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Swastika District, 1969
Reports of Forest Research Technicians

Lombard, J.F.

Information Report O-X-129
(Forest Research Laboratory, Ontario Region)



OUR FILE NO.
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DEPARTMENT OF FISHERIES AND FORESTRY
CANADIAN FORESTRY SERVICE

MINISTÈRE DES PÊCHES ET DES FORÊTS
LE SERVICE CANADIEN DES FORÊTS

FOREST RESEARCH LABORATORY
BOX 497
SAULT STE MARIE, ONT.

25 May 70

Dear Sir:

This is a composite of 18 individual Information Reports of Forest Insect and Disease Surveys which were issued and mailed several weeks ago to district foresters and other key forestry personnel in the various districts across Ontario. These reports were numbered consecutively as listed under the table of contents beginning with Lindsay District as O-M-115 and continuing to Fort Frances District as O-M-134, with Geraldton and White River combined as O-M-131. The content is confined to the results of field surveys of insect and disease conditions exclusive of those directly associated with aerial spraying operations carried out by the Ontario Department of Lands and Forests in 1969. Brief resumés of these operations as prepared for the Interdepartmental Committee on Forest Spraying operations in November are provided for your information as supplement reports at the back.

Yours very truly,

W.L. Sippell,
Head, Insect and Disease Survey,
Ontario Region.

WLS/ar



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 Ontario, 1969

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FOREWORD

The Forest Insect and Disease Survey Unit carried out their annual damage detection and censusing program in Ontario between May 1 and September 12, 1969. The results are reviewed in detail for the area shown in the title of each specific report. The following is a general summary of the more important insect and disease situations in the Province.

The spruce budworm was the dominant forest insect problem in 1969. In northeastern Ontario, new or enlarged infestations occurred in the forest districts of Chapleau, Kapuskasing, Cochrane, Sudbury, Swastika, and Sault Ste. Marie. In southeastern Ontario heavy infestations persisted in parts of Pembroke, Tweed and Kemptville districts, and in the western part of the Province two small areas of severe defoliation appeared in the Port Arthur District. Jack pine budworm population levels increased sharply; heavy infestations recurred in the Sault Ste. Marie and Pembroke districts and new areas of severe defoliation were recorded in the districts of Sudbury, North Bay, and Parry Sound.

Aerial spraying operations were carried out against the spruce budworm by the Ontario Department of Lands and Forests in the Port Arthur and Fort Frances districts and against the jack pine budworm and white pine weevil in the Sault Ste. Marie District. Jack pine budworm infestations on the Canadian Forces Base (Petawawa) and on the Petawawa Forest Experiment Station were sprayed by the Canadian Forestry Service. Field technicians were heavily involved in the delineation of areas to be treated, in the timing of spray applications, and in the assessment of populations before and after spraying. Separate reports of these operations are in preparation.

Disease surveys emphasized the evaluation of incidence, infection levels and degree of damage by various pathogens on infected stands. Although no extensive changes in the distribution of the Dutch elm disease occurred in 1969, the pathogen caused considerable mortality of elm, particularly in southern Ontario. Two important diseases of poplar were ink spot and Hypoxylon canker. Scleroderris canker of pine continued to be a major problem in pine plantations. Cankers of pines and hardwoods were evaluated in many stands and details on these and other problems are discussed in the following report.

On January 16, 1970 the Unit lost the valuable services of its Chief Field Technician, J.E. MacDonald, who retired after guiding the Survey Field Service in its various programs and in the compilation of annual district reports for the past 25 years.

The objectives and working principles of the Insect and Disease Survey are currently being thoroughly reviewed and re-evaluated, and it is now clear that fewer technicians will be involved in carrying out surveys of forest insect and disease conditions in Ontario in 1970. Future reports on the details of these surveys will probably cover five regions or sections of the Province.

L. S. MacLeod
Acting Chief Technician

April, 1970.

SWASTIKA DISTRICT

1969

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INTRODUCTION

This report deals with insect and disease conditions in the district in 1969. The marked increase in spruce budworm populations was the most important development of the season; infestations in 1969 and forecasts for 1970 are contained in the report. Other important insects dealt with are the birch leaf miner and the amber-marked birch leaf miner. Diseases that caused considerable damage in the district were ink spot disease of poplar and Scleroderris canker of pine.

I wish to express appreciation for the assistance given the Survey in the 1969 season.

J. F. Lombard

Spruce Budworm, Choristoneura fumiferana (Clem.)

Because the current budworm outbreak is spread over a number of districts which cannot realistically be treated separately, a broader approach has been adopted. The following account was extracted from Information Report O-X-135 titled "The Current Spruce Budworm Situation in Northeastern Ontario", to which the reader is referred for additional information.

In 1968, aerial and ground reconnaissance revealed major increases in the intensity and extent of the Borden Township infestation and a number of new infestations were detected over a large part of northeastern Ontario. The Borden infestation northeast of Chapleau had increased to medium intensity and extended over approximately 300 square miles. New infestations extended over approximately 800 square miles in the northern parts of the Chapleau District and into the Kapuskasing District. Both first and second year infestations were largely of light or moderate intensity with pockets of severe defoliation in Borden, Conking, Ivanhoe, and Amundsen townships. New or enlarged infestations were also delineated in the Cochrane, Sudbury, Swastika, and Sault Ste. Marie districts. Elsewhere in northeastern Ontario, infestations were generally light, interspersed with small pockets of medium to heavy intensity, the most important of which were in Baden Township and Indian Reserve 72 in the Swastika District, in Fairbank Township in the Sudbury District, and in Parkinson Township in the Sault Ste. Marie District.

In 1969, a further major development was evident. In the Chapleau District and the southern part of the Kapuskasing District, medium and heavy infestation extended over more than 2,000 square miles (see map). Stands within this area have obviously been changing from mixed woods, with a dense hardwood overstory that overtopped the fir at the time of the last outbreak, to a predominantly spruce-fir forest with scattered mature white spruce in the overstory and a dense semi-mature balsam fir understory. In some stands the defoliation of balsam fir was particularly severe with upwards of 75 per cent of the old foliage removed in addition to all of the new needles. In the Sudbury District, a new medium to heavy infestation comprising approximately 400 square miles occurred in the area between Onaping Lake and the Canadian National Railway. Also, the light infestation of 1968 in Emerald and Gouin townships increased to heavy intensity, and two widely-separated heavy infestations, in Fairbank and Asquith townships, expanded. Eight additional, but smaller and widely-separated infestations, ranging in size from 1 to 35 square miles, were observed in the district. In the Swastika District, an infestation in

Yarrow Township enlarged and increased from medium to heavy intensity, and a new heavy infestation was found in Milner Township. Reductions in the extent of damage in the Cochrane District and the northern part of the Swastika District in 1969 compared with 1968 resulted from a severe frost in mid-June of 1968 that killed most of the new shoots of balsam fir, thus eliminating the food supply for the budworm. In Parkinson Township, Sault Ste. Marie District, a small, heavy infestation on white spruce recurred in 1969.

In order to forecast damage in 1970, egg mass counts were made at a large number of points in and around the infested area. The results of this survey are shown in Table 1.

Moderate and severe defoliation can be expected again in 1970 providing, of course, that normal conditions prevail next spring. A major extension of moderate and light defoliation is expected southward and southwestward of the largest infestation in the Chapleau District and probably beyond the points at which samples were taken. Similar extensions are forecast around Horwood Lake and Foleyet in the eastern part of the Chapleau District and again to the east and south of the large Onaping Lake infestation in Sudbury District. A sufficient number of nil returns were obtained from areas north and west of the infestations in the Kapuskasing District to suggest a static situation in this area for 1970.

Because this outbreak was widespread and the weather at the time of moth flight (July 15 to 28 at Chapleau) was bright, dry, and conducive to moth dispersal, new infestations will probably extend in 1970 beyond the 1969 borders of infestation.

TABLE 1

Spruce Budworm

Summary of Balsam Fir Defoliation Estimates and Egg Mass Counts in 1969,
and Infestation Forecasts for 1970 in Northeastern Ontario

Location (township by district)	Per cent defoliation of 1969 foliage	Number of egg clusters per 100 square feet of foliage	Damage forecast for 1970
<u>Chapleau</u>			
Abigo	3	0	O *
Borden	60	68	M
Brutus	0	0	O
Calais (Prov. Park)	66	633	S
Carty	11	10	L
Conking	8	47	M
Coppell	4	22	L
Denyes	2	40	M
Foleyet	16	56	M
Halcrow	0	0	O
Halsey	3	48	M
Hardiman	8	68	M
Hill	5	84	M
Horwood	12	64	M
Ivanhoe (Prov. Park)	60	309	S
Kapuskasing	71	860	S
Keith	32	89	M
Kirkwall	65	244	S
Lerwick	74	335	S
Lincoln	52	235	S
Makawa	1	0	O
Montcalm	6	20	L
Muskego	3	0	O
Ossin	33	185	S
Oswald	1	0	C
Penhorwood	2	12	L
Rollo	1	12	L
Saddler	3	83	M
Shenango	91	4008	S
11 D (Prov. Park)	2	7	L
11 H	1	6	L
12 F	1	0	O
12 G	1	13	L
12 H	1	42	M
13 G	3	54	M
29	2	8	L
32	1	60	M
35	3	5	L

* S - Severe; M - Moderate; L - Light; O - Nil or very light.

TABLE 1 (continued)

Location (township by district)	Per cent defoliation of 1969 foliage	Number of egg clusters per 100 square feet of foliage	Damage forecast for 1970
<u>Cochrane</u>			
Hassard	8	16	L *
<u>Kapuskasing</u>			
Champlain	63	107	M-S
Clouston	3	0	O
Lisgar	7	76	M
Mons	71	160	S
Puskuta	3	0	O
Radisson	1	0	O
<u>North Bay</u>			
Badgerow	1	10	L
Dunnet	31	151	S
<u>Sault Ste. Marie</u>			
Parkinson (white spruce)	83	677	S
<u>Sudbury</u>			
B	35	476	S
Baynes	2	0	O
Beresford	1	0	O
Beulah	37	363	S
Botha	6	81	M
D	3	6	L
Dale	6	9	L
Dunbar	18	36	M
Edinburgh	1	0	O
Emerald	14	37	M
Emo	55	547	S
Fairbank	64	191	S
Halliday	2	3	L
Hess	2	12	L
Howey	8	31	M
Inverness	6	14	L
Leask	5	9	L
MacMurchy	3	9	L
McCowan	1	9	L
Miramichi	64	822	S
Moher	50	466	S

* S - Severe; M - Moderate; L - Light; O - Nil or very light.

TABLE 1 (continued)

Location (township by district)	Per cent defoliation of 1969 foliage	Number of egg clusters per 100 square feet of foliage	Damage forecast for 1970
<u>Sudbury (cont'd.)</u>			
Moncrieff	16	14	L *
Muldrew	2	0	O
Northrup	4	0	O
St. Louis	3	0	O
Shelly	51	475	S
Starlak	1	3	L
Tyrone	2	4	L
<u>Swastika</u>			
Milner	67	324	S
Tyrell	1	0	O
Yarrow	66	273	S

* S - Severe; M - Moderate; L - Light; O - Nil or very light.

Larch Casebearer, Coleophora laricella Hbn.

Population levels of the larch casebearer declined in 1969 except in Harker Township where a slight increase was recorded at this quantitative sample point (Table 2).

TABLE 2

Summary of Larch Casebearer Larval Counts at Five Points
in the Swastika District from 1967 to 1969

Note: Counts were based on the examination of four 18-inch branch tips from the mid-crown of each of four trees at each location.

Location (township)	Av. d.b.h. of sample trees in inches	Av. no. of larvae per branch tip		
		1967	1968	1969
Hilliard	5	0.1	4.3	0
Hudson	5	0.3	2.8	0.3
Marter	4	0.5	6.2	0.1
Harker	6	1.7	1.0	1.9
Powell	4	2.6	8.3	0.2

Aspen Blotch Miner, Lithocolletis salicifoliella Cham.

For three consecutive years, this leaf miner occurred in low numbers in the district (Table 3). Although usually found on trembling aspen and balsam poplar, it was collected on willow in Marquis and Robillard townships.

TABLE 3

Summary of Aspen Blotch Miner Counts in the Swastika District from 1967 to 1969

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

Location (township)	Tree species	Av. d.b.h. of sample trees in inches	Total no. mines per 100 leaves		
			1967	1968	1969
Marriott	tA	4	3	3	12
Teck	tA	2	2	1	8
Catharine	bPo	2	4	0	0
Kimberley	tA	4	8	0	1

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

A general decrease in population levels was observed in 1969 (Table 4). The heavy infestation present at Aitie Creek in Chamberlain Township in 1968 collapsed in 1969. Light infestations occurred in Gauthier, Marriott and McGarry townships. Defoliation ranged from five to 15 per cent at several locations.

TABLE 4

Summary of Red-headed Jack-pine Sawfly Colony Counts at Five Locations in the Swastika District from 1967 to 1969

Note: Ten trees sampled at each location.

Location (township)	Av. d.b.h. of sample trees in inches	Av. no. of colonies per tree		
		1967	1968	1969
Maisonville	7	7.5	1.3	0
Teck	5	3.6	4.3	1.4
Munro	5	0.2	1.4	1.0
Chamberlain	2	4.8	8.9	0.6
Brethour	4	1.6	1.5	0

Yellow-headed Spruce Sawfly, Pikonema alaskensis Roh.

A heavy infestation in a ten-acre white spruce plantation in Harley Township recurred in 1969 and approximately five acres was severely defoliated. Although heavily infested for three consecutive years no mortality has resulted. A count taken on 50 trees in 1968 showed 47 per cent defoliation of new and old foliage. This increased to 65 per cent in 1969.

Ornamental trees in Kirkland Lake were moderately defoliated. Elsewhere population levels declined.

White-pine Weevil, Pissodes strobi Peck

For the second consecutive year, infestations of white-pine weevil were generally light (Table 5) except at one location in Marter Township where jack pine trees were moderately infested.

TABLE 5

Summary of Leader Damage by the White-pine Weevil
in the Swastika District from 1967 to 1969

Note: Counts were based on the examination of 100 trees at each point.

Location (township)	Tree species	Per cent of leaders infested		
		1967	1968	1969
Grenfell	wP	14	20	6
Benoit	jP	3	0	0
Currie	bS	2	0	1
Gauthier	jP	2	0	0
McGarry	bS	5	0	4

Larch Sawfly, Pristiphora erichsonii (Htg.)

Population levels of the larch sawfly declined at most locations in 1969. However, aerial reconnaissance showed pockets of moderate to heavy infestations in Banks and Willet townships for the second consecutive year.

Amber-marked Birch Leaf Miner, Profenusa thomsoni Konow

The townships of Hincks, Argyle, Bannockburn, Yarrow, Kimberley, and Morel in Division 63 sustained moderate to heavy infestations in 1969. In Hincks and Argyle townships intensity of attack decreased with increasing height in the crown. At the five permanent sample plots population levels remained unchanged in 1969 (Table 6).

TABLE 6

Summary of Damage Caused by the Amber-marked Birch Leaf Miner
in the Swastika District from 1967 to 1969

Note: Counts were based on the examination of a random sample of 100 leaves from three white birch trees at each point.

Location (township)	Av. d.b.h. of sample trees in inches	Total number of mines		
		1967	1968	1969
Otto	3	1	2	3
Arnold	3	0	4	2
Stock	3	3	23	9
Playfair	3	9	2	3
James	5	12	12	0

TABLE 7

Other Noteworthy Insects

Insect	Host(s)	Remarks
<i>Archips cerasivoranus</i> Fitch	ecCh	Heavy infestation in the town of Kirkland Lake
<i>Contarinia canadensis</i> Felt	bAs	Moderate population in Marquis Township
<i>Datana ministra</i> Dru.	wB	Heavy infestation on white birch in Eby Township
<i>Depressaria groteella</i> Rob.	Ha	Light to medium infestations in Powell, Alma, and Clifford townships

TABLE 7 (continued)

Insect	Host(s)	Remarks
<i>Diprion hercyniae</i> Htg.	wS	Only low numbers observed
<i>Enargia decolor</i> Wlk.	tA	Trace population in Grenfell and Otto townships. Heavy flight of adults observed in Eby Township
<i>Fenusa pusilla</i> Lep.	wB	Pockets of medium infestations Division 63
<i>Malacosoma californicum pluviale</i> Dyar	pCh	Light infestations were widespread. Colony counts and sample plots were up slightly from 1968
<i>Nematus limbatus</i> Cress.	W	Very heavy defoliation in Chamberlain Township on ornamental willow
<i>Orgyia antiqua</i> L.	wB	Heavy infestation in Kirkland Lake on ornamental white birch
<i>Petrova albicapitana</i> Busck.	jP	A few nodules collected in Munro Township where a heavy infestation existed in 1968
<i>Phyllocolpa</i> sp.	bPo	Light to moderate numbers collected in the townships of Robillard, Catharine, and Mulligan
<i>Pleroneura borealis</i> Felt	bF	Light to moderate infestations were common in Division 63
<i>Pristiphora geniculata</i> Htg.	Mo	Heavy infestations of 1968 collapsed in 1969. Collected on ornamental mountain ash in Teck and Eby townships

TABLE 7 (continued)

Insect	Host(s)	Remarks
<i>Prociphilus tessellatus</i> Fitch	siM	Heavy infestation on ornamental silver maple in Matheson
<i>Rhabdophaga strobiloides</i> O.S.	W	Medium and light infestations in Mulligan and Marquis townships respectively on roadside willow
<i>Rhabdophaga swainei</i> Felt	bS, wS	Heavily infested trees were observed in Garrison Township
<i>Rhynchaenus rufipes</i> Lec.	W	Heavy infestation on ornamental tree in Eby Township for second consecutive year
<i>Vasates quadripes</i> (Shim.)	siM	Heavy infestation on ornamental silver maple in Bowman and James townships
<i>Zeiraphera canadensis</i> Mut. & Free.	wS	Isolated heavy populations in Lebel Township
<i>Zeugophora</i> sp.	bPo, tA	Moderate numbers in Stock Township

Armillaria Root Rot, Armillaria mellea (Vahl ex Fr.) Kummer

A light infection occurred in a forty acre jack pine plantation in Burt Township. Foliage was chlorotic and there was a pronounced swelling on the root collar of infected trees.

Ink Spot of Aspen, Ciborinia whetzellii (Seaver) Seaver

Infection caused by this disease increased in 1969. In Hislop Township a pocket of open-grown trees was totally defoliated. Moderate infections occurred in James, Munro, Beatty, Farr, and Barber townships. All trembling aspen stands in the district showed evidence of infection.

Sweetfern Blister Rust, Cronartium comptoniae Arth.

Five new areas of light to moderate infections were discovered on mature to semi-mature jack pine in McCann, McEvay, Nordica, Sheba, and Durmore townships. The disease was not observed on nursery plantings and regeneration in the vicinity. Elsewhere in the district, no new infections were recorded.

Scleroderris Canker of Pine, Scleroderris lagerbergii Gremmen

Recently planted jack pine in the northwest corner of Michaud Township was moderately infected by Scleroderris canker of pine. This particular infection was first observed in 1966.

The heavy infection in McCool Township found in 1966 declined to trace infection in 1969. Other stands infected in 1966 were re-examined and the disease was not observed in the current year.

TABLE 8

Other Noteworthy Diseases

Organism	Host(s)	Remarks
<u>Cronartium ribicola</u> J.C. Fischer	wP	A light infection occurred on young white pine in Grenfell and Tyrrell townships
<u>Endocronartium harnessii</u> (J.P. Moore) Y. Hiratsuka	jP	Light infection causing branch mortality in Michaud Township
<u>Isthmiella crepidiformis</u> (Darker) Darker	bS	Heavily infected trees in Grenfell Twp.