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Results of forest insect and disease surveys in the SOUTHWESTERN 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 covers the more important insect and disease conditions in the Southwestern Region in 1980. As in 1979, heavy infestations of the spruce budworm persisted in several townships of the Bruce Peninsula, Owen Sound District. Smaller pockets of heavy infestation were noted in Minto and Downie townships, Wingham District, Charlotteville and South Walsingham townships, Simcoe District and Lobo Township, Aylmer District. Extensive balsam fir mortality was common in the northern part of the Bruce Peninsula. A complex of cedar leafminers continued to cause severe damage to eastern white cedar in the Wingham and Owen Sound districts. Scattered, heavy infestations were common in Chatham, Aylmer and Simcoe districts. Successive years of defoliation caused tree mortality at numerous locations in the Owen Sound District. Deciduous tree defoliators such as fall webworm, walnut caterpillar and orangestriped oakworm caused varying degrees of damage at many locations. Infestations of the cottony maple scale increased appreciably and caused severe defoliation of silver maple in the Windsor-Chatham area of the Chatham District. Population levels of the European pine sawfly, balsam fir sawfly and spruce bud moth increased sharply and defoliation of their respective coniferous hosts was high at several locations. Little change was recorded in the status of larch sawfly and larch casebearer; both of these insects caused moderate-to-severe defoliation at many points in Simcoe, Aylmer and Wingham districts.

Forest disease surveys concentrated on the detection of Scleroderris canker (European race) of pine, and oak and maple declines. Damage to Austrian and Scots pine by Diplodia tip blight was again common in varying degrees at many locations. Leaf anthracnose of maple and sycamore, horse chestnut leaf blotch, ash dieback, winter drying, salt damage and limestone chlorosis were common and caused concern to conservation authorities, private individuals and forest managers.

A special survey was conducted in white pine plantations to rate the important pest problems.

In 1980 a new format was devised for the Table of Contents to include an index rating scheme for insects and diseases. The categories 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.

In addition, to assist readers in locating pertinent data, pest occurrence is listed according to district.

The cooperation received from personnel of the Ontario Ministry of Natural Resources is deeply appreciated.



Frontispiece. Severe damage to sugar maple (*Acer saccharum* Marsh.) caused by Eutypella canker (*Eutypella parasitica* Davidson & Lorenz).

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INSECTS

Category A

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

In recent years this web-spinning insect has caused considerable damage to red pine, (*Pinus resinosa* Ait.), Scots pine (*P. sylvestris* L.) and jack pine (*P. banksiana* Lamb.) trees at many locations in the Central and Eastern regions of southern Ontario. In 1980 it was found for the first time at three locations in the Owen Sound District of the Southwestern Region. A moderate infestation in a Scots pine plantation near Bells Lake in Glenelg Township resulted in approximately 30-40% defoliation. Elsewhere in the Owen Sound District light infestations were noted in a small white pine (*P. strobus* L.) planting south of Hepworth in Keppel Township and in a Scots pine plantation east of Durham in Glenelg Township. Defoliation was less than 5% in both instances.

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

As in 1979 varying degrees of defoliation occurred on open-growing white oak (*Quercus alba* L.) at many points in Simcoe, Aylmer and Chatham districts. In Aylmer District infestations persisted on occasional trees south of Newbury in Mosa Township, at several locations near Woodstock and Ingersoll, and on open-growing trees in Exfrid Township. In Simcoe District, light-to-moderate infestations were noted along Highway 24 south and west of the town of Simcoe as far as St. Williams. In Chatham District, light-to-moderate infestations were common in Tilbury, Bosanquet and Harwich townships. Defoliation was approximately 20% in these areas. Small localized infestations were common in Rondeau Provincial Park and on occasional white oak trees in Point Pelee National Park.

Pine Spittle Bug, *Aphrophora cribrata* (Wlk.)

This insect caused severe damage to branches and twigs of white pine and Scots pine at several widely separated locations in the Simcoe and Wingham districts in 1980. In the Simcoe District spittle masses were common and damage was quite extensive in a 4 ha (10 acre) white pine plantation in the Normandale area. Over 80% of the trees examined were infested. In the Wingham District a moderate-to-heavy infestation was noted in white and Scots pine stands in the Robertson tract and near Blythe in Colborne Township. In the two areas 25 and 97% of the trees, respectively, were infested. Small localized infestations were observed in the Sweaburg area of the Aylmer District and on occasional trees in the Wellington County Forest near Palmerston.

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.

Birch Leafminer, *Fenusa pusilla* (Lep.)

Population levels remained high at numerous locations in the Region in 1980. Defoliation of white birch (*Betula papyrifera* Marsh.) and a wide variety of ornamental birches was widespread in all districts. In the Simcoe District severe leafmining was common at many locations at the St. Williams Forest Station and in the towns of Simcoe, Delhi, Waterford and Port Rowan. Varying degrees of defoliation were noted in the London, Aylmer and St. Thomas areas of the Aylmer District. In the Wingham and Chatham districts, leafmining was common in many towns and villages, particularly Stratford, St. Marys, Goderich and Clinton in the Wingham District and Blenheim and Kingsville in the Chatham District. In the Owen Sound District, heavy infestations were common on ornamentals.

Balsam Fir Sawfly, *Neodiprion abietis* complex

In recent years infestations of the balsam fir sawfly have been at low levels throughout the Region. In 1980 population levels increased and up to 60% defoliation of balsam fir (*Abies balsamea* [L.] Mill.) was noted. The most notable increases were at several locations in the Owen Sound District, where moderate-to-heavy infestations in Keppel and Amabel townships were observed. Elsewhere in the Owen Sound District, small stands of balsam fir were moderately defoliated in Glenelg, Osprey and Holland townships.

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

In past years, except for minor fluctuations, population levels of this sawfly on Scots pine, red pine and mugho pine (*Pinus mugho* Turra var. *mughus* Zenari) have remained at a low level. However, in 1980, infestations increased and colonies were more common than in previous years. The most notable increase occurred in an abandoned 1 ha (2.47 acre) Scots pine plantation in the Essex-Windsor area, where damage to 1979 foliage was high. Light infestations were common on ornamentals in the cities of Windsor, Aylmer and Simcoe and in the villages of Palmerston, Delhi and Gads Hill. Small numbers of colonies were observed in the Wellington County Forest in Minto Township and just north of Wingham in Turnberry Township.

White Pine Weevil, *Pissodes strobi* (Peck)

Population levels in 1980 were little different from those of 1979 (Table 1). The most noticeable damage occurred at two locations in Charlotteville Township where 7.2 and 8.0%, respectively, of the white pine trees had damaged leaders. Although white pine is most commonly attacked, all pines and spruces are susceptible to attack. As a result of killing of terminal shoots the weevil seriously affects the commercial and aesthetic value of the trees.

Table 1. Summary of leader damage by white pine weevil in two districts in 1979 and 1980 (counts based on the examination of 150 white pine trees at each location).

Location	Avg ht of trees (m) ^a	Stocking ^b (trees/ha)	Host	Leaders attacked (%)	
				1979	1980
Simcoe District					
Wingham	3.0	2400	wP	-	8.0
Charlotteville	1.5	2000	wP	2	8.0
Charlotteville	9.0	3000	wP	14	7.3
North Walsingham	2.0	3000	wP	-	7
Wingham District					
Colborne (Auburn)	7.0	3000	wP	5	1
Colborne (Blythe)	4.0	3000	wP	-	0

^a1 m = 3.28 ft

^b1 ha = 2.47 acres

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

High populations were present throughout several areas of the Simcoe and Aylmer districts in 1980. In the Wingham District small isolated pockets of infestation were noted at widely separated locations. In the Simcoe District severe defoliation of native larch (*Larix laricina* [Du Roi] K. Koch) and European larch (*Larix decidua* Mill.) was common at many locations in the St. Williams Forest Station and at numerous locations in South Walsingham and Charlotteville townships. Smaller heavy infestations were noted near Port Rowan and on occasional trees in Houghton Township. Defoliation caused by this insect was approximately 90% in all infestations. In the Aylmer District, heavy infestations persisted at several locations along Highway 401 and in small clumps of

native larch east of Aylmer. In the Wingham District small pockets of heavy infestation were noted in stands of native larch, particularly in the area of Goderich and in the town of Wingham.

Elsewhere in the Region small pockets of light-to-moderate infestation were noted near the Ellice Swamp in Ellice Township, in the Dr. Murray plantations near St. Marys in Downie Township, in native larch stands south of Dornoch in Glenelg Township and on European larch in Greenoch Township. Although increased numbers of larvae were evident in the Owen Sound District, infestations were generally light and defoliation was negligible.

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

Numbers of this insect have been low in recent years; however, increases in population levels occurred at widely separated locations in 1980. In Owen Sound District a single heavy infestation was noted in a 4 ha (10 acre) red pine plantation south of Maxwell in Osprey Township. Damage in this plantation was widespread as all trees had most shoots infested. In the Wingham District a moderate-to-heavy infestation was observed in a small red pine plantation just north of Wingham in Turnberry Township; approximately 60% of the trees were damaged. In the Aylmer District, open-growing red pine trees located near Pearce Provincial Park in Dunwich Township were severely damaged by this shoot moth. Damage at this location was so extensive that the infested trees are malformed and are of little commercial use. Small numbers of larvae were present at other locations, but damage was minimal.

Category B

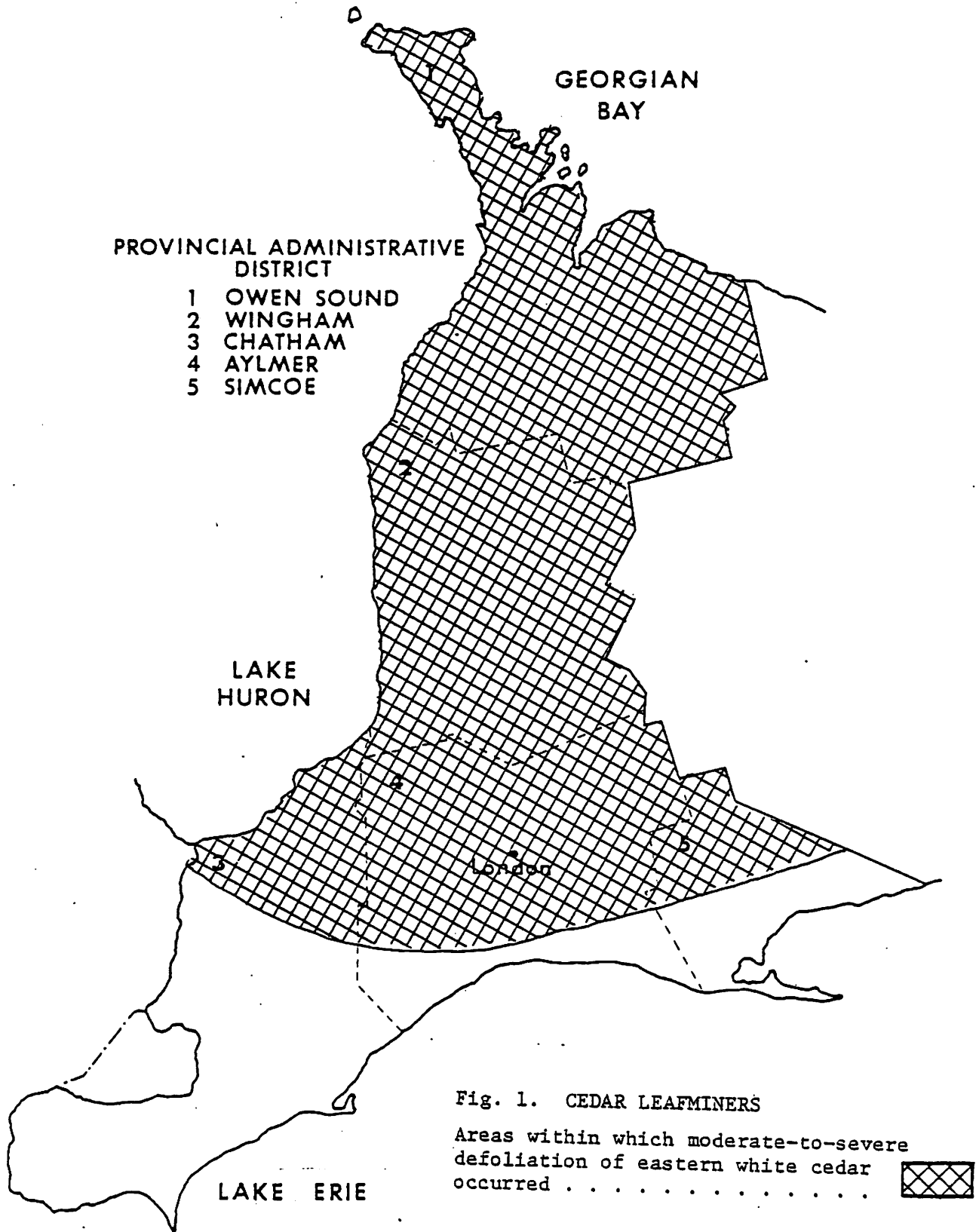
Cedar Leafminers¹, *Argyresthia aureoargentella* Brower, *A. canadensis* Free.,
A. thuiella Pack., *Pulicalvaria thujaella* (Kft.)

Heavy infestations of cedar leafminers occurred in most areas of the Region (Fig. 1). Whole-tree mortality, top kill and severe browning of eastern white cedar (*Thuja occidentalis* L.) foliage were prevalent throughout the Owen Sound District and to a lesser degree in the Wingham, Aylmer and Simcoe districts.

In the Owen Sound District, virtually all cedar stands were infested, with the majority supporting moderate-to-high populations. The most spectacular infestations were located near Ferndale in Eastnor Township and near Johnson's Harbour in St. Edmunds Township.

¹ Historically this complex of insects has caused mortality of cedar trees in the Southwestern Region.

SOUTHWESTERN REGION



Severe leafmining was observed throughout the Wingham District. The most notable damage occurred in stands of cedar just south of the town of Wingham and along Highway 21 south of Goderich. Some top kill and branch mortality are evident in these areas. As in 1979, heavy infestations persisted in the Harriston, Palmerston and Stratford areas; however, the trees appear to have recovered rather well. In the Aylmer District, heavy infestations persisted at most locations, particularly in the London, Woodstock and St. Thomas areas and to a lesser degree east of London along Highway 401, where clumps of cedar were moderately defoliated. In the Simcoe District population levels increased and pockets of heavy infestation were noted in the northern part of the district. In the Chatham District small pockets of heavy infestation occurred south of Grand Bend and in Bosanquet and Plympton townships. Elsewhere, light infestations were observed at scattered locations in the remainder of the Region.

Lecanium Scale, *Asterolecanium* sp.

This scale insect caused considerable damage to pin oak (*Quercus palustris* Muenchh.) near Kingsville and the village of Essex in Chatham District. Upper crown mortality was common at both locations and severe branch dieback was also common, particularly near the Golf and Country Club near Kingsville. This scale insect is capable of causing small-tree mortality, and severe branch damage to mature trees. Surveys will continue in 1981 to try to determine how widespread the infestation is.

Spruce Bud Moth, *Zeiraphera canadensis* Mut. & Free.

This bud moth causes damage similar to that of the spruce budworm. In 1980 many ornamental white spruce (*Picea glauca* [Moench] Voss), Norway spruce (*Picea abies* [L.] Karst.) and Chinese spruce (*Picea occidentalis* L.) were moderately to heavily defoliated in the Simcoe and Aylmer districts. Damage caused by this insect was most pronounced on ornamentals and open-growing trees at the St. Williams Forest Station, where approximately 50 to 60% of the new foliage was destroyed. In the Aylmer District, population increases were observed on Norway spruce and white spruce trees near the villages of Delhi and Teeterville. Small pockets of infestation occurred in the Dr. Murray white spruce plantations near St. Marys and in the Wellington County Forest in Minto Township, Wingham District. Small numbers of larvae were noted in the Owen Sound and Chatham districts.

Larch Casebearer, *Coleophora laricella* Hbn.

Heavy infestations of this insect on native and European larch were widespread in 1980. As in 1979, heavy infestations persisted in Downie, Colborne, Ellice and east and west Wawanosh townships of the Wingham District. Defoliation in most instances was severe. In the Aylmer District, a new heavy infestation was observed near the junction of highways 401 and 73 in North Dorchester Township, where all the foliage in a 1 ha (2.47 acre) stand of native larch was devoured. High populations persisted in Caradoc Township but a decline was noted in a plantation of larch near Woodstock.

In the Simcoe District, only light-to-moderate damage was observed. Damage to European larch was common at many locations in Charlotteville and South Walsingham townships. Defoliation ranged from a low of 20% to a high of approximately 40%.

Elsewhere in the Region small pockets of light-to-moderate infestation were observed at several locations in the Owen Sound and Chatham districts.

Pine Needle Midge, *Contarinia baeri* (Prell)

In 1979 a heavy infestation of this needle midge occurred in a private 4 ha (9.88 acre) Scots pine plantation near Courtland in the Simcoe District. In 1980, populations declined to a low level and damage caused by this midge was of little consequence. It was not found elsewhere in the Region.

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

Although populations generally remained at low levels in the Southwestern Region, a pocket of heavy infestation was noted at one location in the Owen Sound District. This heavy infestation was observed on red oak (*Quercus rubra* L.) near Emmet Lake in St. Edmunds Township. Defoliation ranged upward to 80%. Elsewhere in the Region small numbers of larvae were collected in stands of red oak in Charlotteville and South Walsingham townships, Simcoe District. Egg counts carried out in these stands indicated that light infestations may occur in these areas in 1981.

Fall Webworm, *Hyphantria cunea* Dru.

A general increase in population levels occurred throughout the Southwestern Region in 1980. Black walnut (*Juglans nigra* L.), black ash (*Fraxinus nigra* Marsh.), butternut (*Juglans cinerea* L.), and a variety of

other deciduous hosts were moderately to severely defoliated at many locations from Simcoe west to Windsor and from Lake Erie north to Tobermory in the Owen Sound District.

In the Chatham District heavy infestations were once again common in the Point Pelee National Park area, near Blenheim and at several locations surrounding Windsor and Sarnia. Smaller but significant infestations were common near Rondeau Provincial Park and along highways 3 and 401 near Chatham and Tilbury. Defoliation was heavy in all areas examined. Elsewhere this web-spinning insect caused defoliation to many species of hardwoods in the Wingham and Aylmer districts. In the Simcoe District small pockets of infestation and infested roadside trees were common at several locations. In the Owen Sound District, the insect was common but generally at low levels of infestation.

Category C

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

As in 1979, heavy infestations persisted in the Chatham, Aylmer and Simcoe districts. The heaviest infestations were recorded on walnut (*Juglans* spp.) and hickory (*Carya* spp.) near Windsor in Essex County, in Point Pelee National Park, near Rondeau Provincial Park and at many points in the Kingsville and Essex area of the Chatham District. More than 60% of the foliage on these trees was destroyed. In the Aylmer and Simcoe districts heavy infestations were observed at many points along highways 401 and 3, particularly in the London and St. Thomas areas. Small pockets of infestation were common near St. Williams, Simcoe and Tillsonburg in the Simcoe District. Defoliation of host trees ranged upward to 60%. Elsewhere in the Region occasional colonies were observed in the southern part of the Wingham District, particularly in the Stratford-St. Marys area.

The Palmerworm, *Dichomeris ligulella* Hbn.

In 1979, there were heavy infestations of this insect on red oak at widely separated locations in the Simcoe and Chatham districts. In 1980, surveys carried out in old areas of infestation failed to reveal this insect. Generally, infestations of the palmerworm are of short duration. This year no larvae were collected in Charlotteville and South Walsingham townships of the Simcoe District, nor in Pinery or Rondeau Provincial parks of the Chatham District.

Cottony Maple Scale, *Pulvinaria innumerabilis* Rath.

The cottony maple scale, an important pest of shade tree maples (*Acer* spp.) occurred in large numbers at many locations in Essex and Kent Counties in 1980. This insect, which appears in large numbers approximately every 10 years, caused severe defoliation of silver maple (*Acer saccharinum* L.) ornamentals from Windsor to Chatham and from Lake Erie north to Wallaceburg (Fig. 2). In the area just east of Windsor near Tecumseh and Essex, branch mortality was evident on many trees. Although damage, including tree mortality, can reach serious proportions, fortunately, trees are seldom attacked heavily for two successive years.

Table 2. Other forest insects.

Insect	Host(s)	Remarks	Rating
<i>Acarina</i> (mites)	rP	caused moderate reddening of needles at scattered locations in Pinery Park, Chatham District	B
<i>Aceria caulis</i> (Cook) (mite)	walnut	occasional trees infested near Port Talbot, Aylmer District	C
<i>Aceria</i> sp. (mite)	Be	severe damage to leaves, on understory trees near Ingersoll, Aylmer District	C
<i>Acleris variana</i> Fern. (Black-headed budworm)	wS	white spruce lightly attacked in PUC plantation near Woodstock, Aylmer District, and Wellington County Forest near Palmerston, Wingham District	B
<i>Acrobasis angusella</i> Grote (Pecan casebearer)	Bu, walnut	observed causing light damage to twigs and branches on Pelee Island and in Point Pelee National Park, Chatham District, and near Sheddon, Aylmer District	C
<i>Acrobasis juglandis</i> LeBar. (Pecan leaf casebearer)	Hi	casebearers common on small trees near Port Talbot, Aylmer District	C

Table 2. Other forest insects (continued).

Insect	Host(s)	Remarks	Rating
<i>Acronicta morula</i> G. & R. (Owlet moth)	wE	small numbers on roadside trees near Teeterville, Simcoe District	C
<i>Adelges abietis</i> Linn. (eastern spruce gall aphid)	wS	common on new growth in a small white spruce plantation near Delaware, Aylmer District and on open-growing trees near St. Williams, Simcoe District	B
<i>Amphibolips inanis</i> (Harr.) (large oak apple gall)	rO	moderate-to-heavy infestations of this leaf gall at scattered locations in Simcoe District, most notable infestation near Turkey Point	C
<i>Amphipyra pyramidoides</i> Gn. (climbing cutworm)	Ba	small numbers on roadside trees near Tavistock, Wingham District	C
<i>Anacampsis innocuella</i> Zell. (poplar leafroller)	tA	20% defoliation on occasional trees near London	C
<i>Archips cerasivoranus</i> (Fitch) (uglynest caterpillar)	cherry	scattered heavy infestations through the southwestern region; most notable infestations observed on Pelee Island and in Point Pelee National Park; smaller but heavy infestations near Pearce Park and at many locations in Simcoe, Owen Sound and Wingham districts.	B
<i>Argyrotaenia quercifoliana</i> (Fitch) (oak leafroller)	rO, wO	light infestation on all sizes of oak near Turkey Point, Aylmer District	C
<i>Cenopis acerivorana</i> MacK. (maple leafroller)	sM	moderate damage to scattered trees near Ingersoll, Aylmer District	C

(continued)

Table 2. Other forest insects (continued).

Insect	Host(s)	Remarks	Rating
<i>Cenopsis pettitana</i> Rob. (basswood leafroller)	Ba	moderate-to-heavy infestations scattered throughout the Simcoe, Aylmer and Wingham districts, most notable damage observed near Selkirk, Simcoe and Tavistock	C
<i>Chionodes fuscomaculella</i> Cham. (micro moth)	wO, rO	light-to-moderate infestations of leafrollers near Turkey Point, Simcoe District	C
<i>Chionodes obscurusella</i> Cham. (micro moth)		caused light defoliation at several points near Normandale, Simcoe District	C
<i>Choristoneura pinus pinus</i> Free. (Jack-pine budworm)	jP	light infestation on small hedgerow near Scudder on Pelee Island	A
<i>Choristoneura rosaceana</i> Harr. (obliquebanded leafroller)	rO	common at low levels throughout the region	C
<i>Cinara strobi</i> (Fitch) (white pine aphid)	wP	small plantation near Turkey Point infested by this aphid; moderate infestation on medium-sized trees in Robertson tract near Auburn, Wingham District	C
<i>Coleophora serratella</i> (Linn.) (cigar casebearer)	Mo	small numbers of this casebearer on occasional trees in Wellington County forest in Minto Township, Wingham District	C
<i>Coleophora ulmifoliella</i> McD. (elm casebearer)	wE	common on small roadside trees near London	C
<i>Dioryctria disculsa</i> Heinr. (rusty pine cone-moth)	jP	cones on a few trees lightly infested by this cone moth on Pelee Island	C
<i>Dioryctria reniculelloides</i> M. & M. (spruce coneworm)	wS	small numbers of larvae in Wellington County Forest, Wingham District	C

(continued)

Table 2. Other forest insects (continued).

Insect	Host(s)	Remarks	Rating
<i>Ectoedemia argyropeza</i> Downes (poplar petiole gall moth)	tA	common on regeneration near Tobermory, Owen Sound District	C
<i>Epinotia solandriana</i> Linn. (variable poplar-birch moth)	tA, wB	moderate infestation of these leafrollers on all sizes of aspen (<i>Populus</i> spp.) near Millar Lake, Owen Sound District; heavy infestation on scattered birch (<i>Betula</i> spp.) in same area	B
<i>Erannis tiliaria</i> Harr. (basswood looper)	Ba	defoliation negligible, but a buildup in population levels is expected in 1981 near Tavistock, Wingham District	B
<i>Eriocampa juglandis</i> (Fitch) (butternut woolly sawfly)	walnut, Bu	10% defoliation on ornamentals near Port Rowan, Simcoe District	C
<i>Eucosma gloriola</i> Heinr. (eastern pineshoot borer)	rP, wP	small numbers throughout the Region	B
<i>Fenusa dohrnii</i> (Tischb.) (European alder leafminer)	alder	moderate-to-heavy infestations on shoreline black alder (<i>Alnus glutinosa</i> [L.] Gaertn.) near St. Williams Forest Station	B
<i>Feralia jocosa</i> Gn. (red-marked caterpillar)	wS	small numbers near Palmerston, Wingham District	C
<i>Halisidota caryae</i> Harr. (hickory tussock moth)	Hi	light infestation on hedge-row trees caused 10% defoliation near Kingsville, Chatham District	C
<i>Hormaphis hamamelidis</i> (Fitch) (witch hazel cone gall)	Hazel	heavy infestation on scattered trees in Catfish conservation area, Aylmer District	C
<i>Lepidosaphes ulmi</i> (Linn.) (oystershell scale)	Do	heavy infestation of scale on understory trees 1.6 km (1 mi.) south of Lions Head, Owen Sound District	B

(continued)

Table 2. Other forest insects (continued).

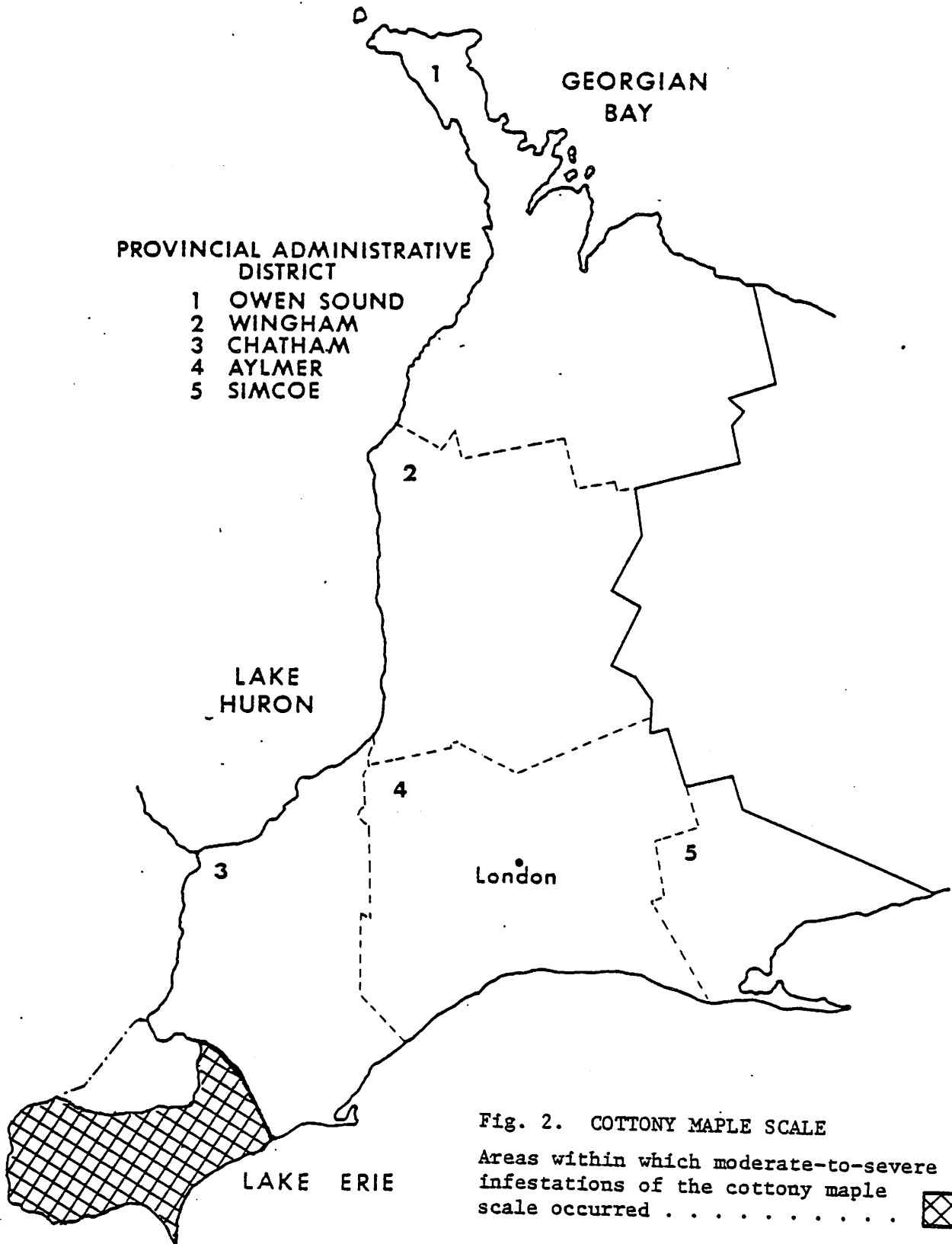
Insect	Host(s)	Remarks	Rating
<i>Malacosoma americanum</i> F. (eastern tent caterpillar)	cherry	observed commonly along roadsides and in fields at many locations throughout the region	B
<i>Mindarus abietinus</i> Koch (twig aphid)	wS	moderate infestations on lower branches of white spruce near Palmerston, Wingham District	C
<i>Monellia caryae</i> (Monell) (leaf aphid)	walnut	heavy infestation of this aphid on occasional trees near London and Port Stanley	C
<i>Nymphalis antiopa</i> L. (mourning cloak butterfly)	wE	many colonies observed at several locations throughout the Region	C
<i>Paraphytomyza populicola</i> (Wlk.) (Lombardy poplar leafminer)	CPo	severe leafmining on ornamental trees in the city of Owen Sound	C
<i>Parectopa robinella</i> Clem. (leafminer)	locust	common on scattered trees near London and Port Talbot	C
<i>Phloeosinus canadensis</i> Sw. (northern cedar bark beetle)	eC	caused swelling and top kill on cedar hedge near Chatham	
<i>Pikonema alaskensis</i> (Roh.) (yellowheaded spruce sawfly)	wS	commonly observed but generally at low levels throughout the Region	A
<i>Pineus strobi</i> Htg (pine bark aphid)	wP	found commonly on white pine throughout the Southwestern Region	B
<i>Pissodes approximatus</i> Hopk. (northern pine weevil)	wP	drought-damaged trees infested by this weevil at one location near Simcoe	A
<i>Plagioderia versicolora</i> Laich (imported willow leaf beetle)	W	moderate infestation on willow (<i>Salix</i> spp.) near Port Rowan, Simcoe District	B

(continued)

Table 2. Other forest insects (concluded).

Insect	Host(s)	Remarks	Rating
<i>Pristophora geniculata</i> (Htg.) (mountain ash sawfly)	Mo	occasional pockets of heavy infestation on ornamentals at many locations in the Region	A
<i>Pseudexentera mali</i> Free. (apple leafroller)	apple	heavy infestation of this leafroller near Kemble, Bruce Peninsula	C
<i>Pseudexentera oregonana</i> Wlsh. m. (aspen leafroller)	tA	heavy infestation on scattered trees near Millar Lake, Owen Sound District	A
<i>Trichiocampus viminalis</i> (Fall.) (willow sawfly)	lPo	occasional trees stripped of foliage at one location near Ripley, Wingham District	C

SOUTHWESTERN REGION



TREE DISEASES

Category A

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

In 1979 this fungus was found only in the Chatham, Aylmer and Simcoe districts. In 1980 light foliar damage was noted on Scots pine and Austrian pine (*Pinus nigra* Arnold) at several locations in the Owen Sound and Wingham districts. In the Aylmer and Simcoe districts Austrian pine and Scots pine were moderately damaged in small clumps and wind-breaks. Damage was particularly evident in the vicinity of Port Rowan, Simcoe, Port Dover and Long Point in the Simcoe District and near Tillsonburg, St. Thomas and along Highway 401 east of London in the Aylmer District (Table 3). In the Chatham District light-to-moderate damage was common at the Holiday Provincial Park, and on occasional Scots pine trees near Essex. In the Wingham District light damage was noted on Scots pine near the Robertson tract and north of the village of Wingham in Turnberry Township. In the Owen Sound District trace-to-light damage was present at widely separated locations.

Table 3. Summary of damage caused by Diplodia tip blight at four locations in the Southwestern Region in 1980 (150 trees examined at each location).

Location (Twp)	Host	Avg ht of trees (m) ^a	Stocking (trees per ha) ^b	Trees affected (%)	Foliar damage
Simcoe District					
Houghton	AP	8	1500	100	moderate
Middleton	scP	4	3000	50	light
Wingham District					
Colborne	scP	10	1500	11	light
Colborne	scP	4	2500	50	light

^a1 m = 3.28 ft

^b1 ha = 2.47 acres

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

For the past three years Scleroderris canker (European race) detection surveys have been carried out in southern Ontario. High-value

red pine stands were thoroughly examined at 11 locations scattered throughout the Region. In addition, 20 or more stands were visually checked as part of routine survey activities. No disease symptoms have been found to date.

Category B

Eutypella Canker, *Eutypella parasitica* Davidson & Lorenz

For the second consecutive year aerial and ground surveys showed no increase in the amount of maple mortality occurring in the Owen Sound and Wingham districts. A total of 23 plots were examined in the two districts and in most instances trees that had crown damage previously show signs of recovery. In the adjacent district of Huronia in the Central Region a similar recovery pattern was evident in stands of sugar maple (*Acer saccharum* Marsh.) which had suffered severe damage in previous years.

In 1977, 18 plots were set up in sugar maple stands in the Owen Sound District and five plots in the Wingham District. Initially these plots were established to monitor maple decline. In 1980, monitoring was extended to include Eutypella canker (*Eutypella parasitica* Davidson & Lorenz). Over all, 7% of the maples were infected by Eutypella canker in the Owen Sound District. In the Wingham District only a few cankers were observed on the sample trees. The plot surveys show that the vast majority of cankers occur from ground level to 8 m (Table 4). Occasional cankers were noted as high as 15.7 m (51.5 ft). Sapling-sized trees are often killed by this disease (see Frontispiece). Larger trees are seldom killed, but frequently suffer wind snap at the point of cankering.

Table 4. Summary of infection of sugar maple trees by Eutypella canker at 23 locations in the Owen Sound and Wingham districts on 1980

Location	Height above ground (m) ^a	Trees infected (%)
<u>Owen Sound District</u>	0-1	45.0
	1-2	17.0
	2-8	33.0
	8+	5.0

^a1 m = 3.28 ft

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

Although moderate-to-heavy foliar damage was noted at numerous locations in the Southwestern Region in 1980, damage was generally lighter than in 1979. Leaf anthracnose is more prevalent in wet years. Considerable damage to sugar maple leaf tissue was detected this year, particularly near Ingersoll in the Aylmer District, on ornamentals and roadside trees at several locations in the Simcoe District, and at scattered locations near Owen Sound in Derby Township, where damage to 85% of the trees was noted. In the Chatham and Wingham districts the disease was common but only light damage levels were observed. Examples of damage at several locations are summarized in Table 5.

Table 5. Summary of damage caused by leaf anthracnose of sugar maple at five locations in 1980 (150 trees examined at each location)

Location (Twp)	Avg ht of trees (m) ^a	Foliar damage (%)
<u>Simcoe District</u>		
South Walsingham	10	10
Charlotteville	10	10
<u>Aylmer District</u>		
West Zorra	20	50
<u>Chatham District</u>		
Bosanquet	20	10
<u>Owen Sound District</u>		
Derby Township	19	20
Saugeen Township	17	20
Kincardine Township	18	15

^a1 m = 3.28 ft

Horse Chestnut Leaf Blotch, *Phyllosticta sphaeropsoidea* Ell. & Ev.

Increases in levels of foliar damage caused by leaf blotch were noted at several locations in the Region in 1980. Leaves of horse chestnut (*Aesculus hippocastanum* L.) were moderately to severely damaged in the towns of Simcoe and Tillsonburg and on open-growing trees near London and Aylmer. In the Owen Sound District, damage levels were much higher than usual. Severe browning of leaves was common in Owen Sound, Markdale, Meaford and Thornbury. Light-to-moderate infection levels were noted in Wingham and Chatham districts.

Table 6. Other forest diseases.

Organism	Host(s)	Remarks	Rating
<i>Apiosporina collinsii</i> (Schw.) Hoehn. (Witches' broom)	Se	common on this host near Warton, Owen Sound District	C
<i>Armillaria mellea</i> (Vahl. ex Fr.) (Armillaria root rot)	rP	common at many points in the Region; collections made in Wingham, Chatham and Aylmer districts	A
<i>Cylindrosporella caryae</i> (Pk.) Petr.	Hi	hickory moderately infected in St. Williams Forest Station nursery	C
<i>Diplodia juglandis</i> Fr. (dieback)	bWa	small walnut plantation near Chatham moderately damaged by this dieback	A
<i>Discella acerina</i> (Westd.) Arx. (canker)	sM	light infection on open- growing trees near Tobermorey, Owen Sound District	B
<i>Discula platani</i> (Pk.) Sacc. (anthracnose)	Sy	damage common in Point Pelee National Park, at several locations in Chatham District and on occasional trees in Simcoe and Aylmer districts	A
Frost	sM, wS	white spruce shoots lightly damaged near Delhi; sugar maple lightly damaged near Burgessville, Simcoe District; low levels of damage elsewhere in the Region	A

(continued)

Table 6. Other forest diseases (continued).

Organism	Host(s)	Remarks	Rating
<i>Fusarium lateritium</i> Nees var. <i>mori</i> Desm. (canker)	Mu	light cankering on small shrubs	C
<i>Gymnosporangium clavipes</i> (Cke. & Pk) (rust)	Haw	severe infection on occasional trees near Kingsville, Chatham District	C
<i>Hypoxyylon cohaerens</i> Pers. ex Fr. (stem cankers)	Be	stem cankers common on trunks of this host near Ferndale, Owen Sound District	A
<i>Lophodermium nitens</i> Darker (needle cast)	wP	light infection levels on a few trees near Owen Sound	A
<i>Marssonina juglandis</i> (Lib.) Magn. (leaf anthracnose)	Wa	anthracnose common on scattered trees near Port Stanley, St. Williams, Chatham and Aylmer	A
<i>Phyllosticta ampelicida</i> (Engelm.) (leaf spot)	Aa	grape leaf damage heavy near Turkey Point	C
<i>Phyllosticta minima</i> (Berk. & Curt.) Underw. & Earle	sM	observed commonly throughout the St. Williams and Turkey Point areas	C
<i>Polyporus albellus</i> Pk. (stem rot)	rO	associated with cambial stain on one tree near Shrewsbury, Chatham District	B
<i>Polyporus tomentosus</i> Fr. (root and butt rot)	rP	occasional fruiting bodies at ground level in St. Williams Forest Station	A
<i>Rabenhorstia tiliae</i> Fr. (canker)	Ba	lower branches dying on several trees near Selkirk, Simcoe District	A

(continued)

Table 6. Other forest diseases (concluded).

Organism	Host(s)	Remarks	Rating
<i>Rhizosphaera kalkhoffii</i> Bub. (needle cast)	WS	needle cast very heavy in small white spruce plantation near Delaware, Aylmer District	C
<i>Stigmina lautii</i> Sutt.	Col. S	first record of this needle fungus in Ontario, causing severe needle damage to ornamentals in city of Owen Sound	B
<i>Tabakia dryina</i> (Sacc.) Sutt. (leaf spot disease)	r0	common on small red oak leaves near Shrewsbury, and Stoney Point, Chatham District and near St. Williams, Simcoe District	A

Diebacks and Declines

Ash Dieback

This condition, principally on white ash (*Fraxinus americana* L.), is characterized by dead crowns and lateral branch mortality, and high levels of damage were evident at numerous points in the Region in 1980. Frequently, infected trees die. Dieback was most noticeable in the Chatham, Simcoe and Wingham districts, where numerous shade and roadside trees were damaged. The cause of this dieback is undetermined, but drought conditions experienced in past years are likely a contributing factor. Secondary fungi associated with affected trees were: *Cytospora* sp., and *Menispora* sp. (cankers), *Gloeosporium aridum* Ell. & Holw., and *Phyllosticta fraxini* Ell. & Mart. (leaf spot diseases).

Limestone Chlorosis

There was little change in the status of this condition in the Southwestern Region in 1980. As in 1979, most damage occurred in red pine plantations in Wingham District. The condition was most noticeable in the Robertson tract in Colborne Township and in the King tract in Culross Township. In the Robertson tract trees are dying in groups and selective cutting has been carried out. The pH readings for soil samples in the King and Robertson tracts were in excess of 7.5, typical of

calcareous soils that are poor red pine sites. Similar damage is occurring to white pine in a 4 ha (9.88 acre) plantation in Colborne Township. Trees in a strip approximately 3 m (9.84 ft) wide running through the plantation are dead. Soil pH is high; however, other factors could be contributing to this situation. Plans are to continue observations in this plantation.

Oak Decline

For the past four years, three plots of red oak and white oak (*Quercus alba* L.) have been evaluated in the Simcoe and Chatham districts to monitor oak decline. In the Simcoe District, two of the plots were established in Charlotteville and South Walsingham townships. There, cumulative mortality of 1 and 6%, respectively, has occurred. Also, the percentage of trees in the more severe dieback classes has increased (Table 7). The oaks in the Bosanquet Township plot have remained fairly stable.

Abiotic

Salt Damage

In 1980, as in past years, heavy applications of salt caused varying degrees of damage to roadside trees, particularly pines, spruces and cedars at many points in the Southwestern Region. The most significant damage occurred along well travelled roads such as highways 401, 3 and 7.

Winter Drying

In 1980, occasional plantations in the Simcoe District suffered damage from winter drying. The most notable damage was observed in a white pine plantation located near Courtland in Middleton Township in which 22% of the trees were severely damaged. In the Owen Sound District, severe browning of white pine foliage was common in plantations located in St. Vincent and Sydenham townships. Elsewhere in the Region damage was less severe than usual. In most cases tree recovery was good.

Special Survey

White Pine Plantation Survey

In 1980 a special survey was carried out in white pine plantations covering three size classes. Two plantations of trees 0-2 m (0-6.56 ft) high, three plantations of trees 2-6 m (6.56-19.68 ft) high,

Table 7. Summary of oak decline at three locations in the Region (100 red oak and white oak trees examined at each location).

Location (Twp)	Avg ht of trees (m)	Avg DBH of trees (cm)	Dieback class*																					
			1977					1978					1979					1980						
			1	2	3	4	5	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
<u>Simcoe District</u>																								
Charlotteville	17	32	70	8	12	10	0	69	9	10	12	0	14	44	14	19	8	1	5	24	37	25	8	1
South Walsingham	17	22	42	35	18	5	0	40	3	3	19	4	0	36	38	16	3	6	0	29	38	22	5	6
<u>Chatham District</u>																								
Bosanquet	11	29	69	7	17	7	0	69	9	17	7	0	0	68	11	16	5	0	0	53	19	21	7	0

*Oak decline is principally branch mortality

- 0 = healthy
- 1 = 6-20%
- 2 = 21-40%
- 3 = 41-60%
- 4 = 61+
- 5 = dead

and two plantations of trees over 6 m (19.68 ft) high were sampled. Plantations were randomly selected in the Simcoe, Wingham and Owen Sound districts. The important insects were expected to be: white pine weevil (*Pissodes strobi* Peck.), pine bark adelgid (*Pineus strobi* [Hartig]), and eastern pineshoot borer (*Eucosma gloriola* Heinr.). Specific data were gathered for these pests. All other insects encountered were treated as miscellaneous and included the pine bark aphid (*Cinara strobi* Peck.) and pine spittle bug (*Aphrophora cribrata* [Wlk.]). Positive findings were recorded for all insects except the eastern pineshoot borer.

In the disease portion of the survey, white pine blister rust (*Cronartium ribicola* J.C. Fisch.), foliar diseases, and Armillaria root rot (*Armillaria mellea* [Vahl. ex Fr.] Kumm.) were the most important problems. Other problems were rated as they were encountered. Some degree of damage by one or by all of these diseases was noted in all of the plantations examined (Table 8).

Table 8. Summary of the results of a white pine plantation survey carried out in the Southwestern Region in 1980 (150 trees examined at each location).

INSECTS					
Location (Twp)	Avg ht of trees (m) ^a	Trees infested (%)			
		<i>Pissodes strobi</i>	<i>Pinus strobi</i>	<i>Cinara strobi</i>	
<u>Owen Sound District</u>					
Sydenham Twp	5.4	0	10	0	
Keppel Twp	4.4	0	3.3	0.6	
<u>Wingham District</u>					
Colborne Twp	4.5	0	0	1.6	
Colborne Twp	7.7	0.6	0	0	
<u>Simcoe District</u>					
Charlotteville Twp	1.5	7.3	0.6	2.0	
Charlotteville Twp	7.5	8.0	2.6	0	
North Walsingham Twp	1.7	4.7	0	0	
DISEASES					
Location (Twp)	Avg ht of trees (m)	Trees infested (%)			Basal stem cankers
		<i>Cronartium ribicola</i>	<i>Armillaria mellea</i>	Foliar diseases	
<u>Owen Sound District</u>					
Sydenham Twp	5.4	11.0	0	14.7	9.0
Keppel Twp	4.4	2.6	0	16.6	2.0
<u>Wingham District</u>					
Colborne Twp	4.5	0	1.3	0	0
Colborne Twp	7.7	0.7	0	0	0.7
<u>Simcoe District</u>					
Charlotteville Twp	1.5	0.6	0.6	15.3	0.6
Charlotteville Twp	7.5	0	0	3.3	0
North Walsingham Twp	1.7	0	0	0.7	0

^a1 m = 3.28 ft