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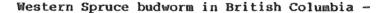
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Canadian Forestry Service

PEST REPORT

October 1988



A Forecast for 1989

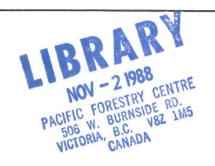
Peter Koot

Forest Insect and Disease Survey

After three successive years of expansion, defoliation of Douglas-fir by the budworm declined in intensity and area to 364 000 ha from 834 000 ha in 1987. More than 1200 areas were aerially sketchmapped and of these, 96% were in the Kamloops Region, 2% in the Cariboo Region and 1% in each of Vancouver and Nelson regions (Pest Report, October 5, 1988).

Predicted defoliation from egg sample assessments at 52 locations in four regions indicates light to moderate defoliation in 1989 in the majority of areas (Table 1, Map). Egg masses were, on average, 70% less numerous than in 1987 at 28 of 36 locations sampled both years, and more numerous at only 8 locations. Increases were only noted in the south Okanagan at Equesis Creek, Glenrosa and Mt. Kobau, in the Nelson Region at Anarchist Mtn., McKinney Creek and Conkle Lake Road, in the Cariboo Region at Viewland Mtn., and in the Vancouver Region at Devine.

Parasitism of late instar larvae and pupae averaged 16% overall (range 1-54%), similar to 1987 levels. This level of parasitism is not sufficient to explain the general decline of budworm populations in many areas. However, in several chronically infested locations such as Sabiston Creek, Indian Gardens, and near Separating Lakes in Kamloops District, larval starvation may have occurred as a result of foliage depletion from up to six successive years of defoliation. Additionally, prolonged warm dry weather during Autumn 1987 may have resulted in larvae remaining active longer before locating places to overwinter. Under these conditions, active larvae deplete their nutrient reserves from the egg and starve or are less vigorous during winter and early spring.





		Predicted Defoliation ¹			
Forest Region	No. of Samples	Nil	Light	Moderate	Severe
1		********			
Cariboo	2		1		1
Kamloops	34	5	, 15	11	3
Nelson	9		1	2	6
Vancouver	7	-	4	3	
Total	52	5	21	16	10

Table 1. Summary of predicted defoliation of Douglas-fir stands by western spruce budworm by Forest Region in British Columbia in 1989.

¹Defoliation

Light - discolored foliage barely visible from the air, some branch tip and upper crown defoliation

Moderate - pronounced discoloration, noticeably thin foliage, top third of many trees severely defoliated, some completely stripped

Severe - bare branch tips and completely defoliated tops, most trees sustained more than 50% total defoliation

Table 2. Average number of western spruce budworm egg masses per 10 m² of foliage in 1987 and 1988 and predicted defoliation in British Columbia in 1989 by forest region and TSA.

Region, TSA Location	Predicted defoliation in 1989 ²	<u>No.</u> 1988	of egg m 1987	asses per 10 m foliage percent change (+ or -)
Kamloops Region	<u>1</u>			
Kamloops TSA				
Scottie Creek	nil	0	8	-100
Cache Creek	light	26	212	- 88
Highland Valley	/ light	10	232	- 96
Oregon Jack Cre	eek light	29	427	- 93
Sabiston Creek	moderate	85	178	- 52
Indian Gardens	moderate	52	300	- 83
Cherry Creek	light	43	247	- 83
Paul Lake	moderate	78	389	- 80
Heffley Creek	light	21	113	- 81
Orchard Lake	nil	0	-	*13
Louis Creek	nil	0	190	-100
Fadear Creek	light	19		
Barriere	light	27	102	- 74
Duck Meadow	nil	0	_	-
Niskonlith Lake	e nil	0	294	-100
Adams River	light	9	121	- 93

Okanagan TSA Falkland Skimikin Sicamous Blind Creek Postill Lake Peachland Main Equesis Creek Joyce Lake Duke Lake Anarchist Mtn. Twin Lakes Blue Lake Apex Mtn. Rd.	iation in 1989 ² light light light light light light light moderate moderate moderate moderate moderate moderate severe severe	1988 37 36 16 10 20 31 43 91 76 140 114 98 99 231	1987 295 , - 264 - 98 35 - 649 - 264 315 220	percent change (+ or -) - 87 - 96 - 68 + 23 - 78 - 63 - 69
Falkland Skimikin Sicamous Blind Creek Postill Lake Peachland Main Equesis Creek Joyce Lake Duke Lake Anarchist Mtn. Twin Lakes Blue Lake Apex Mtn. Rd. Glenrosa	light light light light light moderate moderate moderate moderate moderate moderate severe	36 16 20 31 43 91 76 140 114 98 99	, _ 264 _ 98 35 _ 649 _ 264 315	- 87 - - 96 - - 68 + 23 - - 78 - - 63
Falkland Skimikin Sicamous Blind Creek Postill Lake Peachland Main Equesis Creek Joyce Lake Duke Lake Anarchist Mtn. Twin Lakes Blue Lake Apex Mtn. Rd.	light light light light light moderate moderate moderate moderate moderate moderate severe	36 16 20 31 43 91 76 140 114 98 99	, _ 264 _ 98 35 _ 649 _ 264 315	- 96 - 68 + 23 - 78 - 63
Skimikin Sicamous Blind Creek Postill Lake Peachland Main Equesis Creek Joyce Lake Duke Lake Anarchist Mtn. Twin Lakes Blue Lake Apex Mtn. Rd. Glenrosa	light light light light light moderate moderate moderate moderate moderate moderate severe	36 16 20 31 43 91 76 140 114 98 99	, _ 264 _ 98 35 _ 649 _ 264 315	- 96 - 68 + 23 - 78 - 78 - 63
Sicamous Blind Creek Postill Lake Peachland Main Equesis Creek Joyce Lake Duke Lake Anarchist Mtn. Twin Lakes Blue Lake Apex Mtn. Rd. Glenrosa	light light light light moderate moderate moderate moderate moderate moderate severe	16 10 20 31 43 91 76 140 114 98 99	- 264 - 98 35 - - 649 - 264 315	- 68 + 23
Blind Creek Postill Lake Peachland Main Equesis Creek Joyce Lake Duke Lake Anarchist Mtn. Twin Lakes Blue Lake Apex Mtn. Rd. Glenrosa	light light light moderate moderate moderate moderate moderate moderate severe	10 20 31 43 91 76 140 114 98 99	- 98 35 - 649 - 264 315	- 68 + 23
Postill Lake Peachland Main Equesis Creek Joyce Lake Duke Lake Anarchist Mtn. Twin Lakes Blue Lake Apex Mtn. Rd. Glenrosa	light light moderate moderate moderate moderate moderate moderate severe	20 31 43 91 76 140 114 98 99	- 98 35 - 649 - 264 315	- 68 + 23
Peachland Main Equesis Creek Joyce Lake Duke Lake Anarchist Mtn. Twin Lakes Blue Lake Apex Mtn. Rd. Glenrosa	light noderate moderate moderate moderate moderate moderate severe	31 43 91 76 140 114 98 99	98 35 - 649 - 264 315	+ 23 - - 78 - - 63
Equesis Creek I Joyce Lake r Duke Lake r Anarchist Mtn. r Twin Lakes r Blue Lake r Apex Mtn. Rd. r Glenrosa	light moderate moderate moderate moderate moderate severe	43 91 76 140 114 98 99	35 - 649 - 264 315	+ 23 - - - - - - - - - - - - - - - - - - -
Joyce Lake f Duke Lake f Anarchist Mtn. f Twin Lakes f Blue Lake f Apex Mtn. Rd. f Glenrosa	moderate moderate moderate moderate moderate severe	91 76 140 114 98 99	- 649 - 264 315	- 78 - 63
Duke Lake r Anarchist Mtn. r Twin Lakes r Blue Lake r Apex Mtn. Rd. r Glenrosa s	moderate moderate moderate moderate severe	76 140 114 98 99	- 264 315	- 63
Anarchist Mtn. r Twin Lakes r Blue Lake r Apex Mtn. Rd. r Glenrosa s	moderate moderate moderate moderate severe	140 114 98 99	- 264 315	- 63
Twin Lakes r Blue Lake r Apex Mtn. Rd. r Glenrosa s	moderate moderate moderate severe	114 98 99	- 264 315	- 63
Blue Lake r Apex Mtn. Rd. r Glenrosa s	moderate moderate severe	98 99	264 315	- 63
Apex Mtn. Rd. r Glenrosa	moderate severe	99	315	,
Glenrosa	severe			- 69
		231	220	
Mt. Kobau #1 s	severe			+ 5
		661	275	+140
Mt. Kobau #2	severe	310		-
Lillooet TSA				
Fountain Valley	moderate	70	84	- 17
-	moderate	53	-	_
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Vancouver Region				
Soo TSA				
S. Blackwater Creek	light	35	156	- 78
N. Blackwater Creek		99	140	- 29
Devine	light	32	18	<i>,</i> + 78
S. Haylmore Creek	light	19	55	- 65
	light	12	49	- 76
Felix Creek	moderate	148	-	-
Sockeye Creek	moderate	56	_	-
			-	Manghalan alika di bakulan di alika di angka di akada alika di akada di akada di akada di akada di akada di akada a
Cariboo Region				
Quesnel TSA				
Viewland Mtn.	severe	271	219	+ 19
	light	29		

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Location defoliation in 1989 ² 1988 1987 percent change <u>Nelson Region</u> <u>Boundary TSA</u> Anarchist Mtn. moderate 72 48 + 33 Bridesville severe 326 536 - 39 McKinney Creek severe 311 159 + 49	
Boundary TSA Anarchist Mtn. moderate 72 48 + 33 Bridesville severe 326 536 - 39	and the second
Boundary TSA Anarchist Mtn. moderate 72 48 + 33 Bridesville severe 326 536 - 39	
Anarchist Mtn.moderate7248+ 33Bridesvillesevere326536- 39	
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Bridesville severe 326 536 - 39	
$N_{\rm e}V_{\rm i}$ may approximately 211 (50 \pm 40	
McKinney Creek severe 311 159 + 49	
Johnstone Creek severe 359 558 - 36	
Conkle Lake Rd. moderate 65 32 + 51	
Rock Creek severe 270 295 - 8	
Nicholson Creek severe 424	
Ingram Creek severe 208	
Phoenix Mtn. light 10 19 - 47	
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