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Status of Insects in the Swastika
District

Applejohn, M.J.

Information Report 0-X-21
(Forest Research Laboratory, Ontario Region)

FOREWORD

J. E. MacDonald

Outbreaks of the forest tent caterpillar have highlighted reports dealing with forest insect surveys for the past several years. In 1965, the outbreak in Western Ontario reached its peak and poplar stands within an area of about 34,000 square miles were severely defoliated. Egg surveys in the fall revealed that a marked decline in infestation intensity will occur in Sioux Lookout and Kenora districts but high larval populations will persist in Fort Frances and Port Arthur districts in 1966. Trends in infestation intensities will vary from area to area in eastern Ontario, with the most noteworthy increase in the extent of infestations occurring in the Lake Nipissing outbreak.

The development of new infestations of Bruce spanworm and the European pine sawfly were of particular interest in 1965. Infestations of the former occurred in Sault Ste. Marie, Sudbury and Pembroke districts. Severe defoliation of hardwoods that resulted in relatively large areas represented first records of extensive infestations in Ontario. A major extension in the known distribution of the European pine sawfly was recorded when the insect was found in two Scots pine plantations on Manitoulin Island. This extension places the insect much closer to major stands of jack pine in northern Ontario.

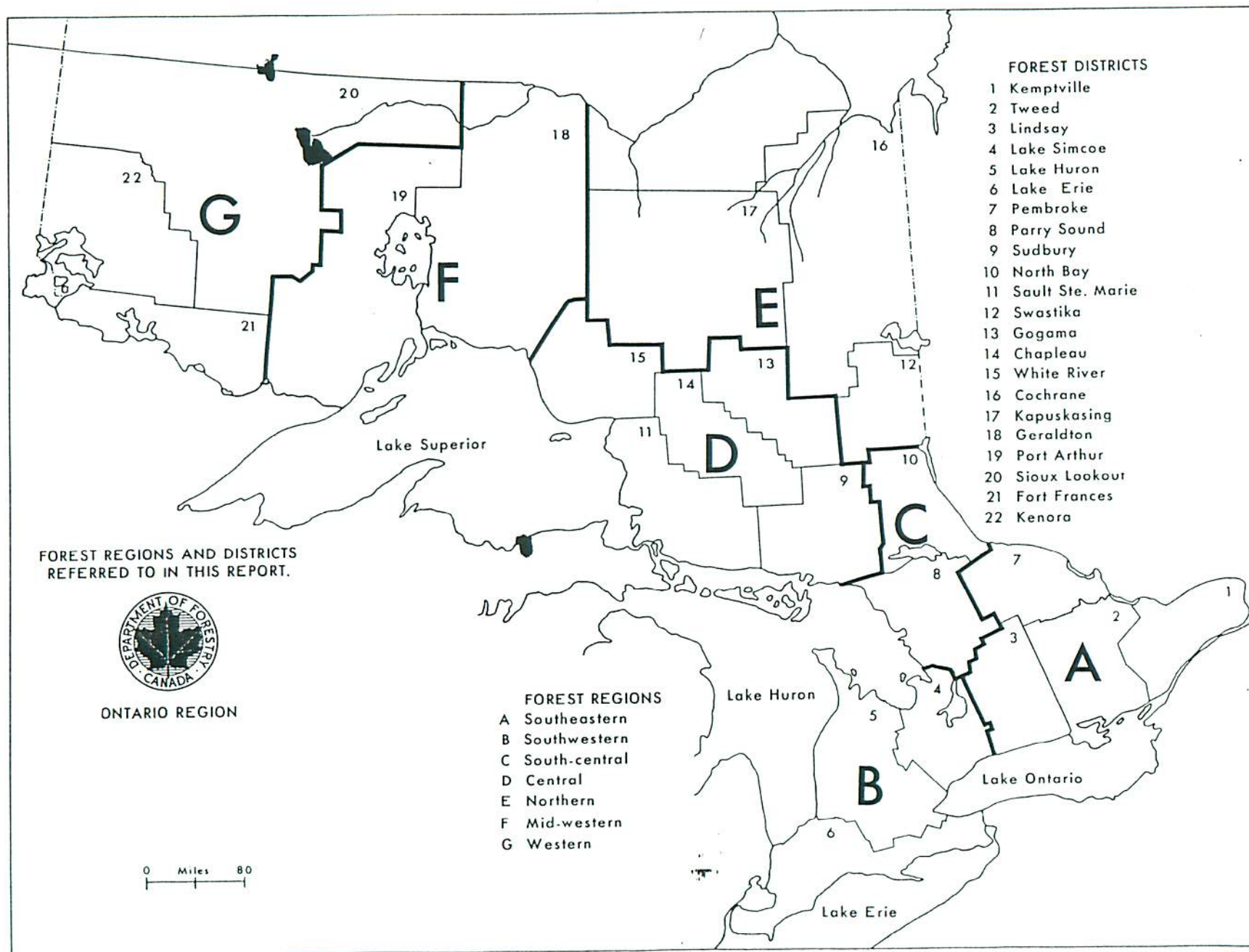
For the third consecutive year low temperatures in the spring caused considerable mortality of the current year's shoots of balsam fir and white spruce at many locations in Ontario. Continued cold weather throughout the summer delayed the development of many insects and in some instances larvae failed to reach maturity before freezing temperatures occurred in the fall.

Tree disease surveys continued to reveal serious losses of white elm resulting from Dutch elm disease in southern Ontario. In northern Ontario two centers of infection occurred on Manitoulin Island and infected elm were found at one location near Spanish on the North Shore of Lake Huron. Intensive surveys to determine the distribution and incidence of this disease will be continued in 1966.

During the early years of the Survey in Ontario Field Technicians were largely concerned with determining the distribution and abundance of forest insects and appraising losses in forest stands. As a consequence the detection aspect of survey work was of a high order. Later, added responsibility for disease surveys and the development of more elaborate sampling procedures, reduced the time available for purely detection work. To compensate for this, greater emphasis has been placed on systematic aerial reconnaissance throughout the vast forested areas of central and northern Ontario.

The Survey welcomed the addition of a Forest Research Technician to its staff in 1965. This appointment now provides one field representative for each district in the Southeastern Region where formerly three men were responsible for survey work in four districts.

In the reports that follow, insects and tree diseases that are of interest in adjoining districts are dealt with on a regional basis. Others are dealt with in detail on a district basis.



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

FOREST REGIONS AND DISTRICTS
REFERRED TO IN THIS REPORT.



ONTARIO REGION

FOREST REGIONS

- A Southeastern
- B Southwestern
- C South-central
- D Central
- E Northern
- F Mid-western
- G Western



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* Regional Supervisors

1965

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M. J. Applejohn

Item	Description	Quantity	Unit Price	Total Price
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Ugly-nest Caterpillar, Archips cerasivoranus (Fitch.)

Population levels of this defoliator increased in the district in 1965. The largest numbers occurred near Hanbury Cemetery in Harley Township where 287 tents were counted in a square chain plot (Table 5). Heavy infestations also occurred in Armstrong, and Eby Townships and medium infestations were observed in old fields near Bourkes in Benoit Township and in Kearns Township. Small numbers of tents were observed at numerous other locations in the district.

TABLE 5

Summary Ugly-nest Caterpillar Colony Counts in the Swastika District from 1963 to 1965

Location (township)	Sample unit	Av. tree height in feet	Number of tents per sample unit		
			1963	1964	1965
Eby	square chain plot	5	5	0	62
Pacaud	square chain plot	4	5	0	12
Armstrong	square chain plot	8	38	23	47
Kearns	one mile of roadside	4	8	7	19
Harley	square chain plot	4	5	51	287

Birch Skeletonizer. Bucculatrix canadensisella Chamb.

A significant decline in numbers of this insect was recorded (Table 6). The heavy infestations reported in most of Divisions 39 and 42 in 1964 declined to medium intensity in eleven townships in the northeast corner of Division 39. Light infestations interspersed with small pockets of medium infestation persisted elsewhere in Division 39 and in most of Divisions 42 and 63. (map).

TABLE 6

Summary of Larval Counts of the Birch Skeletonizer on White Birch Foliage at Seven Locations in the Swastika District in 1964 and 1965

Note: Based on examination of five leaves from each of five trees at each location.

Location (township)	Av. d. b. h. in inches	Total no. of larvae		Av. no. of larvae per leaf	
		1964	1965	1964	1965
Lamplugh	3	272	90	10.2	3.6
Yarrow	3	201	10	8.0	0.4
Cairo	6	151	56	6.0	2.2
Black	3	102	61	4.0	2.4
Walker	4	228	34	9.1	1.3
Beauchamp	3	52	0	2.0	0.0
Marriot	3	315	104	12.6	4.0

Larch Casebearer. Coleophora laricella (Hbn.)

An increase in population levels of the larch casebearer occurred in the district for the fourth consecutive year. The largest numbers were observed east of Matheson in Harker Township, where quantitative sampling revealed an average of 12.9 larvae per 18-inch branch tip (Table 7). Infestations were recorded for the first time in Montrose, Harker, and Holloway townships.

TABLE 7

Summary of Larch Casebearer Larval Counts in the Swastika District from 1962 to 1965.

Note: Counts were based on examination of sixteen 18-inch branch tips from each location.

Location (township)	Av. d.b.h. in inches	Av. no. of larvae per branch tip			
		1962	1963	1964	1965
Marter	4	0.01	0.31	0.56	3.01
Gauthier	5	1.00	0.37	0.93	7.40
Powell	4	0.50	0.25	0.75	8.74
Harley	4	0.00	0.50	1.30	2.50
Hudson	6	-	7.45	13.80	8.13
Harker	7	-	-	-	12.91

European Spruce Sawfly Diprion hercyniae (Htg.)

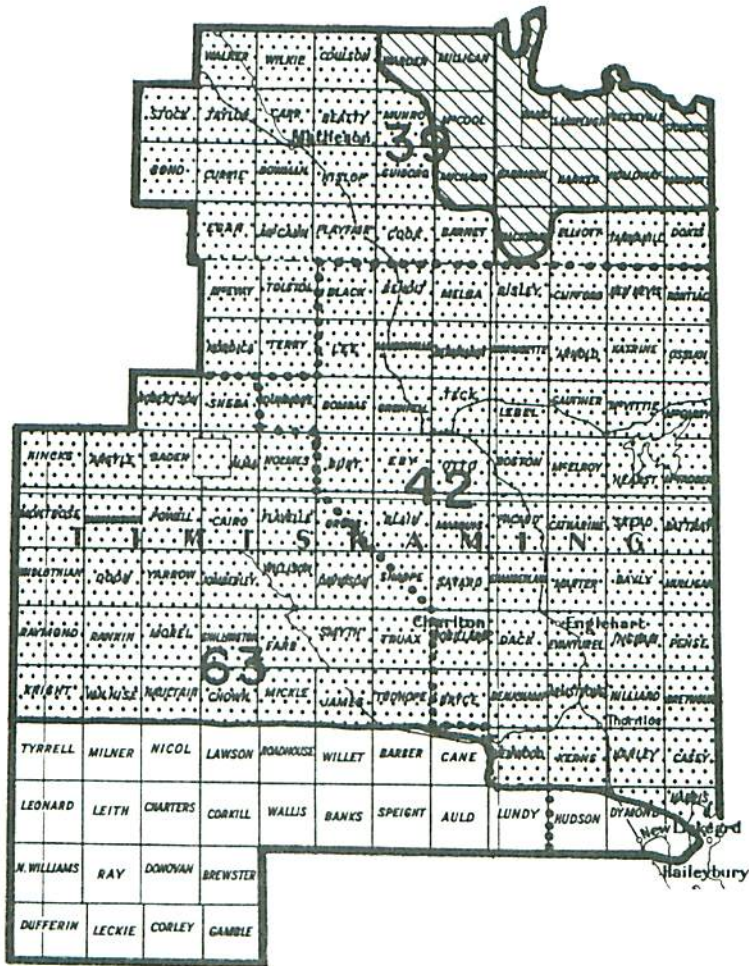
Quantitative sampling revealed minor increases in population levels of this insect near New Liskeard in Dymond Township and south of Matheson in Bowman Township (Table 8). Although intensive surveys were carried out, only very small numbers of larvae were found elsewhere in the district.

TABLE 8

Summary of European Spruce Sawfly Larval Counts made in the Swastika District from 1963 to 1965

Location (township)	Tree Species	Av. d.b.h. in inches	Total no. of larvae per 15-mat sample		
			1963	1964	1965
Bowman	w S	5	7	13	21
Pacaud	w S	3	11	17	11
Dymond	w S	3	2	5	13
Eby	b S	4	3	2	5
Garrison	w S	7	6	9	10
Eby	w S	4	-	11	11

SWASTIKA DISTRICT





MILES



BIRCH SKELETONIZER

Areas in which infestations
occurred in 1965

Legend

- Light with pockets of
medium infestations..... 
- Medium infestation..... 

Birch Leaf Miner, Fenusa pusilla Lep.

Since first collected in the District in 1961 this pest of white birch has increased greatly in numbers and distribution. In 1965 a further northward extension in its range was recorded when a pocket of light infestation was found near the Ghost River in Harker Township. In the southern part of the district heavy infestations occurred on reproduction, and on the lower branches of larger trees in Harris, Teck, Eby, and Dymond townships. A new pocket of heavy infestation was observed north of Kenogami Lake in Grenfell Township. Low populations occurred at several other locations in the southern part of the district.

Aspen Blotch Miner, Lithocolletis salicifoliella Chamb.

A small heavy infestation of this blotch miner occurred on trembling aspen in Dunmore Township. Medium infestations were recorded on clumps of balsam poplar and willow in Barber and Dack townships. Generally low populations were observed in the remainder of the district. Light damage was recorded at five permanent sampling stations (Table 9).

TABLE 9

Summary of Damage Caused by the Aspen Blotch Miner in the Swastika District from 1963 to 1965

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

Location (township)	Av. tree height in feet	Percent of leaves mined			Total no. of mines		
		1963	1964	1965	1963	1964	1965
Teck	18	10	0	0	18	0	0
Playfair	15	31	0	5	40	0	5
Walker	20	30	23	15	42	31	17
Kimberly	15	43	40	29	72	59	31
Marriot	15	16	25	31	50	40	31

Forest Tent Caterpillar, Malacosoma disstria Hbn.

A decline in numbers of this insect occurred in the northern part of the Swastika District. No larvae were found in Stock, Taylor, and Bowman townships where small light infestations occurred in 1964. However, light defoliation of individual trees was observed in seven townships in the New Liskeard area. Egg band counts at four locations in the district indicate that only light infestations will occur in 1966. (Table 10).

TABLE 10

Summary of Forest Tent Caterpillar Egg Band Counts Made in the Swastika District in 1965 and Infestation Forecasts for 1966

Location (township)	Av. d.b.h. of sample trees in inches	Av. no. of egg bands per tree	Forecast for 1966
Eby	5	0.0	Nil
Harley	4	1.0	Light
Harris	4	0.3	Nil
Casey	5	0.0	Nil

Western Tent Caterpillar, Malacosoma pluviale Dyar

Heavy infestations of this insect occurred in Walker, Lee, and McEvoy townships. Small pockets of new infestation were noted in Hearst and McGarry townships. Quantitative sampling showed substantial increases in numbers of tents at four of five sampling stations (Table 11).

TABLE 11

Summary of Western Tent Caterpillar Colony Counts in the Swastika District from 1963 to 1965

Location (township)	Tree Species	Sample Unit	No. of tents per sample unit		
			1963	1964	1965
Benoit	p.Ch.	square chain plot	17	20	17
Munro	p.Ch.	square chain plot	10	23	30
Warden	p.Ch. w B	one mile of roadside	-	12	25
Argyle	p.Ch.	one mile of roadside	-	12	16
McEvoy	p.Ch.	one mile of roadside	9	13	27

Red-headed Jack-pine Sawfly Neodiprion virginianus complex

Numbers of this sawfly increased generally with highest counts being recorded in Chamberlain and Brethour townships (Table 12). Defoliation ranged from 5 to 15 per cent at most locations where the insect was found.

TABLE 12

Summary of Red-headed Jack-pine Sawfly Colony Counts Made on Ten Trees in the Swastika District from 1963 to 1965

Location (township)	Av. d.b.h. in inches	No. of trees infested			Av. no. of colonies per tree		
		1963	1964	1965	1963	1964	1965
Playfair	3	2	5	3	0.5	0.8	0.5
Eby	3	5	3	5	0.5	0.6	0.9
Maisonville	4	-	10	10	-	1.5	1.6
Teck	2	1	9	2	0.1	1.1	0.3
Munro	4	-	5	4	-	0.6	0.6
Chamberlain	2	-	-	10	-	-	1.7
Brethour	4	-	-	10	-	-	2.1

Pitch Nodule Maker, Petrova albicapitana (Busck)

Numbers of second-year nodules present on pole-sized jack pine trees have been counted at six locations for many years. Little change has been evident from year to year and the difference between counts in 1964 and 1965 was no exception (Table 13).

TABLE 13

Summary of Damage by the Pitch Nodule Maker in the Swastika District in 1964 and 1965

Location (township)	Av. no. of nodules per tree		Location (township)	Av. no. of nodules per tree	
	1964	1965		1964	1965
Flavelle	0.9	0.0	Gauthier	2.7	0.8
McCann	1.4	1.1	McEvoy	1.3	1.0
McVittie	0.7	1.2	Michaud	2.0	0.9

Yellow-headed Spruce Sawfly, Pikonema alaskensis Roh.

Severe defoliation and light mortality of small black spruce trees were caused by this insect in plantations in Harley and Henwood townships (See photograph). Heavy infestations were also observed in Eby, Dack, Maisonville, and Teck townships. Medium-to-heavy infestations occurred on open-grown white and black spruce along Highway 65 between New Lisheard and Elk Lake and south of Englehart in Evantural Township. Light defoliation was observed at numerous other locations in the district.

White-pine Weevil, Pissodes strobi Peck.

Only minor changes in population levels of this insect were detected. A heavy infestation occurred near Chimenis in McGarry Township where 36 per cent of the leaders of sample trees were infested (Table 14). Light-to-moderate damage was observed on jack pine reproduction in Argyle and Nordica townships and on white pine and black spruce plantings in Bryce Township. Light damage occurred in a Lands and Forests red pine provenance test plot in Ingram Township.

TABLE 14

Summary of White-pine Weevil Damage in the Swastika District from 1963 to 1965

Location (township)	Tree Species	No. of trees examined	Percent of trees infested		
			1963	1964	1965
Gauthier	jP	100	7	8	6
Grenfell	wP	50	22	26	14
Munro	bS	50	-	10	12
Benoit	jP	100	1	6	5
Nordica	jP	100	2	5	12
McGarry	bS	50	-	10	36

Balsam Shoot-boring Sawfly, Pleroneura borealis Felt.

Due to a 2 year life cycle, low numbers similar to 1963 were found in 1965 (Table 15). Small numbers of larvae were observed in Bernhardt, Otto, and Farr townships and at two locations in Eby Township.

TABLE 15

Summary of Damage by the Balsam Shoot-boring Sawfly in the Swastika District from 1963 to 1965

Note: Counts were based on examination of eight 18 inch balsam fir branch tips from each location.

Location (township)	No. of buds examined 1965	No. of buds infested			Per cent of buds infested		
		1963	1964	1965	1963	1964	1965
Bernhardt	212	0	5	6	0.0	1.7	2.8
Benoit	227	0	57	0	0.0	27.0	0.0
Eby	219	9	41	11	4.5	17.7	5.0
Marquis	260	3	40	0	1.5	18.3	0.0
Farr	251	0	33	4	0.0	16.5	1.5

Larch Sawfly, Pristiphora erichsonii (Htg.)

Populations of this sawfly have been declining since 1961. The only exception to this trend in 1965 was in a mature tamarack stand in Milner Township where sequential sampling revealed that 16.6 per cent of the current years shoots were curled. Although small numbers of colonies were observed in most tamarack stands, appreciable defoliation was confined largely to individual trees.

Mountain-ash Sawfly, Pristiphora geniculata (Htg.)

High population levels of this insect persisted in the district. A heavy infestation recurred at Four Acre Point on Kenogami Lake in Eby Township for the fourth consecutive year. Heavy infestations also occurred in Dufferin, Melba, and Nicol townships. Medium infestations were noted along the Raven Lake Road in McGarry Township, along the Labyrinth Lake Road in McGarry and Ossian townships, and in the Englehart Management Unit in Gross Township. An infestation near Boston Creek in Boston Township declined from heavy intensity in 1964 to medium intensity in 1965.

Amber-marked Birch Leaf Miner, Profenusa thomsoni (Konow)

Substantially reduced numbers of miners prevailed on white birch foliage for the second consecutive year (Table 16). One pocket of heavy infestation occurred near Davis Lake in Tolstoi Township and three small infestations were observed in Arnold, Thackery, and Morrisette townships.

TABLE 16

Summary of Damage Caused by the Amber-marked Birch Leaf Miner in the Swastika District from 1963 to 1965

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

Location (township)	No. of leaves infested			Total no. of mines in 1965	Av. no. of mines per infested leaf in 1965
	1963	1964	1965		
Playfair	40	31	27	35	1.3
James	60	53	22	30	1.3
Stock	43	30	16	21	1.3
Arnold	75	70	40	51	1.2
Van Hise	28	35	15	18	1.2
Clifford	53	58	18	25	1.3
Otto	-	56	30	47	1.5

A Poplar Leaf Roller Pseudexentera oregonana Wlshn

Heavy infestations of this leaf roller persisted for the fourth consecutive year in Armstrong, Harley, and Dymond townships and in the western part of Hilliard Township. In Casey and Harris townships infestation declined to light intensity and damage to the foliage of aspen stands was much lighter than in 1964. A small pocket of light infestation occurred in Hudson Township. Small numbers of this insect were observed at many other locations in the district.

Spruce Bud Gall Midge, Rhabdophaga swainei Felt.

Population of this insect remained at a low level in the district as shown in Table 17.

TABLE 17

Summary of Damage Caused by the Spruce Bud Gall Midge in the Swastika District from 1963 to 1965

Location (township)	Tree Species	No. of shoots infested in 1965	Percent of shoots infested		
			1963	1964	1965
Garrison	wS	0	0.0	5.5	0.0
Lebel	wS	9	1.7	2.9	4.4
Dymond	wS	0	6.0	0.9	0.0
Otto	wS	1	2.4	1.6	0.9
Eby	bS	5	4.4	3.5	2.6
Eby	wS	8	-	9.3	3.1

Bark Beetles

In 1964 and 1965 intensive surveys were carried out to determine the distribution of bark beetles in the district. The results of these surveys are summarized in Table 18.

TABLE 18

Summary of Bark Beetle Collections Made in the Swastika District in 1964 and 1965

Insect	Host(s)	Locations (townships)
<u>Gonophthorus coniperda</u> Sw.	wP	Dufferin
<u>Dendroctonus simplex</u> Lec.	tL	Eby, Teck
<u>Dryocetes affaber</u> Mann.	wS	Skead
<u>Hylurgopinus rufipes</u> Eich.	wE	Kearns, Casey, Dymond, Harley
<u>Ips borealis</u> Sw.	wS	Skead
<u>Ips chagnoni</u> Sw.	jP	Bernhardt
<u>Ips perturbatus</u> Eich.	wS	Corkill, Skead, Eby, Rattray
<u>Ips pini</u> Say.	jP, wS wP, bS	Bernhardt, Melba, Grenfell, McEvoy, Charters, Lawson, Corkill, Arnold, Holloway
<u>Orthotomicus caelatus</u> Eich.	jP	Melba
<u>Phloesinus canadensis</u> Sw.	eC	Hinks
<u>Pityogenes hopkinsi</u> Sw.	wP	Tyrrell
<u>Pityogenes plagiatus</u> (Lec.)	bS	Black
<u>Pityokteines sparsus</u> Lec.	bF	Gross
<u>Polygraphus rufipennis</u> Kby.	wS	Rattray, Grenfell

TABLE 19

Summary of Miscellaneous Insects Collected in the Swastika District in 1965

Insect	Host(s)	Remarks
<i>Acleris variana</i> (Fern.)	wS, nS	Light infestations in Boston, Ingram and Pacaud townships.
<i>Acronicta sperata</i> Grt.	Se	Light infestation in Grenfell Township.
<i>Adelges lariciatus</i> (Patch)	wS	Small-to-large numbers at numerous locations.
<i>Altica corni</i> Woods	Do	Heavy infestations in Otto and Teck townships.
<i>Anoplonyx canadensis</i> Hgtn.	tL	Medium infestation near old Tyranite Mine.
<i>Anoplonyx luteipes</i> (Cress.)	tL	Medium numbers in Blain and Benoit townships.
<i>Apion simile</i> Kirby	wB	Light infestations in Eby and McGarry townships.
<i>Caliroa</i> sp.	rO, wB	Two large collections reared.
<i>Choristoneura fumiferana</i> (Clem.)	wS	Low numbers of spruce budworm at two locations.
<i>Cinara strobi</i> (Fitch)	wP	Heavy infestation in Tyrrell Township.
<i>Dioryctria abietivorella</i> Grt.	wB, bF	Heavy infestations in Bernhardt and Arnold townships.
<i>Epinotia corylana</i> McD	Al	Heavy infestations in catkins at numerous locations.
<i>Epinotia solandriana</i> Linn.	wB	Light infestation in Hudson Township.
<i>Epinotia transmissana</i> Wlk.	wB, dwB	Small-to-large numbers in Munro, Stock and Taylor townships.
<i>Eriophyes populi</i> Nal	tA	Heavy infestations at several locations.
<i>Eupithesia filmata</i> Pears	wS	Large numbers in Boston Township.
<i>Gonioctena americana</i> Schaef.	tA	Heavy infestations at three locations.
<i>Gonioctena notmani</i> (Schaef.)	w	Heavy infestation in Lee Township.
<i>Gracillaria invariabilis</i> Braun	pCh	Low populations at several locations.
<i>Gracillaria syringella</i> F.	bA, lilac	Common on lilac in the district.
<i>Halisidota maculata</i> Harr.	Al, W, bPo	Common in the district.
<i>Hyphantria cunea</i> Dru.	bPo, Al, W	Medium numbers in Armstrong Township, 1400 larvae sent to Belleville lab for shipment to the U.S.S.R.

Insect	Host(s)	Remarks
<i>Lithocolletis aceriella</i> Clem.	moM	Light infestation in Knight Township
<i>Lithocolletis betulivora</i> Wlsh	wB, Ha	Small numbers in Knight and McGarry townships.
<i>Melaphis rhois</i> (Fitch)	Su	Medium numbers in Brethour Township.
<i>Nematus hyalinus</i> Nort.	W	Heavy infestation on ornamentals in Casey township.
<i>Nematus limbatus</i> Cress.	W	Heavy infestations throughout the district.
<i>Nematus ventralis</i> Say	tA, W	Single colonies at numerous locations.
<i>Neodiprion abietis</i> complex	wS, bF	Low populations at several locations.
<i>Neodiprion nanulus nanulus</i> (Schedl.)	jP, rP	Light at several locations
<i>Neodiprion swainei</i> Midd.	jP	Light infestation at Banks Lake, Ave. of 1.2 colonies per tree.
<i>Nymphalis antiopa</i> Linn	cPo, tA, W	Single colonies at numerous scattered locations.
<i>Paratetranychus ununguis</i> (Jac.)	blue S wS	Heavy infestation on ornamentals at New Liskeard and one location in the town of Swastika.
<i>Phenacaspis pinifoliae</i> Fitch	blue S	Heavy infestation in New Liskeard.
<i>Phlyctaenia tertialis</i> Gn	E1	High population in Eby Township.
<i>Pikonema dimockii</i> (Cress.)	wS, bS	Common on beating matt samples.
<i>Pissodes approximatus</i> Hopk.	rP	Light mortality to red-pine plantings at three locations.
<i>Pristiphora lena</i> Kinkaid	wS	Low numbers in Milner Township.
<i>Prociphilus tessellatus</i> (Fitch.)	A1	Heavy infestations at numerous locations.
<i>Pyrrhia umbra exprimens</i> Wlk.	tA, bPo	Large numbers at two locations.
<i>Recurvaria piceaella</i> Kft.	wS, nS	Light infestations at three locations.
<i>Recurvaria</i> sp.	wB	Light infestation of <i>Recurvaria</i> sp. new to survey in Lee Township.
<i>Rhyacionia frustrana</i> Comst.	jP	Heavy infestation near Belle Vallee.
<i>Rhynchaenus rufipes</i> Lec.	W	Large numbers in Eby Township.
<i>Telphusa</i> sp.	dw.B	Large numbers in Munro Township.

Insect	Host(s)	Remarks
Tetralopha aplastella Hlst.	tA	Low populations at numerous locations.
Toumeyella numismaticum P.McD	jP	High populations in Willet, Beauchamp, and Hudson townships.
Wasates quadripes Shim.	rM, siM	Heavy infestations in Milner and Dack townships.
Zeiraphera fortunana Kft.	nS	Light infestation near Tomstown
Zeiraphera ratzeburgiana Ratz.	wS	Heavy infestation at Hanbury Cemetary.
Zeugophora sp.	tA, bPo	Heavy infestations in Teck Township, light-to-medium infestations at numerous other locations.