Status of Insects in the Chapleau District

Ropke, Deiter

Information Report O-X-68
(Forest Research Laboratory, Ontario Region)

1967

Information Report No.	Subject	Author
O-X-57	Forest Insect & Disease Surveys --Lindsay District	M. J. Thomson
O-X-58	--Tweed District	F. Livesey
O-X-59	--Kemptville District	M. J. Applejohn
O-X-60	--Lake Simcoe District	R. L. Bowser
O-X-61	--Lake Erie District	G. T. Atkinson
O-X-62	--Lake Huron District	V. Jansons
O-X-63	--North Bay District	L. S. MacLeod
O-X-64	--Parry Sound District	C. A. Barnes
O-X-65	--Pembroke District	R. A. Trieselmann
O-X-66	--Sault Ste. Marie District	H. J. Weir
O-X-67	--Sudbury District	G. W. Cameron
O-X-68	--Chapleau District	D. Ropke
O-X-69	--Cogama District	W. Ingram
O-X-70	--Cochrane District	H. R. Foster
O-X-71	--Kapuskasing District	F. F. Foreman
O-X-72	--Swastika District	H. R. Foster L. S. MacLeod W. Ingram
O-X-73	--Port Arthur District	K. C. Hall
O-X-74	--Geraldton District	K. C. Hall D. C. Constable
O-X-75	--White River District	D. C. Constable
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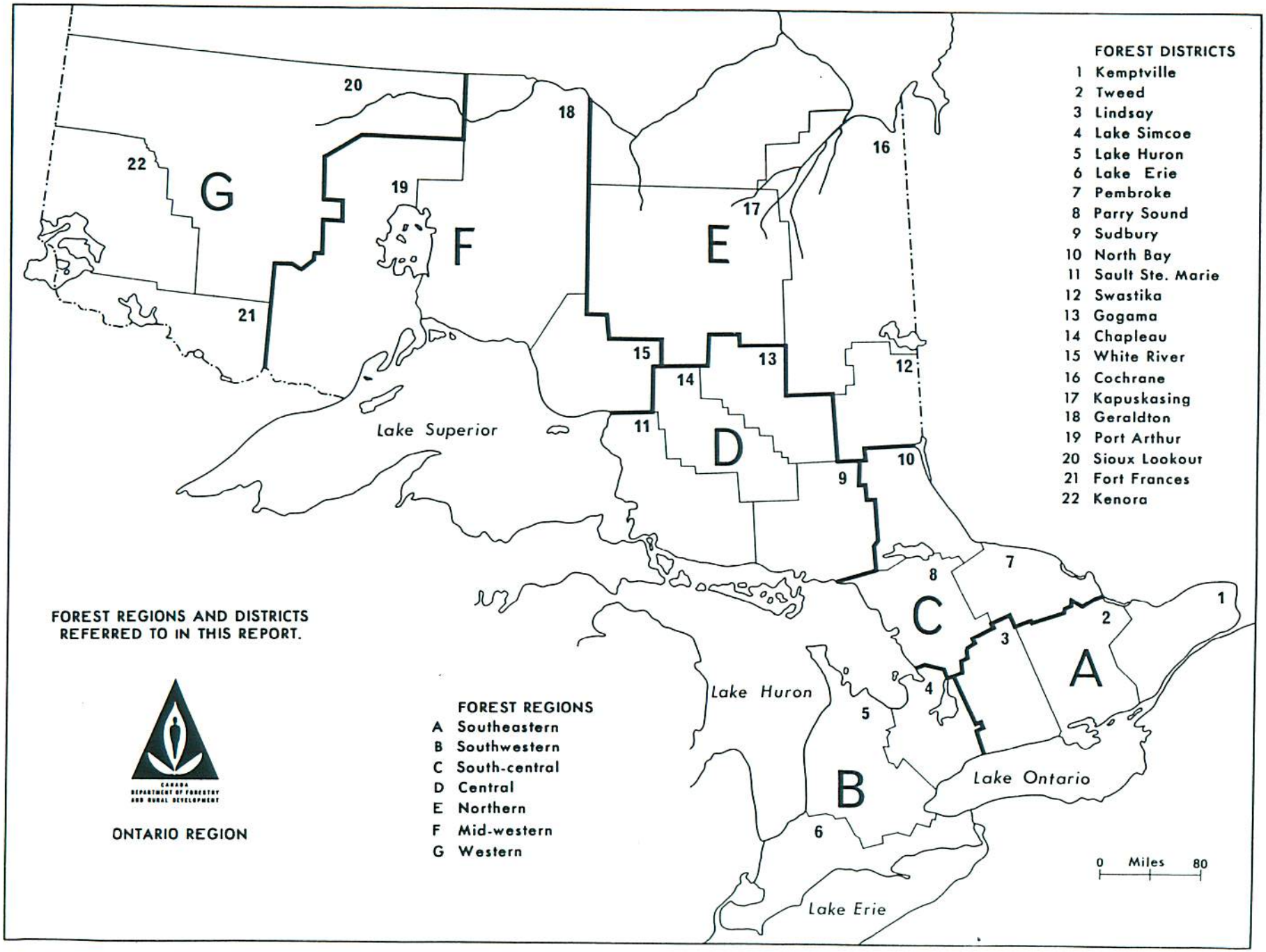
FOREST DISTRICTS
1 Kemptville
2 Tweed
3 Lindsay
4 Lake Simcoe
5 Lake Huron
6 Lake Erie
7 Pembroke
8 Parry Sound
9 Sudbury
10 North Bay
11 Sault Ste. Marie
12 Swastika
13 Gogama
14 Chapleau
15 White River
16 Cochrane
17 Kapuskasing
18 Geraldton
19 Port Arthur
20 Sioux Lookout
21 Fort Frances
22 Kenora
G
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E
D
C
B
A
Lake Superior
Lake Huron
Lake Ontario
Lake Erie
0 Miles 80
FOREST REGIONS AND DISTRICTS REFERRED TO IN THIS REPORT.
CANADA DEPARTMENT OF FORESTRY AND RURAL DEVELOPMENT
ONTARIO REGION
FOREST REGIONS
A Southeastern
B Southwestern
C South-central
D Central
E Northern
F Mid-western
G Western

FOREWORD

Population levels of the spruce budworm increased sharply in widely-separated parts of Ontario in 1967. Heavy infestations occurred in the Burchell Lake area in Port Arthur District and in woodlots in parts of Pembroke, Tweed and Kemptville districts. A light infestation persisted east of Chapleau in the Central Forest Region. The Burchell Lake infestation is of particular concern because of the nature of the forest in that area. Stands currently infested, as well as those to the north as far as Lac Des Mille Lacs, contain considerable mature balsam fir and white spruce which are highly susceptible to attack by the spruce budworm.

For the second consecutive year, weather conditions during May had a pronounced effect on infestations of the forest tent caterpillar. Mortality of eggs and newly-emerged larvae greatly reduced population levels of this pest. The only major areas of infestation remaining in the Province were in the eastern part of Fort Frances District and the southern part of Sault Ste. Marie District.

Two species of sawflies were of major importance in pine plantations. The European pine sawfly continued to extend its range in southeastern Ontario and two new centers of infestation were found on Manitoulin Island. The red-headed pine sawfly caused severe defoliation in red pine shelterbelts and plantations at numerous locations in the central and southern parts of the Province.

Intensive surveys were continued to determine the distribution and incidence of Dutch elm disease and Scleroderris-canker of pine. The discovery of Ceratocystis ulmi (Buism.) C. Moreau in Sault Ste. Marie constituted a marked westward extension of the range of the disease caused by this pathogen. Scleroderris-canker of pine continued to cause severe losses of young red pine and, to a lesser extent, jack pine in numerous plantations in central and northern Ontario. By comparison, damage in southern Ontario was negligible.

Diseases of spruce were caused by Cytospora kunzei Sacc. and Polyporus tomentosus Fr. at widely-separated points in southern Ontario and pockets of infection of Fomes annosus (Fr.) Cke. root-rot persisted in several red pine plantations in Lindsay, Lake Simcoe and Lake Erie districts. Details on the distribution and damage caused by these and other forest diseases and insects are contained in the regional and district sections of this report.

J. E. MacDonald

STATUS OF INSECTS IN THE CHAPLEAU DISTRICT

Deter Ropke

Spruce Budworm, Choristoneura fumiferana (Clem.)

Sampling showed that the infestation east of the Town of Chapleau intensified in 1967. The approximate location of the sampling stations is shown on the accompanying map. Balsam fir sample trees were approximately 35 to 55 years of age with an average d.b.h. of 6.5 inches. Current increment of both white spruce and balsam fir was normal. A graph on the following page illustrates the variation in defoliation at 15 sampling stations over a 2-year period. Defoliation was obtained from the examination of six co-dominant balsam fir trees at each station (Table 3).

TABLE 3

Summary of Defoliation by the Spruce Budworm at 15 Sampling Stations in Chapleau District from 1966 to 1967

Year	Per cent defoliation		
	Low	high	average
1966	0	8.5	2.1
1967	1.3	74.5	13.5

Scattered, dominant white spruce produced a prolific number of staminate cones at the mid and lower crown levels. There was evidence of feeding on both pistillate and staminate cones. However, it appears that due to the absence of white spruce shoot growth, considerable numbers of larvae dropped from the white spruce overstory to the co-dominant balsam fir. The abundance of budworm larvae on balsam fir was consistently related to the proximity of overstory white spruce. Egg surveys on balsam fir indicate that light defoliation will occur in 1968.

A pupal mass collection determined a sex ratio of 1.5 females per male moth. Parasitism destroyed 11 per cent of the pupae.

The increase of spruce budworm in the Chapleau area coincides with several similar outbreaks in Ontario. It is possible that the local infestation could develop into a major outbreak, but no extensive stands of mature spruce-fir forest exist in this area.

Jack-pine Budworm, Choristoneura pinus pinus Free.

Ninety-eight adults were recovered from a light trap in 1966, however, population levels of this budworm remained endemic in 1967. Isolated larvae were observed in the central and northern parts of the district.

Small numbers of budworm recurred in the extreme southeast corner of the district in Township L.

Larch Casebearer, Coleophora laricella (Hbn.)

The continued decline of population levels is reflected in Table 4.

TABLE 4

Summary of Larch Casebearer Counts in Chapleau District from 1965 to 1967

Location (township)	Number of 18-inch branch tips sampled	Av. no. of larvae per 18-inch branch tip		
		1965	1966	1967
Hoey	16	---	3.0	0.9
Chapleau	16	12.5	0.6	0

Birch Leaf Miner, Fenusa pusilla (Lep.)

First records of this insect for the district were obtained in 1966 (Information Report O-X-45). In 1967 the occurrence of the insect was re-confirmed at all previously known points. There was marked increase of larvae and this miner now appears to be well established in the district.

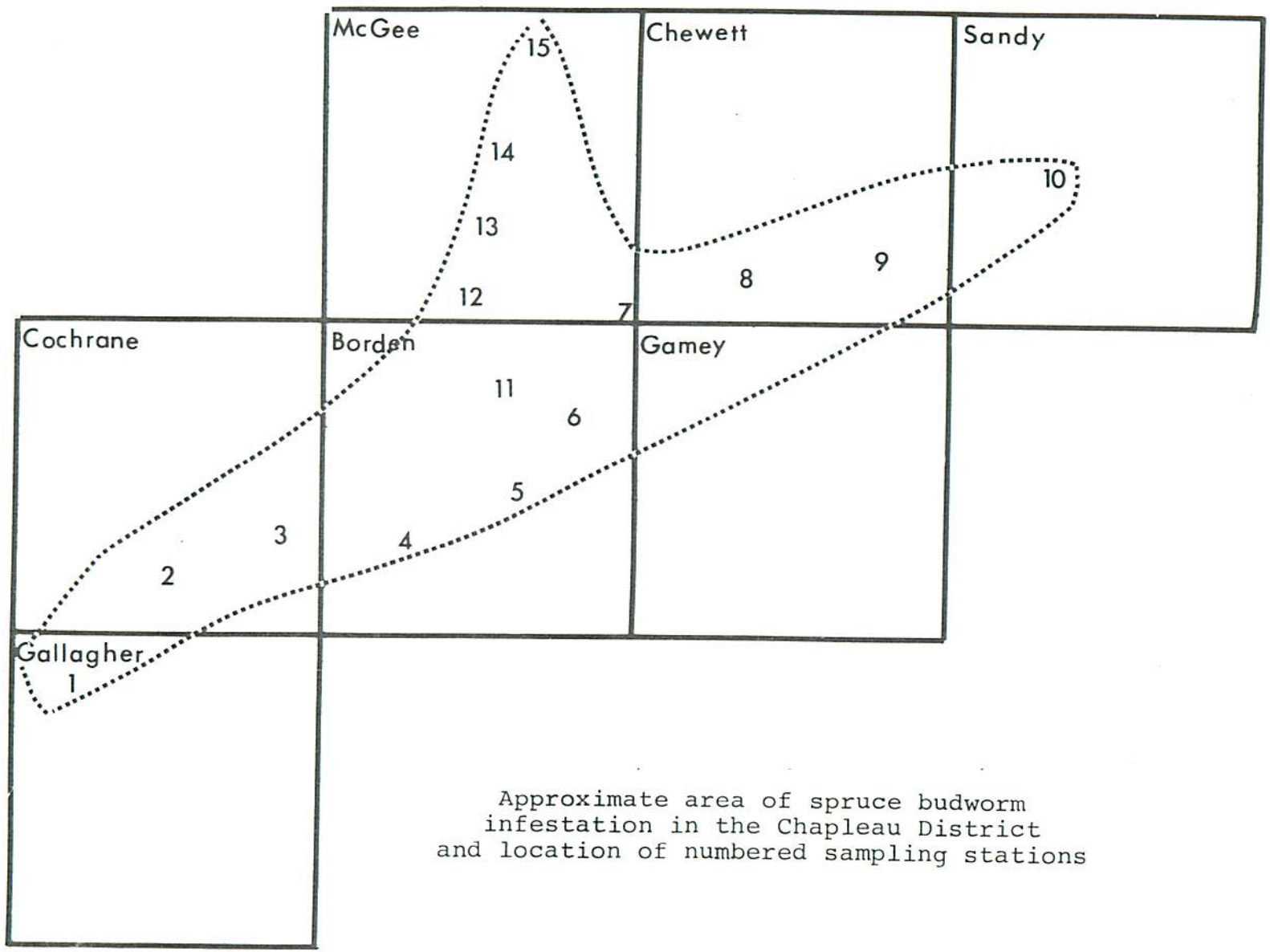
At the sampling station in Township L, 67 per cent of susceptible white birch foliage was mined as compared to 58 per cent in 1966.

Aspen Blotch Miner, Lithocolletis salicifoliella Chamb.

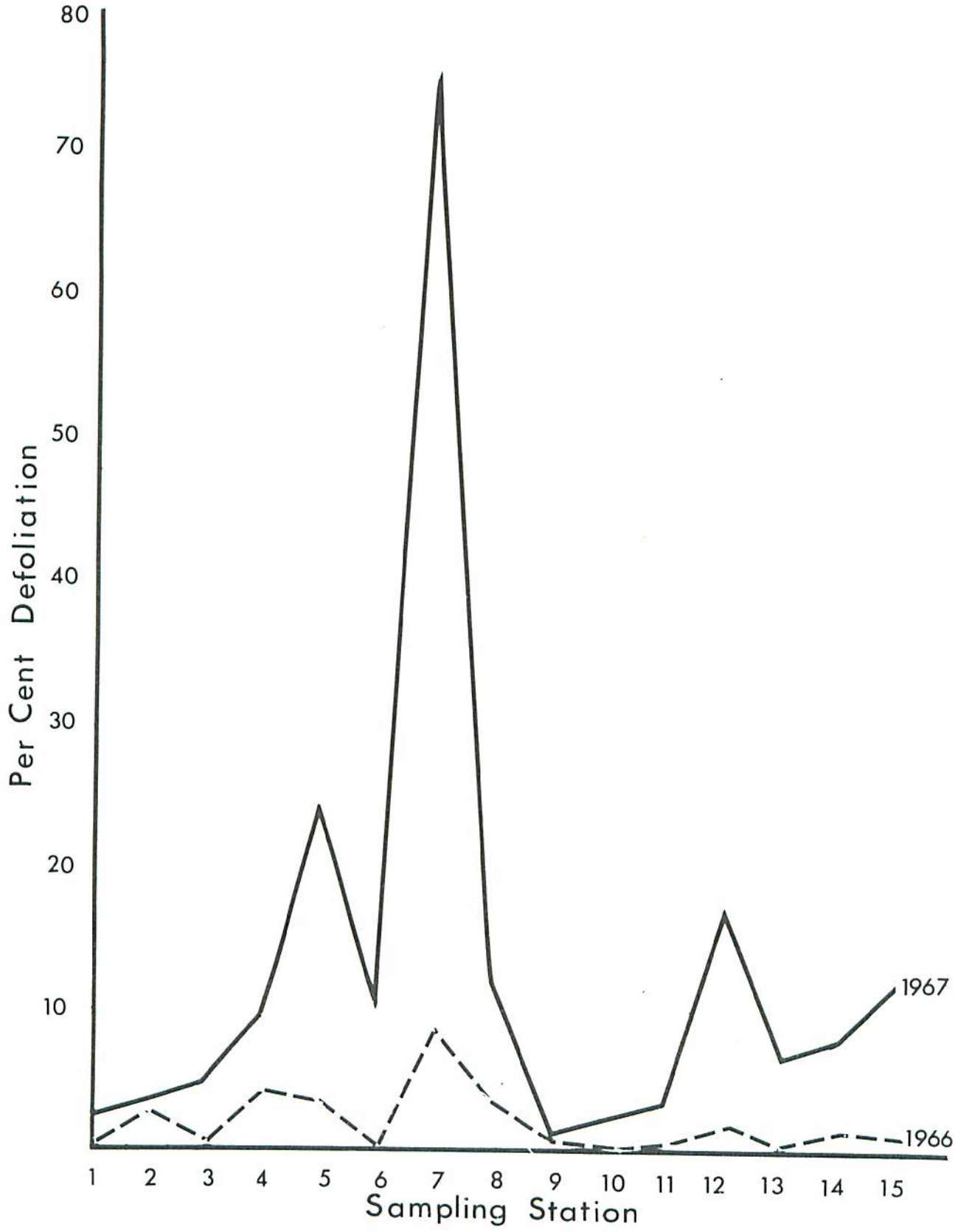
A further decline in numbers was recorded and all quantitative samples were negative in 1967. The insect was observed only in Township 23 Range 16, where a small pocket of fringe trembling aspen reproduction was severely infested.

Western Tent Caterpillar, Malacosoma pluviale (Dyar)

Population levels of the western tent caterpillar declined for the third consecutive year. The decline at sample stations shown in Table 5 is representative of the entire district.



Approximate area of spruce budworm infestation in the Chapleau District and location of numbered sampling stations



Defoliation of fir by spruce budworm
at numbered sampling stations in 1966 and 1967
Chapleau District

TABLE 5

Summary of Western Tent Caterpillar Larval Colony Counts per Measured Mile in the Chapleau District from 1964 to 1967

Location (township)	Number of tents per mile of roadside			
	1964	1965	1966	1967
Manning	9	5	2	0
L	8	2	1	2
Panet	6	5	1	3
8D	21	4	3	0
Blamey	0	5	3	1
Floranna	32	26	6	5
11C	--	3	1	1

Red-pine Sawfly, Neodiprion nanulus nanulus (Schedl)

Larval colonies occurred commonly in the central and southern portions of the district (Table 6). Defoliation was light at all locations.

TABLE 6

Summary of Red-pine Sawfly Larval Colony Counts in the Chapleau District from 1965 to 1967

Note: Ten trees were examined at each location.

Location (township)	Host	Av. d.b.h. of sample trees in inches	Av. no. of colonies per tree		
			1965	1966	1967
Panet	jP	8	2.1	1.8	2.4
Chapleau	jP	2	1.5	1.0	1.8
Margaret	jP	7	-	2.6	2.3
Gallagher	jP	8	0.6	1.4	1.9
Smuts	jP	5	-	1.2	2.5
L	jP	2	-	0.2	2.3*

* feeding with Neodiprion pratti banksianae

Black-headed Jack-pine Sawfly, Neodiprion pratti banksianae (Roh.)

This sawfly was found only rarely in the central and northern portions of the district. The upper crowns of jack pine trees in the Mozhabong Lake area near the Sudbury-Chapleau district boundary were again severely defoliated.

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

Minor fluctuations in numbers of this insect occurred at most sampling points. Groups of jack pine trees near the Woman River in Benton Township were completely defoliated for the third consecutive year. Small numbers of trees in 13G and 8D townships were also severely damaged.

TABLE 7

Summary of Red-headed Jack-pine Sawfly Larval Colony Counts in the Chapleau District from 1965 to 1967

Note: Ten trees having a d.b.h. of 1 inch to 3 inches were examined at each location.

Location (township)	Av. no. of colonies per tree		
	1965	1966	1967
9E	1.0	0.3	2.4
Panet	0	0	0.1
Wakami	0.8	0.2	0.5
Brutus	0.3	0.1	0.1
Benton	-	0.6	5.5

Yellow-headed Spruce Sawfly, Pikonema alaskensis (Roh.)

Light defoliation of white spruce shoots was observed at numerous locations. Complete defoliation occurred on a group of 10-foot ornamentals in the Town of Chapleau.

Balsam Shoot-boring Sawfly, Pleroneura borealis Felt.

The number of infested shoots increased sharply at most sampling points (Table 8). This increase was observed throughout the district.

TABLE 8

Summary of Damage by the Balsam Shoot-boring Sawfly in the Chapleau District from 1964 to 1967

Note: Counts were based on the examination of 50 branch tips from 10 trees at each location.

Location (township)	Av. d.b.h. of sample trees in inches	Per cent of shoots infested			
		1964	1965	1966	1967
Borden	1.5	3.5	0.2	2.4	12.3
32	2.0	10.4	0	0	7.5
13H	1.5	-	0.6	0	0
12F	1.5	10.7	0.6	0	13.6

Amber-marked Leaf Miner, Profenusa thomsoni (Konow)

Population levels of this insect increased for the second consecutive year (Table 9). White birch foliage in McNaught, 11H, 12 and Hall townships was severely infested.

TABLE 9

Summary of Damage to White Birch Foliage in the Chapleau District from 1965 to 1967

Note: Counts were based on examination of 100 leaves from three trees at each location.

Location (township)	Av. height of sample trees in feet	Per cent of leaves mined		
		1965	1966	1967
Garnet	16	0	1	3
Nimitz	14	1	12	25
8D	15	0	15	65
10C	25	-	22	16

A Noctuid, Pyrrhia sp.

A tubeling regeneration program on part of the large 1967 burn was subjected to an invasion of large numbers of larvae closely related to the destructive cutworms. In an area of approximately ten acres, 40 per cent of the white spruce tubelings were destroyed. Damage elsewhere was light to moderate. This insect appears to be particularly attracted to burned over areas. Areas outside the fire area were not infested.

The larvae were very variable and two colour phases could be distinguised. Some larvae were predominantly flat velvet black where others were yellowish-white with black markings. Similar to the related "armyworm", the caterpillars were not host specific. The following forest flora was partially or completely defoliated: white birch, trembling aspen, red maple, mountain maple, white spruce tubelings, pin cherry, big-leaf aster (Aster macrophyllus), Sarsaparilla (Aralia nudicaulis), mountain ash, bush honeysuckle (Diervilla lonicera), fringed bindweed (Polygonum cilinode), interrupted fern (Osmunda Claytonia), bracken fern (Pteridium aquilinum), and Geranium sp.

Spruce Bud Midge, Rhabdophaga swainei Felt.

Population levels declined slightly at sampling points (Table 10). However, the insect occurred commonly in host stands throughout the district.

TABLE 10

Summary of Buds Damaged by the Spruce Bud Midge at Six Points in the Chapleau District from 1965 to 1967

Note: Counts were based on the examination of five branch tips from each of ten black spruce at each point, average diameter of sample trees: 1.5 inches.

Location (township)	Per cent of terminal buds infested		
	1965	1966	1967
Arbutus	1.0	1.2	1.0
24 Range XXII	-	5.1	2.8
Busby	-	8.2	7.2
29	0	3.9	0
Sandy	-	6.4	4.7
9D	1.0	5.4	3.8

TABLE 11

Summary of Miscellaneous Insects Collected in the Chapleau District in 1967

Insect	Host(s)	Remarks
Altica corni Woods	eDo	Heavy leaf beetle infestation at Woman River in Benton Township
Archips cerasivoranus (Fitch)	Hazel	Parasitized pupae found in moderate numbers in Township 22 Range XVIII
Cecidomyia ocellaris O.S.	rM	Light on occasional understory trees in Hall Township
Compsolechia niveopulvella Chamb.	tA	Occasional leaf rollers in Abney, 12H and Floranna townships
Datana ministra (Drury)	wB	Moderate defoliation of white birch reproduction occurred in Margaret Township
Evodinus monticola (Rand.)	wS	Numerous larvae trapped in white spruce log, 11G Township
Galerucella nymphaeae Linn.	Sweet Gale, Water Lily	Moderate defoliation by leaf beetles, Woman River, Benton Township
Gonioctena americana (Schaeff.)	tA	Numerous pockets of moderate defoliation in Township 28 along the Riff Lake road, ten foot fringe trembling aspen were completely defoliated

TABLE 11 (concluded)

Insect	Host(s)	Remarks
Halisidota maculata Harr.	Al,W	Tiger Moth larvae occasional in Margaret and Hall townships
Hemiochroa crocea (Fourc.)	Al	Complete defoliation of large alder clump along lakeshore in Township 23 Range 17
Hyphantria cunea (Drury)	pCh	This insect is only rarely recorded here, one tent was observed in Garnet Township
Monochamus notatus (Drury)	wS	Few larvae found in white spruce bolts in 11G Township
Monoctenus fulvus (Nort.)	eC	Ornamentals at Biscotasing lightly infested
Neodiprion nigroscutum (Midd.)	jP	First record for the District at Horton Lake in 9D Township
Pareophora minuta (MacG.)	bAs	Light to moderate defoliation was observed in Ivy, Hall and 11D townships
Prociphilus tesselatus (Fitch)	Al	Continued heavy infestations in 8D, 8E and 11B townships
Pseudexentera oregonana Wlshm.	tA	Moderate infestation on lake-shore and understory trees at Five Mile Lake in 11D Township
Sciaphila duplex Wlshm.	tA	Low numbers of leaf rollers in Abney, 12H, 32 and Floranna townships
Tetropium cinnamopterum Kby.	wS	Small numbers removed from white spruce trap log in 11G Township
Trichotaphe levisella Fyles	Large Leaf Aster	Numerous leaf tiers in 11D Township