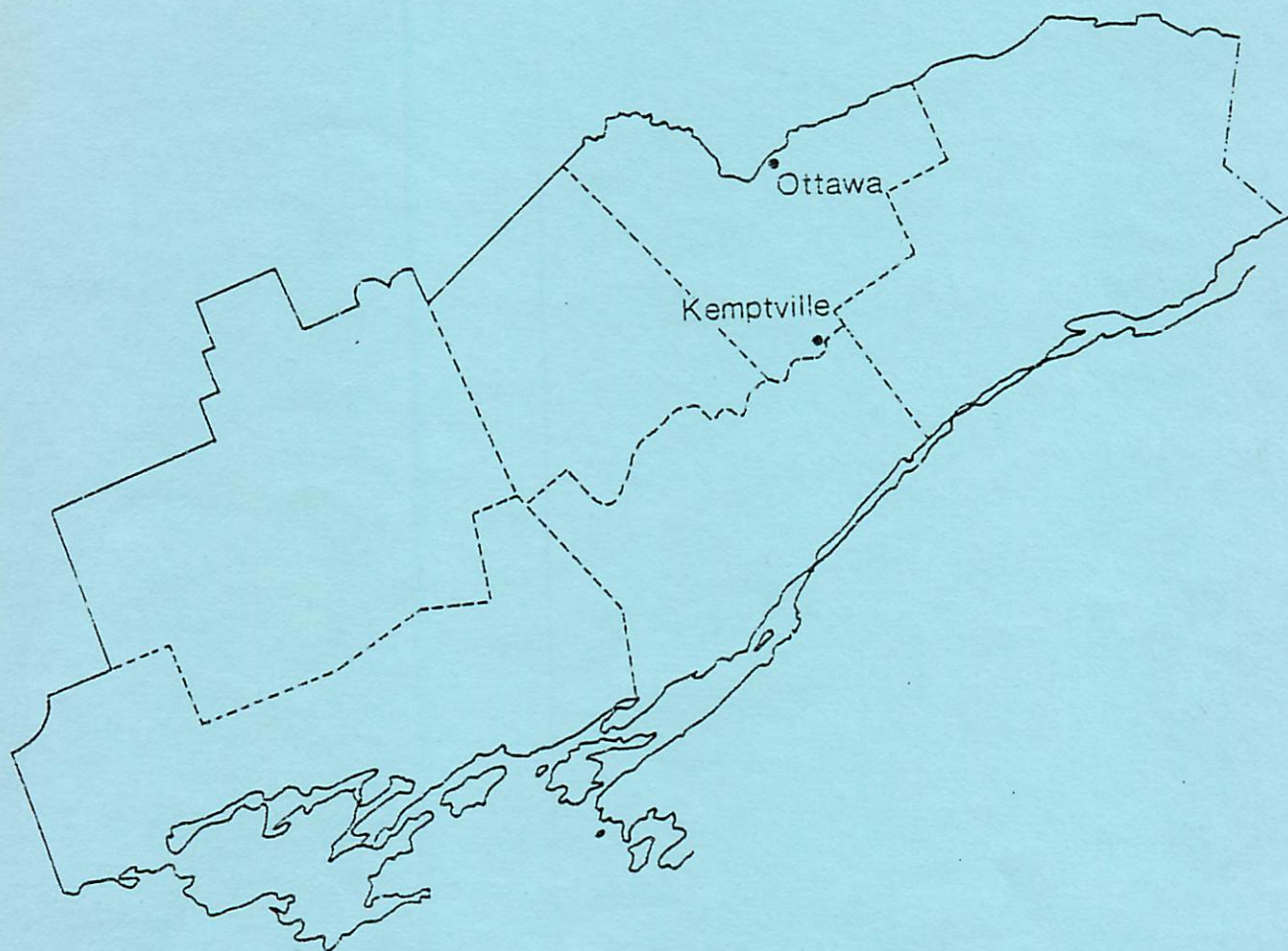


# Results of forest insect and disease surveys in the EASTERN REGION of Ontario, 1980



CARRIED OUT BY THE GREAT LAKES FOREST  
RESEARCH CENTRE IN CO-OPERATION WITH  
THE ONTARIO MINISTRY OF NATURAL RESOURCES

## SURVEY HIGHLIGHTS

The following information deals with the more important insect and disease conditions in the Eastern Region in 1980.

The cedar leafminer infestation continued to increase in both intensity and size, with virtually all of the Region infested. Spruce budworm continued to cause severe defoliation in spruce and balsam fir areas in the Tweed and Lanark districts. Oaks were severely defoliated in the northern portion of Tweed District by the oak leaf shredder, and throughout the southern portion of the Region by leafrollers and blotch miners. White pine weevil damage was extremely heavy in three plantations in the Tweed District and chemical control was undertaken by the Ontario Ministry of Natural Resources. There was a marked decrease in redheaded pine sawfly populations and in the levels of damage caused by this insect.

An extensive survey which included monitoring of 20 permanent sample plots was conducted for Scleroderris canker (European race) throughout the Region. Maple decline and ash dieback continue to be problems at numerous locations. Leaf rust of poplars was very heavy on hybrid poplar clones at the G. Howard Ferguson Forest Station, Brockville District, and frost early in June affected fringe and open growing trees at scattered locations throughout the Region.

The format of the Table of Contents has been changed this year to include an index rating scheme for both insects and diseases. The criteria used to categorize the insects and diseases are as follows:

- A - of major importance, capable of killing or severely damaging trees or shrubs
- B - of moderate importance, capable of sporadic or localized injury to trees or shrubs
- C - of minor importance, not known to present a threat to living trees or shrubs

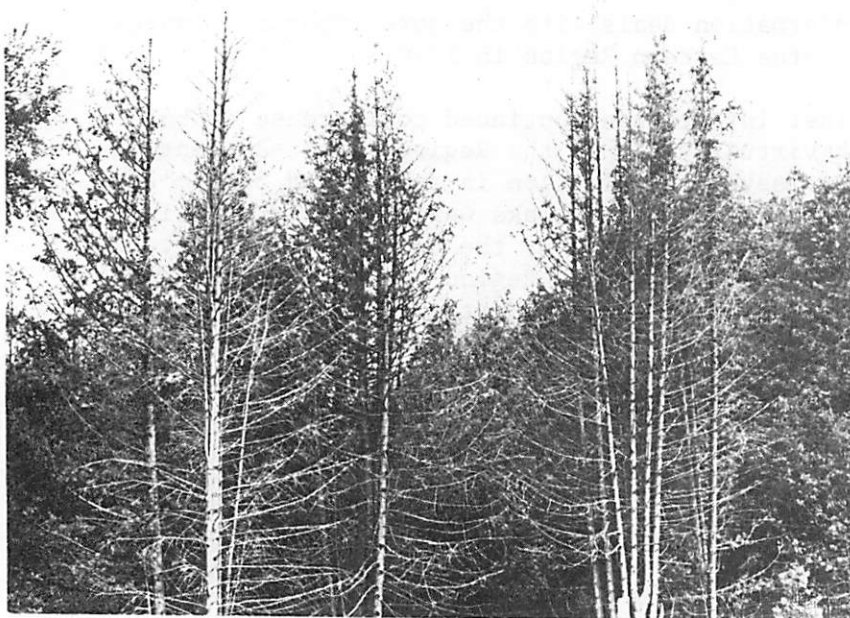
Another new feature of this report is that the occurrence of each pest by district is also included in the Table of Contents.

The author would like to express his appreciation to the personnel of the Ontario Ministry of Natural Resources for their excellent cooperation during the 1980 field season.

R. J. Sajan



## Frontispiece



Typical stand damage  
resulting from heavy  
infestation of cedar  
leafminer complex  
(*Argyresthia* and  
*Pulicalvaria* spp.)

Example of maple (*Acer* spp.) decline  
common along roadsides throughout  
the Region.



# TABLE OF CONTENTS

## INSECTS

Page

### Category A

Pine False Webworm, <i>Acantholyda erythrocephala</i> . . . . .	1
(Ottawa, Brockville and Tweed districts)	
Orangestriped Oakworm, <i>Anisota finlaysoni</i> . . . . .	1
(Napanee District)	
Cedar Leafminers, <i>Argyresthia thuiella</i> , <i>A. canadensis</i> , <i>A. aureoargentella</i> and <i>Pulicalvaria</i> <i>thujaella</i> . . . . .	1
(Brockville, Cornwall, Lanark, Napanee, Ottawa and Tweed districts)	
Spruce Budworm, <i>Choristoneura fumiferana</i> . . . . .	2
(Brockville, Cornwall, Lanark, Ottawa and Tweed districts)	
Satin Moth, <i>Leucoma salicis</i> . . . . .	2
(Napanee, Brockville and Ottawa districts)	
Redheaded Pine Sawfly, <i>Neodiprion lecontei</i> . . . . .	2
(Brockville, Lanark and Tweed districts)	
Jack Pine Sawfly, <i>Neodiprion pratti paradoxicus</i> . . . . .	5
(Cornwall, Lanark, Napanee, Ottawa and Tweed districts)	
European Pine Sawfly, <i>Neodiprion sertifer</i> . . . . .	6
(Brockville, Cornwall, Napanee, Ottawa and Tweed districts)	
White Pine Weevil, <i>Pissodes strobi</i> . . . . .	7
(Tweed District)	
Larch Sawfly, <i>Pristiphora erichsonii</i> . . . . .	8
(Cornwall District)	

### Category B

Larch Casebearer, <i>Coleophora laricella</i> . . . . .	8
(Brockville, Cornwall and Ottawa districts)	
Oak Leaf Shredder, <i>Croesia semipurpurana</i> . . . . .	9
(Lanark and Tweed districts)	

(continued)

## TABLE OF CONTENTS (continued)

INSECTS (continued)	Page
<i>Category C</i>	
Walnut Caterpillar, <i>Datana integerrima</i> . . . . .	9
(Brockville, Lanark and Napanee districts)	
Oak Leafblotch Miner, <i>Lithocolletis hamadryadella</i> . . . . .	9
(Brockville and Napanee districts)	
Oak Leafroller, <i>Pseudeuxentera cressoniana</i> . . . . .	12
(Napanee and Ottawa districts)	
Other Forest Insects . . . . .	12
TREE DISEASES	
<i>Category A</i>	
Scleroderris Canker, <i>Gremmeniella abietina</i> . . . . .	15
(Brockville, Cornwall, Lanark, Napanee, Ottawa and Tweed districts)	
<i>Category B</i>	
Pine Needle Rust, <i>Coleosporium asterum</i> . . . . .	15
(Brockville, Cornwall and Ottawa districts)	
Leaf Rust of Poplar, <i>Melampsora medusae</i> . . . . .	15
(Brockville, Cornwall, Napanee and Ottawa districts)	
Beech Bark Disease, <i>Nectria coccinea</i> var. <i>faginata</i> . . . . .	17
(Cornwall and Ottawa districts)	
Other Forest Diseases . . . . .	18
<i>Diebacks and Declines</i>	
Ash Dieback . . . . .	20
(Brockville, Napanee and Tweed districts)	
Maple Decline . . . . .	20
(Brockville, Cornwall, Lanark, Napanee, Ottawa and Tweed districts)	
Oak Decline . . . . .	21
(Lanark District)	

(continued)

TABLE OF CONTENTS (concluded)

TREE DISEASES (continued)	Page
<i>Abiotic Damage</i>	
Frost Damage . . . . .	22
<i>Special Surveys</i>	
White Pine Plantation Survey . . . . .	22
Larch Cone Insects . . . . .	23
Light Trap . . . . .	24

## INSECTS

### Category A

#### Pine False Webworm, *Acantholyda erythrocephala* (Linn.)

The results of damage surveys for this webspinning sawfly revealed no major increase in distribution. However, population levels continue to increase within the known area of damage. Red pine (*Pinus resinosa* Ait.) and jack pine (*Pinus banksiana* L.) plantations along County Roads 3 and 4 in Goulbourn and Marlborough townships of the Ottawa District were heavily infested with an average of nine web masses per tree. Scots pine (*Pinus sylvestris* L.) Christmas trees in the East Oxford area of Oxford in Rideau Township, Brockville District were also heavily infested with an average of 15 web masses per tree; however, the insect was effectively controlled with a single application of Sevin. An examination of red pine in the Cordova Mines area of Marmora Township, Tweed District revealed that 95% of the trees were infested, with an average of five web masses per tree.

Ontario landscaping stock white pine (*Pinus strobus* L.) in compartment 47 of the G. Howard Ferguson Forest Station, Brockville District were found to be lightly infested, with an average of two web masses per tree.

#### Orangestriped Oakworm, *Anisota finlaysoni* Riotte

There was a marked increase in the defoliation caused by this oakworm in 1980 in the central portion of the Napanee District. Open-grown bur oak (*Quercus macrocarpa* Michx.) were 100% defoliated east of the town of Napanee along Highway 401, west of Deseronto throughout the Tyendinaga Indian Reserve, and north of Belleville in Thurlow Township. In the Green Point area of Sophiasburg Township the bur oaks were completely denuded of foliage and the immature larvae migrated to nearby shagbark hickory (*Carya ovata* [Mill.] K. Koch) trees. Although these hickories were lightly defoliated, the larvae could not survive on them and therefore were unable to complete their life cycle.

Light defoliation was detected across the central portion of Wolfe Island on open-grown fencerow trees.

#### Cedar Leafminers, *Argyresthia thujaella* Pack., *A. aureoargentella* Brower, *A. canadensis* Free. and *Pulicalvaria thujaella* (Kft.)

For the third consecutive year there was an increase in the population levels and total area affected (approximately 27 000 km<sup>2</sup> or 10,500 mi<sup>2</sup>) by this complex of leafminers throughout the Region

(Fig. 1). Top kill and twig or branch mortality of eastern white cedar (*Thuja occidentalis* L.) growing on shallow, limestone soils were evident throughout the central and southwestern portions of the Region (see Frontispiece). If the infestation persists, especially on these poorer sites, entire tree mortality may be expected in the next couple of years.

Because of the heavy use of cedars as ornamental shrubs in the urban areas in the Region, there were numerous inquiries about control methods from concerned homeowners. This complex of leafminers overwinters as larvae in mined leaves. Clipping and destroying infested twigs in early May is a very effective control. An application of a systemic insecticide in early May or mid-August could be considered.

Spruce Budworm, *Choristoneura fumiferana* Clem.

The results of damage surveys, population sampling, and egg-mass counts will be included with those of other regions in a special report to be published later this year. This report provides a complete description and analysis of developments in the spruce budworm situation in Ontario in 1980 and gives infestation forecasts for the province for 1981.

Satin Moth, *Leucoma salicis* Linn.

Populations of this insect continue to increase and spread throughout the Region. Lombardy poplar (*Populus nigra* L. var. *italica* Muench.) and silver poplar (*P. alba* L.) are the preferred hosts. Ornamental plantings of these trees were severely defoliated across the western portion of Wolfe Island and north through the city of Kingston to the Joyceville area over a total of approximately 190 km<sup>2</sup> (76 mi<sup>2</sup>) in the Napanee District (Fig. 2). This area of defoliation is a westerly extension of the known range of the satin moth.

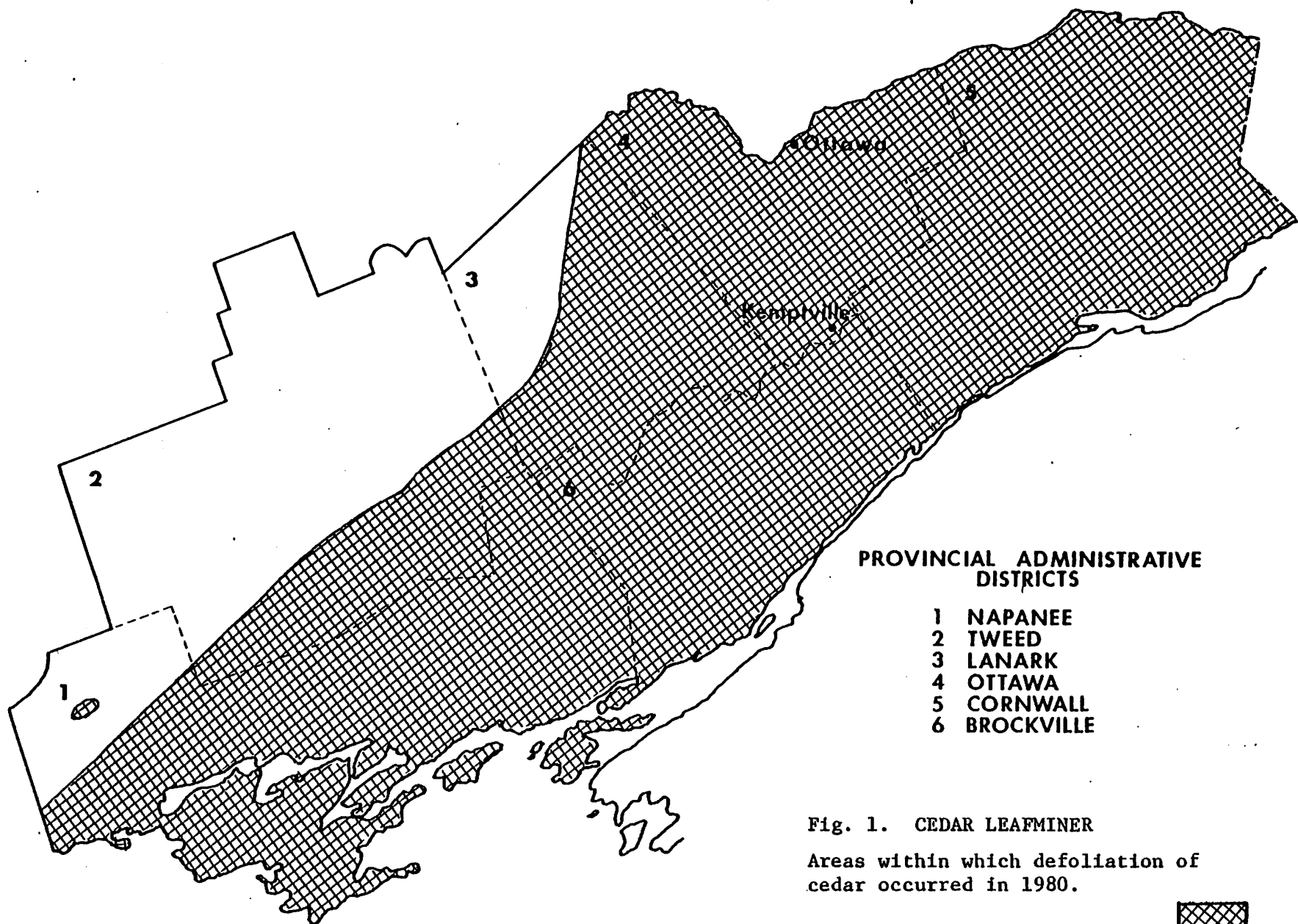
Moderate-to-severe defoliation was also detected in Edwardsburg and Oxford on Rideau township, Brockville District; in Finch Township, Cornwall District; and in Osgoode Township, Ottawa District. Light-to-moderate defoliation was also recorded in the Ottawa District in Neapean and Gloucester townships.

Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch)

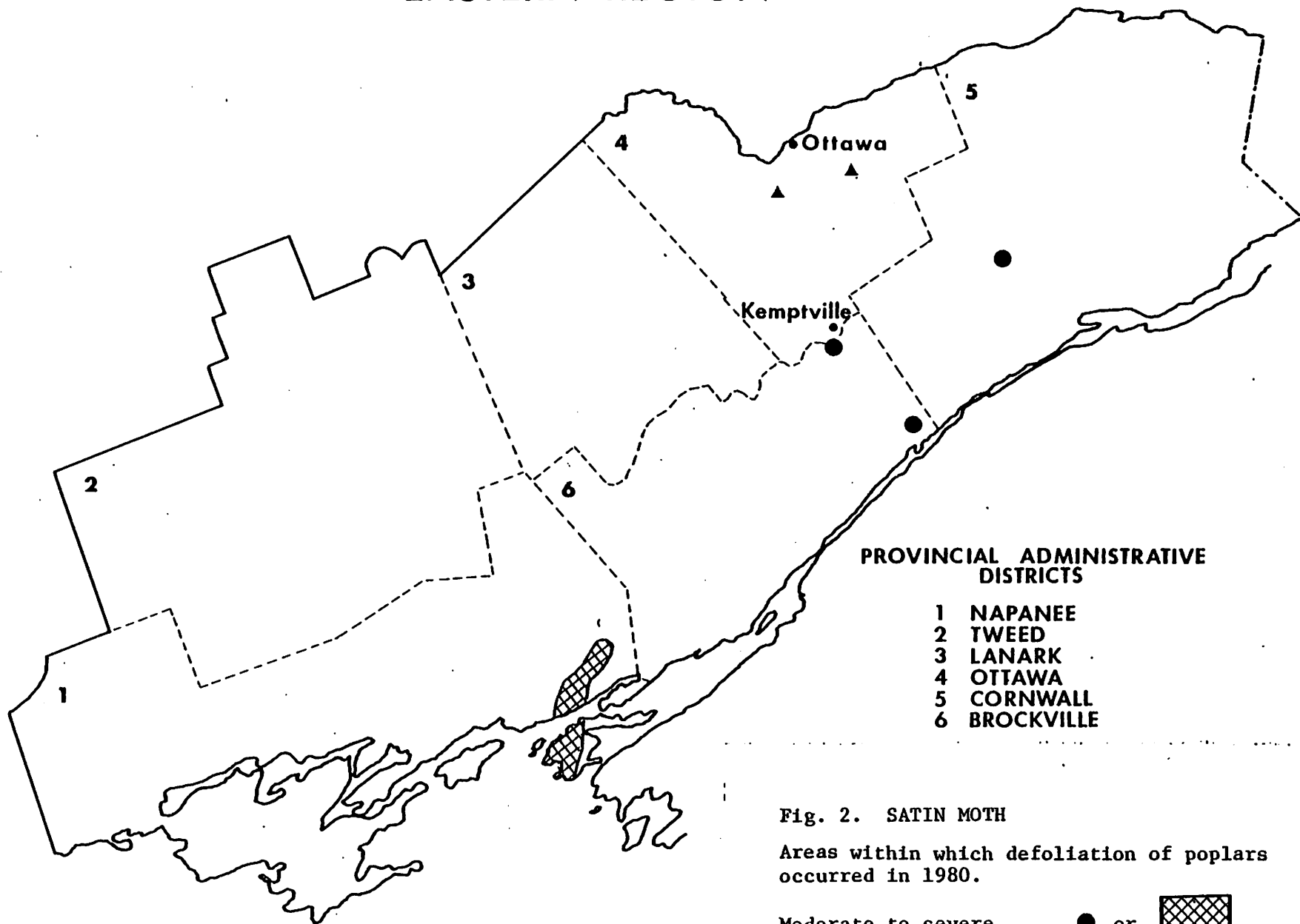
Extensive surveys throughout the Region revealed that numbers of this destructive pest of red pine had decreased dramatically and had reached a low similar to that recorded in 1971. In only two locations was this sawfly detected at damaging levels. North of Toledo in Kitley Township, Brockville District, 91% of the trees examined were infested with an average of one colony per tree, and west of Clarendon in Oso Township, Tweed District, 61% of the trees were similarly infested (Table 1).



# EASTERN REGION



# EASTERN REGION



## PROVINCIAL ADMINISTRATIVE DISTRICTS

- 1 NAPANEE
- 2 TWEED
- 3 LANARK
- 4 OTTAWA
- 5 CORNWALL
- 6 BROCKVILLE

Fig. 2. SATIN MOTH

Areas within which defoliation of poplars occurred in 1980.

Moderate to severe . . . ● or



Light . . . . . ▲

Checks made in plantations in the Madoc and Marmora areas of the Tweed District where populations have been common in the past several years revealed no populations or damage to pine regeneration. Similar checks throughout Dalhousie Township in Lanark District also revealed no populations. Spray operations in which nuclear polyhedrosis virus was applied to plantations in these districts in 1977 and 1978 by personnel of the Forest Pest Management Institute may be an important factor in the marked decline of this sawfly.

Table 1. Summary of redheaded pine sawfly colony counts at five locations throughout the Eastern Region.

Location (Twp)	Host	Avg ht of trees (m) <sup>a</sup>	Area affected (ha) <sup>b</sup>	Total no. of trees examined	Total no. of trees infested	Avg no. of colonies per tree
Brockville District						
Kitley	rP	1.0	1	100	91	1
Oxford on Rideau	rP	1.0	2	100	3	1
Lanark District						
Sherbrooke	rP	1.2	3	100	3	1
Tweed District						
Oso	rP	1.0	5	100	61	1
Oso	rP	4.5	4	100	1	1

<sup>a</sup> 1 m = 3.28 ft

<sup>b</sup> 1 ha = 2.47 acres

#### Jack Pine Sawfly, *Neodiprion pratti paradoxicus* Ross

This sawfly caused varying degrees of defoliation on jack pine in the Region. The heaviest defoliation occurred in a plantation near Moneymore in Hungerford Township, Tweed District, where all of the trees examined were denuded of approximately 75% of their old foliage (Table 2).

East of Almonte in Ramsay Township, Lanark District, where approximately 4 ha (9.9 acres) of open-grown jack pine were heavily infested with several colonies per tree, the Ontario Ministry of

Natural Resources applied an insecticide, Malathion, as a control measure. Surveys following the spray operation revealed that the spray was very successful, as not a single colony was detected.

Low numbers were detected on mature fringe trees west of Hilton in Carmahe Township, Napanee District.

Table 2. Summary of jack pine sawfly colony counts at six locations in the Eastern Region.

Location (Twp)	Host	Avg ht of trees (m) <sup>a</sup>	Area affected (ha) <sup>b</sup>	Total no. of trees examined	Total no. of trees infested	Avg no. of colonies per infested tree
Cornwall District						
Roxborough	jP	2.1	1	50	1	1
Lanark District						
Lanark	jP	13.5	1	50	50	2
Ottawa District						
Huntley	jP	2.1	1	50	50	6
Marlborough	jP	9.0	2	50	1	1
Tweed District						
Hungerford	jP	4.5	1	100	100	2
Hungerford	jP	1.0	20	50	1	1

<sup>a</sup> 1 m = 3.28 ft

<sup>b</sup> 1 ha = 2.47 acres

European Pine Sawfly, *Neodiprion sertifer* (Geoff.)

Population levels of this sawfly remained moderate for the second consecutive year throughout much of the Region (Table 3). In only three locations was severe defoliation detected, and in all cases it occurred on open-grown trees. Scots pine west of Berwick in Finch Township, Cornwall District were completely denuded of old foliage. West of Moria in Huntingdon Township, Tweed District, Mugho pines (*Pinus mugho* Turra var. *mughus* Zenari) were stripped of approximately 90% of their old foliage,

and similar damage levels occurred on red pine north of Hilton in Brighton Township, Napanee District.

Trace defoliation on fringe trees was detected and sampled at several locations in the Region.

Table 3. Summary of European pine sawfly colony counts at eight locations in the Eastern Region.

Location (Twp)	Host	Avg ht of trees (m) <sup>a</sup>	Area affected (ha) <sup>b</sup>	Total no. of trees examined	Total no. of trees infested	Avg no. of colonies per infested tree
Brockville District						
Edwardsburg	rP	1.0	1	150	1	1
Edwardsburg	scP	2.1	2	30	23	1
Edwardsburg	scP	13.5	1	30	8	1
Napanee District						
Brighton	rP	2.1	2	50	30	1
Ottawa District						
Marlborough	rP	2.1	2	50	2	1
Marlborough	jP	4.5	4	25	1	1
Tweed District						
Hungerford	scP	4.5	1	100	3	1
Sheffield	scP	4.5	2	25	4	1

<sup>a</sup> 1 m = 3.28 ft

<sup>b</sup> 1 ha = 2.47 acres

#### White Pine Weevil, *Pissodes strobi* (Peck)

There was a marked increase in populations and in the level of damage caused by this weevil in the northwestern portion of the Region. Surveys conducted in white pine regeneration in the Irvine Lake area of Abinger Township, Tweed District revealed that 90% of the leaders were infested in a 30 ha (74 acre) plantation. The Ontario Ministry of

Natural Resources, Tweed District, effectively controlled the weevil population in this plantation by pruning the damaged leaders.

In three additional plantations in the Tweed District, two in Hungerford Township (10 ha [24.7 acres] and 5 ha [12.4 acres], respectively) and one in Sheffield Township (34 ha or 84 acres) damage levels were similar to those in the Irvine Lake area, and again the Ontario Ministry of Natural Resources undertook control measures. These three plantations were aerially sprayed with methoxychlor at the rate of 0.44 kg/ha (2.5 lb/acre) on 23 August in an attempt to control emerging adults.

Trace levels of damage were detected in pine and spruce (*Picea* spp.) at numerous locations throughout the Region. Additional data on white pine weevil are found in the section on the white pine plantation survey later in this report.

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

Populations of this sawfly were generally low throughout the Region and caused negligible defoliation of fringe and open-grown trees. An exception was a 6 ha (14.8 acre) plantation in Clarence Township, Cornwall District, where populations were extremely high, and defoliation was consequently moderate to severe. This plantation was designated by the Ontario Ministry of Natural Resources as a larch (*Larix* spp.) seed production area and therefore the sawfly was chemically controlled. Ground surveys conducted one week after the spraying failed to detect a single sawfly colony.

#### Category B

#### Larch Casebearer, *Coleophora laricella* Hbn.

Moderate-to-severe defoliation of larch occurred in the southern portion of Marlborough Township, Ottawa District, extended southward to the Spencerville area of Edwardsburg Township, Brockville District, then eastward in numerous scattered pockets into Finch Township, Cornwall District. Small pockets of similar defoliation were detected throughout Cambridge, Clarence and Russell townships in the northern portion of the Cornwall District.

In Finch Township north of Berwick, defoliation was heavy on approximately 1.2 ha (3 acres) of young, open-grown seed production larch trees. Because of the high value of the stand the Ontario Ministry of Natural Resources in Cornwall District applied a single dose of the insecticide Malathion in early June and effectively controlled the casebearer.

Trace defoliation was detected at several scattered locations in the Ottawa and Brockville districts.



Oak Leaf Shredder, *Croesia semipurpurana* (Kft.)

Throughout the northern portion of the Tweed District, red oaks (*Quercus rubra* L.) were moderately to severely defoliated by the oak leaf shredder (Fig. 3). In the mixed hardwood stands in the Mazinaw Lake area of Abinger Township and westward into Effingham Township, 100% defoliation of oaks was observed. Scattered pockets of moderate defoliation were recorded as far to the southeast as Little Silver Lake in South Sherbrooke Township, Lanark District. The total area infested was estimated at approximately 750 km<sup>2</sup> (300 mi<sup>2</sup>).

The light-to-moderate infestation that was recorded in 1979 in the National Capital Commission Green Belt Forest near Bells Corners in the Ottawa District collapsed, and no defoliation was detected in 1980.

Category C

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

A general increase in defoliation levels was recorded throughout the Region in 1980, with the majority of the damage occurring in the Napanee District (Fig. 4). Butternut (*Juglans cinerea* L.) north of Colborne in Cramahe Township and in the vicinity of the city of Kingston was completely defoliated by this caterpillar. Ornamental bitternut hickory (*Carya cordiformis* [Wang.] K. Koch) south of Westport in North Crosby Township, Brockville District, and black walnut (*Juglans nigra* L.) south of Smiths Falls in the Lanark District were moderately to severely defoliated.

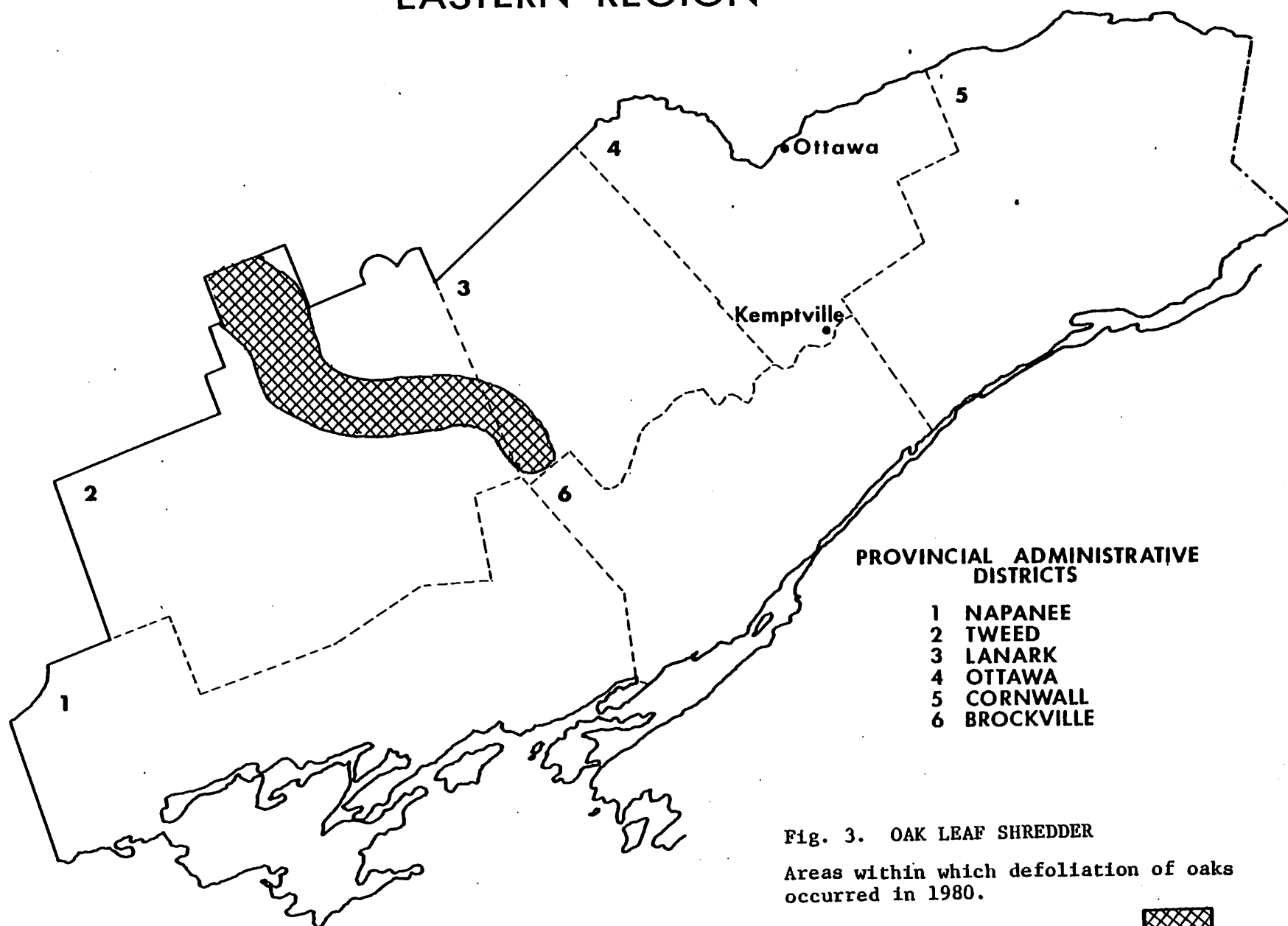
Defoliation was light to moderate on open-grown and ornamental trees at scattered locations in the southern portion of the Region.

Oak Leafblotch Miner, *Lithocolletis hamadryadella* Clem.

There was a marked increase in damage and distribution levels of this blotch miner in 1980. Bur oaks and, to a lesser extent, red oaks throughout virtually the entire Region were affected.

Moderate-to-severe defoliation occurred throughout Kingston, Portland and Hallowell townships in the Napanee District and in Bastard and Wolford townships in the Brockville District. Elsewhere in the Region light-to-moderate defoliation was detected at numerous locations in oak stands and on ornamental trees.

# EASTERN REGION




## PROVINCIAL ADMINISTRATIVE DISTRICTS

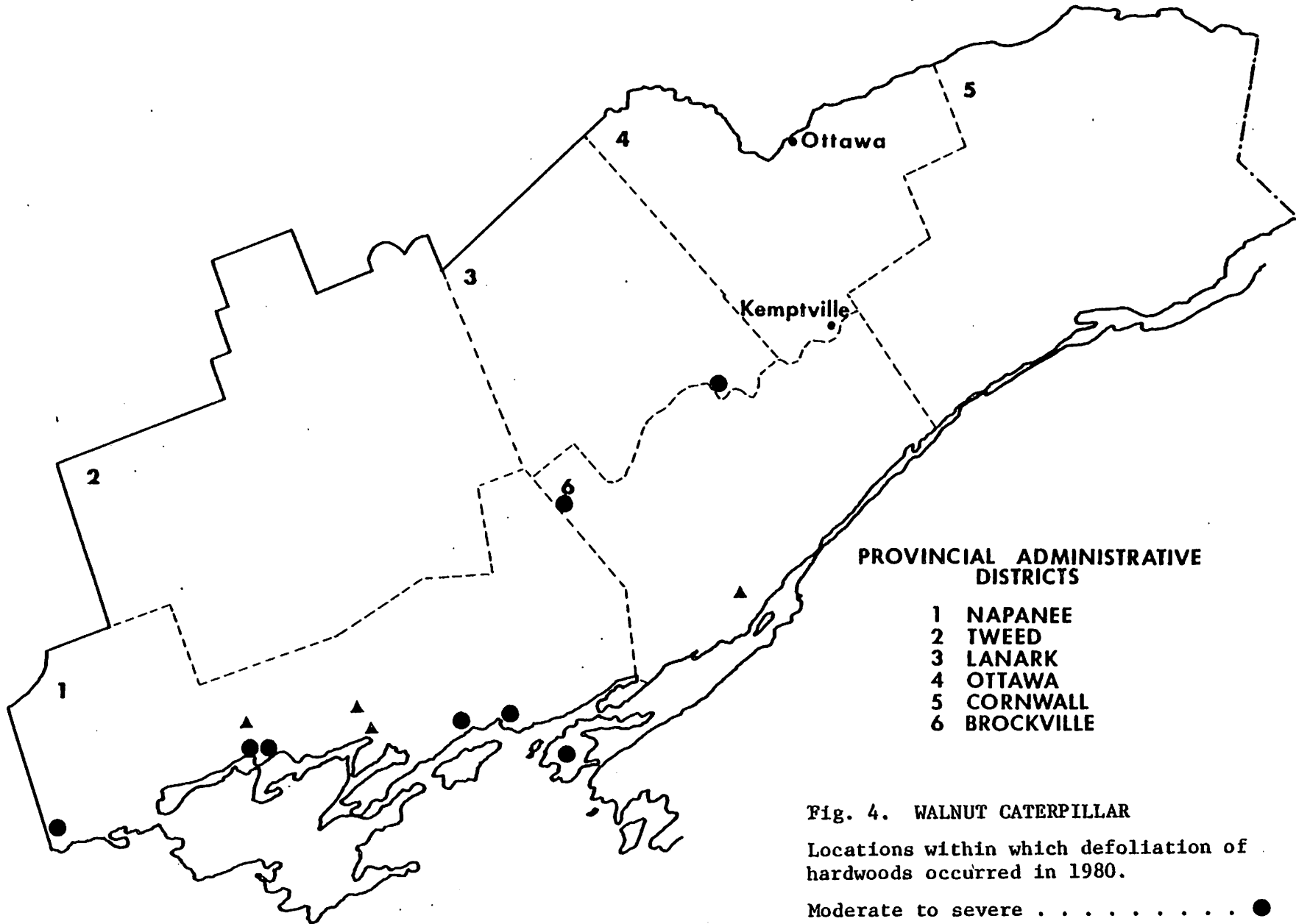
- 1 NAPANEE
- 2 TWEED
- 3 LANARK
- 4 OTTAWA
- 5 CORNWALL
- 6 BROCKVILLE

Fig. 3. OAK LEAF SHREDDER

Areas within which defoliation of oaks occurred in 1980.

Moderate to severe . . . . . 

# EASTERN REGION



## PROVINCIAL ADMINISTRATIVE DISTRICTS

- 1 NAPANEE
- 2 TWEED
- 3 LANARK
- 4 OTTAWA
- 5 CORNWALL
- 6 BROCKVILLE

Fig. 4. WALNUT CATERPILLAR

Locations within which defoliation of hardwoods occurred in 1980.

Moderate to severe . . . . . ●  
 Light . . . . . ▲

Oak Leafroller, *Pseudexentera cressoniana* Clem.

Light-to-moderate defoliation of red and bur oak occurred throughout the central portion of the Region. Damage was recorded from Nepean Township, Ottawa District, and extended southwestward to Tyendinaga Township of the Napanee District. The heaviest defoliation occurred on bur oak along County Road 9, in Adolphustown Township in the Napanee District, where approximately 15% defoliation was recorded.

For the second consecutive year oaks in the National Capital Commission Green Belt Forest in the Bells Corners and Merivale areas of the Ottawa District were lightly defoliated by this leafroller.

Table 4. Other forest insects.

Insect	Host(s)	Remarks	Rating
<i>Argyresthia laricella</i> Kft. Larch twig borer	tL	low damage detected on open-grown trees in the East Oxford area of the Brockville District	B
<i>Cecidomyia verrucicola</i> O.S. Gall midge	Ba	low levels of damage detected in South Fredericksburg Twp, Napanee District	C
<i>Choristoneura rosaceana</i> Harr. Obliquebanded leafroller	wP	trace damage to seedlings in a greenhouse at the G. Howard Ferguson Forest Station, Brockville District	C
<i>Contarinia</i> sp. A midge	scP	37% of tips affected in a 5 ha (12.4 acres) plantation in Kaladar Twp, Tweed District	C
<i>Datana ministra</i> Dru. Yellownecked caterpillar	Ba	trace defoliation of fringe trees on Wolfe Island, Napanee District	C
<i>Dendroctonus simplex</i> Lec. Eastern larch beetle	tL	high populations detected on three dying trees in South Gower Twp, Brockville District	C

(continued)

Table 4. Other forest insects (continued).

Insect	Host(s)	Remarks	Rating
<i>Diprion similis</i> (Htg.) Introduced pine sawfly	rP	a single colony collected in Finch Twp, Cornwall District	C
<i>Elaphidionoides villosus</i> (F.) Twig pruner	sHi	easily found in Ernestown, Sophiasburg and Wolfe Island twp, Napanee District	C
<i>Fenusa pusilla</i> (Lep.) Birch leafminer	wB	very common throughout the Region causing varying degrees of damage; very heavy on ornamentals in the cities of Brockville and Cornwall	A
<i>Fenusa ulmi</i> Sund. Elm leafminer	wE	common on roadside trees in Hawkesbury Twp, Cornwall District	B
<i>Gracillaria cuculipennella</i> Clem. Privet leafminer	wAs	trace damage to 75% of ash ( <i>Fraxinus</i> spp.) in compartment 61 of the G. Howard Ferguson Forest Station, Brockville District	C
<i>Hyphantria cunea</i> Dru. Fall webworm	E, As, cherry	very common on roadside trees throughout the central portion of the Region	B
<i>Lepidosaphes ulmi</i> (Linn.) Oystershell scale	Be	1.5 ha (3.7 acre) peninsula on Newboro Lake in North Crosby Twp, Brockville District, heavily defoliated	B
<i>Malacosoma americanum</i> F. Eastern tent caterpillar	cherry	very common on roadside regeneration and ornamental fruit trees in the Region	B
<i>Nematus</i> sp. A sawfly	bLoc	very high populations in 2 ha (4.9 acre) plantations in Camden Twp, Napanee District	C

(continued)

Table 4. Other forest insects (concluded).

Insect	Host(s)	Remarks	Rating
<i>Neodiprion abietis</i> complex Balsam fir sawfly	wS	several colonies found in Nepean Twp, Ottawa District	A
<i>Neodiprion nanulus nanulus</i> Schedl Red pine sawfly	rP	a single colony collected in Marlborough Twp, Ottawa District	B
<i>Paraclemensia acerifoliella</i> Maple leafcutter Fitch	sM	20 km <sup>2</sup> (8 m <sup>2</sup> ) of trees heavily defoliated in Bedford Twp, Napanee District	B
<i>Periclista albicollis</i> (Nort.) Oak sawfly	bO	common and easily found causing trace damage at numerous locations in the Region	C
<i>Pikonema alaskensis</i> (Roh.) Yellowheaded spruce sawfly	wS	heavy defoliation on road- side trees in Winchester Twp, Cornwall District and light damage in Marmora and Hungerford twp, Tweed District	A
<i>Pseudexentera oregonana</i> Wlshm. Aspen leafroller	tA	common at the trace defolia- tion level at numerous points throughout the Region	A
<i>Scolytidae</i> sp. Bark beetles	rP	0.2 ha (.5 acres) pockets of dying trees heavily infested in Brighton and Seymour twp, Napanee District, and Clarence Twp, Cornwall District	C
<i>Sparganothis unifasciana</i> Clem. Needletier	rP	18% of trees examined were affected in a 1 ha (2.47 acre) plantation in Huntley Twp, Ottawa District	C
<i>Toumeyella parvicornis</i> (Ckll.) Pine tortoise scale	scP	trace damage in a plantation in Sheffield Twp, Tweed Dis- trict	A



## TREE DISEASES

### Category A

Scleroderris Canker, *Gremmeniella abietina* (Lagerb.) Morelet

Extensive surveys for the European race of Scleroderris canker have been undertaken throughout the Region for three consecutive years. To date no evidence of the disease has been detected. During the spring of 1980, 20 permanent sample plots were established to aid in detecting this disease where there are high concentrations of pine and to aid in monitoring its spread if it should become prevalent (Fig. 5).

Twelve locations in the Region in which seedlings from the Saratoga Tree Nursery in New York had been planted in 1976 were also extensively surveyed. Although mortality was detected in several of these plantings, no Scleroderris canker was cultured, and only secondary fungi were recovered from samples of the dead seedlings. The mortality in most cases was the result of a poor planting site, or the drought conditions experienced in 1977 and 1978.

Nineteen additional areas of planted pine were also examined as part of other survey-related activities, and again no evidence of Scleroderris canker was observed. Surveys for this disease of mature pine are to continue in the coming year.

### Category B

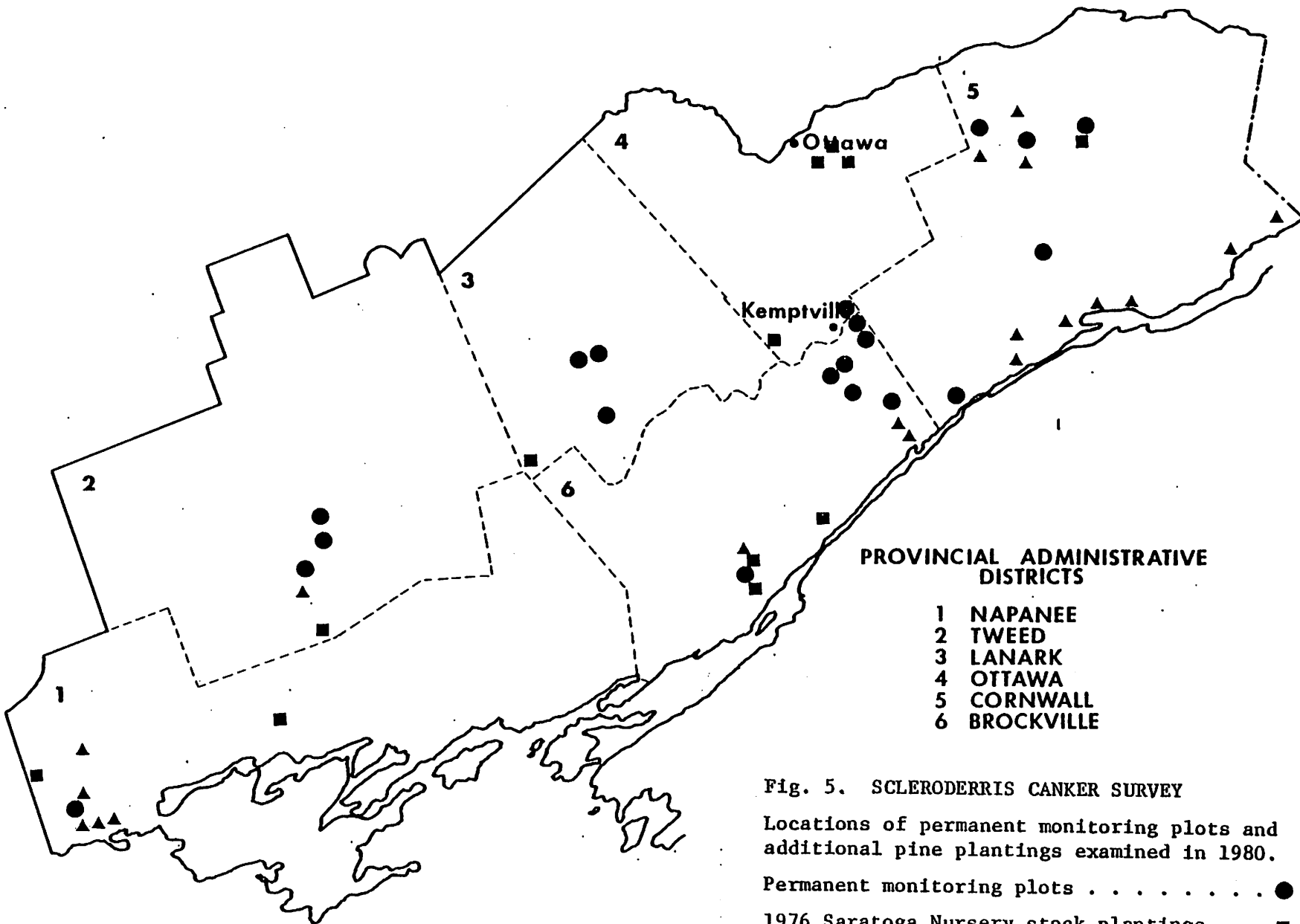
Pine Needle Rust, *Coleosporium asterum* (Diet.) Syd.

There was a marked decline in the incidence of this foliar disease in the Region in comparison with the high recorded in 1979. In conjunction with the Scleroderris canker survey, pine plantings were examined for pine needle rust in approximately 50 locations throughout the Region. Foliar damage was encountered at only five locations and only at trace levels. The incidence of affected trees varied from 75% in Edwardsburg Township to 2% in Front of Yonge Township, Brockville District. However, in both plantations less than 5% foliar damage per tree was detected. In Cornwall District 95% of the red pine in a plantation in Finch Township were affected, and in a plantation in South Plantagenet Township, 2% were affected; however, less than 3% foliar damage was recorded in each of these plantations. Trace foliar damage (1%) was recorded in a young jack pine plantation near Carp in Huntley Township, Ottawa District.

Leaf Rust of Poplar, *Melampsora medusae* Thuem.

The moist summer weather brought about an increase in the incidence of this leaf rust in the Region over the recorded low of

# EASTERN REGION



the past few years. The heaviest damage was sampled in the hybrid poplars (*Populus* spp.) at the G. Howard Ferguson Forest Station at Kemptville in the Brockville District. Defoliation ranged from approximately 5% in several of the DN clones to 90% in the DTAC 15 clones. Outplantings of these various clone types in Oxford on Rideau and Edwardsburg townships were also defoliated at similar rates.

Elsewhere trace damage was detected on hybrid poplar at several locations in Cornwall, Napanee and Ottawa districts.

Beech Bark Disease, *Nectria coccinea* Pers. ex Fr. var. *faginata* Lohm., Wats. and Ayers

Because of the incidence of this disease in the bordering northeastern states and the province of Quebec, extensive surveys for the disease were conducted throughout the eastern portion of the Region. This potentially hazardous disease of beech (*Fagus* sp.) is associated with the scale insect *Cryptococcus fagi* (Baer.), whose feeding scars become entrance courts for the disease. Evidence of damage in a stand is afforded by the whitish dots on the bark of trees caused by the cottonlike coating secreted by this scale insect. A tree under attack has a thin crown, small yellow leaves and patches of dead bark.

Surveys for this disease are to be continued in 1981.

Table 5. Other forest diseases.

Organism	Host(s)	Remarks	Rating
<i>Cephalosporium</i> sp.	wE	collected from dying trees in Kingston Twp, Napanee District	C
<i>Cenangium ferruginosum</i> Fr. ex Fr. Twig blight	rP	trace defoliation detected in Oxford on Rideau Twp, Brockville District, and in Bathurst and Lanark twp, Lanark District	B

(continued)

Table 5. Other forest diseases (continued).

Organism	Host(s)	Remarks	Rating
<i>Ciborinia whetzelii</i> (Seaver) Seaver Ink spot of aspen	tA	trace damage found on regeneration in Roxborough Twp, Cornwall District, and in August Twp, Brockville District	A
<i>Cronartium quercuum</i> (Berk.) Miy. ex Shirai Eastern gall rust	scP	very common throughout the southern portion of the Region	B
<i>Cytospora nivea</i> (Hoffm.) Fr. Canker of poplars	hybrid poplar	trace incidence in compartment 56 of the G. Howard Ferguson Forest Station, Brockville District	B
<i>Cytospora</i> sp.	rP, sM	collected from dying pine in La Rose Forest, Cornwall District, and from declining maple in Hungerford Twp, Tweed District and in Sidney Twp, Napanee District	B
<i>Diplodia pinea</i> (Desm.) Kickx Diplodia tip blight	aP	trace levels detected at Charlottenburg Provincial Park, Cornwall District	A
<i>Dothistroma pini</i> Hulbary Red band disease needle blight	aP	trace damage sampled at Charlottenburg Provincial Park, Cornwall District	B
<i>Endocronartium harknessii</i> (J.P. Moore) Y. Hirat. Gall rust	scP	trace damage in a plantation in Kaladar Twp, Tweed District	B
<i>Fomes annosus</i> (Fr.) Karst. Fomes root rot	rP	trace damage collected in compartment 64a of the La Rose Forest, Clarence Twp, Cornwall District	A
<i>Gymnosporangium juniperi-virginianae</i> Schw. Cedar apple rust	rJ	very common throughout the southwestern portion of the Region	B

(continued)

Table 5. Other forest diseases (concluded).

Organism	Host(s)	Remarks	Rating
<i>Hypoxyylon mammatum</i> (Whal.) J.H. Miller Hypoxyylon canker of poplar	tA	very common throughout the Region; in Cambridge Twp, Ottawa District, 20% of trees examined in a stand were affected	A
<i>Kabatiella apocrypta</i> (Ell. & Ev.) Arx Leaf anthracnose of maple	sM	trace defoliation of 90% of OLA stock in compartment 47 of the G. Howard Ferguson Forest Station, Brockville District	B
<i>Ostropa barbara</i> (Fr.) Nannf.	wAs	collected from ash die-back in Huntingdon Twp, Tweed District; first Survey record	C
<i>Phyllosticta minima</i> (Berk. & Curt.) Underw. & Earle	rM	trace damage to fringe trees in Edwardsburg Twp, Brockville District	C
<i>Scorias spongiosa</i> (Schw.) Fr.	Al	low damage level detected on alder ( <i>Alnus</i> spp.) in Ashby Twp, Tweed District	C
<i>Sphaeronema acerinum</i> Pk.	sM	recovered from declining maples ( <i>Acer</i> spp.) in Front of Leeds and Lansdowne twp, Brockville District	C
<i>Sphaerographium fraxini</i> (Pk.) Sacc.	wAs	cultured from ash dieback problem in Huntingdon Twp, Tweed District	C
<i>Steganosporium ovatum</i> (Pers. ex Merat) Hughes	sM	trace damage to trees in Matilda Twp, Cornwall District, and in Cramahe Twp, Napanee District	C

## *Diebacks and Declines*

### Ash Dieback

At numerous locations in the Eastern Region, young, open-grown white ash (*Fraxinus americana* L.) are showing dieback symptoms. From late June to early July the foliage throughout the mid-crown yellows and is prematurely shed. By late August the majority of foliage in the crown has fallen and the twigs and main branches die. The bark on the main branches usually cracks and dries out.

Samples collected from trees exhibiting the above symptoms were submitted for culture but to date no organism capable of causing this type of damage has been recovered. In three locations, one in each of Tweed, Brockville and Napanee districts, *Cytophoma pruinosa* (Fr.) Hoehn., a canker causing organism, has been identified. This disease is commonly associated with cankers on branches of white ash suffering from dieback.

Surveys to establish the full extent and boundaries of this dieback will continue in 1981 throughout the Region.

### Maple Decline

Surveys throughout the Eastern Region revealed that roadside maples are continuing to show signs of decline at numerous locations. The first symptoms are small, dead branch tips in the crown in late May. By the end of August, 75% of the crown may be dead. Occasionally the bark on the larger main branches cracks, dries out and falls off during this same period. The survey showed that the decline was most common on larger, mature trees.

To date only secondary organisms have been cultured from collected samples and these are not considered capable of being the primary cause of the decline. A combination of three years of drought, roadside stresses such as carbon monoxide and salt, and in some areas defoliation by insects are all possible contributing factors to the decline.

Trees showing typical symptoms (see Frontispiece) are very common throughout Oxford on Rideau, Wolford and Elizabethtown townships of the Brockville District, and Portland, Kingston and Richmond townships and Prince Edward County of the Napanee District. A similar decline was encountered in Gloucester and Nepean townships, Ottawa District and in Montague and Lanark townships, Lanark District.



## Oak Decline

The oak decline impact plots in the Lanark District were re-tallied for the fourth consecutive year as part of a five-year study. The two 100-tree plots are located in the vicinity of Little Joe Lake, in the northern portion of Lavant Township.

The re-tally has shown a marked decline in the vigor of red oak in both plots (Table 6). In 1977, when the two plots were established, an average of 86% of the trees were tallied in classes 1 and 2, and no mortality was encountered. Now, four years later, an average of only 51% of the trees were placed in classes 1 and 2, and 5% mortality was recorded on each plot.

Table 6. Summary of data collected from the oak decline impact plots in Lanark District, Eastern Region, from 1977 to 1980 (based on the re-examination of 100 tagged trees at each location).

Location (Twp)	Avg DBH of trees (cm) <sup>a</sup>	Year	Crown class <sup>b</sup>					
			0	1	2	3	4	5
Lanark District								
Lavant - Plot 1	24	1977	-	46	38	12	4	0
	24	1978	-	21	59	13	7	0
	24	1979	2	3	51	32	8	4
	24	1980	0	7	41	36	11	5
Lavant - Plot 2	19	1977	-	28	60	11	1	0
	19	1978	-	14	72	10	4	0
	19	1979	1	4	73	18	2	2
	19	1980	0	2	53	33	7	5

<sup>a</sup> 1 cm = 0.39 in.

<sup>b</sup> Class 0: trees are considered healthy; classes 1-3: trees have 1-59% branch mortality; class 4: trees have 60%+ branch mortality; class 5: trees are dead.

## *Abiotic Damage*

### Frost Damage

Freezing temperatures were recorded at scattered locations on the nights of 9 and 10 June throughout most of the Eastern Region. Foliar damage was confined to low-lying pockets and fringes of stands. The heaviest damage detected was on a hybrid poplar clone, I4515, at the G. Howard Ferguson Forest Station, Brockville District. Most of the new foliage was destroyed; however, the terminal shoots were not affected and the stools eventually recovered and produced new foliage.

Planted larch in Camden Township, Napanee District were lightly damaged, as were ash and red maple (*Acer rubrum* L.). Similar trace damage levels were observed at numerous points throughout Brockville, Lanark and Tweed districts.

## *Special Surveys*

### White Pine Plantation Survey

In 1980 a special survey was conducted in high-value white pine plantations at six locations throughout the Eastern Region. Two evaluations were completed in each of three height classes: <2 m, 2-6 m, >6 m, (<6.6 ft, 6.6-19.7 ft, >19.7 ft), to determine the extent of damage caused by the following insects and diseases:

- 1) White Pine Weevil, *Pissodes strobi* (Peck)
- 2) Eastern Pineshoot Borer, *Eucosma gloriola* Heinr.
- 3) Pine Bark Aphid, *Pineus strobi* (Htg.)
- 4) White Pine Blister Rust, *Cronartium ribicola* J.C. Fisch.
- 5) Foliar Diseases
- 6) Basal Stem Cankers
- 7) Armillaria Root Rot, *Armillaria mellea* (Vahl ex Fr.) Kumm.

Table 7 summarizes the data collected from this special survey. No damage caused by the white pine weevil, eastern pineshoot borer, foliar diseases, or Armillaria root rot was detected, and they are therefore not included in the table. The incidence rate of the pine bark aphid in Murray Township, Napanee District and in Finch Township, Cornwall District was high; however, only trace populations were present on the affected trees, and these caused minimal damage.

Table 7. Summary of results of the white pine plantation survey conducted in six plantations in the Eastern Region (based on the examination of 150 randomly selected trees at each location).

Location (Twp)	Avg ht of trees (m) <sup>a</sup>	Area (ha) <sup>b</sup>	Pine bark aphid <u>incidence (%)</u>	White pine <u>blister rust</u> cankers (%)		Basal stem cankers (%)
				branch	stem	
Brpckville District						
Wolford	0.9	2	0.7	1.3	0.7	0.0
Lanark District						
Bathurst	1.7	2	0.0	0.0	0.0	0.0
Cornwall District						
Roxborough	3.1	4	2.7	4.0	1.3	0.0
Tweed District						
Hungerford	5.0	25	2.0	0.0	1.3	0.0
Napanee District						
Murray	10.0	10	64.0	0.0	2.0	0.0
Cornwall District						
Finch	12.5	8	48.7	0.7	0.7	0.7

<sup>a</sup> 1 m = 3.28 ft

<sup>b</sup> 1 ha = 2.47 acres

#### Larch Cone Insects

A special collection of larch cones was made at two locations in the Region to determine if there was an insect problem on larch seed, and if so, to identify the insect(s).

In the La Rose Forest, Clarence Township, Cornwall District, 100 European larch (*Larix decidua* Mill.) cones were collected and only six larch seed chalcids (*Megastigmus laricis* Marcovitch) were detected

in the collection. The second collection was from south of East Oxford in Oxford on Rideau Township, Brockville District. The larch seed chalcid was again present in similar low numbers, and a single larva of the midges Cecidomyidae and *Resseliella* sp. was also collected. Trace surface feeding by Lepidoptera species was evident in both collections.

#### Light Trap

For the second consecutive year a light trap was located and operated at the G. Howard Ferguson Forest Station at Kemptville, Brockville District. The trap is used primarily to monitor the adult flight of the spruce budworm (*Choristoneura fumiferana* [Clem.]), and therefore is in operation only from late June to mid-July. Table 8 is a summary of data collected during this three-week period. Because the distance from which a light trap will attract insects is undetermined, the number of insects trapped cannot be used to forecast populations. A light trap does, however, indicate that populations are present in a given area, and the total numbers trapped each year indicate changes in overall population levels.

Table 8. Summary of data collected from a light trap operated at the G. Howard Ferguson Forest Station in the Brockville District.

Insects (Year)	Operating dates									
	No. of insects collected									
	June 27-28	29-30	July 1-2	3-4	5-6	7	8-9	10-12	13-14	15-16
Spruce budworm ( <i>Choristoneura fumiferana</i> )										
1979	81	81	25	-	-	30	40	145	-	-
1980	9	22	20	30	6	80	30	30	140	104
Obliquebanded leafroller ( <i>Choristoneura rosaceana</i> )										
1979	75	68	18	-	-	7	15	15	-	-
1980	4	31	30	50	18	24	16	-	-	-
Forest tent caterpillar ( <i>Malacosoma disstria</i> )										
1979	8	-	-	-	-	1	-	1	-	-
1980	-	-	-	-	-	1	-	13	-	3
Spotted cutworm ( <i>Amathes c-nigrum</i> )										
1979	565	560	118	-	3	11	-	31	-	-
1980	28	24	210	163	74	83	80	21	-	-