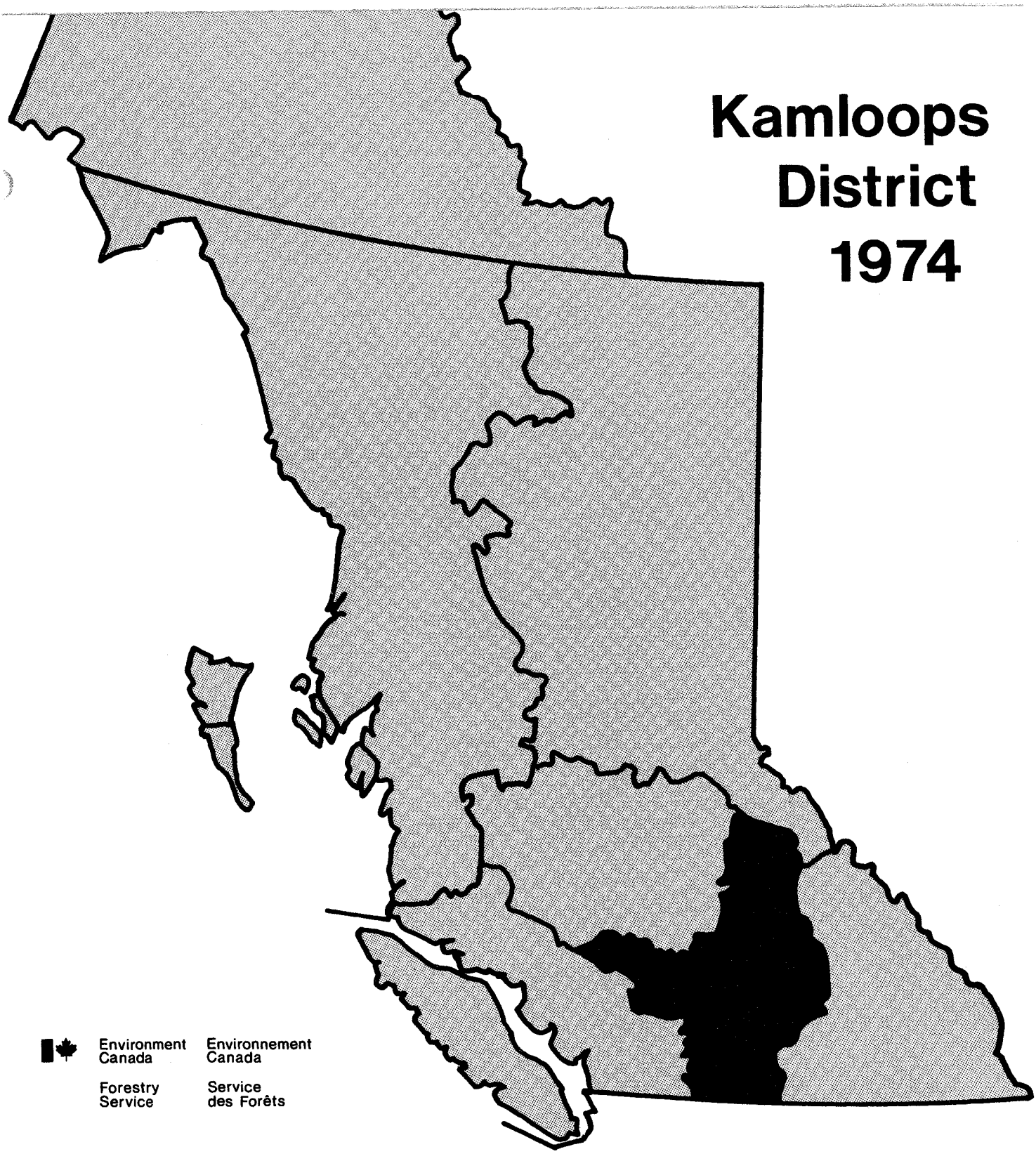
Kamloops District 1974



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Forest Insect & Disease Conditions

KAMLOOPS DISTRICT

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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

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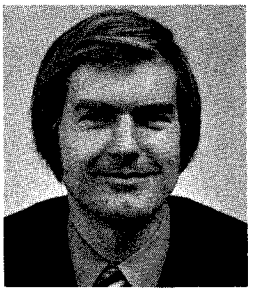
FOREST INSECT AND DISEASE CONDITIONS 1974

KAMLOOPS DISTRICT

by

Cliff Cottrell



Peter Koot

Survey Rangers

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INTRODUCTION

Bark beetles continued to be the most destructive insect pests in the Kamloops Forest District. The number of lodgepole pine killed by mountain pine beetle increased in the Okanagan Valley, and caused moderate to heavy losses of western white pine in the Shuswap and North Thompson valleys. Attacks on ponderosa pine remained of little significance throughout the District.

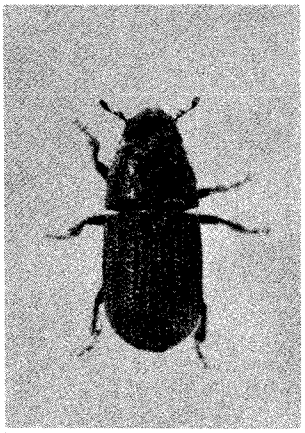
Defoliating insects caused more damage in 1974 than in 1973. Western false hemlock looper infestations became the largest ever known. Douglas-fir stands in the North and South Thompson, Shuswap and Okanagan valleys were heavily defoliated. Western spruce budworm outbreaks expanded for the seventh consecutive year in the Bridge River area. Douglas-fir tussock moth infestations greatly increased in size in the North Thompson Valley and Kamloops Lake area, but declined in the Okanagan Valley. Western hemlock loopers caused light foliage damage in the North Thompson Valley, but declined in other wetbelt areas of the District.

Most of the current spectacular disease problems were caused by climatic factors, such as winter drying of lodgepole pine in the northern part of the District, and Douglas-fir and ponderosa pine in the western portion.

BEETLE ATTACKS ON LODGEPOLE PINE CONTINUE

MOUNTAIN PINE BEETLE attacks in lodgepole pine stands increased in five major areas in the Okanagan Valley and along Bridge River (Table 1, Map 2). The number of red-topped trees more than doubled from 1973 to 1974, but are expected to increase at a slower rate in 1975. The 1974 counts of beetle-killed trees would have been higher were it not for logging in the valleys of Mission, Lambly and Trout creeks.

Table 1. Number of beetle-killed lodgepole pine trees as determined from aerial surveys, Kamloops Forest District



Location	Year of survey		
	1972	1973	1974
Whiteman Cr	1,000	2,800	5,000
Ellison	100	500	1,800
Mission Cr	250	500	2,800
Lambly Cr	1,600	2,000	6,500
Trout Cr	0	4,000	5,300
Bridge R	0	20	900
Totals	2,950	9,820	22,300

Mountain pine beetles continued to kill western white pine in the North Thompson and Shuswap drainages. The count of red-topped trees in the 1974 aerial survey was 15,600, compared with 9,300 in 1973.

The number of beetle-killed ponderosa pine remained low. Infestations were detected at Peachland, Lambly Creek, and near Gun Lake where about 150 trees were killed.

Forest managers are encouraged to make reference to the recently published guidelines on the "Management of lodgepole pine to reduce losses from the mountain pine beetle", by L. Safranyik *et al*.

SPRUCE BEETLE DECLINES

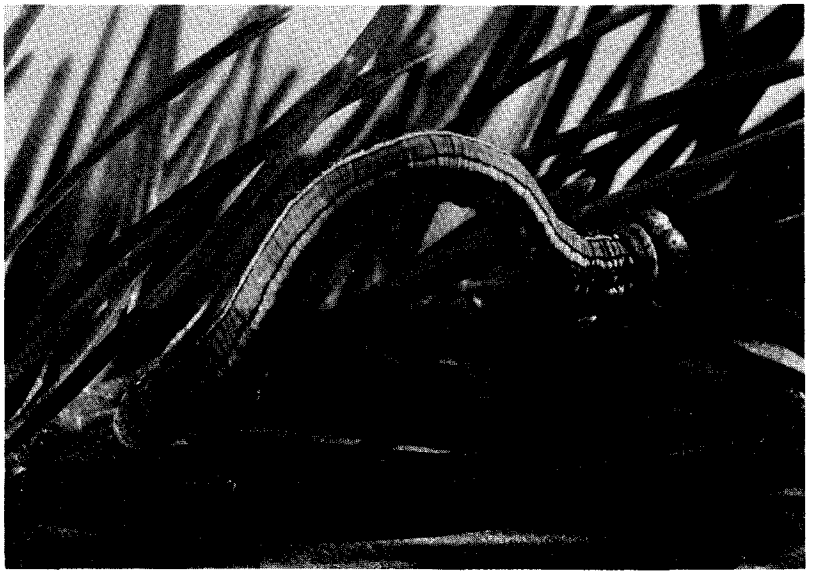
SPRUCE BEETLE infestations in the Okanagan region appear to have collapsed. No standing attacked trees, and only a few currently-infested windfalls, were found in or around large infested areas, such as on Whiterocks Mountain. A large beetle population existed in this area in 1973, but there were few suitable host trees left alive.

There are only a few high-hazard stands of mature Engelmann spruce left in the Okanagan Valley. One such stand, near Mt. Chapperon, will be watched closely in the future.

The number of DOUGLAS-FIR BEETLE-attacked trees increased slightly. Groups of 5 to 50 infested Douglas-fir trees were observed at the following locations: Bridge River Valley; south of Lillooet; Fountain; Pavilion Lake; Izman, Cornwall, Criss and Durand creeks; Paul Lake; Paxton Valley and Okanagan Landing.

The Douglas-fir beetle has not been a serious problem in the Kamloops Forest District since 1965.

LARGEST FALSE HEMLOCK LOOPER INFESTATIONS ON RECORD



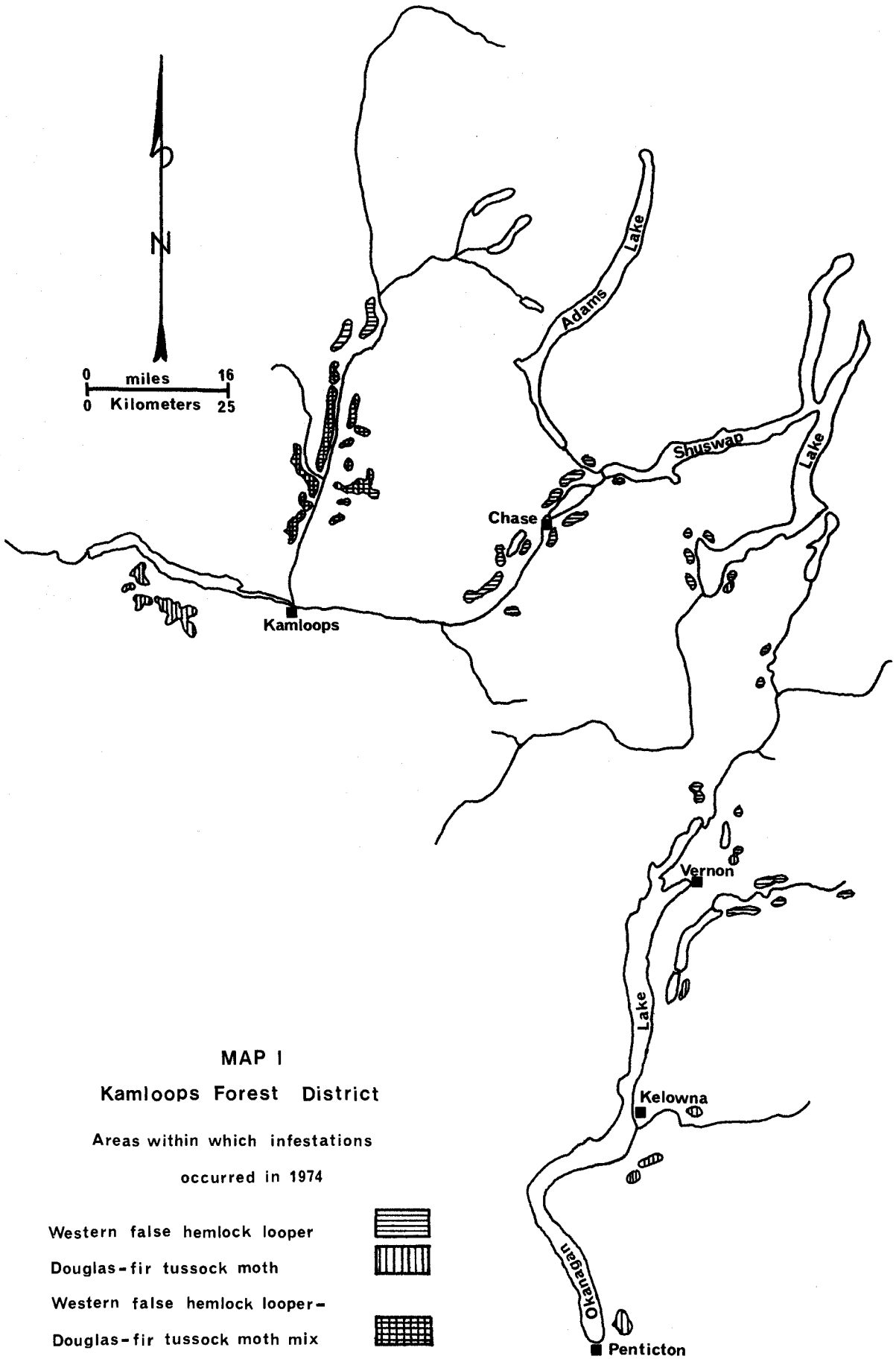
Defoliation of Douglas-fir by the WESTERN FALSE HEMLOCK LOOPER increased greatly in the North Thompson Valley, in the vicinity of Chase, and near Lavington. The area affected in 1974 was more than 14,000 acres (5,600 ha), (Table 2, Map 1), which is the largest recorded outbreak of this insect in British Columbia. The largest infestations were in the North Thompson Valley from Jamieson Creek to Barriere, and from Rayleigh to McLure. On the west side of the valley there were medium to heavy infestations on 6,750 acres (2,700 ha), and on the east side, on 1,350 acres (540 ha). In these latter areas, however, a large portion of the defoliation was caused by the combined feeding of the western false hemlock looper and the Douglas-fir tussock moth.

Table 2. Douglas-fir defoliated by the western false hemlock looper, Kamloops Forest District, 1974

Location	Defoliation (acres)		
	Light	Medium	Heavy
*North Thompson Va	1,280	920	5,900
South Thompson Va	1,050	800	2,350
Salmon Arm area	50	115	150
Enderby - Armstrong area	200	150	75
Vernon - Lavington area	300	75	760
Totals - acres	2,880	2,060	9,235
- hectares (ha)	1,170	835	3,740

Grand total - 14,175 acres (5,745 ha)

*Douglas-fir tussock moth larvae were responsible for much of the defoliation.



MAP I

Kamloops Forest District

Areas within which infestations occurred in 1974

Western false hemlock looper

Douglas-fir tussock moth

Western false hemlock looper-Douglas-fir tussock moth mix

There was moderate to heavy defoliation of Douglas-fir on approximately 4,200 acres (1,700 ha) on both sides of the South Thompson Valley near Chase, and on 1,135 acres (450 ha) east of Vernon and near Lavington and Lumby. Infestations declined, however, in the Salmon Arm and Enderby areas.

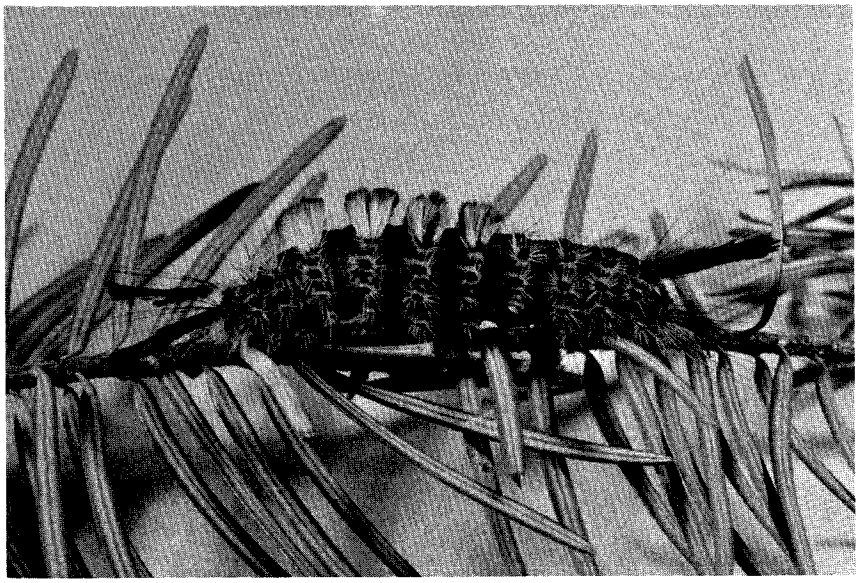
To predict 1975 larval populations, egg samples were taken in September at 81 locations in and around infested areas. Results of the survey showed that large numbers of eggs existed in most infestations, especially in the North Thompson, Chase and Lavington areas, and in several previously uninfested areas near Monte Lake and Armstrong.

In general, most infestations are expected to increase in size and intensity in 1975. However, some localized outbreaks immediately adjacent to watercourses may collapse in 1975. A trichogrammid wasp, usually a parasite of aquatic insect eggs such as those of alderflies, attacked a high proportion of looper eggs on trees near marshy areas. Since the wasp emerges before the looper eggs hatch, the adult wasp becomes capable of parasitizing additional looper eggs. Egg parasites apparently effectively reduced looper populations near Salmon Arm in 1973.

Significant tree mortality and top-killing in a stand may ensue where trees were severely defoliated for one or more successive years. Tree death occurred where defoliation exceeded 90% in 1973 and where further defoliation occurred in 1974, but trees which were defoliated only during 1973 recovered dramatically in 1974. To date, approximately 300 acres (120 ha) of semi-mature Douglas-fir have been killed near Sunnybrae and Gleneden.

1974

TUSSOCK MOTH, A CONTINUING THREAT



DOUGLAS-FIR TUSSOCK MOTH larvae severely defoliated immature Douglas-fir and some ponderosa pine trees on approximately 800 acres (320 ha) south of Kamloops Lake. In combination with the western false hemlock looper, they heavily defoliated 7,300 acres (2,900 ha) along the North Thompson Valley from Westsyde to McLure (Map 1). In the Okanagan Valley, 575 acres (230 ha) of Douglas-fir were lightly to moderately defoliated in eight small areas from Vernon to Penticton. As a result of tussock moth defoliation, Christmas-tree harvesting was seriously curtailed in some areas.

A nuclear polyhedral virus which greatly reduced the population in the Okanagan Valley in 1973, was found in several localities south of Kamloops Lake and near Jamieson Creek in 1974, and is expected to spread in 1975. However, some tree mortality is expected before the virus controls the outbreak.

SEVENTH YEAR OF SPRUCE BUDWORM EPIDEMIC

Infestations of WESTERN SPRUCE BUDWORM in Douglas-fir stands continued in the Anderson - Seton lakes area, along Bridge River Valley and south of Lytton along Kwoiek Creek. This is the seventh consecutive year of defoliation in Bridge River Valley. New outbreaks appeared between Pavilion and Fountain, along Fountain Valley, at Botanie and Skaist creeks, and along the Adams River north of Adams Lake (Map 2). Infestations increased from 45,000 acres (18,000 ha) in 1973 to 85,000 acres (34,000 ha), although defoliation intensity was generally lighter in 1974. The heaviest damage was near Seton Portage, Phair Creek and Kwoiek Lake. Larval parasitism and disease were negligible in most areas.

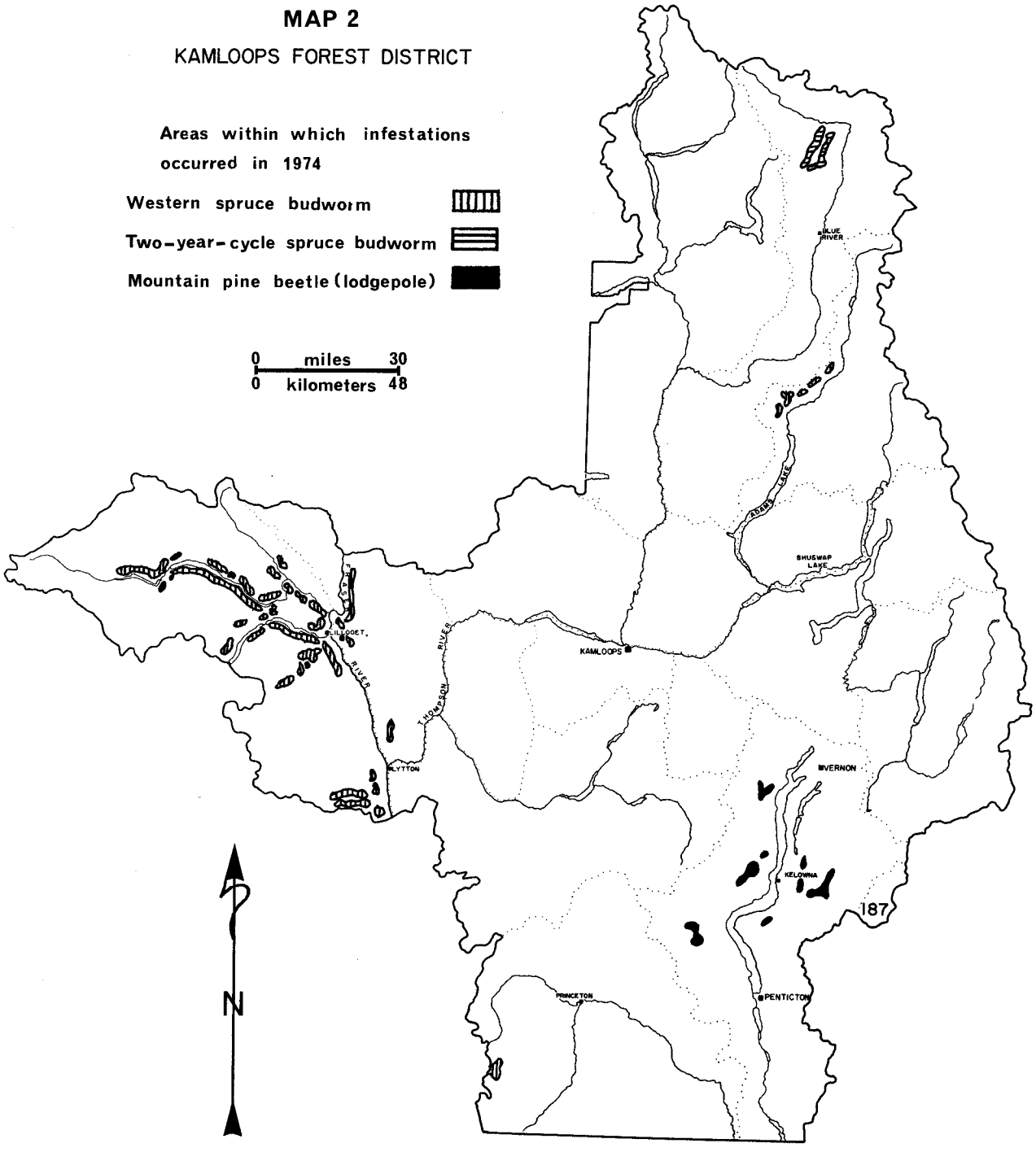
To date, minimal tree mortality has occurred where trees have been attacked every year since 1968, such as at Mission Pass. However, about 20% of the trees have dead tops.

Results of an August egg survey indicate that infestations will continue in 1975.

TWO-YEAR-CYCLE SPRUCE BUDWORM moderately defoliated approximately 3,000 acres (1,200 ha) of alpine fir and Engelmann spruce along Lempriere Creek and near the headwaters of the North Thompson River (Map 2). This is the first record of budworm damage in this area. No obvious defoliation is expected in 1975, as it is a non-flight year when larvae only mine buds and needles, then go into hibernation before they are half grown.

MAP 2

KAMLOOPS FOREST DISTRICT



LARCH BUDMOTH infestations east of Vernon increased in size and number. For the third consecutive year, high elevation western larch trees were heavily defoliated on 2,000 acres (800 ha) in the southern portion of Silver Star Provincial Park, and on 1,000 acres (400 ha) east of Silver Star Mountain. New infestations of 500 acres (200 ha) each were noted at the headwaters of Heckman Creek, on Vernon Hill and near Dutton Creek southeast of Okanagan Falls. Large flights of moths were observed in the latter area. To date, no tree mortality attributable to larch budmoth has ever been noted in British Columbia.

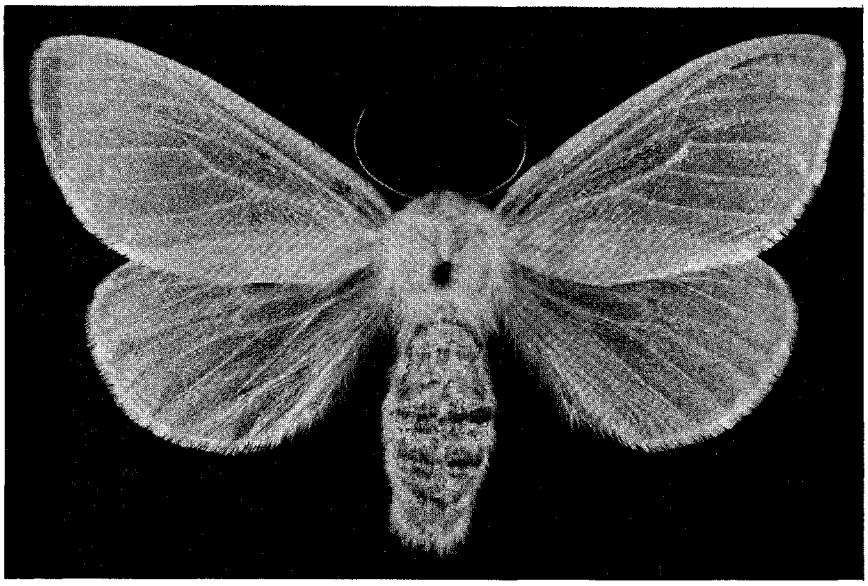
WESTERN HEMLOCK LOOPERS increased to near outbreak levels in cedar-hemlock stands in the North Thompson Valley north of Blue River, but declined in the Shuswap drainage. In 1973, light to moderate defoliation occurred at Perry River, Owlhead, Kingfisher and Tsuius creeks.

Larvae were commonly found in low numbers on Douglas-fir trees throughout the District. There was one small infestation near Black Pines.

Although BLACK ARMY CUTWORMS killed Engelmann spruce and Douglas-fir seedlings in a plantation at Redsand in 1973, there was no sign of damage in 1974. Early in June, cutworms were present in burned areas planted with conifer seedlings at Coldscaur and Moose lakes, along Lempriere Creek and on Barriere Ridge. However, there was sufficient ground cover to support the cutworm population, and conifer seedlings were not damaged.

A further decline in the cutworm population is expected in 1975.

SATIN MOTH larvae severely defoliated several small isolated groves of trembling aspen and black cottonwood near Allison and Dry lakes, north of Princeton. Satin moths have been scarce in the District in recent years.



BLACK PINELEAF SCALE insects severely infested ponderosa pine trees near Trout Creek, Summerland and Penticton. Some tree mortality occurred southeast of Penticton, where trees have been repeatedly attacked.

PINE NEEDLE SCALE was common near Kamloops and in the Okanagan Valley, especially around Winfield, Glenmore and Rutland. Ponderosa pine trees of all ages were weakened in 1973 by a severe drought, making them more susceptible to scale attack.

DOUGLAS-FIR NEEDLE MIDGES extensively damaged Douglas-fir trees in Christmas-tree cutting areas throughout the Okanagan Valley. Near Shuttleworth Creek, even semi-mature Douglas-fir had lost almost all of their 1973 foliage by mid 1974.

COOLEY SPRUCE GALL APHIDS were abundant on immature Douglas-fir trees in the Kamloops, Shuswap and Okanagan areas. Along Kamloops Lake there was a complete loss of 1974 foliage from Douglas-fir over an extensive area.

WINTER DRYING of conifers was prevalent in the northern and western portions of the District. The foliage of immature Douglas-fir trees was discolored between 2,500 and 3,000 feet (760 m and 915 m) elevation along Campbell Range and Tranquille Creek. Severe foliage damage of lodgepole pine occurred along Albreda River from Clemina to Albreda between 3,000 and 3,500 feet (915 m and 1,065 m) elevation, while light to moderate foliage damage was recorded in Otter Creek Valley, and near the headwaters of the North Thompson River. Ponderosa pine suffered severe foliage discoloration along the Fraser River near Fountain and in exposed areas between Rayleigh and Heffley Creek, while lighter damage was noted along Deadman River.

Heavy, localized infections of a NEEDLE CAST DISEASE, *Rhabdocline* sp., occurred on Douglas-fir trees at Upper Hat and Bear creeks and in Botanie Valley. This disease affects the two-year-old foliage.

ELYTRODERMA DISEASE infections on ponderosa pine declined in most parts of the District. Many trees display large, unsightly "brooms" as a result of past infections.

PORCUPINES girdled the upper stems of most immature western larch trees on two 100-acre (40-ha) areas southeast of Okanagan Falls, killing the upper 10 to 25 feet (3 to 8 m) of each tree. Porcupines also damaged scattered ponderosa pine trees along Durand Creek, south of Savona.

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

D I S T R I C T S			
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

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BC-X-113