Lake Erie District, 1969
Reports of Forest Research Technicians

Atkinson, G.T.

Information Report O-X-119
(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

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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 ERIE DISTRICT

1969

INTRODUCTION

(Continued)

LAKE ERIE DISTRICT

1969

INTRODUCTION

A new concept in reporting insect and disease surveys has been implemented this year. In the past, problems common to all districts in the region were reported regionally. This report deals only with district forest problems based on surveys carried out by the Lake Erie District technician.

Cottony maple scale continued to cause concern to property owners and authorities in South Colchester Township and the city of Windsor. A coccinelid predator was abundant at both of these locations and it is expected that this natural control factor will contribute to a decline in numbers of the scale. The European pine sawfly was a widespread and serious pest of pines in the district, but a polyhedral virus was present at numerous scattered locations. The walnut caterpillar was responsible for severe defoliation of black walnut and butternut for at least the third consecutive year and some twig and branch mortality resulted at several locations.

Dutch elm disease continued to be the most conspicuous forest problem in the district. The western part is almost devoid of mature elm, and the progression of the disease is rapidly decimating elm in the remainder of the district. An extension in the distribution boundary of annosus root-rot was determined by a collection from Scots pine in Howard Township. Oak in the city of Sarnia was reported to be showing signs of wilt in late summer. A survey of the areas involved revealed browning and wilting of foliage, a trace of dieback and occasional tree mortality. However, samples submitted to the Disease Survey in Sault Ste. Marie did not contain evidence of the oak wilt disease. It was concluded that the condition of oak in the city is probably due to low water tables caused by extensive road and sewer construction, etc., and in some cases to direct mechanical injury during excavation. Deterioration of maple continued along most well-travelled roads in the district.

Extension work involving Department of Lands and Forests personnel, plantation owners, city and parks authorities and others continued to be an important part of the technician's field duties.

I wish to take this opportunity to express appreciation for the continued co-operation and assistance extended by Department of Lands and Forests personnel in 1969.

G. T. Atkinson

Eastern Spruce Gall Aphid, Adelges abietis Linn.

An increase in numbers of this gall aphid occurred throughout the district in 1969. Heavy attacks recurred on Norway and Colorado spruce in Woodhouse and North Dorchester townships. Medium infestations were reported on Norway spruce in Lambeth and Middlesex counties. Occasional light to medium infestations were observed on Norway spruce in Lincoln and Welland counties. Ornamentals were heavily attacked in many parts of the district resulting in numerous extension calls from the public, usually too late to provide an effective control.

Pine Spittle Bug, Aphrophora parallela (Say)

An increase in numbers of the pine spittle bug on white, Scots, red, and jack pine occurred throughout the district in 1969.

Heavy infestations recurred on white pine at the St. Williams' Nursery for the third consecutive year and increased from medium to heavy infestation on Scots pine trees. Heavy infestations were reported on Scots pine in Mosa, Charlotteville, and Euphemia townships and an increase from medium to heavy occurred on Scots pine in a small plantation in Woodhouse Township. Heavy infestations were recorded on white pine in North Cayuga and Townsend townships and an increase from light to heavy occurred on white pine at the Turkey Point Nursery in Charlotteville Township.

A Cedar Leaf Miner, Argyresthia thuiella Pack.

A decline in numbers of this leaf miner was general in the district in 1969. However, damage to white cedar was conspicuous enough to result in many extension calls from the general public.

Light to moderate infestations occurred on white cedar windbreaks in the St. Williams' Nursery and in scattered woodlots and natural stands in Charlotteville, South Walsingham, and Bosanquet townships. Medium to heavy infestations recorded on red cedar in Essex, Norfolk, and Haldimand counties in 1968 declined to trace in 1969. Medium to heavy attacks recurred on white cedar ornamentals and hedges at numerous locations in the district.

Larch Casebearer, Coleophora laricella Hbn.

An increase in numbers of the larch casebearer on tamarack larch occurred for the second consecutive year at Kettle Point in Bosanquet Township. However, numbers decreased on European larch elsewhere in the district (Table 1).

TABLE 1

Summary of Larch Casebearer Counts in the Lake Erie 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
Bosanquet	tL	10	12.4	24.3	38.6
Charlotteville	eL	10	3.0	3.5	2.3
N. Dorchester	eL	8	1.4	1.3	1.0
S. Walsingham	eL	10	0.1	0.2	0.0
Yarmouth	eL	12	3.1	5.2	3.2

Walnut Caterpillar, Datana integerrima G. & R.

Heavy infestations of the walnut caterpillar have persisted throughout the district for three consecutive years. Black walnut and butternut were the preferred hosts, however, occasional hickories were severely defoliated. Severe twig and moderate branch mortality resulted from three or more years of heavy defoliation at many locations (Table 2). An interesting phenomenon of this insect is the apparent preference for individual trees in a roadside stand.

TABLE 2

Summary of Walnut Caterpillar Defoliation Estimates on Black Walnut in Lake Erie District in 1967, 1968 and 1969

Location (township)	Av. d.b.h. of sample trees in inches	No. of trees examined	Estimated per cent defoliation		
			1967	1968	1969
Dunwich	5	10	90	100	80
Enniskillen	5	10	10	85	80
McGillivray	5	20	95	65	70
Mosa	7	20	60	40	50
S. Cayuga	5	15	75	80	80
N. Tilbury	7	5	90	90	80
Wainfleet	6	15	50	40	60
Windham	5	10	40	35	50
Walpole	5	10	--	90	90

Rusty Pine-cone Moth, Dioryctria disclusa Heinr.

High populations of this cone moth occurred at numerous locations in the district for the second consecutive year. Many cones were seriously injured by mid-July following extensive feeding.

Heavy infestations recurred on red pine in Windham, South Walsingham, and Charlotteville townships. Jack pine cones were heavily attacked in South Walsingham and Charlotteville townships. A light infestation reported on Scots pine in McGillivray Township in 1968 increased to heavy in 1969 and more than 25 per cent of the cones were attacked. Scots pine supported a light to medium infestation in Willoughby Township. The most significant change in the status of this insect occurred in Middleton, Pelham and Wainfleet townships where 25 per cent, or more, of the cones were infested in 1968 and only small numbers were found in 1969.

Needle Miners on Spruce, Epinotia nanana Treit.
Pulicalvaria piceaella Kft.

Population levels of these spruce needle miners varied throughout the district in 1969. In addition to attacks in woodlots and plantations there were numerous attacks on open-grown and ornamental spruces.

Light to moderate infestations of both species occurred on Norway spruce in South Walsingham, North Dorchester, and Westminster townships. Light infestations of E. nanana were observed on Norway spruce in Bosanquet and McGillivray townships. A light infestation of P. piceaella was recorded on white spruce in a small mixed plantation in North Dorchester Township.

Eastern Pine Shoot Borer, Eucosma gloriola Heinr.

A slight increase in the population levels of this shoot borer was observed in the district in 1969 although there was a decrease in numbers on white pine at quantitative sampling stations in Aldborough and McGillivray townships.

Light infestations occurred in mixed plantations in McGillivray, Willoughby, and Charlotteville townships. Scots pine was the preferred host as indicated in Table 3.

TABLE 3

Summary of Damage by the Eastern Pine Shoot Borer in the Lake Erie District in 1968 and 1969

Location (township)	Host	No. of infested shoots 1968	No. of infested shoots 1969	No. of infested leaders 1968	No. of infested leaders 1969
Aldborough	wP	63	12	5	2
Charlotteville	wP	9	12	1	0
"	ScP	-	78	-	3
"	rP	-	22	-	0
McGillivray	wP	137	64	17	1
"	ScP	-	147	-	4
"	rP	-	12	-	0

Hickory Tussock Moth, Halisidota caryae Harr.

A marked increase in population levels of the hickory tussock moth was evident in 1969. Butternut was 90 to 100 per cent defoliated at scattered locations in South Walsingham and Charlotteville townships. Light infestations were observed on walnut, white birch, European black alder, white oak, shagbark hickory, and maples at numerous locations in the district.

Fall Webworm, Hyphantria cunea Dru.

This common pest of deciduous trees increased in numbers for the second consecutive year. Host trees included swamp white oak, hickories, cherries, wild apple, dogwood, elm, basswood, trembling aspen, and hawthorns.

Heavy infestations recurred throughout Lambton and Essex counties. Infestation levels increased to heavy in Norfolk and Haldimand counties. High numbers of tents were observed in Warwick, Townsend, McGillivray, Gainsborough, and Welland townships. Light to medium infestations recurred on Pelee Island.

Eastern Tent Caterpillar, Malacosoma americanum F.

Population levels of this insect rose sharply in 1969 for the second consecutive year (Table 4). Severe defoliation occurred on several species of deciduous trees in Willoughby Township.

TABLE 4

Summary of Eastern Tent Caterpillar Counts on Various Deciduous Tree Species in Lake Erie District in 1967, 1968, and 1969

Location (township)	Total number of colonies per mile of roadside		
	1967	1968	1969
Bosanquet	16	18	100+
Woodhouse	2	4	8
Willoughby	-	200+	200+
Dunwich	-	-	100+
Stamford	-	-	100+
Mosa	-	-	39

European Pine Sawfly, Neodiprion sertifer Geoff.

An increase in numbers of the European pine sawfly on all host species was evident in the district in 1969 (Table 5). A polyhedral virus recurred in numerous Scots pine plantations in Mosa, Euphemia, Charlotteville, South Walsingham, North Cayuga and Middleton townships.

Severe defoliation of Scots and red pine occurred in Willoughby Township for the second consecutive year. Medium to heavy defoliation of Scots pine was observed in Bayham, North Cayuga, Mosa and Howard townships. Medium defoliation recurred on individual Scots and red pine trees along the MacDonald-Cartier Freeway in Westminster and North Dorchester townships. Light infestations reported on red pine in Woodhouse and McGillivray townships in 1968 increased to medium intensity in 1969. Medium infestations were reported on mugho pine windbreaks in Adelaide and Ekfrid townships.

TABLE 5

Summary of European Pine Sawfly Counts and Degrees of Infestation in the Lake Erie District in 1968 and 1969

Note: 100 trees were examined at each location.

Location (township)	Host	Av. height in feet	Av. no. of colonies per tree		Degree infestation	
			1968	1969	1968	1969
Adelaide	ScP	9	0.1	5.9	L	M
Euphemia	ScP	15	0.6	3.9	L	M
McGillivray	rP	7	2.4	5.7	L	M
Mosa	rP	7	0.2	1.2	L	L
N. Cayuga	ScP	15	4.7	6.4	M	M
Willoughby	ScP	15	7.8	7.5	H	H

White-pine Weevil, Pissodes strobi Peck

Little change in the status of this insect occurred in the district in 1969. However, the number of infested leaders increased sharply at three of five quantitative sampling stations examined (Table 6).

TABLE 6

Summary of White-pine Weevil Damage on 100 White Pine Trees at each Location in 1968 and 1969

Location (township)	Av. d.b.h. of sample trees in inches	Total no. of leaders attacked 1968	1969
Charlotteville	4	7	7
S. Walsingham	5	6	12
S. Walsingham	4	18	16
McGillivray	4	12	23
Willoughby	3	4	13

Larch Sawfly, Pristiphora erichsonii Htg.

Populations of the larch sawfly increased and defoliation was more severe in the district in 1969. Light larval mortality was observed at several locations and a spore-forming bacteria was isolated from a diseased larval collection from South Walsingham Township.

Heavy infestations recurred on European larch at Five Corners in Charlotteville Township in the Norfolk County Forest in South Walsingham and at scattered locations in Yarmouth Township. A medium infestation was recorded for the fifth consecutive year on European larch in the Reynold Tract in Howard Township. Light to medium attacks recurred on European and Japanese larch at the St. Williams' Nursery. Light infestations were observed on European larch in Middleton and North Dorchester townships and on tamarack larch at Kettle Point in Bosanquet Township and in Caradoc Township.

Cottony Maple Scale, Pulvinaria innumerabilis Rath.

Fluctuations in population levels of this scale insect occurred in the district in 1969. Hosts included ornamental or open grown silver, Manitoba, and red maple, and white elm.

A heavy infestation occurred on silver maple in a ten-block area in the city of Windsor including Francois, Olive and Norman streets, Belle Isle View Rd., and Fairview Blvd. A light infestation recurred at Bellecraft Beach. Trace infestations were reported from the Wallaceburg area. A light infestation reported in the Holiday Beach Park in 1968 subsided in 1969. Trace twig and branch mortality occurred at Bellecraft Beach but was negligible in all other areas.

Large numbers of a coccinelid predator Hyperaspis binotata Say, were observed at Bellecraft Beach and smaller numbers occurred in the infestation in the city of Windsor. It is expected that this predator will cause a decline in population levels of the cottony maple scale in these areas in 1970.

European Pine Shoot Moth, Rhyacionia buoliana Schiff.

This introduced shoot moth occurred in 1969 in small numbers at more widely scattered locations than in past years. However, new light to medium infestations developed on Scots and mugho pine in Ekfrid Township and on Scots pine in South Walsingham Township. Quantitative data from eight sampling stations are summarized in Table 7. Numerous dead larvae were observed at widely scattered locations in the district but no disease was isolated from specimens submitted to the Insect Pathology Research Institute in Sault Ste. Marie. The mortality could be the result of late spring frosts experienced throughout the district in 1969.

TABLE 7

Summary of Damage by the European Pine Shoot Moth in the Lake Erie District in 1968 and 1969

Location (township)	Host	Total no. of infested shoots in 100 bud clusters	
		1968	1969
Euphemia	ScP	3	3
N. Cayuga	ScP	7	3
Willoughby	ScP	15	4
Woodhouse	rP	23	1
Adelaide	ScP	12	2
Ekfrid	ScP	--	12
Ekfrid	mP	--	27
S. Walsingham	ScP	--	19

TABLE 8

Other Noteworthy Insects

Insect	Host(s)	Remarks
Acrobasis caryae Grote	bHi, gAs	Ash is rare host
Agonopterix costimacula Clke.	Hop tree	Medium defoliation, Point Pelee
Altica ambiens alni Harr.	Do	Medium infestation, S. Walsingham
Altica corni Woods	Do	Medium infestation Middleton Twp., common in district
Amphibolips inanis O.S.	rO	Medium infestation, Canborough Twp.
Chionaspis furfura Fitch	bPo	Light twig and branch mortality Charlotteville Township
Cincticornia pilulae Walsh	O	Heavy, Charlotteville Twp.
Corythucha arcuata (Say)	wO	Heavy, Rondeau Park
Corythucha cydoniae Fitch	Haw	Medium infestation, Willoughby Twp.
Epinotia aceriella Clem.	siM	Heavy, Middleton and Houghton twps.
Epinotia lindana Fern.	Do	High in Bachus Tract, S. Walsingham Twp.
Hormaphis hamamelidis (Fitch)	Wi	Medium infestation, Charlotteville
Lepidosaphes ulmi (Linn.)	tA, lA	Light twig and branch mortality S. Walsingham, Townsend twps.

TABLE 8 (continued)

Insect	Host(s)	Remarks
Neodiprion nanulus nanulus Schedl	jP	First collection in district in approximately 15 years. Low numbers S. Walsingham Twp.
Oligonychus ununguis Jac.	ScP, nS, cS	Medium to heavy infestations S. Walsingham, Charlotteville, Adelaide twps.
Phenacaspis pinifoliae (Fitch)	rP, jP	Medium infestation, Charlotteville, S. Walsingham twps.
Phratora purpurea purpurea Brown	tA	Moderate defoliation, St. Williams' Nursery
Phytagromyza populicola (Wlk.)	lA	Miner, rare
Plagiodera versicolora Laich.	W	High numbers, severe damage Niagara Falls Park
Psilocorsis faginella Cham.	Be	Medium infestation, Middleton Twp.
Sparganothis directana Wlk.	ecCh	Moderate defoliation, Charlotteville, S. Walsingham twps.

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

This disease continued to be a serious and highly publicized forest tree problem in the district. An increase in mortality was observed in the Norfolk - Haldimand area in 1969 (Table 9).

TABLE 9

Summary of Dutch Elm Disease Surveys Carried out at Eleven Locations in the Lake Erie District in 1969

Location (township)	Total number of trees		
	Healthy	Diseased	Dead
Warwich	2	14	13
Adelaide	0	6	21
Walpole	0	7	93
N. Cayuga	0	20	80
Oneida	2	28	22
Seneca	16	33	12
Canborough	16	12	5
Gainsborough	34	30	13
Thorold	17	10	25
E. Williams	0	9	6
McGillivray	4	12	13

Eutypella Canker of Maple, Eutypella parasitica Davidson & Lorenz

The overall incidence of this organism was low in the district. An evaluation carried out on a five acre stand of pole-size sugar maple in McGillivray Township showed incidence of 0.02 per cent. Surveys revealed cankers on eight per cent of 50 sugar maple in Walpole Township. Negative results were obtained in Brooke and Euphemia townships.

Annosus Root Rot, Fomes annosus (Fr.) Karst.

Little change in the status of this disease occurred in the old infection centers in South Walsingham and Charlotteville townships. Trace to light infections were recorded in stands of red, white, jack, and Scots pine in these townships.

An extension of the known boundary of infection was determined in 1969 by a collection from Scots pine in the Reynold Tract in Howard Township. This is approximately 100 miles west of the known 1968 infections. A right of way cut by Ontario Hydro was the site of the new infection.

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

Light infection levels of this leaf and twig blight of poplar were found commonly in the district in 1969. The organism occurred on trembling aspen in South Walsingham, Townsend, Middleton and Charlotteville townships and on largetooth aspen in South Walsingham Township.

Anthracnose of Sugar Maple

Symptoms of anthracnose were evident in the foliage of sugar maple in mid-July. Leaves turned partially brown and many dropped prematurely. Usually only one or two trees in a group or row were affected. Foliage that remained on the tree presented a striking but unsightly contrast to the healthy foliage, causing concern to property owners. The condition was recorded at numerous scattered locations in Middlesex, Elgin, Norfolk, Haldimand, and Lincoln counties.

Ice Damage

Severe ice damage occurred for the second consecutive year in the Lake Erie District. The geographical area extended through the south-east and south-central parts of the district (see map). The damage to maples, birches, willows, aspen, and cherries was more severe in 1969 than in the previous year. Scots pine was severely damaged in several small plantations in Norfolk County. However, other species of pine and the spruces suffered relatively light damage in 1969.

Frost Damage

Frost damage to sumach, dogwood, hickory, serviceberry, and ash was observed in Norfolk, Haldimand, Elgin, and Lambton counties. Small trees and shrubs were damaged throughout the crown whereas larger trees showed a distinctive frost line. Light damage to spruce was observed at numerous locations in the district. However, severe mortality of new spruce shoots occurred in North Dorchester Township.

Rodent Damage

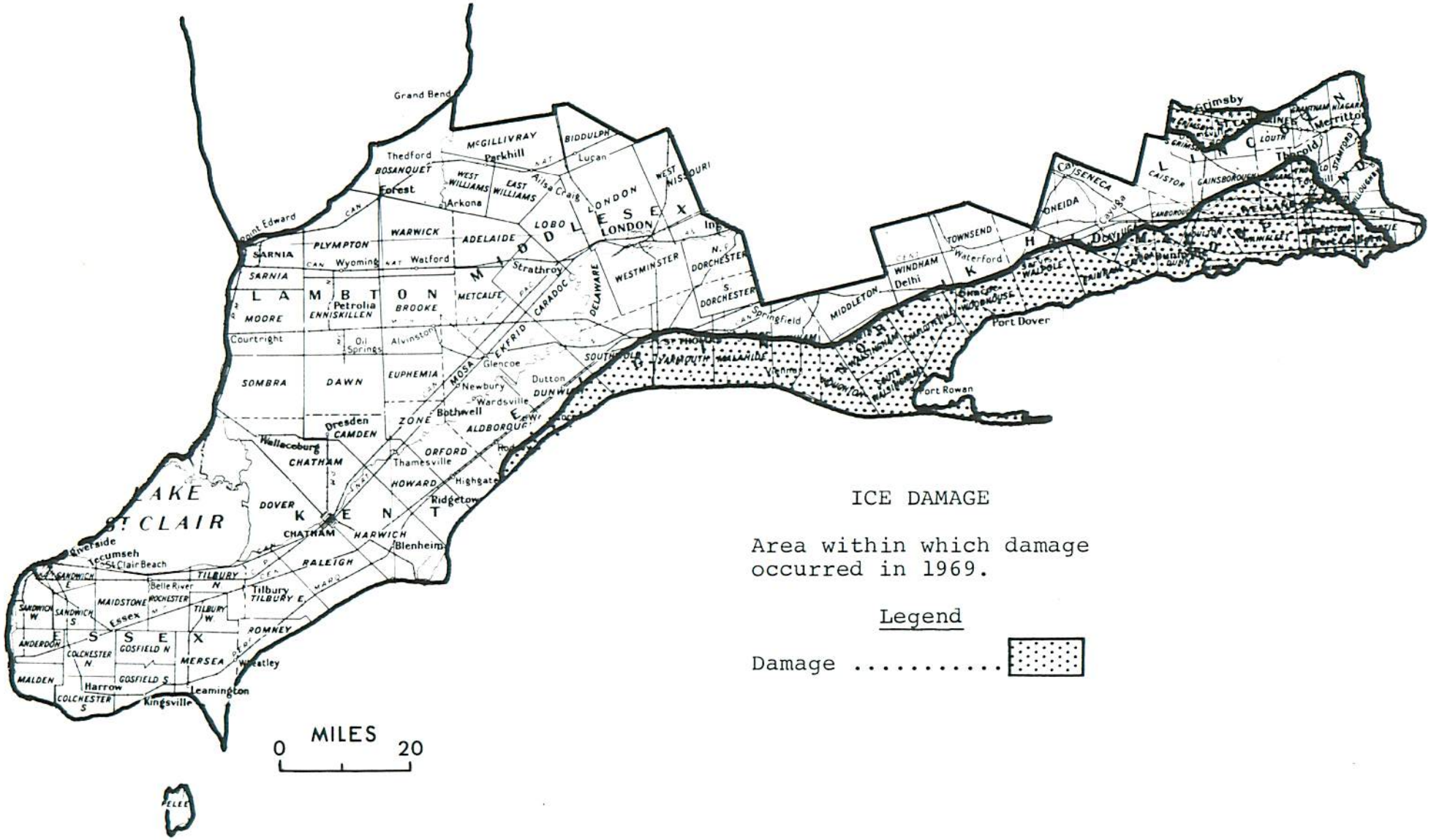
Mortality resulting from rodent girdling was common in the district in 1969. An estimated five per cent damage occurred to sugar maple regeneration at many locations in the district. A summary of damage to Scots and white pine is contained in Table 10.

TABLE 10

Estimate of Rodent Damage in the Lake Erie District in 1969

Location (township)	Host	Acres affected	Av. height in feet	Estimated per cent mortality
S. Walsingham	wP	2	1	5
Westminster	wP	25	2	75
Willoughby	ScP	15	6	3
Woodhouse	wP	1	7	2
Dunwich	wP	1	3	75
McGillivray	ScP	1	5	2

LAKE ERIE DISTRICT



ICE DAMAGE

Area within which damage occurred in 1969.

Legend

Damage .....

Deterioration of Roadside Maple

Deterioration of maple was common along all well travelled roads in the district in 1969. A relative assessment of damage and mortality is not practical due to the practice of removing dead and decadent trees each year. However, the condition can be described as being in a state of general progression.

TABLE 11

Other Noteworthy Diseases

Organism	Host(s)	Remarks
Coleosporium asterum (Diet.) Syd.	rP	Heavy on small trees and lower branches of larger trees
Cronartium quercuum (Berk.) Miyabe ex Shirai	ScP	Trace infections, S. Walsingham and Charlotteville townships
Cronartium ribicola J.C. Fischer	wP	No current mortality, trace Rondeau Park, S. Walsingham Twp.
Cytospora abietis Sacc.	Douglas fir	Trace, two trees, S. Walsingham
Cytospora kunzei Sacc.	cS, mS	Common in windbreaks at St. Williams' Nursery
Hypoxylon mammatum (Wahl.) Miller	tA	No change in status, trace infection throughout district
Polyporus tomentosus Fr.	nS	No change in status, trace Charlotteville Township