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PEST REPORT

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

November, 1986

BLACKHEADED BUDWORM DEFOLIATION OF WESTERN HEMLOCK IN 1986

AND PREDICTED DEFOLIATION IN 1987

ON THE QUEEN CHARLOTTE ISLANDS AND NEAR KITIMAT, B.C.

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CANADA

Blackheaded budworm defoliated an estimated 44 300 and 11 900 ha of western hemlock on the Queen Charlotte Islands and in the Kitimat area, respectively, in 1986 (Table 1). In the same general areas in 1985 defoliation occurred over 28 600 and 2 200 ha respectively. High numbers of hemlock sawfly larvae, Neodiprion spp. (up to 2 600 per three-tree sample) were also common in numerous budworm infested stands in the Islands. Aerial surveys were conducted during mid to late August by the B.C. Forest Service and industry personnel and compiled at Pacific Forestry Centre. Previous infestations on the Q.C.I. were recorded in 1972-75, 1959-60, 1952-55, and 1943-44.

Table 1. Areas and severity of defoliated western hemlock by western blackheaded budworm in British Columbia, 1986.

Severity of defoliation		Stand Maturity			Total (ha)
		Less than 20 yrs.	20-100 yrs.	100+ yrs.	
Q.C.I.	Light	350	3 200	11 800	15 350
	Moderate	1 900	4 400	16 500	22 800
	Severe	850	3 100	2 200	6 150
Coastal	Light	0	0	2 300	2 300
Mainland	Moderate	0	0	9 100	9 100
	Severe	0	0	500	500
Total (ha)		3 100	10 700	42 400	56 200

The full impact of the defoliation upon the infested stands will not be fully evident until the infestation subsides. Ten stand impact plots were established in 1985 and will be monitored annually. However, at this stage of the infestation, in approximately 3 100 ha of advanced second growth stands, 12% tree mortality was recorded in representative plots established in 1985. In addition, severe top-kill averaging 8 m has occurred in 75% of the hemlock in the same areas. On a further 4 400 ha, 56% of the hemlock had an average of 4 m top-kill.

In the 18 700 ha of moderately to severely defoliated mature stands on the Q.C.I., 82% of the trees had an average of 3 m top-kill. Although no plots were established in the Kitimat area, aerial observations indicated similar levels of impact over an estimated 5 100 ha.

The results of egg sampling conducted in October, with assistance from B.C.F.S. and industry personnel, indicated a greatly reduced population for 1987 in most areas. The average egg count in 1986 was only 18 per 50 cm branch compared to an average of 118 in 1985. Severe defoliation is forecast at one location (3%), moderate at 7 (21%) and trace to light at the other 25 (75%) locations (Table 2). Generally, moderate defoliation was indicated for the northern end of Moresby Island (South Bay and East Narrows), Masset Inlet (Harrison Island and Begbie Bay) and Louise Island. Primarily light defoliation is predicted for the South Moresby Island area, including Lyell Island, much of the southern Graham Island, portions of Masset Inlet and in the Kitimat area. Stands moderately to severely defoliated during the past two years should generally have trace to light defoliation in 1987.

Table 2. Numbers of eggs and predicted defoliation of western hemlock by blackheaded budworm in the Queen Charlotte Islands and near Kitimat in 1987.

Location	Avg. no. eggs per 50 cm branch		Predicted defoliation 1987 ¹
	1985	1986	

QUEEN CHARLOTTE ISLANDS

Crown Forest

South Bay spur 60	66	Severe
East Narrows spur 84	54	Moderate
South Bay spur 40	53	"
East Narrows spur 84 (Imm)	45	"

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Location	Avg. no. eggs per 50 cm branch		Predicted defoliation 1987 ¹
	1985	1986	
<u>MacMillan Bloedel</u>			
Harrison Island		32	Moderate
Begbie Bay		31	"
Louise Island		27	"
Ain R.		19	light
Honna R. br. 308		6	"
Wathus Island	35	4	trace
Peel Inlet		2	"
<u>B.C.F.S.</u>			
West Honna (pre-spaced)		28	Moderate
Honna (spaced)		24	Light
Honna br. 182 (pre-spaced)		23	"
Honna br. 182 (spaced)		15	"
Honna (unspaced)		13	"
Collision PT. (spaced)		1	Trace
<u>Western Forest Products</u>			
Wilson Creek		23	Light
Sewell inlet	123	19	"
Sewell Inlet (Imm)		12	"
Windy Bay		11	"
Thurston Harbour	219	11	"
Lyell Island West br. 63		8	"
Powriwco Inlet	71	6	"
Forsythe Pt.	135	6	"
Jedway	186	6	"
Talunkwan Island south	111	4	Trace
Ramsey island	170	1	"
<u>KITIMAT AREA</u>			
<u>Eurocan</u>			
Hirsch Cr.		13	Light
Little Wedeene R.		9	"
Lower Wedeene R.		6	"
Wedeene R. Spur 1026		3	Trace
Bowbyes Cr.	129	2	"

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- 1-5 eggs = trace defoliation
 6-26 eggs = light defoliation
 27-59 eggs = moderate defoliation
 60+ eggs = severe defoliation