FOREST INSECT AND DISEASE SURVEYS IN THE SOUTHWESTERN REGION OF ONTARIO, 1977

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DEPARTMENT OF THE ENVIRONMENT

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Copies of this report may be obtained from

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Frontispiece

Larva of the walnut caterpillar,
Datana integerrima G. & R.

Maple mortality

SURVEY HIGHLIGHTS

Since 1974, the forest tent caterpillar has caused severe defoliation throughout the Owen Sound District. Defoliation has extended south to the Walkerton-Hanover areas and into several townships in the northern portion of the Wingham District. There has been much public concern because of the extensive mortality of sugar maple at several locations in the Owen Sound District and in one or two areas of the Wingham District. Egg-band counts taken at several locations in the Owen Sound and Wingham districts indicate that infestations will persist for at least another year. Light feeding by the oak leaf shredder was apparent in Pinery Provincial Park, Chatham District, in the Turkey Point area of Simcoe District, and on scattered oaks in Wingham and Owen Sound districts.

Varying degrees of defoliation by the fall cankerworm and linden looper were noticeable in several woodlots throughout the Region. Moderate-to-severe defoliation by the walnut caterpillar on individual and ornamental trees was again evident in Aylmer and Simcoe districts and in Point Pelee National Park in the Chatham District. There were heavy infestations of the spruce budworm in 1976 in St. Edmunds and Lindsay townships, but these have declined to medium intensity. Information for the entire province on this major forest pest is presented in a special report, O-X-280.

Special surveys were carried out in cities and towns to study the decline of maple throughout the Region, and three permanent sample plots were established to study oak decline. Salt damage, winter drying, leaf anthracnose and horse-chestnut leaf blotch were again common at numerous locations and caused concern to property owners.

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Technician

ACKNOWLEDGMENTS

The valuable assistance and cooperation received from personnel of the Ontario Ministry of Natural Resources, Conservation Authorities, and Parks Canada during the 1977 field season are gratefully acknowledged.

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INSECTS

Fall Cankerworm, *Alsophila pometaria* (Harr.)

Populations of this deciduous defoliator were prevalent at several locations in the Simcoe District. A small stand of sugar maple (*Acer saccharum* Marsh.) was moderately to severely defoliated along Highway 10, north of Walsh, Charlotteville Township and small pockets of moderate defoliation occurred along the west 1/4 road, Windham Township. Light feeding was also observed throughout South Walsingham and Charlotteville townships on both maple and oak (*Quercus* spp.). Light feeding was common elsewhere in the Region. This insect was also found feeding in association with the linden looper.

Orangestriped Oakworm, *Anisota senatoria* J. E. Smith

This insect, which feeds on a wide variety of oaks, occurred at several locations in the Region. Feeding was observed in Tilbury Township, Chatham District, where scattered white oaks (*Quercus alba* L.) were severely defoliated. In Southwold Township, Aylmer District, one large white oak was completely defoliated and young oak regeneration was moderately to severely defoliated at several locations throughout this township. Along Highway 401, moderate defoliation was observed on oak in Dunwich and Aldborough townships. The insect was not found elsewhere.

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

The results of damage surveys, population sampling and egg-mass counts have been included with those of other survey regions in a special report by Howse et al. (Report O-X-280). This report provides details of control operations, and analysis of developments in the spruce budworm situation in Ontario in 1977, along with forecasts for 1978.

Larch Casebearer, *Coleophora laricella* Hbn.

Feeding caused conspicuous browning of native larch (*Larix laricina* [Du Roi] K. Koch) in Townsend Township, Simcoe District. In Caradoc Township, Aylmer District, mature European larch (*Larix decidua* Mill.) shelterbelt trees were severely defoliated. Low numbers of larvae were found at many other locations.

Oak Lace Bug, *Corythucha arcuata* (Say)

For the second consecutive year heavy infestations occurred on hackberry (*Celtis occidentalis* L.) at Point Pelee National Park in the Chatham District. Trees of all size classes were severely damaged by this insect. The foliage had a stippled appearance and in many cases the leaves of this host fell prematurely. Elsewhere damage was light.

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

This insect which was found in very low numbers in 1976 was more commonly observed at several locations in 1977. Light feeding occurred on oaks at Pinery Provincial Park, Chatham District and throughout the Turkey Point area, Simcoe District. Scattered oaks were also slightly defoliated at several points in Owen Sound and Wingham districts. It would appear this insect could increase throughout these districts in 1978.

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

A noticeable increase in population levels of this defoliator was evident throughout most of the Southwestern Region (see Frontispiece). Light-to-medium infestations occurred on planted and ornamental black walnut (*Juglans nigra* L.) south of Owen Sound in Derby Township, and near the town of Hanover, in the Owen Sound District. Many single and open-grown trees in the Leamington-Windsor area, Chatham District were completely stripped. In the Aylmer and Simcoe districts this insect was conspicuous at numerous locations while farther north in the Wingham District only an occasional colony was observed.

Linden Looper, *Erannis tiliaria* Harr.

Increased damage by this hardwood defoliator was evident for the second consecutive year. Pockets of moderate-to-severe defoliation recurred on oak and maple in Charlotteville Township just north of Walsh in the Simcoe District. Moderate defoliation also occurred in South Walsingham, North Walsingham and Windham townships. Farther north in the Wingham District, this insect was common but less prevalent. Small numbers of larvae were found in Owen Sound and Chatham districts but little defoliation resulted.

Eastern Pineshoot Borer, *Eucosma gloriola* Heinr.

A slight upward trend was noted in population levels of this shoot borer at sample points in the Region (Table 1). High populations were observed on planted red pine (*Pinus resinosa* Ait.) and white pine (*Pinus strobus* L.) in Bentinck, Glenelg and Holland townships, Owen Sound District.

Elsewhere in the Region light infestations were common at numerous locations, with little apparent damage. Although this insect attacks red and white pine, Scots pine (*Pinus sylvestris* L.) and jack pine (*Pinus banksiana* Lamb.), white pine is usually more heavily attacked.

Table 1. Summary of shoot damage to white pine by the eastern pine-shoot borer in four districts from 1975 to 1977 (counts based on the examination of 100 trees at each location).

Location (Twp)	Avg ht of trees 1977 (m)[a]	Total no. of infested shoots 1975	1976	1977	% of trees with leaders attacked 1975	1976	1977
Wingham District							
Downie	4.6	13	11	8	0	2	3
Turnberry	3.0	17	12	14	1	2	5
Aylmer District							
McGillivray	4.3	6	6	8	1	1	5
Simcoe District							
Charlotteville	4.3	3	11	21	0	2	10
Owen Sound District							
Sullivan	3.0	11	9	17	0	0	8

[a] 1 m = 3.28 ft

Fall Webworm, *Hyphantria cunea* Dru.

Unsightly webbing accompanied by varying degrees of defoliation on a wide variety of hosts was again extensive throughout the Region. Heavy infestations were observed throughout the Point Pelee National Park where black walnut, hackberry, basswood (*Tilia americana* L.) and hickory (*Carya* sp.) were defoliated. Increased numbers of tents were common in the Collingwood-Meaford area and Osprey Township, Owen Sound District, and at numerous locations throughout Simcoe, Aylmer and Wingham districts.

Eastern Tent Caterpillar, *Malacosoma americanum* F.

Defoliation on a wide variety of host trees was again common throughout most of the Region. In Owen Sound District, heavy infestations occurred on roadside shrubbery and in abandoned fields and orchards in

Collingwood, St. Vincent and Euphrasia townships. Black cherry (*Prunus serotina* Ehrh.) trees up to 15 m (49.2 ft) high were completely defoliated in the Temple Hill area of Euphrasia Township. In the Wingham District, severe defoliation occurred on apple (*Malus* sp.), chokecherry (*Prunus virginiana* L.), pin cherry (*Prunus pensylvanica* L.f.) and hawthorn (*Crataegus* L.). In Aylmer, Simcoe and Chatham districts this insect could be found readily.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Severe defoliation was again prevalent throughout most of the Owen Sound District and in several townships in the Wingham District (see Appendix, Fig. A1). In the Owen Sound District increases in the area infested were small but defoliation intensified and many woodlots which were lightly damaged in 1976 were completely defoliated in 1977. The main body of infestation encompassed most of the central part of the district and extended north to Hope Bay on the Bruce Peninsula with small scattered pockets of moderate-to-severe damage extending farther north to Stokes Bay on Lake Huron.

In the Wingham District, the range extended slightly south of Wingham into East Wawanosh, West Wawanosh and Morris townships. Defoliation in these areas was relatively light. In Carrick Township, defoliation was again recorded in woodlots south and east of Mildmay and in Culross Township, scattered sugar maple stands were moderately to severely defoliated south of Teeswater.

Egg-band counts (Table 2) taken in early fall indicate that population levels of this insect will again cause varying degrees of defoliation in 1978. Sampling systems designed to rate infestation levels and provide forecasts have not been researched for sugar maple or red oak for either whole trees or branch samples. Consequently, forecasts in the following table are based on experience and may not prove to be accurate.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Severe defoliation of native and European larch trees by this sawfly persisted in several townships of Simcoe District. Large European larch at the St. Williams Forest Station were completely defoliated. This infestation has occurred for a number of years with no apparent branch or tree mortality. In the adjoining townships of North Walsingham and Charlotteville small stands of tamarack were also stripped. Severe defoliation recurred on tamarack in Kinloss Township while light-to-moderate damage resulted on plantings in Colborne Township, Wingham District. In Sullivan and Artemesia townships, Owen Sound District, light-to-moderate damage occurred on small stands of tamarack. In other forested areas of the Region defoliation was light.

Table 2. Summary of forest tent caterpillar egg-band counts and infestation forecasts for 1978 (counts based on the average number of egg bands on 1.25 m[a] branches, one from each of five trees, or on felled trees).

Location	Host	Approx. tree ht (m)[a]	No. of trees sampled	Avg no. of egg bands per tree	Avg no. of egg bands per branch	Infestation forecasts[b] for 1978
Owen Sound District						
Greenock	sM	14			0.6	M
Egremont	sM	15			0	U
Sullivan	sM	17	1	4		L
Sullivan	sM	14			0	U
Sullivan	sM	17			0	U
Sullivan	sM	14	1	23		S
Sullivan	sM	14	1	9		M-S
Saugeen	tA	9	3	0		nil
Saugeen	sM	24	3	0		nil
Proton	sM	15			0	U
Proton	sM	13			0	U
Bentnick	sM	11	3	3.6		L-M
Brant	sM	14			0.6	M
Brant	sM	14			1.2	S
Holland	sM	14	1	3		L
Holland	sM	14	1	3		L
Holland	sM	11			0.6	M
Keppel	sM	18	2	2		L
Keppel	tA	12	1	37		S
Sydenham	sM	11	1	17		S
Sydenham	sM	15	1	14		M-S
St. Vincent	sM	14	2	7		M
Collingwood	sM	18			0.4	M
Artemesia	sM	14			1.0	S
Derby	sM	15			0.8	M
Glenelg	sM	17	1	25		S
Wingham District						
Carrick	sM	14			0.8	M
Carrick	sM	14			0.6	M
Turnberry	sM	14			0.4	M
Turnberry	sM	14			0.2	M
Culross	sM	11			0.8	M
Morris	sM	14			0.2	M
Morris	sM	14			0	U
Howick	sM	12			0.2	M
Minto	sM	15			0	U

[a] 1 m = 3.28 ft

[b] L - light, M - moderate, S - severe, U - uncertain

European Pine Shoot Moth, *Rhyacionia buoliana* (Schiff.)

Although population levels were generally low on Scots pine and red pine throughout the Region, high numbers persisted at one sample point in Turnberry Township in the Wingham District (Table 3). Localized pockets of light to medium infestation were observed along Highway 401 in Harwich Township, Chatham District, and south to Windsor. Low numbers were observed at many other locations in the Region.

Table 3. Summary of shoot damage by the European pine shoot moth in two districts in 1976 and 1977 (counts based on examination of 100 trees at each location).

Location (Twp)	Host	Avg ht of trees (m)[a]	Total number of infested bud clusters 1976	1977
Wingham District				
Turnberry	rP	1.2	94	72
Goderich	scP	1.8	12	5
Aylmer District				
Biddulph	scP	1.8	24	13
Malahide	rP	2.7	1	0

[a] 1 m = 3.28 ft

Table 4. Other forest insects

Insect	Host(s)	Remarks
Argyresthia canadensis Free. *Argyresthia thuiella* Pack. *Pulicalvaria thujaella* (Kft.) Cedar leafminers	eC	small pockets of medium infestation by cedar leaf-miners in Osprey, Artemesia, and Holland townships
Callirhytis punctata (O.& S.) Gouty oak gall wasp	bO	light damage on scattered trees, Charlotteville Twp, Simcoe District

(continued)

Table 4. Other forest insects (continued)

Insect	Host(s)	Remarks
Cecidomyia niveipila O.S. Woolly fold gall	rO	light infestation of leaf galls, Bosanquet Twp, Chatham District
Cephalcia sp. Webspinning sawfly	scP, rP	light-to-medium infestations on planted trees in Glenelg Twp, Owen Sound District
Chionaspis furfura Fitch Scurfy scale	W	heavy infestation on regeneration, Hay Twp, Wingham District
Choristoneura pinus pinus Free. Jack pine budworm	scP, jP	light infestation on Scots pine near Durham, Glenelg Twp and small numbers at several other locations, Owen Sound District
Coleophora ulmifoliella MacD. Elm casebearer	E	moderate-to-heavy infestations on regeneration throughout Region
Diprion hercyniae (Htg.) European spruce sawfly	wS	light defoliation on young growth, South Walsingham Twp, Simcoe District
Diprion similis (Htg.) Introduced pine sawfly	wP	low numbers throughout the Region
Ecdytolopha insiticiana Zell. Locust twig borer	Hon	high numbers of twig borers, Turkey Point, Simcoe District
Epinotia aceriella Clem. Maple trumpet skeletonizer	sM	moderate damage to foliage by this skeletonizer in John E. Pearse Provincial Park, Aylmer District
Eriophyes sp. Eriophyid mite	black gum	light infestation of mites at one location, Charlotteville Twp, Simcoe District
Fenusa dohrnii (Tischb.) European alder leafminer	European Al	severe damage to foliage by this miner, Long Point, Simcoe District

(continued)

Table 4. Other forest insects (continued)

Insect	Host(s)	Remarks
Fenusa pusilla (Lep.) Birch leafminer	wB	severe in woodlots and on ornamental trees in Osprey and Sullivan twp, Owen Sound District
Fenusa ulmi Sund. Elm leafminer	sE, rE	severe leaf damage in Lincoln Twp, Niagara District
Lecanium sp. Lecanium scale	bLo	heavy infestations on scattered trees at one location, Bayham Twp, Aylmer District
Mayetiola celtiphyllia Felt Hackberry midge	Ha	scattered pockets of medium infestations, Point Pelee National Park, Chatham District
Mordwilkoja vagabunda Walsh Poplar vagabond aphid	eCo	heavy infestations west of Hanover, Brant Twp, Owen Sound District
Neodiprion abietis complex Balsam fir sawfly	bF	trace levels throughout Wingham District and medium infestations, Holland Twp, Owen Sound District
Neodiprion sertifer Geoff. European pine sawfly	rP, scP	low population levels throughout the Region
Neuroterus salterius Weld. Oak gall	O	heavy leaf gall damage on large trees, Townsend Twp, Simcoe District
Nymphalis antiopa L. Mourningcloak butterfly	E, tA	common throughout the Region
Orgyia leucostigma J.E. Smith White marked tussock moth	various deciduous hosts	moderate-to-severe defoliation on ornamental trees, N. Tilbury Twp, Chatham District
Phigalia titea Cram. A looper	wAs	severe defoliation on understory regeneration, Carrick Twp, Wingham District

(continued)

Table 4. Other forest insects (concluded)

Insect	Host(s)	Remarks
Pissodes strobi (Peck) White pine weevil	wP, rP	moderate infestations in Holland Twp, Owen Sound District
Phylloxera caryaeglobuli Walsh Globular hickory gall aphid	Hi	heavy infestations of leaf galls at one location, South Walsingham Twp, Simcoe District
Pikonema alaskensis (Roh.) Yellowheaded spruce sawfly	wS	moderate-to-severe defoliation on open-grown trees at scattered locations in Region
Pristiphora geniculata (Htg.) Mountain ash sawfly	Mo	found in varying numbers on ornamental trees throughout the Region
Proteoteras willingana Kft. Boxelder twig borer	mM	high number of twig borers at one location, South Walsingham Twp, Simcoe District
Pulvinaria innumerabilis Rath. Cottony maple scale	sM	low levels of cottony maple scale, St. Williams Nursery, Simcoe District
Taniva albolineana Kft. Spruce needleminer	wS	high levels at one location on hedgerow trees, Howard Twp, Chatham District
Tetralopha asperatella Clem. Maple webworm	sM	light damage to foliage in Turnberry, Culross and Carrick twp, Wingham District
Toumeyella liriodendri Gmelin Tulip scale	magnolia, tulip	severe branch mortality on magnolia, South Walsingham Twp, Simcoe District and on tulip, Fonthill area, Niagara District
Toumeyella numismaticum (P. & M.) Pine tortoise scale	scP	heavy on scattered individuals at one location in Charlotteville Twp, Simcoe District
Vasates quadripes Shim. Maple bladdergall mite	siM	heavy infestations on scattered trees, Point Pelee National Park, Chatham District

TREE DISEASES

Cytospora Canker, *Cytospora kunzei* Sacc.

This disease organism was found at several locations in Simcoe District. The disease is characterized by cankers that ooze pitch and frequently girdle the branches and trunks of trees. At Normandale in Charlotteville Township, large ornamental blue spruce (*Picea pungens* Engelm.) shelterbelt trees had needle drop associated with branch and tip dieback caused by the cankers. Large open-grown ornamentals at the St. Williams Nursery Picnic Area, South Walsingham Township were lightly infected. This disease was also detected at a number of scattered locations throughout the town of Simcoe.

Diplodia Tip Blight, *Diplodia pinea* (Desm.) Kickx

This organism was collected at Turkey Point at the old arboretum site, Charlotteville Township, Simcoe District. Approximately 20 to 25 planted Austrian pine (*Pinus nigra* Arnold) 12 m (40 ft) in height were severely infected. The infection results in the production of conspicuous clusters of brown, stunted shoots with abundant fruiting bodies. Resin accumulates in both twigs and needles and causes the latter to cling together. The most pronounced symptom of the disease is the killing back of the current season's growth year after year until the tree becomes stunted and sometimes dies. On older trees the process is generally slow since most frequently the lower branches of old well established trees are first affected and the disease gradually spreads upward. Very few instances are known in which large trees have been killed by the disease.

Sycamore Anthracnose, *Discula platani* (Pk.) Sacc.

This disease was common on scattered, open-grown ornamental sycamores (*Platanus occidentalis* L.) at several locations. High levels of damage were observed on several trees at the St. Williams Forest Station and on numerous ornamentals throughout the town of Simcoe. In the Chatham District light tip mortality was observed on scattered trees at Thamesville on Highway 2.

The disease causes the leaves and growing twig tips to brown and die as they emerge from the bud in the spring. Later the disease causes brown spots along the main leaf vein and infection usually spreads into larger areas, finally killing the leaf. Small twigs can also be killed and cankers sometimes form on larger branches during periods of especially severe infection. Dead leaves soon drop and severely affected trees frequently have all their foliage killed. A second crop of leaves is usually produced later in the summer.

Leaf Anthracnose of Maple, *Kabatiella apocrypta* (Ell. & Ev.) Arx

This leaf blight was again conspicuous throughout the Region. Most species of maple were attacked; however, sugar maple seemed to be the preferred host. Moderate-to-severe leaf damage occurred in the cities of London, St. Thomas and Aylmer and in the Sarnia-Windsor areas of the Chatham District. In Simcoe, Wingham and Owen Sound districts light-to-moderate damage was prevalent on open-grown trees and on trees in fringe and roadside situations.

Infection is apparent in early spring. Diseased leaves usually show light brown spots and infection progresses from the outer leaf margins towards the centre. Affected leaves usually curl, dry out and fall prematurely. The fungus that causes the disease overwinters on these dead leaves.

Horse Chestnut Leaf Blotch, *Phyllosticta paviae* Desm.

This disease of ornamentals was unusually common, possibly because of wet weather in late summer. In the towns of Port Dover, Norwich and Simcoe this disease was prevalent on scattered trees along roads and on private land. Severe damage was also observed in the London-St. Thomas areas, Aylmer District and generally throughout the cities of Sarnia and Windsor in the Chatham District. In the Owen Sound District, the disease was found in varying degrees on ornamentals at Markdale, Port Elgin and Owen Sound.

Abiotic Damage

Moderate-to-severe frost damage occurred on white spruce (*Picea glauca* [Moench] Voss) near Sylvan at the Boy Scout Plantation in East Williams Township, Aylmer District. Elsewhere the occasional tree suffered light damage, and generally throughout the Region frost damage was minimal or low.

In early spring a problem with beech (*Fagus grandifolia* Ehrh.) was evident in Aylmer, Simcoe and Chatham districts. A relatively high number of sparsely foliated trees along the perimeter of woodlots, as well as single open-grown trees, were affected while the interior trees appeared healthy. In many cases the new buds did not flush; of those that did, the leaves appeared smaller than usual, and wilted and fell from the tree. This problem was observed in Kent County, Chatham District, especially in the townships of Howard and Harwich. In the Aylmer District, the condition was especially noticeable in Yarmouth, Malahide and Bayham townships and extended east into the Simcoe District. Sparsely foliated trees were observed in Houghton, South Walsingham, North Walsingham and Charlotteville townships.

Branch foliage and root samples were submitted to the Great Lakes Forest Research Centre but no organism to which the condition could be attributed was isolated.

Maple Mortality

Mortality was first observed in a private sugar maple woodlot in Euphrasia Township, Owen Sound District, in the summer of 1976. Scattered mortality occurred in about 4 ha (10 acres) of pole-sized trees and it was assumed that the mortality was occurring on weakened trees as a result of two years of severe defoliation by forest tent caterpillar. In the summer of 1977, mortality had increased to approximately 60% over about 8 ha (20 acres) in this area. Aerial and ground surveys showed numerous pockets of mortality in the Owen Sound District, in Sullivan, Sydenham, Bentinck, Holland and Normanby townships. Small pockets were also observed in Culross, Carrick, and Howick townships of Wingham District (see Frontispiece).

Trees of all ages and on a variety of site classes were affected, with pockets ranging in size from 1 ha (2.47 acres) to about 12 ha (30 acres). Mortality ranged up to 90% in affected areas and was usually located in the interior of stands: very few fringe trees were affected. Thin crowns and branch mortality were also evident in a number of other stands within these townships.

Although the cause of the recent mortality is not known at present it is interesting to note that dead trees lie within the areas that were moderately to severely defoliated by the forest tent caterpillar. The problem is being studied by staff of the Great Lakes Forest Research Centre with cooperation from personnel of the Ontario Ministry of Natural Resources.

Oak Deterioration

Three oak plots were established in the Region to study the progress of oak decline. In each plot 100 non-suppressed trees were tagged along a plot azimuth, heights and diameters were measured and trees were rated for dieback (Table 5). Stand history with respect to insect and disease damage, weather, etc., was noted. These plots will be monitored yearly for a period of five years to record problems of decline.

Salt Damage

This problem was present again in varying degrees. Trees along heavily travelled roads, on curves, on hills and at intersections where salt was more frequently applied suffered the greatest damage. Severe

damage occurred on both coniferous and deciduous trees along Highway 401 from London to Windsor and along secondary highways throughout the Aylmer, Simcoe and Wingham districts. In the Owen Sound District moderate-to-severe damage was observed on coniferous plantings from Chatsworth to Mount Forest along Highway 6.

Table 5. Summary of oak deterioration at three locations in the Region.

Location (Twp)	Avg ht of sample trees (m)[a]	Avg DBH of sample trees (cm)[b]	Dieback class			
			1	2	3	4
Simcoe District						
Charlotteville	17	32	70	8	12	10
South Walsingham	11	24	42	35	18	5
Chatham District						
Bosanquet	12	26	69	7	17	7

[a] 1 m = 3.28 ft

[b] 1 cm = 0.39 in.

Note: Oak decline is principally branch mortality. Class 1 is healthy; class 2-4 have more than 20-40-60%, respectively, of branches dead; class 5 is dead.

Table 6. Other forest diseases

Organism	Host(s)	Remarks
Apiosporina morbosa (Schw.) Arx Black knot	ecCh	high levels of infection at scattered locations throughout Region
Armillaria mellea (Vahl ex Fr.) Kummer Shoestring root rot	sM	high incidence throughout Owen Sound District

(continued)

Table 6. Other forest diseases (continued)

Organism	Host(s)	Remarks
Cronartium ribicola J.C. Fischer White pine blister rust	western wP	one tree infected, St. Williams Nursery, South Walsingham Twp, Simcoe District
Cytospora sp. Cytospora canker	sM, Ash	associated with branch dieback in Owen Sound and Wingham districts
Discula quercina (Cooke) Sacc. Oak anthracnose	rO, wO	fruiting found on regeneration, Charlotteville Twp, Simcoe District
Endocronartium harknessii (J.P. Moore) Y. Hiratsuka Globose gall rust	scP	moderate infections throughout plantings at Turkey Point, Charlotteville Twp, Simcoe District
Fomes annosus (Fr.) Karst Annosus root rot	rP, wP	heavy infection continued in red pine plantations in the St. Williams Nursery and Turkey Point areas, with new infections on white pine in Simcoe District
Gloeosporium sp. Leaf anthracnose	chestnut, oak	severe infection on leaves at Point Pelee National Park, Mersea Twp, Chatham District
Gymnosporangium clavipes (Cke. & Pk.) Cke. & Pk. Leaf and twig gall rust	Haw	high levels of infection on roadside trees, Simcoe District
Libertella faginata Desm. Libertella dieback	Be	fruiting found on dead branches, Bayham Twp, Aylmer District
Nectria galligena Bres. European nectria canker	wB	stem cankers found commonly on scattered clumps of trees in Albermarle Twp, Owen Sound District
Melampsora epitea Thüm F. sp. *tsugae* Ziller A leaf rust	W	several infected trees at Point Pelee National Park, Mersea Twp, Chatham District

(continued)

Table 6. Other forest diseases (concluded)

Organism	Host(s)	Remarks
Rabenhorstia tiliae Fr. Branch dieback	Ba	severe tip mortality on young plantings at Point Farms Provincial Park, Colborne Twp, Wingham District
Rhizosphaera kalkhoffii Bub. Needle cast of spruce	colS	severe needle cast at Bells Lake, Owen Sound District
Sirococcus strobilinus Press. Tip blight of spruce	colS	extensive shoot damage at Bells Lake, Owen Sound District
Tubercularia vulgaris Tode ex Fr. Nectria canker	siM	moderate branch mortality at one location, Houghton Twp, Simcoe District
Venturia macularis (Fr.) Müller & Ark. = *Pollaccia radiosa* (Lib.) Bald. & Cif. Tip and leaf blight of poplar	tA	trace levels on young regeneration, Ellice Twp, Wingham District

APPENDIX

SOUTHWESTERN REGION

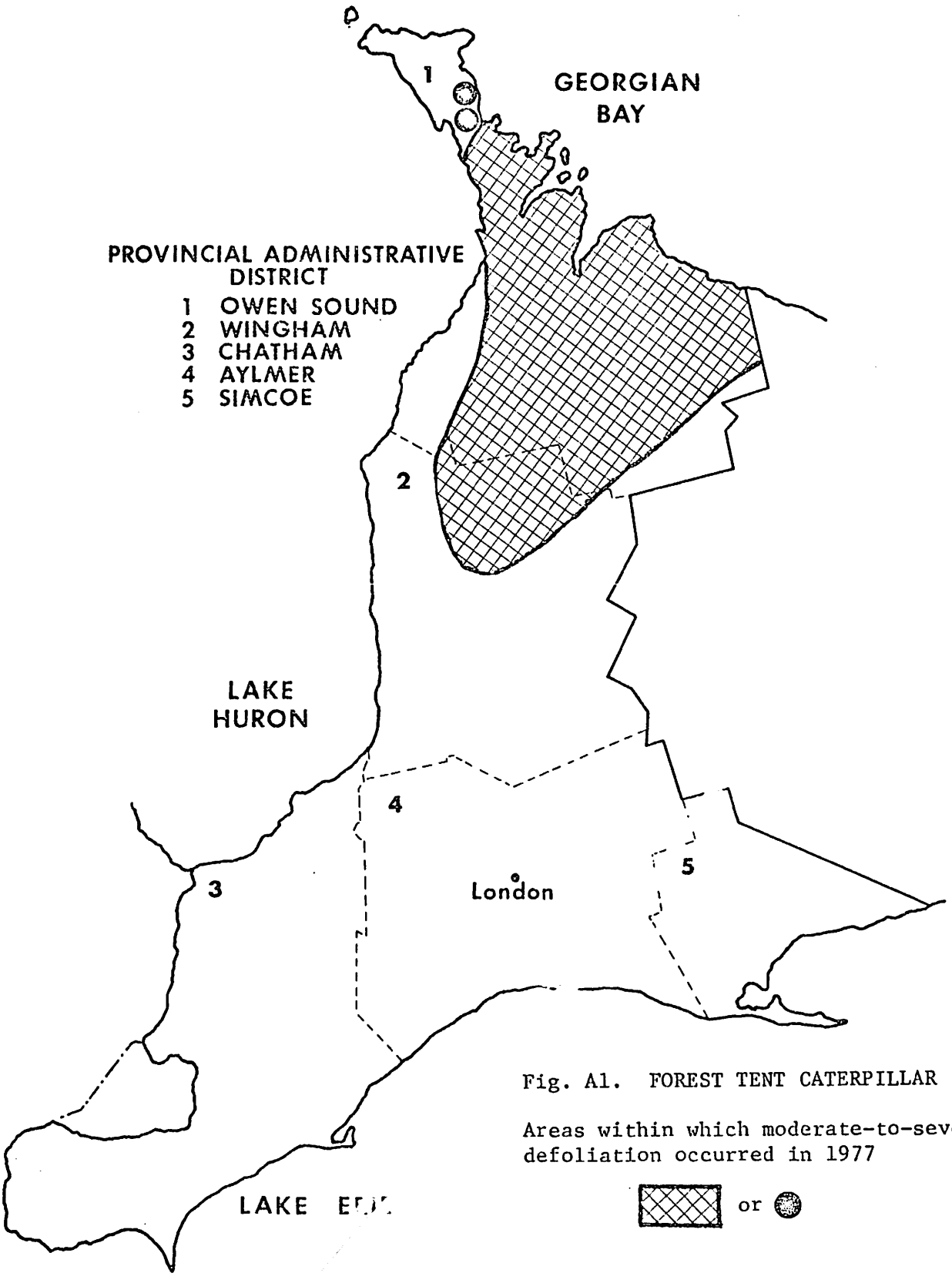

Fig. A1. FOREST TENT CATERPILLAR

Areas within which moderate-to-severe defoliation occurred in 1977

or