conducted in 1974; however, in one area along the Hendrix Lake Forest Development Road, 30% of the pines one- to three-feet high were infected. This is a short cycle rust, therefore it does not need an alternate host and can infect from pine to pine. Pines may be killed by girdling, but usually the result of the infection is deformity of the tree by the rust galls.

ELYTRODERMA DISEASE OF PINES was moderate on ponderosa pine at the permanent study plot at Clinton. It was not observed on lodgepole pine in 1974. No increase in damage is expected.

CURRENT STATUS OF FOREST PESTS IN PACIFIC REGION

PEST	DISTRICTS		
	PRINCE RUPERT	PRINCE GEORGE	VANCOUVER
MOUNTAIN PINE BEETLE	epidemic, Houston, Hazelton, Kitwanga	light populations	Klinaklini R, Anderson L and Fraser R
SPRUCE BEETLE	small infestation along Cranberry R	trace at Bowron R and Wendle Cr	not found
DOUGLAS-FIR BEETLE	not found	light at Bear L	scattered light patches on Vancouver Island
WESTERN BLACK-HEADED BUDWORM	epidemic, increased in most areas	moderate increase at Pine Pass and McLeod L	collapsed
SPRUCE BUDWORM, ONE-YEAR-CYCLE	trace at Kitimat	epidemic in Liard R area	epidemic in Lillooet and Fraser valleys
SPRUCE BUDWORM, TWO-YEAR-CYCLE	light populations near Bell-Irving R	light populations	not found
DOUGLAS-FIR TUSSOCK MOTH	not found	not found	not found
WESTERN HEMLOCK LOOPER	light in coastal stands	light, decreased	light populations
FALSE HEMLOCK LOOPER	not found	not found	not found
BLACK ARMY CUTWORM	populations in Interior decreased	localized outbreaks	not found
FOREST TENT CATERPILLAR	common near Kitimat	epidemic east of Prince George	localized in a few areas
LARCH CASEBEARER	not found	not found	not found
DWARF MISTLETOE	widespread on Hw and Pl	southern areas on Pl	widespread on Hw
WINTER DAMAGE	moderate on Sw in Bulkley Va	McBride, east	extensive on Pl at Klinaklini R

DISTRICTS			
CARIBOO	KAMLOOPS	NELSON	YUKON
increased on Pl at Cariboo L, Riske Cr, Klinaklini R	epidemic in Okanagan Valley	epidemic in E & W Kootenays, 30,000 Pl killed	not found
trace at Quesnel L	general collapse	light, few current windfall infested	not found
increased, Fraser R, Meldrum Cr - Dog Cr	light increase in west, scattered occurrence	light, few red-tops recorded in East Kootenay	no host
light population Wingdam	generally light population	increase at Upper Arrow L	trace
Kelly L, light population	epidemic in Lillooet area	increase at Trout L in stands of Hw	trace
epidemic in interior wet belt	moderate defoliation at Lempriere Cr	population collapsed at White R	not found
not found	increased in Kamloops area	trace near Cascade	no host
not found	population increased in North Thompson	collapsed in wet belt forests W Kootenay	not found
not found	outbreaks expanded to 14,000 acres (5,600 ha)	trace near Windermere L	no host
not found	declined, North Thompson	epidemic in Golden area expanded	not found
scattered patches only, Macalister to Quesnel	collapsed in Raft R area	infestation near Golden	not found
no host	light population in Okanagan Va	infestations declined	not found
general on Pl in Chilcotin area	severe in localized areas	widespread on Pl, Lw	not found
general, 40,000 acres (16,000 ha)	severe in North Thompson Va	Kootenay L from Wynndel to Boswell	light, M.890, Alaska Hwy., Little Salmon L

Canadian Forestry Service
Pacific Forest Research Centre
506 West Burnside Road
Victoria, B.C.

BC-X-116