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PEST REPORT

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

FIDS PEST REPORT 94-28

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DOUGLAS-FIR BEETLE AND MOUNTAIN PINE BEETLE INFESTATIONS CHILCOTIN MILITARY BLOCK CARIBOO FOREST REGION 1994

R.D. Erickson
Forest Insect and Disease Survey

DOUGLAS-FIR BEETLE

The area of mature Douglas-fir recently killed by Douglas-fir beetle, Dendroctonus pseudotsugae, in the Chilcotin Military Block at Riske Creek decreased to 4110 ha down from 5320 ha last year. Most infestations were moderate* over 1940 ha, and light (1370 ha) and severe (800 ha) over the remainder, in 190 separate patches of 0.5-400 ha containing 5-35,000 trees (Map).

The decline is due largely to host depletion by the beetle, which over the past eight years has reduced the amount of susceptible Douglas-fir and the potential for large annual increases. There were 3.2 million m³ of Douglas-fir, lodgepole pine and Engelmann spruce estimated on the block 11 years ago. In 1994 alone the Douglas-fir component was reduced by 767 000 m³ (based on 1994 FIDS survey). Continuing infestations will reduce this further until all the larger diameter trees (+35 cm dbh) have been killed.

* Light: 1-5% of Douglas-fir trees recently killed, Moderate: 6-30% killed and, Severe: 30%+ killed.

MOUNTAIN PINE BEETLE

Mountain pine beetle, Dendroctonus ponderosae, infestations increased for the third year in the northwestern part of the block, where severe lodgepole pine mortality was recorded over 100 ha, up from 80 ha last year. Tree mortality occurred in 35 separate infestations of 0.5-10 ha in size containing 5-200 recently killed trees (Map). Large increases were noted north of the block to Quesnel.

FORECAST

DOUGLAS-FIR BEETLE

Current attack by Douglas-fir beetle averaged 20% of stems per hectare at 10 sites, down from 31% in 1993 (Table 1). This indicates some reduction in the intensity of attack but the continued presence of a large population for flight next year. The number of beetle progeny averaged 20 per 900 cm² of bark surface, more than sufficient to successfully attack susceptible hosts in spring 1995. The portion of the stands previously killed by the beetle increased and included 14% red and 10% grey, up slightly from 13% and 9% last year. These figures are based on detailed surveys of fixed 40m X 60m plots at representative sites throughout infestations in the block.

Table 1. Number of mature trees attacked by Douglas-fir beetle at ten study sites in the Chilcotin Military Block, Cariboo Forest Region, 1994.

Attack category*	Percent of stems (20+ cm dbh)			
	1994		1993	
	Average	Range	Average	Range
Current attack	20	7-33	31	4-62
Healthy	53	40-63	47	31-63
Red	14	5-20	13	6-31
Grey	10	0-19	9	0-34
Partial	3	0-8	0	-

*Current attack: attacked in 1994.

Red: attacked in 1993.

Grey: attacked prior to 1993.

Partial: 1994 strip attacks.

The 1994 infestation represents about 12% of the total forested area of the block, down from nearly 20% last year. The size of the infestation may have peaked in 1993; however, it could increase next year if climatic conditions were to seriously stress remaining healthy Douglas-fir, making it more susceptible to attack.

This outbreak in the Chilcotin Military Block may have been averted had infected patches been treated when they were small. Timely treatment can be particularly effective in controlling Douglas-fir beetle infestations. Without management action, infestations will continue until all the mature trees are killed.

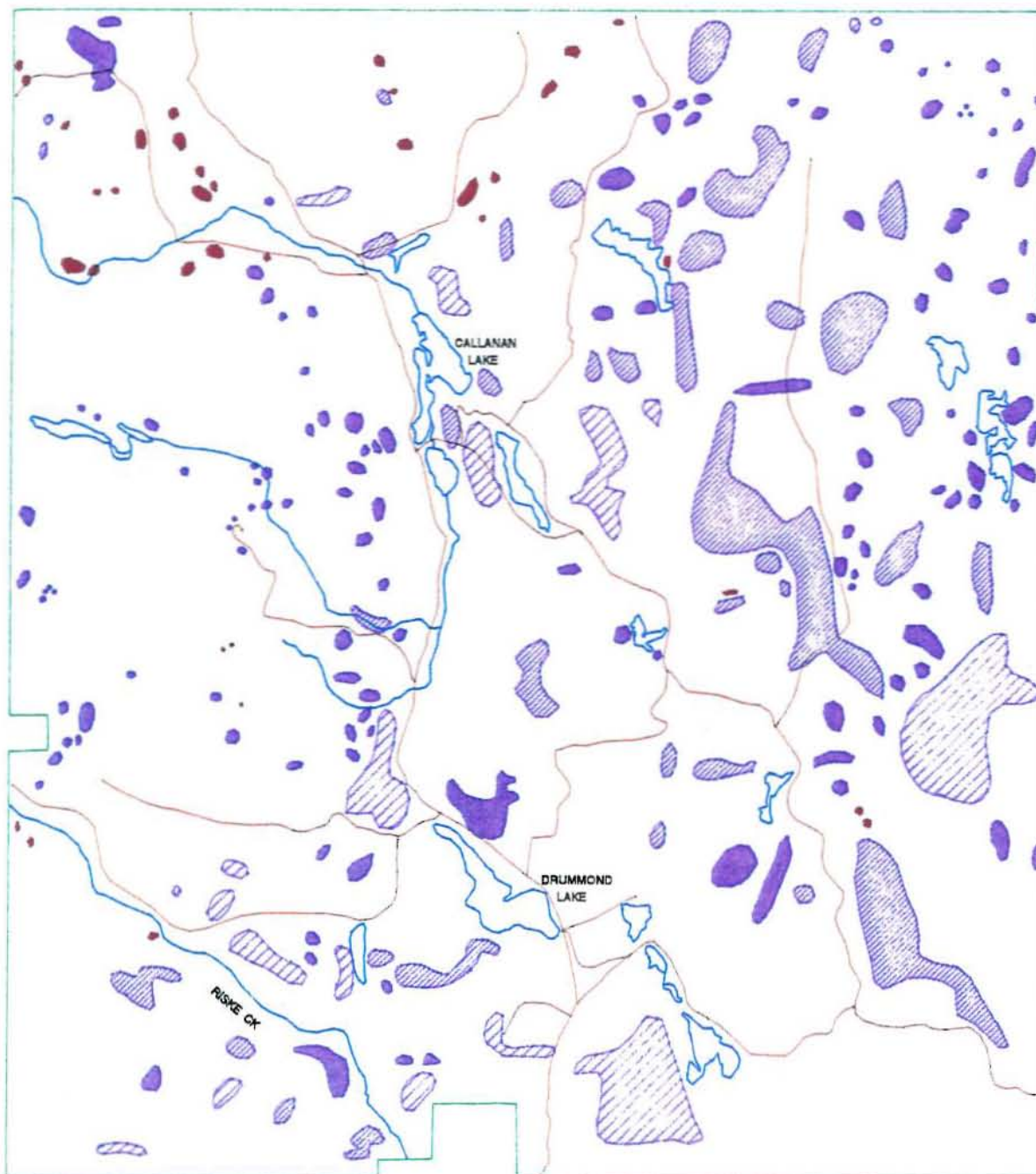
MOUNTAIN PINE BEETLE

An average of 10% of the stems and 26% of the susceptible volume (10+ cm dbh) of mature lodgepole pine were currently attacked at four locations in the northwestern part of the block (Table 2). This compares to 15% current attack at two locations last year. Percent current attack calculated using tree volume reflects the situation more accurately since the current management techniques are harvest based. There were 45+ larvae per 900 cm² of bark surface, indicating a large overwintering population. Increasing populations in the block and elsewhere in the Cariboo Forest Region will continue to spread to susceptible mature pines in 1995.

Table 2. Status of lodgepole pine attacked by mountain pine beetle in the Chilcotin Military Block, Cariboo Forest Region, 1994.*

Attack category	<u>Percent of stems/ha</u>		<u>Percent of volume(m3)/ha</u>	
	Average	Range	Average	Range
Current attack	10	8-13	26	13-24
Healthy	82	80-84	54	44-62
Red	4	2-8	14	7-25
Grey	2	0-5	4	0-2
Partial	2	0-4	2	0-9

* Based on surveys of trees over 10+ cm dbh at four sites.



CHILCOTIN TRAINING AREA

1994 Douglas Fir Beetle and Mountain Pine Beetle Infestations



FIDS GIS

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Map Projection : Universal Transverse Mercator

Map Produced 28 Oct 94

Scale 1: 125000



BRITISH COLUMBIA
REFERENCE MAP