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# PEST REPORT

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## Blackheaded Budworm in British Columbia in 1988 and Forecast for 1989

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Forest Insect and Disease Survey

Increased blackheaded budworm populations defoliated western hemlock over an estimated 4830 ha on northern Vancouver Island. Budworm feeding of western hemlock on the Queen Charlotte Islands declined to a few hectares near Tow Hill. White spruce and alpine fir in the eastern part of the Prince Rupert Region were lightly defoliated for the fourth consecutive year.

The infestation on northern Vancouver Island which expanded from 5 ha in 1987, affected all age classes of western hemlock from William Lake east to Nahwitti Lake and south to Clearup Creek on the southern shore of Holberg Inlet (Map). Small scattered infestations were also noted in Cape Scott Park. Aerial surveys in August 1988 were limited by poor weather conditions, which prevented a more extensive survey which may have detected a greater area of defoliation. The last recorded infestation on Vancouver Island, from 1970 to 1973, defoliated western hemlock and amabilis fir over 164 000 ha from Jordan River to Holberg.

On the Queen Charlotte Islands populations declined following three successive years of infestation and lightly defoliated 10 ha on Tow Hill on Graham Island. A decline to endemic population levels is expected in 1989.

In the Prince Rupert Region, defoliation of new shoots of white spruce and alpine fir in the Morice River, McKendrick Pass and Hudson Bay mountain areas was similar to 1987. Defoliation occurred for the first time along the Nilkitkwa and Chapman forest roads and near Francois Lake. Egg counts at four locations indicate continuing light to moderate defoliation of new foliage in 1989 in these areas.

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On Vancouver Island egg sampling\* in the Holberg area during October, with assistance from industry personnel, indicates an increasing, expanding population in most areas in 1989 (Table). The average egg count was 59 per 45-cm branch and ranged from 4 to 166 at Sites 1 and 7, respectively. Based on relationships determined during past infestations, severe defoliation is predicted at three locations, moderate at five, light at one and trace at one. Consecutive years of severe defoliation could result in some tree mortality and top-kill. This will not be fully evident until the infestation subsides.

Numbers of eggs and predicted defoliation of western hemlock by blackheaded budworm on Vancouver Island in 1989.

Map #	Location	Avg. no. eggs per 45-cm branch 1988	Predicted defoliation 1989**
***1	Williams Lake	4	trace
2	San Joseph Main	37	moderate
3	NE 62	20	light
4	Goodspeed River	34	moderate
***5	Romming Creek	28	moderate
6	South Main	84	severe
7	N.E. Main	166	severe
***8	Stronby River	33	moderate
9	San Joseph River	133	severe
***10	Hathaway Creek	55	moderate
Average		59.4	

\*The Forest Insect and Disease Survey egg sampling method consists of two mid-crown 45-cm branch sections from each of 10 trees per sampling location. If tree height makes sampling with pole pruners impossible, 3 trees are felled and 10 branches are obtained from each tree. In the laboratory, labeled branches are then cut up and immersed in 100°C water for 10-15 minutes. The contents are then sieved to separate the eggs which are extracted using a Vacuum/Filter system. Microscopes are then used to examine and count the eggs on the filter paper.

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

\*\*\*Areas where trees were felled to obtain samples.

AREAS CURRENTLY  
DEFOLIATED BY THE  
WESTERN BLACKHEADED  
BUDWORM AND  
EGG SAMPLE LOCATIONS,  
VANCOUVER FOREST  
REGION, 1988

- AREA OF DEFOLIATION
- ⑤ EGG SAMPLE LOCATION

