

FOREST INSECT AND DISEASE SURVEYS  
IN THE SOUTHEASTERN SURVEY REGION, 1972

(FOREST DISTRICTS: KEMPTVILLE, TWEED, AND LINDSAY)

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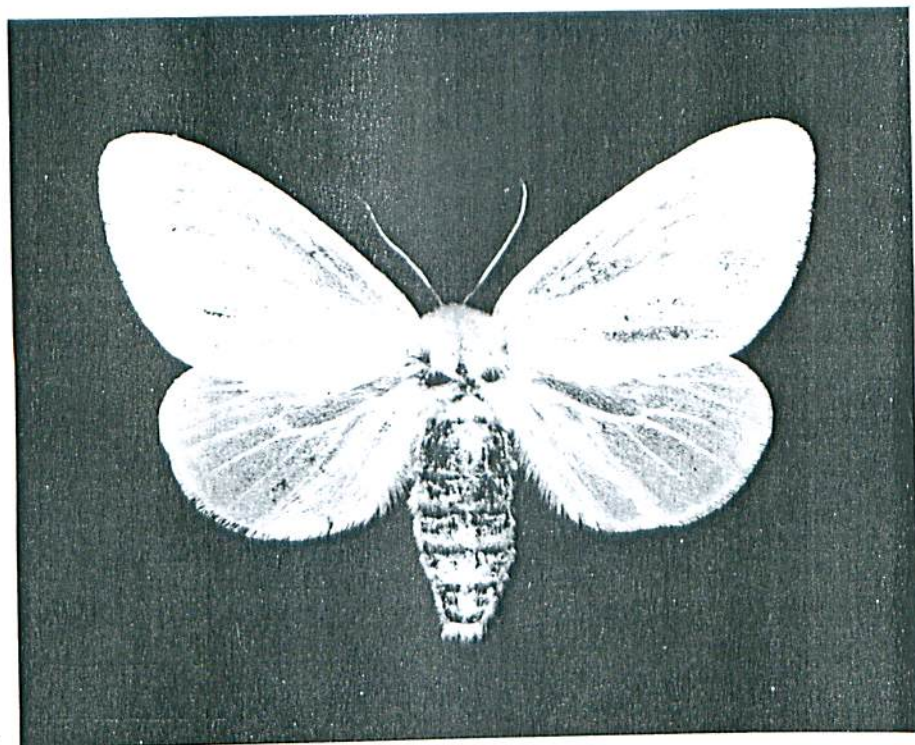
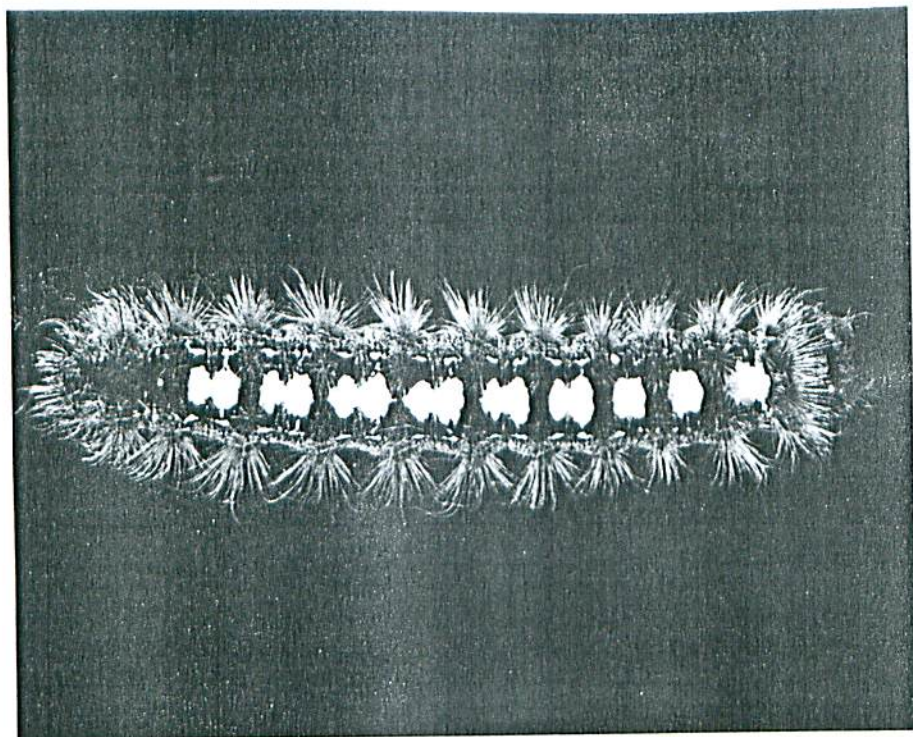
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Frontispiece. Larva and adult of the Satin Moth, *Stilpnotia salicis* Linn. X 2.

## SURVEY HIGHLIGHTS

This report deals with forest insect and disease problems in the Southeastern Survey Region in 1972. W. Biggs was the Survey Technician in the eastern half of the Region and made his headquarters at the White Lake Ranger Station.

Severe defoliation of spruce and balsam fir by the spruce budworm persisted with some mortality of balsam fir appearing in several parts of the Region. The cedar leaf miner complex continued to cause some tree mortality in a few areas and the satin moth, a defoliator of poplar and willow, was recorded for the first time in Ontario. Other defoliators of hardwoods were the oak leaf shredder, the fall webworm, the orange-striped oakworm and the walnut caterpillar.

A tip blight of juniper and red cedar caused severe browning at two locations. Frost on two consecutive nights in June caused foliar damage to spruce, balsam, pine and several hardwoods in the northern part of the Region. Mortality of elm by the Dutch elm disease continued to spread eastward and a leaf scorch was prevalent in the western part of the Region.

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## INSECTS

### An Orange-striped Oakworm, *Anisota finlaysoni* Riotte

Populations of this insect increased and the area of infestation in the Tweed District was enlarged. Severe defoliation of bur oak (*Quercus macrocarpa* Michx.) and white oak (*Q. alba* L.) increased in size from an area of 200 square miles to approximately 400 square miles between the cities of Belleville and Kingston. Within this area, small stands and scattered individual trees of all sizes were completely defoliated. Moderate-to-severe damage was noted along County Road 1 in Hiller Township, Prince Edward County. Very little damage was observed elsewhere in the Region.

### Pine Spittlebug, *Aphrophora parallela* (Say)

Although some decline in population levels was observed in the Region, medium-to-high populations persisted on untended Scots pine (*Pinus sylvestris* L.) plantations in Clarke and Hamilton townships. Moderate damage was also noted in Cartwright and Darlington townships in Durham County and Galway Township in Peterborough County, Lindsay District, and near North Brook in Kaladar Township, Tweed District. There was no further mortality of Scots pine in Hamilton Township but several additional trees died in Darlington Township, Lindsay District.

### Cedar Leaf Miners, *Argyresthia aureoargentella* Brower, *A. canadensis* Free., *A. freyella* Wlshm., *A. thuiella* Pack., *Pulicalvaria thujaella* (Kft.)

Little change occurred in the degree of infestation or the area affected by this complex. Except for a few scattered pockets of light defoliation, severe infestations persisted in much of the area south of the Precambrian Shield from Carden Township in the Lindsay District to the town of Arnprior on the Ottawa River, with some individual pockets of moderate-to-heavy defoliation north of this line (see Appendix, Fig. A1).

Mortality of 25- to 30-foot eastern white cedar (*Thuja occidentalis* L.) occurred along a 3-mile stretch of Highway 43 between the village of Merrickville and the town of Kemptville, in the Kemptville District (Fig. 1). Small pockets of new mortality were observed near the city of Kingston, in the Tweed District, and along Highway 7 between Peterborough and Lindsay, in the Lindsay District.

Samples submitted for identification showed that *A. thuiella* Pack. was the most abundant species. High populations of *A. freyella* Wlshm. in conjunction with *Phomopsis juniperovora* Hahn caused severe browning of approximately 35 acres of eastern red cedar (*Juniperus virginiana* L.) in South Marysburgh Township in Prince Edward County, in the Tweed District.

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

Populations of this skeletonizer increased in the northern parts of Haliburton and Hastings counties in Lindsay and Tweed districts, respectively. Severe browning of white birch (*Betula papyrifera* Marsh.) foliage occurred in Clyde and Bruton townships, and in parts of Snowdon, Glamorgan, Galway and Cavendish townships in the Lindsay District (see Appendix, Fig. A2). Severe browning was also observed in McLure and Wicklow townships in the northern part of the Tweed District. Low populations occurred at numerous other locations in the Region.

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 information report by G. M. Howse *et al.* (0-X-173). This report provides the reader with a complete description and analysis of developments concerning the spruce budworm situation in Ontario in 1972 and gives infestation forecasts for the Province for 1973.

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

Generally, populations of this insect increased in the Lindsay and Tweed districts. The infestation on red oak (*Quercus rubra* L.) in Clarke Township increased in size from 85 acres to 125 acres and spread northward into Manvers Township, while a new area of severe defoliation was observed in a 50-acre stand of red oak near Jack Lake in Burleigh Township, all in the Lindsay District. A moderate infestation materialized as predicted in Olden Township where large numbers of adults were observed in 1971 and a light infestation was observed north of the village of Arden in Kennebec Township, Tweed District. The large numbers of moths collected in the light trap located near the Olden infestation suggest that high populations would persist in 1973.

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

Populations of this insect remained unchanged in the Kemptville and Tweed districts. Moderate-to-severe defoliation was observed on scattered, open-grown bitternut hickory (*Carya cordiformis* [Wang.] K. Koch) along Highway 37 in Hungerford Township, and between the city of Kingston and the town of Napanee in the Tweed District. One colony was collected from an ornamental black walnut (*Juglans nigra* L.) in the town of Picton.

In the Kemptville District, light defoliation was observed on planted black walnut and scattered ornamentals in the towns of Winchester and Chesterville. Once again an ornamental walnut hedge near Smiths Falls in Montague Township was severely defoliated, and mortality increased.

Birch Leaf Miner, *Fenusa pusilla* (Lep.)

Populations remained generally the same throughout the Region. Severe browning was observed on white birch and wire birch (*Betula populifolia* Marsh.) for the fifth consecutive year, in the eastern counties of the Kemptville District. Light-to-moderate damage occurred in the Tweed and Lindsay districts, although slight decline in populations did occur in both districts (Table 1).

Table 1. Summary of damage by *F. pusilla* on white birch in the Southeastern Survey Region in 1971 and 1972 (based on the examination of 100 leaves selected randomly from three trees at each location)

Location (Twp)	Avg DBH of sample trees (in.)	Leaves mined (%)	
		1971	1972
Lindsay District			
Glamorgan	3	62	27
Burleigh	3	53	30
Methuen	4	87	32
Belmont	4	37	40
Tweed District			
Cashel	3	83	60
Faraday	2	--	15
McLure	2	--	3

Fall Webworm, *Hyphantria cunea* Dru.

Numbers of this insect remained high throughout the Region. Severe defoliation occurred on various deciduous hosts in Prince Edward County, where in some cases white elm (*Ulmus americana* L.) 30-35 feet tall were almost completely covered with webbing. Heavy defoliation persisted on elm and ash in Leeds and Grenville counties in the Kemptville District and north of Bobcaygeon in Verulam Township in the



Lindsay District. Medium population levels were observed at points throughout the remainder of the Region.

A Birch Leaf Miner, *Messa nana* Klug

Populations increased throughout the known range of this insect, with no appreciable change in distribution. Severe browning of foliage was observed on white birch and European birch (*Betula alba* L.) in an area of approximately 20,000 acres in Clarke and Cavan townships in Durham County. High populations also occurred in Cartwright, Haldimand, and Otonabee townships, Lindsay District (Table 2). A new light infestation was observed along Highway 7 in Kennebec Township. Low populations recurred in Pittsburg and Kingston townships in Frontenac County, Tweed District, and in Bathurst Township in the Kemptville District.

Table 2. Summary of damage by *M. nana* in the Southeastern Survey Region in 1972 (based on the examination of 100 leaves selected randomly from three trees at each location)

Location (Twp)	Host	Avg DBH of sample trees (in.)	Leaves mined (%)	
			1971	1972
Lindsay District				
Cavan	European birch	4	92	100
Clarke	wB	4	39	100
Cartwright	wB	5	86	78
Haldimand	wB	4	--	100
Otonabee	wB	3	--	93

Red-headed Pine Sawfly, *Neodiprion lecontei* (Fitch)

Populations of this insect increased markedly in 1972. Moderate-to-severe defoliation was observed in red pine (*Pinus resinosa* Ait.) plantations in Hinchinbrooke and Oso townships in the Tweed District, where some trees 12-15 feet in height were completely defoliated. Light-to-moderate damage was observed in Bexley, Eldon, Hindon and Stanhope townships in the Lindsay District and in Bathurst Township in the Kemptville District (Table 3). No insects were found in the area of Oxford Township, Kemptville District, in which light infestation was reported in 1971.

Table 3. Summary of red-headed pine sawfly colony counts made on red pine in the Southeastern Survey Region in 1971 and 1972

Location (Twp)	Avg DBH (in.)	No. of colonies per 100 trees	
		1971	1972
Lindsay District			
Bexley	1	--	29
Eldon	1	--	16
Hindon	1	3	12
Stanhope	2	--	4
Tweed District			
Hinchinbrooke	1	--	55
Hungerford	1	--	3
Oso	1	--	82
Kemptville District			
Bathurst	1	--	4

Jack-pine Sawflies, *Neodiprion pratti banksianae* Roh. and  
*N. pratti paradoxicus* Ross

High populations persisted in the eastern part of the Region. Light-to-moderate defoliation of planted jack pine (*Pinus banksiana* Lamb. [= *P. divaricata* (Ait.) Dumont]) by *N. pratti banksianae* Roh. occurred in Lanark Township, Kemptville District where a total of 162 colonies were observed on 100 trees examined. Light defoliation occurred in a natural stand of jack pine in Abinger Township, Tweed District.

Extremely high populations of *N. pratti paradoxicus* Ross caused almost complete defoliation of approximately 5 acres of 15-foot planted jack pine in Thurlow Township in the southern part of Hastings County, Tweed District (Fig. 2).



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

Populations continued to increase within the known range of infestation. High populations were observed in untended plantations of Scots pine in the southern counties in the Lindsay District, and in the southern part of Hastings County in the Tweed District (Table 4). Although control measures were carried out in 1971, low populations recurred in Haldimand Township, Lindsay District. Light infestations persisted on ornamental pine trees in the city of Ottawa. A light infestation, located approximately 10 miles north of Bobcaygeon in Verulam Township, Lindsay District, constitutes a new distribution record north of the Trent Canal System.

Table 4. Summary of European pine sawfly colony counts in the Southeastern Survey Region in 1971 and 1972 (based on the examination of trees at each location)

Location (Twp)	Host	Avg ht of trees (ft)	Trees infested (%)		Avg no. colonies/ infested tree	
			1971	1972	1971	1972
Lindsay District						
Cavan	scP	6	--	62	--	2.8
Clarke	scP	5	100	100	5.1	3.1
Clarke	rP	5	--	71	--	4.1
Cartwright	scP	10	97	80	1.2	3.9
Darlington	scP	6	89	90	1.1	2.3
Verulam	scP	12	5	78	1.0	1.0
Tweed District						
Tyendinaga	scP	10	--	18	--	1.0

Yellow-headed Spruce Sawfly, *Pikonema alaskensis* (Roh.)

High populations recurred on ornamental and plantation trees throughout the Region. Severe defoliation was observed in a white spruce (*Picea glauca* [Moench] Voss) plantation in Anstruther Township, where 67 trees out of 100 examined were heavily infested. Moderate defoliation occurred in a spruce seed orchard in the Orono Nursery in the Lindsay District and on a white spruce hedgerow in Herschel Township, Tweed District. Light-to-moderate defoliation of ornamental trees was observed sporadically throughout the remainder of the Region.

White-pine Weevil, *Pissodes strobi* Peck

Generally, high population levels were observed and severe damage occurred on eastern white pine (*Pinus strobus* L.) in Torbolton, Fitzroy, and Front of Young townships in the Kemptville District, and along Highways 508 and 511 in Bagot and Darling townships, respectively, in the Tweed District. Population levels decreased in Clarke, Somerville, Glamorgan and Haldimand townships in the Lindsay District. A light infestation was observed for the first time on planted red pine in Mayo Township. Light damage recurred on eastern white pine in Faraday Township in the Tweed District (Table 5).

Table 5. Summary of damage by the white-pine weevil in the Southeastern Survey Region in 1971 and 1972 (based on the examination of 100 trees at each location)

Location (Twp)	Host	Avg DBH (in.)	Trees infested (%)	
			1971	1972
Lindsay District				
Clarke	wP	2	60	23
Glamorgan	wP	3	27	19
Haldimand	wP	2	30	control
Somerville	wP	2	62	43
Tweed District				
Faraday	wP	2	35	16
Mayo	rP	2	--	7

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

There was little change in population levels of this sawfly in the Region.

Severe defoliation of semimature Japanese larch (*Larix leptolepis* [Sieb. & Zucc.] Gord.) recurred in plantations in Clarke Township, and several mature tamarack (*L. laricina* [Du Roi] K. Koch) were moderately defoliated in Galway Township. Light defoliation of planted European larch (*L. decidua* Mill.) was observed in the Durham-Ganaraska County Forest in Clarke Township, and along Highway 62 in Dungannon Township in Tweed District. Low populations were observed at numerous other locations throughout the Region.

Satin Moth, *Stilpnotia salicis* Linn.

Severe defoliation of several silver poplar (*Populus alba* L.) ornamentals occurred in Cornwall and Lancaster townships in southeastern Ontario. This constitutes a first Ontario Survey record for this pest (see Frontispiece).

This introduced insect was first discovered in 1920 in the State of Massachusetts, and later in the same year in the Province of British Columbia. By 1937 the infestation had spread to the Maritime Provinces and in 1939 was observed in Quebec City, but it was not until 1951 that it was observed in the city of Montreal (Annual Report of the

Forest Insect and Disease Survey 1937 to 1971). The westward spread of approximately 70 miles constitutes the first known major extension since 1951.

Although not considered an important forest pest, this insect has been recorded as causing severe defoliation of ornamental poplar plantations, and in one case, severe defoliation occurred in a natural stand of largetooth aspen (*P. grandidentata* Michx.). Introduced parasites and low winter temperatures are credited as being a controlling influence in preventing serious outbreaks.

Table 6. Other noteworthy insects

Insect	Host(s)	Remarks
<i>Acleris variana</i> Fern.	wS, bF He	numerous larvae on plantation trees in Cartwright Twp, Lindsay District; larvae collected from beating trays in Beckwith and South Sherbrooke twp, Kemptville District
<i>Adelges abietis</i> Linn.	nS, wS	ornamental trees moderately infested in Anstruther Twp, Lindsay District; light infestation in Kingston Twp, Tweed District
<i>Altica ulmi</i> Wood	wE	moderate infestation on hedgerow trees in Emily Twp, Lindsay District
<i>Archips cerasivoranus</i> (Fitch)	Cherry	numerous nests in Harvey, Burleigh, and Dummer twp, Lindsay District
<i>Arge pectoralis</i> (Leach)	wB	moderate damage on scattered trees in the southern part of Frontenac County, Tweed District
<i>Cecidomyia pinifoliae</i> (Felt)	wP	localized heavy infestation on planted white pine trees in Presqu'ile Park, Brighton Twp, Lindsay District

(continued)

Table 6. Other noteworthy insects (continued)

Insect	Host(s)	Remarks
<i>Cephalcia frontalis</i> Westw.	rP	heavy infestation in a plantation in Burleigh Twp; an average of two nests observed on 100 3-foot trees
<i>Choristoneura conflictana</i> Wlk.	Aspen	200+ adults in light trap in Olden Twp, Tweed District
<i>Choristoneura pinus pinus</i> Free.	jP, scP	Low populations were observed on planted pine in Kaladar Twp, Tweed District and in Lanark Twp, Kemptville District.
<i>Choristoneura rosaceana</i> Harr.	sM, bAs	moderate infestation in Ramsay Twp, Kemptville District and Hinchinbrooke Twp, Tweed District
<i>Coleophora laricella</i> Hbn.	tL	severe browning of a few trees in Presqu'ile Park; low populations in Glamorgan Twp, Lindsay District
<i>Conophthorus resinosae</i> Hopk.	rP	moderate infestation in red pine cones in Clarke Twp, Lindsay District (Thirty-seven percent of the cones examined were infested.)
<i>Corythucha ulmi</i> O. & D.	wE	pockets of heavy damage on elms of various sizes in Oso, Olden and Kennebec twp, Tweed District
<i>Cynipidae</i> sp.	Juniper	heavy infestation in new foliage of ornamental shrubs in a private nursery in Manvers Twp, Lindsay District
<i>Dasineura balsamicola</i> (Lintn.)	bF	numerous infested trees in Monmouth Twp, Lindsay District

(continued)

Table 6. Other noteworthy insects (continued)

Insect	Host(s)	Remarks
<i>Datana ministra</i> Dru.	wE, bHi	moderate damage on planted roadside elm in Cumberland Twp, Kemptville District; found feeding with <i>D. integerrima</i> in Hungerford Twp, Tweed District
<i>Dendroctonus valens</i> Lec.	rP, wP	high populations on weakened trees in Griffith Twp, Tweed District
<i>Diprion hercyniae</i> (Htg.)	wS	low populations on large plantation spruce in Cardiff and Cartwright twp, Lindsay District; also recovered from beating tray samples in Olden Twp, Tweed District and Beckwith Twp, Kemptville District
<i>Ectoedemia populella</i> Busck.	tA	high populations in Outlet Park, and low in Kennebec Twp, Tweed District
<i>Elaphidionoides parallelus</i> (Newm.)	rO	moderate damage to roadside trees in Olden and Kennebec twp, Tweed District
<i>Epinotia aceriella</i> Clem.	sM	moderate-to-light damage in Bathurst Twp, Kemptville District
<i>Erannis tiliaria</i> Harr.	Ba	collection of a few larvae in Oso Twp, Tweed District
<i>Hydria prunivorata</i> Ferg.	bCh	Severe defoliation increased from 85 acres to 200 acres of scattered trees in Clarke and Manvers twp, Lindsay District. A Granulosis virus was recovered from samples submitted. One infested tree was found in Kennebec Twp, Tweed District.

(continued)



Table 6. Other noteworthy insects (continued)

Insect	Host(s)	Remarks
<i>Hylobius pales</i> (Hbst.)	scP	high populations observed in an untreated cut-over plantation in Clarke Twp, Lindsay District
<i>Lecanium corni</i> Bouche	siM, mM, rO	heavy infestation on scattered mature maples in the town of Alexandria, Locheil Twp, Kemptville District; low populations in Griffith Twp, Tweed District
<i>Lepidosaphes ulmi</i> (Linn.)	cPo	high populations of this scale on a sapling hedgerow in North Marysburgh Twp, Tweed District
<i>Lithocolletis hamadryadella</i> Clem.	bO	light mining observed in South Marysburgh Twp, Tweed District
<i>Lithocolletis ostryarella</i> Cham.	I	moderate damage west of junction of Highway 401 and 38 in Kingston Twp, Tweed District
<i>Macremphytus intermedius</i> Dyar.	Deciduous shrubs	severe defoliation of numerous roadside shrubs in Haldimand Twp, Lindsay District
<i>Macroductylus subspinosus</i> F.	Deciduous shrubs	continued high populations causing heavy defoliation in Lutterworth, Minden and Somerville twp, Lindsay District
<i>Malacosoma americanum</i> F.	Cherry, apple	Extremely high populations were observed throughout the Region. Counts as high as 30 tents on a 25-foot tree and 300+ tents in a measured mile of roadside shrubs were observed.

(continued)

Table 6. Other noteworthy insects (continued)

Insect	Host(s)	Remarks
<i>Malacosoma disstria</i> Hbn.	sM, tA	Individual larvae were observed in Minden Twp and the town of Lindsay, Lindsay District, and in Lanark Twp, Kemptville District. A total of 227 adults were collected in the light trap in Olden Twp, Tweed District.
<i>Neodiprion nanulus nanulus</i> Schedl	rP	low populations in Lanark Twp, Kemptville District
<i>Nymphalis antiopa</i> L.	wE, lA	defoliation observed in Burleigh and Minden twp, Lindsay District
<i>Oligonychus ununguis</i> Jac.	nS	decline in populations in Presqu'ile Park, Lindsay District; low populations in Oxford Twp, Kemptville District
<i>Pemphigus populitransversus</i> Riley	cPo	numerous galls observed in Outlet Park, Tweed District
<i>Petrova albicapitana</i> (Busck.)	scP	light damage in a plantation in Kaladar Twp, Tweed District
<i>Phenacaspis pinifoliae</i> (Fitch)	scP	moderate scale damage in Silver Lake Park, Kemptville District
<i>Phratora purpurea purpurea</i> Brown	tA	high populations observed in Outlet Park, Tweed District
<i>Pissodes approximatus</i> Hopk.	wP	light damage in a plantation in Hinchinbrooke Twp, Tweed District
<i>Pleroneura borealis</i> Felt	bF	low populations observed in Harburn Twp, Lindsay District

(continued)

Table 6. Other noteworthy insects (concluded)

Insect	Host(s)	Remarks
<i>Pristiphora geniculata</i> (Htg.)	Mo	light-to-moderate defoliation of ornamental trees in the village of South Lancaster, Lancaster Twp, Kemptville District, and in Minden Twp, Lindsay District
<i>Pristiphora lena</i> Kinc.	wS	three plantation trees infested in Orono Nursery, Clarke Twp, Lindsay District
<i>Psilocorsis quercicella</i> Clem.	rO	leaf tiers abundant on host in Hamilton and Clarke twp, Lindsay District
<i>Pulicalvaria abietisella</i> (Pack.)	He	numerous leaf miners observed in Harvey Twp, Lindsay District; few miners observed in Edwardsburg Twp, Kemptville District
<i>Scolytus multistriatus</i> Marsh.	wE	no change in distribution in the Region
<i>Tetralopha expandens</i> Wlk.	rO, bO	moderate infestation observed in Olden and Kingston twp, Tweed District
<i>Thysanoptera</i> (probably <i>Sericothrips tiliae</i> Hood)	Ba	moderate-to-severe defoliation along Highway 36 in Harvey Twp, and along Highway 121 in Dysart Twp in the Lindsay District; moderate damage along Highway 34 in Lancaster Twp, Kemptville District

## TREE DISEASES

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

The incidence of mortality caused by this disease was 25% in scattered pockets of 6- to 8-foot red pines in a 20-acre plantation in the Durham-Ganaraska County Forest. Mortality increased in a private Scots pine plantation in Manvers Township, Lindsay District. This disease also affected semimature red pine in Larose Forest, Kemptville District. Single infected trees were general throughout the Region.

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

The number of infected and dead trees increased throughout the Region. High levels of infection were observed in Hallowell and South Fredricksburg townships in the Tweed District, in Minden, Dalton, Carden, Douro, Darlington and Fenelon townships in the Lindsay District, and in Edwardsburg Township in the Kemptville District (Table 7). A cooperative program between Provincial and County Authorities to cut and remove dead and dying elm is being carried out in urban areas.

Table 7. Summary of Dutch elm disease surveys carried out at 12 locations in the Southeastern Survey Region in 1972

Location (Twp)	No. of trees examined	Healthy trees (%)	Diseased or dead trees (%)
Lindsay District			
Minden	50	20	80
Dalton	100	14	86
Fenelon	50	38	62
Carden	100	10	90
Douro	100	15	85
Belmont	50	66	34
Darlington	100	11	89
Tweed District			
Hallowell	100	25	75
South Fredricksburg	100	25	75
Kemptville District			
North Elmsley	100	82	18
Edwardsburg	100	20	80
East Hawkesbury	100	85	15

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

Moderate damage was observed on trembling aspen (*Populus tremuloides* Michx.) in Faraday Township and Bon Echo Provincial Park in the Tweed District, and in Clarence and Cambridge townships in the Kemptville District. Light damage occurred in Glamorgan and Carden townships in the Lindsay District. Trace levels of this leaf spot were found throughout the remainder of the Region.

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

Moderate-to-severe damage occurred in two separate red pine plantations along Highway 28 in Burleigh Township. Incidence at both locations was 100% and at one location mortality was 1%. The alternate host, goldenrod (*Solidago* sp.), was abundant at both locations. The uredial stage of this rust was found on goldenrod in Somerville, Faraday, Stanhope and Cavendish townships in the Lindsay District. Moderate damage was observed on a 4-year-old red pine plantation in Cambridge Township in the Kemptville District. Trace levels of infection were observed at numerous other locations.

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

The level of infection was high in Abinger Township in the Tweed District and in Larose County Forest in the Kemptville District, with incidence of 80% and 65%, and current mortality of 30% and 10%, respectively. Light-to-moderate damage was present on underplanting at two locations in Glamorgan Township and at one location in Cavendish Township, Lindsay District. These three areas had Ribes eradication treatment for three consecutive years. The disease can be found in any sizeable area where white pine occurs in the Region.

Pine Needle Cast, *Lophodermium pinastri* (Schrad. ex Hook.) Chev.

In 1970 and 1971, approximately 200 acres of all-aged red pine in plantations in Somerville Township, Lindsay District, were moderately affected by a late summer drought. Reddening of year-old and current foliage was observed in the fall of 1971. In 1972, severe needle drop caused by *L. pinastri* occurred in this area, incidence at two locations was 90% and 100% and the level of infection in both plantations was high. A smaller plantation in Minden Township also had a high level of infection. This disease, at the low infection level, was also observed in Orono Nursery on red pine seedlings that had been weakened by a rain storm early in the winter of 1972. Current foliage at all locations appeared healthy.

#### A Tip Blight of Juniper, *Phomopsis juniperovora* Hahn

Severe browning by this disease was observed on approximately 15 acres of eastern red cedar along County Road 13 in South Marysburgh Township, Prince Edward County. Severe browning also occurred in North Marysburgh Township along Highway 33 near the village of Glenora, and along County Road 10 near the town of Picton in Hallowell Township, Tweed District. Dead tips on ornamental juniper (*Juniperus* L.) caused concern to a nursery owner in Manvers Township, Lindsay District. These ornamentals were obtained from a retail nursery near Trenton in the Tweed District.

#### Conifer Mortality

Mortality caused by some unknown agent occurred in a 1/2-acre stand of mature red pine, white pine, balsam fir (*Abies balsamea* [L.] Mill.) and black spruce (*Picea mariana* [Mill.] B.S.P.) near the community of Griffith in Griffith Township, Tweed District. All trees in a 1/2-acre plot were examined and tallied according to species and condition. Trees in this plot were 84 years old and up to 19 in. DBH. Red and white pine were the most seriously affected, suffering 31% and 37% mortality, with an additional 16% and 26%, respectively, affected. Although the fir and spruce showed no mortality, 38% and 20%, respectively, were affected. Understory trees and vegetation in the area were not affected. The area involved increased in size from a few trees in March to 1/5 acre in late May and to 1/2 acre in late August, 1972. Further examinations will be carried out in 1973.

#### Abiotic, Frost

Very heavy frost on June 11 and 12 caused severe damage to current foliage of white spruce, balsam fir (*Abies balsamea* [L.] Mill.) and black ash (*Fraxinus nigra* Marsh.) in the northern parts of Lennox, Addington and Hastings counties in the Tweed District (Fig. 3) and in the eastern and northern parts of Haliburton and Peterborough counties, respectively, in the Lindsay District (see Appendix, Fig. A3). Black ash, which was particularly heavily affected, had re-foliated by the first part of July.

#### Abiotic, Scorch

This condition of the foliage, caused by rapid transpiration, was widespread in the Region but most noticeable in the northern part of the Lindsay District. Red maple (*Acer rubrum* L.) was the host most seriously affected in Cardiff, Dysart, Lutterworth and Harburn townships but silver maple (*A. saccharinum* L.) and beech (*Fagus grandifolia*

Ehrh.) were affected in Monmouth and Snowden townships, respectively. This damage was also observed on ironwood (*Ostrya virginiana* [Mill.] K. Koch) in Olden Township, Tweed District.



Fig. 3. Severe frost damage to white spruce trees in a mixed pine-spruce plantation.

Table 8. Other noteworthy diseases

Organism	Host(s)	Remarks
<i>Arceuthobium pusillum</i> Pk.	wS	little change in incidence at known areas of infection
<i>Ceratocystis fagacearum</i> (Bretz) Hunt	Be	Surveys continued but the disease was not found.
<i>Chrysomyxa ledicola</i> Lagh.	wS	trace level in plantation in Burleigh Twp, Lindsay District; not recorded in the Region in recent years
<i>Cronartium comptoniae</i> Arth.	Sweet fern	rust found on alternate host in Kennebec Twp, Kemptville District
<i>Endocronartium harknessii</i> (J.P. Moore) Y. Hiratsuka	scP	few galls on planted stock in Kaladar Twp, Tweed District
<i>Fomes annosus</i> (Fr.) Karst.	rP	prevalent in untreated thinning operations in Clarke and Haldimand twp, Lindsay District
<i>Gremmeniella abietina</i> (Lagerb.) Morelet	rP	Surveys did not detect the presence of this disease in the Region.
<i>Gymnosporangium clavipes</i> (Cke. & Pk.) Cke. & Pk.	Haw Se	common on alternate host in Kingston Twp, Tweed District
<i>Gymnosporangium globosum</i> Farl.	Haw	common on alternate hosts in Haldimand and Cramake twp; moderate infection on ornamental juniper in Presqu'ile Park, Lindsay District
<i>Marssonina populi</i> (Lib.) Magn.	cPo	moderate browning of foliage in Outlet Park, Tweed District
<i>Nectria coccinea</i> var. <i>faginata</i> Lohm., Wats. & Ayers	rO	Surveys continued but the disease was not found.
<i>Pollaccia saliciperda</i> (All. & Tub.) Arx	W	high incidence in Cornwall Twp, Kemptville District

(continued)



Table 8. Other noteworthy diseases (concluded)

Organism	Host(s)	Remarks
<i>Puccinia asteris</i> Duby	Aster	moderate infection on ground cover in natural stand of red pine in Griffith Twp, Tweed District
<i>Septoria</i> sp.	bPo	This leaf blight caused early defoliation of stands of trees in the northern part of the Lindsay District.

APPENDIX

# SOUTHEASTERN SURVEY REGION

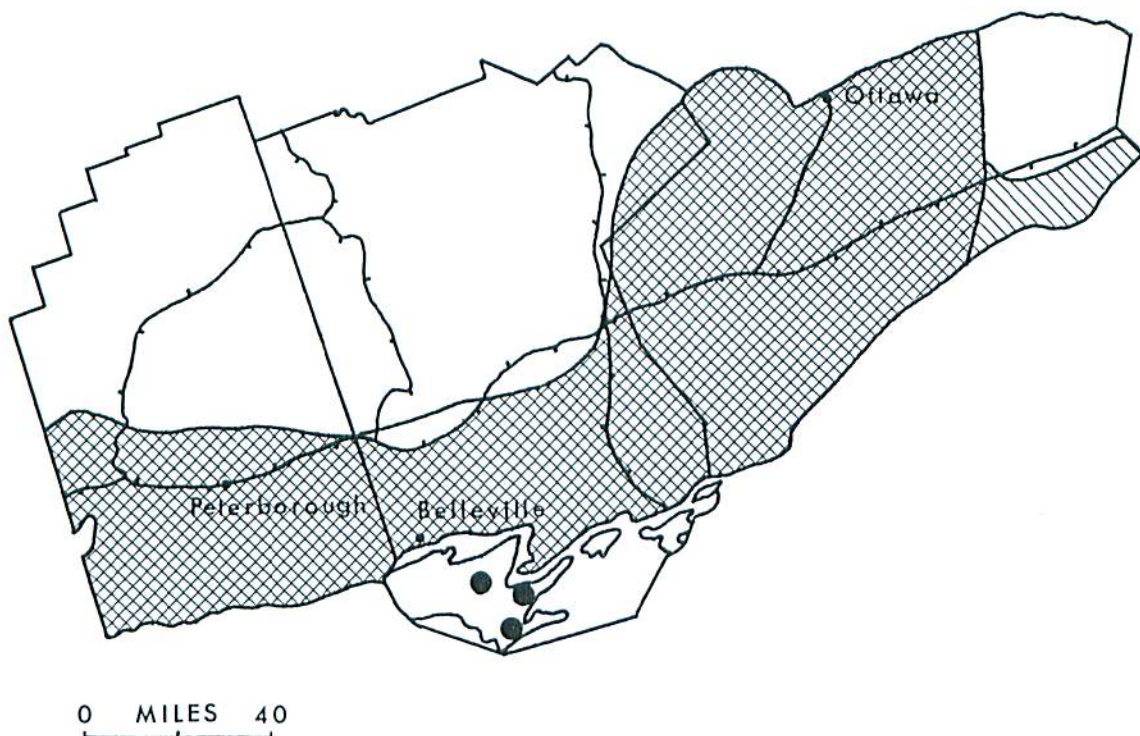



Fig. A1. CEDAR LEAF MINERS

Area within which infestations occurred  
in 1972

White cedar

Severe damage . . . . . 

Moderate damage . . . . . 

Red cedar

Severe damage . . . . . 

# PART OF SOUTHEASTERN SURVEY REGION

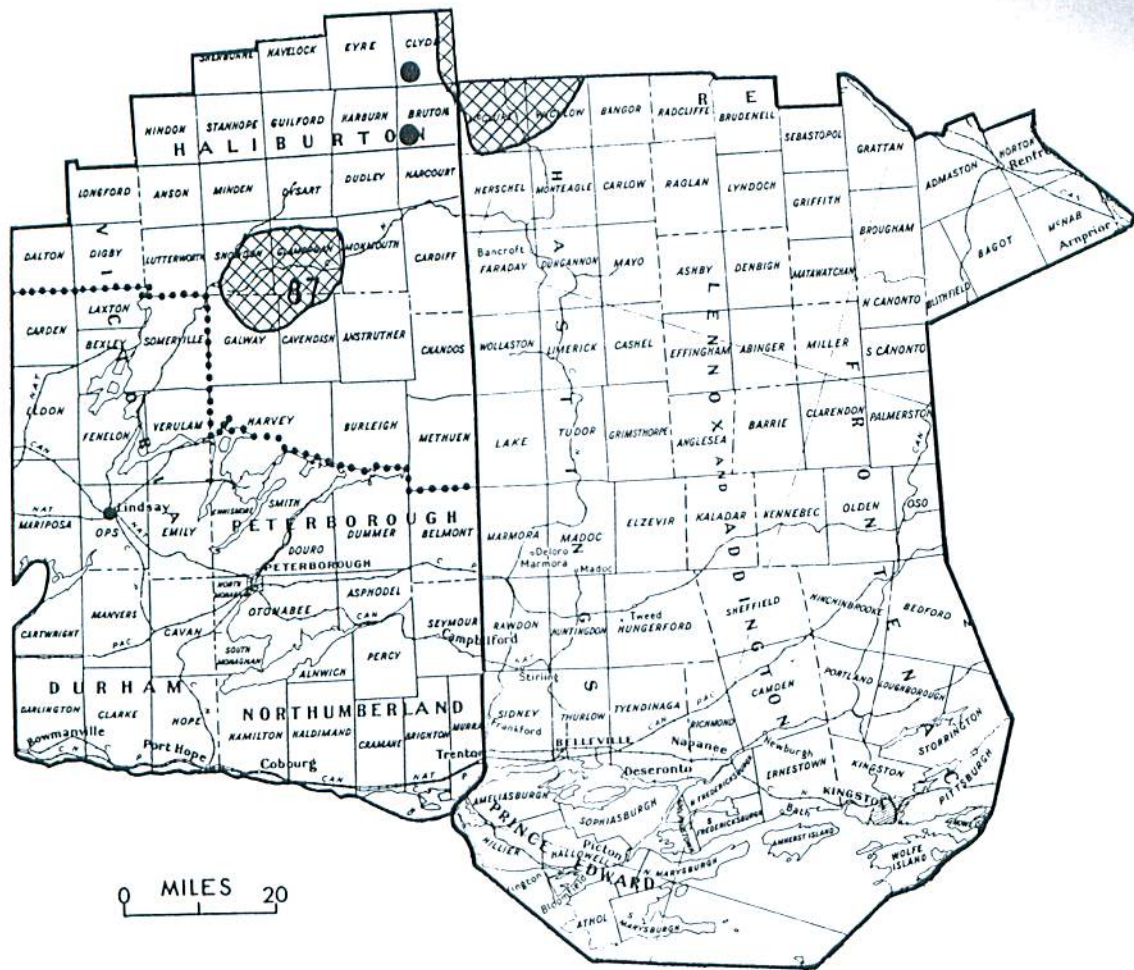


Fig. A2. BIRCH SKELETONIZER

Areas within which severe browning occurred on white birch in 1972

Severe browning . . . . .  or 

# PART OF SOUTHEASTERN SURVEY REGION

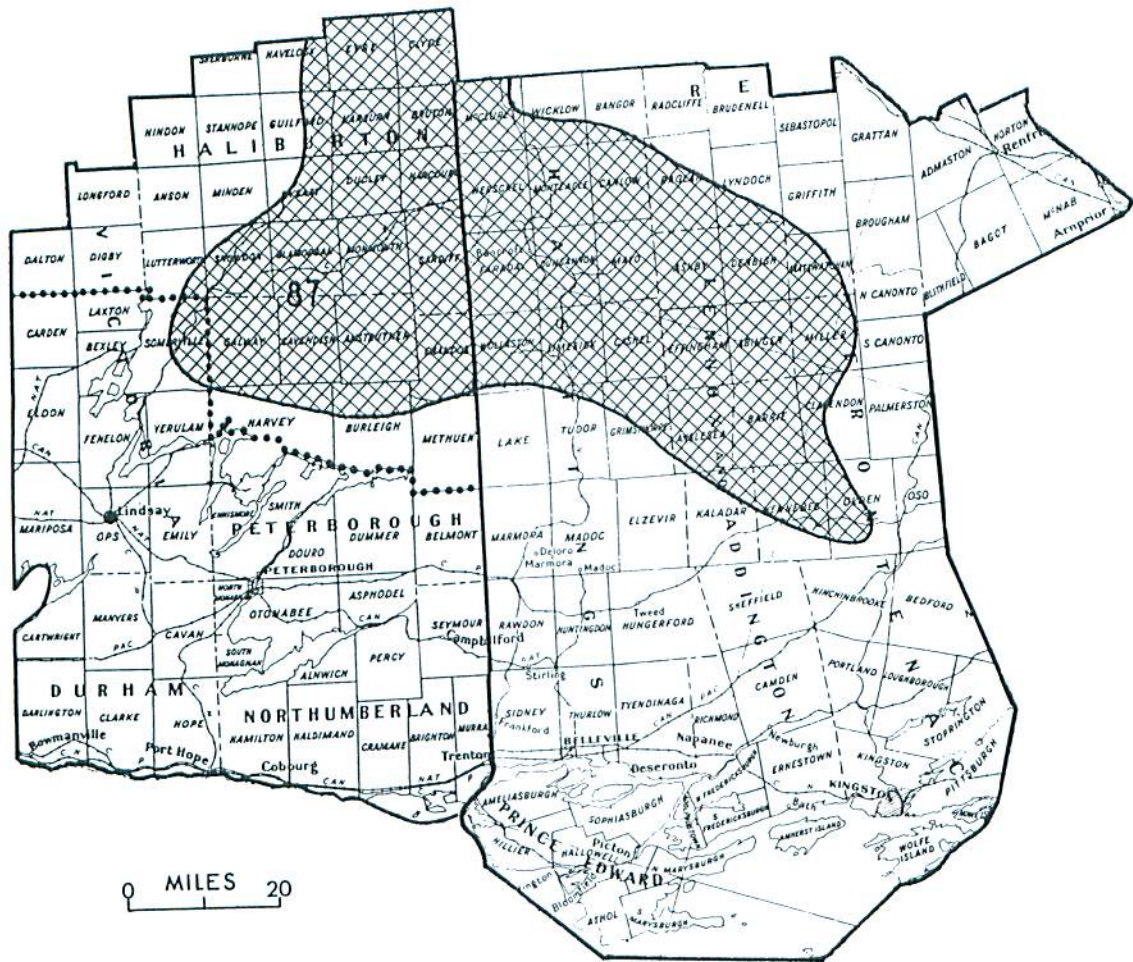



Fig. A3. FROST DAMAGE

Areas within which severe frost damage occurred in 1972 as determined by ground and aerial surveys.

Severe damage . . . . .  or ●