FOREST INSECT AND DISEASE SURVEYS IN THE ALGONQUIN REGION OF ONTARIO, 1976

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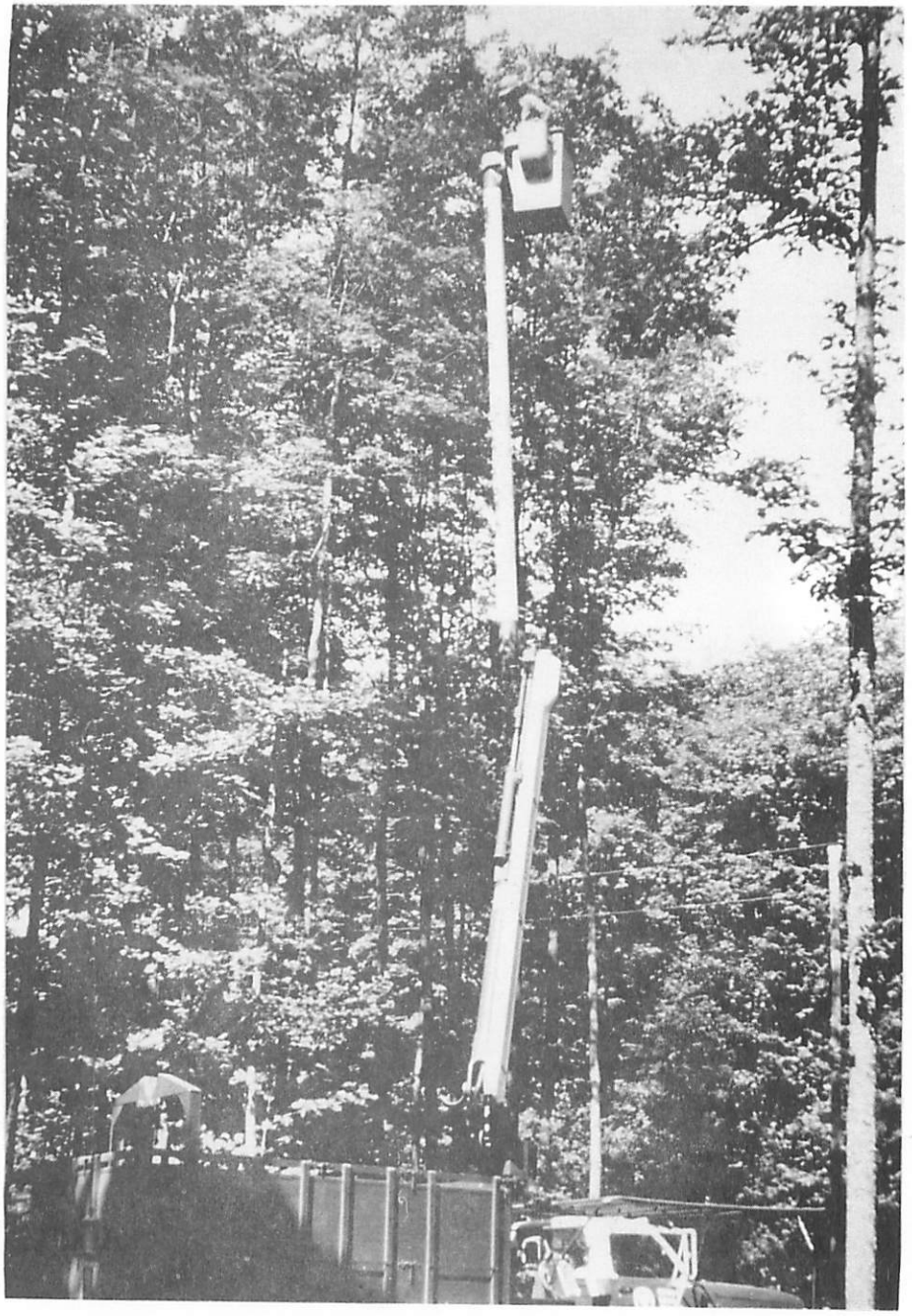

Frontispiece. Ontario Ministry of Natural Resources' "cherry picker" being used to count forest tent caterpillar egg bands on trembling aspen trees in provincial parks

SURVEY HIGHLIGHTS

This report deals with forest insect and disease conditions in the Algonquin Region in 1976.

Mr. V. Jansons replaced Mr. D. Lawrence as Survey Field Technician covering the Pembroke, Algonquin Park and Bancroft districts.

Spruce budworm was again the most destructive forest pest in the Region. Mortality, mainly of balsam fir but also of white spruce, caused by this insect has continued to increase. However, a marked decline in area and intensity of feeding damage occurred in 1976 (see Report O-X-260). Despite what appeared to be an unfavorable spring for the forest tent caterpillar, this insect caused extensive defoliation. The Bruce spanworm, a defoliator of hardwood, declined but the redheaded pine sawfly increased in number, necessitating chemical control measures at numerous locations in the Region. Aerial control measures were carried out by the Ontario Ministry of Natural Resources (OMNR) against the Saratoga spittlebug in seven plantations in the Pembroke District. Infestations of the cedar leafminer were observed farther to the north than in previous years.

Surveys of foliage diseases in the Region were emphasized. Scleroderris canker of pines continued to cause seedling mortality and death of the lower branches of red pine in a number of areas.

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Supervisor

ACKNOWLEDGMENTS

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INSECTS

The Saratoga Spittlebug, *Aphrophora saratogensis* (Fitch)

In recent years feeding of spittlebug adults has caused considerable branch and top mortality in a number of young red pine (*Pinus resinosa* Ait.) plantations in the Pembroke District. Sample plots were established to monitor nymphal development and adult densities in seven Crown-managed and three privately owned plantations located in Alice, Fraser, Hagarty and Sherwood townships. The first nymphs were found on May 27 feeding at the root collars of silvery cinquefoil (*Potentilla argentae* L.). By June 7, nymphs were feeding on sweetfern (*Comptonia peregrina* [L.] Coult.) and adults were found on red pine trees on July 13. To control the adult spittlebug aerial spraying of Malathion was carried out by OMNR on July 22 on the seven Crown-managed plantations. The three privately owned plantations were used as check plots for further population studies. In the treated plantations the feeding damage was reduced to a low level (Table 1). However, the number of feeding scars was also lower in the three check plots, indicating a natural reduction in spittlebug numbers this year.

Some feeding scars caused by this insect were observed in a red pine plantation in Somerville Township in the Minden District.

Table 1. Summary of Saratoga spittlebug feeding scars on samples of 1974 and 1975 growth of red pine taken from 10 plantations in the Pembroke District (average number of eggs based on examination of one bud cluster from each of four trees).

Location (Twp)	No. of twigs examined	Avg no. of feeding scars per 10 cm[a] of twig		Avg no. of eggs per sample	
		1975	1976	1975	1976
Check plots					
Alice #1	10	18.7	6.6	14.0	8.3
Fraser #3	10	34.0	5.6	7.0	2.7
Hagarty #5	10	33.2	12.7	15.1	9.0
Treated plots					
Fraser #2	20	19.2	4.8	12.0	4.4
Fraser #4	10	7.1	0.0	5.3	0.0
Hagarty #6	10	27.3	2.1	11.8	2.1
Hagarty #7	20	31.2	1.2	18.5	0.4
Hagarty #8	20	20.8	2.2	15.2	0.0
Sherwood #9	10	34.6	2.7	23.7	0.0
Sherwood #10	10	31.5	1.9	28.2	1.1

[a] 1 cm = 0.39 in.

Cedar Leafminers, *Argyresthia thuiella* Pack., *A. aureoargentella* Brower, and *Pulicalvaria thujaella* Kft.

Moderate-to-severe browning of white cedar (*Thuja occidentalis* L.) foliage was observed in Lutterworth, Snowdon, Glamorgan, Anson and Minden townships in the Minden District (see Appendix, Fig. A1). This constitutes an extension of up to 32 km (20 mi) north of infestations reported in 1975. An extension of severe damage was also observed in Anstruther, Chandos and Wollaston townships in the Bancroft District. Large numbers of leafminer adults were observed in and around cedar hedges in the towns of Minden and Haliburton in June and July, possibly heralding a further extension of infestation to the north in 1977.

Large Aspen Tortrix, *Choristoneura conflictana* Wlk.

A general population decline occurred in the three eastern districts of the Region where severe damage to trembling aspen (*Populus tremuloides* Michx.) was reported in 1975. Unusually warm weather in mid-April, 1976 may have caused premature emergence of larvae from their overwintering sites and resulted in the exposure of young larvae to subsequent cold weather late in April. Damage was light in trembling aspen stands in McClure Township, Bancroft District, in Raglan Township, Pembroke District, and at numerous other points in the eastern part of 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 report by G.M. Howse et al. (Report O-X-260). This report provides a complete description and analysis of the spruce budworm situation in Ontario in 1976 and gives infestation forecasts for the province for 1977.

Pine Webspinning Sawfly, *Cephalcia frontalis* Westw.

Populations of this destructive insect have been increasing in the southern part of the Minden and Bracebridge districts since 1974. Severe defoliation of red pine was observed in Killbear Provincial Park, Parry Sound District; in Harvey, Minden and Somerville townships, Minden District; and in two plantations in Burleigh Township, Bancroft District. Scattered trees were moderately defoliated in a plantation in Watt Township, Bracebridge District (Table 2). Damage within plantations was irregular.

Table 2. Summary of damage by the pine webspinning sawfly on red pine in four districts of the Algonquin Region in 1976 (based on the examination of 100 trees at each location).

Location (Twp)	Avg ht of sample trees (m)[a]	No. of trees infested
Bancroft District		
Burleigh	1.5	64
Burleigh	1.2	43
Bracebridge District		
Watt	1.2	6
Minden District		
Minden	1.5	51
Somerville	1.8	63
Harvey	1.5	87
Parry Sound District		
Killbear Prov. Park	1.5	100

[a] 1 m = 3.28 ft

Oak Leaftier, *Croesia semipurpurana* (Kft.)

Infestations of this insect which has severely defoliated stands of red oak (*Quercus rubra* L.) each spring for a number of years in the northern part of Algonquin Park District, and in several townships in the Pembroke District, declined to a low level. Infestations around Bracebridge also declined and were limited to scattered small pockets of light damage. Some red oaks have died in Head Township, Algonquin Park District, and in Raglan and Jones townships, Pembroke District, where severe defoliation had been reported for several consecutive years.

Greenstriped Mapleworm, *Dryocampa rubicunda rubicunda* (Fabr.)

No feeding damage was detected in the northern part of the Algonquin Park District or in the Rolphton area, Pembroke District, where severe defoliation of red maple (*Acer rubrum* L.) and sugar

maple (*A. saccharum* Marsh.) was reported in 1975. Infestation intensities have been fluctuating in these areas and some branch mortality was observed in several stands that have been defoliated repeatedly for a number of years.

Birch Leafminer, *Fenusa pusilla* (Lep.)

Severe browning of white birch (*Betula papyrifera* Marsh.) trees was again apparent in the central part of the Bracebridge District, particularly in the towns of Gravenhurst and Bracebridge (Table 3), and common in parts of the Pembroke and Bancroft districts.

Table 3. Summary of damage by the birch leafminer on white birch in one district of the Algonquin Region in 1976 (based on the examination of 100 leaves selected randomly from three trees at each location).

Location (Twp)	Avg DBH (cm)[a]	Leaves mined (%)
Bracebridge District		
Machar	5	75
Joly	8	86
Perry	7	82
Armour	13	89
Chaffey	13	90

[a] 1 cm = 0.39 in.

Fall Webworm, *Hyphantria cunea* Dru.

Webworm colonies were again common on black ash (*Fraxinus nigra* Marsh.), white ash (*F. americana* L.), white elm (*Ulmus americana* L.), Manitoba maple (*Acer negundo* L.) and other deciduous hosts in the eastern part of the Pembroke District for the fourth consecutive summer. Unsightly webbing and defoliation developed in Freeman and Gibson townships in the southern part of the Parry Sound District in Watt, Draper and Wood townships in the Bracebridge District, and north of the Trent Canal System in Somerville and Harvey townships in the Minden District.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Infestations generally increased in both extent and intensity over 1975 (see Appendix, Fig. A2). Unseasonably warm weather in mid-April caused premature egg hatch, reducing the larval population at numerous locations in the infestation. Although population reductions were observed, enough larvae survived to cause appreciable defoliation (Table 4).

Table 4. Summary of forest tent caterpillar larval emergence (results based on examination of five egg bands at each location).

Location (Twp)	Avg no. of egg bands per tree in 1975	1976 infestation forecast	1976 larval emergence (%)	Actual defoliation in 1976
Parry Sound District				
Mowat	170	S	13	L
Humphrey	20	S	70	S
Carling	12	S	65	S
Bracebridge District				
Machar	11	S	5	L
Chaffey	5	M	5	L
Watt	10	S	62	S
Minden District				
Glamorgan	13	S	15	L
Harvey	13	S	75	S

A natural parasite, *Sarcophaga aldrichi* Park., which lays a living maggot on forest tent caterpillar cocoons, was common in all infestations. Results of field dissections to determine the amount of cocoon parasitism are shown in Table 5.

In order to forecast infestation intensities for 1977, egg-band counts are normally taken at locations in and around the infestation, and this involves the examination of felled trees at each location. Since felling of shade trees, or of trees in provincial parks, is undesirable, an alternative method was sought. Through the cooperation of Mr. J. Kuiak, Regional Parks Supervisor, OMNR, a "cherry picker", a vehicle with a boom and bucket (see Frontispiece), was

made available to sample egg populations in four provincial parks. Egg bands were removed when counted, and occasional sample trees were cut down for checking. The first two trees examined in Arrowhead Provincial Park were used for trial purposes and the error was high, but on subsequent trees the number of egg bands missed was low (Table 6).

Table 5. Results of forest tent caterpillar cocoon dissections made at seven locations following moth emergence (100 cocoons dissected at each location).

Location (Twp)	Parasitized (%)	Successful emergence (%)	Other (%)
Parry Sound District			
Foley	45	51	4
Humphrey	57	40	3
Mowat	60	38	2
Bracebridge District			
Monck	46	54	0
Minden District			
Hindon	61	38	1
Minden	70	28	2
Glamorgan	78	20	2

Table 6. Summary of forest tent caterpillar egg-band counts made with the aid of a "cherry picker", and infestation forecasts for 1977 at four provincial parks.

Area	Host	Avg DBH (cm)[a]	No. of egg bands			1977 infestation forecast[b]
			Cherry picker	Check	Total	
Arrowhead Park						
Maple ridge	sM	15	13	12	25	S
Poplar flats	tA	20	29	18	47	S
Woodyard Rd.	tA	13	31	1	32	S
	tA	13	20	-	20	S
	tA	13	20	-	20	S

(continued)

Table 6. Summary of forest tent caterpillar egg-band counts made with the aid of a "cherry picker", and infestation forecasts for 1977 at four provincial parks (concluded).

Area	Host	Avg DBH (cm)[a]	No. of egg bands			1977 infestation forecast[b]
			Cherry picker	Check	Total	
Grundy Lake Park						
Entrance	tA	13	20	-	20	S
	tA	13	20	-	20	S
	tA	13	21	-	21	S
	tA	10	14	1	15	S
Clear Lake	tA	10	15	-	15	S
	tA	10	12	-	12	S
	tA	13	11	1	12	S
Poplar camps	tA	13	13	-	13	S
	tA	13	13	-	13	S
	tA	13	13	1	14	S
Killbear Park						
Blind Bay	sM	15	11	0	11	S
	rO	20	19	-	19	S
	rO	20	16	0	16	S
Mikisew Park						
Lot 252	tA	13	15	-	15	S
	tA	13	16	-	16	S
	tA	10	20	2	22	S

[a] 1 cm = 0.39 in.

[b] S = Severe

Standard egg-band sampling using the felling method was carried out in the remainder of the Region in and around present infestations (Table 7).

Balsam Fir Sawfly, *Neodiprion abietis* complex

This sawfly declined to low numbers in most areas of the Pembroke, Minden and Algonquin Park districts where damage was reported in 1975. However, light-to-moderate defoliation again occurred in scattered clumps of balsam fir (*Abies balsamea* [L.] Mill.) in Raglan, Grattan and Rolph townships in the Pembroke District.

Table 7. Summary of forest tent caterpillar egg-band counts and infestation forecasts for 1977 at 22 locations in the Algonquin Region (counts based on the examination of one to three trees at each location).

Location (Twp)	Host	Avg DBH (cm)[a]	No. of trees examined	Avg no. of egg bands per tree	1977 infestation forecast[b]
Bracebridge District					
Machar	tA	5	5	8	S
Watt	sM	10	1	36	S
MacCauley	sM	13	1	31	S
Oakley	sM	10	1	71	S
Butt	tA	13	3	3	M
Sinclair	tA	10	2	10	S
Algonquin Park District					
Biggar	tA	10	3	1.6	L
Wilkes	tA	13	3	2.3	M
Bancroft District					
Cardiff	tA	7	3	4	M
Cardiff	sM	15	1	5	M
Anstruther	sM	8	1	2	L
Dungannon	tA	7	3	0	Nil
Faraday	sM	8	1	2	L
Mayo	tA	10	3	0	Nil
Minden District					
Hindon	sM	15	1	60	S
Glamorgan	tA	10	3	4	M
Cavendish	tA	10	1	16	S
Somerville	sM	10	1	30	S
Carden	sM	10	1	27	S
Minden	sM	7	1	12	S
Parry Sound District					
McDougal	tA	3	1	5	S
Pembroke District					
Raglan	tA	20	3	0	Nil

[a] 1 cm = 0.39 in.

[b] L = Light
M = Moderate
S = Severe

Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch)

Populations increased on red pine for the second consecutive year throughout the northern part of the Region. New infestations were observed in plantations in Bracebridge, Parry Sound and Pembroke districts. Typical colony counts are shown in Table 8. In the Minden and Bancroft districts in the southern part of the Region, colony counts were down from 1975. Reduction is due in part to chemical control measures and hand pruning carried out by private owners and OMNR in preceding years.

Table 8. Summary of redheaded pine sawfly colony counts made on red pine in 1976 (based on the examination of 100 randomly selected trees at each location).

Location (Twp)	Avg ht of sample trees (m)[a]	No. of colonies
Bracebridge District		
Chaffey	2.4	7
Brunel	1.2	18
Stephenson	1.5	61
Watt	0.9	106
Minden District		
Lutterworth	2.1	71
Minden	1.2	27
Somerville	1.8	19
Parry Sound District		
Carling	1.2	13
Pembroke District		
Gratton	1.8	27
McNab	1.5	3
Raglan	1.8	26
Wilberforce	1.2	63

[a] 1 m = 3.28 ft

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

This introduced sawfly, first observed in the southern part of the Region in 1973, continues to spread slowly northward. A new distribution point was recorded in the Bancroft District. Small numbers of colonies were found on Mugho pine (*Pinus mugho* Turra) plantings along Highway 500 in Dungannon Township which is approximately 32 km (20 mi) northeast of the known distribution in Chandos Township. Chemical control measures carried out by private owners and OMNR have helped to keep populations down (Table 9).

Table 9. Summary of European pine sawfly colony counts made at four locations in the Bancroft District in 1975 and 1976 (based on the examination of 100 trees at each location).

Location (Twp)	Host	Avg ht of sample trees (m)[a]	Trees infested (%) 1975	1976	Avg no. of colonies per infested tree 1975	1976
Dungannon	mP	.6	-	6	-	1.2
Chandos	scP	1.5	-	5	-	1.8
Chandos	rP	1.5	24	7	1.2	1.0
Burleigh	rP	1.2	21	37	1.2	1.5

[a] 1 m = 3.28 ft

Bruce Spanworm, *Operophtera bruceata* Hlst.

Populations declined at numerous locations in the central part of the Region. Heavy infestations which have persisted since 1973 in the Muskokas and along the southwest side of Lake of Bays, and in Livingstone, Lawrence, Peck, McClintock and Canisbay townships declined to light intensity. High populations persisted in Paxton, Biggar, Butt and Devine townships in the western part of the Algonquin Park District. Sugar maple, ironwood (*Ostrya virginiana* [Mill.] K. Koch), yellow birch (*Betula alleghaniensis* Britton) trees and understory were the preferred hosts.

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* Roh.

Numbers of this sawfly increased generally on both naturally grown and planted white spruce (*Picea glauca* [Moench] Voss) and black spruce (*P. mariana* [Mill.] B.S.P.). Light-to-moderate defoliation was

observed in McNab, Buchanan and Brougham townships in the Pembroke District and at several locations in the Bancroft District. Moderate defoliation of planted white spruce trees occurred in Mikisew Provincial Park, Machar Township in the Bracebridge District. In the latter location relatively good control was achieved by using Malathion, applied with a hand sprayer when larvae were in the third instar.

White Pine Weevil, *Pissodes strobi* (Peck)

There was no significant change in the general level of damage in the Region (Table 10). High incidence of attack continued in white pine (*Pinus strobus* L.) plantations in Limerick and Faraday townships in the Bancroft District, in Hagarty and McNab townships in the Pembroke District, and in Lyell Township in the Algonquin Park District. As a result of repeated weeviling, trees in numerous plantations have become stunted. The number of trees weeviled was considerably lower in Bracebridge and Minden districts where systematic hand pruning of infested leaders is carried out by OMNR.

Table 10. Summary of white pine damage caused by white pine weevil at locations in five districts in 1974, 1975 and 1976 (based on the examination of 100 trees at each location).

Location (Twp)	Avg DBH (cm)[a]	Trees weeviled 1974	1975 (%)	1976
Algonquin Park District				
Lyell	5	38	31	47
Bancroft District				
Faraday	5	85	76	65
Limerick	8	55	52	56
Bracebridge District				
Brunel	3	-	-	13
Stisted	3	-	-	6
Stisted	3	-	-	6
Spence	4	-	-	13
Minden District				
Hindon	3	-	-	7
Pembroke District				
Hagarty	7	66	64	57
McNab	7	31	40	42

[a] 1 cm = 0.39 in.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

The amount of feeding damage by this insect increased considerably in the northern part of Pembroke District. Severe defoliation of tamarack (*Larix laricina* [Du Roi] K. Koch) was observed in Alice, Petawawa, Buchanan, Wylie, Rolph, Hagarty and Richards townships. Moderate-to-severe defoliation occurred on European larch (*Larix decidua* Mill.) and other exotic larch plantings at the Petawawa Forest Experiment Station in Wylie Township, Pembroke District, and in a large tamarack stand in Cardiff Township, Bancroft District. Light defoliation of individual tamarack trees was observed at a number of locations in the Bracebridge District.

Table 11. Other forest insects

Insect	Host(s)	Remarks
Alsophila pometaria (Harr.)	rO, wE	light defoliation of open-grown trees common in the eastern part of Pembroke District
Anacampsis innocuella Zell.	tA	low populations in Buchanan, Hagarty, and Rolph twp, Pembroke District
Aphrophora parallela (Say)	ScP, wP	commonly observed throughout Region; high numbers in Wilberforce Twp, Pembroke District and Minden Twp, Minden District; low numbers in Carling Twp, Parry Sound District
Archips cerasivoranus (Fitch)	ecCh	population buildup throughout most of the Region
Cecidomyia reeksi Vock.	jP	frequent brown flagging on roadside trees in McKay Twp, Pembroke District and in White Twp, Algonquin Park District
Chrysomela scripta F.	W	light defoliation on a few trees in Head Twp, Pembroke District

(contineud)

Table 11. Other forest insects (continued)

Insect	Host(s)	Remarks
Coleophora laricella Hbn.	tL	light defoliation in McMurrich Twp, Parry Sound District, and in Bronson and Airy twp, Algonquin Park District
Diprion hercyniae (Htg.)	wS	few larvae in beating samples in Stafford and Bromley twp, Pembroke District
Enargia decolor Wlk.	tA	low populations in McClure Twp, Bancroft District
Erannis tiliaria Harr.	wB, rO, sM	increased and common throughout the entire Region
Gonioctena americana (Schaef.)	tA	moderate defoliation in Glamorgan Twp, Minden District; low populations in Wollaston and McClure twp, Bancroft District, and in Hagarty Twp, Pembroke District
Heterocampa guttivitta Wlk.	sM	low populations in Carlow Twp, Bancroft District
Hylobius sp.	rP	light infestation of root collar weevil in Burleigh Twp, Bancroft District
Ips pini Say	rP	high numbers of beetles caused some tree mortality in Hagarty, Alice and Rolph twp, Pembroke District
Lithocolletis ontario Free.	tA, lA	severe leaf mining on young trees in Clara, Maria and Fitzgerald twp, Algonquin Park District, and in Sherwood and Hagarty twp, Pembroke District

(continued)

Table 11. Other forest insects (concluded)

Insect	Host(s)	Remarks
Malacosoma americanum F.	cherry	numbers of unsightly tents again generally high in the spring and early summer
Messa nana Klug	wB	low populations general in the southern part of the Region; no extension in distribution
Neodiprion pratti banksianae Roh.	jP	light defoliation in Wallbridge Twp, Parry Sound District
Neodiprion pratti paradoxicus Ross	jP	low populations in Ross Twp, Pembroke District and in Chandos Twp, Bancroft District
Phenacaspis pinifoliae (Fitch)	mP	extremely high populations on ornamentals in Minden, Minden District
Pissodes approximatus Hopk.	rP	severely infested trees in a plantation in Burleigh Twp, Bancroft District
Pityokteines sparsus Lec.	bF	bark beetles in budworm-killed trees at several locations in Algonquin Park District
Pristiphora geniculata (Htg.)	aMo	light defoliation general at various locations in the Region
Pyrrhalta luteola (Mull.)	wE	severe defoliation in Verulam and Minden twp, Minden District
Sericothrips tiliae Hood	Ba	continued moderate damage in Harvey Twp, Minden District
Toumeyella numismaticum (P. & M.)	jP	light infestation in a young stand in Chandos Twp, Bancroft District

TREE DISEASES

Cenangium Dieback of Pine, *Cenangium ferruginosum* Fr.

This organism, which was found to be associated with significant damage to Scots pine (*Pinus sylvestris* L.) and red pine plantations throughout the southern part of the Region, declined in intensity. In Joly Township, Bracebridge District, 3% of the trees had red flagging, whereas in 1975, 52% showed flagging. A new area of moderate-to-severe damage was observed in a small red pine plantation in Sinclair Township, Bracebridge District, where the lower branches of 36 trees were severely infected. In Hagarty Township, Pembroke District, small numbers of planted red pine were killed.

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

A high rate of mortality continued through most of the Region. Plots of living elms which were established in 1973 to replace those that died have been checked annually (Table 12). In 1976, the percentage of trees infected in the eastern part of the Region ranged from 14 in Bromley Township to 65 in Hagarty Township.

Table 12. Summary of annual mortality caused by Dutch elm disease in four plots in the Algonquin Region (based originally on the examination of 40 trees at each location).

Location (Twp)	No. of living trees			
	1973	1974	1975	1976
Bracebridge District				
Machar	40	15	3	1
Morrison	40	32	20	14
Watt	40	33	24	11
Minden District				
Carden	40	35	15	13

A Needle Cast, *Davisomycella ampla* (Davis) Darker

This needle cast caused high levels of infection on Scots pine and jack pine (*Pinus banksiana* Lamb.) in the Pembroke and Algonquin districts (Table 13). Trace and light infections were observed at several other locations in the Region.

Table 13. Summary of damage levels caused by needle cast in two districts of the Algonquin Region in 1976.

Location (Twp)	Host	Avg ht of trees (m)[a]	Area affected (ha)[b]	Trees affected (%)	Defoliation (%)
Algonquin Park District					
Head	jP	6.0	4.5	29	8
Pembroke District					
Alice	scP	3.5	0.4	62	40
Fraser	jP	3.0	0.8	50	75

[a] 1 m = 3.28 ft

[b] 1 ha = 2.47 acres

Scleroderris Canker of Pine, *Gremmeniella abietina* (Lagerb.) Morelet (*Scleroderris lagerbergii* Gremmen)

Plantations known to be infected with this disease are examined each year and a survey is made for evidence of new infection. Table 14 provides an update of the proportion of trees infected and includes a new infection center. OMNR personnel pruned and destroyed infected lower branches and removed trees which were not expected to recover. This work was done to allow planting of open sites in a seriously infected 4-ha (10-acre) plantation of red pine in Stisted Township in the Bracebridge District (Figures 1 and 2). Another type of sanitation trial carried out was in a severely infected 2-ha (5-acre) Scots pine plantation in McMurrich Township in the Parry Sound District. Here all trees were removed so that this location and neighboring clearings could be planted with preferred red pine trees. Evaluation of sanitation effectiveness is required.

Leaf Blight of Balsam Poplar, *Linospora tetraspora* Thompson and *Septoria populicola* Pk.

These foliage diseases of balsam poplar (*Populus balsamifera* L.) were observed commonly throughout the Region in varying degrees of intensity. Defoliation by *L. tetraspora* in parts of Rolph and North Algona townships, Pembroke District, was rated at 20 and 40% and in Faraday Township, Bancroft District, at 25%. In the Bracebridge and Minden districts individual trees were affected by *S. populicola*.

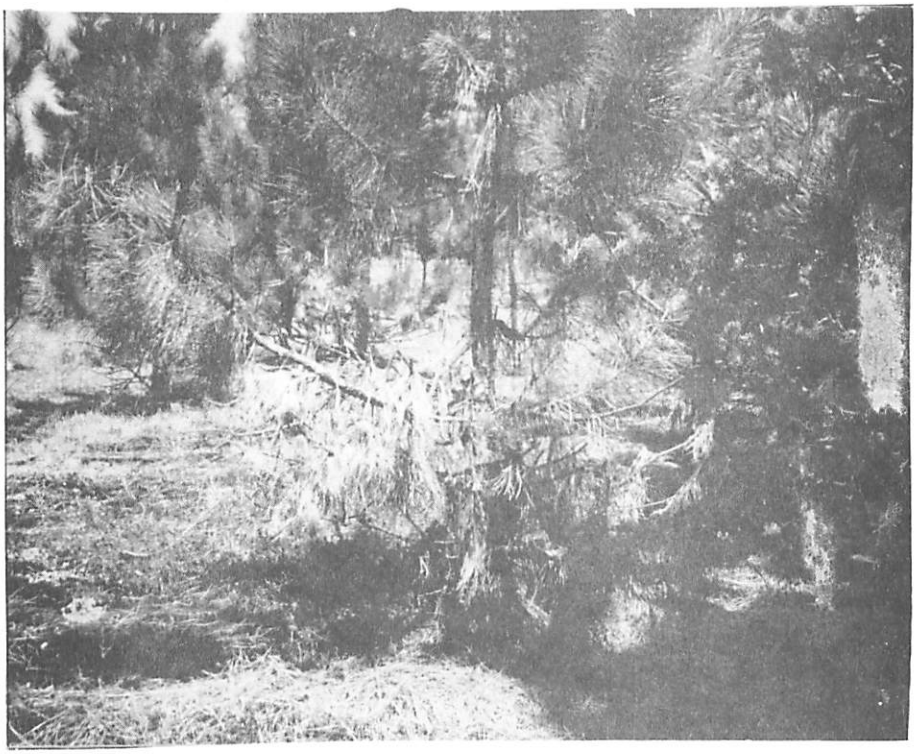

Fig. 1. Part of a 4-ha (10-acre) red pine plantation in Bracebridge District severely infected by *Gremmeniella abietina*.

Fig. 2. The same plantation after the lower branches had been removed and burned.

Table 14. The incidence of Scleroderris canker in five pine plantations in the Algonquin Region in 1975 and 1976 (based on the examination of 100 trees at each location).

Location (Twp)	Host	Avg ht of sample trees (m)[a]	Trees affected 1975 (%)	1976 (%)
Bracebridge District				
Stisted	rP	3.7	85	100
Joly	jP	3.0	53	56
Stisted[b]	jP	1.5	-	25
Parry Sound District				
McMurrich	jP	1.2	27	50
Spence	rP	1.5	48	66

[a] 1 m = 3.28 ft

[b] new infection

Shoot Blight of Poplar, *Venturia macularis* (Fr.) E. Muell. & Arx.

Blackened leaves and shepherds' crooks were commonly observed on roadside aspen regeneration in most districts of the Region. In Head Township, Algonquin Park District, 50% of the trees examined had diseased leading shoots, whereas in Hagarty Township, Pembroke District, 10% had symptoms of this disease. In Somerville Township, Minden District, 35% of young trembling aspen were infected.

Winter browning

Typical symptoms of winter browning could be found at only seven locations in the Region (Table 15). Severe browning was observed along Highway 60 near Huntsville, in Machar and Chaffey townships, Bracebridge District, and in Mowat Township, Parry Sound District.

Table 15. Summary of damage caused by winter browning in three districts of the Algonquin Region in 1976.

Location (Twp)	Host	Avg ht of sample trees (m)[a]	Trees affected (%)	Defoliation (%)
Bancroft District				
Herschel	rP	1.2	73	15
Mayo	rP	1.8	53	10
Limerick	rP	1.5	44	7
Bracebridge District				
Livingstone	rP	1.8	98	56
Chaffey	aP	1.5	5	20
Machar	aP	1.5	100	49
Parry Sound District				
Mowat	rP	1.5	95	40

[a] 1 m = 3.28 ft

Table 16. Other forest diseases

Organism	Host(s)	Remarks
Armillaria mellea (Fr.) Kummer	rP	some tree mortality in Richards Twp, Pembroke District; infections general throughout Region
Aureobasidium pullulans (de Bary)	aP, jP	numerous dead tree tops in a small plantation in Canisbay Twp, Algonquin Park District, and in Stisted Twp, Bracebridge District
Ciborinia whetzelii (Seaver) Seaver	tA	little damage in the last two years
Coleosporium asterum (Diet.) Syd	rP	light incidence in two young plantations in the Bancroft District

(continued)

Table 16. Other forest diseases (continued)

Organism	Host(s)	Remarks
Cronartium comandrae Pk.	toadflax	rust found on alternate host in Maria Twp, Algonquin Park District
Cronartium ribicola J.C. Fischer	ribes wP	continued light-to-moderate damage levels in the Region
Cytospora chrysosperma (Pers.) Fr.	lA hybrid Po	a few dead trees (1-3 m high) in Wilberforce Twp, Pembroke District, and in Airy Twp, Algonquin Park District
Dermea balsamea (Pk.) Seaver	bF	on widely scattered dead trees in Hagarty Twp, Pembroke District
Dothichiza populea Sacc. & Briard	cPo	numerous diseased trees in Rolph Twp, Pembroke District, and in Armour Twp, Bracebridge District
Dothiorella quercina (Cke. & Ell.) Sacc.	rO	dead branch tips in Head Twp, Algonquin Park District, and in Watt Twp, Bracebridge District
Gelatinosporium abietinum Pk.	bF	low numbers of dead trees in Stafford Twp, Pembroke District
Gymnosporangium clavipes (Cke. & Pk.) Cke. & Pk.	Se	several trees infected with rust in Grattan Twp, Pembroke District
Hypoxylon mammatum (Wahl.) Miller	tA	stem cankers common throughout the entire Region
Kabatiella apocrypta (Ellis & Everh) Arx	sM	widespread browning of foliage throughout the Region
Lophodermium pinastri (Schrad. ex Hook.) Chev.	rP, jP	low incidence this year throughout the Region

(continued)

Table 16. Other forest diseases (concluded)

Organism	Host(s)	Remarks
Pollaccia elegans Serv.	bPo	low numbers of damaged leaders general in the Region
Polyphoma schweinitzii Fr.	wS	root rot observed on windthrown tree in Stratton Twp, Algonquin Park District
Polyporus tomentosus Fr.	wS	tree mortality observed at Petawawa Forest Experiment Station in Buchanan Twp, Pembroke District
Scoleconectria cucurbitula (Tode ex Fr.) Booth	jP	common on dead material in Stisted Twp, Bracebridge District

APPENDIX

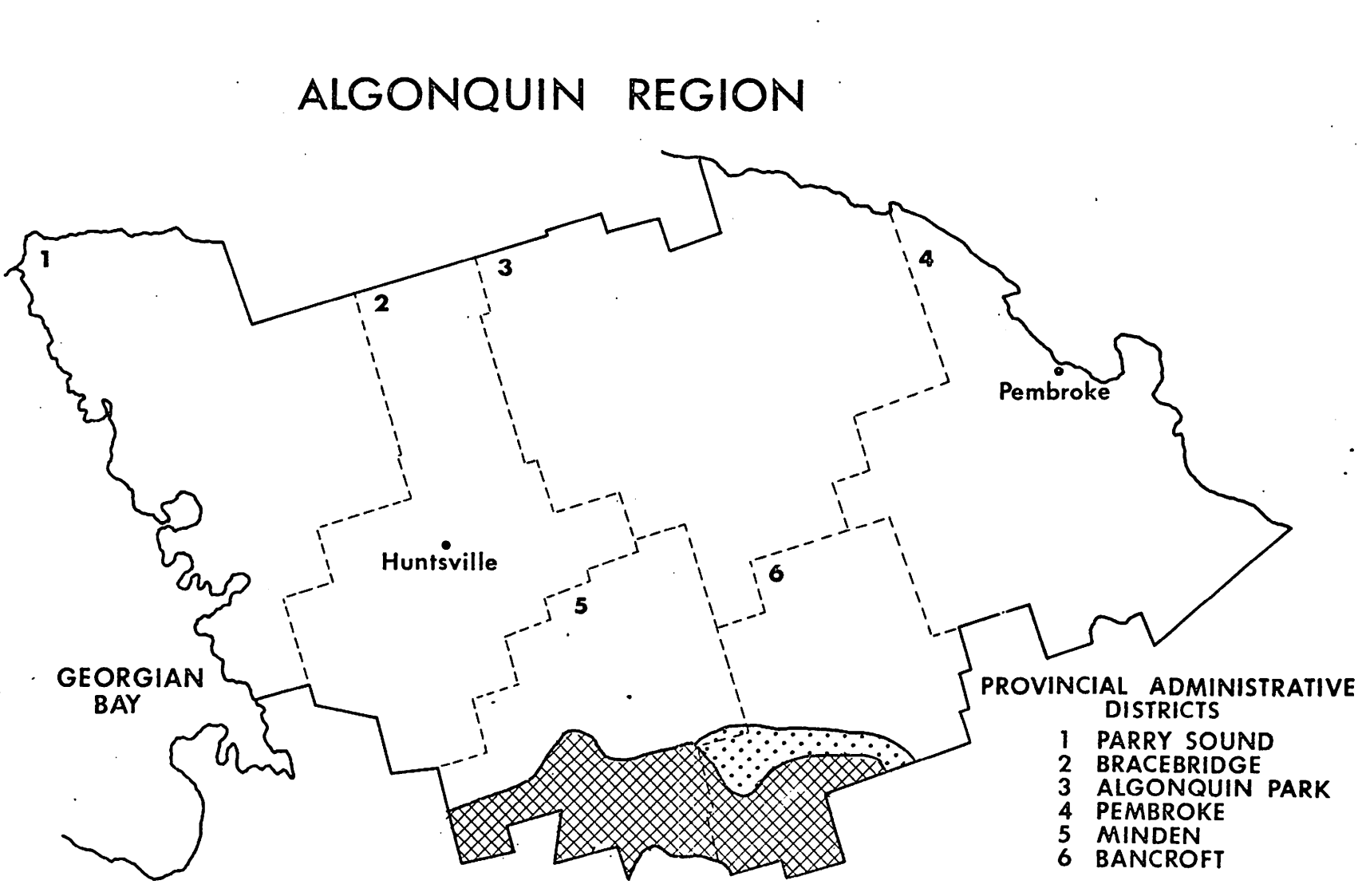

Fig. A1. CEDAR LEAFMINERS

Areas within which damage to eastern white cedar occurred in 1976

Moderate-to-severe browning of foliage . .

Light browning of foliage . . . . . .

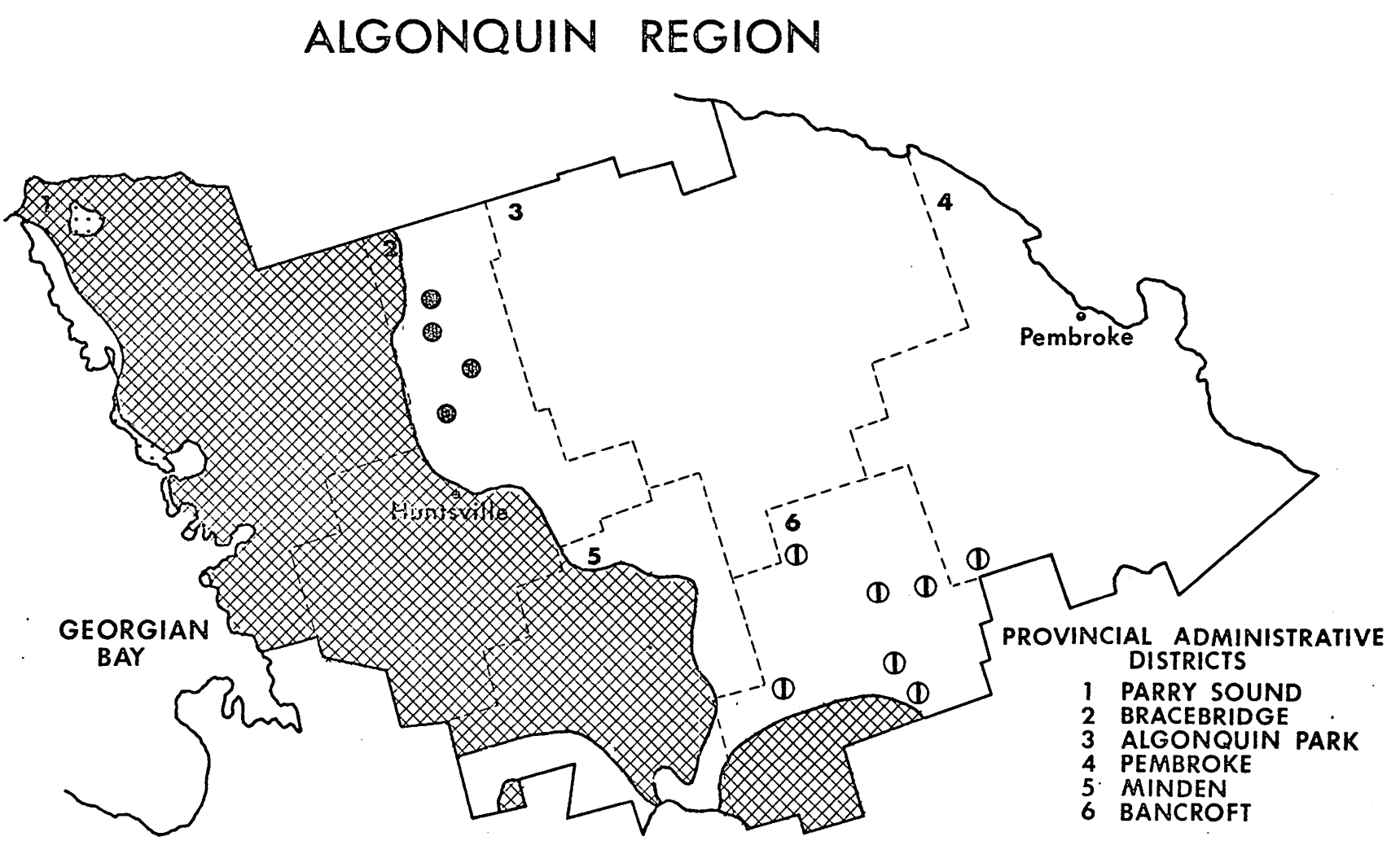

Fig. A2. FOREST TENT CATERPILLAR

Areas within which moderate-to-severe defoliation of broad-leaved trees occurred in 1976

Moderate-to-severe defoliation . . . or

Light defoliation . . . . . or