MONTS

Nelson District 1974

Environment Canada / Environnement Canada

Forestry Service / Service des Forêts

Forest Insect & Disease Conditions

NELSON

DISTRICT

(summer addresses)

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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.

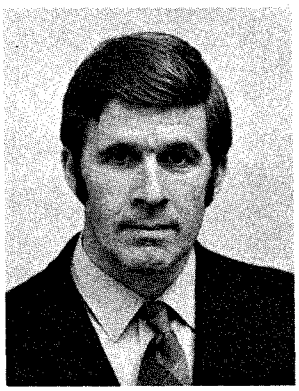
V8Z 1M5

Phone 388-3811

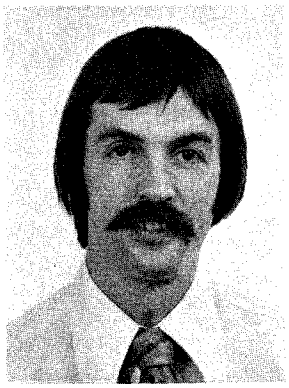
FOREST INSECT AND DISEASE CONDITIONS 1974

NELSON DISTRICT

by



Ernie Morris



Jack Monts

Survey Rangers

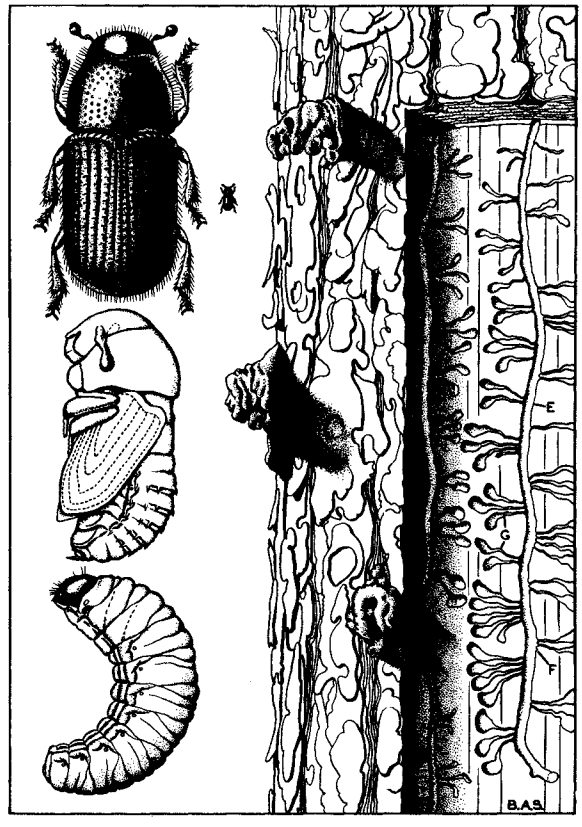
CONTENTS

INTRODUCTION

The major insect problems in the District in 1974 were the mountain pine beetle and black army cutworm. The mountain pine beetle caused extensive tree mortality in lodgepole pine stands in the Elk Creek - White River area, along Blackwater Ridge near Donald, and Goathide Creek in the West Kettle River drainage. Black army cutworms defoliated Engelmann spruce seedlings on 7,000 acres (2,800 ha) at Blackwater Creek near Donald.

Hemlock looper and filament bearer infestations collapsed. Larch casebearer and larch budmoth populations were down, with light defoliation of western larch trees in the southern areas. Tent caterpillars stripped deciduous stands in the Golden area.

Sulphur dioxide fumes from the Sullivan Mountain Mine damaged the foliage of trees near Kimberley.



MOUNTAIN PINE BEETLE

INFESTATIONS EXPAND

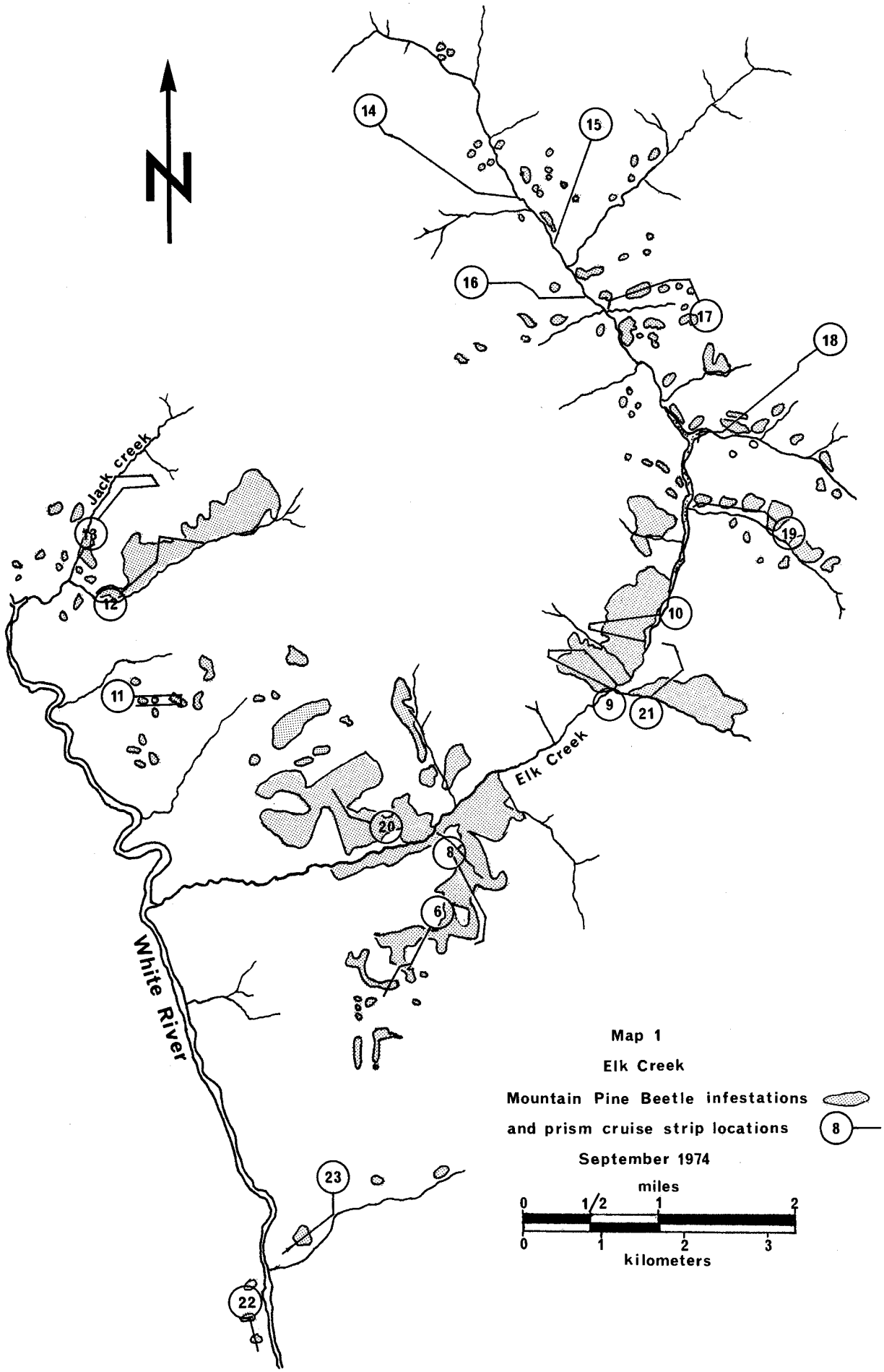
There was an increase in the number of lodgepole pine red-tops in 1974. More than 29,000 were recorded during aerial and ground surveys, with the highest concentrations in the Elk Creek - White River area, along Blackwater Ridge near Donald and at Goathide Creek in the West Kettle River drainage (Table 1).

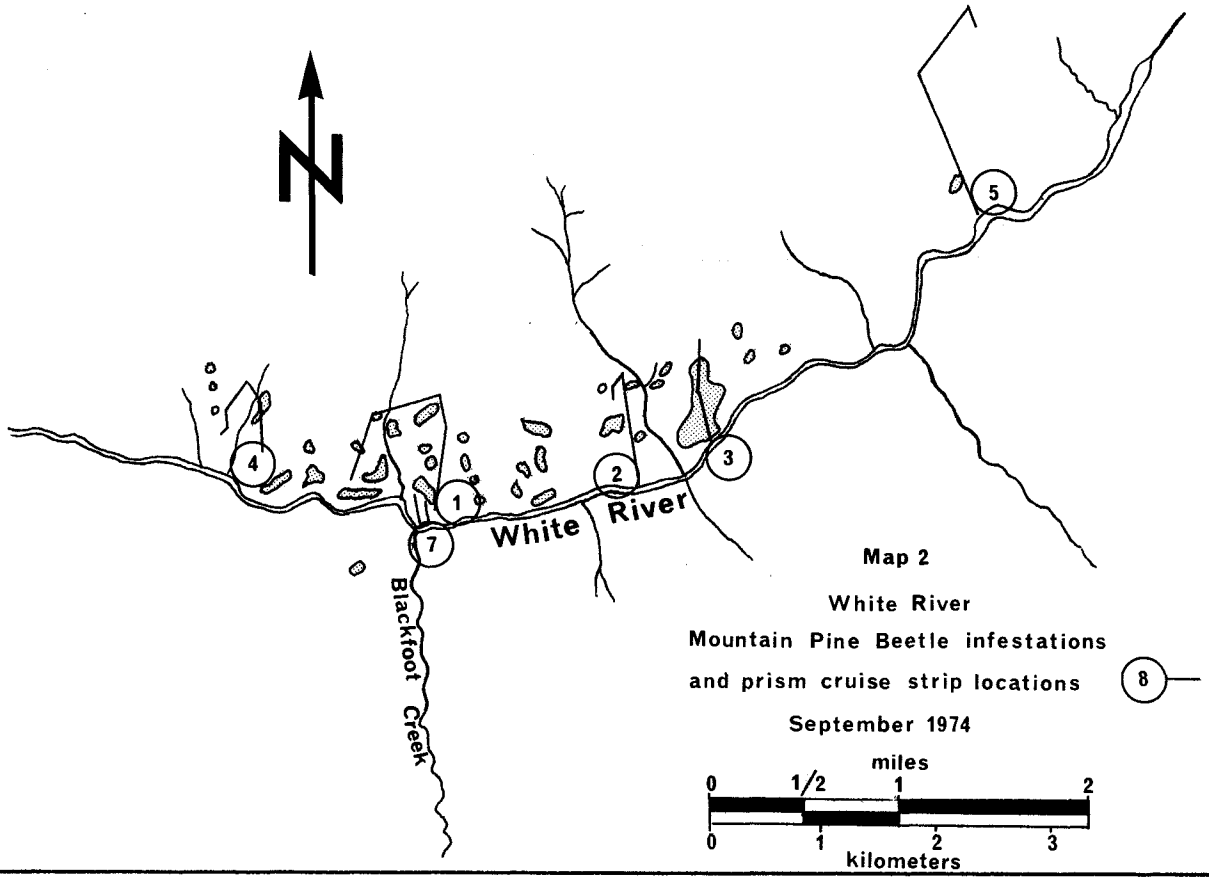
Data, from prism plots along cruise lines run through infestations of mountain pine beetle in lodgepole pine stands, provided information on the trend of the attacks in eight localities (Maps 1, 2, 3). Table 2 shows that in most localities stem attack was less in 1974, but overwintering populations still pose a serious threat to the surrounding mature lodgepole pine stands in 1975. Guidance to the management of these stands may be obtained from a Technical Report (Safranyik et al.)[1/] available from the Pacific Forest Research Centre.

There was a decline in the number of red-topped western white pine in 1974. A total of 3,000 red-tops were recorded, with the highest number along Trout and Upper Arrow lakes and along the Rogers Pass Highway (Table 1).

An assessment of these infestations indicated moderate populations and continued attacks in 1975.

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


N
14
15
16
17
18
19
10
9
21
Jack creek
13
12
11
Elk Creek
20
8
6
White River
23
22
Map 1
Elk Creek
Mountain Pine Beetle infestations
and prism cruise strip locations
8
September 1974
miles
0
1/2
1
2
0
1
2
3
kilometers



Map 2

White River

Mountain Pine Beetle infestations

and prism cruise strip locations (8)

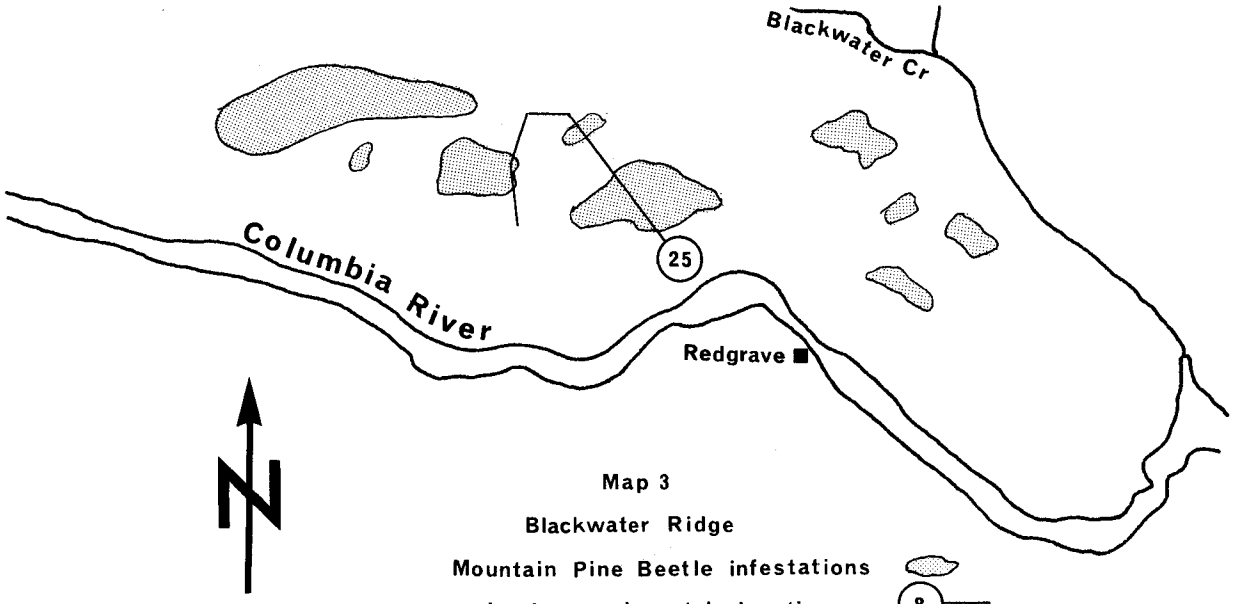
September 1974

miles

0 1/2 1 2

0 1 2 3

kilometers



Map 3

Blackwater Ridge

Mountain Pine Beetle infestations

and prism cruise strip locations (8)

September 1974

miles

0 1/2 1 2

0 1 2 3

kilometers

Table 1. Numbers of red-topped pine trees determined from aerial and ground surveys, Nelson Forest District, 1974

Pine species	Locality	No. red-tops
lodgepole	Upper Elk Creek	2,064
	Elk Creek Canyon	8,633
	Lower Elk Creek	9,521
	Jack Creek	1,360
	Rock Creek	445
	White River	1,711
	Dry Creek	125
	Palliser River	475
	Lussier River	300
	Parsons	125
	Blackwater Ridge	4,200
	Goathide Creek	1,000
	Total	29,959
western white	Healy Creek	200
	Trout Lake	500
	Arrowhead	50
	Pingston Ridge	500
	Galena Pass	150
	Pingston Creek	500
	Saddle Mountain	550
	Shelter Bay	25
	Illecillewaet River	300
	Rogers Pass	75
	Beaver River	150
	Total	3,000

Table 2. Status of lodgepole pine trees in mountain pine beetle infestations, Nelson Forest District, 1974

Location	% healthy	% attacked on cruise strips		
		Green, attacked 1974	Red, attacked 1973	Grey, attacked prior to 1973
Upper Elk Creek	68	7	19	6
Elk Creek Canyon	36	25	30	9
Lower Elk Creek	54	5	30	11
Jack Creek	45	4	20	31
Rock Creek	40	12	31	17
White River	45	8	46	1
Blackwater Ridge	58	13	9	20
Goathide Creek	56	22	13	9

BLACK ARMY CUTWORMS DEFOLIATE PLANTATIONS

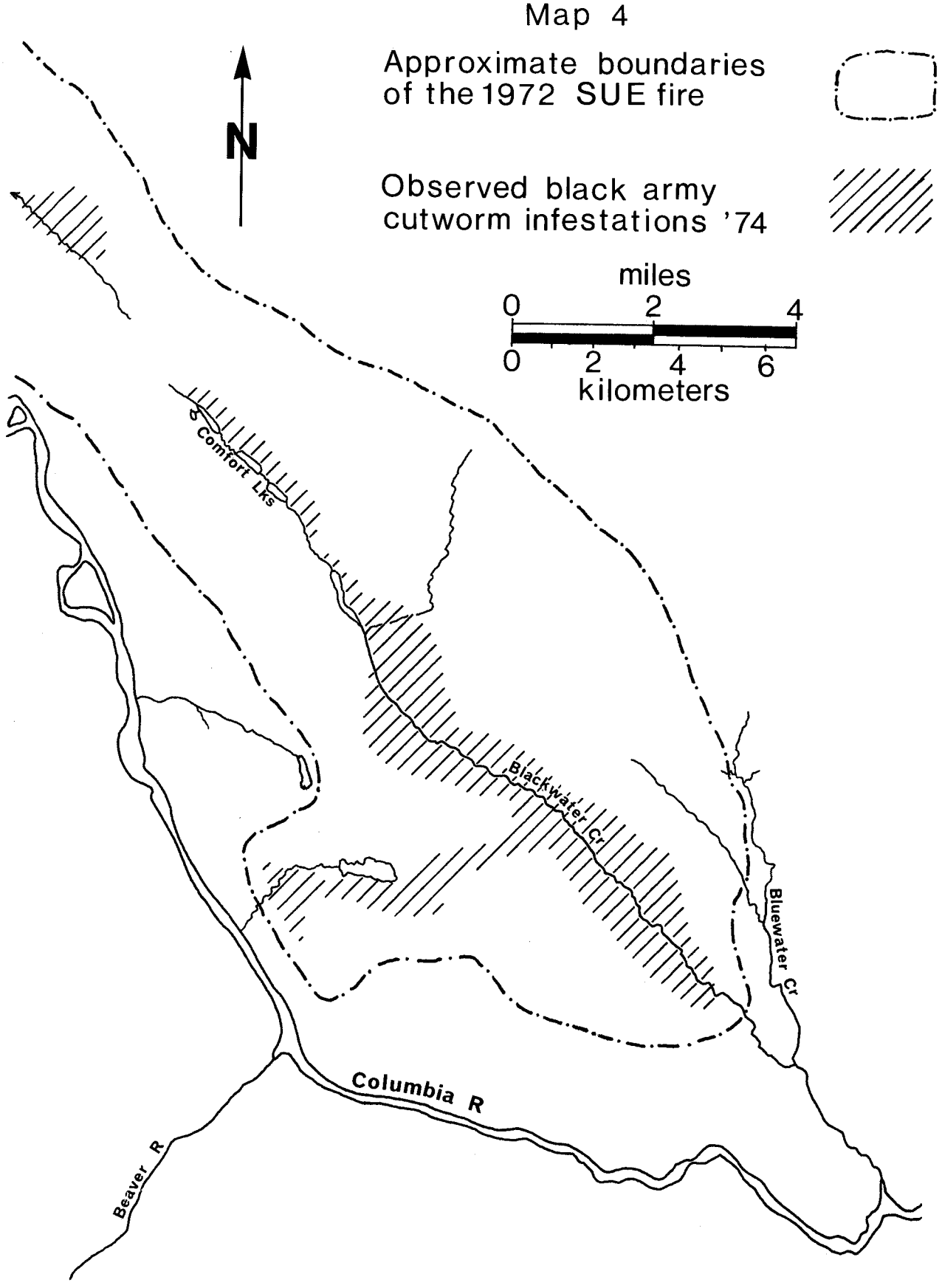
An infestation of black army cutworms caused moderate to severe defoliation of Engelmann spruce seedlings planted on the site of the 1971 "Sue fire" near Golden. The pest occurred on 7,000 acres (2,800 ha), with the severe damage limited to seedlings in low lying areas of the valley bottom. Moderate seedling damage was observed along Blackwater Ridge (Map 4).

In the areas of heavy infestation, cutworm larvae stripped most of the deciduous ground cover, including fireweed, willow, rose and alder.

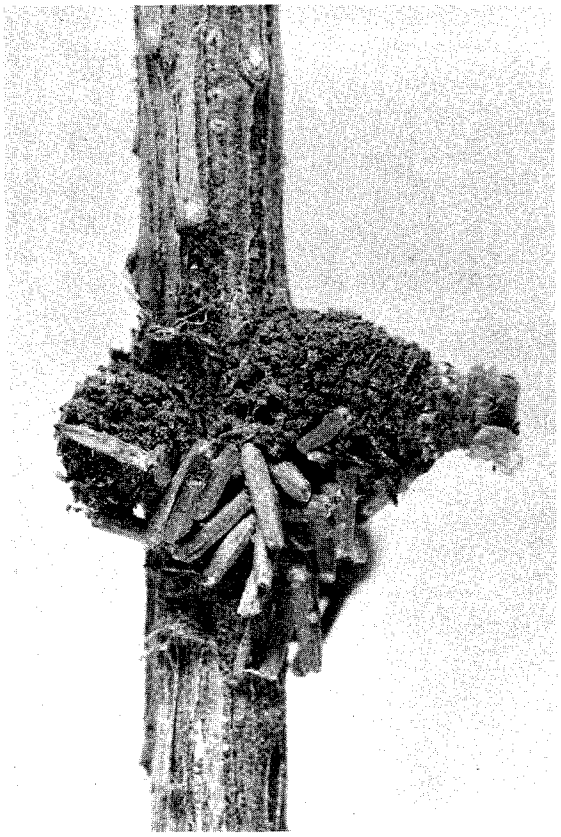
The immediate stand value loss due to black army cutworm defoliation is estimated at over $100,000 (Macklin, unpublished report).

Tests by the Canadian Forestry Service with the insecticides Diazinon and trichlorfon (Dylox) and the bacterium *Bacillus thuringiensis* obtained 70 per cent control in plots in the infestation areas in 1974. Further testing will be done in 1975.

Surveys of the cutworms in the pupal stage during the fall indicated reduced larval populations in 1975; however, the cutworms still pose a threat to seedlings within the "Sue fire".


Map 4
Approximate boundaries of the 1972 SUE fire
Observed black army cutworm infestations '74
N
miles
0 2 4
0 2 4 6
kilometers
S Comfort Lks
Blackwater Cr
Bluewater Cr
Columbia R
Beaver R

LARCH CASEBEARER POPULATIONS DECLINE



Larch casebearer defoliation of western larch was generally lighter in all infestations in the southern part of the District. For the first time, casebearers were found in the Fauquier - Burton area and along the Monashee Highway in the low elevation stands, 55 miles (88 km) north of the 1973 range.

Overwintering larval populations indicated light defoliation in the spring of 1975, but populations build up rapidly under favorable conditions and could cause an increase by mid-summer.

Samples of late instar casebearer larvae taken at the points where parasites were released in 1969 showed 11 per cent parasitism at Fruitvale and two per cent at East Arrow Creek by the introduced parasite *Agathis pumila*.

A contract to study the impact of the native parasites on the larch casebearer was let out to S. F. Condrashoff of Professional Ecological Services, in 1974. He established 15 plots between Anarchist Mountain and East Arrow Creek. Some of these will serve as points for the release of imported parasites in 1975 and 1976, in an attempt at biological control of the larch casebearer.

EUROPEAN PINE SHOOT MOTH NEAR HI-ARROW DAM

In the spring of 1974, Plant Protection Officer W. Molyneux detected an infestation of European pine shoot moth on ornamental pines at the Hi-Arrow Dam viewpoint. About 150 Mugho pines, planted in 1968, were heavily infested. Shoot moth larvae were also found on 17 Austrian and one Scots pine. Old shoot damage was common on these trees, indicating that the pest had been present for a number of years, presumably since 1968.

Examination of the surrounding native ponderosa pine stands showed the occasional shoot infested, but the vigorous growth of the shoots and heavy sap flow appeared to have drowned out most of the larvae.

The British Columbia Hydro and Power Authority personnel sheared and burned all the new shoots on the Mugho pines and most of the infested shoots on the Austrian and Scots pines as a control measure. Also, these trees were sprayed several times with the insecticide Cygon (dimethoate).

Later in the summer, traps baited with a sex attractant captured two male moths in the exotic pine stand and one in the bordering native ponderosa pine stand. Although the control measures failed to eradicate the pest, they were successful in greatly reducing the threat of this dangerous introduced species.

Examination of the pines in the area and trapping will be repeated in 1975.

WESTERN HEMLOCK LOOPER INFESTATIONS COLLAPSED in many of the mature and overmature hemlock-cedar forests along the Columbia River and its tributaries from Shelter Bay to north of Mica Creek, from Galena Bay south to Nakusp and at Flat and Quartz creeks along the Rogers Pass Highway.

Severe reduction apparently took place in the egg stage and early larval instars. Egg samples collected early in April at Shelter Bay and Mulvehill Creek had up to 80 per cent egg parasitism, primarily by two parasitic wasps, *Trichogramma* sp. and *Telenomus* sp. Cool, wet weather prevailed during the early larval development and this may have also contributed to the decline.

Only a few overwintering eggs were found in samples taken during October at five localities, indicating low larval populations in 1975.

FILAMENT BEARERS declined in all areas where they had been numerous on western hemlock in 1973. Light defoliation of new growth was apparent in all 1973 infestation areas. Egg sampling in October indicated the likelihood of low larval populations in 1975.

WESTERN FALSE HEMLOCK LOOPER - The infestation of loopers on western hemlock near Nakusp collapsed in 1974. Light feeding occurred on the new foliage of Douglas-fir along the east side of Lake Windermere from Dutch Creek to Swansea Mountain, and at Premier Lake.

WESTERN BLACKHEADED BUDWORM - Blackheaded budworm lightly defoliated the new growth of western hemlock trees in the Galena Pass area, along the Ferguson - Trout Lake road and along the Saddle Mountain road opposite Nakusp. There was a general increase in larval numbers along the Rogers Pass Highway. The areas noted had supported budworm infestations in the 1960's.

SPRUCE BUDWORMS - The one-year-cycle budworm lightly defoliated immature western hemlock and Douglas-fir trees along the Trout Lake - Ferguson road.

The two-year-cycle budworm that caused heavy defoliation of Engelmann spruce and alpine fir along the North White River in 1972 collapsed in 1974. No defoliation was evident in this area.

LARCH BUDMOTH INFESTATIONS SUBSIDED along the Inonoaklin Valley and the east side of the Arrow Lake from Applegrove to McDonald Creek. Larvae were found early in the season near Inonoaklin Crossing, but there was very little defoliation of western larch trees. Only a few pupae were found, indicating light larval populations in 1975.

FOREST TENT CATERPILLARS defoliated trembling aspen stands on 1,200 acres (480 ha) along the west side of the Columbia River near Golden and near Parson and Spillimacheen. These infestations are expected to continue in 1975.

The infestations in the Trail - Warfield area collapsed before there was any significant defoliation.

HEMLOCK SAWFLY - Numerous hemlock sawfly larvae were found in mature to overmature hemlock-cedar forests along the Upper Arrow Lake from Nakusp to Galena Bay and along the Columbia River from Shelter Bay to Goldstream River. Light defoliation was evident on fringe trees at these localities.

Larvae were common along the Rogers Pass Highway. Light defoliation occurred at Flat Creek on hemlock.

DOUGLAS-FIR NEEDLE MIDGE - Damage was light on Douglas-fir Christmas trees in the East Kootenay. Only two per cent of the new needles were infested at the sample plots at Canal Flats, Invermere, Edgewater and Briso. Damage was light in the West Kootenay.

FUME DAMAGE -

Sulphur dioxide fumes severely damaged tree foliage near Kimberley. The fumes, created by oxidizing ore in an underground mine, escaped through ventilation shafts to the surface and dispersed through the nearby forest stands.

Foliage damage was severe on more than 200 acres (80 ha) of western larch, lodgepole pine and Douglas-fir between the fume source and Kimberley.

Foliage damage is expected to decrease with reduced fume emission as the mining operations remove oxidizing material from the area.

WINTER DAMAGE -

Winter drying along the highway from Creston to Crawford Bay caused severe foliage damage to all conifers, and mortality was evident to more than 300 Douglas-fir and ponderosa pine trees. Bands of red-topped western white pine trees were also evident along the east side of the Columbia River above 2,500 foot (760 m) elevation from Revelstoke to Goldstream River. These winter damaged trees may be subject to attack by other pests.

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