

October 1995

**DOUGLAS-FIR BEETLE and MOUNTAIN PINE BEETLE INFESTATIONS  
CHILCOTIN MILITARY BLOCK, RISKE CREEK  
CARIBOO FOREST REGION  
1995**

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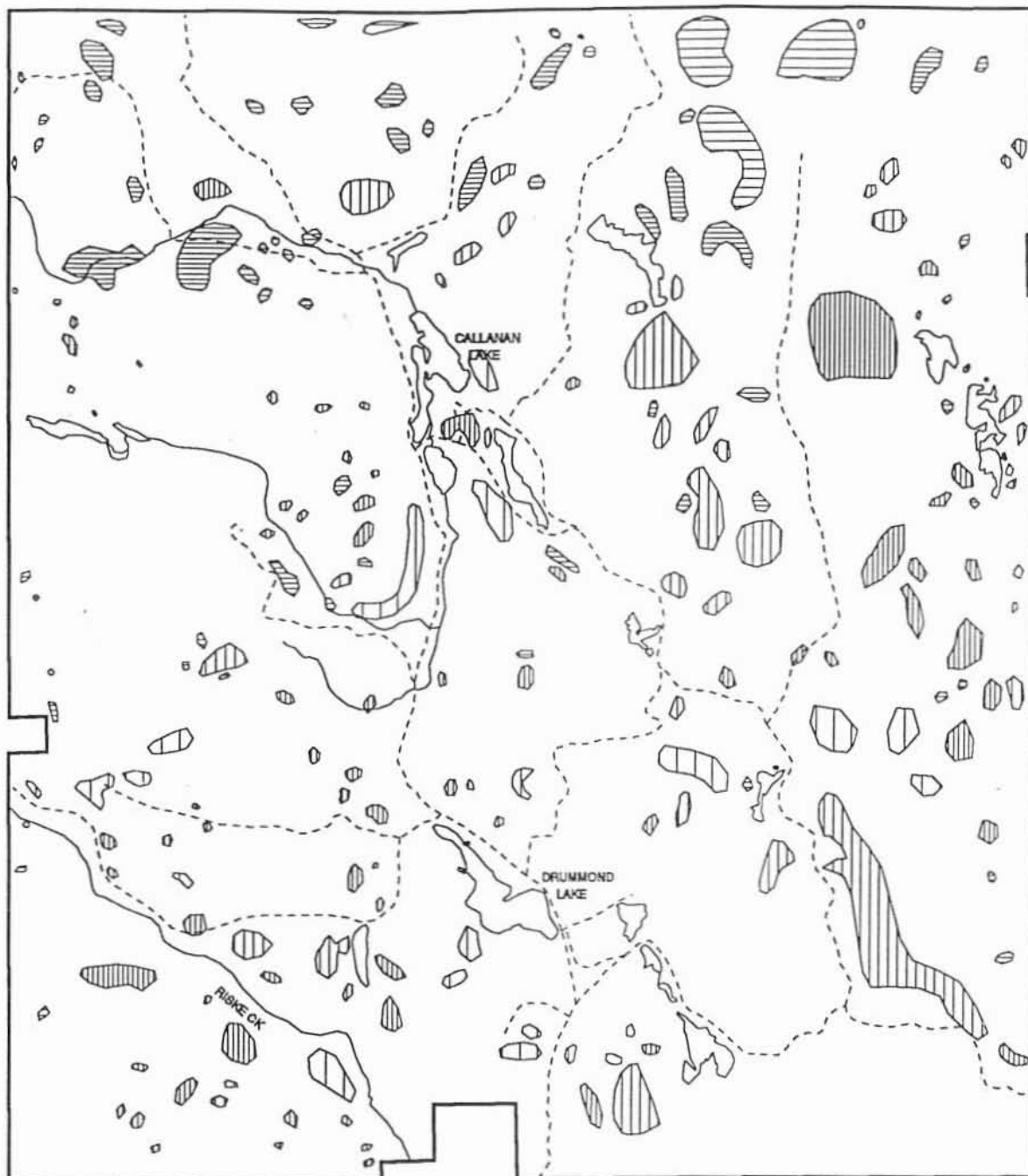
**DOUGLAS-FIR BEETLE**

The area of mature Douglas-fir recently killed by Douglas-fir beetle, *Dendroctonus pseudotsugae*, decreased for the second consecutive year to 2430 ha in 140 separate patches. There were 500 ha light<sup>1</sup>, 1060 ha moderate and 870 ha severe, down from 90 infestations over 4110 ha recorded last year (Map). The dead trees were mapped in 0.5-370 ha patches, each containing 5-35 000 recently killed trees.

The continued decline in area of recently killed trees is largely due to host depletion by Douglas-fir beetle. Over the past nine years the reduction in the number of available, susceptible Douglas-fir has reduced the potential for large annual population increases. In 1995, the Douglas-fir stand component in the Block was reduced by 105 000 m<sup>3</sup> and in 1994, 767 000 m<sup>3</sup> (based on annual FIDS surveys). Douglas-fir beetle infestations will continue removing mature trees until all the larger diameter trees (+35 cms dbh) have been killed.

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



## CHILCOTIN TRAINING AREA

### 1995 Douglas Fir Beetle and Mountain Pine Beetle Infestations

FIDS GIS

Natural Resources Canada

Canadian Forest Service

Forest Insect & Disease Survey

Map Projection : Universal Transverse Mercator

Map Produced 02 Oct 95

Scale 1: 125000

▨ MOUNTAIN PINE BEETLE

Total Area ha 980

□ LIGHT □ MODERATE □ SEVERE

▨ DOUGLAS FIR BEETLE

Total Area ha 2442

□ LIGHT □ MODERATE □ SEVERE

— LAKES & RIVERS

- - - ROADS



BRITISH COLUMBIA  
REFERENCE MAP

## MOUNTAIN PINE BEETLE

Mountain pine beetle, *Dendroctonus ponderosae*, infestations in lodgepole pine increased ninefold in the northern part of the block, to 380 ha of moderate and 600 ha severe mortality from 100 ha of severe last year. Trees were recently killed in 70 separate infestations from 0.5-100 ha, each containing 5-15 000 stems (Map). This was the fourth year of population increases in the block and elsewhere in the Cariboo Region. Large increases were again noted this year from north of the block to Quesnel and from Williams Lake northeast to Big Lake.

## FORECAST

### DOUGLAS-FIR BEETLE

Current attack by Douglas-fir beetle averaged 34% of stems over 20 cm dbh per hectare at 9 sites examined, up from 20% in 1994 (Table 1). This indicates an increase in the intensity of attack, possibly as a result of warm, dry weather during beetle flight last year. The number of Douglas-fir beetle progeny averaged 30 larvae per 900 cm<sup>2</sup> of bark surface, which could result in significant attack in the spring of 1996. The portion of the stands already dead in the plots examined included 10% red and 3% grey, down slightly from 14% and 10% last year. Stands previously attacked have lost 40-90% of the Douglas-fir stems over 20 cm dbh. These figures are based on detailed surveys of fixed 40m X 60m plots at representative sites throughout the infestation in the block.

**Table 1.** Status of mature trees attacked by Douglas-fir beetle at nine study sites in the Chilcotin Military Block, Cariboo Forest Region, 1995.

Attack category	<u>Percent of stems (20+ cm dbh)</u>			
	<u>1995</u>		<u>1994</u>	
	Average	Range	Average	Range
<b>Current attack</b>	34	8-69	20	7-33
Healthy	52	29-71	53	40-63
Red	10	2-19	14	5-20
Grey	3	0-14	10	0-19
Partial	<1	0-2	3	0-8

Current attack: attacked in 1995.

Red: attacked in 1994.

Grey: attacked prior to 1994.

Partial: 1995 strip attacks.

The 1995 infested area represents about 7% of the total forested area of the block, down from nearly 12% last year. The size of the infestation may have peaked in 1993. Without management action however, the infestation will continue until all the mature Douglas-fir are killed.

The Douglas-fir beetle outbreak in the Chilcotin Military Block would not have developed if the infected patches had been treated when they were small. Timely treatment including salvage and control logging, is effective in controlling bark beetle infestations.

## MOUNTAIN PINE BEETLE

Current attack of mature lodgepole pine this year averaged 18% of stems at 5 locations examined in the block (Table 2) up from 10% current attack last year at four locations. There were 30+ larvae per 900 cm<sup>2</sup> of bark surface, indicating a large overwintering population.

**Table 2.** Status of lodgepole pine attacked by mountain pine beetle in the Chilcotin Military Block, Cariboo Forest Region, 1995/1994.

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Attack category	<u>Percent of stems &gt;10 cm dbh/ha</u>		<u>Percent of stems &gt;10 cm dbh/ha</u>	
	<u>1995</u>		<u>1994</u>	
	Average	Range	Average	Range
Current attack	18	6-27	10	8-13
Healthy	52	29-68	82	80-84
Red	25	3-42	4	2-28
Grey	2	0-12	2	0-5
Partial	4	0-6	2	0-4

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The mountain pine beetle infestations are growing and will continue to spread into nearby susceptible pure pine or pine and Douglas-fir mixed stands in 1996, both in and outside the block. A small decrease in the intensity of attack occurred throughout the region this year, possibly a result of the cool, damp weather in July during beetle flight. This should allow forest managers to catch up with an outbreak nearly out of control. However as with Douglas-fir beetle, mountain pine beetle will continue to threaten mature lodgepole pine until it or the beetle populations are depleted.

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