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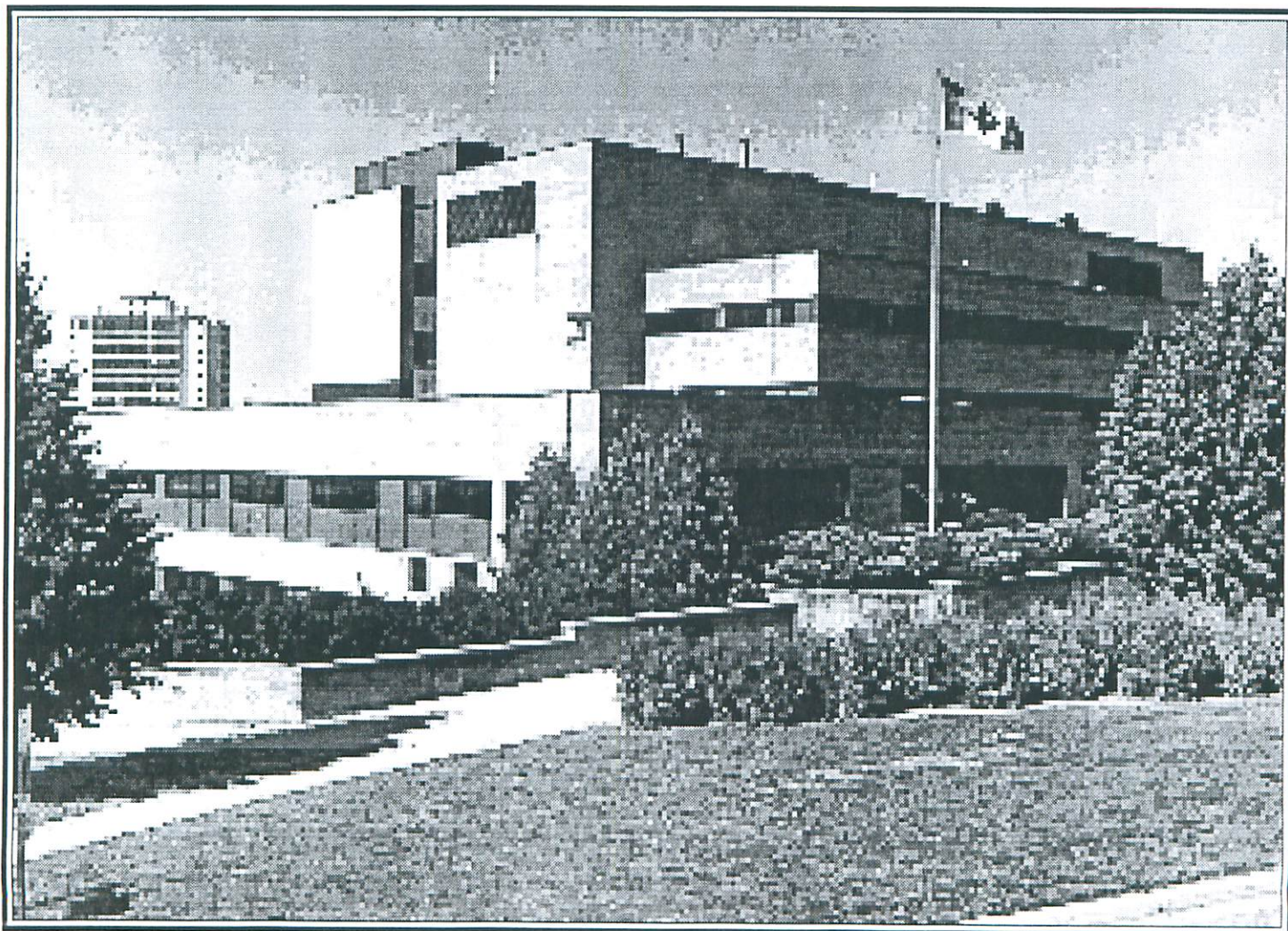
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# FILE REPORT

## AUTHOR FILE

# A Review of Important Forest Insect and Disease Problems in the Cornwall District of Ontario, 1950 – 1980



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A REVIEW OF IMPORTANT FOREST  
INSECT AND DISEASE PROBLEMS  
IN THE CORNWALL DISTRICT  
OF ONTARIO, 1950 - 1980

Compiled by

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FORESTRY CANADA  
ONTARIO REGION  
GOVERNMENT OF CANADA

1988

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## FOREWORD

The first forest insect surveys in Ontario were carried out in 1936 from the Dominion Entomological Laboratory in Ottawa and continued from this location until 1944, when the province of Ontario was divided, for the purpose of these surveys, into northern and southern Ontario. In 1945, personnel from Ottawa continued to conduct and report on surveys in the area south of Algonquin Park and Parry sound forest districts, while personnel from the Forest Insect Laboratory in Sault Ste. Marie carried out surveys in the area to the north. In 1950 responsibility for reporting insects for all of Ontario fell to the Sault Ste. Marie laboratory. In 1952 the Forest Disease Survey was initiated with headquarters in Maple, Ontario, then was moved to Sault Ste. Marie in 1967. The results of these surveys of insects and diseases are reported in the Annual Report of the Forest Insect and Disease Survey (FIDS) published by Forestry Canada headquarters in Ottawa. In addition, annual district and regional reports, begun in 1948, are prepared by FIDS technicians (Rangers) in Sault Ste. Marie. In 1980 a new provincial report was released in Ontario. The contents of the following review have been abstracted from these reports and compiled in alphabetical order by the scientific names of species in each of the following three categories:

*Major Insects or Diseases*

Capable of causing serious injury to or death of living trees or shrubs.

*Minor Insects or Diseases*

Capable of causing sporadic or localized injury but not usually a serious threat to living trees or shrubs.

*Abiotic Damage*

Damage caused by non-living factors.

All measurements in this review are in metric form and conversions from Imperial measurements from the earliest reports are taken to the second decimal point, i.e., [sq. mi. to km<sup>2</sup> = area (sq. mi.) x 2.59 = area km<sup>2</sup>]. Infestation maps in this review were copied from the original maps in the FIDS technicians' reports. Abbreviations for the common names of the host tree species, along with the scientific names, are shown in Appendices A and B. To facilitate the location of hosts, deciduous and coniferous species have been separated and listed alphabetically under the common names.

Appendix C is a series of maps for southwestern Ontario grouped alphabetically by insect species or disease pathogen and showing the location of infestations within a region or infestation boundaries that extend beyond regions.

## ACKNOWLEDGMENTS

The authors wish to acknowledge Dr. G.M. Howse, Head, Forest Insect and Disease Survey Unit, Miss C.A. Plexman, Chief, Communications Services, and Mr. P. Jakibchuk, Technical Services Officer for advice and support during the preparation of this review.

We wish to acknowledge the following authors of the annual FIDS district and regional reports from which this review was abstracted.

1950-1951	R.J. DuBreuil and J.C. Charbonneau
1952-1953	J.C. Charbonneau
1954-1955	A.S. Danard
1956-1960	M.J. Thomson
1961	W.J. Miller
1962-1966	J. Hook
1967-1971	M.J. Applejohn
1972-1973	H.J. Weir and W.D. Biggs
1974	H.J. Weir and C.A. Barnes
1975-1979	C.A. Barnes
1980	R.J. Sajan

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Other Noteworthy Diseases

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## INTRODUCTION

This is a review of significant forest insects and diseases in the area covered by the Cornwall District from 1950 to 1980. The district was formed in 1973 when the former Kemptville District was subdivided. In the selection of pests for this report, particular attention was paid to the major working groups of host species in the area. The insects and diseases included are capable of causing or have caused, tree mortality or a reduction in growth. Also included are abiotic problems that cause damage, i.e., frost, hail, wind, winter drying, etc.

## SUMMARY

## FOREST INSECTS

Cedar Leafminer, *Argyresthia aureoargentella* Brower  
*A. canadensis* Free. *A. thuiella* (Pack.)  
*Coleotechnites thujaella* (Kft.)

pages

This group of leafminers causes serious damage to host trees by thinning foliage and killing twigs and branches. After several years of medium-to-heavy infestations tree mortality will occur. All of the above species have been found intermingled on mined trees.

Birch Skeletonizer, *Bucculatrix canadensisella* Cham. [Major]  
 pages

Defoliation by this insect seldom caused mortality of the host but weakened trees are subject to attack by secondary insects and diseases. Large outbreaks of this insect usually last 3 to 4 years, then decline rapidly. Varying degrees of defoliation occurred from 1961 to 1965.

Spruce Budworm, *Choristoneura fumiferana* (Clem.) [Major]  
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This insect is considered the most destructive insect pest of several coniferous hosts in eastern Canada, the main hosts being white spruce and balsam fir. Though not major hosts, black spruce, eastern hemlock, and tamarack are attacked and considerable tree mortality can occur. Moderate-to-severe damage was reported in the district from 1968 to 1975.

Pine Bud Moth, *Exoteleia dodecella* (L.)  
 page

Repeated attack by this insect kills a high percentage of buds on Scots pine trees resulting in sparse foliage and deformed branches. Populations have not been high in the district.

Birch Leafminer, *Fenusa pusilla* (Lep.) [Major]  
 page

Defoliation by this miner can weaken trees and leave them susceptible to secondary insects and diseases, and may be a predisposing factor in birch decline. As a rule these insects attack single trees, but when populations build up, stands of trees are severely defoliated. Medium-to-heavy infestations were found in the district from 1956 to 1962 and from 1965 to 1980.



Fall Webworm, *Hyphantria cunea* (Drury) [Major]  
page

Outbreaks of this pest can cause complete defoliation of many host species. Repeated moderate-to-severe defoliation weakens trees and predisposes them to attack by other insects and by diseases. Varying degrees of defoliation were general in the district from 1950- to 1980.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn. [Major]  
page

This caterpillar is widely distributed through North America. Infestations usually last an average of five years and high populations denude large areas of susceptible stands. The principal host attacked is aspen, however, many other deciduous species also suffer severe defoliation. Repeated defoliation retards tree growth and vigor leaving the susceptible to attack by other pests. Infestations were present in the district from 1951 to 1954, from 1966 to 1971 and from 1977 to 1978.

Balsam Fir Sawfly, *Neodiprion abietis* complex [Major]  
page

Severe defoliation can cause mortality of balsam fir and white spruce trees when an infestation persists over a period of years. Pockets of moderate-to-severe defoliation were recorded from 1954 to 1956, from 1967 to 1968 and in 1970.

Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch) [Major]  
page

This destructive pest of pine plantations can cause mortality after several years of severe defoliation. The preferred hosts are Scots pine, red pine and jack pine planted in pure stands. Medium-to-heavy infestations were reported at scattered locations during the review period.

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.) [Major]  
page

This destructive insect has been categorized as a serious pest of young spruce plantations and open-growing ornamentals. High mortality can occur after successive years of severe defoliation. Varying degrees of defoliation occurred on open-grown trees from 1950 to 1980.

White Pine Weevil, *Pissodes strobi* (Peck) [Major]  
page

This weevil is considered the most destructive pest of eastern white pine in North America. Successive weeviling over a period of years results in multiple-stemmed trees. Leader mortality was common in most pine plantations from 1950-1980.

Larch Sawfly, *Pristophora erichsonii* (Htg.) [Major]  
page

The larch sawfly is the primary defoliating insect of native and most exotic species of larch. On good sites, larch trees can withstand six to nine years of severe defoliation before mortality occurs; on less favourable sites, mortality may follow three or more years of complete defoliation. Although defoliation was reported frequently from 1950-1980, no extensive mortality of host trees was reported.

Other Noteworthy Insects [Major and Minor]  
pages

Insects that have the potential for causing damage to stands, regeneration and plantations.

#### FOREST DISEASES

Armillaria Root Rot, *Armillaria mellea* (Vahl:Fr.) Kummer [Major]  
page

This root rot disease often kills trees previously stressed by drought, insects, other pathogens or unfavourable environment. However, under some circumstances the fungus, or certain strains of the fungus, can kill vigorous trees. Both deciduous and coniferous trees are attacked. No extensive areas of mortality were recorded in the district from 1950-1980.

Dutch Elm Disease, *Ceratocystis ulmi* (Buism.) C. Moreau [Major]  
page

This major disease organism, which affects all species of elm, was first recorded in Ontario in Prescott County in 1946, and has gradually spread throughout most of the known range of elm in Ontario.

Ink Spot of Aspen, *Ciborinia whetzellii* (Seaver) Seaver [Major]  
page

This ink spot disease is widespread throughout the range of aspen. Many poplar species and hybrids are susceptible, but trembling aspen is most commonly affected. Heavily infected trees may be defoliated prematurely and repeated attacks can reduce increment and even kill regeneration. No extensive damage was reported in the district from 1950-1980.

White Pine Blister Rust, *Cronartium ribicola* J.C. Fischer [Major]  
page

White pine blister rust is the most serious disease of eastern white pine. The disease caused top killing and mortality in trees of all ages. Tree mortality was reported throughout the district.

Hypoxylon Canker, *Hypoxylon mammatum* (Wahlenb.) J.H. Miller [Major]  
page

Mortality caused by this disease is usually restricted to trees in the 7-cm to 13-cm class, growing on poor sites, but branch and top mortality may occur in trees of greater diameter. The disease was widely distributed through the district but tree mortality was not extensive.

Shoot Blight, *Venturia macularis* (Fr.) E. Müller & v. Arx.  
page

[Major]

Reduced stocking of regeneration aspen occurs when the incidence of this disease is high. Trees more than 5 years old are seldom affected and, therefore, the disease is of little economic importance in natural stands.

Other Noteworthy Diseases  
pages

These are diseases with the potential for causing damage to natural stands, regeneration and plantations.

#### DIEBACKS AND DECLINES

page

Reports on low levels of maple decline have been made over the review period.

ABIOTIC DAMAGE  
pages

Abiotic damage is caused by a variety of influences, i.e. frost, winter drying, salt, etc. Weakened trees are susceptible to a number of diseases.

Cedar Leafminers, *Argyresthia aureoargentella* Brower  
*A. canadensis* Free., *A. thuiella* (Pack.)  
*Coleotechnites thujaella* (Kft.)

Host(s): cedar

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1956	not reported
1957-1958	low numbers found at several locations
1959-1960	not reported
1961	trace populations
1962	Light and medium-to-heavy infestations were found at several locations.
1963	Moderate-to-severe foliage discoloration was recorded in Dundas County.
1964	Infestation intensities decreased and only light damage was noted.
1965	Light infestations of miners were found through the district.
1966	Small numbers were found at several points.
1967	not reported
1968	Populations increased generally and medium-to-heavy infestations were found in Williamsburgh and Cornwall twps. Light infestations were detected near Alexandria in Glengarry County.
1969	Moderate-to-severe foliage damage occurred at several locations in Stormont and Glengarry counties.
1970	High numbers caused severe discoloration of foliage at many locations throughout the district (see map, page ).
1971	Moderate-to-severe foliage discoloration and damage was found throughout the district (see map, page ).
1972	Moderate-to-severe defoliation recurred at numerous points in the district (see map, page ).
1973	Medium-to-heavy infestations persisted although at some locations populations were lighter than in 1972 (see map, page ).
1974	The outbreak virtually collapsed and only low numbers of miners were found.
1975	low numbers in the district
1976-1978	trace populations

(cont'd)

Cedar Leafminers, *Argyresthia aureoargentella* Brower  
*A. canadensis* Free., *A. thuiella* (Pack.) (concl.)  
*Coleotechnites thujaella* (Kft.)

<u>Year</u>	<u>Remarks</u>
1979	Populations increased generally throughout the district and hedgerows and ornamental cedars were severely discolored at several points (see map, page ).
1980	Populations continued to increase and moderate-to-severe defoliation was found throughout the district (see map, page ).

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

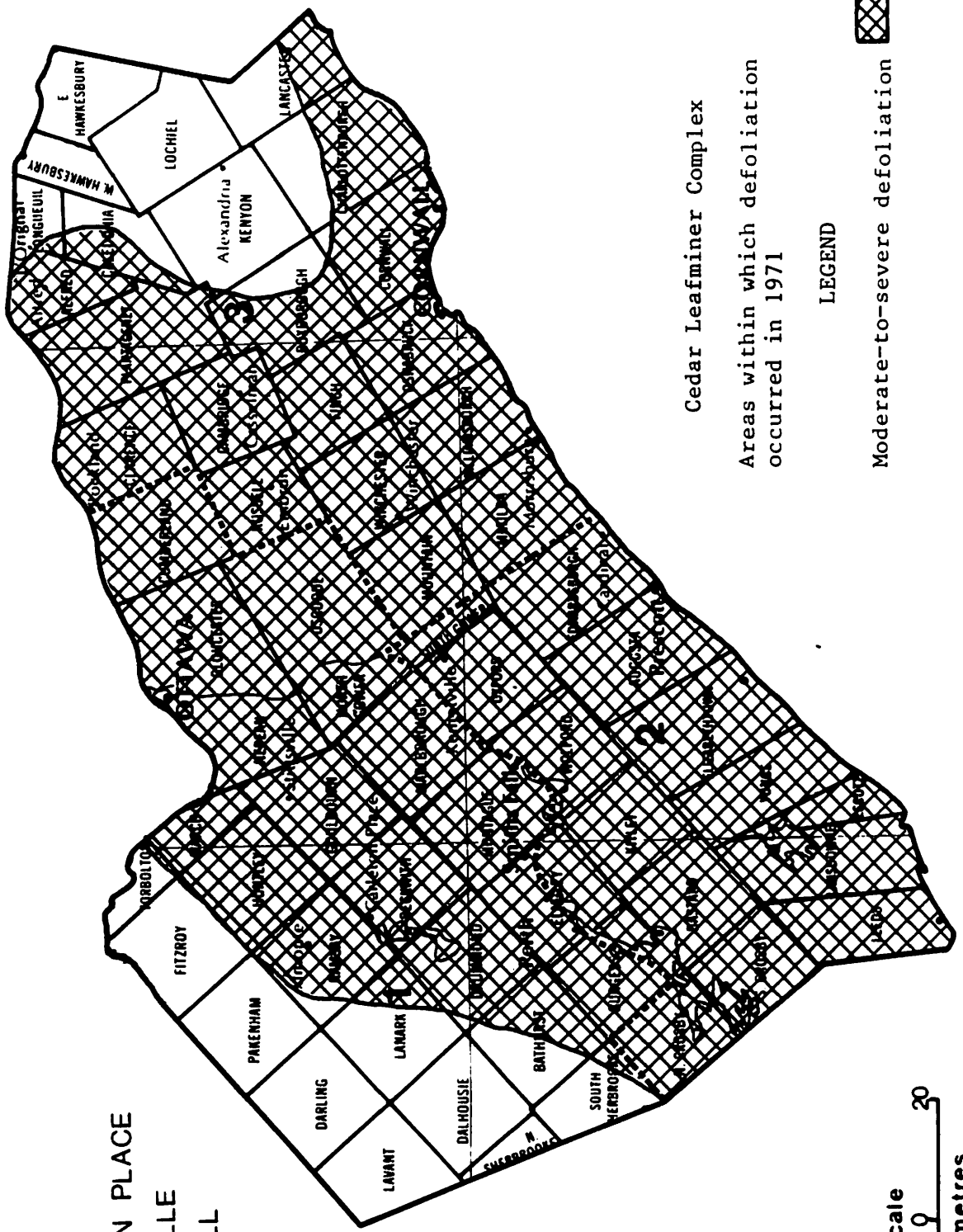
Host(s): Birch [Major]

<u>Year</u>	<u>Remarks</u>
1950-1960	not reported
1961	Moderate-to-severe defoliation was general north of Highway 43 and light through the remainder of the district (see map, page ).
1962	Generally light defoliation was found along the Ottawa and St. Lawrence rivers.
1963	Light defoliation was general along the Ottawa River between Ottawa and Hawkesbury and along the St. Lawrence River from Cornwall to Iroquois.
1964	Light infestations were present on small clumps of birch trees along Highway 17 between Ottawa and Hawkesbury.
1965	Populations decreased to trace levels.
1966-1980	not reported



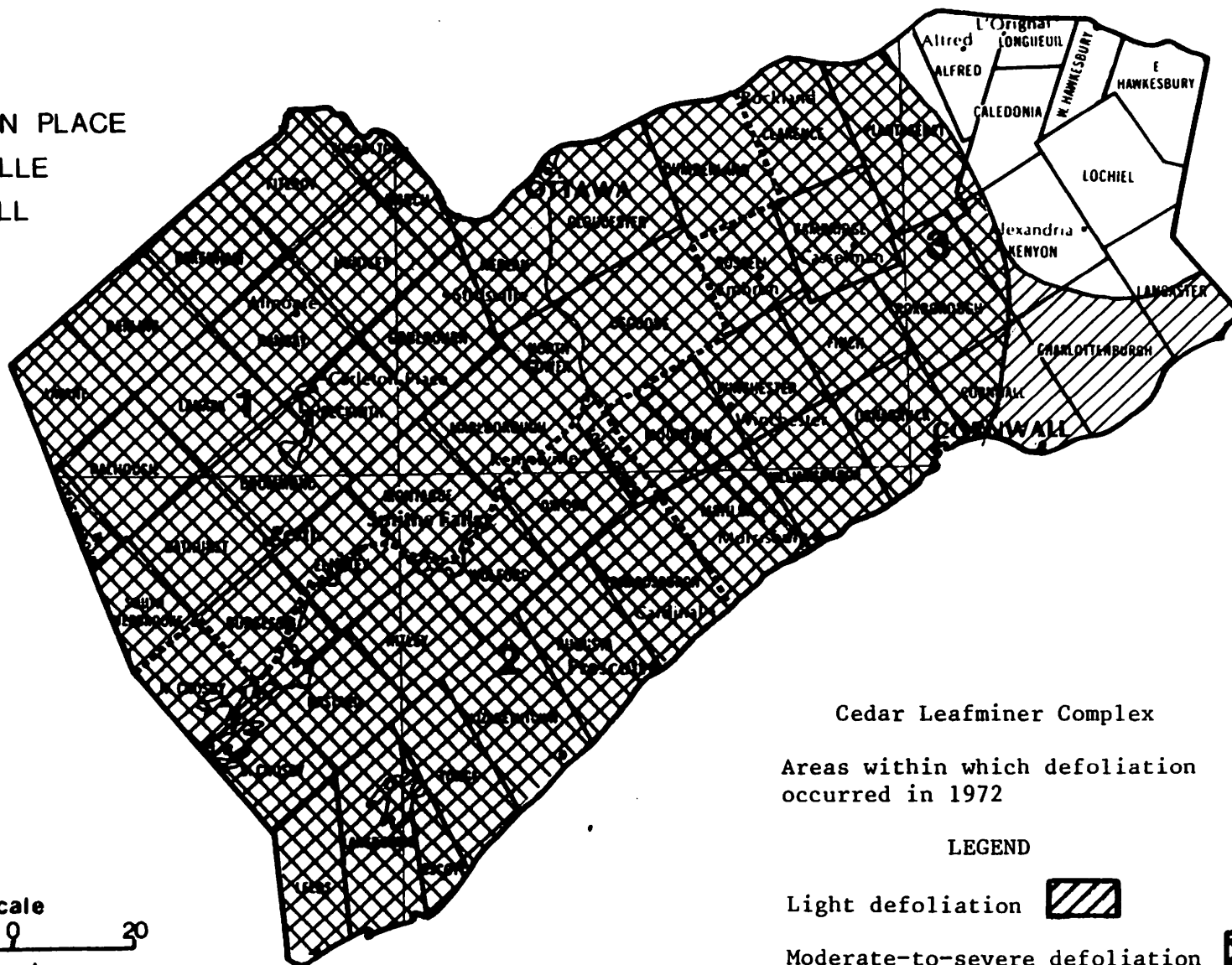
# CARLETON PLACE, BROCKVILLE and CORNWALL DISTRICTS

1. CARLETON PLACE
2. BROCKVILLE
3. CORNWALL



# CARLETON PLACE, BROCKVILLE and CORNWALL DISTRICTS

1. CARLETON PLACE
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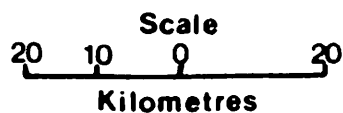


Cedar Leafminer Complex

Areas within which defoliation occurred in 1972

LEGEND

- Light defoliation 
- Moderate-to-severe defoliation 

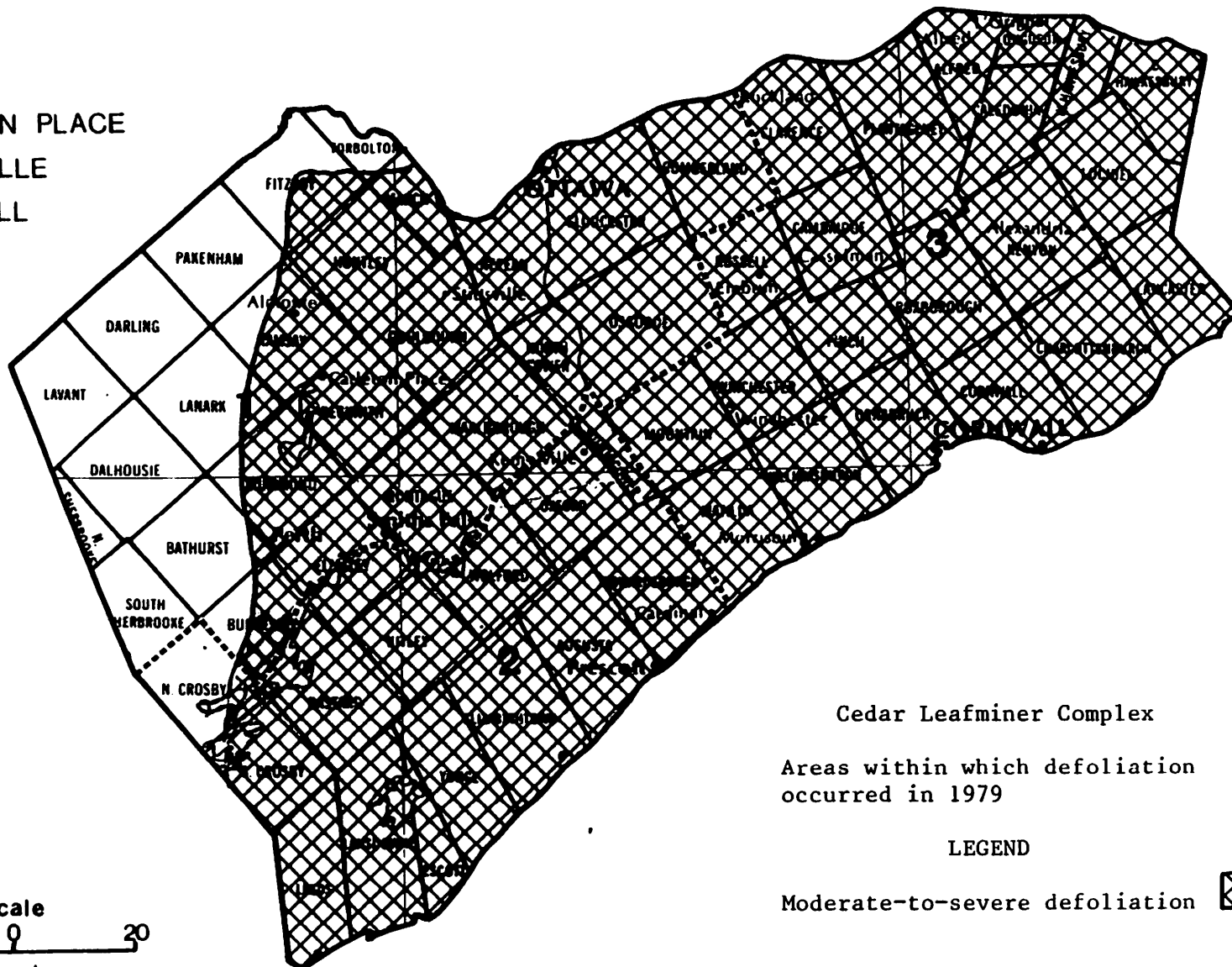






# CARLETON PLACE, BROCKVILLE and CORNWALL DISTRICTS

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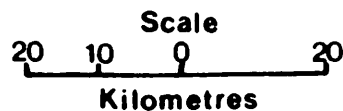


Cedar Leafminer Complex

Areas within which defoliation  
occurred in 1979

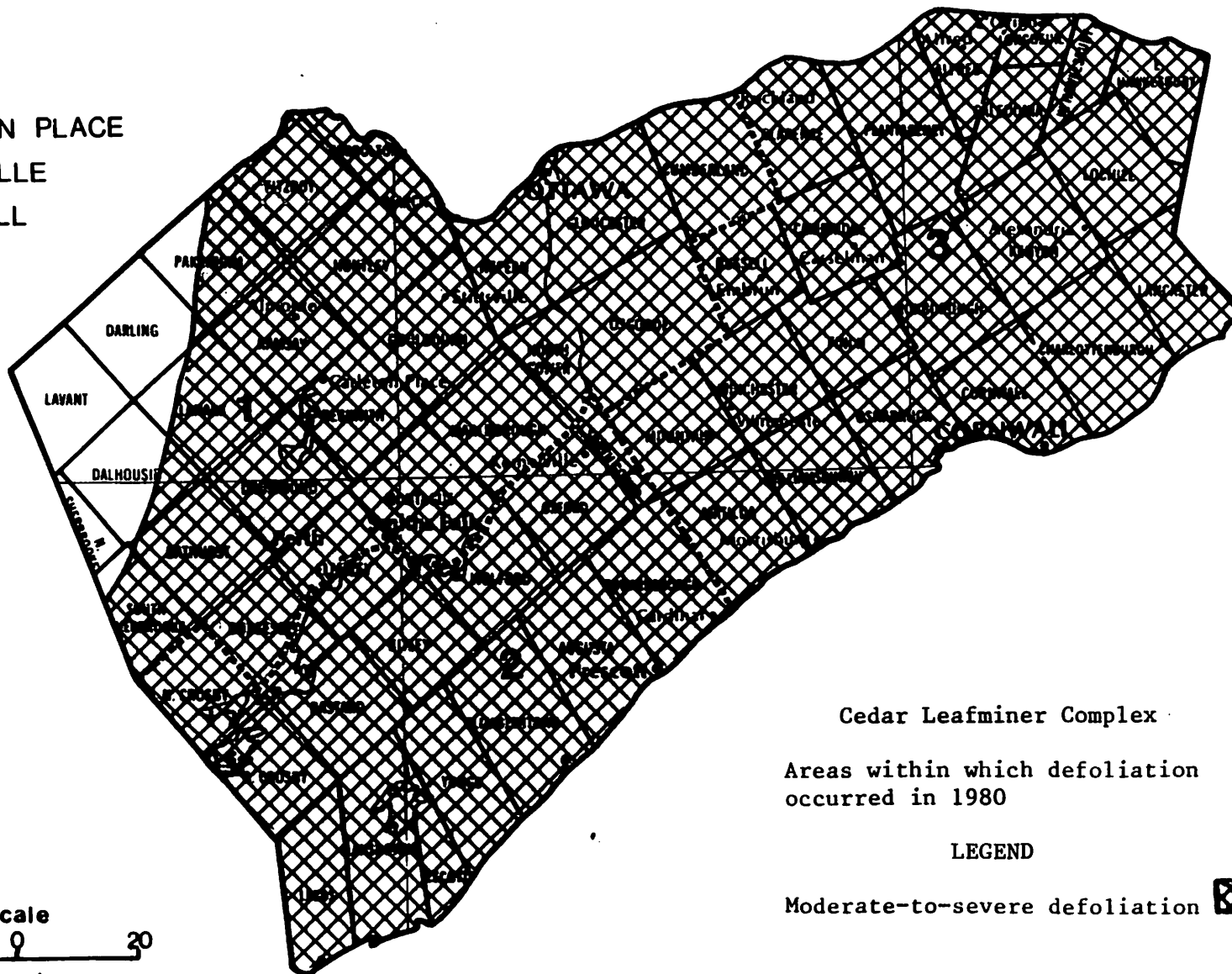
LEGEND

Moderate-to-severe defoliation



# CARLETON PLACE, BROCKVILLE and CORNWALL DISTRICTS


1. CARLETON PLACE
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Cedar Leafminer Complex

Areas within which defoliation  
occurred in 1980

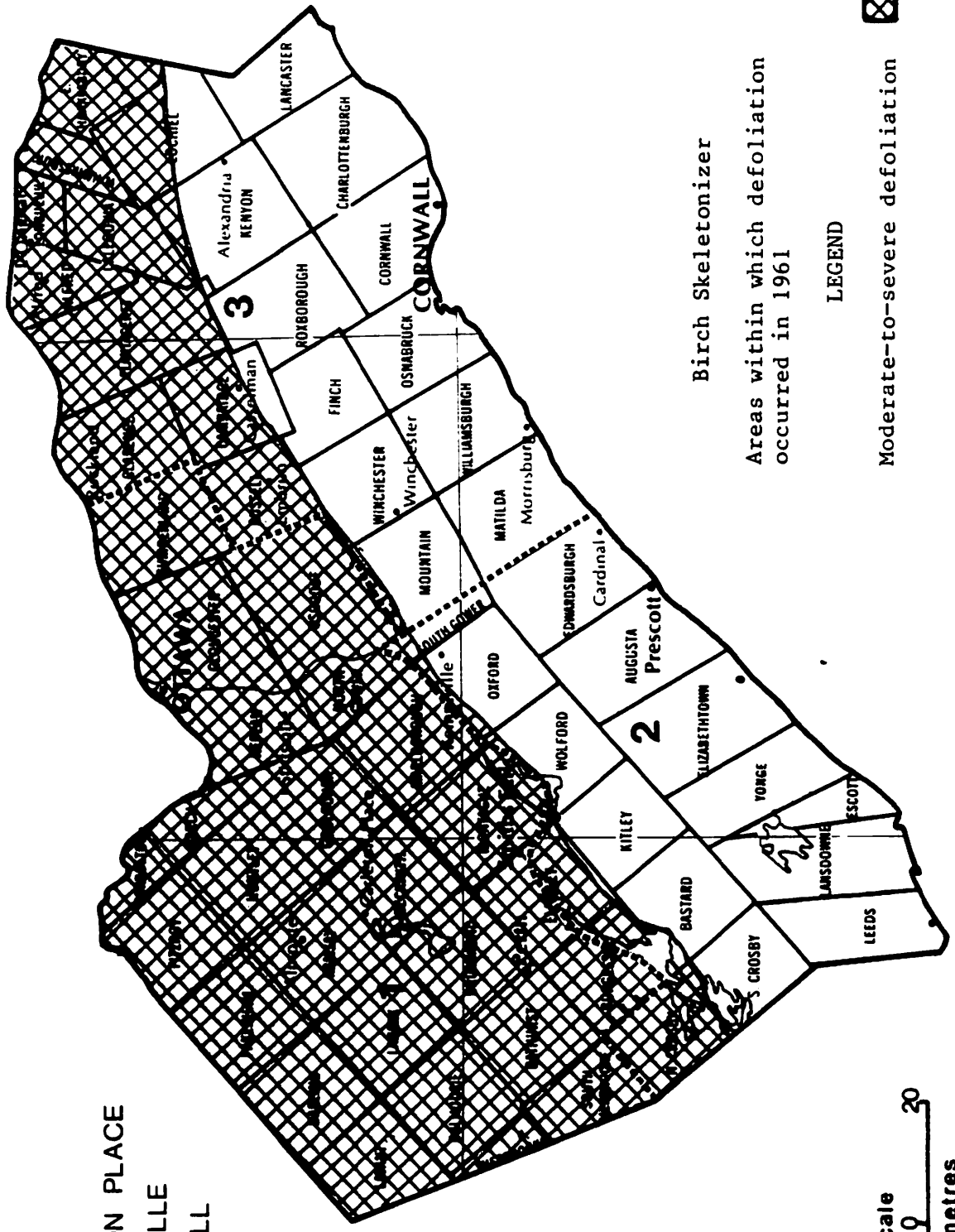
LEGEND

Moderate-to-severe defoliation 

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# CARLETON PLACE, BROCKVILLE and CORNWALL DISTRICTS

1. CARLETON PLACE
2. BROCKVILLE
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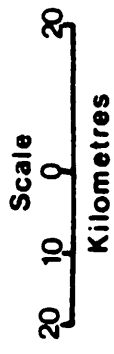
Birch Skeletonizer

Areas within which defoliation occurred in 1961

LEGEND



Moderate-to-severe defoliation



Spruce Budworm, *Choristoneura fumiferana* (Clem.)

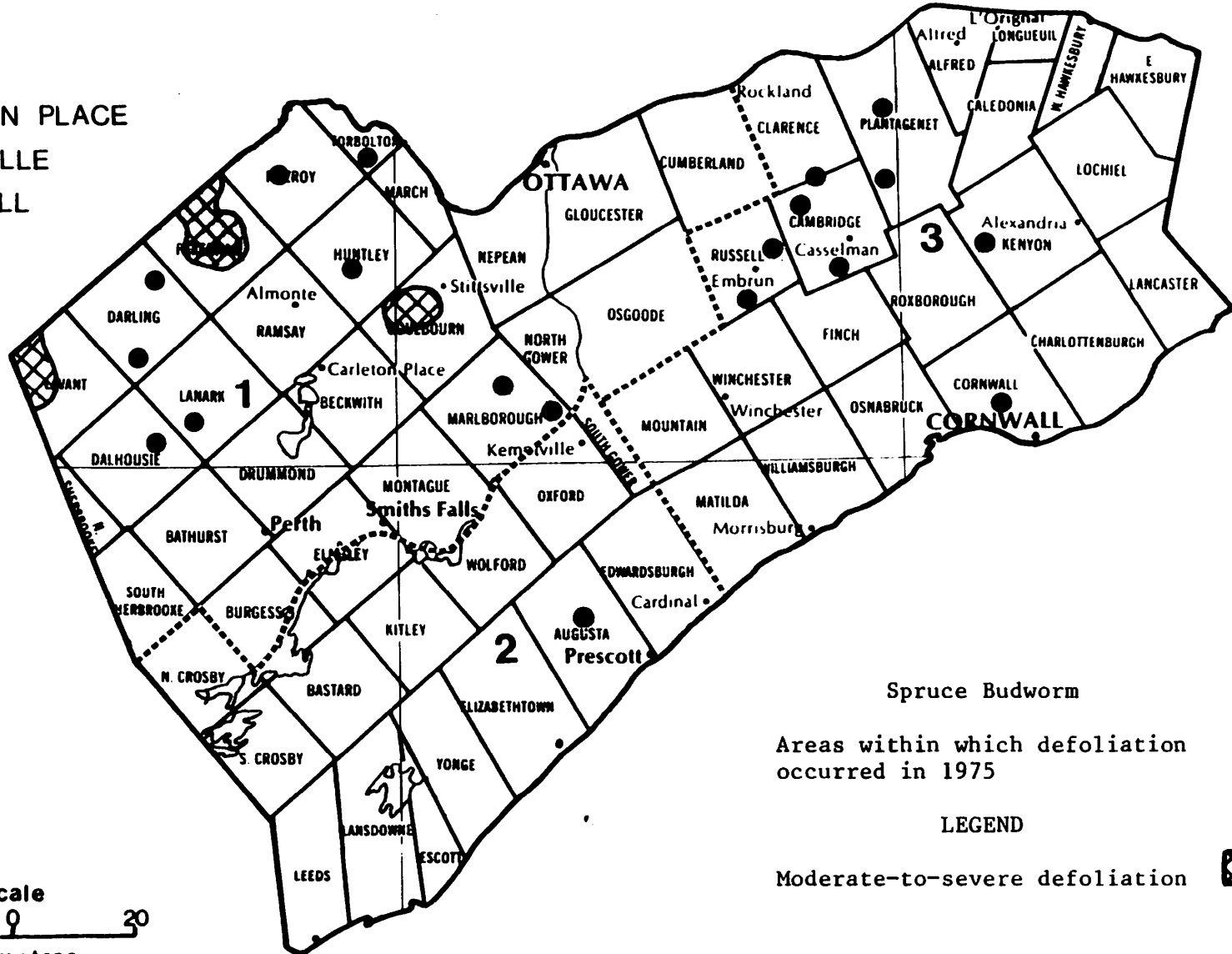
Host(s): balsam fir, spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	occasional larvae in beating samples
1952-1961	trace levels only
1962-1967	not reported
1968	Small pockets of moderate-to-severe defoliation were recorded in Clarence and Mountain twps and low numbers were found through the remainder of the district.
1969	Approximately 20 ha of white spruce plantations were medium-to-heavily infested in the Larose Forest in Clarence Twp. Larvae were found in all other stands examined.
1970	Medium-to-heavy infestations were reported in the Larose Forest and in Clarence and Cambridge twps.
1971	Small scattered pockets of moderate-to-severe defoliation occurred in Clarence and Matilda twps.
1972	Small pockets of moderate-to-severe defoliation occurred in Cambridge and Charlotteville twps.
1973	Small pockets of moderate-to-severe defoliation recurred in Clarence and Cambridge twps.
1974	Pockets of moderate-to-severe defoliation were recorded in Clarence, Cambridge, Russell and Cornwall twps.
1975	Pockets of moderate-to-severe defoliation were mapped in North Plantagenet, South Planagenet, Cambridge, Russell, Kenyon and Cornwall twps (see map, page ).
1976	Populations decreased to light levels throughout the district.
1977	Small pockets of medium-to-heavy infestation were observed in the Larose Forest.
1978	Only light defoliation was found in the Larose Forest.
1979	A slight increase in population levels was noted in the Larose Forest.
1980	Low numbers were found in the district.

# CARLETON PLACE, BROCKVILLE and CORNWALL DISTRICTS

1. CARLETON PLACE
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Spruce Budworm

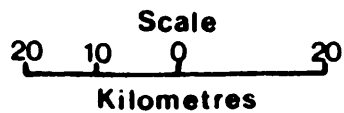
Areas within which defoliation occurred in 1975

LEGEND

Moderate-to-severe defoliation



or ●



Pine Bud Moth, *Exoteleia dodecella* (L.)

Host(s): pine [Major]

<u>Year</u>	<u>Remarks</u>
1950-1957	not reported
1958	Lightly infested Scots pine trees were detected in a small park in Winchester Twp.
1959	no infested bud clusters at this location; not found in the district
1960	not reported
1961-1963	small numbers of insects at a few locations
1964	Lightly infested trees were found throughout the district.
1965	Populations decreased and few insects were observed.
1966	not reported
1967	trace populations
1968	not reported
1969	trace populations
1970-1980	not reported

Birch Leafminer, *Fenusa pusilla* (Lep.)

Host(s): birch [Major]

<u>Year</u>	<u>Remarks</u>
1950-1955	not reported
1956	Medium-to-heavy infestations of the leafminer were found through Dundas, Stormont and Glengarry counties.
1957	Up to 90% of birch foliage was mined at many points in Dundas, Stormont and Glengarry counties.
1958	Moderate-to-severe mining was general in Glengarry County.
1959	Medium-to-heavy infestations recurred on some trees at a few locations.
1960	Light mining was general through the district with pockets of moderate-to-severe mining at several locations.
1961	pockets of moderate-to-severe foliar damage in Mountain Twp
1962	A pocket of moderate-to-severe damage was reported in Cambridge Twp.

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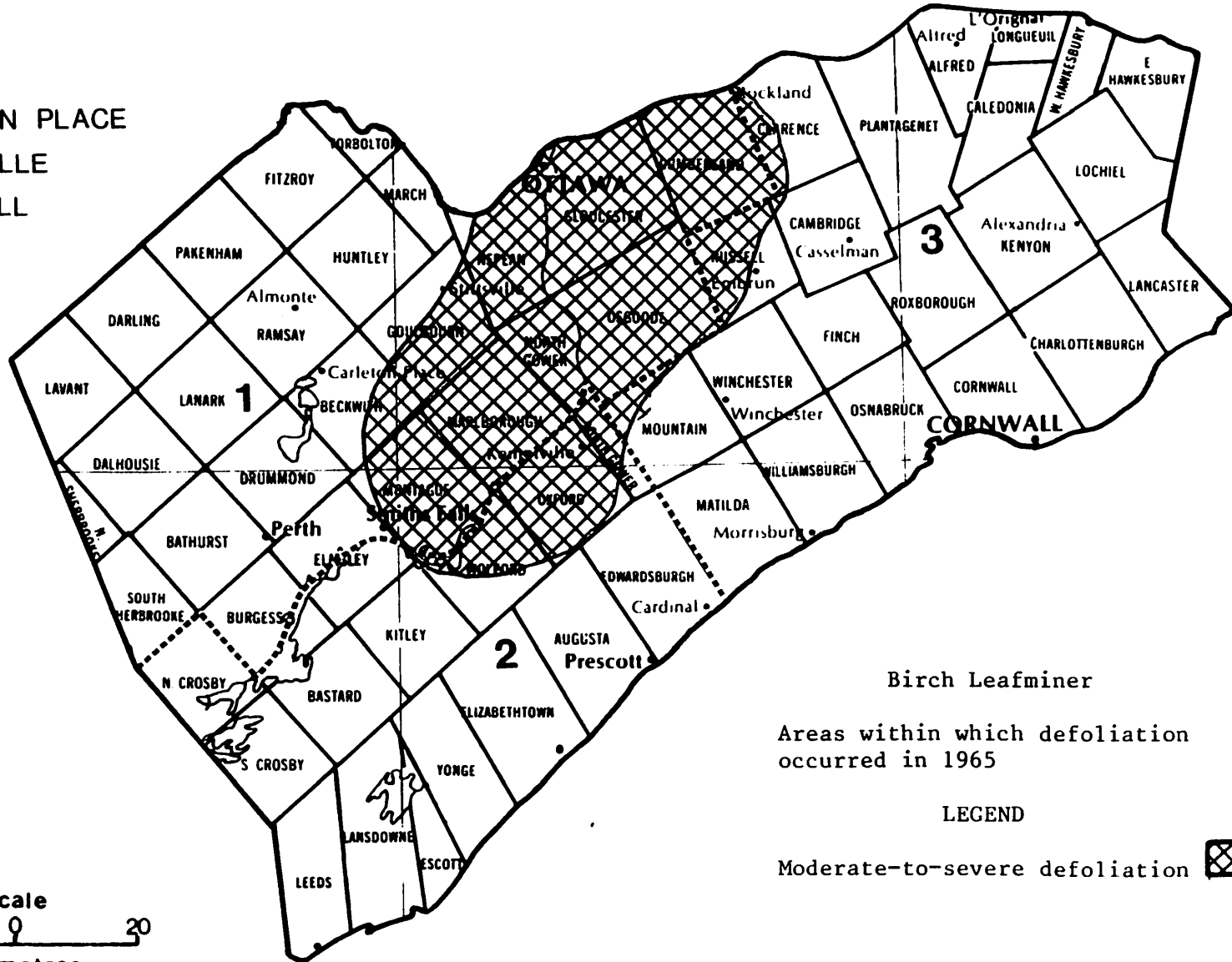
Birch Leafminer, *Fenusa pusilla* (Lep.)

<u>Year</u>	<u>Remarks</u>
1963-1964	Light infestations were noted in Cambridge Twp.
1965	Populations increased and moderate-to-severe foliar damage was recorded in Russell, Dundas, Stormont and Glengarry counties (see map, page ).
1966	Moderate-to-severe foliar damage was general in the northeastern part of the district (see map, page ).
1967	Moderate-to-severe damage was common through the district (see map, page ).
1968	As in 1967 moderate-to-severe damage was recorded through the district (see map, page ).
1969	Little change in infestations occurred (see map, page ).
1970	Medium-to-heavy infestations persisted in Prescott and Russell counties and in the southern parts of Stormont, Dundas and Glengarry counties.
1971-1972	Moderate-to-severe foliage discoloration was common in the district.
1973	Light and moderate-to-severe discoloration was general in Dundas and Stormont counties.
1974-1975	Moderate-to-severe defoliation was reported along Highways 2 and 401 near Cornwall and Lancaster.
1976	Medium-to-heavy infestations were common along St. Lawrence River where foliar damage ranged from 0 to 75%.
1977	Medium-to-heavy infestations were again found along the St. Lawrence in Lancaster and Cornwall twps where foliar damage in some areas was 90%.
1978	Populations decreased to light levels in the St. Lawrence area infestation.
1979	Medium-to-heavy infestations were found in the Larose Forest and in Lancaster and Charlottenburg twps.
1980	found commonly through the district with moderate-to-severe foliage damage on ornamental trees in Cornwall



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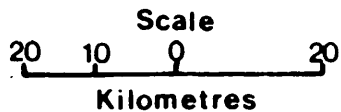


Birch Leafminer

Areas within which defoliation occurred in 1965

LEGEND

Moderate-to-severe defoliation



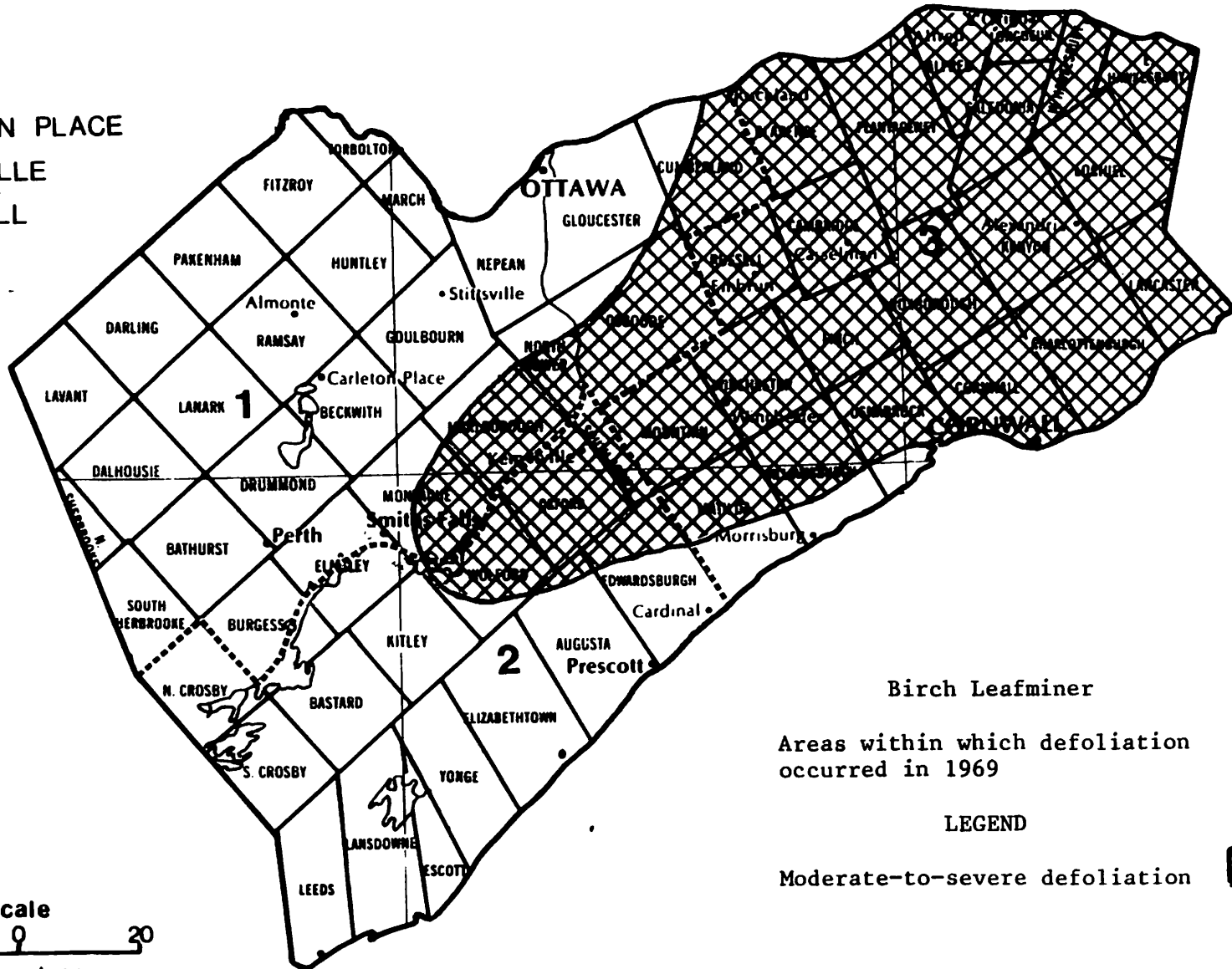






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Fall Webworm, *Hyphantria cunea* (Drury)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950	tents observed commonly throughout the district
1951	rarely observed
1952	low numbers throughout the district
1953	not reported
1954	low numbers of tents at several points
1955	not reported
1956-1961	observed commonly throughout the district
1962	High numbers of tents were found at several points in Mountain Twp.
1963	High numbers were again found in Mountain Twp and tents were common throughout the district.
1964	Population levels decreased and few tents were observed.
1965	low numbers at several points
1966-1967	trace populations
1968	Two small light infestations were located in Edwardsburg and Charlottenburg twps.
1969	A general increase in the number of tents was noted in the district.
1970	High numbers were found in Mountain Twp and tents were common throughout the district.
1971	High populations were observed along Highway 401 in the Morrisburg area.
1972	Tents were observed commonly throughout the district.
1973	moderate-to-severe defoliation of black ash trees in Dundas County
1974	Tents were particularly numerous along Highway 401 from the Quebec border west to Iroquois.
1975-1977	Populations remained high and moderate-to-severe defoliation occurred at many points in the district.
1978	A decrease in populations occurred and tents were much less in evidence.
1979	Light infestations were general throughout the district.
1980	little change in populations levels

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

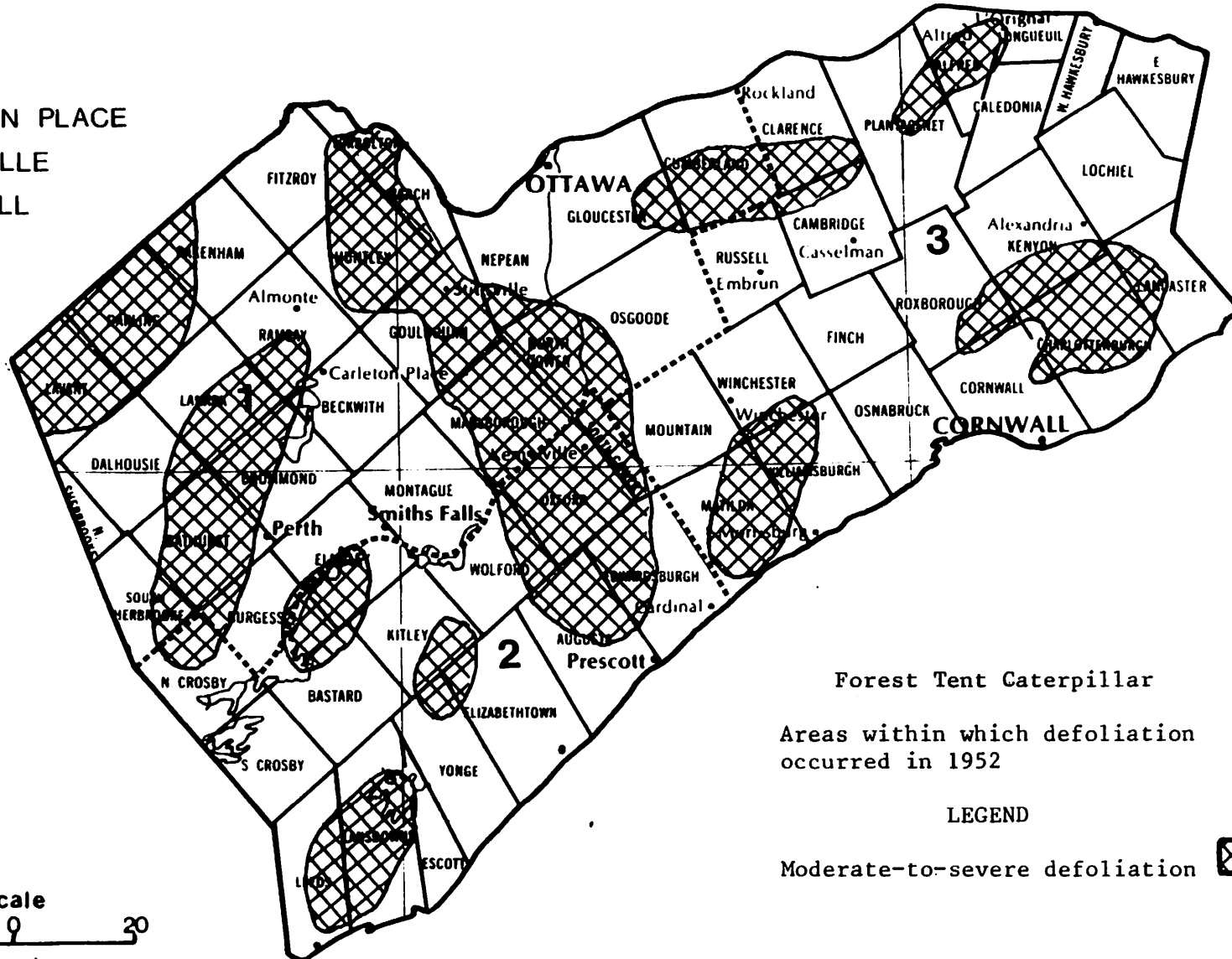
Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950	small numbers throughout the district
1951	moderate-to-severe defoliation in Charlottenburg Twp
1952	Large stands of poplar were moderate-to-severely defoliated through Stormont, Dundas and Glengarry counties (see map, page ).
1953	Moderate-to-severe defoliation was recorded; was general in Russell and the northern part of Stormont, Dundas and Glengarry counties (see map, page ).
1954	Populations declined but small pockets of moderate-to-severe defoliation occurred in Dundas, Stormont and Prescott counties.
1955	lightly defoliated trees in Cambridge Twp
1956	one colony found
1957-1961	not reported
1962	a few colonies found in pole-sized aspen in Cambridge Twp, Russell County
1963-1965	not reported
1966	An outbreak caused moderate-to-severe defoliation in Prescott and Russell counties (see map, page ).
1967	Unseasonable weather decimated newly hatched larvae sharply reducing defoliation.
1968	Moderate-to-severe defoliation occurred in 1,056 ha in Mountain Twp.
1969	A single pocket of moderate-to-severe defoliation recurred in Mountain Twp.
1970	Moderate-to-severe defoliation recurred in Mountain Twp.
1971	The infestation in Mountain Twp collapsed.
1972-1976	not reported
1977	Moderate-to-severe defoliation occurred in the northwestern part of Mountain Twp (see map, page ).
1978	Moderate-to-severe defoliation recurred in 15 ha of trembling aspen in Mountain Twp.
1979	population collapsed
1980	not reported

# CARLETON PLACE, BROCKVILLE and CORNWALL DISTRICTS

1. CARLETON PLACE
2. BROCKVILLE
3. CORNWALL



Forest Tent Caterpillar

Areas within which defoliation occurred in 1952

LEGEND

Moderate-to-severe defoliation



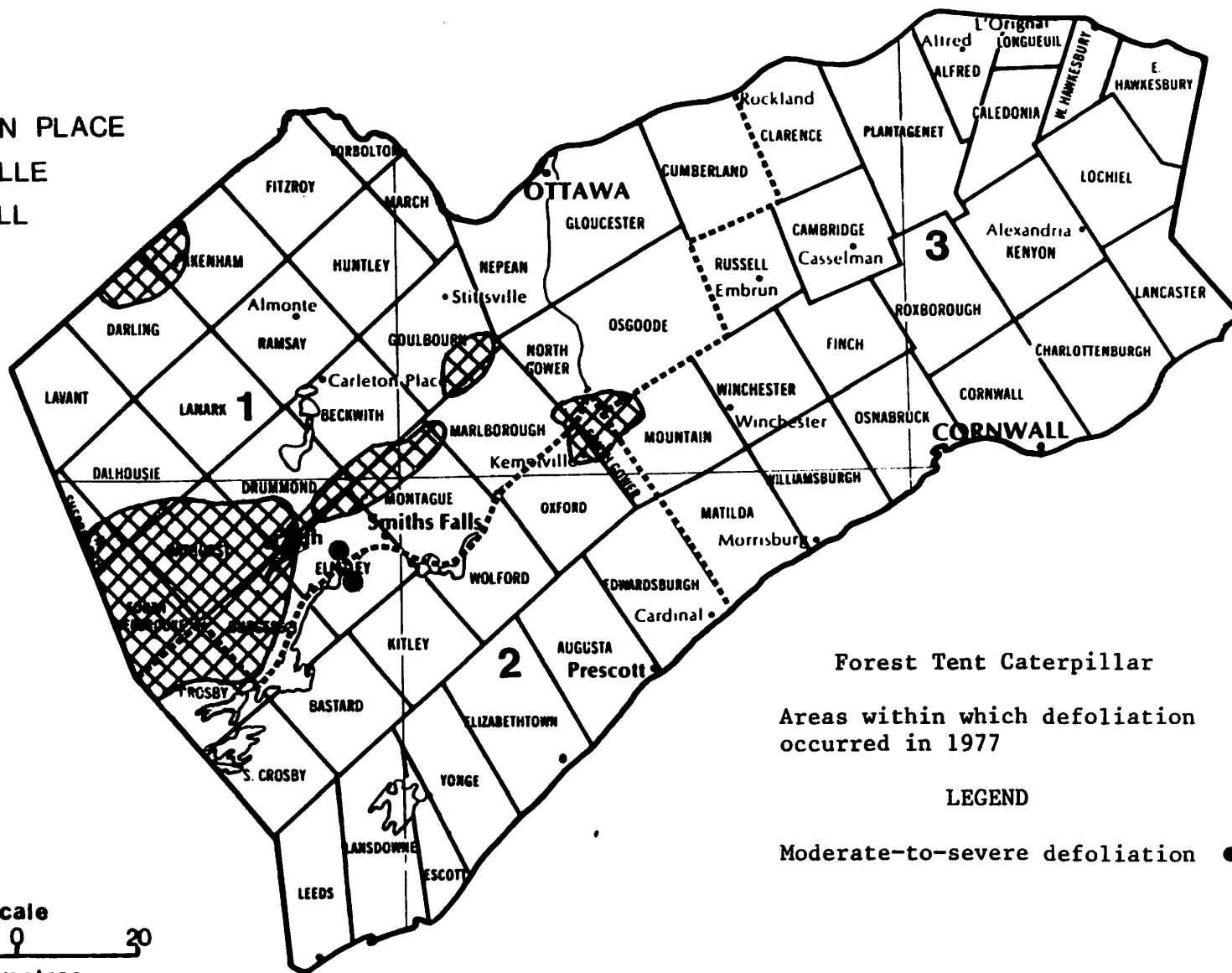






# CARLETON PLACE, BROCKVILLE and CORNWALL DISTRICTS

1. CARLETON PLACE
2. BROCKVILLE
3. CORNWALL

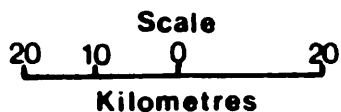


Forest Tent Caterpillar

Areas within which defoliation occurred in 1977

LEGEND

Moderate-to-severe defoliation ● or 



Balsam Fir Sawfly, *Neodiprion abietis* complex

Host(s): balsam fir

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	A light infestation was reported in Clarence Twp, Russell County.
1952-1953	not reported
1954	Light and medium-to-heavy infestations were found in Prescott and Stormont counties.
1955	Moderate-to-severe defoliation was recorded in South Plantagenet and Williamsburgh twps.
1956	Defoliation ranged up to 75% at several points in Cornwall Twp.
1957-1960	Only single colonies were observed at a few locations.
1961-1966	not reported
1967	A medium-to-heavy infestation occurred in North Plantagenet Twp and scattered colonies were observed at several locations.
1968	One small area of medium-to-heavy infestation was found in Russell Twp.
1969	Scattered colonies were found at many points in the district.
1970	Moderate-to-severe defoliation was reported on small, scattered clumps of balsam fir in East Hawkesbury and Longueuil twps.
1971	scattered colonies at a few locations
1972-1980	not reported

Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch)

Host(s): rP, jP, scP

[Major]

<u>Year</u>	<u>Remarks</u>
1950	A medium-to-heavy infestation was located in a 6-ha jack pine plantation near Lemieux.
1951	Red pine trees 1-2 m high sustained up to 70% defoliation at Ruthier in Prescott County and at Glenelg in Glengarry County.
1952	Light and medium-to-heavy infestations occurred in Larose County Forest.
1953	Moderate-to-severe defoliation was recorded in Cambridge, Winchester and Osnabruck twps.
1954	Single colonies were common on red pine trees throughout the Larose Forest.
1955	Pockets of moderate-to-severe defoliation were observed in the Berwick Forest and low numbers were found in the Larose Forest.
1956	A small block of red pine trees in the 8-cm diameter class in the Berwick forest was medium-to-heavily infested.
1957	Reduced numbers were found throughout the Berwick and Larose forests.
1958	Very low numbers were found throughout the Berwick and Larose forests.
1959	One small pocket of medium-to-heavy infestation was found in a jack pine plantation in Berwick west and scattered colonies were found in Larose Forest.
1960	trace populations
1961	small numbers of colonies at a few locations
1962	trace populations in the district
1963	One small pocket of infestation was sprayed with good results in the Larose County Forest.
1964	Only scattered colonies were found throughout the district.
1965	Colonies were again found commonly in the Larose Forest.
1966	Effective control measures were again carried out in the Larose Forest.
1967	Population increases were general in the district and spray operations were continued in managed plantations in the Larose Forest.
1968-1971	only low numbers found in the district

(cont'd)

Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch) (cont'd)

<u>Year</u>	<u>Remarks</u>
1972-1974	not reported
1975	Several small, light infestations were present in Matilda Twp.
1976	Occasional colonies were observed throughout the district.
1977	Light infestations were reported on many hedgerows through the district.
1978-1980	low numbers throughout the district

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.)

Host(s): spruce [Major]

<u>Year</u>	<u>Remarks</u>
1950	Light and medium-to-heavy infestations were observed at several points in Finch Twp.
1951-1955	not reported
1956	light defoliation of open-grown trees at many locations
1957	Defoliation of open-grown trees in Cambridge Twp averaged 25%.
1958	Defoliation ranged from 40 to 90% on small trees at several points in Russell Twp.
1959	Small pockets of moderate-to-severe defoliation occurred in Clarence and Finch twps.
1960	One small area of moderate-to-severe defoliation recurred in Finch Twp.
1961	Light defoliation was observed at several locations in Charlottenburg Twp.
1962-1963	trace populations at a few locations
1964	Light defoliation on open-grown trees was common in Cambridge Twp.
1965	Moderate-to-severe defoliation of open-grown trees was reported near Rockland in Clarence Twp and in the Larose Forest.
1966	not reported
1967	Light infested trees were observed along roads at several locations.
1968-1970	not reported

(cont'd)

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.) (concl.)

<u>Year</u>	<u>Remarks</u>
1971	Lightly defoliated trees were common along roads and in old fields.
1972-1973	Light and moderate-to-severe defoliation was recorded at several locations.
1974-1978	not reported
1979	Light and medium-to-heavy infestations were observed at several points in Russell Twp.
1980	Moderate-to-severe defoliation of roadside white spruce trees was observed in Winchester Twp.

White Pine Weevil, *Pissodes strobi* (Peck)

Host(s): pine, spruce [Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	Common throughout the district; Norway spruce were infested in the Larose Country Forest.
1952-1953	not reported
1954	Infested leaders were observed commonly on open-grown eastern white pine and occasionally on red pine and spruce throughout the district.
1955	Quantitative sampling in an eastern white pine plantation in West Hawkesbury Twp showed that 86% of the leaders were infested.
1956	Fewer infested leaders were observed in 1956.
1957	In a plantation of eastern white pine in Charlottenburg Twp current leader mortality was 13%.
1958	Leader mortality averaged 2.2% at sample points.
1959-1960	Small pockets of medium-to-heavy infestations were recorded in the Larose Forest. Hand clipping of infested leaders was carried out by OMNR.
1961	Medium-to-heavy infestations were again found in the Larose Forest. In one eastern white pine plantation, 97% of the leaders were infested.
1962	Control by spraying and destroying infested leaders reduced weeviling to 5% in the Larose Forest.
1963	Infested leader counts averaged 2% in Larose Forest.
1964-1966	Little damage was recorded in the district.

(cont'd)

White Pine Weevil, *Pissodes strobi* (Peck) (cont'd)

<u>Year</u>	<u>Remarks</u>
1967-1968	Slight increases in population levels were recorded. 1969 Population increases were noted at several points; 15% leader damage occurred in Larose Forest.
1970	not reported
1971	7% infested Norway spruce leaders in Finch Twp
1972-1973	Populations remained at much the same level as in 1971.
1974-1975	not reported
1976	Leader damage of 13% was recorded in eastern white pine plantations in Larose Forest.
1977-1978	Varying degrees of damage were noted in the district.
1979	not reported
1980	Varying degrees of damage were observed at several locations.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Host(s): tL, European larch [Major]

<u>Year</u>	<u>Remarks</u>
1950	Lightly defoliated trees were observed in Alfred Twp.
1951	not reported
1957-1959	Scattered colonies were found at several points in the district.
1960	A medium-to-heavy infestation caused approximately 75% defoliation in a tamarack stand 3 km east of Plantagenet in North Plantagenet Twp.
1961	Infestation recurred in North Plantagenet at the same level as in 1960.
1962-1963	not reported
1964	scattered colonies at a few location
1965	Lightly defoliated trees were observed in South Plantagenet and Cambridge twps.
1966	Scattered colonies were reported in Finch and Clarence twps.
1967	a few colonies at several points
1968-1969	Lightly defoliated trees were observed at one point in Clarence Twp.

(cont'd)



Larch Sawfly, *Pristiphora erichsonii* (Htg.) (concl.)

<u>Year</u>	<u>Remarks</u>
1970-1973	trace populations
1974	Moderate-to-severe defoliation of tamarack and European larch trees was reported at several points in Stormont, Dundas and Glengarry counties.
1975	Moderate-to-severe defoliation was recorded in Prescott and Russell counties.
1976	Pockets of moderate-to-severe defoliation occurred in the Larose County Forest.
1977	Moderate-to-severe defoliation recurred in the Larose Forest and in Finch, South Plantagenet and Clarence Twp.
1978	Moderate-to-severe defoliation was again recorded in the Larose Forest. Some tree mortality had occurred in this area.
1979	A general decrease in population was general. A small area of moderate-to-severe defoliation occurred in the Berwick Forest in Finch Twp and occasional colonies were found in the Larose Forest and several other locations.
1980	Populations were generally low except at a 6-ha plantation in Clarence Twp where moderate-to-severe defoliation occurred. This plantation was sprayed by OMNR and good control was obtained.

## Other Noteworthy Insects

Fall Cankerworm, *Alsophila pometaria* (Harr.)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	A light infestation was detected in Williamsburgh Twp.
1954-1967	not reported
1968	small numbers found at several locations
1969	lightly defoliated elm and basswood at several points
1970-1974	not reported
1975	trace populations
1976-1980	not reported

Pine Spittlebug, *Aphrophora cribrata* (Wlk.)

Host(s): conifers

[Major]

<u>Year</u>	<u>Remarks</u>
1950	Light infestations occurred in the Larose Forest and in Plantagenet Twp. Scots pine plantations were mainly affected.
1951-1964	not reported
1965	A light infestation was detected in the Larose Forest.
1966-1970	not reported
1971	Low numbers were reported in the district.
1972-1976	not reported
1977	High numbers caused moderate-to-severe damage to small Scots pine trees in the Larose Forest and light infestations were found on European larch at several points in Prescott and Russell counties.
1978-1980	not reported

Uglynest Caterpillar, *Archips cerasivorana* (Fitch)

Host(s): cherry

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1953	not reported
1954	Observed commonly throughout Prescott County; in Finch and Cornwall twps 23 and 24 nests, respectively, were counted on 30 m of fence-row cherry shrubs.
1955	tents more numerous than in 1954
1956-1957	not reported
1958	trace populations
1959-1962	not reported
1963	trace populations
1964	small numbers throughout the district
1965-1967	tents observed commonly throughout the district
1968-1971	not reported
1975	clumps of heavily infested trees at many locations in the district
1976	heavily infested trees at many points most notably in Winchester and West Hawkesbury twps
1977-1980	not reported

Birch Sawfly, *Arge pectoralis* (Leach)

Host(s): birch

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1951	not reported
1952	approximately 20% defoliation at several locations in the district
1953-1958	not reported
1959	a few trees lightly defoliated at one location
1960	trace populations
1961-1970	not reported
1971	scattered colonies at several locations
1972-1980	not reported

Larch Shoot Moth, *Argyresthia laricella* Kft.

Host(s): tamarack, European larch

<u>Year</u>	<u>Remarks</u>
1950-1955	not reported
1956	trace populations
1957	not reported
1958	trace populations
1959-1966	not reported
1967	low numbers at a few locations
1968-1980	not reported

Larch Casebearer, *Coleophora laricella* (Hbn.)

Host(s): tamarack, European larch

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1955	not reported
1956-1957	low numbers throughout the district
1958-1962	trace populations
1963	not reported
1964-1965	Small numbers were found in stands examined.
1966-1967	trace populations
1968	Light infestations were detected at several locations in the district.
1969-1972	not reported
1973	Moderate-to-severe discoloration of foliage was reported in East Hawkesbury and Lancaster twps.
1974-1978	not reported
1979	Lightly infested trees were reported in Finch Twp.
1980	Moderate-to-severe defoliation was recorded in Finch, Clarence and Russell twps.

Walnut Caterpillar, *Datana integerrima* G. and R.

Host(s): walnut, hickory oak, basswood

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1956	not reported
1967	moderate-to-severe defoliation at several points in Charlottenburg Twp
1968	high numbers on ornamental trees in Cornwall
1969	moderate-to-severe defoliation of walnut hedges and ornamentals in Charlottenburg Twp
1970-1972	Medium-to-heavy infestations were reported in Winchester and Charlottenburg twps.
1973	Lightly defoliated ornamental trees were reported in Winchester and Chesterville.
1974	not reported
1975	scattered colonies on a few trees in Winchester
1976-1980	not reported

Oak Twig Pruner, *Elaphidionoides villosus* (F.)

Host(s): red oak

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1953	not reported
1954	trace populations
1955	not reported
1956	trace populations
1957-1980	not reported

Basswood Looper, *Erannis tiliaria* (Harr.)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	found commonly in the district with a light infestation in Charlottenburg Twp
1952	not reported
1953	lightly infested trees found in many woodlots throughout the district
1954	small numbers found throughout Russell County
1955-1959	not reported
1960	trace populations
1961-1965	not reported
1966-1969	small numbers at several locations
1970-1973	not reported
1974-1975	small numbers at several locations
1976-1980	not reported

Eastern Pine Shoot Borer, *Eucosma gloriola* Heinr.

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	not reported
1952	Numerous leaders killed in pine plantations throughout Russell County and in the Larose Forest.
1953-1959	not reported
1960-1963	small numbers at several locations
1964-1966	not reported
1967	Small numbers were found in Matilda Twp.
1968-1969	Infested leaders were observed commonly in Matilda and Cambridge twps.
1970-1971	trace populations
1972-1973	not reported
1974	trace populations
1975-1980	not reported

Jack Pine Needleminer, *Exoteleia pinifoliella* (Cham.)

Host(s): jP

[Major]

<u>Year</u>	<u>Remarks</u>
1950	At Lunenburg in Dundas County 2-ha plantation was heavily infested.
1951-1953	not reported
1954	A medium-to-heavy infestation was reported in the Larose Forest and low numbers were found throughout Russell County.
1955-1956	not reported
1957	A medium-to-heavy infestation caused discoloration of jack pine foliage in a plantation in Berwick Forest, Stormont County.
1958	trace populations
1959	Light mining was reported at several points in Finch Twp.
1960	Only light mining was found in the district.
1961-1968	not reported
1969	low numbers at several locations
1970-1980	not reported

European Spruce Sawfly, *Gilpinia hercyniae* (Htg.)

Host(s): spruce

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1954	low numbers at several locations
1955	No insects were recovered in quantitative sampling.
1956-1966	trace populations in quantitative sampling
1967	A general increase in population levels was reported at sampling points. White spruce trees were lightly defoliated in North Plantagenet, East Hawkesbury and Cornwall twps.
1968	High numbers were again found in North Plantagenet and East Hawkesbury twps but only low numbers at other points.
1969-1974	not reported
1975	low populations at sampling points
1976-1980	not reported

Sugar Maple Borer, *Glycobius speciosus* (Say)

Host(s): maple

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1956	not reported
1957	extensive damage in sugar maple stands at several points in the district
1958-1980	not reported

Hemlock Looper, *Lambdina f. fiscellaria* Gn.

Host(s): hemlock, balsam fir

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1961	not reported
1962	a few larvae found in sampling in Cambridge Twp
1963-1980	not reported

Satin Moth, *Leucoma salicis* (L.)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1971	not reported
1972	Several silver poplar trees were moderate-to-severely defoliated in Cornwall and Lancaster twps. This was the first Ontario survey record of this pest.
1973	Little change in numbers; some very light defoliation was observed in the northern part of Lancaster Twp.
1974	Moderate-to-severe defoliation of hedgerows and occasional silver poplar recurred in Cornwall and Lancaster twps.
1975	Moderate-to-severe defoliation was recorded in Cornwall and Lancaster twps and near Casselman and Williamstown.
1976	infestation collapsed - none found in 1976
1977-1978	not reported
1979	moderate-to-severe defoliation of silver poplar near Williamsburgh
1980	not reported

Eastern Tent Caterpillar, *Malacosoma americanum* (F.)

Host(s): deciduous

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1954	found in varying numbers throughout the district, particularly along roads and in old fields
1955-1960	During this period populations were at a very low level throughout the district.
1961-1965	A gradual increase in populations over this period was detected in the district.
1966-1969	Medium-to-high numbers of tents were observed throughout the district.
1970-1978	High numbers throughout the district caused moderate-to-severe defoliation on cherry, apple and hawthorn.
1979	A general decrease in populations was detected and diseased larvae were observed at several locations.
1980	Tents were common along roads throughout the district.



Jack Pine Sawfly, *Neodiprion pratti banksianae* Roh.  
*N. pratti paradoxicus* Ross

Host(s): jP

[Major]

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951	Moderate-to-severe defoliation of a 2-ha plantation at Lunenburg, Stormont County, and lightly defoliated trees were observed at Plantagenet Springs in Prescott County.
1952	The same plantation at Lunenburg again sustained moderate-to-severe defoliation.
1953	Light defoliation was recorded in Charlottenburg Twp and near Iroquois in Matilda Twp.
1954	Moderate-to-severe defoliation was recorded in Alfred Twp.
1955-1956	not reported
1957	Defoliation of old foliage ranged up to 90% on some trees in the Berwick Forest, Finch Twp.
1958	Population levels decreased to scattered colonies throughout Berwick Forest in Finch Twp.
1959	Populations continued to decline and no serious defoliation occurred in Finch Twp.
1960	Populations recurred at approximately the same level as in 1959 in Finch Twp.
1961	only a few colonies found throughout the district.
1962-1964	not reported
1965	scattered colonies in Cambridge Twp
1966	Colonies of the sawfly were more abundant than in 1965.
1967	colonies observed at several locations
1968	Moderate-to-severe defoliation was recorded in Clarence Twp.
1969	A small area of moderate-to-severe defoliation recurred in Clarence Twp.
1970-1971	The infestation in Clarence Twp continued at approximately the same level as in 1969.
1972-1973	not reported
1974	In one plantation in Roxborough Twp defoliation on some trees exceeded 75%.
1975	not reported

(cont'd)

Jack Pine Sawfly, *Neodiprion pratti banksianae* Roh. (concl.)  
*N. pratti paradoxicus* Ross

<u>Year</u>	<u>Remarks</u>
1976-1977	moderate-to-severe defoliation of some trees in hedgerows and windbreaks at several locations
1978	Lightly defoliated trees were observed at several points in the district.
1979	Occasional trees were infested lightly in Finch Twp.
1980	low numbers in Roxborough Twp

Spring Cankerworm, *Paleacrita vernata* (Peck)

Host(s): deciduous [Minor]

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951-1952	lightly defoliated elm at several points
1953-1967	not reported
1968	small numbers found at several locations
1969	small numbers at a few locations
1970-1974	not reported
1975	trace populations
1976-1980	not reported

Maple Leafcutter, *Paraclemensia acerifoliella* (Fitch)

Host(s): maple

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1958	not reported
1959-1960	small numbers at a few locations
1961	not reported
1962	Light infestations were located in Russell and Mountain twps causing early shedding of sugar maple foliage.
1963	Light infestation were reported in Mountain and West Hawkesbury twps.
1964	Pockets of light infestation were found throughout Prescott, Russell and Dundas counties. A small pocket of medium-to-heavy infestations was located near Hallville in Mountain Twp.
1965	Moderate-to-severe defoliation recurred in Mountain Twp. Light infestations were present at many points in the district.
1966	Population levels decreased sharply and only small numbers were found in Mountain Twp.
1967-1980	not reported

Mountain-ash Sawfly, *Pristiphora geniculata* (Htg.)

Host(s): Mo, European mountain-ash

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	not reported
1952	light defoliation of ornamental and forest trees at many points
1953-1954	not reported
1955	Ornamental trees were severely defoliated at Winchester.
1956-1957	trace populations
1958-1965	not reported
1966-1967	light defoliated trees at several locations in the district
1968-1970	not reported
1971	found commonly on ornamental trees at many points
1972	Light defoliation of ornamentals was reported in South Lancaster in Lancaster Twp.
1973-1980	not reported

European Pine Shoot Moth, *Rhyacionia buoliana* (D. & S.)

Host(s): rP, jP, scP, mugho pine

[Major]

Year

Remarks

1950-1952           not reported

1953                A number of infested planting stock was found in a new plantation in the Larose Forest. Stock had been obtained from the St. Williams Nursery. Infested trees were sprayed by OMNR.

1954                Larvae were again found in the Larose Forest.

1955-1980           not reported

DISEASES

The following diseases are reported as occurring in the area...

...with a total of 12 cases reported during the period...

...and a total of 15 cases reported during the period...

...and a total of 18 cases reported during the period...

Armillaria Root Rot, *Armillaria mellea* (Vahl. : Fr.) Kummer

Host(s): conifers and deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1957	not reported
1958	several red pine killed in a plantation in Berwick County Forest
1959	small number of dead red pine trees in a plantation in Finch Twp
1960-1963	not reported
1964	a few trees killed in jack pine and red pine plantations
1965	seven red pine trees killed in a plantation in Cambridge Twp
1966	small centers of light infection at several points
1967-1970	not reported
1971	Heavy infections occurred on mature beech trees in Lancaster Twp.
1972-1973	single trees killed at several locations
1974	not reported
1975	In Clarence and Cambridge twps Scots pine and eastern white pine trees in plantations sustained an average of 2% mortality.
1976	occasional dead trees in red pine plantations
1977-1978	not reported
1979	light infections in the Larose, Prescott and Russell county forests
1980	not reported

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

Host(s): elm

(Major)

<u>Year</u>	<u>Remarks</u>
1950-1951	not reported
1952	collected at several locations in the eastern part of the district
1953-1958	Infection spread slowly from east to west across the district.
1959-1964	Incidence of infected trees increased across the district.
1965	Incidence of the disease continued to increase and dead trees were observed commonly throughout the district.
1966	Tree mortality averaged 5% at sample plots in the district.
1967-1971	Heavy mortality of elm was reported along the north shore of the St. Lawrence River.
1972	Incidence and mortality continued to increase across the district.
1973	Mortality averaged 8% at sample locations.
1974-1975	Mortality averaged 5% at sample locations.
1976	Tree mortality averaged 19% at sample points in the district.
1977	Widespread damage was recorded through the district.
1978-1980	not reported

Ink Spot of Aspen, *Ciborinia whetzellii* (Seaver) Seaver

Host(s): trembling aspen

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1960	not reported
1961	light foliar damage at several locations
1962-1966	not reported
1967	occasional trees lightly infected at scattered points
1968	trace infection levels at several locations
1969	Lightly infected trees were observed at several points in Winchester Twp.
1970-1971	not reported
1972	Moderate-to-severe foliar damage was recorded at several points in Clarence and Cambridge twps.
1973-1974	not reported
1975	moderate-to-severe foliage damage in the Larose Forest
1976	low infection levels near St. Isidore
1977-1978	not reported
1979	lightly infected trees common through the eastern part of the district
1980	trace infection levels at several points in Roxborough Twp



White Pine Blister Rust, *Cronartium ribicola* J.C. Fischer

Host(s): wP

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1953	not reported
1954-1955	infected trees observed commonly through the district
1956-1958	not reported
1959	infected trees observed commonly through the district
1960	not reported
1961-1967	infected trees common through the district
1968	18% incidence on 2-m trees in Charlottenburg Twp
1969-1971	not reported
1972	incidence in plantations in the Larose Forest was 65% and the current mortality rate was 10%
1973	10% mortality of 24-m trees was recorded in Clarence Twp
1974	not reported
1975	4% mortality of 6-m trees in Cambridge Twp
1976-1977	not reported
1978	observed commonly in the district
1979-1980	not reported

Hypoxylon Canker, *Hypoxylon mammatum* (Wahlenb.) J. Miller

Host(s): Poplar

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	Surveys showed the canker was present in most aspen stands in the district.
1956-1957	found commonly through the district
1958-1963	not reported
1964	Small pockets of light infection were reported in the district.
1965-1967	cankers common throughout the district
1968	Incidence of infection at sample locations averaged 26%.
1969-1973	not reported
1974	Moderate-to-severe damage was reported along Highway 43 east of Kemptville.
1975	common throughout the district
1976-1979	not reported
1980	found commonly throughout the district

Shoot Blight, *Venturia macularis* (Fr.) E. Müller & v. Arx.

Host(s): Poplar

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1960	not reported
1961	trace infection at several locations
1962	Lightly infected trees were found commonly through the district.
1963-1966	Small numbers of lightly infected trees were found at many points in the district.
1967-1969	trace infections at a few locations
1970-1973	not reported
1974	Light infections were reported at several locations.
1975	heavy infections reported near Bourget
1976	Varying infection levels were reported at several points.
1977	infections common through the district
1978-1980	not reported

#### Other Noteworthy Diseases

Scleroderris Canker, *Ascocalyx abietina* (Lagerb.) Schläpfer-Bernhard

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1977	not reported
1978	Extensive surveys were conducted through the district for both the native and European strains of this canker but none was found.
1979-1980	Surveys were continued with negative results.

Pine Needle Rust, *Coleosporium asterum* (Dietel) Sydow

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1966	not reported
1967	lightly infected red pine trees in plantations in Clarence Twp
1968-1970	not reported
1971	trace populations at several points
1972	moderate foliar damage in a 4 year old red pine plantation in Cambridge Twp
1973-1980	trace infections at several locations

Eastern Gall Rust, *Cronartium quercuum* (Berk.) Miyabe ex Shirai f. sp.

Host(s): jP, scP

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1979	not reported
1980	found commonly on scP through the southern part of the district

Cytospora Canker, *Cytospora kunzei* Sacc.

Host(s): spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1965	not reported
1966-1967	Severe infection occurred in a 30 year old white spruce plantation in the Larose Forest.
1968	light infections at several points in the Larose Forest
1969	lightly damaged trees in spruce plantations in Clarence Twp
1970	Incidence levels of 30% were recorded in a plantation in Cambridge Twp.
1971-1978	not reported
1979	many hedgerows of Norway spruce and white spruce infected through the district
1980	not reported

Western Gall Rust, *Endocronartium harknessii* (J.P. Moore) Y. Hirats

Host(s): pines [Minor]

<u>Year</u>	<u>Remarks</u>
1950-1969	not reported
1970	trace infections in several plantations
1971-1980	not reported

Eutypella Canker, *Eutypella parasitica* Davidson & Lorenz

Host(s): sugar maple [Major]

<u>Year</u>	<u>Remarks</u>
1950-1969	not reported
1970	Heavily infested sugar maple woodlots were reported in Lochiel Twp.
1971-1972	not reported
1973	trace incidence through the district
1974-1980	not reported

Anthracnose, *Gloeosporium* spp. *Kabatiella apocrypta* (Ell. & Ev.) Arx

Host(s): deciduous [Minor]

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	Basswood foliage heavily infected the southern part of the district.
1956-1960	not reported
1961	oak and ash heavily infected at several points
1962-1980	not reported

Fomes Root Rot, *Heterobasidion annosum* (Fr.) Bref.

Host(s): conifers

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1967	not reported
1968	A total of 14 infection centers were discovered in a 120-ha, 30 year old, mixed plantation of red, eastern white and Scots pine which had been thinned between 1958 and 1962. The plantation was located in the Larose Forest.
1969	No new infection centers were found in the district and no spread was observed from those treated in 1968.
1970	not reported
1971-1972	no change in the status of this disease in the district
1973	trace infections in Clarence Twp
1974-1979	not reported
1980	trace damage in compartment 64A, Larose Forest

DIEBACKS AND DECLINES

The following table shows the number of acres of  
 timberland in the State of California, by  
 county, for the years 1900, 1910, and 1920.  
 The figures are based on the reports of the  
 State Forester, and are subject to change  
 as more complete information is obtained.  
 The total number of acres of timberland in  
 the State for each year is also given.  
 The percentage of the total timberland  
 in each county for each year is also  
 given. The percentage of the total  
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 total timberland in each county for  
 each year is also given. The percentage  
 of the total timberland in the State  
 for each year is also given.

## Maple Decline

<u>Year</u>	<u>Remarks</u>
1950-1976	occasional dead trees along highways and in woodlots reported during this period
1977	Surveys carried out in a variety of situations failed to identify any single cause of mortality.
1978	Surveys continued, severe drought and insect infestations were cited as possible contributing agents to decline.
1979-1980	Decline appears to be stabilized in this district.



**ABIOTIC DAMAGE**

The following table shows the results of the analysis of the samples collected during the expedition to the Antarctic Peninsula in 1956-57. The samples were collected from the ice shelves and the icebergs in the area of the Antarctic Peninsula. The results show that the samples contain a high percentage of abiotic damage, which is characteristic of the Antarctic environment. The abiotic damage is caused by the extreme cold and the high levels of radiation in the area. The results also show that the samples contain a high percentage of organic matter, which is characteristic of the Antarctic environment. The organic matter is derived from the remains of plants and animals that have died in the area. The results show that the abiotic damage is a major factor in the degradation of the samples. The abiotic damage is caused by the extreme cold and the high levels of radiation in the area. The results also show that the samples contain a high percentage of organic matter, which is characteristic of the Antarctic environment. The organic matter is derived from the remains of plants and animals that have died in the area. The results show that the abiotic damage is a major factor in the degradation of the samples.

## Drought

<u>Year</u>	<u>Remarks</u>
1950-1974	not reported
1975	Premature leaf fall attributed to lack of rainfall was observed at several locations in the district.
1976	Pockets of mortality attributed to drought conditions in 1975 were reported in the Larose County Forest.
1977-1980	not reported

## Frost

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	young red pine plantations heavily damaged in the Stormont County Forest
1954-1963	not reported
1964	Widespread foliar damage to many tree species by late spring frosts was reported throughout the district.
1965-1968	not reported
1969	Late spring frosts severely damaged deciduous foliage, particularly oak and ash through the southern part of the district.
1970-1976	not reported
1977	Late spring frosts caused moderate damage to the new foliage of hybrid poplar and the expanding shoots of conifers at several locations in the district.
1978-1980	not reported

## Salt Damage

<u>Year</u>	<u>Remarks</u>
1950-1953	not reported
1954	Red pine, Scots pine, white spruce and balsam fir up to 11 cm DBH were severely damaged by salt spray along Hwy 401.
1955-1966	not reported
1967	Light mortality of red pine and white cedar plantings was reported along Highway 43 in the district.
1968-1977	not reported
1978	approximately 40% of small red pine and cedar trees severely damaged in the Long Sault and Iroquois areas
1979-1980	not reported

## Semimature Tissue Needle Blight

Host(s): eastern white pine [Minor]

<u>Year</u>	<u>Remarks</u>
1950-1963	not reported
1964	trace infections at several locations
1965-1969	not reported
1970	conspicuous discoloration of foliage in the southern part of the district
1971-1980	not reported

## Sleet

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	heavy damage to large deciduous trees, particularly American elm at several points in Stormont County
1954-1980	not reported

## Winter Drying

<u>Year</u>	<u>Remarks</u>
1950-1966	not reported
1967	Light foliage damage on red pine at several points
1968	not reported
1969	Severe browning of red and eastern white pine foliage was reported along highway between Morrisburg and Cornwall and in plantations in Finch Twp.
1970	not reported
1971	heavy discoloration of red and eastern white pine trees near Morrisburg and in Finch Twp
1972-1980	not reported

A P P E N D I C E S

1. The first appendix contains a list of the names of the persons who were interviewed for the purpose of this study. The names are listed in alphabetical order.

2. The second appendix contains a list of the names of the persons who were interviewed for the purpose of this study. The names are listed in alphabetical order.

3. The third appendix contains a list of the names of the persons who were interviewed for the purpose of this study. The names are listed in alphabetical order.

4. The fourth appendix contains a list of the names of the persons who were interviewed for the purpose of this study. The names are listed in alphabetical order.

## APPENDIX A

## DECIDUOUS HOST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Abbreviations</u>
Alder	<i>Alnus</i> spp.	Al
Apple	<i>Malus</i> spp.	Ap
Ash, black white	<i>Fraxinus nigra</i> Marsh. <i>americana</i> L.	bAs wAs
Aspen, largetooth trembling	<i>Populus grandidentata</i> Michx. <i>tremuloides</i> Michx.	lA tA
Basswood	<i>Tilia americana</i> L.	Ba
Beech	<i>Fagus grandifolia</i> Ehrh.	Be
Birch, white yellow	<i>Betula papyrifera</i> Marsh. <i>alleghaniensis</i> Britt.	wB yB
Butternut	<i>Juglans cinerea</i> L.	Bu
Catalpa	<i>Catalpa</i> spp.	Ca
Cherry, eastern choke pin	<i>Prunus virginiana</i> L. <i>pensylvanica</i> L.f.	eaCh pCh
Elm, white	<i>Ulmus americana</i> L.	wE
Hackberry	<i>Celtis occidentalis</i> L.	Ha
Hickory, bitternut shagbark	<i>Carya cordiformis</i> (Wang.) K. Koch <i>ovata</i> (Mill.) K. Koch	bHi sHi
Horse-chestnut	<i>Aesculus carnea</i> Hayne	hChe
Ironwood	<i>Ostrya</i> spp.	I
Maple, Manitoba red silver sugar	<i>Acer negundo</i> L. <i>rubrum</i> L. <i>saccharinum</i> L. <i>saccharum</i> Marsh.	mM rM siM sM

(continued)

## APPENDIX A (continued)

## DECIDUOUS HOST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Abbreviations</u>
Mountain-ash, American	<i>Sorbus americana</i> Marsh.	aMo
Oak, black	<i>Quercus velutina</i> Lam.	blO
bur	<i>macrocarpa</i> Michx.	bO
red	<i>rubra</i> L.	rO
white	<i>alba</i> L.	wO
Poplar, balsam	<i>Populus balsamifera</i> L.	bPo
Carolina	<i>eugenei</i> Simon-Louis	cPo
Lombardy	<i>nigra</i> L. var. <i>italica</i> Muench.	lPo
silver	<i>alba</i> L.	sPo
Sycamore	<i>Platanus occidentalis</i> L.	Sy
Walnut, black	<i>Juglans nigra</i> L.	Wa
Willow	<i>Salix</i> spp.	W

## APPENDIX B

## CONIFEROUS HOST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Abbreviations</u>
Cedar, eastern white	<i>Thuja occidentalis</i> L.	eC
Fir, balsam	<i>Abies balsamea</i> (L.) Mill.	bF
Larch, European	<i>Larix decidua</i> Mill.	eL
Pine, Austrian	<i>Pinus nigra</i> Arn.	auP
eastern white	<i>strobis</i> L.	ewP
jack	<i>banksiana</i> Lamb.	jP
mugho	<i>mugho</i> Turra	mP
red	<i>resinosa</i> Ait.	rP
Scots	<i>sylvestris</i> L.	scP
Spruce, black	<i>Picea mariana</i> (Mill.) B.S.P.	bS
Colorado	<i>pungens</i> Engelm.	colS
Norway	<i>abies</i> (L.) Karst.	nS
red	<i>rubens</i> Sarg.	rS
white	<i>glauca</i> (Moench) Voss	wS
Tamarack	<i>Larix laricina</i> (Du Roi) K. Koch	tL



A P P E N D I X C

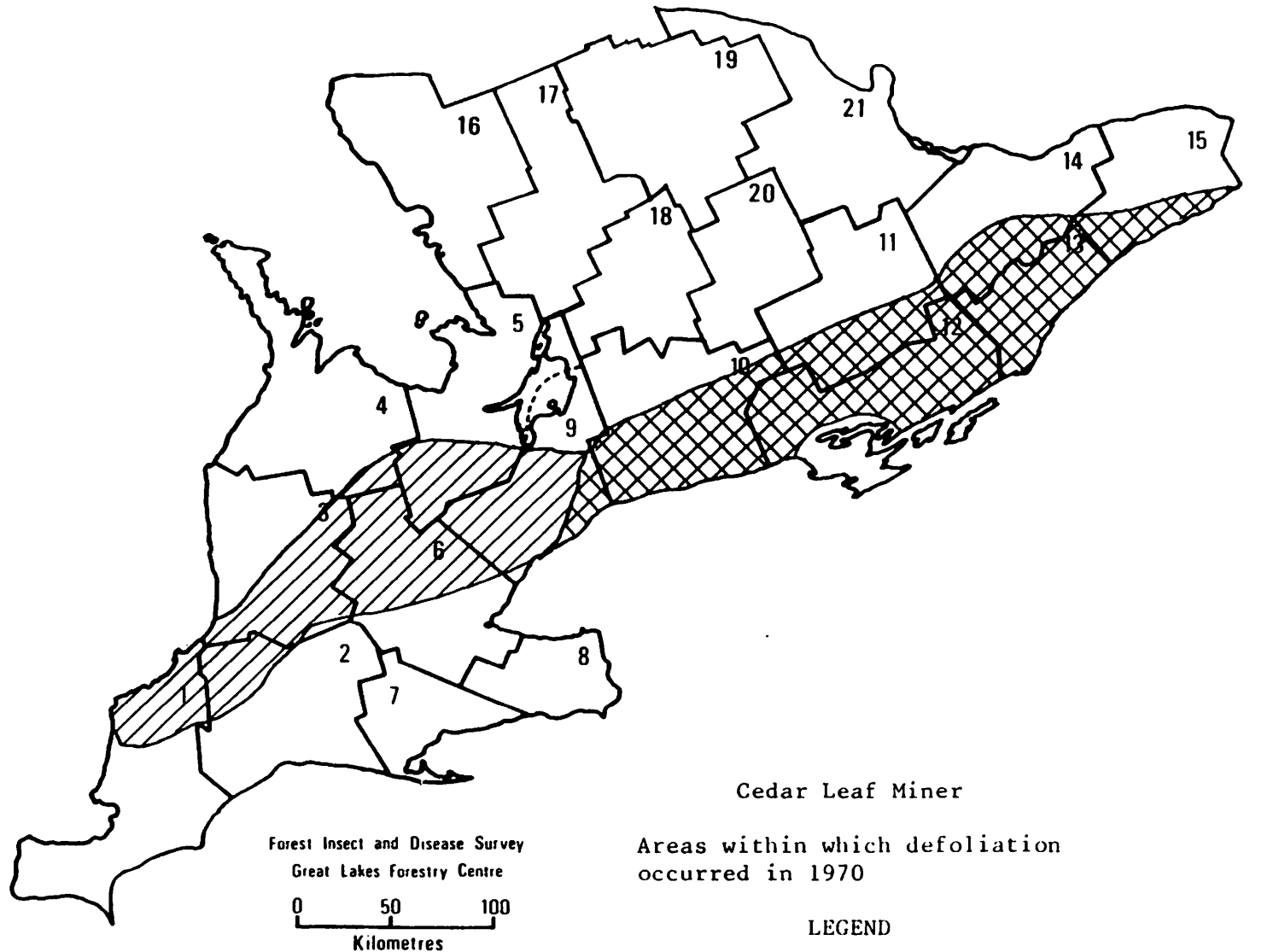
MAPS - SOUTHERN ONTARIO

1	Map of Southern Ontario showing major cities and roads	1
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4	Map of Southern Ontario showing major cities and roads	4
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50	Map of Southern Ontario showing major cities and roads	50

# SOUTHERN ONTARIO

## DISTRICTS

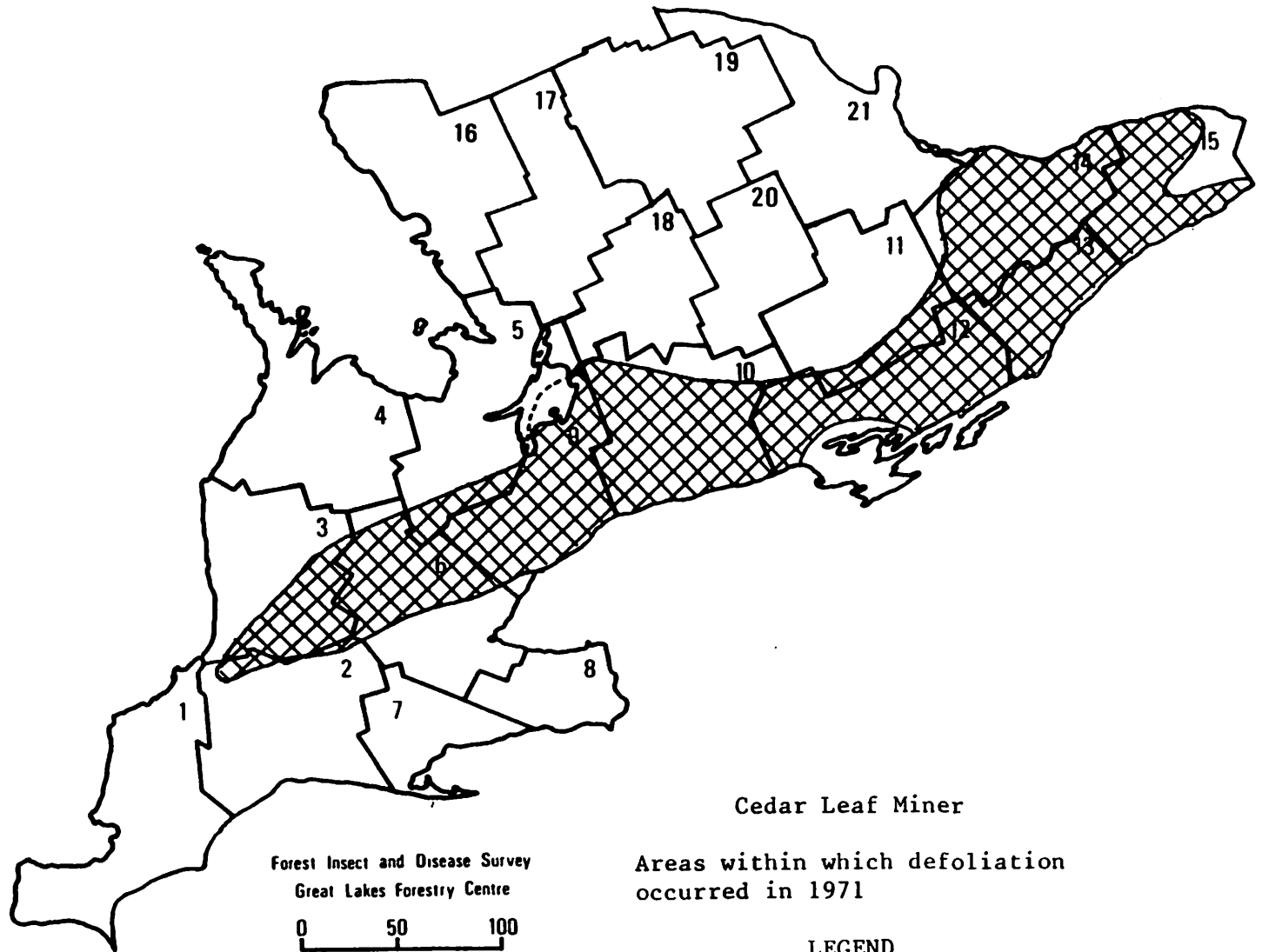
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# SOUTHERN ONTARIO

## DISTRICTS

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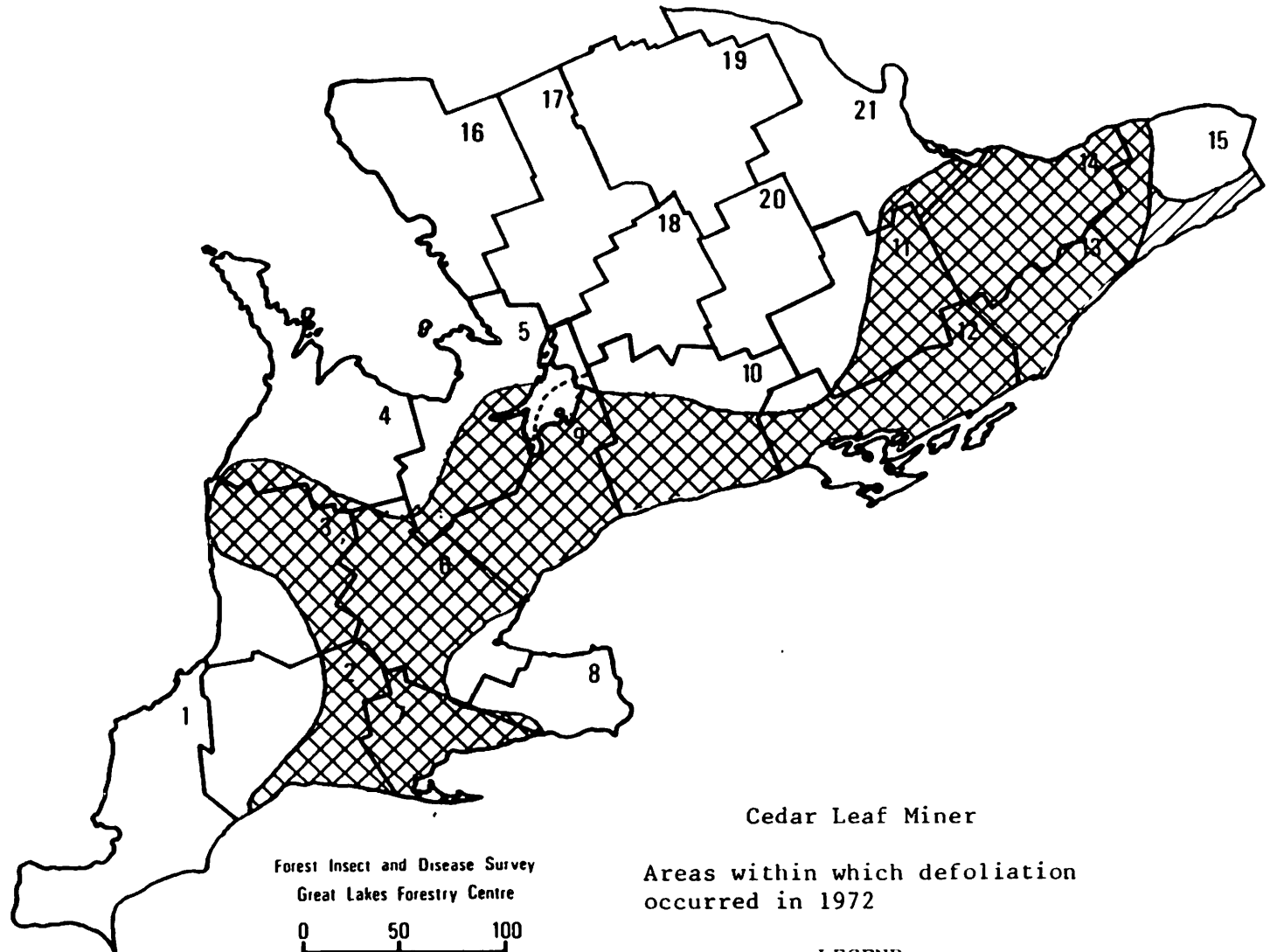
Moderate-to-severe defoliation



# SOUTHERN ONTARIO

## DISTRICTS

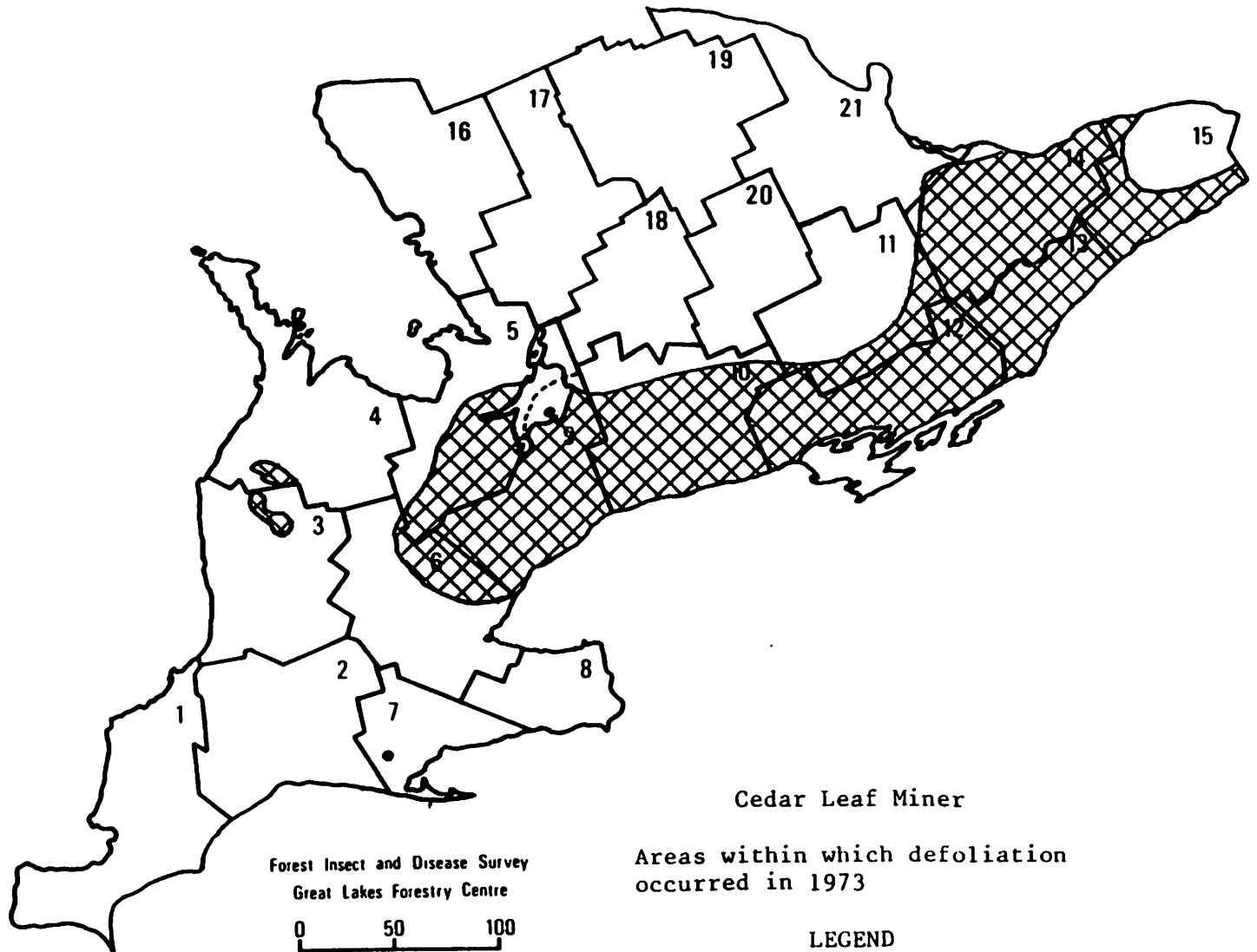
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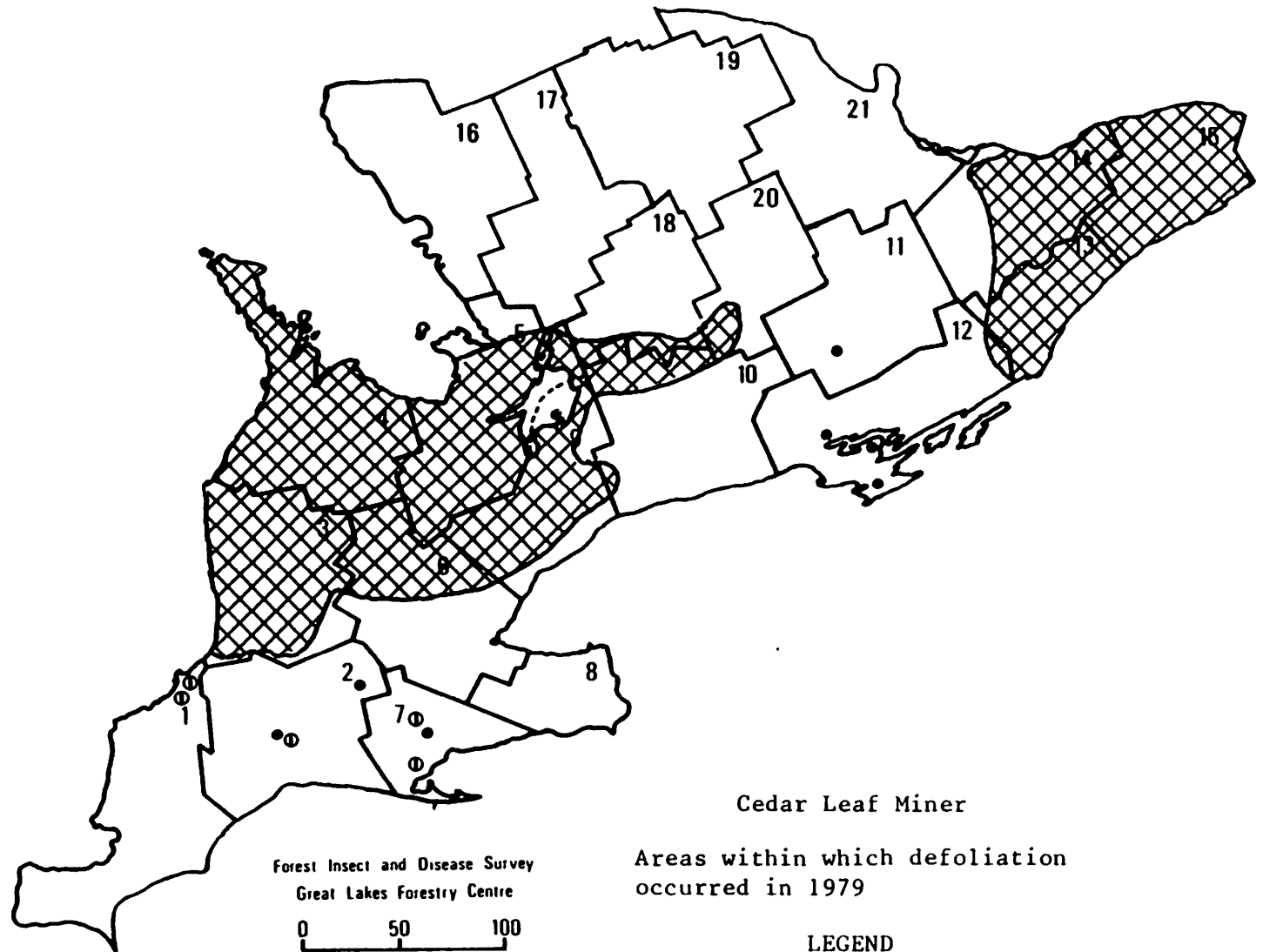


Moderate-to-severe defoliation • or 

# SOUTHERN ONTARIO

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Light defoliation

Moderate-to-severe defoliation



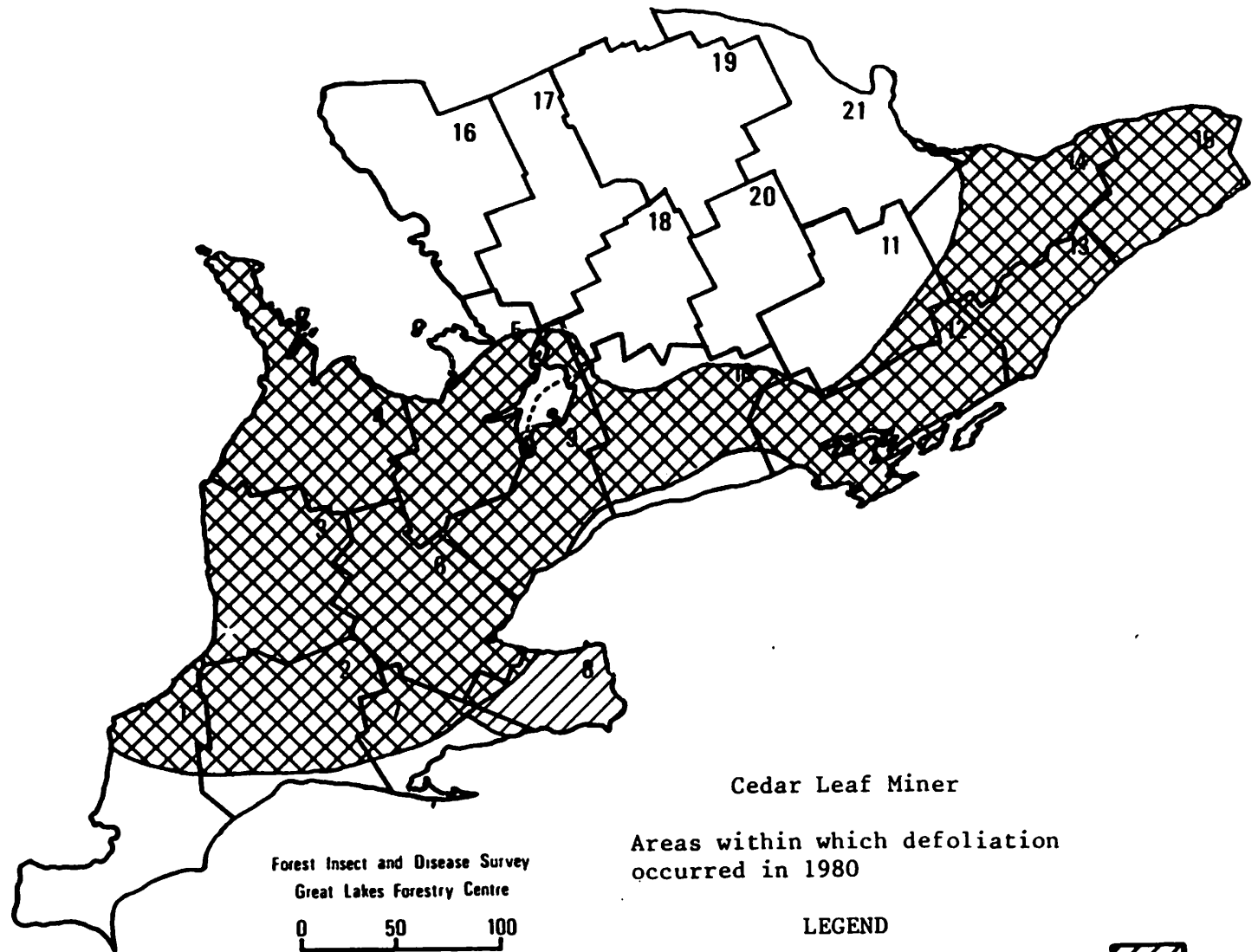
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# SOUTHERN ONTARIO

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Cedar Leaf Miner

Areas within which defoliation  
occurred in 1980

## LEGEND

Light defoliation

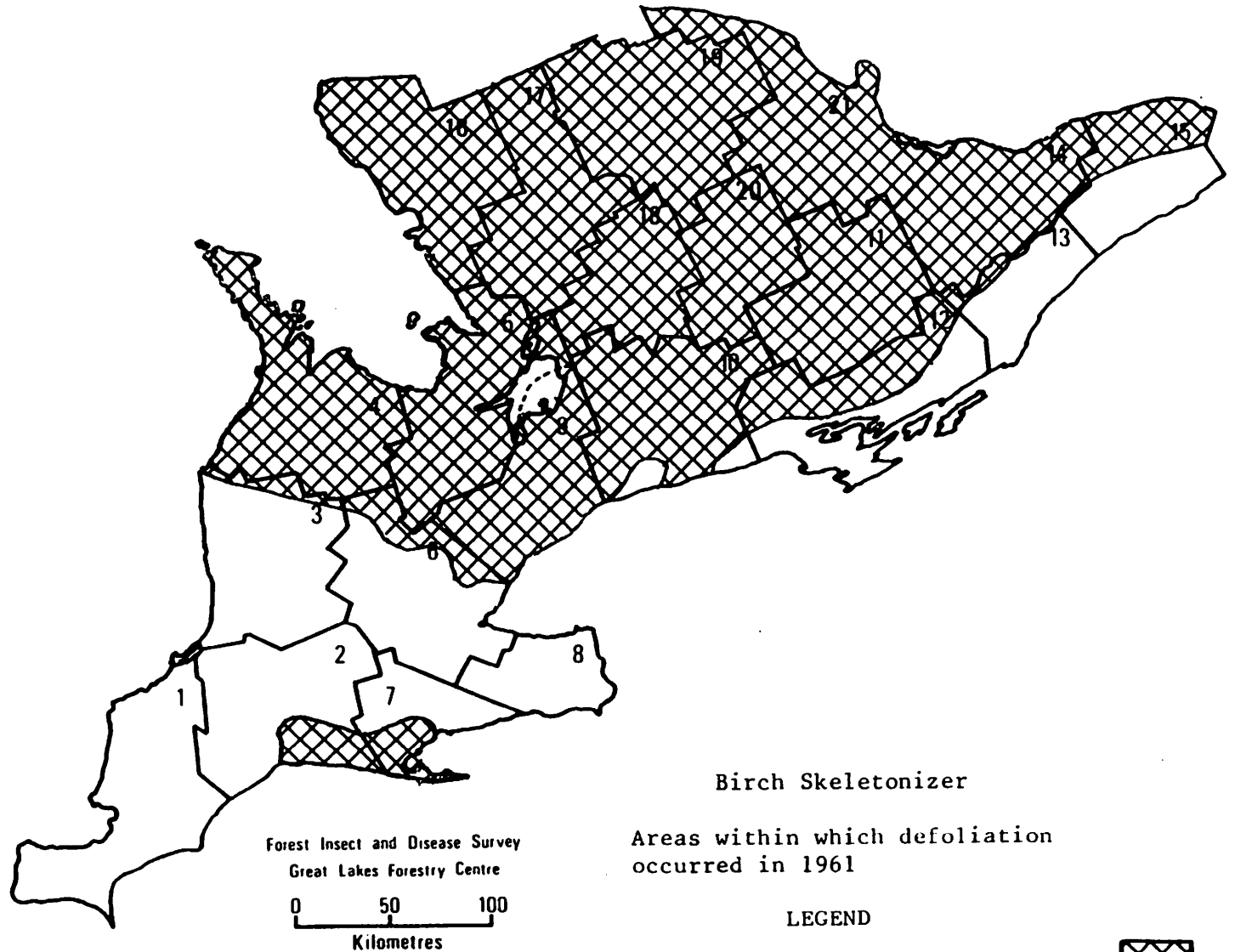
Moderate-to-severe defoliation



# SOUTHERN ONTARIO

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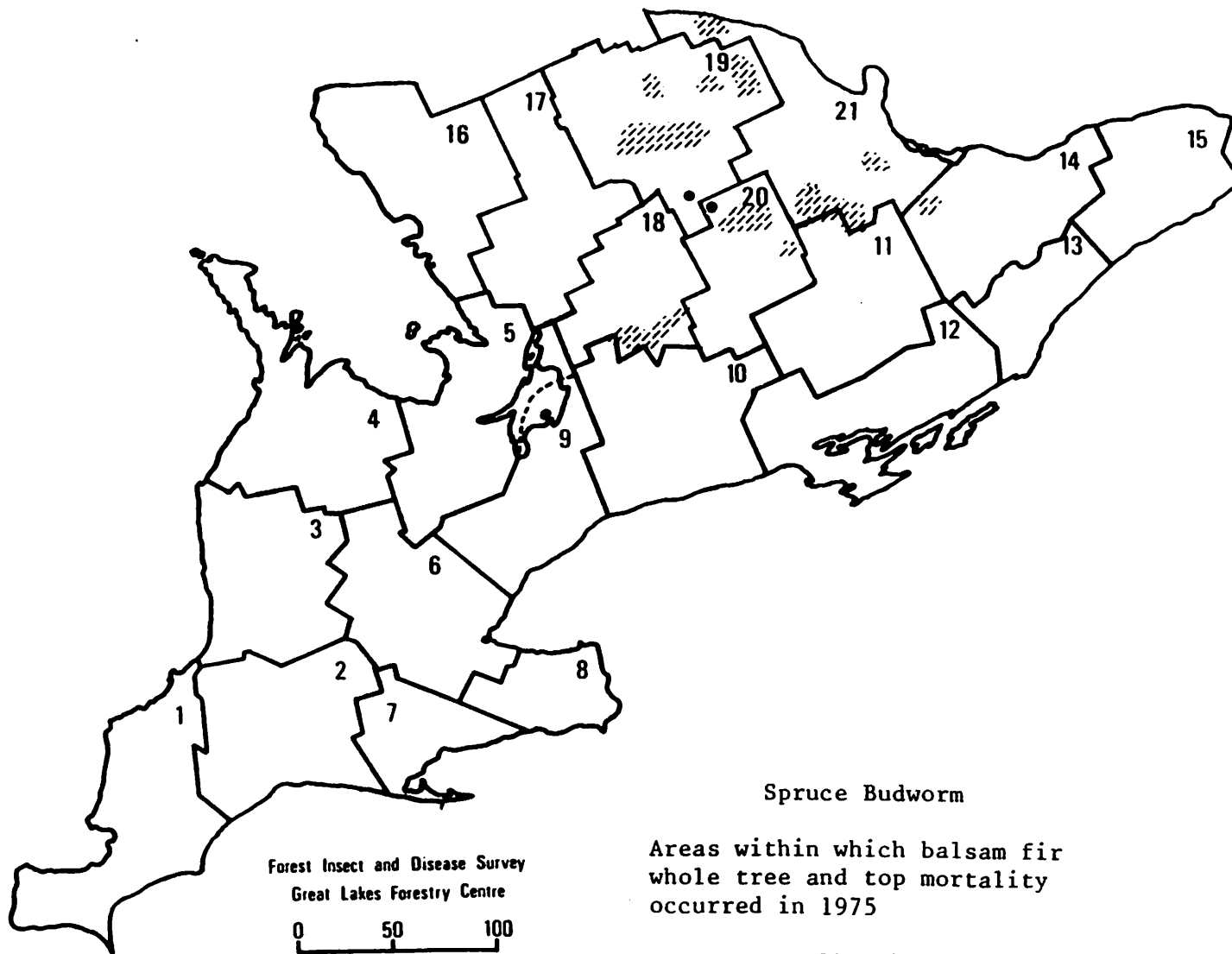




# SOUTHERN ONTARIO

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## LEGEND

Mortality

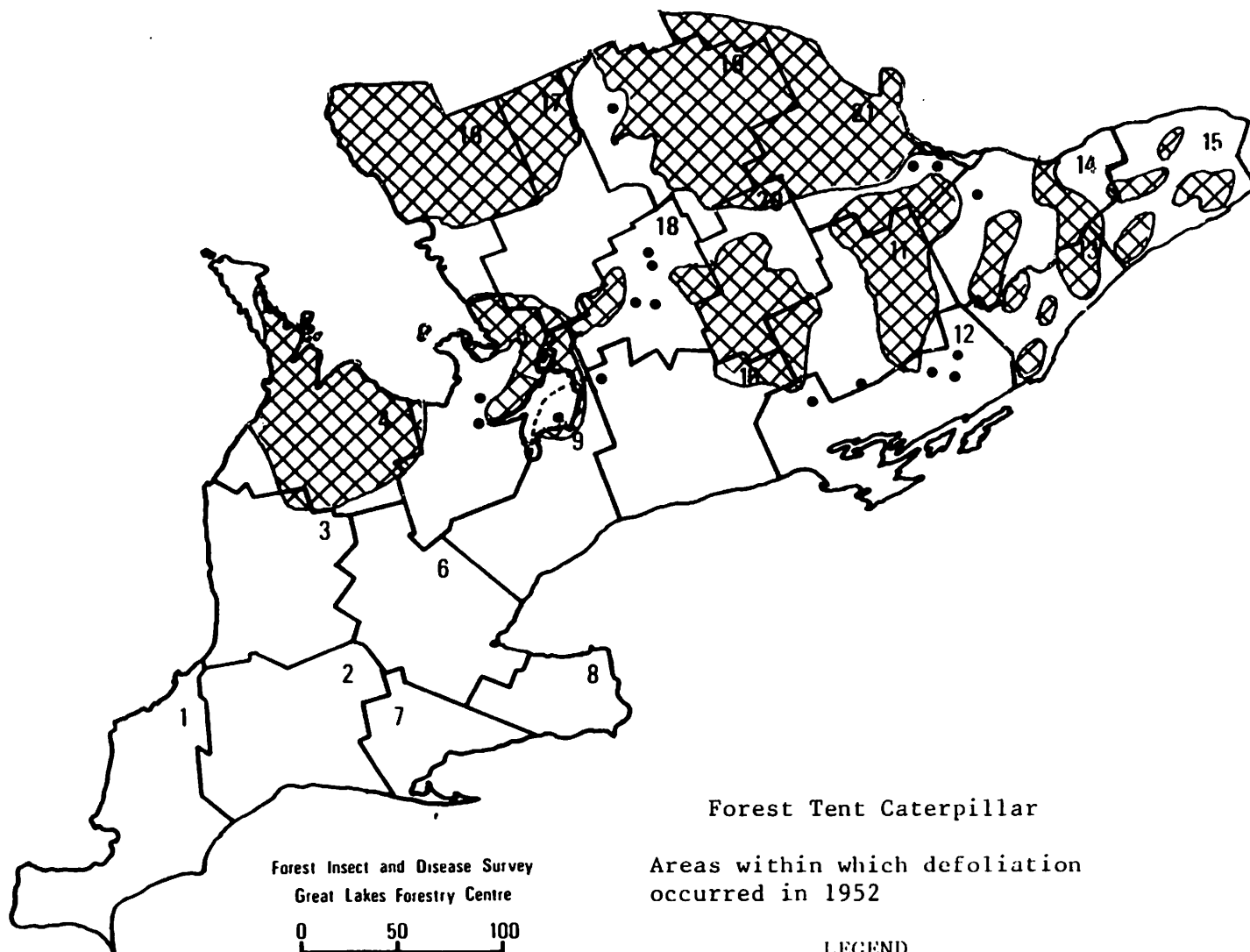
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# SOUTHERN ONTARIO

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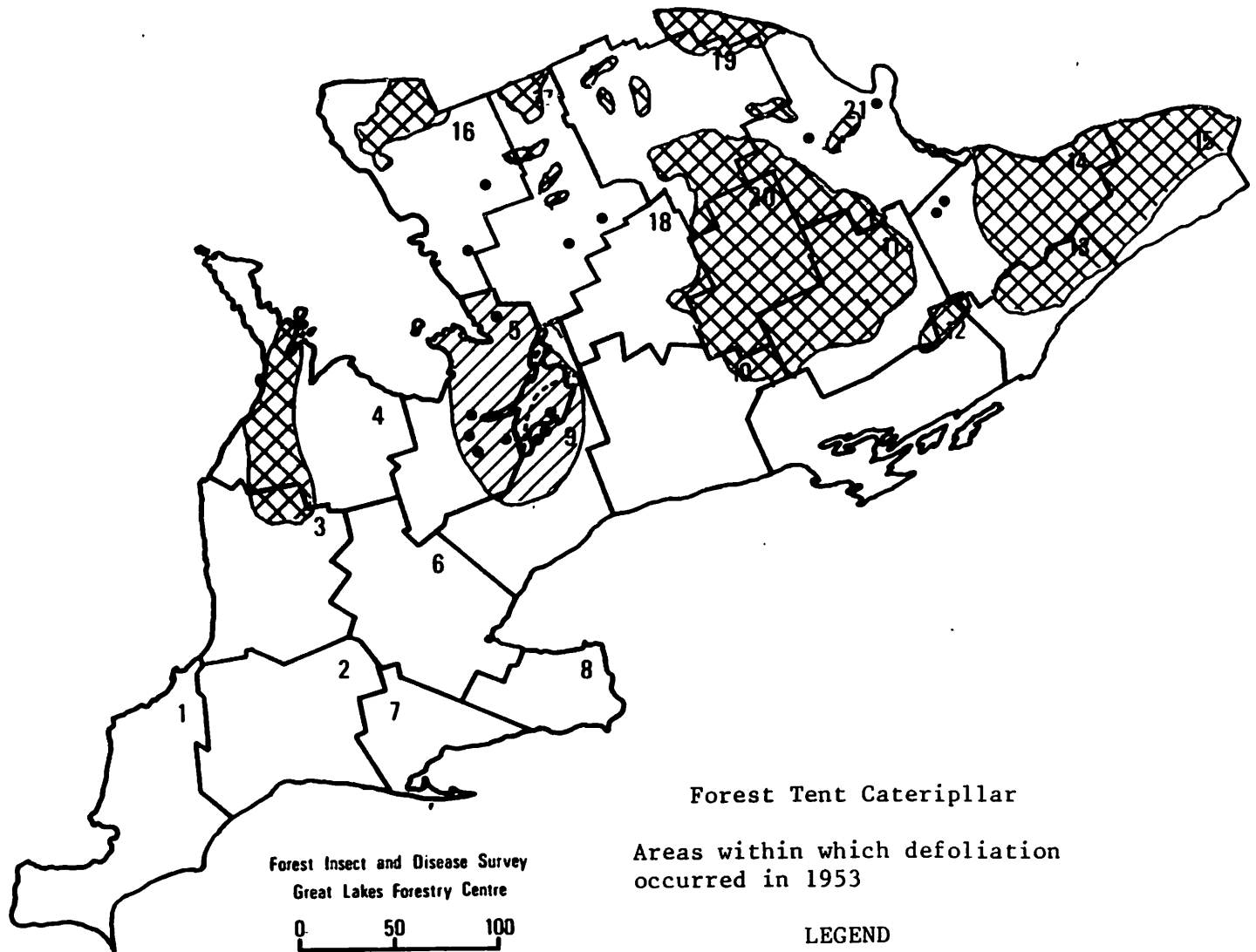


Moderate-to-severe defoliation • or 

# SOUTHERN ONTARIO

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Forest Tent Caterpillar

Areas within which defoliation occurred in 1953

### LEGEND

Light defoliation



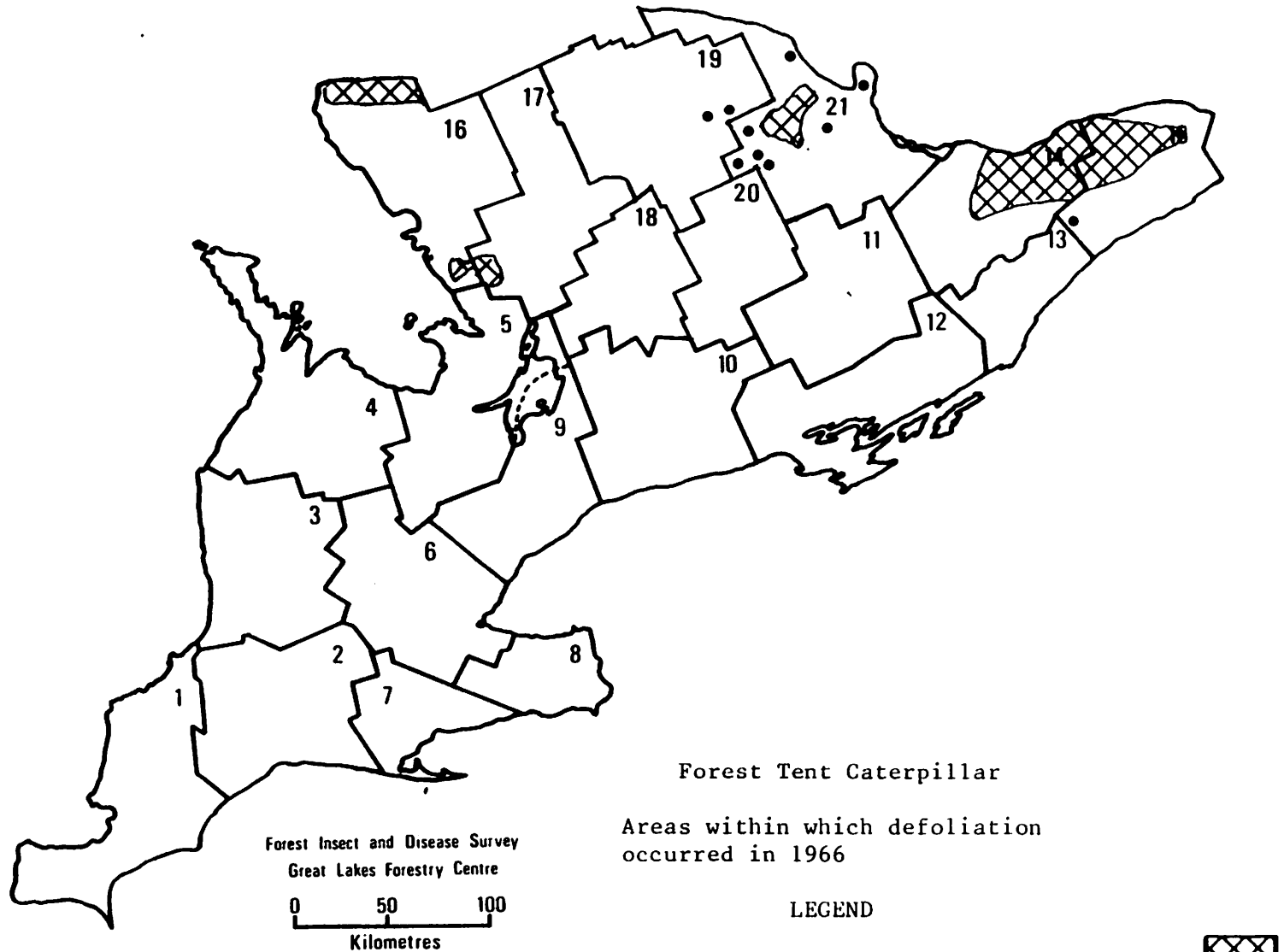
Moderate-to-severe defoliation • or




# SOUTHERN ONTARIO

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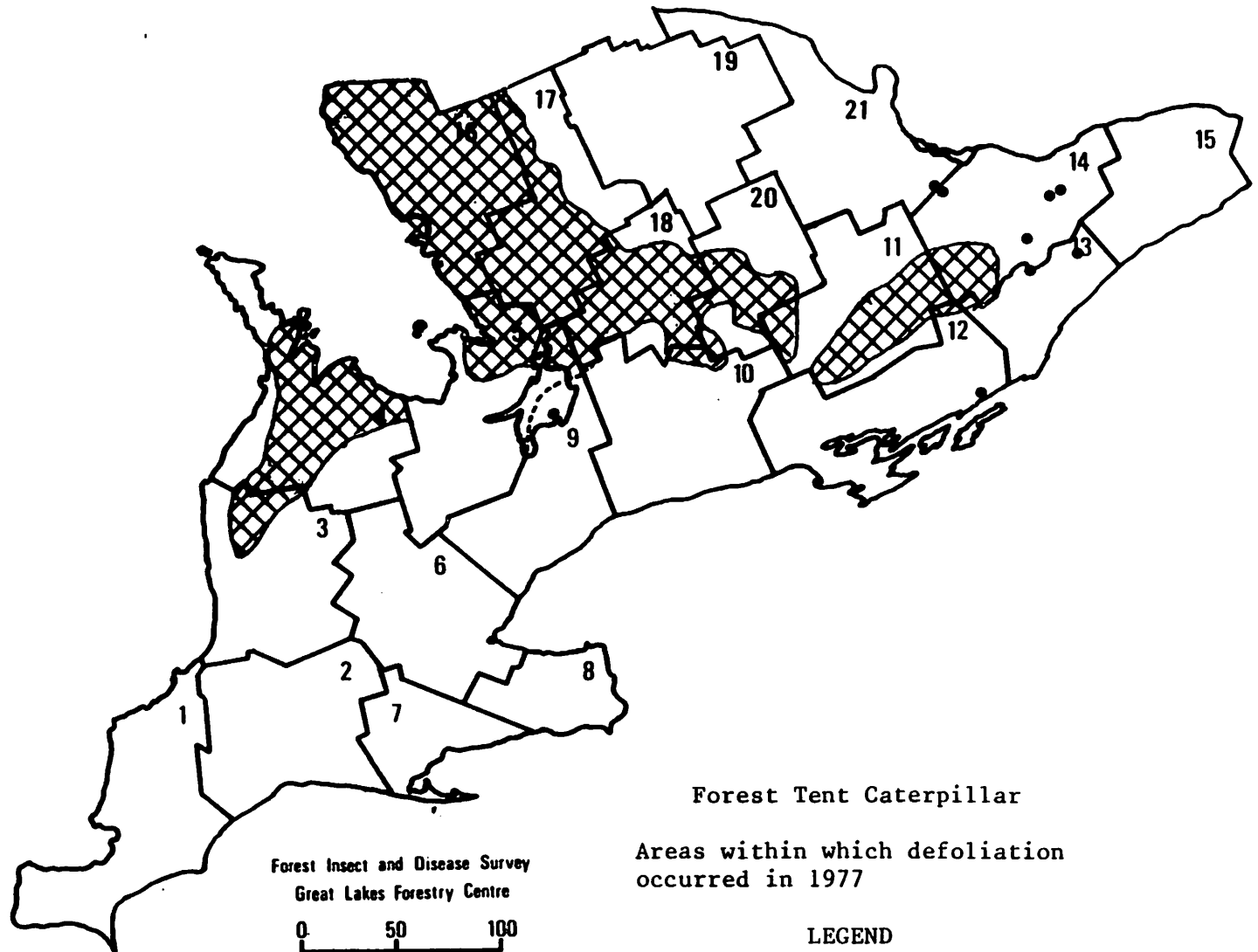


Moderate-to-severe defoliation • or 

# SOUTHERN ONTARIO

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Moderate-to-severe defoliation • or 