

Mountain Pine Beetle
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Pacific Forest Research Centre,
Forest Insect and Disease Survey,
506 West Burnside Road,
Victoria, B.C. V8Z 1M5.

November, 1975.

MOUNTAIN PINE BEETLE CONDITIONS
PRINCE RUPERT FOREST DISTRICT, 1975
by
R.J. Andrews and R.D. Erickson

The first of the continuing mountain pine beetle infestations began in 1969, when 1,000 lodgepole pine were killed near Weegett Creek. In 1971 this figure increased to 1,930 red-topped pine on 245 acres at two locations. In 1975 there were more than 17,000 lodgepole pine killed on about 5,100 acres at 48 locations extending from Ritchie to Babine Lake (Table 1, Maps 1 and 2).

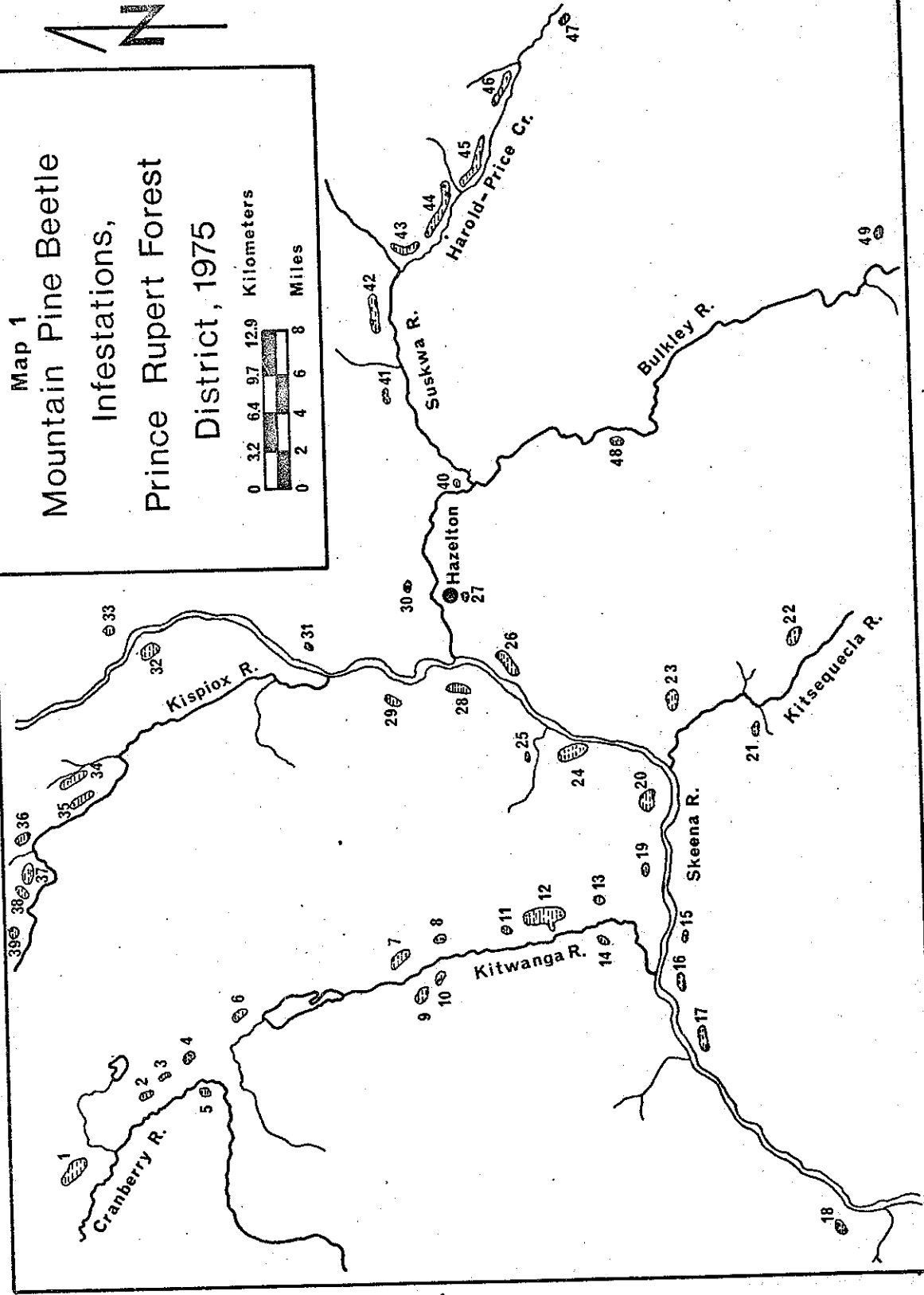
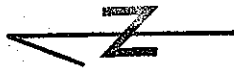
Table 1. Estimated acreages infested in 1975, and lodgepole pine killed by mountain pine beetle in the Prince Rupert District as determined by aerial surveys. (1974 figures in brackets).

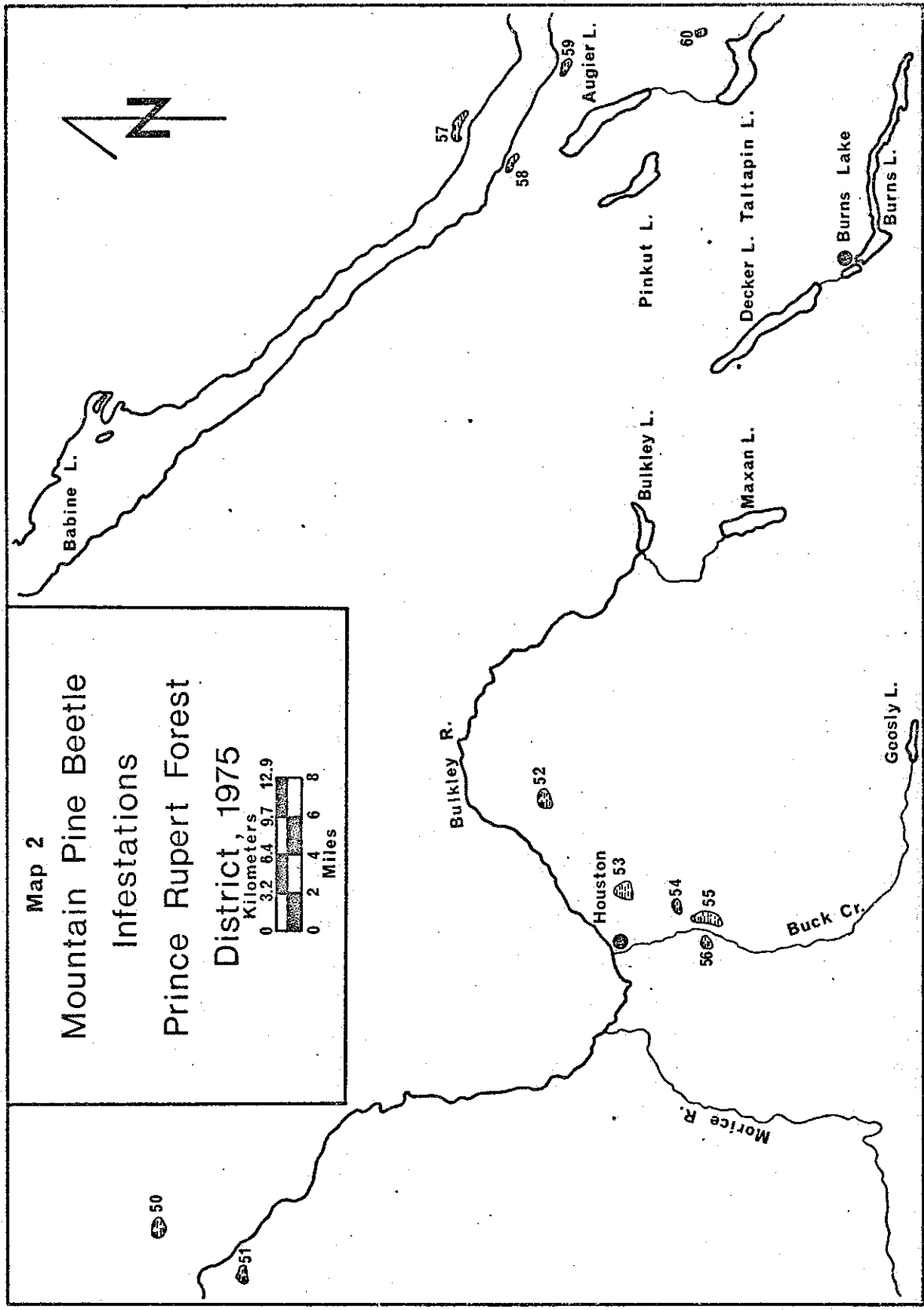
Infestation number	Locality	Estimated acreage	No. of red-tops
<u>Kitwanga</u>			
1	Weegett Creek	505	3,035
2,3,4	N. of Kitwanga L	15	60
5	Cranberry R	10	30
6	Kitwanga L	30	95
7,8,9,10	Kitwancool	152	460
11	S. of Kitwanga L	5	40
12	Radio Tower Hill	2,000	5,000
13	5 Mi. Kitwanga	15	200
14	Kitwanga	2	20
15	Shandilla L	25	70
16	opposite Kitwanga	15	25
17	634.9097 opposite Woodcock	35	160
18	11 Cedarvale	20	50
Subtotals	44 BC-U-	2,829 (1,870)	9,245 (8,390)

Table 1 - cont'd.

Infestation number	Locality	Estimated acreage	No. of red-tops
<u>Hazelton</u>			
19	Andimaul	10	45
20	Nash	10	75
21	Kitsuns Cr	2	4
22	Kitsequecla R	50	325
23	Juniper Cr	10	60
24	opposite Carnaby	200	600
25	Burdick Cr	5	10
26	Seeley L	250	850
27	Hazelton	5	35
29	Glen Vowell	20	90
30	Four Mile Mtn	10	30
31	Kispiox Village	10	60
32	Tenas Hill	25	140
33	Sterritt Cr	2	10
34,35	Sammon L	400	230
36	First Cabin	100	200
37,38	Kline L	200	1,070
39	Elizabeth L	15	20
40	Jct. of Suskwa & Bulkley	5	20
41	18 Mile Cr	10	35
42	Natlan Cr	250	2,000
43,47	Harold Price Cr	500	1,990
48	Moricetown	2	12
Subtotals		2,111 (781)	7,881 (5,140)
<u>Smithers</u>			
49	Gramophone Cr	5	35
50	Canyon Cr	5	20
51	Telkwa (Hubert)	5	18
Subtotals		15 (60)	73 (900)
<u>Houston</u>			
52	Aitken Cr - Gilmore L	5	15
53	McKilligan Cr	30	65
54	Dungate Cr	2	10
55,56	Buck Cr	50	153
Subtotals		87 (330)	243 (1,660)

Map 1
Mountain Pine Beetle
Infestations,
Prince Rupert Forest
District, 1975





Map 2
 Mountain Pine Beetle
 Infestations
 Prince Rupert Forest
 District, 1975

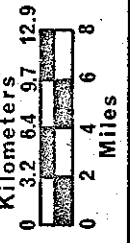


Table 1 cont'd.

Infestation number	Locality	Estimated acreage	No. of red-tops
<u>Burns Lake</u>			
57	Boling Pt.	20	140
58	Donald Ldg.	5	65
59	Pinkut Cr	5	50
60	Taltapin L.	2	4
Subtotals		32 (251)	259 (1,010)
Grand Totals		5,074 (2,992)	17,701 (17,100)

In June, beetle broods were assessed on one-half square foot bark samples at **breast** height on 25 trees at Kitwanga, Seeley Lake, Kline Lake, Dungate Creek and Goathorn Creek. The ratio of living progeny to successful total attacks indicated increasing populations at all locations.

During September, 13 cruise lines with prism plots at two chain intervals were run at six localities to determine attack trends (Table 2). Stand type in most areas was lodgepole pine mixed with western hemlock, white spruce, balsam and/or trembling aspen and white birch.

In forecasting population and damage trends, consideration was given to changes of timber type, density of pine and proximity of logging to the strip.

Three strip cruises were run north and east of Elizabeth Lake to determine a possible northern extension of beetle infestations. Strip 6 indicates a preference by the beetle to attack susceptible pines in stands where previous attacks had occurred. An increasing number of red-tops will be evident in 1976 for a radius of some 15 chains around the groups of red-tops counted in 1975. South of these infestations, stands have a larger pine component and will be more susceptible to beetle attack than those to the north, where a gradual timber type change excludes pine.

Table 2. Status of lodgepole pine on cruise strips, Prince Rupert Forest District, 1975.

Strip No.	Location	Pine Stems /acre	Percent			
			Healthy	Green Attack	Red	Gray
1	Kline L	41	100	0	0	0
2	" "	151	84	9	7	0
3	" "	55	37	44	19	0
4	Elizabeth L	20	100	0	0	0
5	" "	139	87	3	0	10
6	" "	71	78	10	3	9

Table 2 cont'd.

Strip No.	Location	Pine Stems /acre	Percent			
			Healthy	Green Attack	Red	Gray
7	First Cabin	133	80	11	2	6
8	" "	34	73	18	5	3
9	Weegett Cr	116	100	0	0	0
10	" "	127	94	6	0	0
11	Mi.25 Kitwanga	132	91	2	1	6
12	McKilligan Cr	222	86	7	4	3
13	" "	64	88	0	6	6

The infestations south of Elizabeth Lake in the Kispiox River drainage are expected to increase in size, as are the outbreaks at Natlan and Harold Price creeks, along the Skeena River west of Hazelton and the infested areas in the Kitwanga River drainage. Increased numbers of red trees are expected near the spot infestations north of Kitwanga Lake and north of the Weegett Creek logged area. However, climatic change north of the main infested area at Weegett Creek and a forest type change to the east, will prevent further expansion of the infestation in these directions.

Most beetle infestations east of Hazelton and particularly those near Smithers, Houston and Burns Lake, that were infested in 1974, have been reduced by timely cut-and-burn and logging practices. This has been reflected by a reduction in the number of red trees counted in 1975 at Smithers, Houston and Burns Lake (Table 1). However, the abundance of suitable host material and favorable climatic conditions will continue to encourage increases in beetle populations.



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Forest Insect and Disease Survey,
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November, 1975.

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MOUNTAIN PINE BEETLE CONDITIONS

NELSON FOREST DISTRICT, 1975

by

E. V. Morris and J. S. Monts

Mountain pine beetles, which have been at outbreak levels for the past five years, caused increased mortality of lodgepole and western white pine trees in 1975. Pine mortality was determined by aerial photography and ground surveys of areas where red-top pine trees occurred in 1975 (Maps 1, 2, 3 & 4). Oblique color photographs were used to estimate numbers of red-top trees (1974 attack), to establish infestation boundaries on 40-chain forest cover maps, and determine acreages. Ground surveys included cruise lines with prism plots and tree examinations at 2-chain intervals.

A total of over 79,000 red-top pines were counted in 1975 (Table 1) compared to 33,000 counted in 1974. The most significant areas relative to damage, were in the Elk Creek - White River area and at Blackwater Ridge near Golden. New infestations were recorded in the Kettle Valley at Fiva Creek, Arlington Lakes, Ptarmigan Creek, Greenwood, and Chatter and Prattle creeks north of Golden.

Table 1. Number of red-top pine trees and acres infested as determined from aerial surveys, Nelson Forest District, 1975

Pine species	Locality	No. red-tops	No. acres
lodgepole	<u>West Kootenay</u>		
	Goathide Creek	2,000	500
	Fiva Creek	2,000	600
	Arlington Lakes	400	100
	Rhone	50	20
	Ptarmigan Creek	125	50
	Greenwood	500	50
	Memphis Creek (Slocan L)	250	100

Table 1 - cont'd.

Pine species	Locality	No. red-tops	No. acres
	<u>East Kootenay</u>		
	Upper Elk Creek	2,100	285
	Elk Creek Canyon	30,000	590
	Lower Elk Creek	17,500	550
	White River Junction	4,370	470
	Rock Creek	1,000	55
	Mary, Akutlak creeks	2,360	185
	Lussier River	800	95
	White River	500	50
	Whiteswan Lake	150	20
	Dry Creek	375	65
	Queen Mary Creek	850	250
	Pedley Creek	50	10
	Kootenay River	25	5
	Toby Creek	30	10
	Parson	300	40
	Blackwater Ridge	6,000	1,200
	Chatter - Prattle creeks	<u>1,750</u>	<u>390</u>
	Total	73,485	5,690
western white	<u>West Kootenay</u>		
	Trout Lake	450	150
	Shelter Bay	200	150
	Pingston Ridge	550	150
	Fosthall	100	50
	South Fosthall Creek	725	250
	Plant Creek	550	175
	Cusson Creek	600	200
	Saddle Mtn	550	200
	<u>East Kootenay</u>		
	Bush River	1,050	470
	Smith Creek	550	300
	Kinbasket River	375	155
	Beaver River	150	40
	Illecillewaet River	<u>250</u>	<u>45</u>
	Total	6,100	2,335

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Data from the ground surveys, showed an increase in 1975 attack compared with that of 1974, (Table 2), and that most of the 1975 attack occurred within the areas of 1974 attack (red-tops), with lighter attacks occurring adjacent to the infested areas. Overwintering beetle populations were high in all areas.


Ground checks conducted in infested western white pine stands along the Upper Arrow Lakes showed a moderate attack in 1975, with a healthy overwintering beetle population.

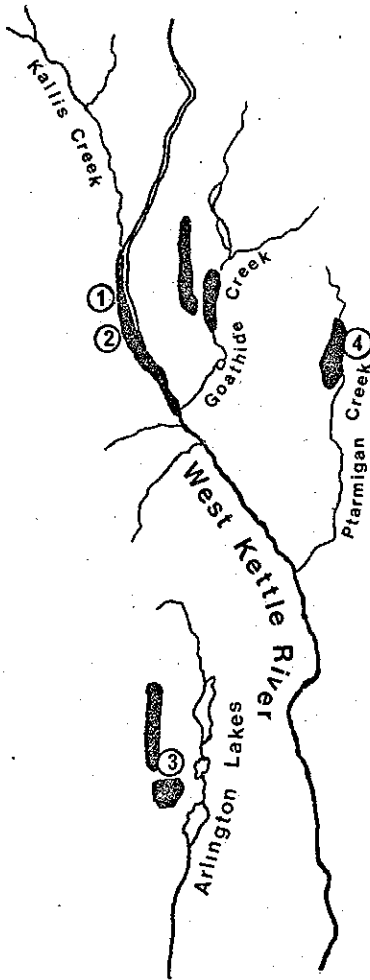
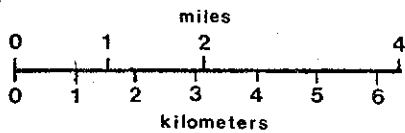
Table 2. Status of lodgepole pine trees on cruise strips, Nelson Forest District, 1975


Strip no.	Location	% healthy	% attacked		
			Green attack 1975	Red attack 1974	Grey attack prior to 1974
<u>West Kootenay</u>					
1	Goathide Creek	82	7	4	7
2	Goathide Creek	70	18	6	6
3	Arlington Lakes	70	10	14	6
4	Ptarmigan Creek	73	19	8	0
5	Fiva Creek	50	20	20	10
<u>East Kootenay</u>					
6	Akutlak Creek	49	22	23	6
7	Mary Creek	76	13	10	1
8	Lower Elk Creek	77	18	5	0
9	Upper Elk Creek	70	22	3	5
10	White River Jct.	25	42	22	11
11	Blackwater Ridge	76	16	4	4

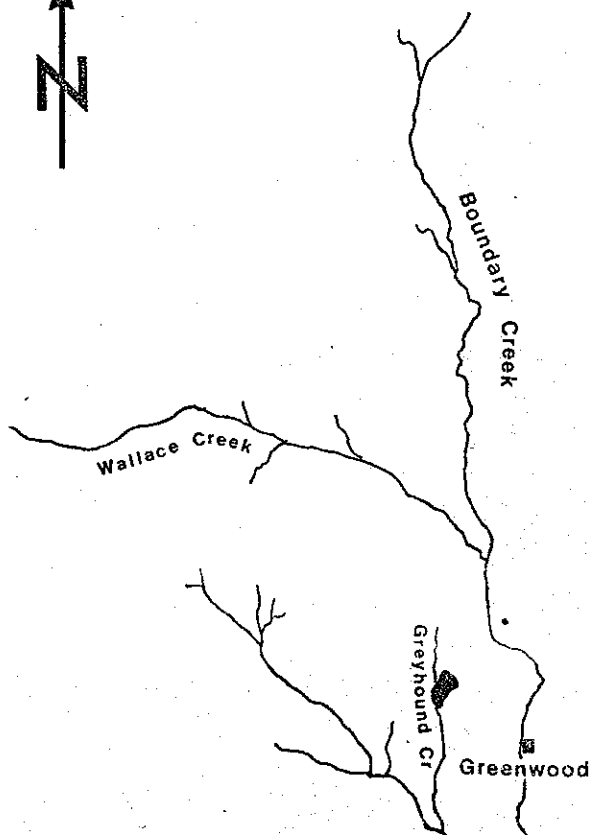
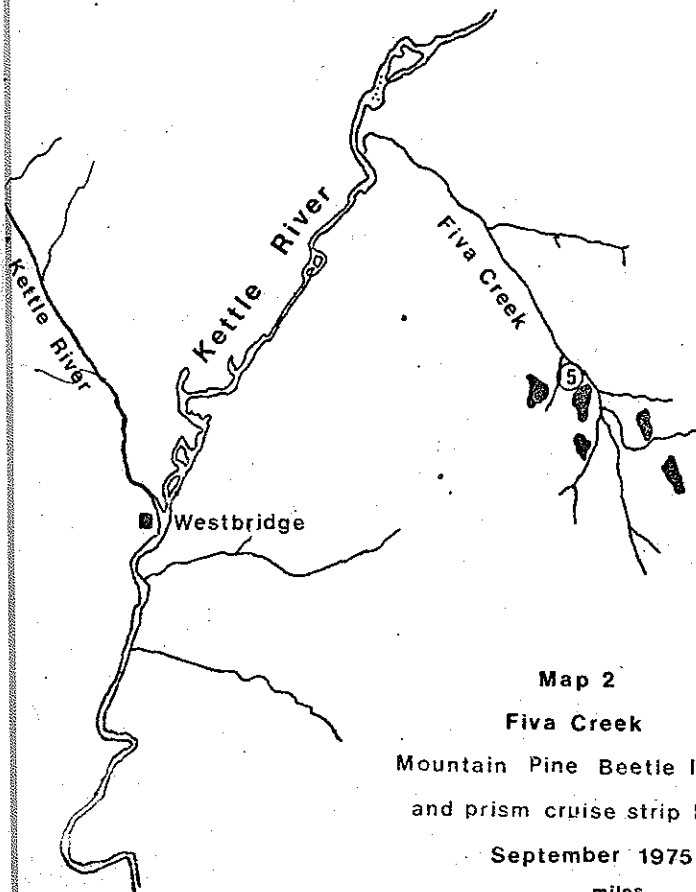
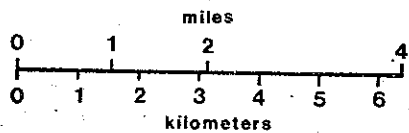
The expansion of mountain pine beetle infestations in 1975, and the large overwintering beetle populations, indicate even greater tree mortality in 1976, provided climatic factors remain favorable for the beetle's development. If sanitation logging is planned for the infested areas, this logging should be carried out during the winter months to reduce beetle populations and remove susceptible trees. This should delay the spread into adjoining pine stands.

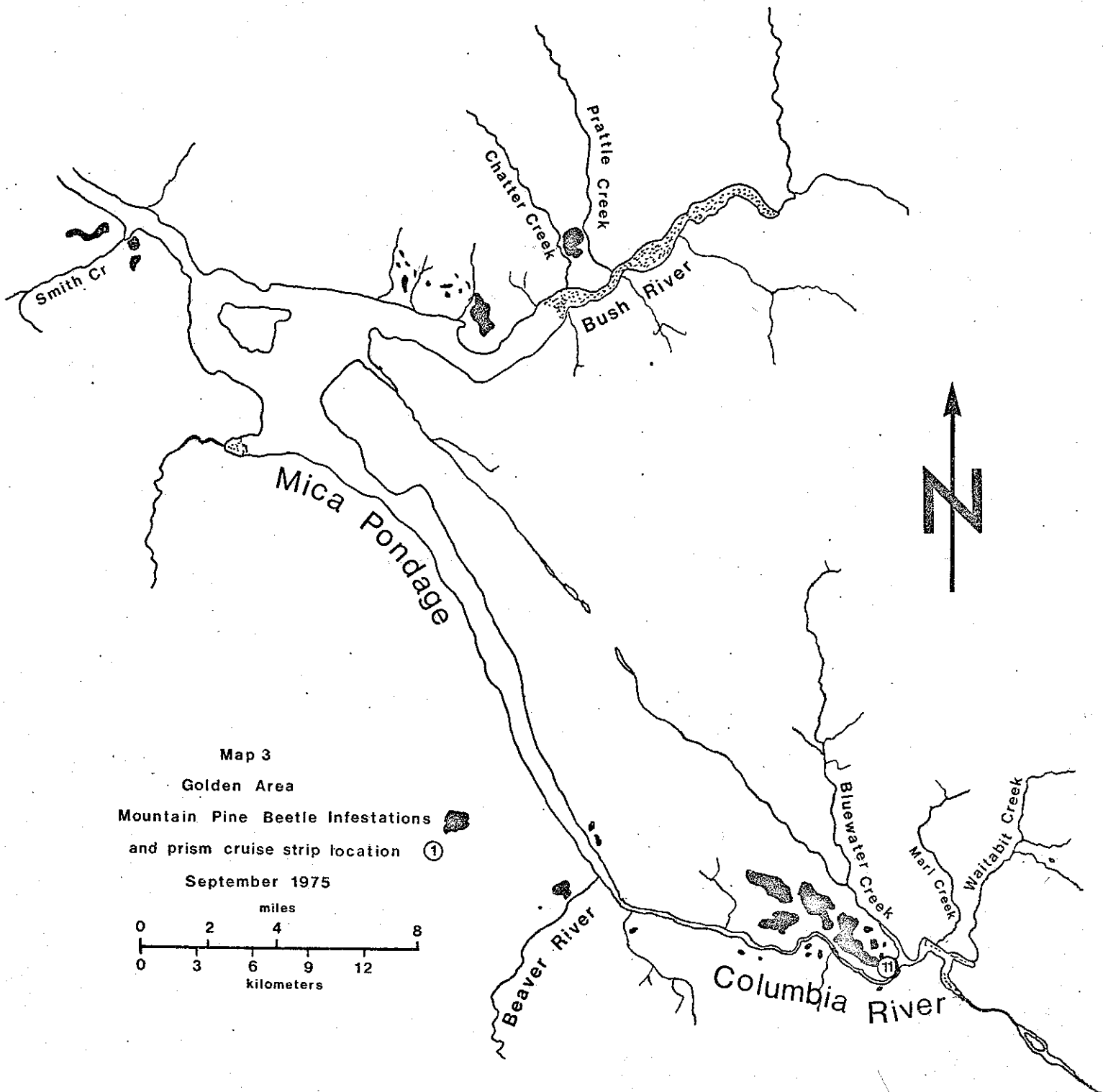
Management of Lodgepole Pine to Reduce Losses from the Mountain Pine Beetle, by L. Safranyik, D. M. Shrimpton and H. S. Whitney should be reviewed; in particular, attention is drawn to page 13 which deals with Sanitation Salvage Logging.

Map 1
 West Kettle River
 Mountain Pine Beetle Infestations 
 and prism cruise strip locations ①
 September 1975

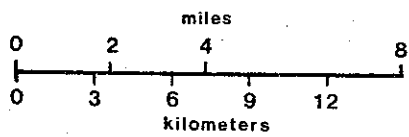


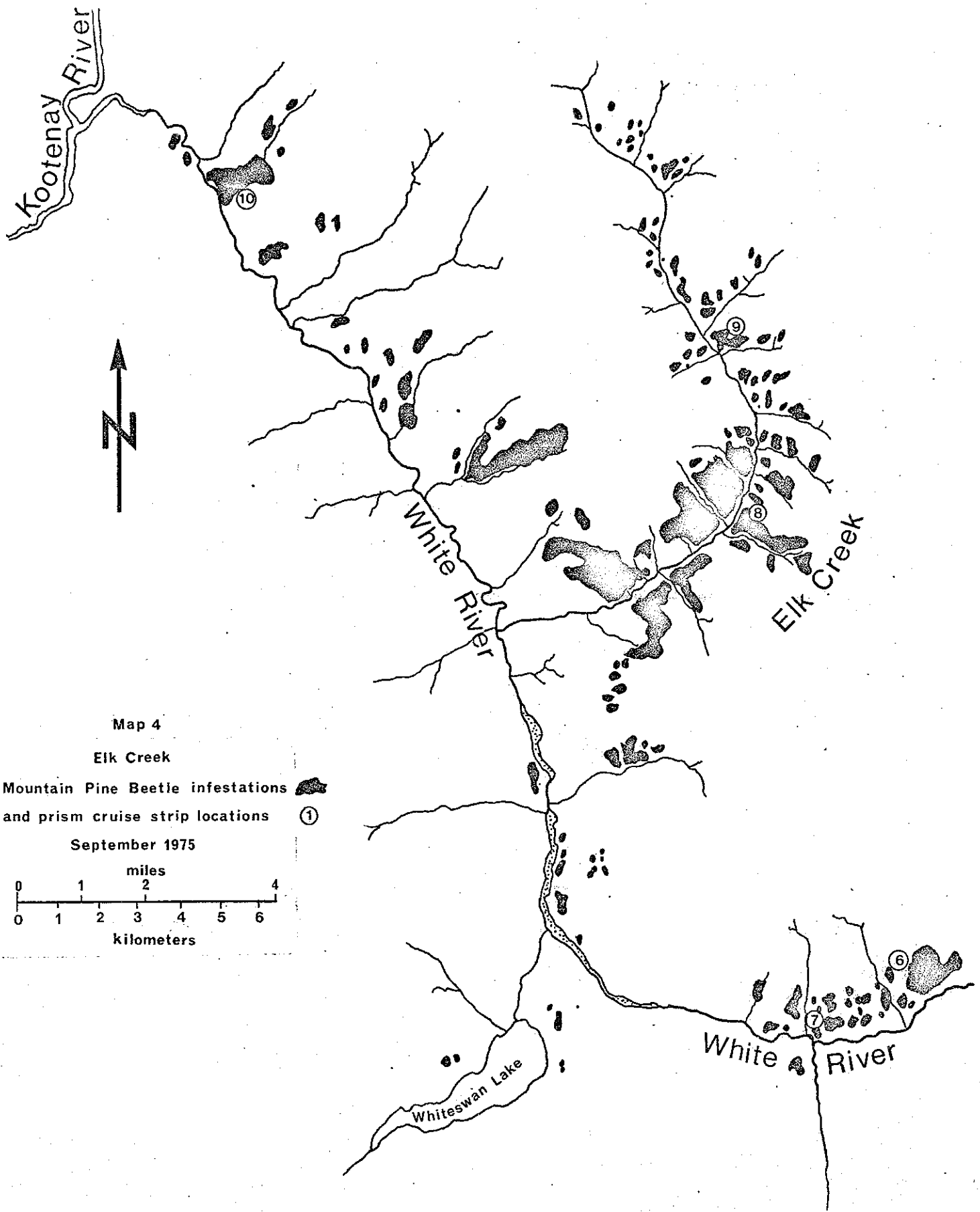
Map 2
 Fiva Creek
 Mountain Pine Beetle Infestations 
 and prism cruise strip location ①
 September 1975





Map 3
Golden Area
Mountain Pine Beetle Infestations
and prism cruise strip location ①
September 1975



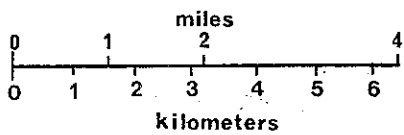


Map 4

Elk Creek

Mountain Pine Beetle infestations and prism cruise strip locations

September 1975





Canadian Forestry Service,
Pacific Forest Research Centre,
506 West Burnside Road,
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November 29, 1978.

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MOUNTAIN PINE BEETLE INFESTATIONS
KAMLOOPS FOREST REGION, 1978.

R.J. Andrews and J.S. Monts

Areas on which pine trees were killed by mountain pine beetle increased in 1978 to 17 770 ha from 15 220 in 1977. Locations of major damage were: Trout Creek, 4800 ha; Goldbridge 4400 ha; Mission - Belgo creeks 1672 ha; Blue River 464 ha; Stein River 1672 ha; and Ashnola River 477 ha. Near Mission - Belgo creeks and Blue River mountain pine beetle damage has been continuous for 16 and 27 years respectively. At Trout Creek, Goldbridge, Stein and Ashnola rivers, where infestations have been continuous since 1973, 1972, 1975 and 1976 respectively, there were significant increases in the numbers of pine trees killed in 1978.

Areas where red-topped trees occurred were mapped and photographed from aircraft in July and August. Where large infestations were encountered at Carpenter Lake, Trout Creek, Blue River and Mission - Belgo creeks oblique and vertical color photographs were used to aid in delimiting infestation boundaries. The infestation areas are listed according to Provincial Forest Service Ranger Districts in Table 1.

Table 1. Location and areas of pine mortality caused by mountain pine beetle in the Kamloops Forest Region, 1978.

Ranger District	Location	Pine Species	Hectares
Lumby RD#1	Shuswap River	WWP	6
	Sitkum Creek	WWP	240
	Outlet Creek	WWP	52
	Cherry Creek	WWP	5
	Total		303
Clearwater RD#2	Adams River	1P	30
	Total		30
Barriere RD#3	Rexford Lake	pP	4
	Sprague Creek	WWP	6
	Saskam Lake	WWP	20
	Adams Lake	WWP	13
	Total		43
Kamloops RD#4	Dufferin Hill	pP	2
	Total		2
Chase RD#5	Onyx Creek	WWP	2
	Scotch Creek	WWP	76
	Total		78
Salmon Arm RD#6	Bastion Creek	WWP	2
	Total		2
Sicamous RD#7	Malakwa	WWP	4
	Three Valley Gap	WWP	4
	Seymour River	WWP	4
	Total		12
Lillooet RD#8	Downton Lake	1P	17
	Gun Lake	1P, pP	1248
	Goldbridge	1P, pP	812
	Plateau Pond	1P, pP	728
	Pearson Pond	1P, pP	448
	Tyughton Lake	1P, pP	92
	Marshall Ridge	1P, pP	344
	Carpenter Lake	1P, pP	240
	Yalakom River	1P	314
	Bridge River	1P	110
	Yalakom River	pP	22
	Leon Creek	1P	164
	Gillion Creek	pP	25
	Bridge River	pP	1

Ranger District	Location	Pine Species	Hectares
	Rough Creek	pP	3
	Lillooet	pP	56
	Three Lake Valley	1P	7
	Cayoosh Creek	1P	10
	Cayoosh Creek	pP	4
	Total		4645
Vernon RD#9	Salmon River	1P	78
	McGregor Creek	1P	27
	Bradley Creek	1P	21
	BX Creek	1P	3
	Coldstream Creek	1P	7
	Whiteman Creek	1P	9
	Kalamalka Lake	1P	6
	Vernon Creek	1P	69
	Total		220
Penticton RD#10	Chapman Creek	1P	10
	Glen Lake	1P	7
	Osprey Lake	1P	512
	Thirsk Lake	1P, pP	1162
	Darke Creek	1P, pP	363
	Lost Chain Creek	1P, pP	1541
	Isintok Creek	1P	477
	Agur Lake	1P	518
	East Okanogan Lk	1P	17
	Ker Creek	1P	3
	Ellis Creek	1P	5
	Matheson Creek	1P	4
	Shingle Creek	1P	12
	Farleigh Creek	1P	128
	Shuttleworth Creek	1P	9
	Anarchist Mountain	1P	176
	Mika Creek	1P	14
	Ashnola River	1P	234
	Young Creek	1P	243
	Total		5436
Princeton RD#11	Hayes Creek	1P, pP	218
	Otter Creek	1P	8
	Christian Creek	1P	30
	Tulameen River	1P	124
	August Lake	1P, pP	98
	Allenby	1P	12
	Wolfe Creek	1P	3
	Whipsaw Creek	1P	25
	Total		518

Ranger District	Location	Pine Species	Hectares
Kelowna RD#5	Bald Range Creek	1P	59
	North Lambly Creek	1P	181
	Lower Lambly Creek	1P, pP	158
	Scotty Creek	1P	33
	Belgo Creek	1P	142
	Mission, Belgo creeks	1P	685
	Trout Creek	1P	3
	Glen Lake	1P	54
	Trepanier Creek	1P	7
	Law Creek	1P	28
	Lorna Creek	1P	43
	Hydraulic Creek	1P	112
	Mission Creek	1P	327
	Clarke Creek	1P	138
	Kallis Creek	1P	4
Clark Creek	1P	203	
	Total		2177
T.F.L. #9	Terrace Creek	1P	774
	Shorts Creek	1P	255
	Whiteman Creek	1P	616
	Bouleau Ridge	1P	63
	Browns Creek	1P	47
	Total		1755
Ashcroft RD#16	Stein River	1P	1341
	Stein River	WWP	37
	Stein River	pP	294
	Thompson River	pP	64
	Nicoamen Creek	pP	16
	Nicoamen Creek	pP	20
	Sackum Creek	pP	14
	Soap Lake	pP	6
	Hat Creek	pP	124
	Cache Creek	pP	6
Tsotin Creek	pP	32	
	Total		1954
Merritt RD#17	Powers Creek	1P	2
	Jack Swartz Creek	pP	4
	Merritt	PP	2
	Chapperon Lake	pP	6
	Total		14
Blue River RD#18	Finn Creek	WWP	8
	Messiter	WWP	14
	Mud Lake	WWP	48
	Blue River	WWP	384
	Redsand	WWP	32
	North Thompson R	WWP	5
	Moonbeam Creek	WWP	48
Gosnell	WWP	6	
	Total		545

Ranger District	Location	Pine Species	Hectares
Enderby RD#19	Harland	WWP	9
	Wap Lake	WWP	2
	Glanzier Creek	WWP	25
	Total		36

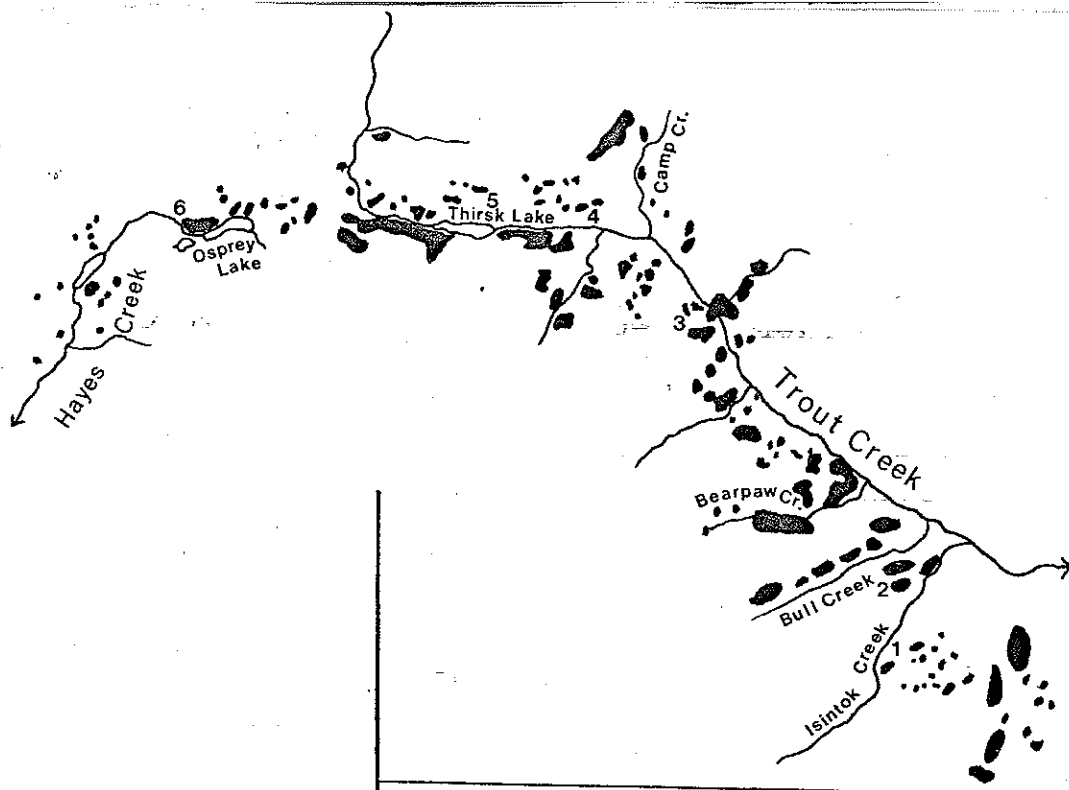
Totals by species:

Lodgepole pine	8042
Ponderosa pine	682
Lodgepole, Ponderosa pine mixture	7964
Western White Pine	1082
Grand Total	<u>17770</u> hectares

Cruising was conducted in September at Trout Creek, Goldbridge and Ashnola River to determine the percentage of trees attacked by mountain pine beetle (Table 2). A total of 249 prism plots were established at 50 meter intervals on a total of 16 cruise strips at the above locations.

Table 2. Status of lodgepole pine trees on cruise strips, Kamloops Forest Region, 1978.

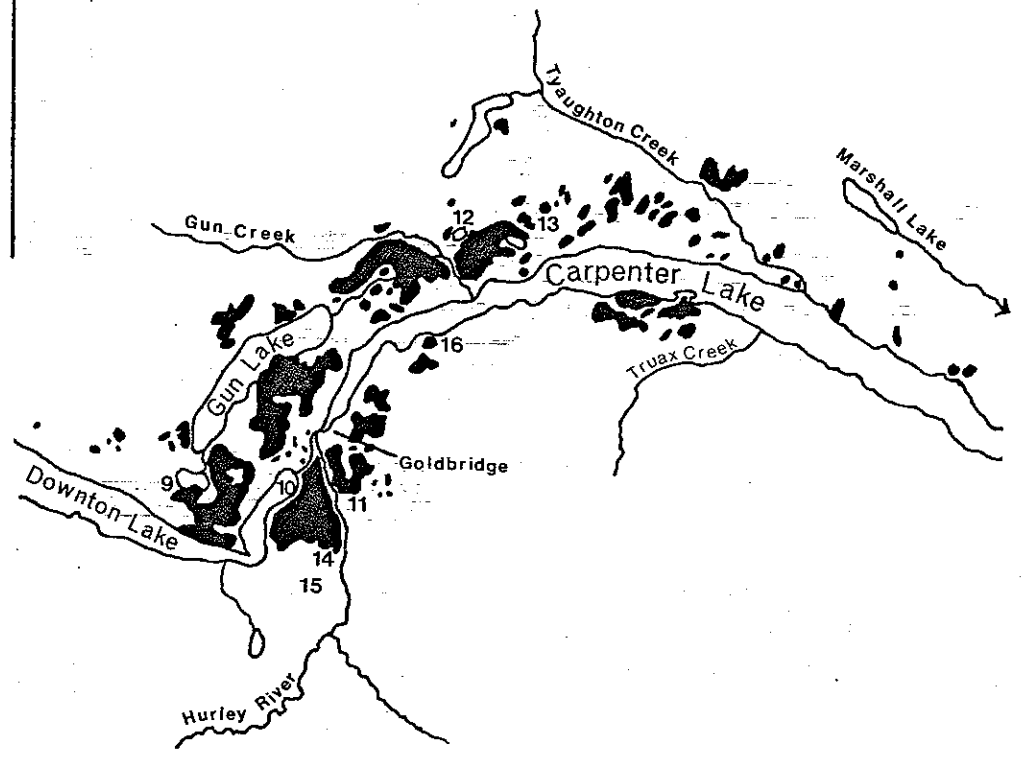
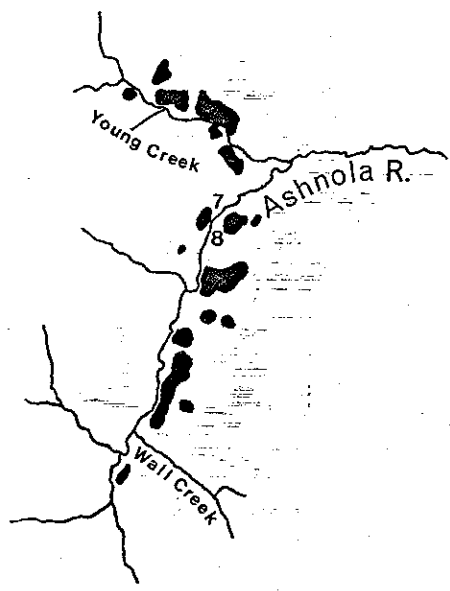
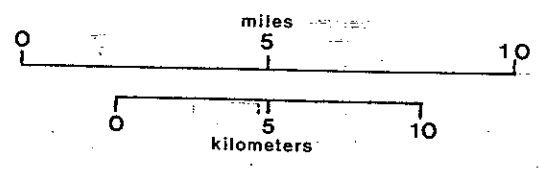
Strip	Location	Percentage of Stems				
		Healthy	Current	Red	Partial	Gray
1	Isintok Creek	40	23	11	5	19
2	Bull Creek	37	11	39	3	10
3	Trout Creek	38	20	26	6	8
4	Trout Creek	63	23	1	3	9
5	Thirsk Lake	52	35	3	8	-
6	Osprey Lake	68	22	6	2	-
7	Ashnola River	45	39	9	4	2
8	Ashnola River	33	17	8	6	2
9	Gun Lake	4	9	38	9	39
10	LaJoie Dam	20	10	18	11	39
11	Brexton	23	21	37	12	7
12	Mowson Pond	50	32	10	4	3
13	Pearson Ridge	28	42	10	7	12
14	Mile 2, LaJoie Dam	16	81	-	1	1
15	Mile 3, LaJoie Dam	78	15	-	7	-
16	McDonald Creek	39	25	20	9	7



Trout Creek, Ashnola River and Carpenter Lake
 Mountain Pine Beetle Infestations

Kamloops Forest Region, 1978

Infestations - [dark shape]
 Cruise Strips - [dashed line]

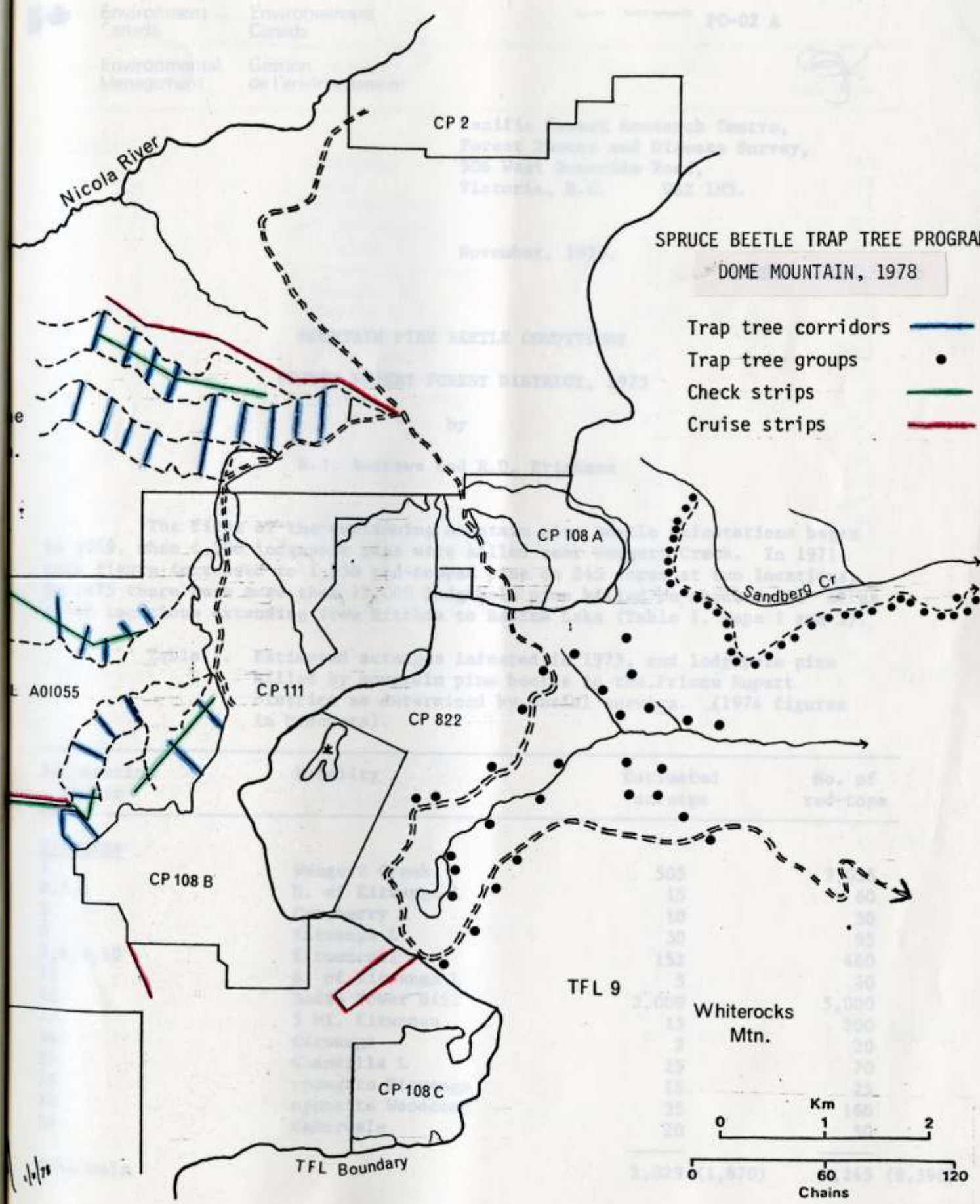


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SPRUCE BEETLE TRAP TREE PROGRAM — DOME MOUNTAIN, 1978

- Trap tree corridors ————
- Trap tree groups ●
- Check strips ————
- Cruise strips ————



1/1/78

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PRINCE RUPERT FOREST DISTRICT, 1975

by

R.J. Andrews and R.D. Erickson

The first of the continuing mountain pine beetle infestations began in 1969, when 1,000 lodgepole pine were killed near Weegett Creek. In 1971 this figure increased to 1,930 red-topped pine on 245 acres at two locations. In 1975 there were more than 17,000 lodgepole pine killed on about 5,100 acres at 48 locations extending from Ritchie to Babine Lake (Table 1, Maps 1 and 2).

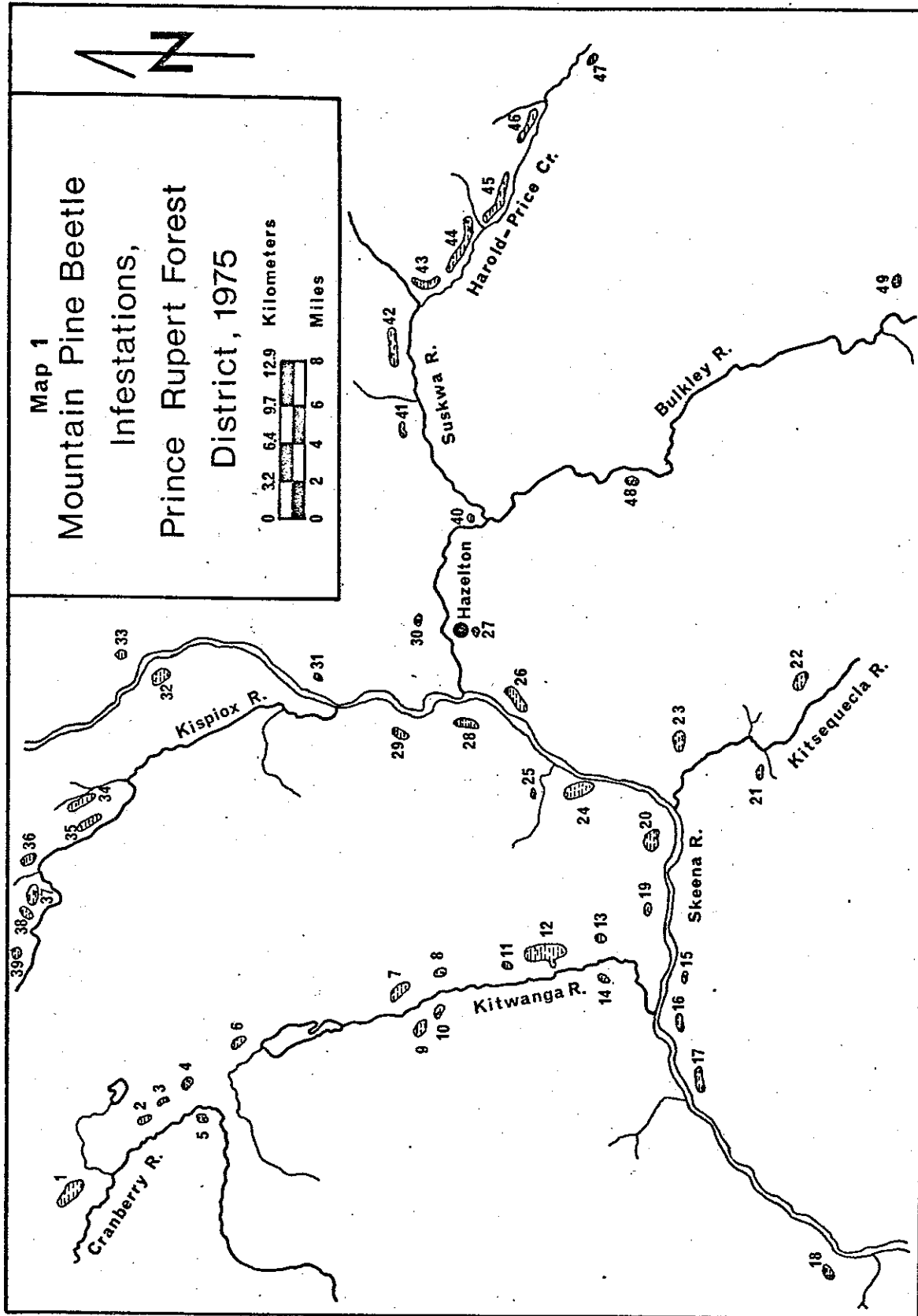
Table 1. Estimated acreages infested in 1975, and lodgepole pine killed by mountain pine beetle in the Prince Rupert District as determined by aerial surveys. (1974 figures in brackets).

Infestation number	Locality	Estimated acreage	No. of red-tops
<u>Kitwanga</u>			
1	Weegett Creek	505	3,035
2,3,4	N. of Kitwanga L	15	60
5	Cranberry R	10	30
6	Kitwanga L	30	95
7,8,9,10	Kitwancool	152	460
11	S. of Kitwanga L	5	40
12	Radio Tower Hill	2,000	5,000
13	5 Mi. Kitwanga	15	200
14	Kitwanga	2	20
15	Shandilla L	25	70
16	opposite Kitwanga	15	25
17	opposite Woodcock	35	160
18	Cedarvale	20	50
Subtotals		2,829 (1,870)	9,245 (8,390)

Table 1 - cont'd.

Infestation number	Locality	Estimated acreage	No. of red-tops
<u>Hazelton</u>			
19	Andimaul	10	45
20	Nash	10	75
21	Kitsuns Cr	2	4
22	Kitseguella R	50	325
23	Juniper Cr	10	60
24	opposite Carnaby	200	600
25	Burdick Cr	5	10
26	Seeley L	250	850
27	Hazelton	5	35
29	Glen Vowell	20	90
30	Four Mile Mtn	10	30
31	Kispiox Village	10	60
32	Tenas Hill	25	140
33	Sterritt Cr	2	10
34,35	Sammon L	400	230
36	First Cabin	100	200
37,38	Kline L	200	1,070
39	Elizabeth L	15	20
40	Jct. of Suskwa & Bulkley	5	20
41	18 Mile Cr	10	35
42	Natlan Cr	250	2,000
43,47	Harold Price Cr	500	1,990
48	Moricetown	2	12
Subtotals		2,111 (781)	7,881 (5,140)
<u>Smithers</u>			
49	Gramophone Cr	5	35
50	Canyon Cr	5	20
51	Telkwa (Hubert)	5	18
Subtotals		15 (60)	73 (900)
<u>Houston</u>			
52	Aitken Cr - Gilmore L	5	15
53	McKilligan Cr	30	65
54	Dungate Cr	2	10
55,56	Buck Cr	50	153
Subtotals		87 (330)	243 (1,660)

Map 1
Mountain Pine Beetle
Infestations,
Prince Rupert Forest
District, 1975



Map 2

Mountain Pine Beetle
Infestations
Prince Rupert Forest
District, 1975

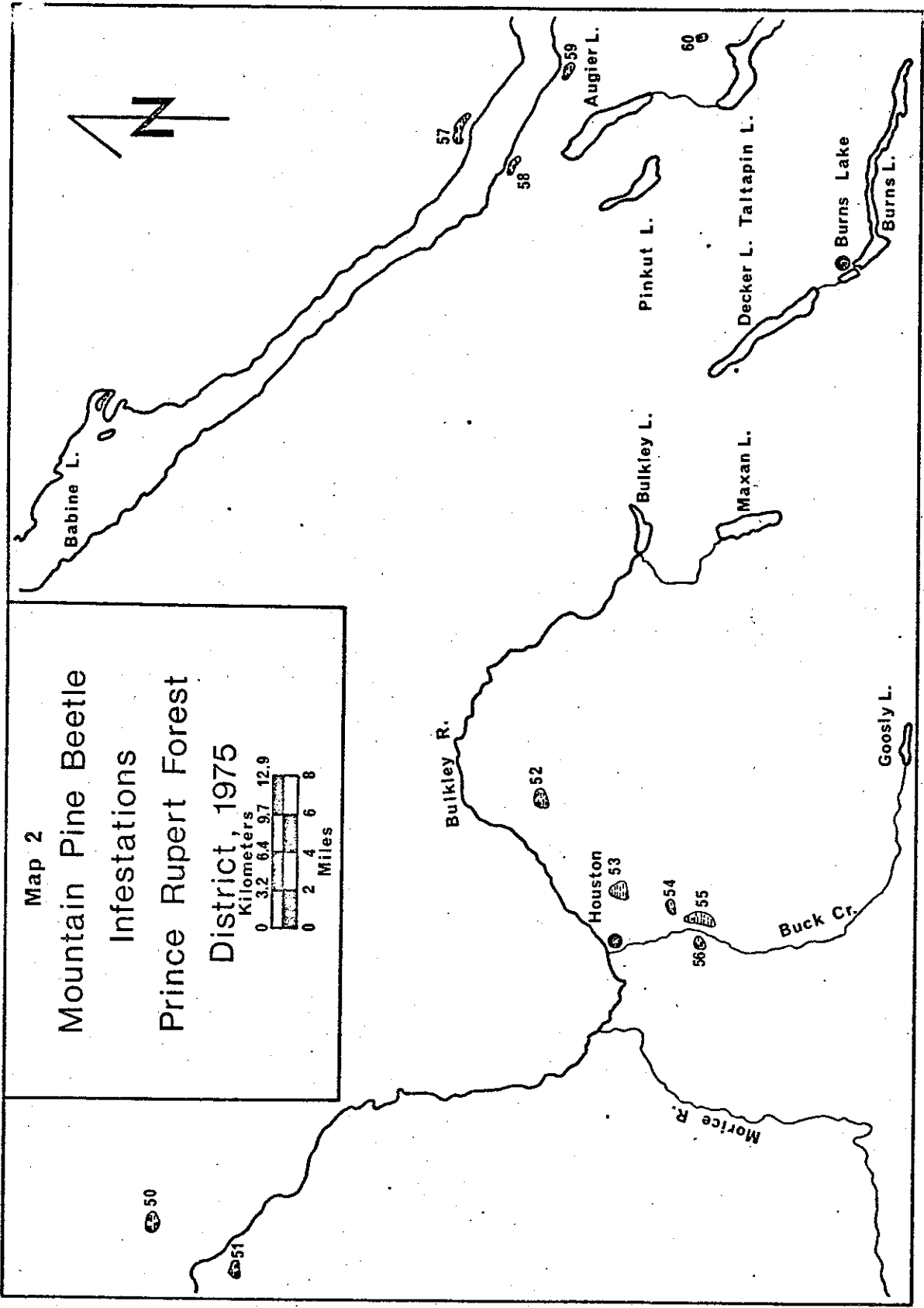
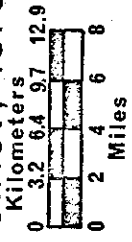


Table 1 cont'd.

Ir station number	Locality	Estimated acreage	No. of red-tops
<u>Burns Lake</u>			
57	Boling Pt.	20	140
58	Donald Ldg.	5	65
59	Pinkut Cr	5	50
60	Taltapin L.	2	4
Subtotals		32 (251)	259 (1,010)
Grand Totals		5,074 (2,992)	17,701 (17,100)

In June, beetle broods were assessed on one-half square foot bark samples at breast height on 25 trees at Kitwanga, Seeley Lake, Kline Lake, Dungate Creek and Goathorn Creek. The ratio of living progeny to successful total attacks indicated increasing populations at all locations.

During September, 13 cruise lines with prism plots at two chain intervals were run at six localities to determine attack trends (Table 2). Stand type in most areas was lodgepole pine mixed with western hemlock, white spruce, balsam and/or trembling aspen and white birch.

In forecasting population and damage trends, consideration was given to changes of timber type, density of pine and proximity of logging to the strip.

Three strip cruises were run north and east of Elizabeth Lake to determine a possible northern extension of beetle infestations. Strip 6 indicates a preference by the beetle to attack susceptible pines in stands where previous attacks had occurred. An increasing number of red-tops will be evident in 1976 for a radius of some 15 chains around the groups of red-tops counted in 1975. South of these infestations, stands have a larger pine component and will be more susceptible to beetle attack than those to the north, where a gradual timber type change excludes pine.

Table 2. Status of lodgepole pine on cruise strips, Prince Rupert Forest District, 1975.

Strip No.	Location	Pine Stems /acre	Percent			
			Healthy	Green Attack	Red	Gray
1	Kline L	41	100	0	0	0
2	" "	151	84	9	7	0
3	" "	55	37	44	19	0
4	Elizabeth L	20	100	0	0	0
5	" "	139	87	3	0	10
6	" "	71	78	10	3	9

Table 2 cont'd.

Strip No.	Location	Pine Stems /acre	Percent			
			Healthy	Green Attack	Red	Gray
7	First Cabin	133	80	11	2	6
8	" "	34	73	18	5	3
9	Weegett Cr	116	100	0	0	0
10	" "	127	94	6	0	0
11	Mi.25 Kitwanga	132	91	2	1	6
12	McKilligan Cr	222	86	7	4	3
13	" "	64	88	0	6	6

The infestations south of Elizabeth Lake in the Kispiox River drainage are expected to increase in size, as are the outbreaks at Natlan and Harold Price creeks, along the Skeena River west of Hazelton and the infested areas in the Kitwanga River drainage. Increased numbers of red trees are expected near the spot infestations north of Kitwanga Lake and north of the Weegett Creek logged area. However, climatic change north of the main infested area at Weegett Creek and a forest type change to the east, will prevent further expansion of the infestation in these directions.

Most beetle infestations east of Hazelton and particularly those near Smithers, Houston and Burns Lake, that were infested in 1974, have been reduced by timely cut-and-burn and logging practices. This has been reflected by a reduction in the number of red trees counted in 1975 at Smithers, Houston and Burns Lake (Table 1). However, the abundance of suitable host material and favorable climatic conditions will continue to encourage increases in beetle populations.

Map 2

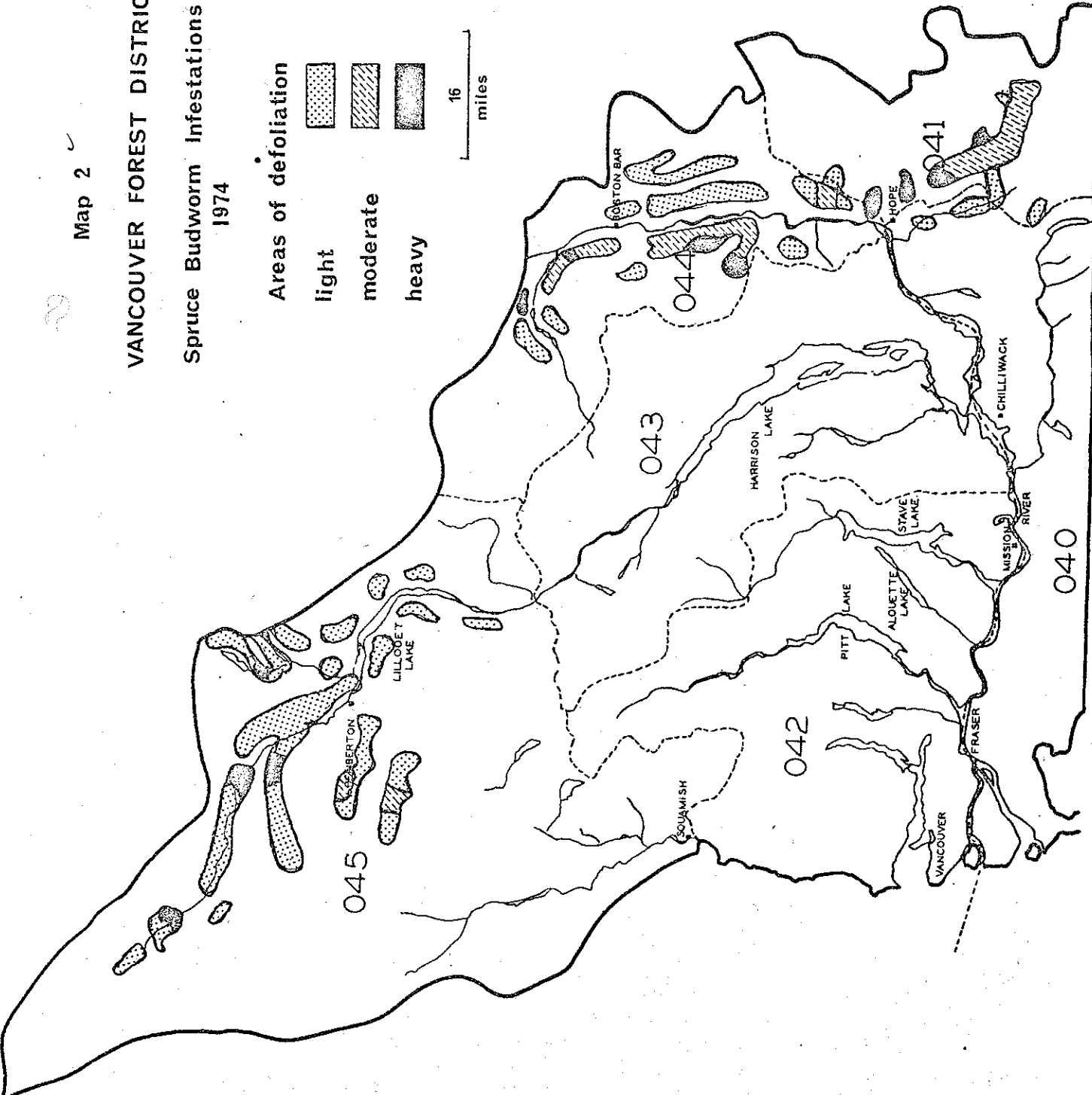
VANCOUVER FOREST DISTRICT

Spruce Budworm Infestations 1974

Areas of defoliation

- light
- moderate
- heavy

16 miles



02-18-40 0

M.F.

Your file Votre référence

Our file Notre référence

PC-02 A



Environment
Canada

Environnement
Canada

Environmental
Management

Gestion
de l'environnement

SPECIAL REPORT

Pacific Forest Research Centre,
Forest Insect and Disease Survey,
506 West Burnside Road,
Victoria, B.C. V8Z 1M5.

November, 1975.

MOUNTAIN PINE BEETLE CONDITIONS

CARIBOO FOREST DISTRICT 1975

by

D.F. Doidge

Lodgepole pine mortality from mountain pine beetle attacks is a major problem in the Cariboo Forest District. One of the main reasons for this problem is that the majority of the lodgepole pine in the District is in the climatically moderate or high beetle hazard area, and a large portion has reached the susceptible age of 80 years and size of 8 inches diameter.

Significant increases in the mountain pine beetle population became apparent in 1970. In 1972 infestations developed along the Klinaklini River, and in 1973, there were infestations around the north end of Cariboo Lake. In 1974 infestations occurred at Bull and Bald mountains, at the south end of Cariboo Lake, around Tyee Lake and the mouth of Little River, and in scattered spots east of Williams Lake.

Red-topped trees, which for the most part are trees attacked the previous year, are detected through aerial reconnaissance and currently attacked trees, which are still green, (green-attacked) are detected through ground cruising. The normal procedure during aerial reconnaissance is to estimate the number of red-tops for a given area and delineate, by a sketch map, the areas attacked. More precise data may be obtained from aerial colour photographs. Data relative to current attacks and predictive estimates are obtained by running strip cruises through susceptible stands of high value and recording data on prism plots at two-chain intervals. The extent of the outbreaks, accessibility, economics, and desired degree of accuracy dictate the type of survey employed. During 1975, most of the susceptible stands were covered by aerial reconnaissance and sketch mapped. In addition, vertical aerial photos were taken of the Bull-Bald mountain, Becher's Prairie, and Tyee Lake infestations. Ground cruising was also conducted in these areas.

Table 1 con't...

<u>Locality</u>	<u>No.</u> <u>red-tops</u>	<u>Locality</u>	<u>No.</u> <u>red-tops</u>
<u>Dog Creek - Jesmond</u>		<u>Fraser River - Cuisson Lake</u>	
Jesmond	2,600	Granite Mountain	300
Canoe Creek	1,750	Eveline Lake	250
Kostering Creek	1,300	Duckworth Lake	200
Dog Creek	1,150	Webster Lake	200
Onion Lake	400	Cuisson Lake	150
Vert Lake	400	Narcosli Creek	100
Gulatch Lake	350	McLeese Lake	100
Pigeon Lake	300	Nyland Lake	100
Big Bar Creek	300		
Alkali Lake	300		
Brigham Creek	250		
China Lake	250		
Meadow Lake	150		
Alixton Creek	100		
		Total	1,400
Total	9,700		

The results of ground cruising in September are presented in Table 2.

TABLE 2. Status of lodgepole pine trees on cruise strips, Cariboo Forest District, 1975.

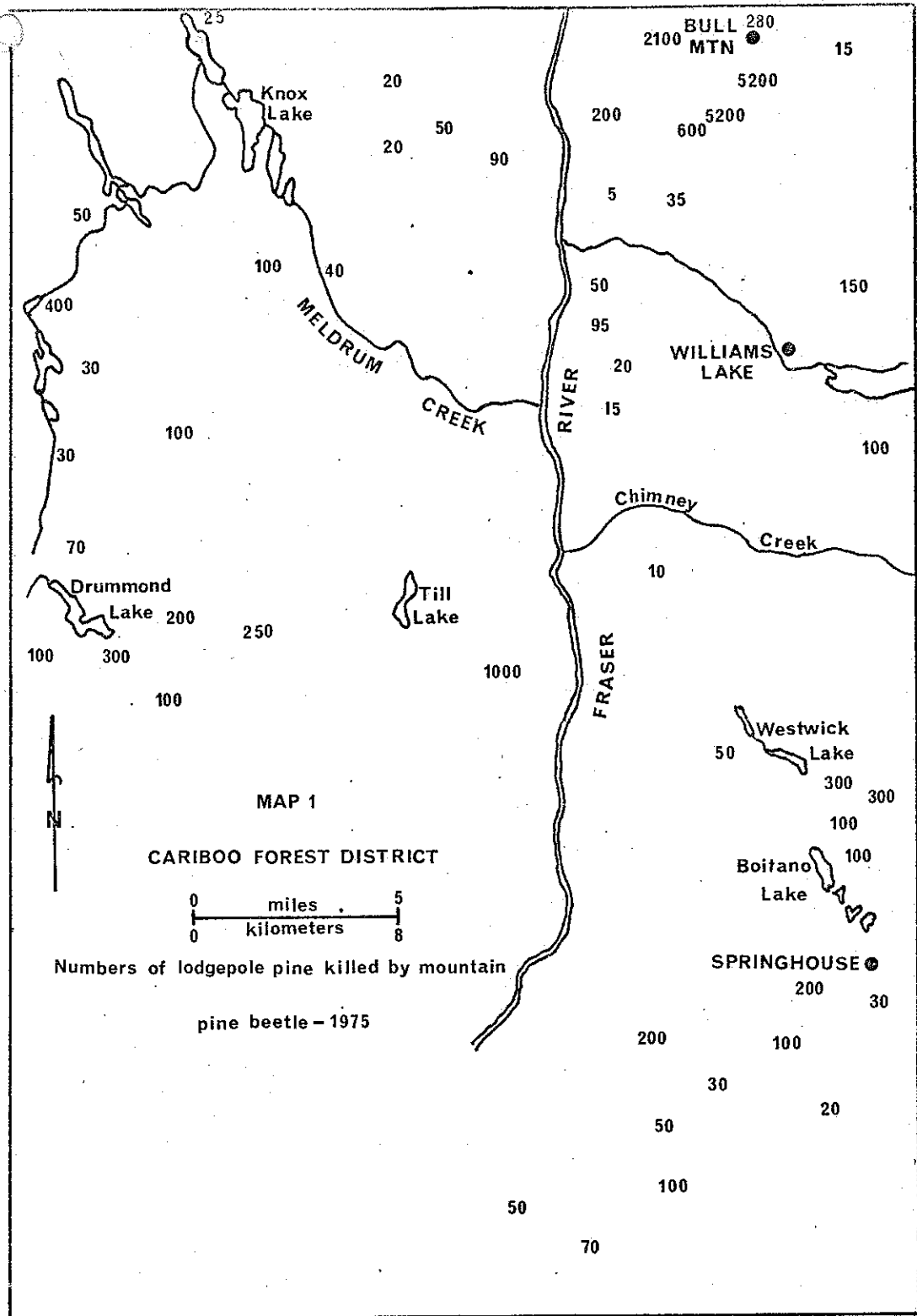
Location	% healthy	% a t t a c k e d		
		Green attack 1975	Red attack 1974	Grey attack prior to 1974
Bald Mountain	55	22	16	8
Bull Mountain	71	24	5	1
Tyee Lake	48	23	22	6
Becher's Prairie	67	16	16	1

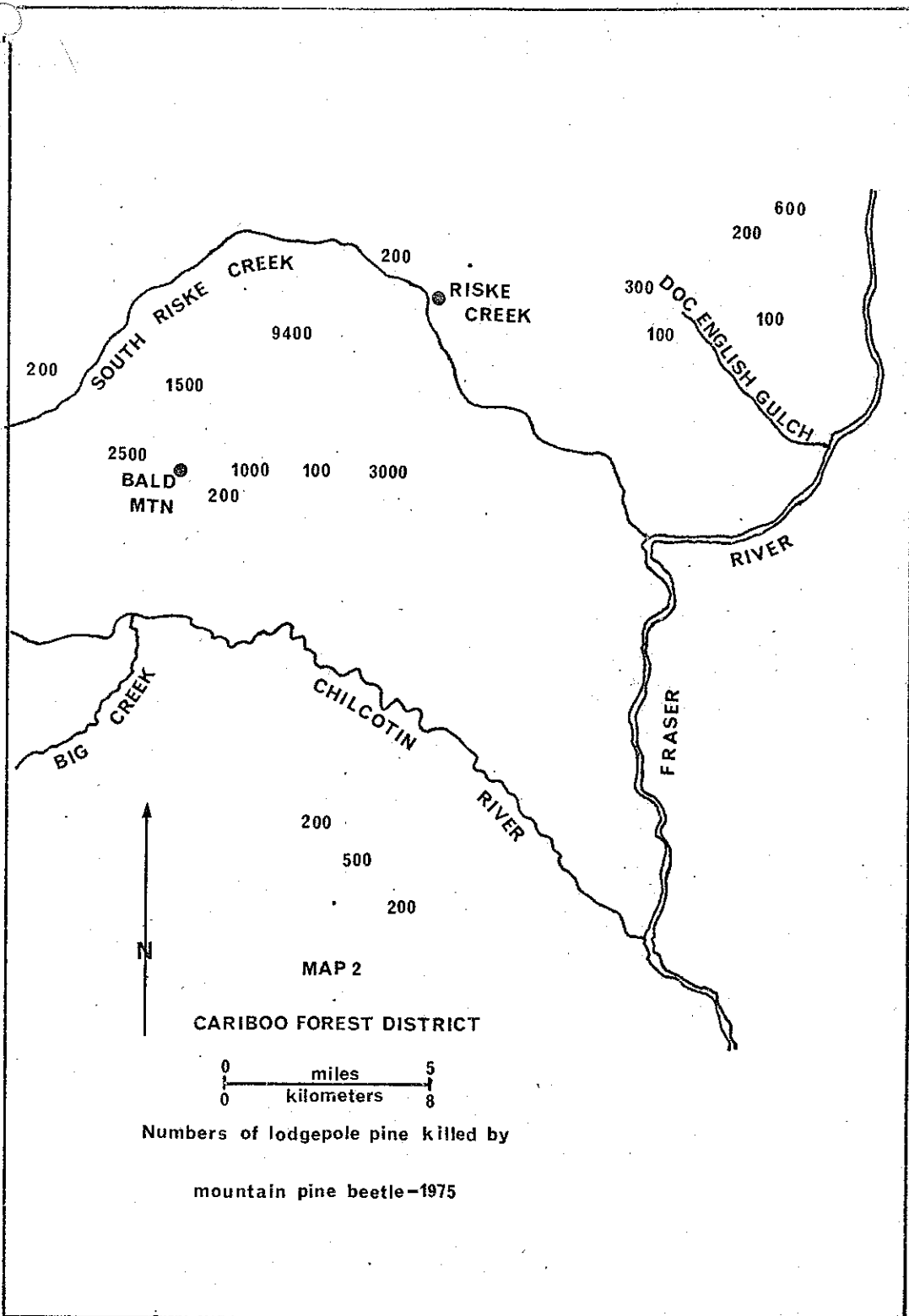
From 16 to 24% of the lodgepole pine stems on the strips were attacked in 1975. This, combined with the 1974 attack, means that these stands have lost from 29 to 52% of their pine component. In all areas there is potential for further expansion by the beetle as the residual healthy trees are of susceptible age and size.

The extremely large outbreak along the Klinaklini River is inaccessible except by helicopter, therefore no fall surveys were conducted. However, during the August aerial surveys, photos were taken and they show that the beetle infestation is moving up the valley and into the tributary valleys. There is an abundance of host material in these valleys as well as on the plateau in One Eye Lake - Tatla Lake areas. It is expected that this outbreak will continue.

Salvage logging is taking place in the Bull and Bald mountain and Tye Lake infestations. This, together with removal of susceptible lodgepole pine, should reduce the beetle populations in these areas.

Management of Lodgepole Pine to Reduce Losses from the Mountain Pine Beetle, by L. Safranyik, D.M. Shrimpton and H.S. Whitney should be consulted; in particular, attention is drawn to page 13 which deals with Sanitation Salvage Logging.

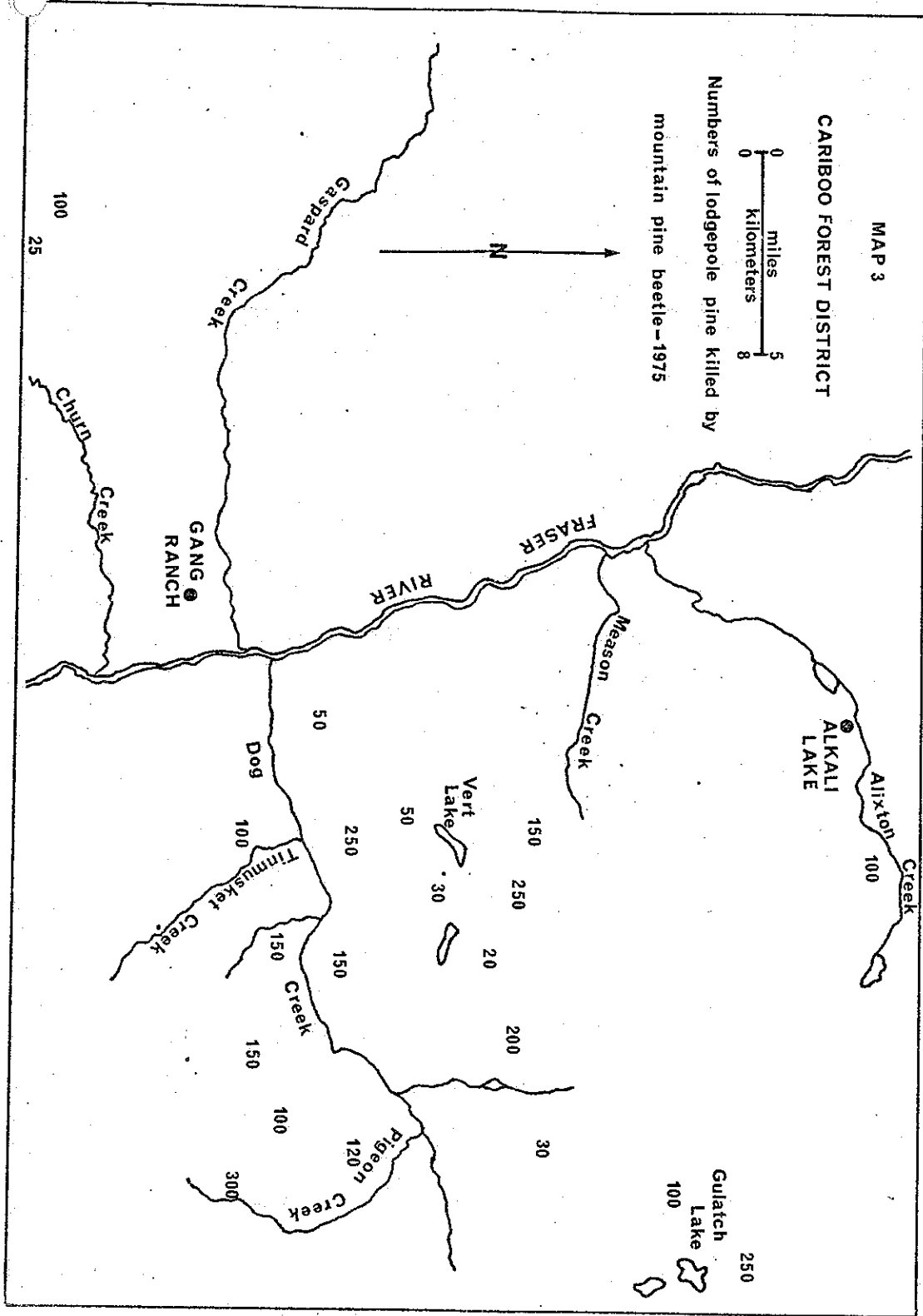
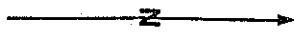
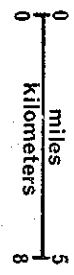


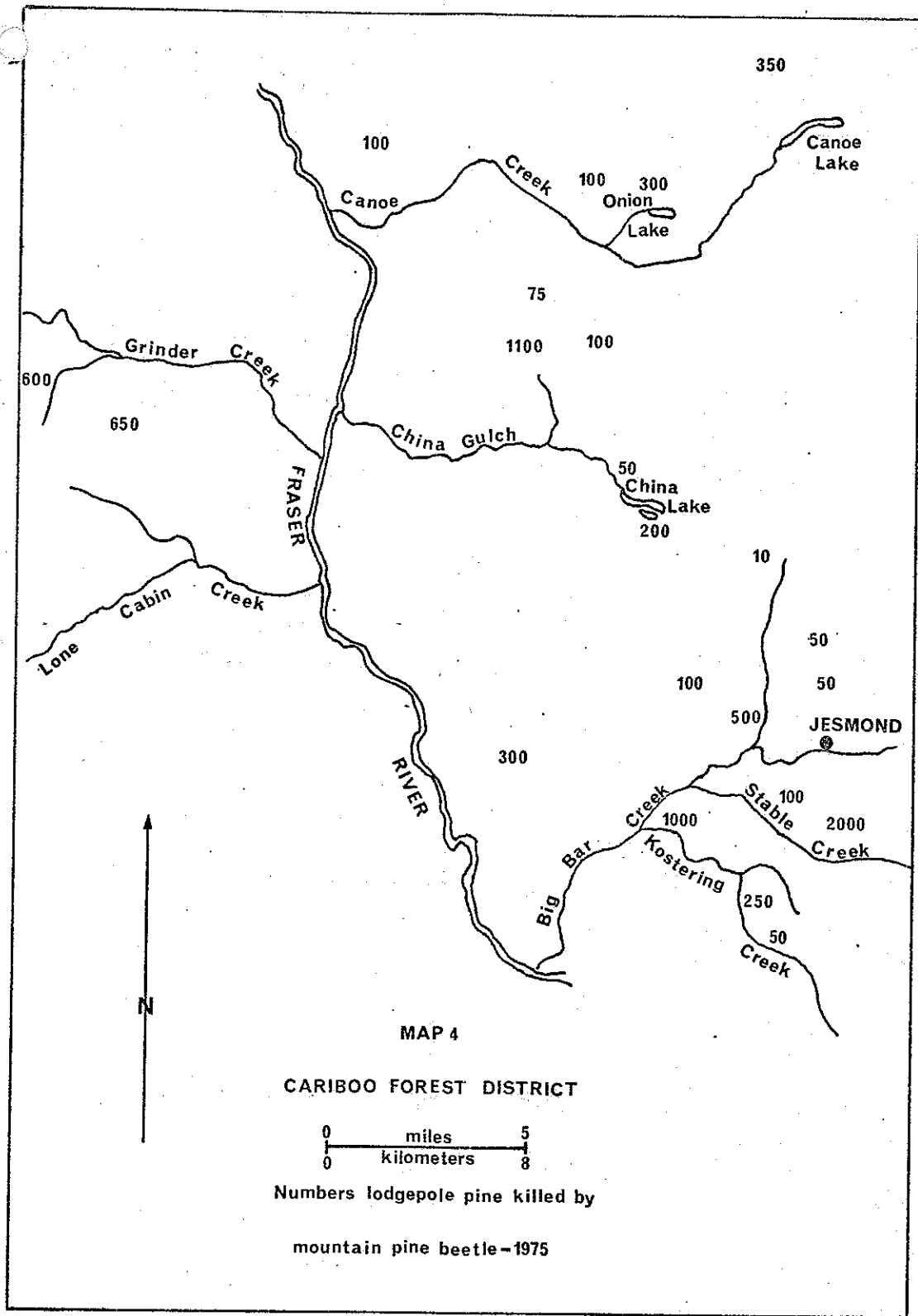


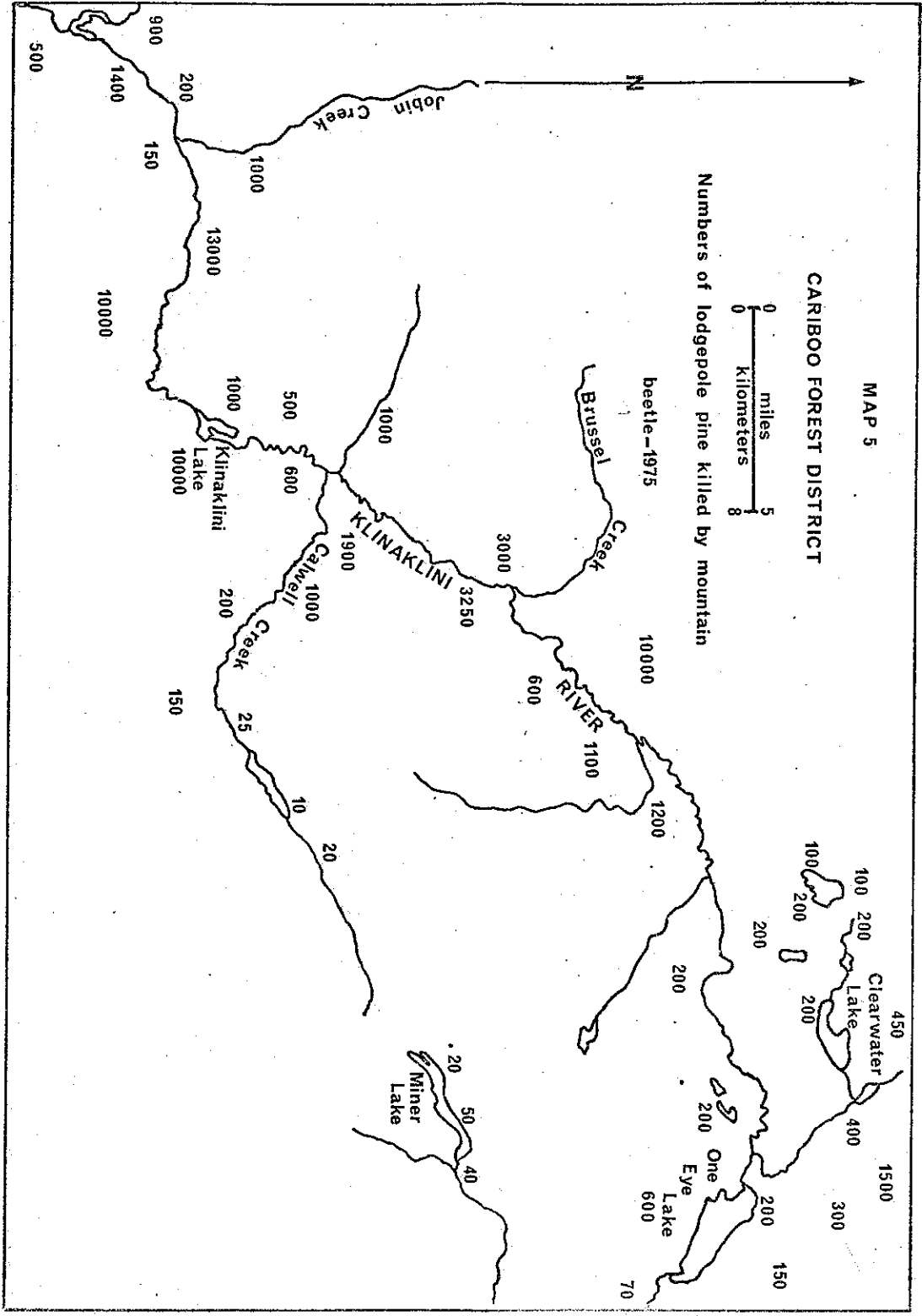
CARIBOO FOREST DISTRICT

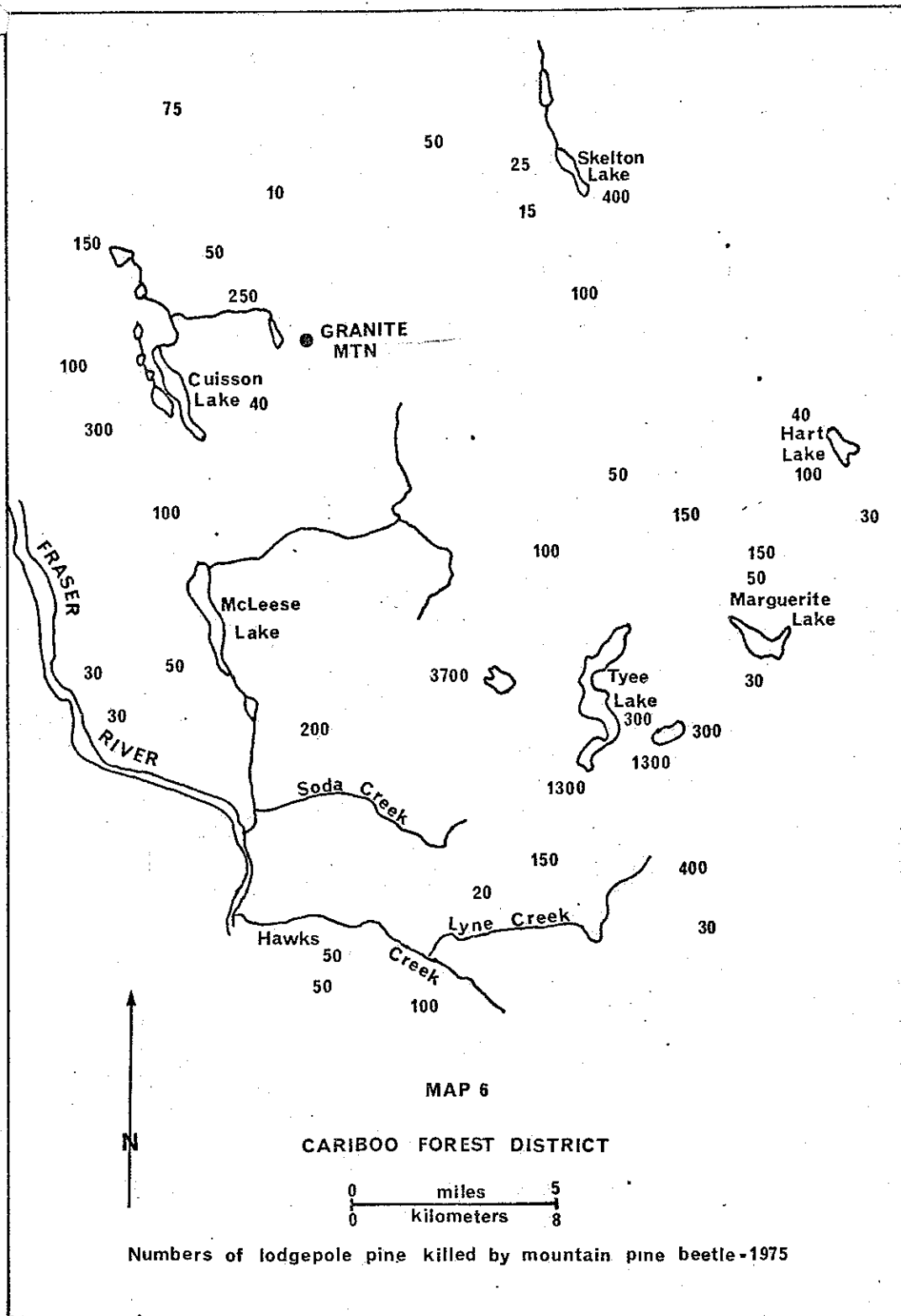
MAP 3

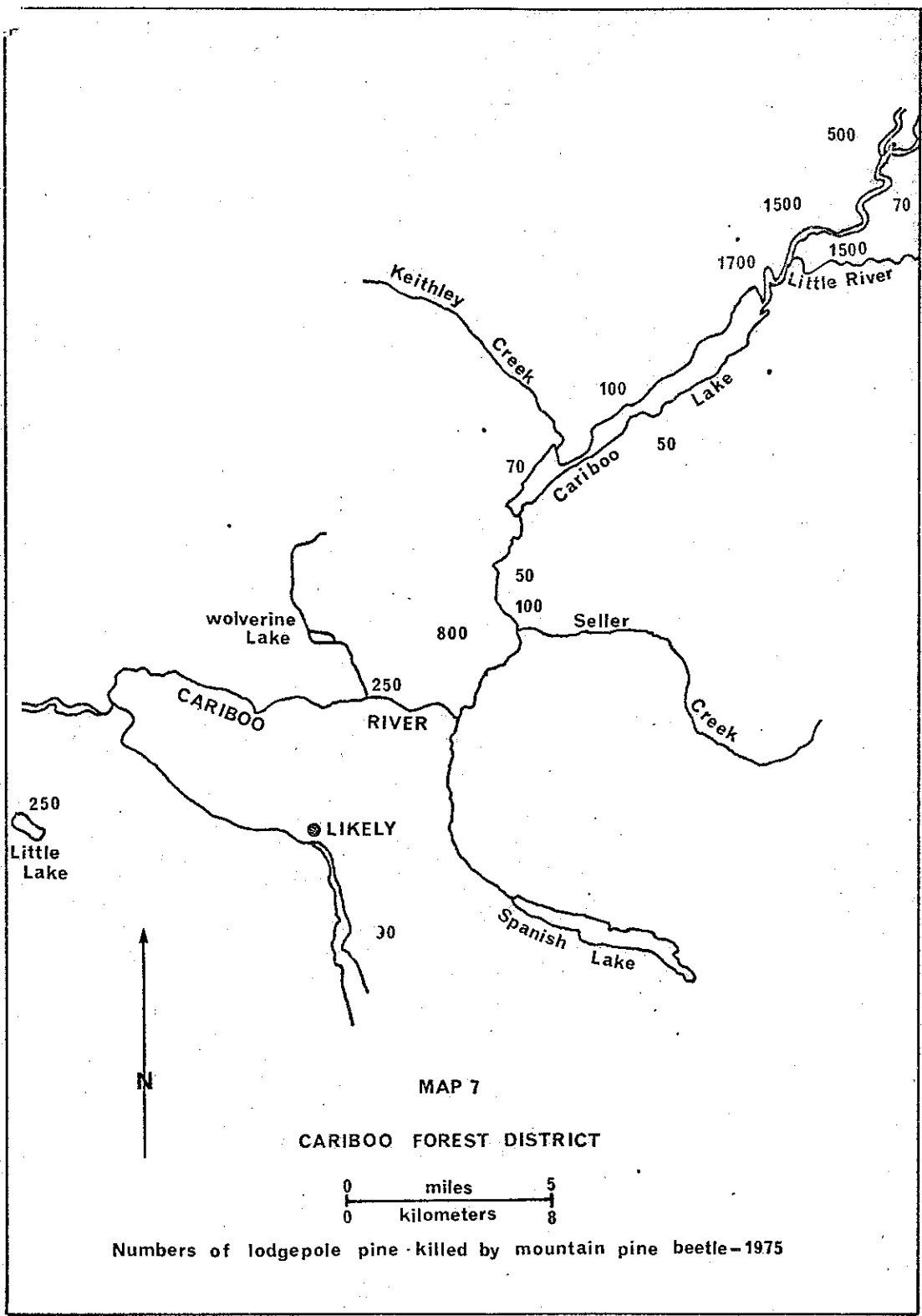
Numbers of lodgepole pine killed by
mountain pine beetle - 1975

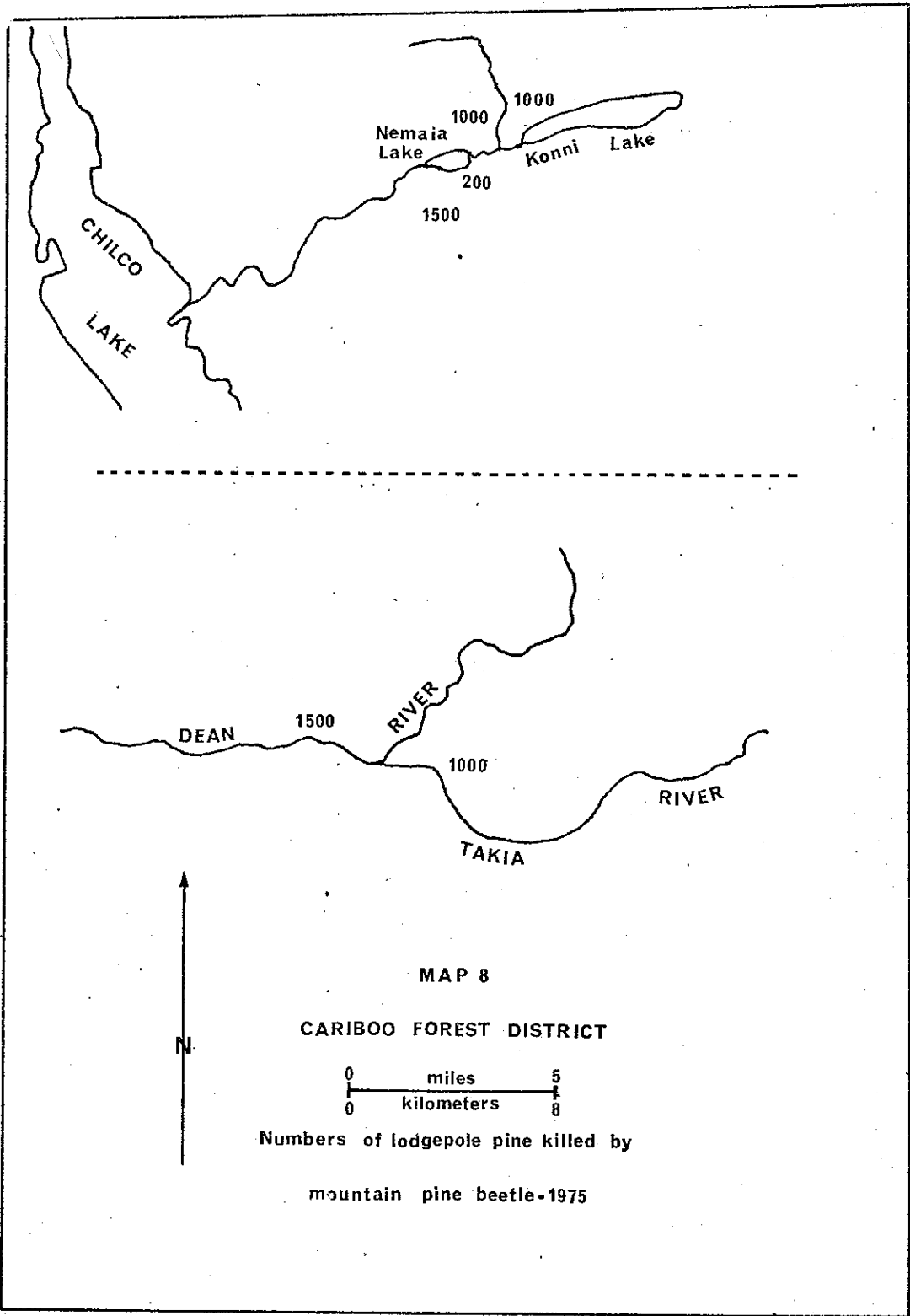












MAP 8

CARIBOO FOREST DISTRICT

0 miles 5
0 kilometers 8

Numbers of lodgepole pine killed by

mountain pine beetle-1975

C
M.F.

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Environment
Canada

Environnement
Canada

Our file Notre référence

PC-02 A

Environmental
Management

Gestion
de l'environnement

Pacific Forest Research Centre,
Forest Insect and Disease Survey,
506 West Burnside Road,
Victoria, B.C. V8Z 1M5.

November, 1975.

STATUS OF THE MOUNTAIN PINE BEETLE, KAMLOOPS

FOREST DISTRICT, 1975.

by

C.B. Cottrell and H.P. Koot

The mountain pine beetle has been a chronic problem in the Kamloops Forest District, periodically reaching epidemic proportions. Even during periods of limited infestations, one to two thousand acres of lodgepole or western white pine trees have been attacked annually.

The present epidemic, which suddenly expanded in 1972, includes more than 18,000 acres (Tables 1 and 2). Several thousand additional acres have been logged to salvage beetle-killed trees. The most noteworthy increases were in lodgepole pine stands in the Okanagan Valley and in western white pine stands in the Adams, North Thompson and Shuswap river valleys and along Cayoosh Creek. The number of beetle-killed ponderosa pine remained low until 1974 and 1975 when several small outbreaks developed in the western portion of the District.

In the Okanagan Valley, beetle attacks in lodgepole pine stands have developed in six major areas. Infested acreages were estimated as follows: Whiteman Creek, 1,000; east of Ellison, 1,200; Mission Creek, 1,550; Lambly (Bear) Creek, 3,300; Trout Creek, 1,900 and Riddle Creek, 1,000. In addition, new smaller infestations were noted near Cyama Lake, and along Power, Jack and Camp creeks. Elsewhere, new infestations occurred southwest of Keremeos in the Ashnola River Valley, and near Murray Lake, southwest of Merritt.

Increased attacks occurred in western white pine stands in four major drainages. Acreages involved are as follows: From Avola to Lempriere, 1,200; east of Gannett Lake, 600; North Barriere Lake, 500; Cayoosh Creek Valley, 2,000 and along the Yalakom River, 600.

The first major infestation in ponderosa pine since 1969 became apparent at Murray Lake in 1975. More than 100 acres of mature ponderosa pine were killed by the 1974-75 attack; and surrounding lodgepole pine trees were attacked in 1975. Infestations of 50 acres each occurred in ponderosa pine stands near Carpenter Lake and Hat Creek.

TABLE 1. Acreages of pine trees killed by the mountain pine beetle from 1973 to 1975, Kamloops Forest District

Pine species	Estimated number of acres		
	1973	1974	1975
Lodgepole	1,900	5,000	10,750
Western white	3,100	5,000	7,150
Ponderosa	30	50	300
Totals	5,030	10,050	18,200

The successful 1975 attack produced a large population of beetles. Therefore, in 1976 infestations are expected to expand where mature or over-mature trees are available in high hazard areas. (See page 11 - "Management of Lodgepole Pine to Reduce Losses from the Mountain Pine Beetle," by L. Safranyik et al.).

TABLE 2. Acres of pine trees killed by mountain pine beetle, Kamloops Forest District, 1975

Drainage	Location	Acres
	LOGEPOLE PINE	
Bridge River	Carpenter Lake	400
		<u>400</u>
Coldwater River	Murray Lake	50
		<u>50</u>
Okanagan, north	Whiteman Creek	1,000
	Oyama Lake	<u>50</u>
		1,050
Okanagan, central	Vernon Creek	550
	Scotty Creek	300
	Black Night Mountain	350
	Mission Creek	700
	Belgo Creek	200

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Table 2 con't...

Drainage	Location	Acres
	Joe Rich Creek	50
	Leech Creek	100
	Grouse Creek	100
	Bellevue Creek	100
	Klo Creek	300
	Terrace Creek	1,000
	Bald Range Creek	500
	Lean-to Creek	1,000
	Lambly Creek	500
	Lambly Lake	300
	Power Creek	150
	Jack Creek	100
		<u>6,300</u>
Okanagan, south	Trout Creek	1,000
	Lost Chain Creek	300
	Bearpaw Creek	100
	Camp Creek	200
	Isintok Creek	300
	Riddle Creek	1,000
		<u>2,900</u>
Similkameen River	Ashnola River	50
		50
Total		10,750

WESTERN WHITE PINE

North Thompson River	Avola to Lempriere	1,200
	Raft River	400
	North Barriere Lake	1,000
		<u>2,600</u>
Adams River	Gannett Lake	600
	Burton Creek	100
	Tsikwustum Creek	100
		<u>800</u>
Fraser River	Yalakom River	600
	Cayoosh Creek	2,000
		<u>2,600</u>

con't...

/...4

Table 2 con't...

Drainage	Location	Acres
Shuswap River	Mount Ida	150
	Kingfisher Creek	75
	Hound Creek	75
	Upper Shuswap River	200
	Sugar Lake	200
	Squaw Valley	200
	Vance Creek	<u>50</u>
	950	
Skagit River	Manning Park	<u>200</u>
		200
<hr/>		
Total		7,150
<hr/>		
	PONDEROSA PINE	
Bridge River	Carpenter Lake	100
Thompson River	Hat Creek	60
Coldwater River	Murray Lake	140
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Total		300
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Grand Total		18,200