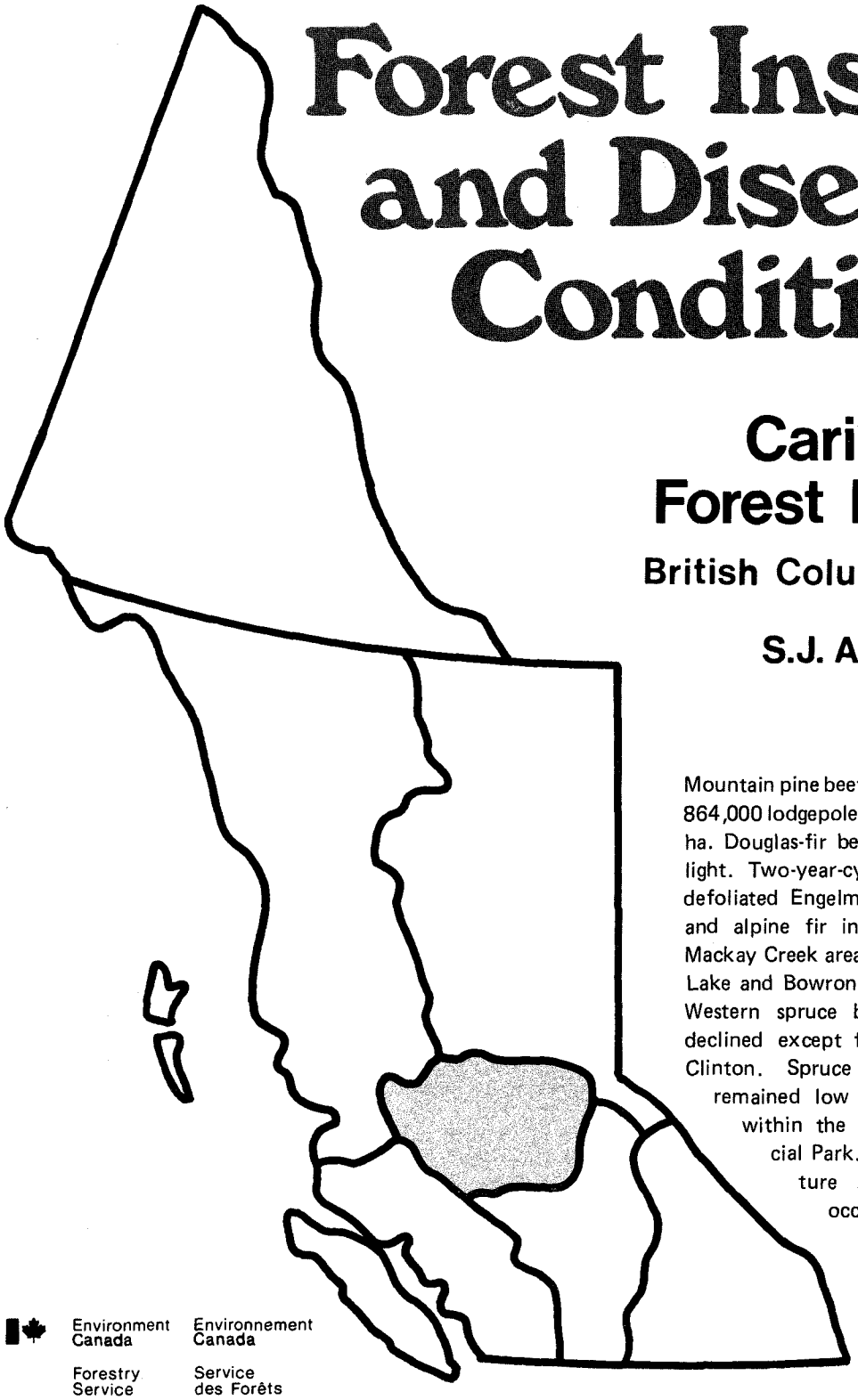
Forest Insect and Disease Conditions

Cariboo Forest Region

British Columbia, 1978

S.J. Allen



Mountain pine beetles killed an estimated 864,000 lodgepole pine trees over 31 000 ha. Douglas-fir beetle activity remained light. Two-year-cycle spruce budworm defoliated Engelmann and white spruce and alpine fir in the Horsefly River-Mackay Creek area and between Hendrix Lake and Bowron Lake Provincial Park. Western spruce budworm infestations declined except for a small area near Clinton. Spruce beetle populations remained low in windthrown trees within the Bowron Lake Provincial Park. Needle cast of immature lodgepole pine trees occurred from Williams Lake to Anahim Lake.

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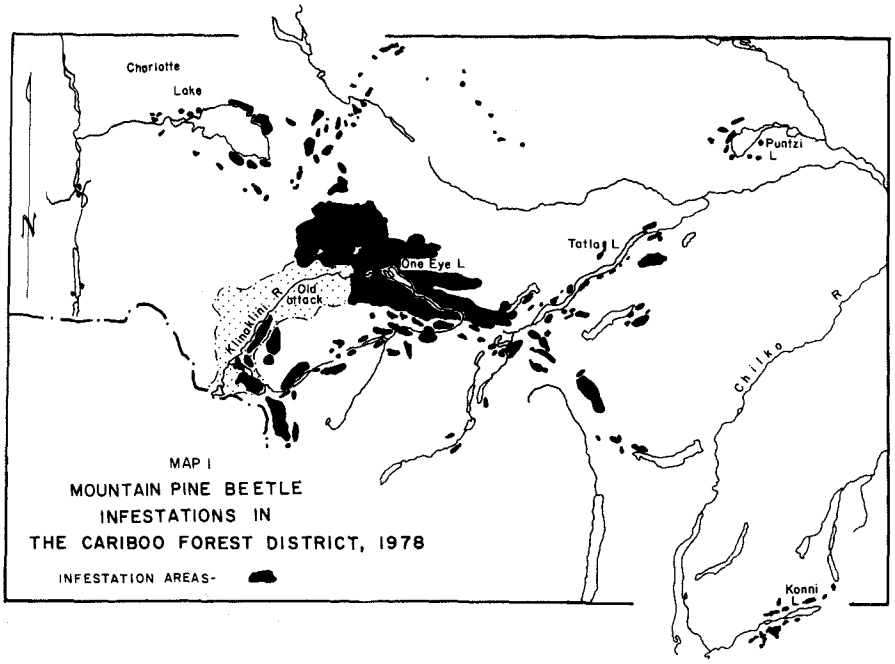
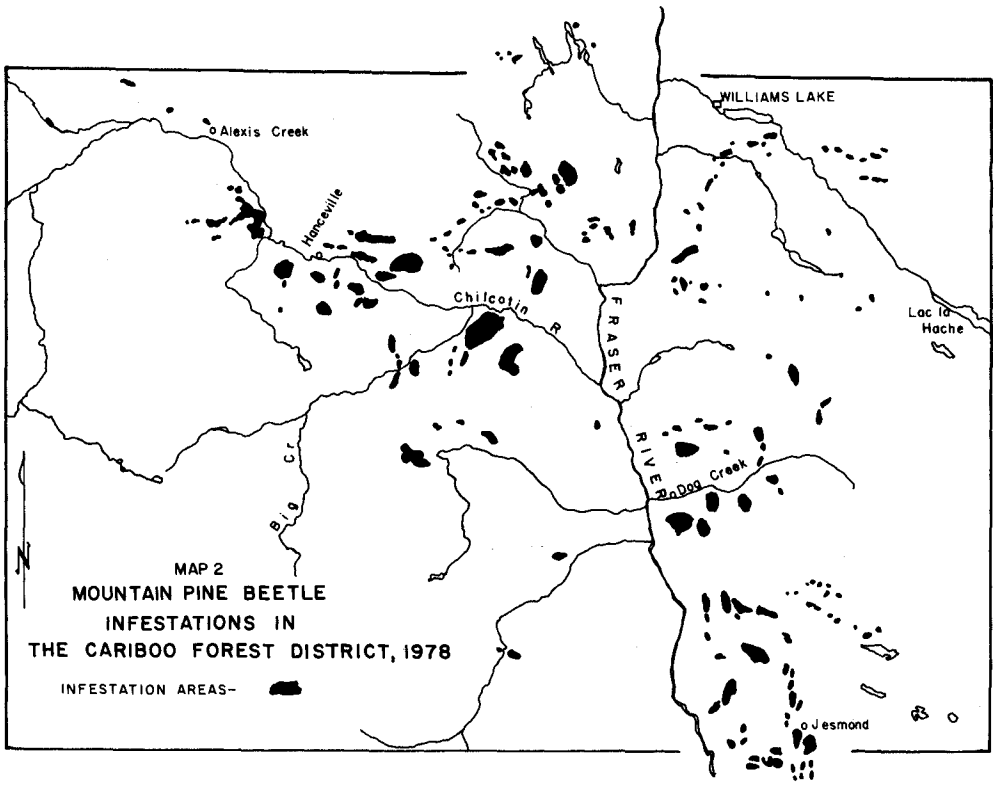


MAP 1
MOUNTAIN PINE BEETLE
INFESTATIONS IN
THE CARIBOO FOREST DISTRICT, 1978
INFESTATION AREAS-



MAP 2
MOUNTAIN PINE BEETLE
INFESTATIONS IN
THE CARIBOO FOREST DISTRICT, 1978
INFESTATION AREAS-

MOUNTAIN PINE BEETLE, Dendroctonus ponderosae, infestations continued in lodgepole pine stands. The numbers of recently killed lodgepole pine trees increased and in spite of heavy brood mortality during the winter of 1977-78 (Table 1), the population increased (Maps 1, 2 and 3).

The heaviest tree mortality occurred in the One Eye-Clearwater lakes area, where an estimated 800,000 lodgepole pine trees were killed on 13 000 ha (Table 2). Most of the mature lodgepole pine trees in the adjacent Klinaklini River Valley were killed during 1974-77 and the beetles moved east toward Tatla Lake and north toward the Charlotte-Aktaklin lakes area.

Cruises in 16 areas in five PSYU's established the trend of the infestation (Table 3).

Generally, infestations increased in size and intensity, except in one case where there was a drop in the numbers of red trees. With the death of most of the mature pine in the Klinaklini River area and around One Eye Lake, new attacks occurred to the east and north toward Tatla and Charlotte lakes (Map 1). Unless cold winter temperatures cause heavier mortality of the beetle broods than in 1977, infestations will continue.

Mountain pine beetle pitch tubes on lodgepole pine tree.

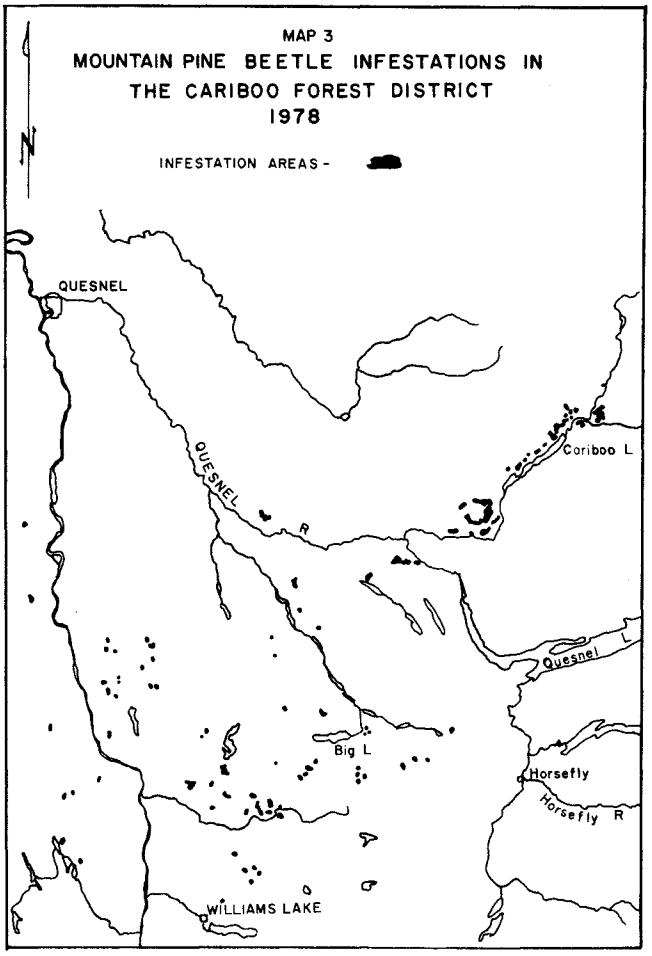


Table 1. Beetle brood mortality and survival, Cariboo Forest Region, June 1978 (120 samples totalling 5.5 M^2 per location).

Location	larvae & or pupae per .093 M^2	Percent Survival	Percent Mortality
McIntyre Lake	18.8	6	94
Drummond Lake	24.3	8	92
Tatla Lake	8.3	3	97
One Eye Lake	4.7	2	98

Table 2. Lodgepole pine trees killed by mountain pine beetle in the Cariboo Forest Region as indicated by recently dead trees.

Locality	PSYU	1977		1978	
		Area affected (ha)	Number of recently dead trees	Area affected (ha)	Number of recently dead trees
Williams L - Skelton L	Williams L	102	900	1 088	5,700
Riske Cr - Gaspard	Stum	2 100	4,100	4 470	12,100
Dog Cr - Jesmond	Big Bar	2 560	5,250	3 584	8,800
Castle Rock	SSA	32	75	20	40
Cariboo L	Quesnel L	1 344	1,000	1 500	6,300
One Eye L - Clearwater L.	Chilko	2 740	16,505	13 000	800,000
Klinaklini R.	Chilko	6 160	14,600	7 238	29,500
Konni L.	Chilko	512	870	260	900
Knot L.	Tweedsmuir Pk.	10	20	24	180
Dean R - Takia R.	Tweedsmuir Pk.	384	380	60	130
TOTALS		15 944	43,700	31 244	863,650

Table 3. Status of lodgepole pine trees on cruise strips, Cariboo Forest Region, 1978.

Locality & no. of strips	Number of trees examined	% healthy	% attacked by mountain pine beetle: green (1978)	red (1977)	gray (prior to 1977)
Riske Cr - Hanceville					
4	1,214	51	23	8	18
Big Cr - Gaspard					
3	996	80	13	4	3
Dog Cr - Jesmond					
3	1,022	55	17	14	14
Cariboo L					
1	164	26	12	25	37
Kleena Kleene					
5	1,157	75	14	10	1
TOTAL	4,553	63%	17%	10%	10%

◀ Woodpeckered mountain pine beetle attacked tree.

DOUGLAS-FIR BEETLE, Dendroctonus pseudotsugae, populations were low in 1978. During aerial surveys, 160 beetle-killed Douglas-fir trees were counted in the Beaver Creek, McLeese Lake, Soda Creek, Dog Creek and Gaspard Creek areas. Some of the dead trees were probably the result of 1976 attacks.

SPRUCE BEETLE, Dendroctonus rufipennis, populations in the 1975 windthrown white spruce in Bowron Lake Provincial Park remained at a low level. Two of 20 windfalls examined had very light attacks on the shaded undersides; one recent windfall contained adults and larvae of a 1978 attack. No standing green white spruce trees had been attacked. Most of the windfalls were starting to dry out and check and were attacked by a moderate population of ambrosia beetles.

WESTERN BALSAM BARK BEETLE, Dryocoetes confusus, in association with the lesion causing fungus, Ceratocystis dryocoetidis, killed 1,150 alpine fir trees in 1978 compared to 650 in 1977. Some 220 recently dead trees were observed southwest of Sigutlat Lake, 75 in the Klinaklini River Valley, 170 on the west side of Tatlayoko Lake, 550 on the sidehill of Franklyn Arm of Chilko Lake and 150 in the Matthew River Valley.

White spruce windthrow at Bowron Lake Provincial Park.

TWO-YEAR-CYCLE SPRUCE BUDWORM, Choristoneura biennis, defoliated Engelmann spruce, white spruce and alpine fir from Bowron Lake Provincial Park to Hendrix Creek, but was generally lighter than in 1976. Heavy defoliation occurred over 3 800 ha in the MacKay Creek Valley, where intermediate and suppressed alpine fir trees were up to 80 percent defoliated and there was some leader and lateral tip mortality. Light to moderate defoliation occurred on 3 000 ha from Hendrix Lake to Bosk Lake, 575 ha northwest of Crooked Lake, 2 300 ha in the Matthew River Valley, 3 070 ha in Bowron Lake Provincial Park and 2 350 ha in the Grain Creek Valley (Map 4).

During August, high numbers of male budworm moths were caught in traps baited with a sex attractant, near Umiti Creek, Wells, Barkerville and Hendrix Lake. The number of egg masses found in August indicated that high populations could continue in Horsefly River Valley, MacKay Creek Valley and near Hendrix Lake.

WESTERN SPRUCE BUDWORM, Choristoneura occidentalis, populations declined in 1978 and there was less defoliation and top-kill than in 1977, at Maiden Creek, Hart Ridge, Loon Lake, Scottie Creek and Big Bar Lake road near Highway 97. Egg samples taken during August indicated a lower population and lighter defoliation for 1979 in all areas except Hart Ridge (Table 4).

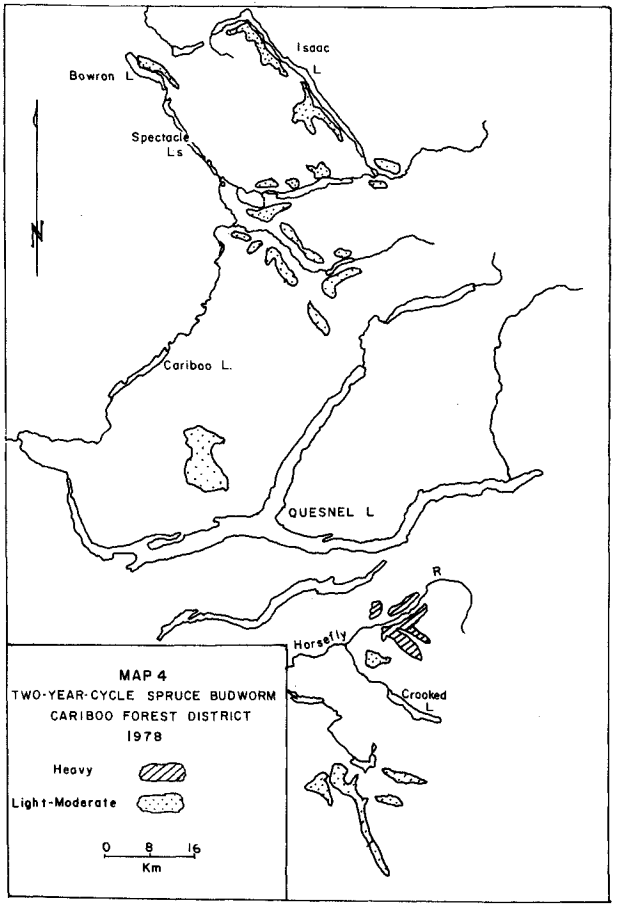
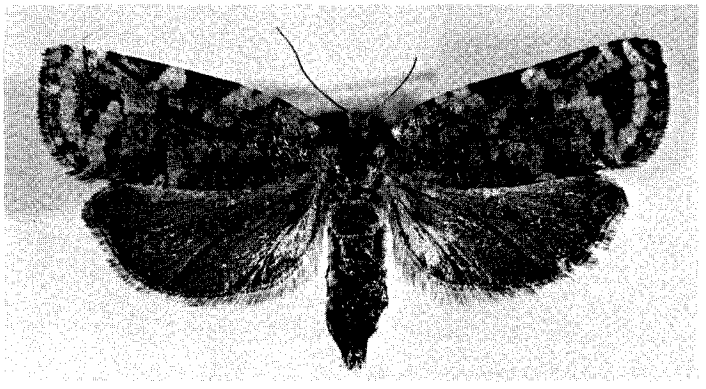
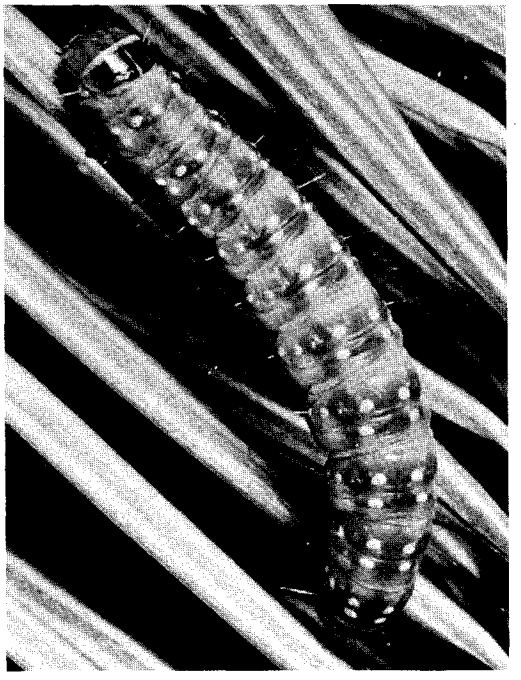


Table 4. Western spruce budworm egg sampling results on Douglas-fir, Cariboo Forest Region, 1978

Location	Avg no. egg masses per $10M^2$ of foliage: 1977	1978
Maiden Cr	264	36
Hart Ridge	302	293
Scotty Creek	54	104
Loon Lake, W. end	–	104
Big Bar L. road	151	50



Spruce budworm moth.



Spruce budworm larva.

LODGEPOLE TERMINAL WEEVIL, Pissodes terminalis, attacked pure stands of immature lodgepole pine in the Alex Graham burn area north of Hanceville. Up to 20% had been attacked by weevils in 1977, with only 1% attacked in 1978.

A ROOT COLLAR WEEVIL, Hylobius piceus, killed stressed lodgepole pine reproduction by root collar girdling near Lyne Creek road and Niguidet Lake. Many of the young trees had been damaged by logging equipment and survived as crooked and deformed reproduction.

CONE INSECTS increased in a moderately abundant Douglas-fir cone crop in 1978. Douglas-fir cone moth, Barbara colfaxiana, was the most common and destructive throughout the Region. Douglas-fir seed chalcid, Megastigmas spermatrophus, was present in about 10% of the cones collected.

Spruce seed moth, Laspeyresia youngana, was abundant in Engelmann spruce cones and virtually eliminated the meager seed crop in the Cariboo Region.

A NEEDLE CAST OF LODGEPOLE PINE, Lophodermella concolor, caused discoloration and premature drop of 1977 foliage in many immature lodgepole pine stands in the drier areas of the Cariboo Region, particularly at McIntyre Lake, Big Bar Lake, Tatlayoko Lake, Indian Meadows, Springhouse, Knife Creek, 70 Mile House and Mahood Falls. Similar discoloration was seen from the air near Anahim Lake at Holtry Meadows and Lilie Lake.

LEAF AND SHOOT BLIGHTS OF ASPEN AND COTTONWOOD, Venturia spp., were conspicuous in 1978.

Venturia macularis, caused severe discoloration and loss of foliage throughout the eastern part of the Cariboo District in Lac La Hache and Quesnel Lake Public Sustained Yield Units and the Special sale area around Quesnel. The heaviest defoliation occurred in the Big Lake - Beaver Valley area and the south Bridge Lake area.

Venturia populina caused light discoloration of the occasional black cottonwood tree in the Cottonwood River - Swift River area.

RED BELT, owing to winter drying, occurred on lodgepole pine over 50 ha on the northeast side of Tatlayoko Lake between 1 200 and 1 500 metres elevation. By August, the new foliage had flushed, masking the discolored foliage, and most of the trees appeared normal.

STATUS OF FOREST PESTS IN PACIFIC REGION 1978

PEST	FOREST REGIONS						
	PRINCE RUPERT	PRINCE GEORGE	VANCOUVER	CARIBOO	KAMLOOPS	NELSON	YUKON
SPRUCE BEETLE	17 000 ha infestations mainly in the Babine Lake and Morice R. areas	Extensive areas of tree mortality	Localized attacks Mowhokam Cr.	Low population in northeastern corner of Region	Localized infestations, upper Lambly Cr., Lawless Cr., Olivine Cr. Increasing populations in blow down areas	New, spot infestations	Low populations Haines Jct area
MOUNTAIN PINE BEETLE	Widespread infestation, Cedarvale to Smithers	Active in widely separated areas	Infestation declined Klinaklini R. Localized infestations Haylmore and Mowhokam Creeks	Heavy infestation in scattered areas throughout Region	Heavy infestations Trout Cr., Gun Lake area. Increased populations, Below Mission Cr., Stein R. Ashnola R.	Increasing in West Kootenay exploding in East Kootenay	Not found
DOUGLAS-FIR BEETLE	Not found	Low frequency of tree mortality near McBride	Light attacks Fraser Canyon, Silver Skagit, Pemberton	Low population	Increased populations Tranquille Cr. Heffley Cr., Dairy Cr. and along Carpenter L.	Small pockets	No host
WESTERN SPRUCE BUDWORM (1-YEAR-CYCLE)	Low populations	Low populations	Populations declined sharply in many areas of the infestation.	Medium population, lighter than 1977	Significant decrease in most infested areas. Light to moderate populations near Ashcroft	Small populations holding steady	Low population
SPRUCE BUDWORM (2-YEAR-CYCLE)	Low populations	Increasing populations some current defoliation	Not found	Medium to high population, eastern part of Region	Medium population near Lempriere Cr.	Increasing populations	Not found
WESTERN BLACKHEADED BUDWORM	Minor defoliation Bell-Irving R.	Very low populations	Population increase, west coast Vancouver Island	Low population	Very low populations	Low populations	population
CONIFER SAWFLIES *Neodiprion* spp.	Moderate defoliation 1300 ha wH, alF at at Carrigan and Ironside creeks	Infestations subsided	High populations on northern Vancouver Isl.	Low populations	Infestation collapse near Vavenby and Clearwater R.	Low populations	Low population
FOREST TENT CATERPILLAR	Not found	General collapse of infestation	Not found	Not found	Low populations	Low populations	Not found
ASPEN LEAF AND SHOOT BLIGHT	Heavy infection Houston area	Extensive widespread damage	Not found	Light to moderate incidence Big Lake to Canim L.	Severe browning of foliage at Clearwater R. Avola and Monashee Cr.	Widespread light infection of aspen	Low incidence

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