Southwestern Forest Region, 1967
Status of Insects in Lake Simcoe District

Bowser, R.L.

Information Report O-X-60
(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
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O-X-63	--North Bay District	L. S. MacLeod
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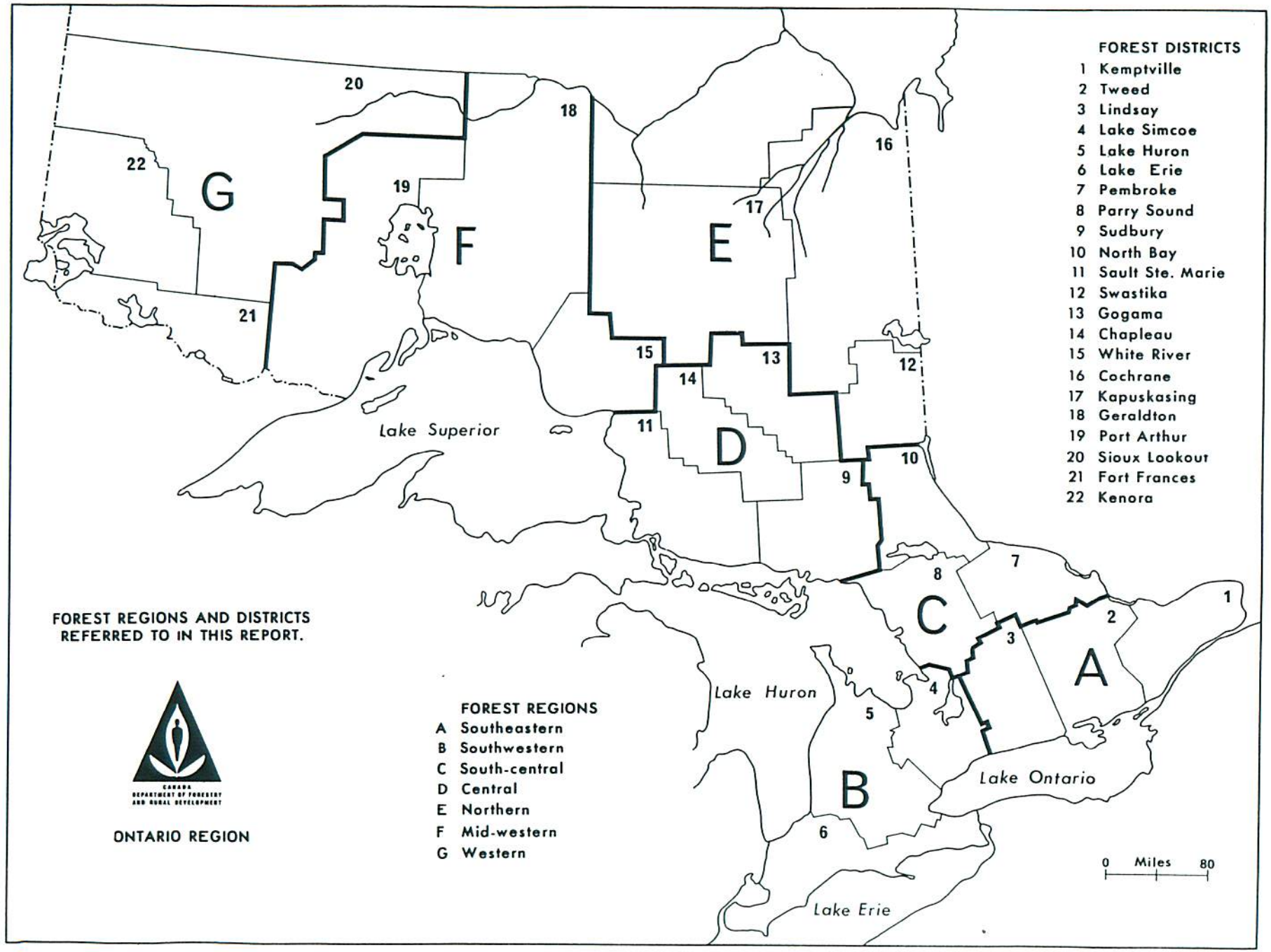

FOREST DISTRICTS
1 Kemptville
2 Tweed
3 Lindsay
4 Lake Simcoe
5 Lake Huron
6 Lake Erie
7 Pembroke
8 Parry Sound
9 Sudbury
10 North Bay
11 Sault Ste. Marie
12 Swastika
13 Gogama
14 Chapleau
15 White River
16 Cochrane
17 Kapuskasing
18 Geraldton
19 Port Arthur
20 Sioux Lookout
21 Fort Frances
22 Kenora
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
Lake Superior
Lake Huron
Lake Ontario
Lake Erie
0 Miles 80

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

SOUTHWESTERN FOREST REGION

1967

INTRODUCTION

STATUS OF TREE DISEASES (Regional)

INTRODUCTION

Southwestern Region

The following report based on field surveys by Forest Research Technicians deals with the status of forest insects and tree diseases.

Insects are dealt with on a district basis and tree diseases are contained in the regional section of the report.

Heavy infestations of the saddled prominent, caused severe defoliation of sugar maple trees in localized areas in Lake Simcoe and Lake Huron districts. In Lake Erie District high populations of the cottony maple scale, Pulvinaria innumerabilis, on shade and ornamental trees caused much concern to property owners in the vicinity of Windsor.

The European pine sawfly and pine root collar weevil continued to be major pests in coniferous plantations. Infestations of Pales weevil, the northern pine weevil, and the white pine weevil caused damage in localized areas. Population levels of the spruce budworm, introduced pine sawfly, nursery pine sawfly, and European spruce sawfly increased but larch sawfly and red-headed pine sawfly infestations declined to low levels in several areas.

Particular emphasis was placed on surveys of Dutch elm disease which continued to cause heavy mortality of white elm in the region, Fomes root rot which was recorded at two new locations, Armillaria root rot and butt rot of conifers. Intensive surveys failed to reveal the presence of Scleroderris canker of pine, a destructive parasite which has caused considerable tree mortality in the central and northern parts of the province.

Extension and service work constituted an important part of technician field duties in 1967. A total of 1126 collections were submitted to the Laboratories for identification and study.

Personnel of the region express appreciation for co-operation and assistance extended by the Department of Lands and Forests in 1967.

R. L. Bowser

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

This disease occurred commonly in the region in 1967. Mortality continued in a previously reported infection centre in a cedar hedge at Midhurst and a moderate-to-severe localized pocket of mortality was observed in jack pine regeneration on the Midhurst Nursery grounds. One tree was killed in a young red pine plantation at Orr Lake in Flos Township. Examination of a square-chain plot in Pinery Park in Bosanquet Township revealed that one red and three white pine trees averaging seven feet in height had been killed.

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

Severe infections were again recorded at numerous points in the region. A total of 6061 white elmtrees were inspected at 61 locations to determine levels of infection. In Lake Erie District where the disease had been prevalent for approximately 15 years and considerable tree mortality has occurred, the degree of current infection was considerably lower than in 1966. Although the highest incidence of the disease occurred generally in the Lake Erie District and in the southern parts of the Lake Simcoe and Lake Huron districts, significant increases were evident in the northern counties of the region.

In Lake Simcoe District the highest incidence recurred in the Toronto-Brampton area where current infections ranged as high as 76 per cent and mortality as high as 92 per cent. The average current infection at all sample locations in the district was 36 per cent. Current infection and mortality south of a line between Luther Lake and Port Perry averaged 61 per cent compared with 38 per cent to the north where severe infections were widely scattered.

In Lake Huron District a high incidence of infection and mortality continued in the southern part. For example, the total incidence of infection south of a line between Kincardine and Arthur averaged 45 per cent compared with 17 per cent to the north. The highest rate of infection and accumulated tree mortality, (98.4 per cent) was recorded in a small swamp in Woolwich Township. The average current infection in the district was 13 per cent.

In Lake Erie District the general level of infection was extremely high, reaching 100 per cent in several areas. Inspection of approximately 1000 living white elm trees revealed current infection in the district averaged 49 per cent compared with 60 per cent in 1966. This is an expected trend in areas where the disease has been active for a number of years and has killed a high percentage of the host trees.

Ink Spot of Aspen, Ciborinia whetzelii (Seaver) Seaver

In Lake Simcoe District moderate infections occurred in trembling aspen stands in Medonte and Flos townships where approximately 50 per cent of the foliage was infected and shed prematurely. Light infections were noted in Tiny and Innisfil townships and signs of the disease were observed at several locations in the central and northern parts of the district. A low incidence of infection was also recorded on small, scattered trembling aspen trees in Lindsay Township in Lake Huron District.

White-pine Blister Rust, Cronartium ribicola J. C. Fischer

This stem canker of white pine was found commonly in the region in 1967. Moderate infections were recorded in white pine plantations in Melancthon, Oro, and Orillia townships in the Lake Simcoe District. Light infections were reported in Euphrasia, Sullivan, and Wilmot townships in the Lake Huron District and in South Charlotteville Township in Lake Erie District.

Cytospora Canker of Spruce, Cytospora kunzei Sacc.

Severe infection continued in a small Norway spruce plantation east of Shelbourne in Melancthon Township. Six trees died in 1967 and several trees were in various stages of deterioration. Studies of the development of stem cankers on white spruce trees in a plantation at Midhurst were continued for the third consecutive year. Measurements of cankers on ten sample trees showed an average increase of 8 per cent in length and 18 per cent in width. Light mortality could occur in 1968 as some trees are almost girdled.

Fomes Root Rot, Fomes annosus (Fries) Cke.

This disease continued to kill 30-year-old red pine trees in a plantation at Orr Lake in Flos Township. Although the infected area was trenched off in the fall of 1966 in an effort to impede the progress of the disease, fruiting was found on one living tree beyond the trench in 1967. Fruiting was also found on an old elm stump in the area. In Vivian Forest, where the infection has been relatively inactive for a number of years, one red pine tree died and fruiting was observed on the roots of one windblown white pine tree.

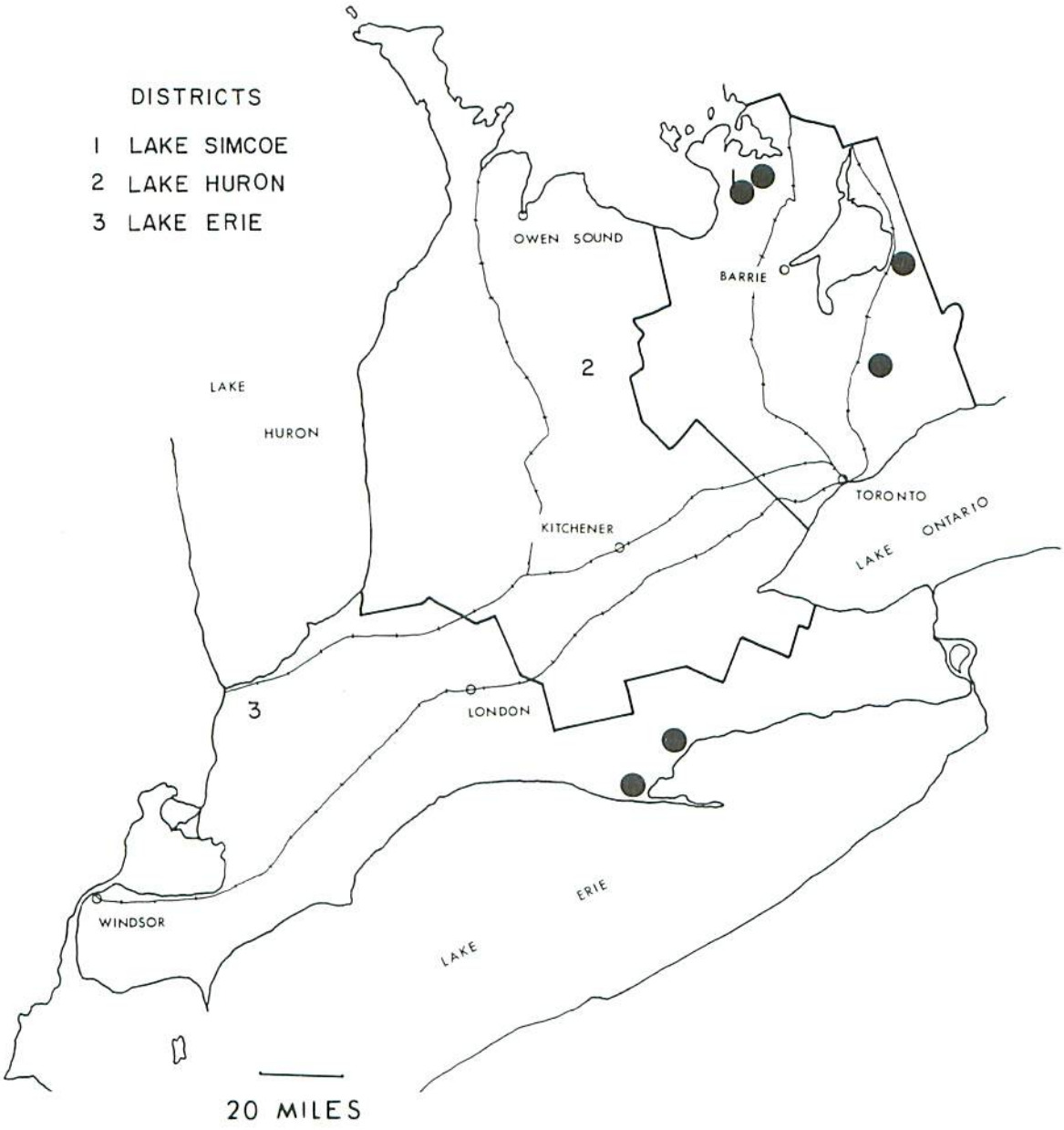
Intensive surveys in the region revealed two new infection centres in 1967. In Medonte Township light mortality of trees 6 to 8 inches in diameter occurred in a red pine plantation near Orr Lake and fruiting bodies of the organism were found in a small privately-owned red pine plantation in Brock Township where mortality has occurred for several years.

In Lake Erie District 18 per cent infection of red pine trees was recorded in an old infection centre in the St. Williams Forest Nursery. Counts at two points in Charlotteville Township showed incidence of 15 and four per cent. To date, the disease has not been found in the Lake Huron District.

Cedar Apple Rust, Gymnosporangium juniperi-virginianae Schw.

This organism was collected from ornamentals at two locations in the Lake Erie District in 1967. Red juniper trees at the Tecumseh Monument Site in Zone Township were infected and light twig and branch mortality resulted. A light infection was reported on one red juniper on the outskirts of Dunnville but no twig or branch mortality was evident.

SOUTHWESTERN REGION



Fomes annosus

Locations where Fomes annosus was observed in 1967

Legend

Locations ..... ●

Hypoxylon Canker of Poplar, Hypoxylon mammatum (Wahl.) Miller

No appreciable change in the status of this organism was observed in 1967. The principal host was trembling aspen but one infected large-tooth aspen was found in the Lake Erie District. In the Lake Huron District a high degree of infection and heavy tree mortality occurred in a large trembling aspen stand in Ellice Township and light infection was observed in the Bells Lake Tract in Holland Township. Light-to-moderate tree mortality was recorded at numerous points in the Lake Simcoe and Lake Erie districts.

A Needle Rust of Hemlock, Melampsora abietis-canadensis Ludwig ex Arth.

Infection by this cone rust was severe in a group of hemlock trees in a small uneven-aged stand southeast of Baxter in Essa Township. A count showed that 75 per cent of the cones were infected. A light infection was noted on a few trees near Angus in Essa Township. Small numbers of infected cones were observed in Albion and Whitby townships.

Leaf and Twig Blight of Poplar, Pollaccia radiosa (Lib.) Bald. & Cif.

Moderate infections occurred in trembling aspen and large-tooth aspen stands in Orillia, Tiny, and Vespra townships. At one location in Orillia Township 30 per cent of the new shoots of trembling aspen regeneration were killed. Light infections were observed in most areas where aspen regeneration occurred.

In Lake Huron District severe branch tip mortality was observed in the Innerkip Boy Scout plantation in Blandford Township. Low incidence of infection was common in aspen stands elsewhere in the region.

Deterioration of Roadside Maples

Although this condition continued to develop on maple trees along major highways, the incidence of infection declined considerably in the region. Counts made at 22 well-distributed points showed an overall incidence of infection of about 45 per cent compared with 71 per cent in 1966. The highest infections, (70 to 98 per cent) were recorded in Albion, Vaughan, Hay, Nichol, Wallace, Yarmouth, Dunwich, and Malahide townships. Although tree mortality averaged only seven per cent, compared with 17 per cent in 1966, as high as 86 per cent mortality was recorded in a roadside count in Yarmouth Township.

Trees of all sizes and age classes appear to be affected by the condition. Possibly a mjor contributing factor to the lessening of deterioration in 1967 was the limited use of salt during the relatively mild winter of 1966-1967, followed by excessive rainfall in the early and mid-summer season. As in past years sugar maple was most severely affected. The results of observations made at 22 sampling points are summarized in the following table.

TABLE 1

Summary of Sugar Maple Deterioration in the Southwestern Region in 1967

Location (township)	No. of trees	Per cent trees infected	Mortality by per cent
Lake Simcoe			
Albion	50	72	0
Chinguacousy	50	36	4
Vaughan	20	75	0
Innisfil	50	46	0
Scott	50	46	0
Lake Huron			
Blenheim	100	27	18
Hay	100	89	4
Eramosa	134	49	4
Nichol	100	94	0
Wallace	20	90	0
Burford	100	26	0
Elderslie	100	4	0
Lake Erie			
Dorchester N.	50	10	0
Malahide	50	74	14
Yarmouth	50	98	86
Dunwich	50	74	34
McGillivray	50	14	0
Howard	50	0	0
Woodhouse	50	14	0
Camden	50	34	6
Colchester S.	50	24	0
Cayuga S.	50	8	0

Drought Injury

Following three consecutive years of prolonged drought, tree mortality from this condition was much less severe in 1967. Heavy rains in the early part of the summer followed by average and above average precipitation in several areas allowed seedlings to form good root systems. As a result very little mortality was recorded in young planted stock.

However, small localized pockets of tree mortality did occur in some older red pine plantations where populations of bark beetles attacked trees that had previously been weakened by drought.

Very little deterioration was noted in 1967 in tree species growing on shallow soils in the Severn River-Georgian Bay area and in Bruce Peninsula where the condition has been severe for the past three years.

Salt Damage

Although this condition was obviously less prevalent in 1967, salt-spray drift was again responsible for foliar discolouration along some of the main highways. In the Lake Simcoe District severe damage recurred in pine, spruce and cedar plantings on the east side of Highway 400 between Barrie and Toronto. In Lake Huron District moderate damage was noted on young red pine trees along Highway 401 east of Woodstock.

TABLE 2

Other Noteworthy Diseases in the Southwestern Region 1967

Organism	Host(s)	Remarks
Apiosporina collinsii (Schw.) Hoehn.	Prunus	Severe infection on several trees, Sunnidale Township
Camarosporium robiniae (West.) Sacc.	Hon	High incidence of branch tip mortality in shelter-belts
Coccomyces hiemalis Higgins	ecCh	Severe infection on lakeshore shrubs, Amabel Township
Coleosporium solidaginis Thuem.	jP,rP solidago	Light localized infections, S. Walsingham, Blandford and Melancthon townships
Cronartium quercuum (Berk.) Miyabe	ScP	Light infections, S. Walsingham, Zone and Glenelg townships
Cryptodiaporthe densissima (Ell.) Wehm.	wO,rO	Associated with light stem and twig mortality in Flos, Sunnidale, Essa, S. Walsingham, Glenelg and S. Dumfries townships
Cryptodiaportha populea (Sacc.) Butin	lPo	Light to heavy incidence of branch mortality through the region
Cryptodiaporthe salicina (Curr.) Wehm.	W	Collected on recently killed branch tips, Tiny Township
Cytospora chrysosperma Pers. ex Fr.	tA,bPo,cPo	Commonly associated with mortality of current shoots
Cytospora nivea Hoffm. ex Fr.	lA	One collection from Bosanquet Township, constitutes third herbarium record

TABLE 2 (continued)

Organism	Host(s)	Remarks
Daedalea quercina L. ex Fr.	Oak	Organism collected from an old stump, S. Walsingham Township
Dermea balsamea (Pk.) Seau.	bF	Occurs on widely scattered dead trees, Amabel Township
Diaporthe taleola (Fr.) Sacc.	rO	One collection, Woodhouse Township
Diatrypella betulina Peck	wB,I	Light incidence of branch mortality, Kinloss and Lindsay townships
Diatrypella frostii Pk.	sM	One dead tree, Sullivan Township
Dothichiza populea Sacc.	lPo,sPo	Light stem and branch mortality common, L. Simcoe District
Dothiorella populnea Thuem.	tA	Found on roadside regeneration, Malahide Township
Endothia parasitica (Murr.) P. J. and H. W. Anderson	Che	All examined regeneration found to be infected in S. Walsingham and Charlotteville townships
Erwinia amylovora (Burr.) Winsl. et al	Ap	Fire blight infections common in abandoned orchards through the northern part of L. Huron District
Eutypella parasitica Davidson and Lorenz	sM	Cankers common in L. Simcoe District
Fomes connatus (Weinm.) Gill.	sM	On a dead branch
Fomes everhartii (Ell. and Gall.) Schrenk and Spaul	rO	One collection
Fomes igniarius (L. ex Fr.) Kiehx.	tA	Common on large trees at one location, St. Edmund Township
Fomes pini (Thore) Lloyd	wS	On dead stem, Vespra Township
Fomes ulmarius (Sow. ex Fr.) Gill.	wE	One collection from an old dead tree, S. Walsingham Township

TABLE 2 (continued)

Organism	Host(s)	Remarks
Gleoesporium salicis West.	W	Fruiting collected on foliage of a large tree in Toronto Township, second herbarium record
Gnononia ulmea (Schw.) Thuem.	wE	Medium infection on several large roadside trees, Rama Township
Ganoderma applanata (Pers. ex Wallr.) Pat.	mM,Be	Two collections
Gymnosporangium calvipes (Cke. and Pk.) Cke and Pk.	Haw	Common on fruits at two locations in L. Simcoe District
Leocarpus fragilis (Dicks.) Rost.	rP	Mould collected on a stump in Mulmur Township; second herbarium record
Leaf scorch	Ba,Be,wE,sM	Incidence declined for the second consecutive year
Linospora tetraspora G. E. Thomps.	bPo	High incidence of infected leaves at several points in Flos, Medonte and Holland townships
Lophodermium nitens Darker	jP	High incidence of infected needles, Ayton Tract, Normanby Township
Melampsora bigelowii Thaem.	W	Severe shoot mortality on one clump, Keppel Township
Melanconis modonia Tul.	wO	Common through L. Erie District; highest incidence of infection on roadside trees in Bosanquet Township
Melanconis nigrospora (Pk.) Wehm.	yB	Common on dead branches, Euphrasia Township
Melanconium bicolor Nees	bO	Common on recently killed branches
Microsphaera alni (Wallv.) Wint.	lonicera sp.	Light incidence, St. Edmund Township
Ophionectria cylindrospora (Sollman) Beryl and Vogl.	wP	Fruiting common on P. strobi killed leaders, Whitchurch and Gwillimbury townships
Peniophora cinerea (Pers. ex Fr.) Cke.	ecCh	Fruiting on dead stem, S. Walsingham Township

TABLE 2 (concluded)

Organism	Host(s)	Remarks
Polyporus hirsutus Wulf. ex Fr.	wE	One Collection
Polyporus tomentosus Fr.	wS	Organism caused mortality of several large trees in a shelterbelt in Midhurst Nursery, Vespra Township
Puccinia recondita Rob. ex Desm.	clementis virginiana	Light rust infection on scattered plants, Blandford Township
Rhytisma salicinum (Pers.) Fr.	W	Heavy infection on one clump
Scleroderris lagerbergii Gremmen	pines	Although extensive surveys were carried out in 1967, this organism was not found in the region
Steganosporium pyriforme (Hoffm.) Corda	sM,siM	Commonly associated with dead and dying branches; light incidence throughout the region
Tubercularia nigricans (Bull.) Lk. ex Fr.	Chinese elm	Moderate branch tip mortality on several trees, Scarborough Township
Uncinula salicis D. C. Wint.	W	Light infection, one location
Valsaria insitiva (Tode) Ces. & Den.	yB	Light branch mortality on scattered trees, Sullivan Township
Valsa pini (Alb. and Schw.) Fr.	wP	One dead tree
Xylaria polymorpha (Pers.) Grev.	mM	Conk found on an old stump in St. Williams Nursery

STATUS OF INSECTS IN LAKE SIMCOE DISTRICT

R. L. Bowser

Cedar Leaf Miners, Argyresthia aureoargentella Brower,
Argyresthia thuiella Pack. and
Argyresthia freyella Wlshm.

Heavy infestations persisted in the central and northern parts of the district. Severe branch, and light stem mortality was particularly common in the central part of the district. Moderate stem damage occurred in clumps of cedar at several points in the northern part. Although the three species were commonly found at sample points larvae of A. thuiella generally outnumbered the other two.

Jack-pine Resin Midge, Cecidomyia reeksi Vock.

High populations of this midge continued to cause moderate to heavy damage to the shoots of jack pine trees at several points in the district. The condition was particularly apparent in Whitchurch, Albion and Uxbridge townships where mortality of the current year's shoots ranged from 60 to 75 per cent. Light damage was observed at numerous other points in the district.

Spruce Budworm, Choristoneura fumiferana Clem.

Medium infestations occurred in Uxbridge and Essa* townships where heavy infestations were reported in 1966. In Uxbridge Township, 46 per cent defoliation was recorded and egg surveys revealed an average of 58 clusters per 100 sq. feet of foliage compared with 332 in 1966. In Essa Township 32 per cent defoliation occurred in a 25-year-old white spruce plantation and egg clusters averaged 55 per 100 square feet of foliage.

In a white spruce plantation at Midhurst where larval populations have remained low for several years four per cent defoliation was recorded (see photograph). Light infestations were more numerous than in 1966 (see map).

Jack-pine Budworm, Choristoneura pinus pinus Free.

Medium infestations occurred in mixed jack pine and Scots pine plantations north of Palgrave in Albion Township and approximately two miles south of Maple Valley in Melancthon Township. Light infestations were recorded in pine plantations at several points in Simcoe County and in Georgina and East Gwillimbury townships in the northern part of York County.

Larch Casebearer, Coleophora laricella Hbn.

Larval populations increased at a sample point in Albion Township for the second consecutive year, causing moderate discolouration throughout the host stand. A medium infestation recurred in a small European larch stand in Whitchurch Township and a new medium infestation was noted in West Gwillimbury Township. Trace populations occurred at sample points in Vespra and Uxbridge townships where the insect had not been found since 1964 (Table 3). Low populations were common elsewhere in European larch stands and occasionally in tamarack stands.

* Tosorontio in error in 1966 report

TABLE 3

Summary of Larch Casebearer Larval Counts in Lake Simcoe District from 1965 to 1967

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

Location (township)	Av. d.b.h. in inches	Av. no. larvae per 18 inch branch tip		
		1965	1966	1967
Medonte	5	1	2.2	1.0
Albion	5	2	22.2	34.4
Whitchurch	6	0	0.9	17.4
Vespra	6	-	-	0.1
Uxbridge	8	-	-	2.0

A Tortricid on Oak, Croesia semipurpurana Kft.

For the second consecutive year high populations of this tortricid damaged the foliage of red oak trees at scattered points in the district (see map). Heavy infestations occurred in the Barrie-Minesing area in Vespra Township, in the northwest part of Oro Township and in a large woodlot west of the Uxbridge forest in Uxbridge Township. Foliar damage ranged up to 100 per cent on individual trees. A medium infestation was noted in the Dufferin County forest in Mulmur Township.

Swarms of adults were observed in areas of heavy infestation during the first week in July.

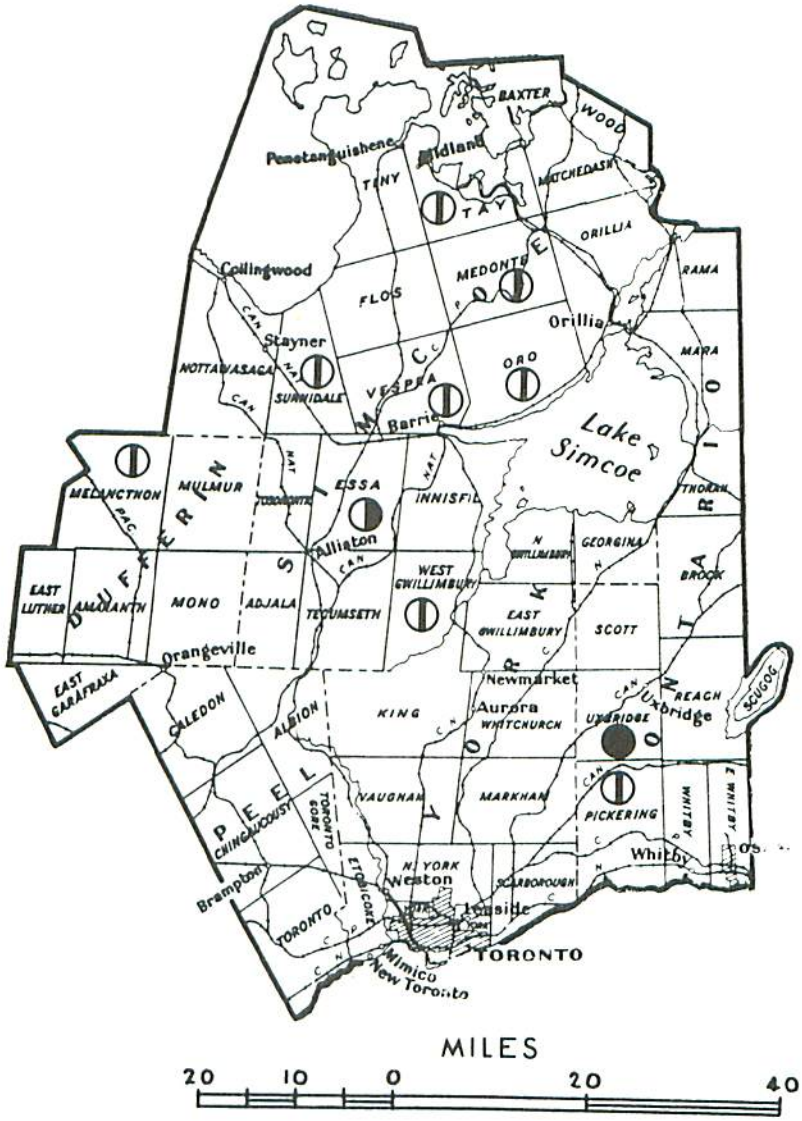
A Cone Worm, Dioryctria disclusa Heinr.

High larval populations caused notable damage to pine cones at several locations in the district in 1967. Up to 90 per cent of first year cones of jack pine and red pine were infested at Base Borden in Essa Township and in plantations in Sunnidale and Tosorontio townships. Moderate cone damage occurred at numerous points in Simcoe and Dufferin counties and light damage was observed commonly elsewhere in the district (see map).

Zimmerman Pine Moth, Dioryctria zimmermani Grt.

This insect (see photograph) cause moderate and heavy damage to the new shoots of older red pine trees at several points in Simcoe and Dufferin counties (see map). At one point in Base Borden more than 50 per cent of the shoots were destroyed. Twenty per cent shoot damage occurred commonly in the above counties.

LAKE SIMCOE DISTRICT



SPRUCE BUDWORM

Locations where infestations were observed in 1967

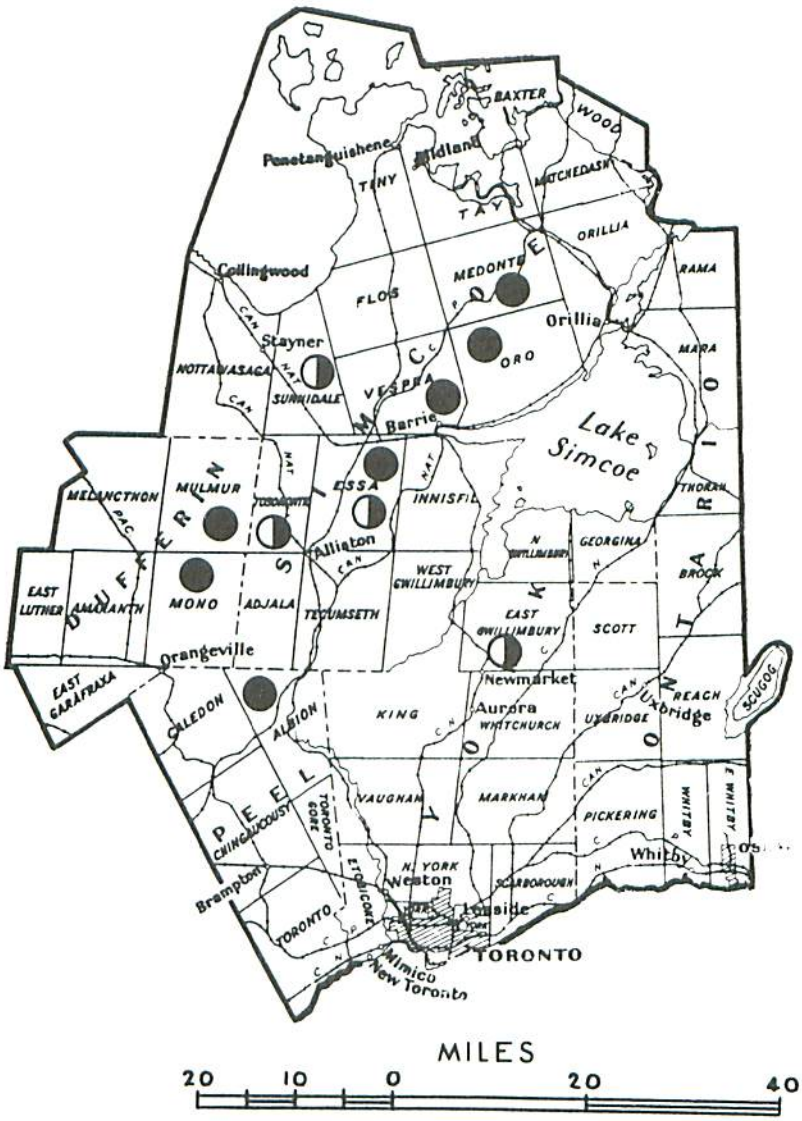
Legend

Light infestation .....

Medium infestation .....

Heavy infestation .....

LAKE SIMCOE DISTRICT



Dioryctria sp.

Locations where infestations were observed in 1967

Legend

Dioryctria zimmermani .....●

Dioryctria disclusa .....◑

Nursery Pine Sawfly, Diprion frutetorum F.

Following a decline for two consecutive years, larval populations increased generally in 1967. This trend was most marked at sample points in Reach, Pickering and Orillia townships where the number of larvae per sample increased from 2, 0 and 2 in 1966 to 109, 46 and 23 respectively in 1967 (Table 4).

TABLE 4

Summary of Nursery Pine Sawfly Larval Counts in Lake Simcoe District from 1965 to 1967

Location (township)	Tree species	Av. height of trees in feet	Total no. of larvae per 15-tray sample		
			1965	1966	1967
Pickering	ScP	30	3	0	46
Reach	ScP	30	27	2	109
Melancthon	ScP	30	0	1	4
Mono	ScP	45	3	2	10
Vespra	ScP	45	14	3	10
Orillia	ScP	15	11	2	23
Oro	wP	30	2	4	2
Markham	ScP	30	5	2	16

European Spruce Sawfly, Diprion hercyniae Htg.

Following a general decline in 1966, larval populations increased at all points in 1967. The most notable change occurred on large white spruce trees in shelterbelts in Medonte and Nottawasaga townships where the number of larvae per sample increased from five to 62 and one to 63 respectively (Table 5).

TABLE 5

Summary of European Spruce Sawfly Larval Counts in Lake Simcoe District from 1965 to 1967

Location (township)	Tree species	Av. height of trees in feet	Total no. of larvae per 15-tray sample		
			1965	1966	1967
Vespra	nS	45	0	3	22
Medonte	wS	45	18	5	62
Mara	wS	15	6	1	18
Nottawasaga	wS	45	0	1	63
Uxbridge	wS	30	21	4	19
Whitchurch	wS	30	-	-	39

Introduced Pine Sawfly, Diprion similis Htg.

Substantial increases in larval populations occurred at all sample points in 1967. The most noteworthy of these occurred in Scots pine plantings in Pickering, Reach and Mono townships where tree crowns were noticeably thin and in a white pine plantation in Oro Township (Table 6). A medium infestation was recorded in a Scots pine shelterbelt near Churchill in Innisfil Township where a count showed an average of 19 larvae per tray sample. Small numbers of larvae were found commonly elsewhere in the district.

TABLE 6

Summary of Introduced Pine Sawfly Larval Counts in Lake Simcoe District from 1965 to 1967

Location (township)	Tree species	Av. height of trees in feet	Total no. of larvae per 15-tray sample		
			1965	1966	1967
Markham	ScP	30	0	2	22
Pickering	ScP	30	67	7	608
Reach	ScP	30	41	3	243
Melancthon	ScP	30	0	4	43
Mono	ScP	45	3	27	359
Vespra	ScP	45	2	3	10
Oro	wP	30	8	53	167
Orillia	ScP	15	0	2	35

White Pine Shoot Borer, Eucosma gloriola Heinr.

Infestations of this shoot borer caused light and moderate damage to the new shoots of white, Scots and red pine trees in plantations throughout the district. Although leader damage approximated 10 per cent in several plantations it usually did not exceed five per cent (Table 7).

TABLE 7

Summary of Shoot Damage by the White-pine Shoot Borer in the Lake Simcoe District in 1967

Location (township)	Tree species	Average height of trees in feet	Per cent of trees infested	Av. no. of attacks per infested tree	Per cent of leaders attacked
E. Gwillimbury	wP	20	57	2	3
Oro	wP	15	83	4	8
Orillia	wP	15	61	3	4
King	wP	15	63	3	5
Whitchurch	wP	15	78	4	4

Birch Leaf Miner, Fenusa pusilla Lep.

Larval populations of this leaf miner remained high for the third consecutive year. Moderate and heavy damage to ornamental birch trees occurred commonly in the district. Severe leaf mining was also recorded in white birch stands at several points, particularly in the northern part of the district.

The Saddled Prominent, Heterocampa guttivitta Wlk.

A comparatively small but severe outbreak of this insect occurred on sugar maple in Lake Simcoe District in 1967. Larval populations were highest in Oro Township, the southeast part of Medonte Township and the extreme southern part of Orillia Township, encompassing approximately 75 square miles (see map). Severe defoliation of host trees (ranging up to 90 per cent) occurred on hilltops whereas damage in low-lying areas was moderate and confined to the upper crowns. Although sugar maple was the preferred host beech was commonly infested.

In the late larval stages large numbers of larvae were noted crawling on the ground and over the trunks of trees. Masses of dead larvae were commonly observed at the base of heavily infested trees. Diagnosis revealed the presence of a fungus disease, Beauveria sp.

Counts of pupae per square foot of soil varied from three midway between tree stems to 17 at the base of trees and averaged seven. Because the insect pupates largely in the duff it is vulnerable to small mammals. These could be major agents in controlling the insect. Further ground checks will be made in the early spring of 1968 to check this possibility.

Pales Weevil, Hylobius pales (Hbst.) and the
Northern Pine Weevil, Pissodes approximatus Hopk.

Although these weevils are a constant threat and have been major pests in Christmas tree plantations for several years damage in 1967 was generally light, with moderate damage in older plantations where trees have been harvested for several years.

High numbers of H. pales adults were observed on fresh stumps in several plantations in Dufferin County early in the spring but resultant shoot damage was negligible. Normal fluctuations in populations of these two weevils was probably accountable for the overall decline, however, control measures carried out in some areas against adult weevils in 1964, 1965 and 1966 could have been a contributing factor.

Pine Root-collar Weevil, Hylobius radicis Buch.

This insect continued to cause severe mortality of Scots pine trees in Christmas tree plantations at several points in Simcoe County. In a plantation near Gibson in Tiny Township 31 per cent tree mortality occurred and approximately 60 per cent of the trees were infested and discoloured. Counts in Vespra and Essa townships showed six and seven per cent mortality respectively.

Fall Webworm, Hyphantria cunea Dru.

Light to moderate defoliation occurred on white elm trees in Pickering Township and on white ash trees near Washago in Orillia Township. Scattered colonies were observed commonly on a variety of deciduous hosts elsewhere in the district with defoliation generally confined to single branches.

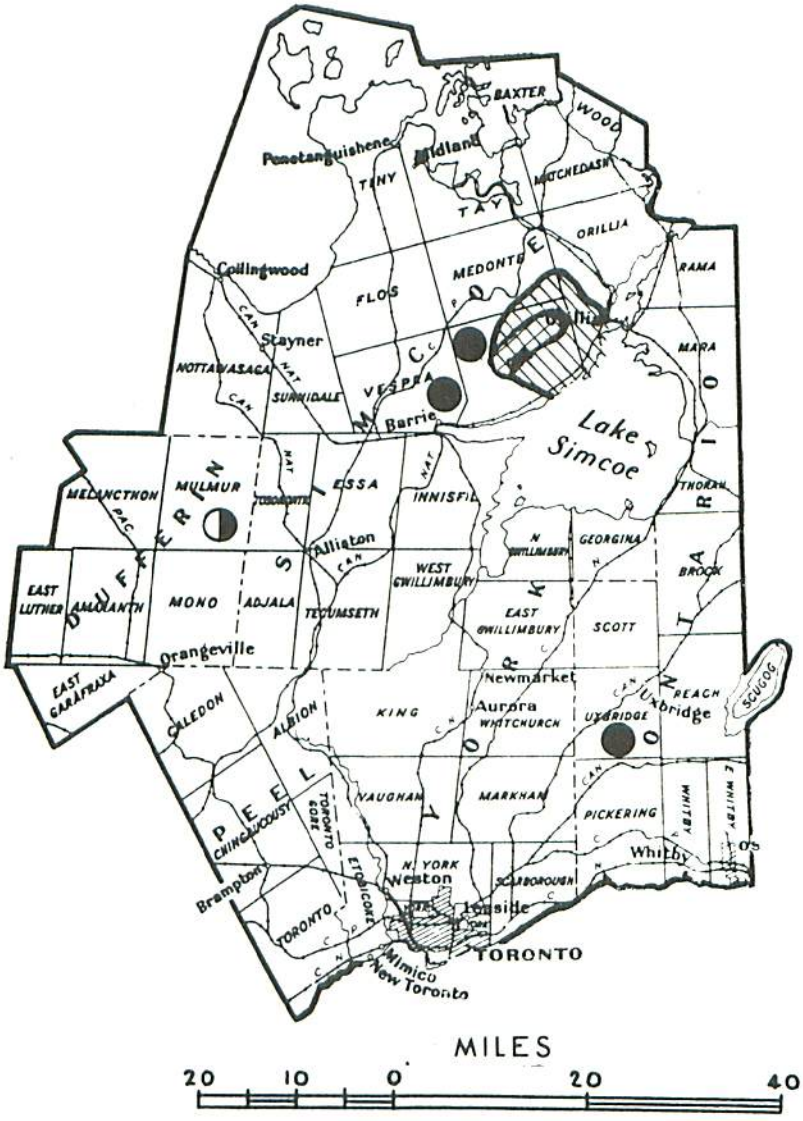
In Orillia Township the larval population occurred comparatively late in the season. Furthermore, larvae appeared to be much larger and darker in colour than those developing earlier and remained gregarious until mature. Large colonies congregated in the massive webs laden with frass and cast skins, causing drooping of some smaller branches.

Larvae are being reared and adults will be examined to determine what other differences exist between the early and late populations.

Eastern Tent Caterpillar, Malacosoma americanum F.

For the second consecutive year, a marked decline in numbers of colonies occurred at a sample point in Flos Township. Thirty-one tents were counted in a mile of roadside compared with 56 in one-tenth of a mile in 1966. Counts showed very little change in larval populations elsewhere (Table 8). Black cherry and eastern choke cherry were the preferred host species. Light mortality of early larvae, due to cold weather and starvation, was observed in several areas.

LAKE SIMCOE DISTRICT



Area and locations where infestations of two defoliators of hardwoods were observed in 1967 Heterocampa guttivitta and Croesia semipurpurana

Legend

Heterocampa guttivitta		Croesia semipurpurana	
Medium infestation		Medium infestation	◑
Heavy infestation		Heavy infestation	●

TABLE 8

Summary of Eastern Tent Caterpillar Colony Counts in Lake Simcoe District from 1965 to 1967

Location (township)	No. colonies per mile of roadside		
	1965	1966	1967
Sunnidale	15	14	14
Tiny	141	23	26
Medonte	129	13	11
East Luther	0	30	-
Baxter	132	13	16
Flos	154	56*	31
Vespra	-	-	11

* One tenth mile of roadside

Balsam-fir Sawfly, Neodiprion abietis complex

Little change in the status of this sawfly was noted in 1967. Generally, light infestations occurred in the Midhurst area in Vespra Township, near Fergusonvale in Flos Township and on scattered balsam fir trees between Waverly and Highway 12 in Tay and Medonte townships. Some trees suffered moderate to severe damage in the top third of the crown.

Red-headed Pine Sawfly, Neodiprion lecontei (Fitch)

Heavy infestations of this insect that occurred in Baxter and Mara townships in 1966 declined to very light intensity in 1967. In Baxter Township three colonies were counted on 100 trees examined. A polyhedral virus disease applied in both areas of infestation in 1965 and 1966 probably was a major contributing factor to the sharp decline. Generally, light infestation persisted in the Severn Falls area, Matchedash Township, where occasional 15-foot red pine trees suffered moderate defoliation. The insect was found in small numbers in young red pine plantations in Essa and Nottawasaga townships.

Jack-pine Sawfly, Neodiprion pratti banksianae Roh.

A medium infestation which had occurred for two consecutive years on six jack pine trees in Mara Township declined to light intensity in 1967 (Table 9). A new light infestation was noted in Melancthon Township where a count showed an average of five colonies per infested 20-foot tree. Small numbers of colonies were observed in scattered jack pine plantations elsewhere in the district.

TABLE 9

Summary of Jack-pine Sawfly Colony Counts in Lake Simcoe District in 1967

Note: Counts were based on the examination of ten jack pine trees at each location.

Location (township)	Av. height of trees in feet	Av. no. colonies per infested tree in 1967
Mara	25	7
Melancthon	20	5

European Pine Sawfly, Neodiprion sertifer Geoff.

As in 1966 this sawfly increased in intensity at many locations and decreased at others (Table 10). Light defoliation occurred in a small Scots pine plantation near Udney in Mara Township representing an advance of approximately 12 miles in the northeastern limits of known distribution.

High larval populations caused severe defoliation of Scots, red and jack pine trees in untended plantations in Vespra, Adjala, Tecumseth, Tosorontio and West Gwillimbury townships in Simcoe County, in the north part of Peel County, in the Central and northern parts of York County and in the central and southern parts of Ontario County. The heaviest infestation in Ontario County occurred in a 5-acre 38-year-old jack pine plantation on the northern outskirts of Raglan in East Whitby Township where 75 to 90 per cent defoliation resulted.

Generally, infestations in Dufferin County were much lighter than in 1966. This trend can probably be attributed to the large-scale control program carried out in 1966 when an area of approximately 2500 acres was treated with phosphamidon and 550 acres were treated with virus.

Chemical control of the adults, using DDT, was repeated in several Christmas tree plantations in Mulmur Township in September, 1966. Because of extremely low larval populations in both sprayed and control areas it was impossible to assess the results of the experiment in 1967.

The results of a virus recovery program conducted by Department of Lands and Forests personnel and the Forest Research Technician proved very disappointing. One pint of virus suspension containing 100,000,000 polyhedra per millitire of water, was recovered and it may be used in a further attempt to recover virus in 1968.

TABLE 10

Summary of European Pine Sawfly Colony Counts and Degrees of Infestation in Lake Simcoe District from 1965 6o 1967

Location (township)	Tree species	Average height of trees in feet	Av. no. colonies per infested tree			Per cent of trees infested in 1967	Degree of Infestation in 1967
			1965	1966	1967		
Caledon	ScP	18	8	3	7	92	M
Toronto	ScP	30	14	10	8	100	M
Pickering	ScP	15	23	100+	16	100	H
E. Gwillimbury	ScP	10	1	8	2	61	L
Georgina	rP	6	-	3	4	95	M
Mulmur	rP	10	-	2	1	18	L
Orillia	ScP	10	0	1	0	0	Nil
Melancthon	rP	20	3	2	1	16	L
Tosorontio	ScP	12	3	5	2	60	L
Tosorontio	rP	10	1	2	1	45	L

A Petiole Borer on Aspen, Nepticulidae

High larval populations occurred in trembling aspen stands at numerous points in the district. Approximately 50 per cent of the leaf petioles were infested at sample points in Reach and Oro townships and 30 per cent in Orillia Township. The insect was observed in small numbers throughout the district.

White-pine Weevil, Pissodes strobi (Peck)

A high incidence of leader damage was caused by this insect in white pine plantations in Mara, Essa and Orillia townships (Table 11). Moderate damage was recorded in white pine plantings in Whitchurch, Flos, King and Matchedash townships and in Norway spruce plantings in Vespra and Whitchurch townships. Light infestations were observed commonly in white pine plantations elsewhere in the district.

TABLE 11

Summary of Leader Damage by the White-pine Weevil in Lake Simcoe District from 1965 to 1967

Location (Township)	Tree species	Per cent of trees weevilled		
		1965	1966	1967
Whitchurch	wP	54	26	17
Matchedash	wP	9	1	7
Essa	wP	30	45	55
Orillia	wP	11	45	31
Oro	wP	13	10	4
Whitchurch	nS	10	11	6
Vespra	nS	30	17	16
King	wP	24	19	14
Mara	wP	65	61	74

Larch Sawfly, Pristiphora erichsonii (Htg.)

Heavy infestations persisted in European larch plantations in the Orr Lake and Waverley tracts in Medonte and Flos townships respectively, where defoliation approximated 75 per cent. Heavy infestations occurred at Base Borden in Tosorontio Township (where 40 per cent of the available shoots had contained eggs) and the York County forest and near Coulson in Oro Township. Department of Lands and Forests personnel used DDT to control a small, heavy infestation bordering Highway 9 in East Garafraxa Township.

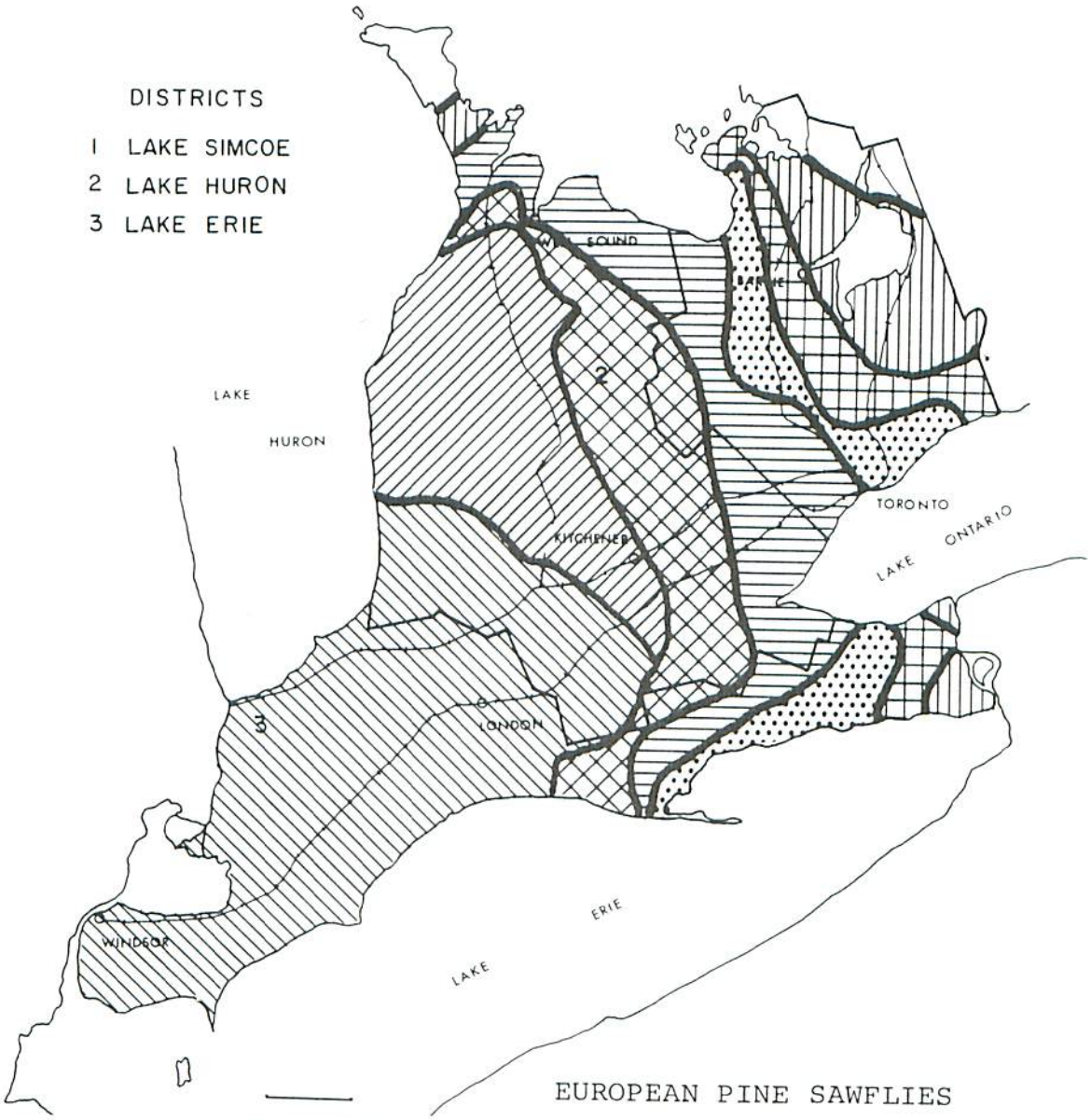
At a sample point in Oro Township the light infestation increased to medium intensity (Table 12). Twenty-two per cent of the tips were oviposited on compared with six per cent in 1966. The heavy infestation in Uxbridge forest, where 80 per cent tip mortality was recorded in 1966, declined to light intensity. The heavy infestation in Wildman forest declined to medium intensity. Generally light infestations with moderate defoliation of small clumps of trees occurred commonly in tamarack stands. Tip mortality from oviposition was high in most European larch plantations. For example, 50 per cent tip mortality occurred at one location in Oro Township.

TABLE 12

Summary of Curled Shoot Counts and Degrees of Infestation of the Larch Sawfly in Lake Simcoe District from 1965 to 1967

Location (township)	Host	Av. d.b.h. in inches in 1967	Per cent of tips curled			Degree of infestation		
			1965	1966	1967	1965	1966	1967
Oro	eL	8	60	6	22	H	L	M
Uxbridge	eL	9	70	100	2	H	H	L

SOUTHWESTERN REGION



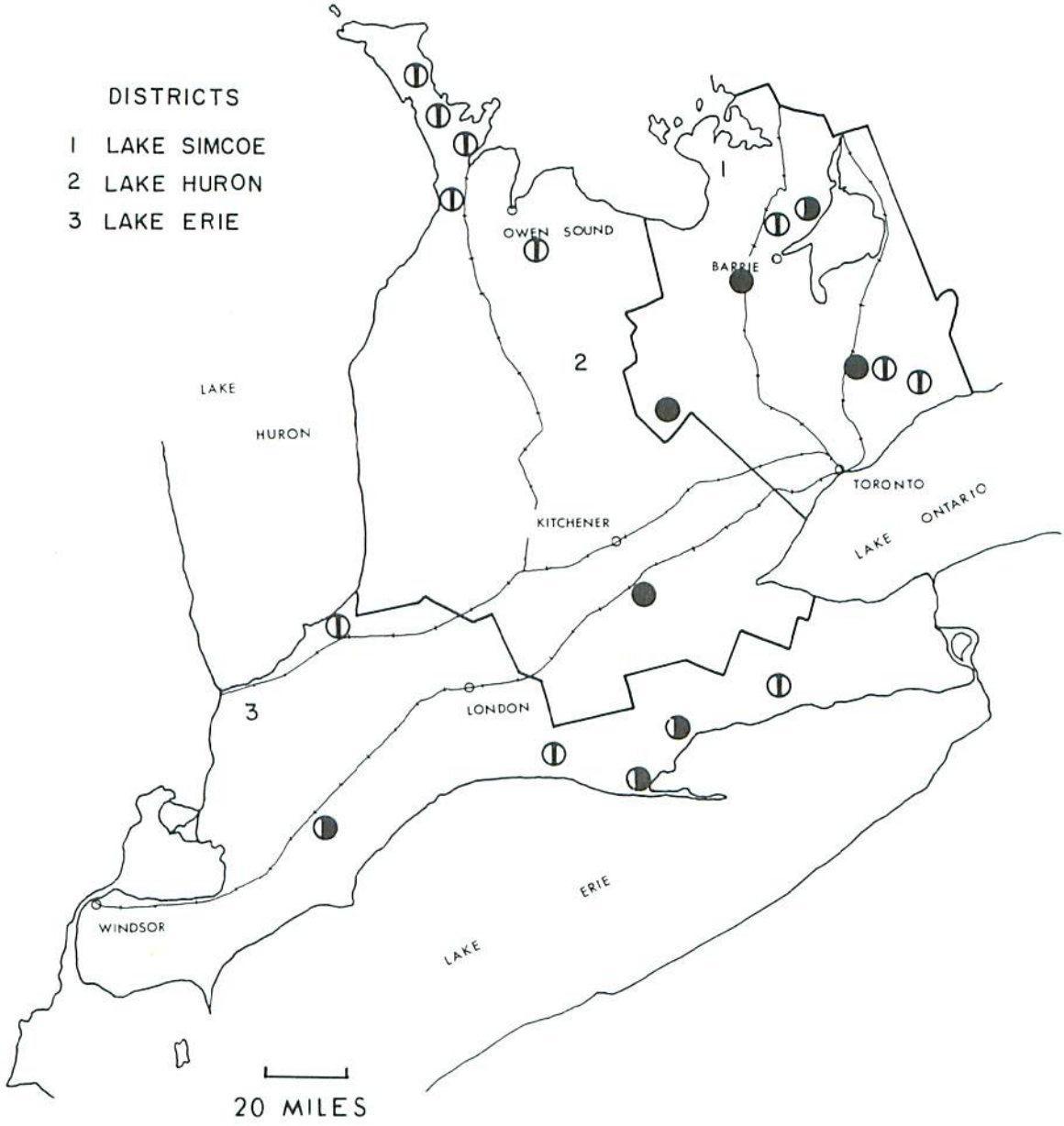
EUROPEAN PINE SAWFLIES

Boundaries of infestation
from 1950 to 1967

Legend

1950 ...
1954 ...
1956 ...
1959 ...
1961 ...
1963 ...
1967 ...

SOUTHWESTERN REGION



LARCH SAWFLY

Locations where infestations were observed in 1967

Legend

Light infestation .....

Medium infestation .....

Heavy infestation .....

Elm Bark Beetles, Scolytus multistriatus (Marsh.) and Hylurgopinus rufipes Eich.

High populations of the Smaller European Bark Beetle, S. multistriatus, were prevalent in the southern part of the district where Dutch Elm disease caused severe mortality of elm trees. The abundance of this insect progressively lessened to the north where the degree of tree mortality decreased. Heavy infestations of the Native Elm Bark Beetle, H. rufipes, occurred in most areas of the district where sufficient brood material was available.

TABLE 13

Summary of Miscellaneous Insects Collected in Lake Simcoe District

Insect	Hosts	Remarks
Acleris variana Fern.	wS	Average 2.5 larvae per 3' x 3' mat sample in Uxbridge Township. Trace in Oro Township
Acrobasis betulella Hlst.	wB	Small numbers in West Gwillimbury Township
Acrobasis caryivorella Rag.	Wa	Common on several planted trees in Pickering Township
Agromyza aristata Mall.	wE	Light to medium infestation on several 45-foot trees in Mulmur Township
Alsophila pometaria Harr.	Ba,wE,Be	Small numbers in Essa, Vespra, and Mulmur townships
Altica populi Brown	bPo	A heavy infestation occurred in Uxbridge Township
Anacampsis innocuella Zell.	ltA,tA	Caused moderate damage to the foliage of host trees in Oro Township
Aphrophora parallela (Say)	ScP,wP,jP	Occasional medium infestations. Light infestations common
Archips cerasivoranus (Fitch)	ecCh	Scattered localized pockets of light and medium infestation
Archips fervidanus Clem.	rO	Several large colonies observed in Tiny Township
Arge pectoralis (Leach)	wB	Few colonies in Medonte Township
Argyresthia oreasella Clem.	ecCh	Light shoot damage in Uxbridge Township
Atrusca centricola (O. S.)	rO	Small numbers of leaf galls in Flos Township

TABLE 13 (continued)

Insect	Host(s)	Remarks
Badebecia urticana Hbn.	tA	Small numbers in Mara Township
Cenopis acerivorana Mack.	sM	Light to moderate foliar damage in Medonte Township
Cenopis pettitana Rob.	Ba	Light to moderate foliar damage in Medonte Township
Choristoneura conflictana Wlk.	tA	Small numbers in Mara and Melancthon townships
Choristoneura rosaceana Harr.	wB,tA	Low populations at two points
Chrysomela mainensis mainensis Bech.	Al	Localized medium infestation in Baxter Township
Clepsis persicana Fitch	wB	Trace populations in Uxbridge and west Gwillimbury townships
Coleophora innotabilis Braun	bPo	Common in Melancthon and Mono townships
Coleophora pruniella Clem.	wB	Medium infestation in Vespra Township. Small numbers elsewhere
Datana integerrima G. & R.		Caused severe defoliation of occasional trees in the southern parts of Ontario, York and Peel counties
Datana ministra Dru.	wE,Ba	Caused moderate defoliation of 15-foot white elm trees near Ajax in Pickering Township. Scattered colonies observed in Innisfil and Scott townships
Dioryctria reniculella Grt.	wS	High numbers of larvae found feeding in association with spruce budworm in Uxbridge and Essa townships. In Uxbridge forest 121 larvae were counted in a 20-mat sample
Eacles imperialis pini Mich.	rP	Two larvae found in 20-mat sample
Ectoedemia populella Busck.	tA,ltA	Light infestations common on tA in District. Medium infestation on several small ltA trees in Uxbridge Township
Elaphidionoides parallelum Newm.	rO	Light infestations common

TABLE 13 (continued)

Insect	Host(s)	Remarks
Epinotia nanana Treit.	nS	Light infestation in Melancthon Township
Epinotia solandriana Linn.	wB,tA,bPo	Medium infestation in Vespra Township. Light infestations common
Episimus argutanus Clem.	Sumac	Medium infestation on several 6-foot trees in Pickering Township
Erannis tiliaria Harr.	wE,Ba	Common in small numbers
Eupithecia mutata Pears.	eH	Light cone damage in West Gwillimbury and Reach townships
Eupithecia palpata Pack.	wP	Loopers found in small numbers in beating samples
Exoteleia dodecella Linn.	ScP	Bud damage did not exceed eight per cent in sample areas
Exotelia pinifoliella Cham.	jP	Heavy infestations common in Simcoe, Peel and York counties. Mining of the old foliage exceeded 50 per cent at several points
Fenusa dohrnii Tischb.	Al	Light infestation in Medonte Township
Fenusa ulmi Sund.	E	Small heavy infestations at scattered points in the District
Gonioctena americana (Schaef.)	tA	Localized light infestations at two points
Ips pini Say	rP	High populations attacked and killed small groups of trees, that had been weakened by drought, at several points
Lepidosaphes ulmi (Linn.)	pCh	Heavy infestation associated with branch mortality in Medonte Township
Megacyllene robiniae Forst.	Hon	Stem borers caused light tree mortality in West Gwillimbury Township
Monoctenus fulvus Nort.	eC	Light infestations common in the District
Monoctenus suffusus (Cress.)	J	Found in small numbers in Sunnidale, Tiny, and Matchedash townships

TABLE 13 (continued)

Insect	Host(s)	Remarks
Nematus limbatus Cress.	cPo,W	Small numbers of colonies in Tiny and Innisfil townships
Nematus populi Marl.	W	Low population in transplant bed in Midhurst nursery
Neodiprion pinetum (Nort.)	wP	One colony observed in Sunnidale Township
Neodiprion virginianus complex	jP	A light infestation persisted in Mara Township and a new light infestation was noted in Oro Township
Nymphalis antiopa L.	wE	Scattered colonies observed on a variety of deciduous hosts in the district
Orgyia leucostigma J. E. Smith	Ba,wE	Large colonies noted in Vaughan and Whitby townships
Orthosia hibisci Gn.	wS	Occasional larva in beating samples
Paleacrita vernata Peck	wE	Infestations declined for the third consecutive year. Found in small numbers
Pamphilius ochreipes (Cr.)	Viburnum	Heavy infestation of leaf rollers in Midhurst nursery
Petrova albicapitana (Busck.)	jP	Scattered low populations
Phratora purpurea purpurea Brown	tA	Medium and light infestations in Medonte and Uxbridge townships respectively
Pikonema alaskensis (Roh.)	wS	Scattered light infestations
Pikonema dimmockii (Cress.)	wS	Occasional larvae found in beating samples in Tay and Uxbridge townships
Plagiodera versicolora Laich.	W	Heavy and medium infestations in Whitby and West Gwillimbury townships respectively
Pleroneura borealis Felt	bF	Low populations in the District
Pristiphora geniculata (Htg.)	Mo	Moderate and heavy damage to small groups of trees at several points

TABLE 13 (concluded)

Insect	Host(s)	Remarks
Profenusa lucifex Ross	bO	Heavy localized infestation in Pickering Township. As high as four larvae per mine observed
Profenusa thomsoni (Konow)	wB	Light leaf mining in Flos and Uxbridge townships
Pulicalvaria piceaella (Kft.)	wS	Light infestations common in the district
Rhabdophaga swainei Felt	wS	Observed in small numbers in Mara Township
Sciaphila duplex Wlshm.	tA	Low populations in Mara and Melancthon townships
Semiothisa bisignata Wlk.	wP	Found in small numbers in beating samples
Schizura concinna J. E. Smith	tA,Haw,wE,Wa	Scattered low populations
Spilonota lariciana Heinr.	eL	Needle tiers found in small numbers in Mara Township
Sternochaetus lapathi (Linn.)	bPo	High numbers of these stem borers caused light to moderate tree mortality in Uxbridge Township
Tetralopha (prob.) robustella Zell.	jP	Webs observed commonly on several fringe trees in Oro Township. Larvae unusually early
Thera contractata Pack.	J	Found commonly in beating sample from ground juniper in Sunnidale Township
Thera juniperata L.	J	Found in beating samples from ground juniper in the northern part of Simcoe County
Trichiocampis irregularis (Dyar)	W	Scattered colonies observed in Tiny Township
Zale helata Sm.	wP	Found in small numbers in beating sample in Medonte and Sunnidale townships
Zeiraphera canadensis Mut. & Free.	wS	Caused light damage in Mara and Essa townships
Zelleria haimbachi Busck.	jP	Caused moderate damage to new foliage in Oro and Melancthon townships. Light elsewhere