Status of Insects in the Lake Erie District

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Information Report O-X-87
(Forest Research Laboratory, Ontario Region)

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INFORMATION REPORTS - INSECT AND DISEASE SURVEYS

Ontario, 1968

FOREWORD

The Forest Insect and Disease Survey maintains a continuing interest in improving existing sampling methods and in developing new techniques for rating forest pests and appraising damage. In 1968, a new approach for evaluating incidence and levels of infection of a number of tree diseases was explored. This involved determining degrees of damage in random and non-random plots in relation to the basal area of infected stands, the ultimate objective being to provide information on the impact of the organisms on forest stands in Ontario. Studies during the winter to test the accuracy of the new sampling system will be useful for planning field work in 1969. Improvement of insect survey methods in 1968 was largely directed toward jack-pine budworm sampling with emphasis on egg population studies. To this end, the distribution of egg masses on individual branches and at various crown levels of sample trees was investigated as a basis for determining the nature and size of samples required to assess population levels. The value of these new approaches in disease and insect sampling will be proven with use in forthcoming field seasons.

Marked changes in insect and disease conditions were recorded in large areas of the Province in 1968. A sharp increase in population levels of the spruce budworm and jack-pine budworm occurred in many parts of Ontario. The largest areas of infestation of the spruce budworm were located in the Burchell Lake area in the Port Arthur District, in parts of the Chapleau, Kapuskasing and Swastika districts and in southeastern Ontario. Localized infestations were centered in Parkinson Township in the Sault Ste. Marie District and in Fairbanks Township west of Sudbury. Egg surveys in most of the above areas except Burchell Lake, indicated that infestations will increase in extent in 1969.

The chemical control operation undertaken by the Ontario Department of Lands and Forests against the spruce budworm in the Burchell Lake area dominated insect surveys in western Ontario during several periods from May until September. Technicians were involved in intensive sampling to delineate the area to be treated, to time the spray applications and to assess spruce budworm numbers before and after the control operation.

Infestations of the jack-pine budworm abated somewhat in the Kenora and Fort Frances districts but several years of severe defoliation, particularly on rocky sites, caused considerable crown damage. In parts of the Sault Ste. Marie and Pembroke districts very severe defoliation of both jack pine and red pine was reported. Other insects occurring in particularly high numbers in 1968 included the saddled prominent, larch casebearer and several species of cedar leaf miners.

Devastation of elm by Dutch elm disease continued in southern Ontario and numerous new centers of infection were found throughout a large part of the range of elm in central Ontario. A vector of Dutch elm disease, the smaller European elm bark beetle extended its range eastward along the north shore of Lake Ontario and St. Lawrence River. Hypoxylon canker of poplar proved to be a serious problem in many parts of Ontario. Evaluations revealed particularly high levels of infection in aspen stands in the Sault Ste. Marie and Sudbury districts. Scleroderris canker of pine again caused considerable

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mortality in young red pine and jack pine plantations in parts of central and northeastern Ontario. Fomes root rot usually associated with thinning operations, caused varying amounts of mortality in red pine plantations in southern Ontario. Four new centers of infection of this disease were found in Larose forest in the Kemptville District in 1968. Details on the above and other noteworthy insect and disease problems are contained in the report that follows.

J. E. MacDonald

STATUS OF INSECTS IN THE LAKE ERIE DISTRICT

G. T. Atkinson

Pine Spittlebug, Aphrophora parallela (Say)

Very little change occurred in the status of this insect in the district in 1968. In South Walsingham Township heavy infestations recurred on white pine and medium to heavy infestations persisted on Scots pine. A small plantation of 7-foot Scots pine in Woodhouse Township supported a medium population. The heavy infestations on white pine in Charlotteville Township in 1967 subsided to light to medium intensities in 1968. Light infestations occurred on white pine in a plantation in Malahide Township and at scattered locations in Yarmouth Township.

Cedar Leaf Miners, Argyresthia freyella Wlshm.
A. thuiella Pack.

Heavy infestations of these leaf miners developed on white cedar and red juniper in the district in 1968. Defoliation of white cedar was heavier than red cedar due to feeding by both species. Only A. freyella was found on red juniper. Infestation intensities were equally heavy on natural stands and ornamentals. However, damage to ornamentals and windbreaks was particularly conspicuous and resulted in many extension calls from public and private sources. In most cases these calls were received too late to undertake effective control measures in 1968.

Defoliation of white cedar ranged from severe in the eastern and central parts of the district to moderate to severe in the west. Infestations were heavy on red juniper in Norfolk and Haldimand counties, medium in Essex County and trace to light in the remainder of the district.

Spruce Budworm, Choristoneura fumiferana Clem.

Because balsam fir is a relatively rare tree species in the Lake Erie District all collections of spruce budworm were taken from white and Norway spruce. The numbers of larvae per collection increased slightly compared with 1967.

Light infestations were observed on scattered plantings of Norway spruce along the MacDonald-Cartier Freeway in Westminster Township. A very light infestation occurred in a small plantation of semi-mature white spruce in South Walsingham Township and small numbers of larvae were found on Norway spruce in Woodhouse and Adelaide townships.

Larch Casebearer, Coleophora laricella Hbn.

Quantitative and general sampling revealed an increase in numbers of this casebearer in 1968, particularly on tamarack in Bosanquet Township (Table 6).

A light to medium infestation occurred on tamarack at Kettle Point in Bosanquet Township. Light infestations were observed on European larch at the Turkey Point Nursery, at Five Corners in Charlotteville Township, in a young plantation along the MacDonald-Cartier Freeway in North Dorchester Township and in a semi-mature plantation in Yarmouth Township. Low population levels occurred on roadside plantings, ornamentals and plantations at scattered locations in the remainder of the district.

TABLE 6

Summary of Larch Casebearer Counts in the Lake Erie District from 1966 to 1968

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

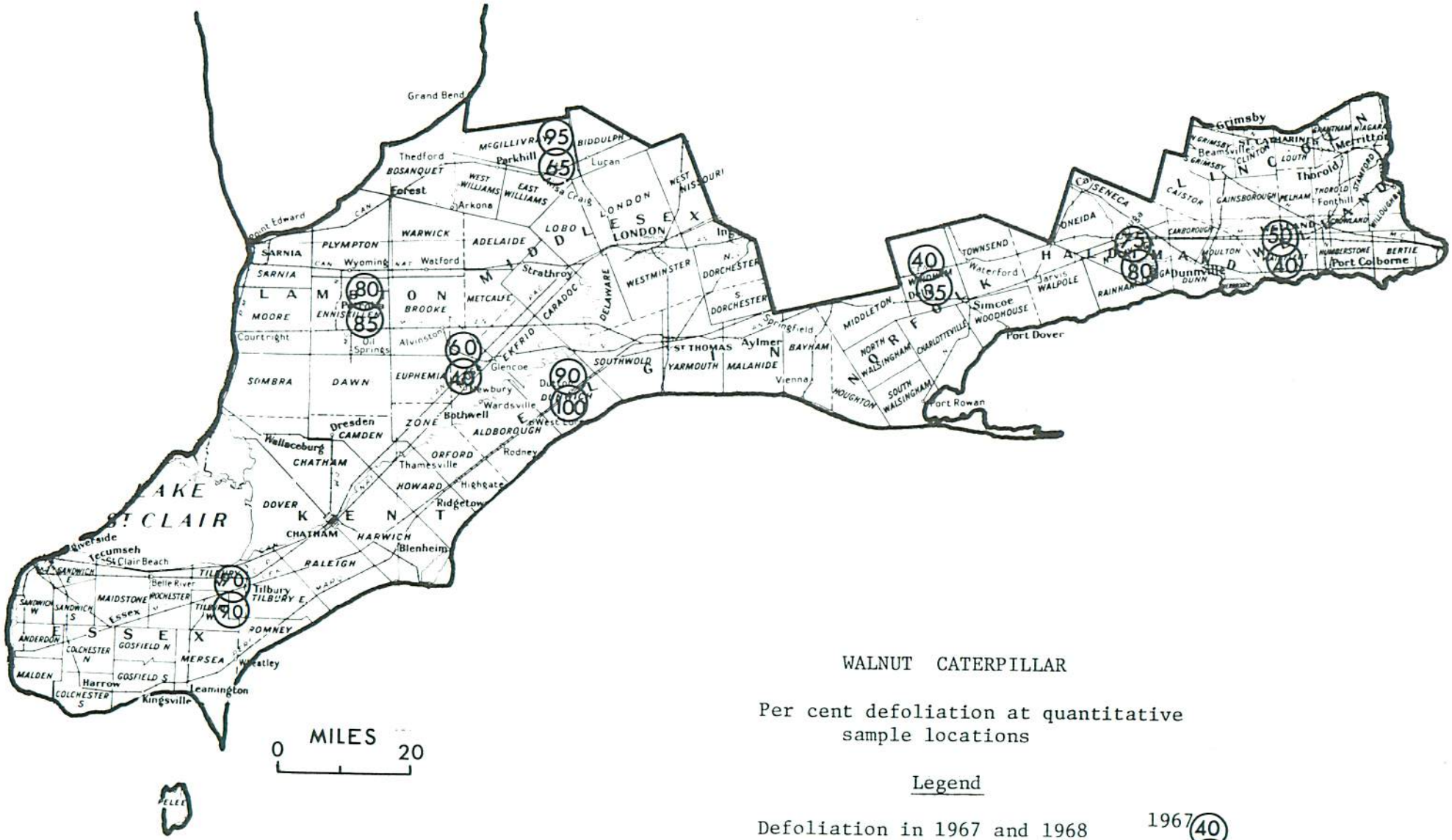
Location (township)	Host	Av. d.b.h. of sample trees in inches	Av. no. of larvae per 18-in. branch tip		
			1966	1967	1968
Bosanquet	tL	10	15.3	12.4	24.3
Charlotteville	eL	10	0.5	3.0	3.5
North Dorchester	eL	8	12.5	1.4	1.3
South Walsingham	eL	10	0.9	0.1	0.2
Yarmouth	eL	12	16.4	3.1	5.2

Walnut Caterpillar, Datana integerrima G. & R.

Severe defoliation of open-grown walnut and hickory trees recurred in the district in 1968 (see map). Black walnut was the favoured host, however, all species of hickory were attacked.

Severe defoliation of black walnut for two or more consecutive years has resulted in heavy twig and branch mortality in the townships of Dunwich, McGillivray, South Cayuga and North Tilbury and further mortality is expected if severe defoliation persists in 1969. Heavy infestations recurred on black walnut in South Walsingham, Charlotteville and Canborough townships. Tufts of foliage were produced on severely defoliated black walnut trees during the month of September at numerous locations in the district.

LAKE ERIE DISTRICT



WALNUT CATERPILLAR

Per cent defoliation at quantitative sample locations

Legend

Defoliation in 1967 and 1968

1967 (40)

1968 (35)

Defoliation of individual shagbark hickory ranged from 75 to 100 per cent in Charlotteville and Malahide townships. Medium to heavy infestations persisted on hickory in North Cayuga Township. Defoliation at sample locations from 1966 to 1968 is summarized in Table 7.

TABLE 7

Summary of Walnut Caterpillar Defoliation Estimates on Black Walnut in Lake Erie District in 1966, 1967 and 1968

Location (township)	Av. d.b.h. of sample trees in inches	No. of trees examined	Estimated per cent defoliation 1966	1967	1968
Dunwich	5	10	40	90	100
Enniskillen	5	10	10	10	85
McGillivray	5	20	20	95	65
Mosa	7	20	20	60	40
S. Cayuga	5	15	0	75	80
N. Tilbury	7	5	70	90	90
Wainfleet	6	15	25	50	40
Windham	5	10	1	40	35

Rusty Pine-cone Moth, Dioryctria disclusa Heinr.

Small numbers of this cone moth have been collected at scattered locations in the district in recent years. In 1968 light to heavy infestations occurred in red and Scots pine cones at many points in the district.

Heavy infestations occurred in red pine cones in South Walsingham, Charlotteville and Windham townships. Scots pine cones in the central and eastern parts of the district were heavily attacked, particularly in Middleton, Pelham and Wainfleet townships where more than 25 per cent of the cones at sample points were infested. Light to medium infestations were observed in Scots and red pine cones in McGillivray, Adelaide and Bosanquet townships.

Nursery Pine Sawfly, Diprion frutetorum Lec.

No significant change in numbers or distribution of this introduced sawfly occurred in the district in 1968. The status of the insect in the district is reflected in Table 8.

TABLE 8

Summary of Nursery Pine Sawfly Larval Counts in Lake Erie District in 1966, 1967 and 1968

Location (township)	Host	Av. d.b.h. of sample trees in inches	Total no. of insects per 15 tray sample 1966	1967	1968
Enniskillen	scP	5	8	0	4
Stamford	scP	5	3	0	3
Willoughby	scP	5	8	0	1
McGillivray	scP	5	-	-	3
Windham	scP	4	-	-	1
S. Walsingham	scP	6	-	-	4

European Spruce Sawfly, Diprion hercyniae (Htg.)

Population levels of the European spruce sawfly remained low in the district in 1968. Numbers declined at sampling points in Adelaide, South Walsingham, Woodhouse and Westminster townships. A light to medium infestation reported on open-grown Norway spruce in Westminster Township in 1967 subsided in 1968. The results of quantitative sampling for three years are shown in Table 9.

TABLE 9

Summary of European Spruce Sawfly Larval Counts in the Lake Erie District in 1966, 1967 and 1968

Location (township)	Host	Av. d.b.h. of sample trees in inches	Total no. of larvae per 15 tray sample 1966	1967	1968
Adelaide	wS	5	2	9	2
N. Cayuga	wS	5	6	7	11
S. Walsingham	wS	11	13	25	10
Woodhouse	nS	14	9	19	1
Westminster	nS	4	-	51	1
N. Dorchester	nS	3	-	-	6

Maple Trumpet Skeletonizer, Epinotia aceriella Clem.

Localized pockets of light to heavy infestation of this common pest of maple have been reported in the district in recent years. An increase in numbers in 1968 resulted in numerous extension calls from individuals concerned about ornamental trees. In Houghton Township several small stands of semi-mature red maple and numerous open-grown red and sugar maple suffered up to 75 per cent defoliation. Open-grown sugar maple in South Walsingham Township was heavily infested. Population levels remained low elsewhere in the district and damage was confined to maple understory.

Eastern Pine Shoot Borer, Eucosma gloriola Heinr.

Damage by this shoot borer was common in the district in 1968. White pine was the favourite host, however, Scots pine also supported small numbers of the insect at scattered locations in South Walsingham, Charlotteville, McGillivray and Willoughby townships.

A light infestation recurred on white pine in McGillivray Township and an increase was recorded in the number of leaders attacked compared with 1967 (Table 10). A light infestation on white pine in 1967 in Charlotteville Township virtually subsided in 1968. Small numbers were observed on white pine in Yarmouth Township and in a mixed Scots-white pine plantation in Willoughby Township.

TABLE 10

Summary of Damage to White Pine by the Eastern Pine Shoot Borer in the Lake Erie District in 1967 and 1968

Note: 100 trees examined at each location.

Location (township)	Av. tree height in feet	No. of infested shoots		No. of infested leaders	
		1967	1968	1967	1968
Aldborough	8	30	63	1	5
Charlotteville	10	60	9	2	1
McGillivray	8	350	137	12	17

Fall Webworm, Hyphantria cunea Dru.

This common pest of deciduous trees increased in numbers in the district in 1968. Host trees included trembling aspen, hickories, elm, basswood, mountain ash, wild apple, hawthorn, cherries and occasional black walnut.

Medium to heavy infestations occurred in Lambton and Essex counties. Numerous colonies were observed in Haldimand and Norfolk counties, particularly on roadside elm in Oneida and Seneca townships and on cherry and aspen in Charlotteville Township. Numbers were generally low in Lincoln and Welland counties except at one location in Pelham Township where cherry and hawthorn trees were heavily infested.

Heavy infestations reported on Pelee Island in 1966 have declined to light-to-medium intensity. Occasional nests of this webworm were found commonly in the remainder of the district.

A Leaf Miner on Witch Hazel, Lithocolletis hamameliella Busck

This insect was last recorded in the district in Norfolk County in 1965. Damage to witch hazel was found commonly in 1968.

A medium infestation was observed on witch hazel understory in Middleton Township. Light infestations occurred at numerous locations in South Walsingham, Seneca and Mersea townships. Occasional trees were lightly damaged at scattered locations in the remainder of the district.

Eastern Tent Caterpillar, Malacosoma americanum F.

Population levels of this insect increased to a greater extent in 1968 than quantitative data shows in Table 11. Host trees included cherry, apple and hawthorn. Infestations were usually confined to open-grown or roadside reproduction. Feeding by this insect was observed as early as April 16.

A heavy infestation occurred along Con. II of Willoughby Township where more than 200 tents were counted in one mile of roadside. High numbers persisted in Bosanquet, Zone and West Nissouri townships. A rise in population levels occurred in McGillivray, Moulton, South Walsingham and Woodhouse townships where numerous light and occasional heavy infestations were observed.

TABLE 11

Summary of Eastern Tent Caterpillar Counts in Lake Erie District in 1966, 1967 and 1968

Location (township)	Total number of colonies per mile of roadside 1966	1967	1968
Bosanquet	200	16	18
McGillivray	1	0	3
Moulton	2	0	3
S. Walsingham	1	2	4
W. Nissouri	6	9	15
Woodhouse	4	0	6
Zone	22	16	23
Willoughby	--	--	200 +

European Pine Sawfly, Neodiprion sertifer (Geoff.)

Population levels of this sawfly declined generally in the district in 1968 (Table 12). Larval mortality caused by a polyhedral virus was found in numerous Scots pine plantations in Mosa, South Walsingham, Charlotteville and Middleton townships.

Severe defoliation of red and Scots pine occurred in Willoughby and Middleton townships. A heavy infestation reported on red pine in the Backus Tract, South Walsingham Township in 1967 declined to medium intensity in 1968. Moderate defoliation occurred on individual Scots pine trees along the MacDonald-Cartier Freeway in North Dorchester and Westminster townships. A medium infestation was observed in a mixed plantation containing jack pine, Scots pine and red pine in Pelham Township. Medium infestations reported on semi-mature red pine in Woodhouse and McGillivray townships in 1967 declined to light intensity in 1968. Numerous light infestations occurred on Scots pine at scattered locations in Woodhouse, Thorold and Malden townships.

TABLE 12

Summary of European Pine Sawfly Colony Counts and Degrees of Infestation in the Lake Erie District in 1967 and 1968

Note: Twenty trees were examined at each location in 1967.
100 trees were examined at each location in 1968.

Location (township)	Host	Av. height in feet	Av. no. of colonies per tree		Degree of infestation	
			1967	1968	1967	1968
Adelaide	scP	9	7	0.1	M	L
Euphemia	scP	15	0.9	0.6	L	L
McGillivray	rP	7	8.0	2.4	H	L
Mosa	rP	7	2.0	0.2	L	L
Mosa	scP	15	—	0.5	-	L
S. Cayuga	scP	15	11.0	4.7	H	M
Willoughby	scP	15	15.6	7.8	H	H

Pitch Nodule Maker, Petrova albicapitana Busck.

An obvious increase in numbers of this insect occurred in the district in 1968. Severe damage was observed on open-grown jack pine in Houghton Township. A medium infestation was recorded on jack pine in a mixed plantation in Willoughby Township. Low numbers were observed on a 15-year-old jack pine plantation in Pelham Township. In Charlotteville Township three of 100 Scots pine trees averaging five feet in height were infested with a total of six nodules.

White-pine Weevil, Pissodes strobi Peck

A slight increase in numbers of the white pine weevil occurred in the district in 1968. Light infestations were observed in South Walsingham and McGillivray townships. Low numbers were common in the remainder of the district. The status of this insect in the district as a whole is reflected by data in Table 13.

TABLE 13

Summary of White-pine Weevil Damage on 100 White Pine Trees at Each Location in 1967 and 1968

Location (township)	Av. d.b.h. of sample trees in inches	Total number of leaders attacked 1967	1968
Charlotteville	4	0	7
S. Walsingham	5	0	6
S. Walsingham	4	7	18
McGillivray	4	-	12
Willoughby	3	-	4

Larch Sawfly, Pristiphora erichsonii Htg.

Larch sawfly population levels showed only minor changes in 1968. Sequential sampling revealed an increase of 8 and 11 per cent in the numbers of curled tips in Howard and South Walsingham townships respectively (Table 14).

Infestations increased from medium to heavy intensity on European larch in the Norfolk County Forest in South Walsingham Township and at Five Corners in Charlotteville Township. Medium to heavy infestations persisted on mature Japanese and European larch at the St. Williams Nursery. Severe defoliation of European larch was observed in a mixed larch-pine plantation in Yarmouth Township. A medium infestation persisted for the fourth consecutive year on European larch in the Reynold Tract in Howard Township. A light infestation occurred on European larch in North Dorchester Township. Low numbers were observed on tamarack in Bosanquet and Caradoc townships.

TABLE 14

Summary of Curled Shoot Counts and Degrees of Infestation of the Larch Sawfly in the Lake Erie District in 1966, 1967 and 1968

Location (township)	Host	Av. d.b.h. of sample trees in inches	Per cent of tips curled 1966	1967	1968	Degree of infestation 1966	1967	1968
Howard	eL	10	22	20	28	M	M	M
S. Walsingham	eL	10	28	15	26	M	M	M

Cottony Maple Scale, Pulvinaria innumerabilis Rath.

A severe infestation of the cottony maple scale on silver maple in South Colchester and Malden townships and in the city of Windsor gave the trees an unsightly appearance and caused a copious flow of honey-dew. As a result, numerous calls were received from residents of these areas concerning control measures.

Localized infestations persisted in the Windsor area for the second consecutive year. Severe infestations recurred at Bellecraft Beach in spite of control measures carried out in 1967. However, at Holiday Beach Provincial Park a slight decline in numbers occurred in 1968. High populations of a Coccinellid predator, Hyperaspis sp., occurred at Holiday Beach Park and at most locations examined in the city of Windsor. Natural control factors may limit infestations at these locations in 1969. Silver maple was the favourite host but some red maple trees were also infested.

European Pine Shoot Moth, Rhyacionia buoliana Schiff.

This introduced shoot borer was found on open-grown, roadside and ornamental Scots and red pine and on unpruned plantings at several locations in the district in 1968. A medium infestation occurred on red pine in Woodhouse Township. Light infestations were recorded on Scots pine in North Cayuga, Willoughby and Adelaide townships and on red pine in Willoughby Township. Quantitative data contained in Table 15 is indicative of the status of the insect in the district in 1968.

TABIE 15

Summary of European Pine Shoot Moth in the Lake Erie District in 1968

Location (township)	Host	Total no. of infested shoots in 100 bud clusters 1968
Euphemia	scP	3
N. Cayuga	scP	7
Willoughby	scP	15
Willoughby	rP	7
Woodhouse	rP	23
Mosa	rP	1
Adelaide	scP	12

TABLE 16

Summary of Miscellaneous Insects Collected

Insect	Host(s)	Remarks
Acrobasis stigmella Dyar	sHi	Shoot borers, low numbers Brooke Twp.
Acronicta americana Harr.	Ba	Trace, South Walsingham Twp.
Acronicta interrupta Gn.	Haw	Small numbers Woodhouse Twp.
Acronicta ovata Grt.	rO	Trace Bosanquet Twp.
Adelges abietis Linn.	nS	Heavy Woodhouse, N. Dorchester twps.
Alsophila pometaria Harr.	Ba	Low numbers Bosanquet Twp.
Amphipyra pyramidoides Gn.	rO, Ba	Low numbers Bosanquet, Brooke twps.
Anacamptodes vellivolata Hlst.	wP	Trace Bosanquet Twp.
Anchylopera burgessiana Zell.	wO, rO, bCh	Medium infestations S. Walsingham, Bosanquet twps.
Anchylopera nebeculana Clem.	bCh	Trace S. Walsingham Twp.
Antispila nyssaefoliella Clem.	Black gum	Medium infestation one tree Charlotteville Twp.
Argyresthia oreasella Clem.	ecCh	Common in district
Argyrotaenia pinatubana Kft.	wP	Small numbers Bosanquet, Yarmouth twps.
Antheraea polyphemus Cram.	Haw	Trace Woodhouse Twp.
Biston cognataria Gn.	Juneberry	Low numbers Charlotteville Twp.
Bomolocha abalienalis Wlk.	E	Trace Woodhouse Twp.
Brachys aerosus Melsh.	rO	Trace Charlotteville Twp.
Bucculatrix ainsliella Murt.	wB	Low numbers S. Walsingham, Middleton twps.
Bucculatrix canadensisella Cham.	rO	Trace N. Cayuga, Middleton twps.

TABLE 16 (continued)

Insect	Host(s)	Remarks
Caripeta piniata Pack.	wP	Low numbers S. Walsingham Twp.
Catocala blandula Hlst.	Haw	Low numbers Woodhouse Twp.
Cecidomyia reeksi Vock.	jP	Light infestation S. Walsingham Twp.
Cenopis pettitana Rob.	Ba	Low numbers Brooke Twp.
Chionaspis furfura Fitch	bPo	Heavy on three small trees Charlotteville Twp.
Choristoneura rosaceana Harr.	Ba	Low numbers Brooke Twp.
Cinara pinea Mord.	scP	Heavy in one plantation Pelham Twp.
Coleophora pruniella Clem.	ecCh	Common in district
Datana ministra Dru.	Ba, E, Haw	Light-medium S. Walsingham, Woodhouse twps.
Diapheromera femorata Say	wP, scP	Found more commonly in 1968
Dichomeris ligulella Hbn.	rO	Common Charlotteville, S. Walsingham twps.
Dioryctria abietivorella Grt.	scP	Light N. Walsingham Twp.
Dioryctria reniculella Grt.	nS, wS	Small numbers Adelaide, S. Walsingham twps.
Diprion similis Htg.	rP	Trace S. Walsingham Twp.
Ectropis crepuscularia Schiff.	lA	Small numbers S. Walsingham Twp.
Elaphria versicolor Grt.	nS, wS	Light infestation S. Walsingham Twp.
Ennomos subsigmarius Hbn.	rO	Trace S. Walsingham, Middleton twps.
Epicnaptera americana Harr.	Haw	Trace Woodhouse Twp.
Epinotia timidella Clem.	wO	Medium infestation S. Walsingham, Middleton twps.

TABLE 16 (continued)

Insect	Host(s)	Remarks
Erannis tiliaria Harr.	wO	Low numbers Woodhouse Twp.
Eufidonia notataria Wlk.	wP	Low numbers McGillivray Twp.
Eupithecia filmata Pears.	wS	Low numbers S. Walsingham Twp.
Eupithecia palpata Pack.	wP	Light Aldborough, McGillivray twps.
Eupithecia transcanadata Mack.	wS	Light Adelaide Twp.
Euxoa messoria Harr.	siM	Heavy defoliation silver maple seed bed second year in St. Williams Nursery
Exoteleia dodecella Linn.	scP	Low numbers Caradoc, S. Walsingham twps.
Exoteleia nepheos Free.	scP	Trace Woodhouse Twp.
Gluphisia septentrionalis Wlk.	tA	Low numbers Charlotteville Twp.
Halisidota caryae Harr.	I, Wi, mM	Common in district
Halisidota tessellaris J.E. Smith	Haw, Hackberry	Light Malden, Woodhouse twps.
Heterocampa guttivitta Wlk.	E	Trace Woodhouse Twp.
Hyalophora cecropia Linn.	rAsh	Trace N. Cayuga Twp.
Hyperaspis binotata Say	rM	Predator of Cottony Maple Scale, Malden Twp.
Ips grandicollis Eich.	rP	Heavy one tree S. Walsingham Twp.
Lapara bombycoides Wlk.	wP	Trace Bosanquet Twp.
Lepidosaphes ulmi Linn.	tA	Light Dunwich Twp.
Lithocolletis aceriella Clem.	rM	Common in district
Lithocolletis celistella Cham.	Hackberry	Trace Malden Twp.
Lithocolletis hamadryadella Clem.	wO	Heavy lower crown mature trees, city of London

TABLE 16 (continued)

Insect	Host(s)	Remarks
Lithocolletis ostryarella Cham.	I	Low numbers Seneca Twp.
Lithocolletis salicifoliella Cham.	tA	Low numbers in district
Neurotoma fasciata Nort.	ecCh	Medium attack one tree Woodhouse Twp.
Nymphalis antiopa L.	E, W	Occasional tree defoliated Walpole, S. Walsingham twps.
Orthosia hibisci Gn.	rO	Trace Bosanquet Twp.
Orthosia revicta Morr.	Haw	Trace Woodhouse Twp.
Panthea furcilla Pack.	rP	Trace Dunwich Twp.
Pheosia rimosa Pack.	lA	Trace S. Walsingham Twp.
Physokermes piceae Schr.	wS	Light infestation St. Williams Nursery
Pikonema alaskensis Roh.	nS	Low numbers S. Walsingham, Woodhouse twps.
Pityogenes hopkinsi Sw.	wP	One tree attacked Charlotteville Twp.
Pristiphora geniculata Htg.	Mo	Highway stock infested St. Williams Nursery
Pseudexentera cressoniana Clem.	rO	Trace Bosanquet Twp.
Pulicalvaria piceaella Kft.	nS	Low numbers Adelaide. Decline in numbers in N. Dorchester
Schizura leptinoides Grt.	Wi	Trace S. Walsingham Twp.
Semiothisa bisignata Wlk.	wP	Common in district
Semiothisa dispuncta Wlk.	wS	Trace S. Walsingham, Adelaide twps.
Semiothisa mimorata Pack.	wP	Trace Aldborough Twp.

TABLE 16 (concluded)

Insect	Host (s)	Remarks
Sinea diadema F.	wS	Common on beating samples
Sphinx chersis Hbn.	rAsh	Trace N. Cayuga Twp.
Spilonota lariciana Heinr.	eL	Common in district
Tremex columba Linn.	wP	Adult on recent fire-killed tree
Zale sp. prob. lineosa (Wlk.)	mM	Usually rare, severe defoliation of Manitoba maple in St. Williams Nursery woodlot
Zale minerea norda Sm.	lA	Trace S. Walsingham Twp.