

NOVEMBER 1992

**DOUGLAS-FIR TUSsock MOTH
IN THE KAMLOOPS FOREST REGION, 1992**

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Forest Insect and Disease Survey

Orgyia pseudotsugata defoliated 1875 ha of Douglas-fir in 58 patches between Kamloops and Spences Bridge (see also Pest Report, August 1992). The most severely affected areas were primarily on ranch properties in the ponderosa pine and bunchgrass biogeoclimatic zones. Single Douglas-fir and ornamental spruce were also defoliated in Kamloops, the Okanagan Valley and near Hedley. Elsewhere, a few localized infestations in the Fraser Valley in the Vancouver Region collapsed in mid-summer, and populations remained low at two previous outbreaks in the Nelson Region.

West of Kamloops, severely defoliated stands on 370 ha may sustain up to 50% tree mortality and substantial top-kill of remaining trees, particularly near Indian Gardens Creek and Brussels Lake. There may also be some scattered tree mortality and minor top-kill on 990 ha moderately defoliated, while lightly defoliated trees on 515 ha should fully recover.

Male moth captures in pheromone-baited sticky traps increased for the seventh consecutive year in Douglas-fir stands selected for the greatest historical frequency of outbreaks. Counts at 18 monitoring sites in Kamloops Region, averaged 40 moths per trap (6 traps per location), up slightly from 38 in 1991. Single traps located at 1-2 kilometer intervals in the Thompson and Okanagan valleys, to determine population distribution and to help locate epidemic centers, averaged 56 moths per trap, down from 59 last year. Additionally, an average of 30 moths per trap, down from 38 in 1991, were caught by the British Columbia Forest Service at 186 separate locations in the Kamloops Region.

Egg mass surveys at 23 sites in the Thompson, Okanagan and Similkameen valleys where there were high trap counts, or previous defoliation, indicated severe localized defoliation for 1993 at only two locations - Oregon Jack Creek and Mara Hill near Kamloops. Moderate defoliation is predicted at three locations, trace or light at five and no defoliation at 13 (Table). Egg mass density was determined using a sequential sampling survey, which required the inspection of a minimum of 20 trees per site.

There is evidence of the natural occurrence of nucleopolyhedrosis virus (NPV) in most areas of the outbreak. Numerous dead larvae were found on the ground in areas sampled for eggs in September-October in the Kamloops District. Disease, including NPV, reduced larval populations by 75% at three sites in the Similkameen Valley. An overall reduction in numbers of trapped moths, NPV infection in the population, pupal parasitism and a reduction in egg masses all point to a general decline of Douglas-fir tussock moth in 1993, except in those areas previously mentioned. There could also be a total collapse of populations, as a result of virus and larval starvation in older parts of the outbreak between Kamloops and Deadman River.

Table. Summary of sequential Douglas-fir tussock moth egg mass surveys, and pheromone trapping, 1992 and predicted defoliation for 1993, in the Kamloops Forest Region.

Location	Avg. No. moths/trap	Avg. No. egg masses/tree	1992 defoliation	Predicted 1993 ¹ defoliation
<u>MONITORING TRAPS</u>				
Pavilion	8	-	Nil	-
Veasy L	15	-	Nil	-
Barnes L	48	-	Nil	-
Battle Creek	87	-	Nil	-
Six Mile Ranch	106	0.1	moderate	Nil
Cherry Creek	59	-	Nil	-
Stump L	4	-	Nil	-
Heffley Cr	86	0.4	Nil	Trace
Kaneta	17	-	Nil	-
Monte Cr	67	-	Nil	-
Chase	5	-	Nil	-
<u>North Okanagan</u>				
Vernon	56	0.1	Nil	Nil
Winfield	17	0.1	Nil	Nil
Armstrong	2	-	Nil	-
<u>South Okanagan</u>				
Darke L	0	-	Nil	-
Blue L	38	0.1	Trace	Nil
Kaleden	54	0.0	Nil	Nil
<u>Similkameen Valley</u>				
Stemwinder Park	19	0.0	Nil	Nil

DISTRIBUTION TRAPS

Ashcroft-Spences Bridge

Rest Area-

S. Oregon Jack Cr	-	14.0	Mod-Sev	Severe
Venables Lake (E)	-	0.3	Severe	Trace
Venables Lake (S)	-	0.1	Severe	Nil
Murray Creek - 3Km	-	1.3	Trace	Moderate

Deadman River

Km 16	77	-	Nil	-
Km 1.8	97	-	Nil	-
Sabiston Cr - 5Km	86	0.1	Mod-Sev	Nil
Sabiston Cr - 13Km	-	2.0	Light	Moderate
SW Deadman R	-	0.15	Mod-Sev	Nil

Indian Gardens

Km 42-07 Guichon Rd	40	-	Nil	-
Km 1-W of Guichon Rd	78	-	Trace	-
Km 2-W of Guichon Rd	105	-	Trace	-
Indian Grdns-L2 plot	46	-	Nil	-
1.3Km E of Guichon	79	-	Trace	-
2.7Km E of Guichon	64	-	Nil	-

Six Mile Ranch

Pat L	122	-	Trace	-
Bull Pen Rifle Rnge	81	-	Trace	-
Six Mile L/O	101	-	Trace	-
6 Mi Ranch Rd - 1km	80	-	Nil	-
1.2km E.of previous	119	-	Nil	-
1.6km E.of prev.	98	-	Nil	-
3km E.of previous	76	-	Nil	-
1.3km E.of prev.	109	-	Nil	-

Dominic Lake Rd.

Km 1	68	-	Nil	-
Km 2	76	-	Trace	-

Beaton Lake-Kamloops

Beaton Rd - Km2.4	112	-	Nil	-
Beaton Rd - Km5.1	79	-	Trace	-
Iron Mask Hill	-	1.0	Moderate	Moderate

Kamloops Lake

W. of Tranquille	-	0.4	Moderate	Light
Mara Hill	-	2.3	Moderate	Severe

Kamloops-North

Lac du Bois - Km9	-	0.7	Trace	Light
Rayleigh - tower	-	0.1	Mod-Sev	Nil

Duck Range Rd.

Km 0.8	45	-	Nil	-
Km 3.2	30	-	Nil	-
Km 5.4	98	-	Nil	-

Pritchard

5.1 Km W. Pritchard	55	-	Nil	-
3.4 Km E. Pritchard	32	-	Nil	-

Central Okanagan Valley

O.K. Mountain Park-				
O.K. Mission	11	-	Nil	-
Winfield-Kelowna	0	-	Nil	-

Similkameen Valley

Winters Cr	-	0.0	Nil	Nil
Bradshaw Cr	-	0.1	Trace	Nil
Shoemaker Cr	-	0.2	Light	Trace
Ashnola	-	0.0	Nil	Nil

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<0.7 egg masses/tree (3 branches) = nil to light defoliation
 0.7 - 2.0 egg masses/tree (" ") = moderate defoliation
 >2.0 egg masses/tree (" ") = severe defoliation

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