Lake Huron District, 1969
Reports of Forest Research Technicians

Jansons, V.

Information Report O-X-120
(Forest Research Laboratory, Ontario Region)

CANADA

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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 490
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-X-115 and continuing to Fort Frances District as O-X-134, with Geraldton and White River combined as O-X-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. Lloyd Sippell

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

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REPORTS OF FOREST RESEARCH TECHNICIANS

Ontario, 1969

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.

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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.

LAKE HURON DISTRICT

1969

INTRODUCTION

The following report deals with insects and tree diseases on a district basis in the Lake Huron District. In previous reports the tree disease section was presented regionally.

The infestation of saddled prominent continued to be of major importance for the third consecutive year. However, the populations declined to a low level in three areas and only one new pocket of severe defoliation occurred in 1969. The spruce budworm population increased in the northern part of Bruce Peninsula and an egg count indicates a further increase in 1970. There was a general increase in European pine sawfly, larch sawfly, and European pine shoot moth populations. Severe defoliation of black walnut by the walnut caterpillar continued at numerous locations in the southern part of the district. Populations of larch casebearer, European spruce sawfly and eastern pine shoot borer declined, and a small infestation of maple trumpet skeletonizer continued for the third consecutive year.

The incidence of Dutch elm disease increased on Bruce Peninsula. A leaf anthracnose caused discolouration of sugar maple foliage in the southern part of the district. Late spring frosts damaged the new growth of white spruce, white ash, and butternut in the central part of the district, and needle rust infections were observed in several plantations.

Extension work involving Department of Lands and Forests personnel and property owners again constituted an important part of the field work in 1969.

The interest and co-operation extended by the Department of Lands and Forests personnel and others in the district is gratefully acknowledged.

V. Jansons

Spruce Budworm, Choristoneura fumiferana (Clem.)

Population levels of this insect increased in the northern part of the Bruce Peninsula. In 1969 pockets of light to moderate defoliation of white spruce were observed in St. Edmunds Township and in the western part of Lindsay Township. At one sample point in St. Edmunds Township the total number of larvae per 20 tray sample increased from 78 in 1968 to 110 in 1969 (Table 1). The defoliation was recorded at 16.8 per cent. Egg counts indicate that a medium infestation will occur at this location in 1970. A population increase was also observed on white spruce in the Grey Main Tract, Glenelg Township, and light infestations persisted on white spruce in Macton Tract in Wellesley Township, and in Sandy Hill Tract in Woolwich Township.

TABLE 1

Summary of Spruce Budworm Larval Counts Taken from White Spruce Trees in the Lake Huron District from 1967 to 1969

Location (township)	Av. d.b.h. of sample trees in inches	Total no. of larvae per 20-tray sample		
		1967	1968	1969
Glenelg	7	29	177	252
St. Edmunds	9	41	78	110
Wellesley	4	34	33	28

Woolwich

Larch Casebearer, Coleophora laricella (Hbn.)

A general decline in population levels of this insect was observed throughout the district. This decline is depicted in Table 2.

TABLE 2

Summary of Larch Casebearer Larval Counts at Seven Points in the Lake Huron District from 1967 to 1969

Location (township)	Host	Av. d.b.h. of sample trees in inches	Av. no. of larvae per 18-inch branch tip		
			1967	1968	1969
Bentinck	eL	2	-	54.5	10.7
Normanby	eL	3	-	22.4	9.7
Bentinck	tL	5	4.2	6.3	0.5
Amabel	tL	4	.9	5.8	1.1
S. Dumfries	tL	6	1.7	4.3	.5
Glenelg	tL	5	6.5	4.8	0.0
Blandford	tL	6	2.3	3.6	1.2

Walnut Caterpillar, Datana integerrima G. & R.

Population levels of this insect were comparable to those of 1968. Moderate to severe defoliation of small groups and single black walnut trees continued in the southern part of the district. At several locations considerable twig mortality has occurred on trees which have been severely defoliated three or more consecutive years.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Substantial population declines of this insect were observed in St. Edmunds and in Nichol townships. Populations increased at five other permanent sample points (Table 3).

TABLE 3

Summary of European Spruce Sawfly Larval Counts in the Lake Huron District from 1967 to 1969

Location (township)	Host	Av. d.b.h. of sample trees in inches	Total no. of larvae per 15-tray sample		
			1967	1968	1969
Nichol	nS	4	-	216	27
St. Edmunds	wS	7	10	62	2
Minto	wS	4	2	13	12
E. Wawanosh	wS	6	42	7	78
Euphrasia	wS	3	23	7	38
Lindsay	wS	8	16	5	9
W. Garafraxa	wS	5	18	2	0
Woolwich	wS	5	0	2	4

Maple Trumpet Skeletonizer, Epinotia aceriella Clem.

An infestation of maple trumpet skeletonizer continued for the third consecutive year in a 50-acre sugar maple woodlot in Colborne Township. Approximately 50 per cent of the leaves were infested in a sample taken from this stand. Light populations were common in sugar maple stands in Albemarle, Eastnor, Waterloo, and Stanley townships.

Eastern Pine Shoot Borer, Eucosma gloriola Heinr.

A further decline in numbers of this insect occurred at all permanent sample points in the district (Table 4). However, at several other sample points in the southern part of the district infested white pine, red pine, and Scots pine shoots were more common than in recent years.

TABLE 4

Summary of Shoot Damage by the Eastern Pine Shoot Borer on White Pine Trees in the Lake Huron District from 1967 to 1969

Note: Counts were based on examination of one hundred trees at each location.

Location (township)	Av. height of trees in feet	Total no. of infested shoots			No. of leaders infested		
		1967	1968	1969	1967	1968	1969
Brant	6	64	92	35	4	0	0
Ashfield	10	204	21	23	20	3	0
Eramosa	10	-	184	32	-	23	1
Nassagaweya	12	152	58	45	15	0	2
Normanby	6	195	37	17	30	4	0

Saddled Prominent, Heterocampa guttivitta Wlk.

Populations of the saddled prominent declined to low levels at Lions Head in Eastnor Township, east of Wiarton in Keppel Township where severe defoliation of sugar maple occurred in 1967 and 1968, and in St. Vincent Twp. At Barrow Bay in Eastnor Township a heavy infestation persisted in 1969, however, the area of severe defoliation decreased from 50 acres in 1968 to approximately 20 acres in 1969. A new pocket of heavy infestation was observed in an extensive hardwood stand at Cape Chin in Lindsay Township where approximately five acres of sugar maple were severely defoliated.

Eastern Tent Caterpillar, Malacosoma americanum F.

Populations of this insect declined at all permanent sample points as indicated in Table 5. However, small groups of tents and single colonies were common on roadside and hedgerow shrubs and in abandoned orchards in the southern part of the district. At one location east of Marden in Guelph Township 50 to 80 per cent defoliation was observed on numerous roadside black cherry trees.

TABLE 5

Summary of Eastern Tent Caterpillar Colony Counts
in the Lake Huron District from 1967 to 1969

Location (township)	Host	No. of colonies per mile of roadside 1967	1968	1969
Egremont	ecCh	32	35	23
Brant	ecCh	16	21	10
Arran	ecCh	13	8	9
Amabel *	pCh	5	9	4
Sullivan	ecCh	7	4	0

* Square chain plot.

European Pine Sawfly, Neodiprion sertifer Geoff.

A general increase in population levels of this insect was observed throughout the district. Light infestations in Scots pine plantations were more common than in recent years. Defoliation of small Scots pine increased from moderate in 1968 to severe in 1969 in the Meister Tract in Beverly Township. The number of colonies ranged from one to 12 per sample tree. Populations were lower in a sample plot in Amabel Township where numerous colonies were infected with polyhedral virus in 1968 (Table 6). The total number of colonies per 10 tree sample ranged from three to 31 at sixteen other sample points in the district.

TABLE 6

Summary of European Pine Sawfly Colony Counts and Degrees of Infestation
in the Lake Huron District from 1967 to 1969

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

Location (township)	Host	Av. height of trees in feet	Av. no. colonies per infested tree 1967	1968	1969	Per cent of trees infested in 1969	Degree infestation in 1969
Nassagaweya	ScP	6	2	1.4	2.4	49	Light
Sullivan	ScP	5	1.5	1.2	1.8	58	"
Eramosa	jP	5	2	1.0	2.3	34	"
Stanley	ScP	8	1	1.0	1.8	19	"
Amabel	ScP	7	-	2.2	1.7	38	"

White Pine Weevil, Pissodes strobi Peck.

A general increase in population levels of this insect was observed in the southern part of the district. Small numbers of infested white pine trees were found in North Dumfries, South Dumfries, Puslinch, and Waterloo townships. At Harrison Lake in Sullivan Township where a medium infestation occurred in a small plantation the number of infested white pine trees increased from 16 per cent in 1968 to 23 per cent in 1969. Infested tree counts are summarized in Table 7.

TABLE 7

Summary of Shoot Damage by the White Pine Weevil in Plantations at Six Points in the Lake Huron District from 1967 to 1969

Note: Counts based on examination of 100 trees at each location.

Location (township)	Host	Av. d.b.h. of sample trees in inches	Per cent of trees infested 1967	1968	1969
Culross	wP	1	8	7	12
Kinloss	wP	2	6	2	3
Sullivan	wP	1	1	2	2
N. Dumfries	wP	2	-	-	2
Waterloo	wP	3	-	-	5
Puslinch	nS	2	-	-	2

Larch Sawfly, Pristiphora erichsonii Htg.

A general increase in population levels of this insect was observed in 1969. A heavy infestation continued for the third consecutive year on European larch in a 10-acre compartment of Foulds Tract, South Dumfries Township, where the defoliation was estimated at 50 per cent. Moderate defoliation of tamarack was observed south of Orchard in Egremont Township, at Dorcas Bay in St. Edmunds Township, in a 10 acre tamarack stand at Cape Chin in Lindsay Township, and in a European larch stand in Minto Township.

European Pine Shoot Moth, Rhyacionia buoliana (Schiff.)

Following a general population decline in recent years the numbers of this insect increased in the southern part of the district. In 1969 small numbers of infested shoots were common on red pine and Scots pine trees in plantations in Oxford, Brant, Waterloo, and in the southern part of Wellington County. At one sample point in West Oxford Township 7 per cent of the shoots examined were infested.

TABLE 8

Other Noteworthy Insects

Insect	Host(s)	Remarks
Acleris variana Fern.	wS	Population increase in W. Garafraxa Twp.; the number of larvae per 15-tray sample increased from a total of 31 in 1968 to 74 larvae in 1969
Adelges lariciatus Patch	nS	Light to medium infestation, Little Tract; light population on scattered trees in Brant Tract
Anchylopera dubiana Clem.	rO	Several heavily infested trees, St. Edmunds Twp.
Arge pectoralis Leach.	wB	Light to medium defoliation of open grown trees at numerous locations along the western shore of Bruce Peninsula
Argyresthia thuiella Pack.	eC	Population levels of this leaf miner declined from a high level in 1968 to low in 1969 throughout most parts of the district
Cecidomyia reeksi Vock.	jP	Light infestation on scattered trees in the Kiwanis Plantation; some branch tip mortality from previous infestations
Choristoneura pinus pinus Free.	jP, ScP	The population declined to a low level in Kiwanis Plantation where a light infestation persisted for four consecutive years. Small numbers in Beverly Twp.
Datana ministra Dru.	wE, Mo	Populations declined to a low level on white elm along Highway 97 in E. Zorra and in Blandford twps. Light defoliation of mountain ash in Blenheim Twp.

TABLE 8 (continued)

Insect	Host(s)	Remarks
Epinotia solandriana Linn.	wB	Fifteen per cent of leaves infested in a sample taken at Cameron Lake, St. Edmunds Twp.
Erranis tiliaria Harr.	sM, Ba, bCh, wE	Light defoliation of understory trees in a large hardwood stand at Oxenden, Keppel Twp. Pockets of light to moderate defoliation in Euphrasia Twp.
Exoteleia pinifoliella (Cham.)	jP	The incidence of mined needles declined from 45 per cent in 1968 to .5 per cent in 1969 in Ayton Tract, Normanby Twp.
Fenusa ulmi Sund.	wE, sE	Moderate to severe leaf mining observed on small groups and single trees in Esquesing, Nelson, and Euphrasia twps.
Lithocolletis hamadryadella Clem.	wO, rO	Severe leaf mining continued for the second consecutive year in a five acre white oak plantation in Esquesing Twp. Light populations on white and red oak in S. Dumfries Twp.
Lithocolletis ostryarella Cham.	I	High incidence of leaf miners for the second consecutive year in a woodlot in Nelson Twp.
Messa nana Klug.	wB	Light incidence of mined leaves at one location in Nassagaweya Twp. The collection represents a new distribution point for this introduced insect
Paleacrita vernata Peck	wE	Moderate defoliation of several large trees in Holland Twp.
Petrova albicapitana (Busck.)	jP	General population increase in the southern part of the district. Highest count 83 nodules per ten sample trees in Beverly Twp.

TABLE 8 (continued)

Insect	Host(s)	Remarks
Pineus strobi Htg.	wP	Several heavily infested trees in Holland Twp.
Pristiphora geniculata (Htg.)	Mo	Moderate to severe defoliation of single and small clumps of trees in the southern part of the district
Profenusa canadensis Marl.	Haw	High incidence of leaf mining on several clumps of hawthorn at one location in Nelson Twp.
Proleucoptera albella Cham.	bPo	Leaf miners numerous on regeneration in Erin Twp.
Pulicalvaria piceaella Kft.	wS	Incidence of needle mining declined from heavy to light in Beverly Twp.
Zeiraphera canadensis Mut. & Free.	wS	General population decline in St. Edmunds Twp.; the number of infested buds declined from 22 per cent in 1968 to 7 per cent in 1969. Fourteen per cent of buds infested in a sample taken at Sandy Hill Tract, Woolwich Twp.

Eastern Dwarf Mistletoe, Arceuthobium pusillum Pk.

This organism was observed commonly on white spruce in the Bruce Peninsula. Severe branch mortality occurred in several localized pockets between Howdenvale and Tobermory. At one sample point north of Howdenvale in Albemarle Township 15 per cent of the white spruce examined were infected. A twenty per cent level of incidence was recorded at a sample point in Lindsay Township and light tree mortality was observed at several locations in the area.

Dutch Elm Disease, Ceratocystis ulmi (Buism.) C. Moreau

Continuing infections by this pathogen resulted in mortality of elm trees in the southern half of the district. In the north there was a marked increase in incidence and severity in Grey and Bruce counties. Surveys to evaluate the current level of incidence of this disease are summarized in Table 9.

TABLE 9

Summary of Dutch Elm Disease Surveys at Twenty Locations in the Lake Huron District in 1969

Location (township)	Total number of trees		
	Healthy	Diseased	Dead
Colborne	7	6	37
Nelson	6	14	6
W. Flamborough	15	4	25
W. Flamborough	15	7	5
Greenock	26	11	7
Albemarle	41	13	8
W. Garafraxa	47	10	14
Collingwood	50	4	15
Puslinch	29	5	4
Lindsay	23	3	6
Beverly	33	6	5
Howick	39	5	6
Sullivan	41	4	5
St. Vincent	61	5	4
Keppel	46	13	8
Holland	35	6	9
Euphrasia	39	8	5
Proton	35	12	16
Puslinch	54	3	3
Lindsay	56	0	0

A Needle Rust of Pine, Coleosporium asterum (Diet) Syd.

Light infections of this rust were observed in several plantations in the southern part of the district. The incidence of infected trees varied from 20 per cent in Egremont Township to 85 per cent in Culross Township (Table 10).

TABLE 10

Summary of Incidence and Level of Infection of Needle Rust at Four Points in the Lake Huron District in 1969

Note: Counts based on the examination of four trees at each of the ten sample plots at each location.

Location (township)	Host	Height of sample trees in feet	Level of incidence	Level of infection
Culross	jP	8	High	Light
Waterloo	rP	6	High	Light
N. Dumfries	rP	2	High	Heavy
Egremont	rP	10	Light	Light

Eutypella Canker of Maple, Eutypella parasitica Davidson & Lorenz

Light incidence of stem cankers caused by this organism was observed on sugar maple at several locations in the northern part of the district. Quantitative sampling showed that 2.5 per cent of the stems examined were cankered in sample plots in Holland, St. Vincent, and Keppel townships.

Anthracnose of Sugar Maple, Gloeosporium sp.

This organism was associated with discolouration of sugar maple foliage at numerous locations in the southern part of the district. The light to moderate browning of leaves occurred mainly on shade trees and in rows of roadside trees. Usually only one or a few trees were affected at each location. The infected leaves became discoloured in early summer and were shed prematurely.

Gall Rust of Pine, Peridermium sp.

Galls caused by this fungus were common on individual and small groups of Scots pine at widely separated points in the district. Considerable branch mortality occurred in a clump of Scots pine in one section of the Grey Main Tract in Glenelg Township. In the Kiwanis Plantation in Keppel Township 12.5 per cent of the Scots pine examined showed one or more infections per tree. Light incidence of infection was observed on scattered trees in Sandy Hill Tract in Woolwich Township and in Hyde Tract in Beverly Township.

Frost Damage

Unusually late frosts caused damage to current growth of white spruce, white ash, white oak, and butternut at several locations in the district. High incidence of terminal shoot mortality occurred on white ash plantings in Grey Main Tract in Glenelg Township, in Ayton Tract in Normanby Township, and on scattered trees in the central and northern parts of the district. Severe damage was also observed on butternut in a small plantation in Waterloo Township where approximately 80 per cent of the newly formed leaves were killed. The incidence of frost damaged white spruce trees was as follows: 50 per cent in Ayton Tract in Normanby Township, 30 per cent in Salter Tract in Kinloss Township and 20 per cent in Brant Tract in Brant Township. Mortality of new shoots on affected trees ranged from light to moderate.

TABLE 11

Other Noteworthy Diseases

Organism	Host(s)	Remarks
Ciborinia whetzelii (Seaver) Seaver	tA	Pockets of trace infection in Lindsay Twp.
Dibotrion morbosum (Schw.) Th. & Syd.	ecCh	High incidence of infection on scattered clumps of cherry in St. Edmunds Twp.
Fomes igniarius (L. ex Fr.) Kickx	tA	17.5 per cent of sample trees infected at one location in St. Edmunds Twp.
Gymnosporangium globosum Farl.	rJ	High incidence and level of infection on red juniper plantings in Meister Tract, Beverly Twp.
Pollaccia elegans Serv.	bPo	One small localized heavy infestation centre at Cape Croker Indian Reserve
Pollaccia radiosa (Lib.) Bald. & Cif.	tA, lA	Trace infections in Saugeen and N. Dumfries twps.
Rodent damage	sM, Ba, wAs	Girdling of young trees resulted in mortality of sugar maple and other deciduous trees in Sullivan, Glenelg, and St. Vincent twps.