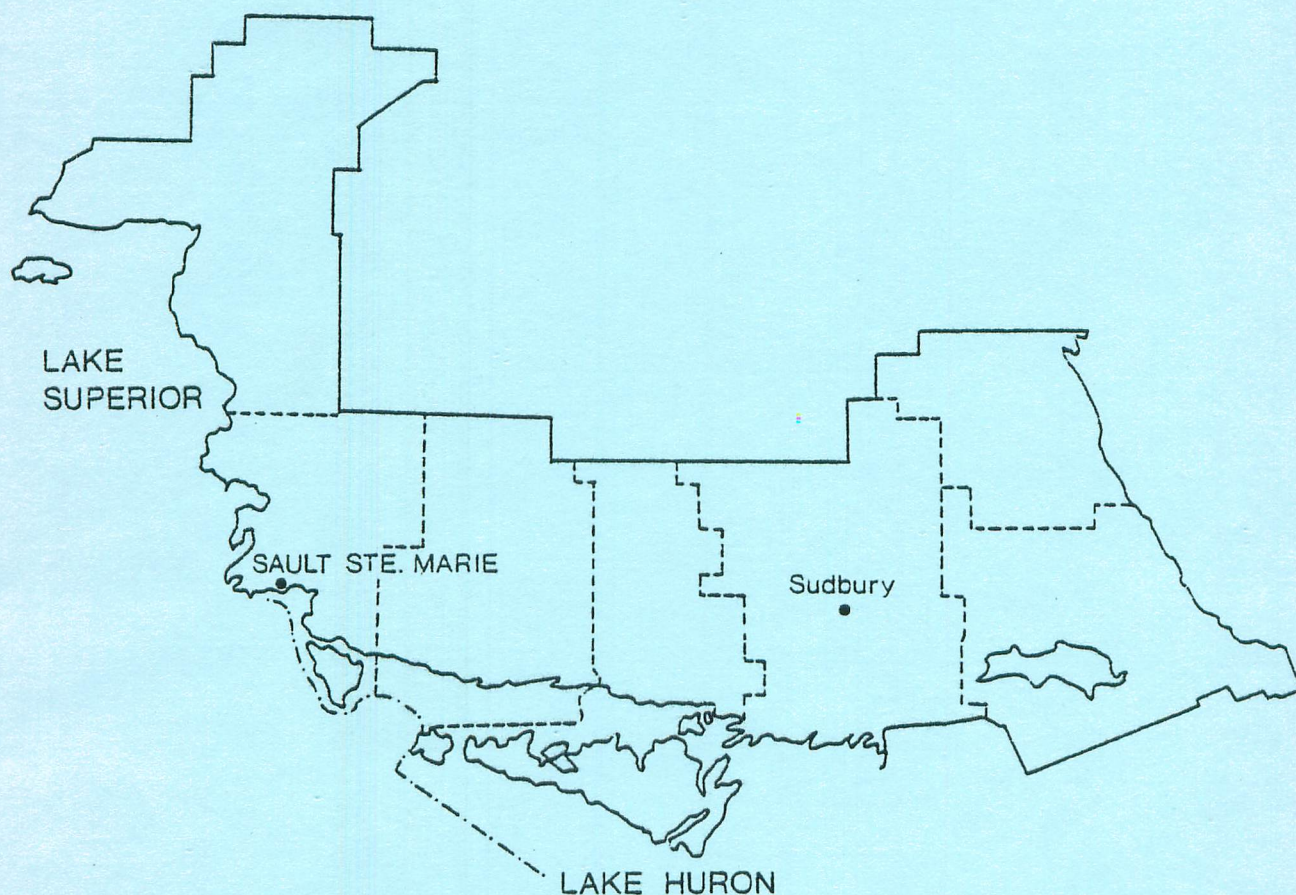


Results of forest insect and disease surveys in the NORTHEASTERN REGION of Ontario, 1979



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

SURVEY HIGHLIGHTS

The status of the more important forest insect and tree disease conditions in the Northeastern Region is described herein.

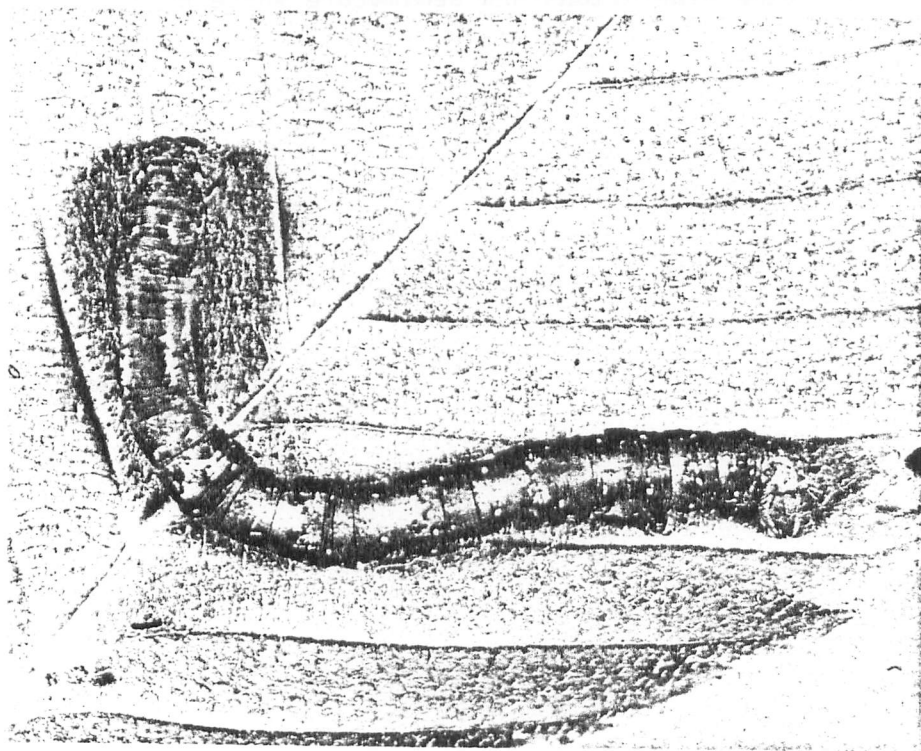
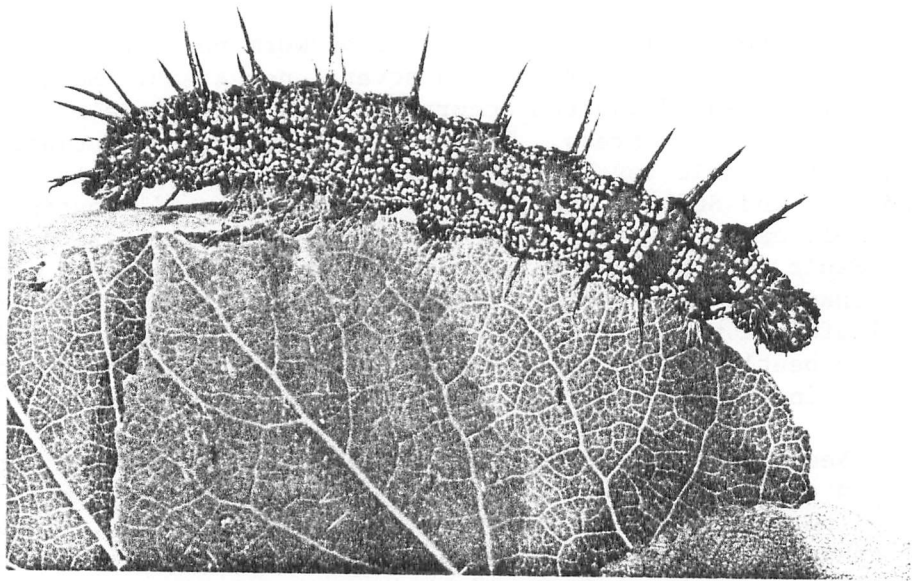
High populations of the spruce budworm persisted throughout most of the Region and spread into several new areas. Mortality of balsam fir increased and the occurrence of white spruce mortality was more evident in some areas. Forest tent caterpillar populations declined to endemic levels with only residual infestations occurring in Espanola and Sudbury districts. White pine weevil continued at a high level, causing severe leader damage in many plantations in Blind River, Sault Ste. Marie and Temagami districts. Increased populations of elm spanworm, greenstriped mapleworm, mourningcloak butterfly and birch leafminer were evident in many locations. High populations of pine cone beetle, aspen twinleaf tier and eastern pineshoot borer persisted in the Temagami District.

Needle rust of spruce was widespread in the Wawa District. There was a high incidence of Scleroderris disease of pine in small isolated pockets in Blind River and North Bay districts. In addition to assessment of major forest diseases, special surveys were carried out in jack pine plantations and semimature white birch stands.

K.C. Hall

H. Brodersen

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Frontispiece. Late-instar mourningcloak butterfly, *Nymphalis antiopa* L. (top), and elm spanworm, *Ennomos subsignarius* Hbn. (bottom).

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INSECTS

Pine Spittlebug, *Aphrophora cribrata* (Say)

Low levels of spittlebugs continue to infest high numbers of trees in almost all Scots pine (*Pinus sylvestris* L.) plantations examined on Manitoulin Island. Incidence rates of 90% and over were recorded at five of six plantations surveyed. However, the recurring presence of the insect has yet to cause any twig or branch mortality. Elsewhere, low levels were present on jack pine (*Pinus banksiana* Lamb.) and Scots pine in Nairn and Merritt townships, Espanola District; in Parkinson and Gladstone townships, Blind River District; and on Maki Road, Sault Ste. Marie District.

Uglynest Caterpillar, *Archips cerasivoranus* (Fitch)

Populations of this insect increased substantially in 1979. High populations were noted in Cobden, Rose, Thessalon and Kirkwood townships, Blind River District and north of Hiawatha Park in the city of Sault Ste. Marie. Moderate levels were found in Hilton Township on St. Joseph Island, throughout all of the agricultural townships south of Lake Nipissing, North Bay District and in the rural areas around the town of New Liskeard, Temagami District. Elsewhere in Sault Ste. Marie, Blind River, Espanola and Sudbury districts populations were widely scattered at trace-to-light levels.

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-310). This report provides a complete description and analysis of developments in the spruce budworm situation in Ontario in 1979 and gives infestation forecasts for the province for 1980.

Larch Casebearer, *Coleophora laricella* Hbn.

Observations recorded at the quantitative sampling point in the Garden River Indian Reserve, Sault Ste. Marie District, showed increased numbers of larvae per 18-in. (45.7-cm) branch tip for the second consecutive year. Larval densities increased from 11.7 in 1978 to 19.5 in 1979. In Thessalon Township, Blind River District and in Jocelyn Township, Sault Ste. Marie District larvae per tip were recorded at 5.5 and 3.1, respectively. The rest of the Region (with the exception of Temagami District, where no populations were observed) contained widely scattered pockets of infestation at trace-to-low levels.

Red Pine Cone Beetle, *Conophthorus resinosae* Hopk.

Mature and overmature red pine (*Pinus resinosa* Ait.) stands were again heavily infested with this perennial pest at many locations in the northern part of Temagami District. The ground under the trees was littered with fallen twigs, each bud containing an adult beetle. The fallen twigs caused concern to cottage owners on islands in Lake Temagami where damage was particularly conspicuous.

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

Two small pockets of high populations occurred in 1979 in Gordon Township on Manitoulin Island and in Jocelyn Township on St. Joseph Island. All diameter sizes of red oak (*Quercus rubra* L.) at these locations suffered moderate-to-severe damage. Light populations were found at many locations in the southern part of the Region.

Greenstriped Mapleworm, *Dryocampa rubicunda rubicunda* Fabr.

Population levels increased in the southern part of Sault Ste. Marie and Blind River districts. Although there were no areas of infestation, colonies were more numerous and more widespread than in 1978. Defoliation was trace to light in all areas sampled except along the Swinn Lake road in Kirkwood Township, Blind River District where complete stripping of smaller diameter red maple (*Acer rubrum* L.) was common.

Aspen Twinleaf Tier, *Enargia decolor* Wlk.

There was a general increase in population levels of this noctuid for the third consecutive year in the Temagami District. Feeding contributed substantially to the defoliation of aspen (*Populus* sp.) at many locations throughout the District.

Elm Spanworm, *Ennomos subsignarius* Hbn.

The first occurrence of this insect in infestation proportions was at Hagans Hill, east of Thessalon on Highway 17. The infested area, approximately 20 ha in size, contained mostly sugar maple (*Acer saccharum* Marsh.) interspersed with red oak. Defoliation of both species ranged to a high of 75% on mature trees in an area of approximately 0.4 hectares, and 10% to 20% elsewhere. Understory hosts of birch (*Betula* sp.), ironwood (*Ostrya virginiana* [Mill.] K. Koch), and maple suffered heavy defoliation, with occasional trees completely stripped by larvae (see Frontispiece) dropping from the overstory. Egg masses were very numerous, an indication of high populations in 1980.

Eastern Pineshoot Borer, *Eucosma gloriola* Heinr.

An increase in numbers of damaged shoots was evident for the second consecutive year in jack pine plantations in the northern part of Temagami District. Leader mortality was observed in plantations in Firstbrook Township, with damage reaching a high of 22%. Elsewhere in the District, red pine and white pine (*Pinus strobi* L.) supported varying populations. In Blind River District, populations remained light in a red pine plantation in Patton Township.

Birch Leafminer, *Fenusa pusilla* (Lep.)

Light-to-moderate populations were widely distributed throughout the Region and usually on small-diameter roadside hosts. However, throughout Temagami District, moderate-to-severe damage was general. In Wawa District high populations were noted just north of Agawa Provincial Park, along Highway 17 north.

American Aspen Beetle, *Gonioctena americana* (Schaeff.)

Severe damage was observed in Barr, Firstbrook, Best and Strathy townships, Temagami District. Light damage occurred in Curtis Township, Sault Ste. Marie District. In all instances populations were confined to small-diameter trees except in Temagami District where occasional large hosts were attacked.

Aspen Leafblotch Miner, *Lithocolletis ontario* Free.

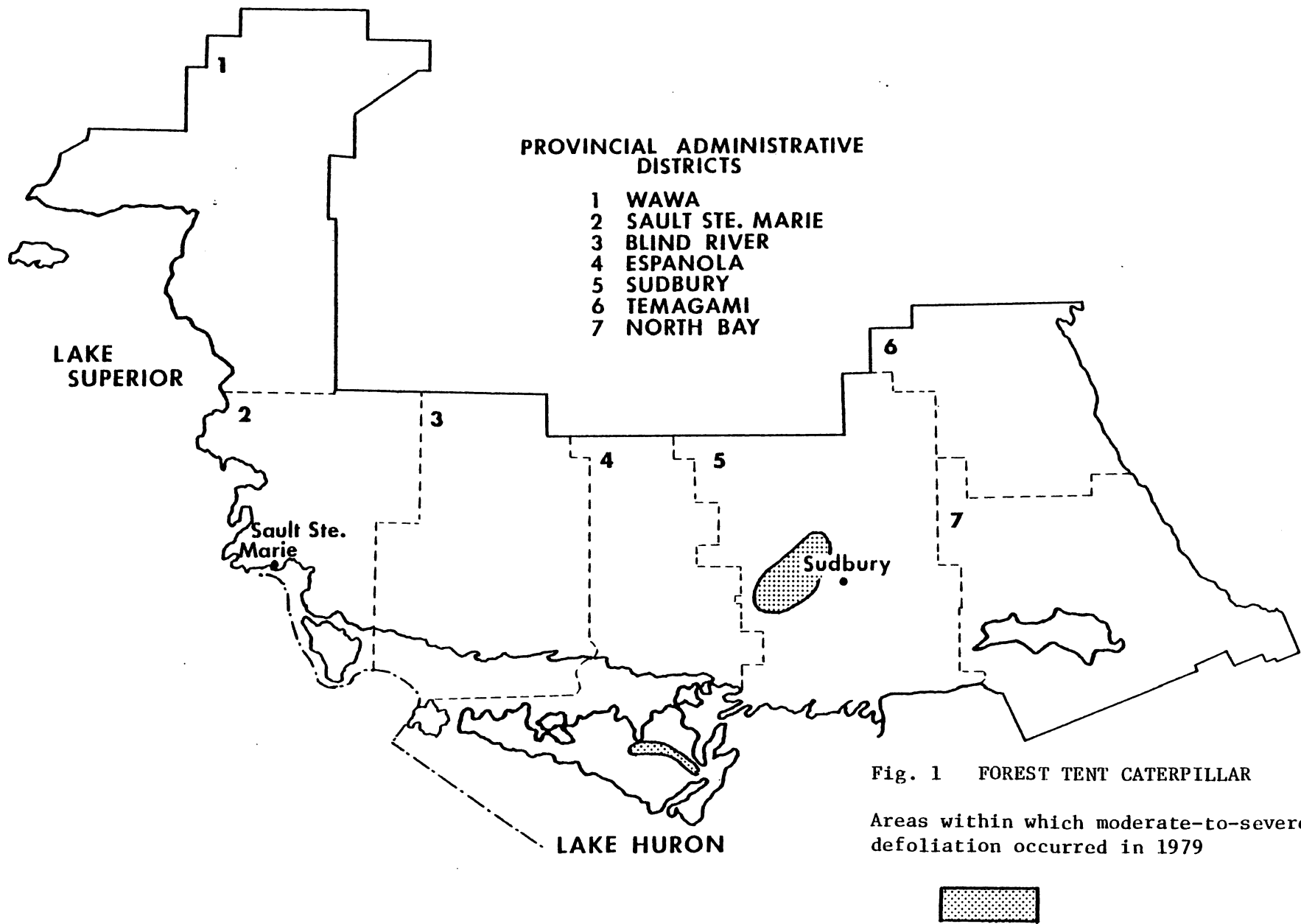
High populations were again present on small-diameter trembling aspen (*Populus tremuloides* Michx.) trees in Rose, Kirkwood, Bridgland and Galbraith townships, Blind River District. Light-to-moderate infestations occurred commonly throughout the Temagami District. High populations of the balsam poplar leafblotch miner (*Lithocolletis nipigon* Free.) were present in most balsam poplar (*Populus balsamifera* L.) stands in Temagami District.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Forest tent caterpillar populations declined to endemic levels throughout the Region. Only two areas of moderate-to-severe defoliation were mapped, one in each of the Espanola and Sudbury districts. The total area of moderate-to-severe defoliation in 1979 was 45 140 ha compared to 325 700 ha in 1978 (Fig. 1).

Egg bands examined from several locations in Sault Ste. Marie District revealed the presence of microsporidia bacteria; however, the cold spring weather was thought to be of greater significance as a contributing factor to larval mortality than were the bacteria. In Temagami District, early spring examination of egg bands showed an abundant hatch; later examination, however, revealed that the larvae did not mature. Only two infestations remain in the Region. One is located on Manitoulin Island along the north shores of lakes Manitou and Mindemoya and consists of small pockets of defoliation. The lack of egg bands at these sites would indicate a further decline, probably to endemic levels in 1980.

NORTHEASTERN REGION



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The remaining infestation, centred in Creighton Township, Sudbury District, remained virtually unchanged in size and degree of defoliation (moderate to severe) from the previous year. Egg-band collections from this infestation indicate its continued existence at moderate-to-severe damage levels, with little change in the existent boundaries for 1980 (Table 1).

Table 1. Summary of forest tent caterpillar egg-band counts and infestation forecasts for 1980 in the Northeastern Region (counts based on examination of one to three trembling aspen trees per location).

Location (Twp)	Avg DBH (cm) ^a	No. of trees sampled	Avg no. of egg bands per tree	1980 infestation forecast
Espanola District				
Assiginack	13	3	0	Nil
Sudbury District				
Balfour	13	1	27	S
Denison	13	1	10	S
Drury	10	1	20	S
Trill	8	1	6	S
Morgan	13	3	1	L
Cascaden	13	3	0	Nil

^a 1 cm = 0.39 in.

L = light, S = severe

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

Populations of this defoliator remained at pre-1979 levels and were confined to previously recorded locations. The highest levels in 1979 were tallied in a private plantation on the Maki Road where 49 colonies were counted on 200 Scots pine. The low populations at 4 of 11 plantations checked throughout Manitoulin Island were all found on open-growing Scots pine, less than 3 m in height. The larvae on these younger trees represent a minimal increase in populations for the plantation. In the bulk of the plantations only endemic population levels were present (Table 2).

Table 2. Summary of colony counts of European pine sawfly in Scots pine plantations on Manitoulin Island, 1977-1979.

Location (Twp)	No. of trees examined each year	Avg no. of colonies per tree		
		1977	1978	1979
Billings	200	.05	.00	.05
Carnarvon	100	.00	.00	.00
Carnarvon	100	.07	.00	.13
Carnarvon	50	.00	.00	.00
Carnarvon	50	.06	.00	.00
Dawson	100	.03	.00	.00
Dawson	300	.01	.00	.01
Dawson	100	.00	.00	.00
Gordon	100	.08	.00	.00
Gordon	50	.02	.00	.17
Sandfield	100	.07	.00	.00

Swaine Jack Pine Sawfly, *Neodiprion swainei* Midd.

The heavy infestation of 1978 in the Banks-Makobe lakes area, Temagami District, persisted through 1979 and caused severe defoliation and mortality in jack pine stands. Top mortality was conspicuous from the air. Proposed salvage operations have not yet been initiated in this area. Light defoliation occurred in many locations on Evelyn, Banks, Makobe, Obabika, Wakimika and Temagami lakes. The insect was found infrequently elsewhere in the Region.

Mourningcloak Butterfly, *Nymphalis antiopa* L.

Although no infestations of this insect occurred (see Frontispiece), colonies were found much more frequently throughout the Region than in previous years. Willow (*Salix* sp.) and aspen were the preferred hosts and suffered heavy defoliation.

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.)

Damage to white spruce (*Picea glauca* [Moench] Voss) was restricted to open-growing trees, ornamentals and plantations throughout the Espanola and Sudbury districts. Low-to-moderate populations were noted in a white spruce-white pine plantation in Burwash Township where the rate of trees attacked rose from endemic levels in 1978 to 24% in 1979. Semimature white spruce bordering a white pine plantation in Merritt Township, Espanola District, suffered light-to-moderate damage.

White Pine Weevil, *Pissodes strobi* (Peck)

Levels of leader damage to pines caused by this destructive pest varied little from those recorded in 1978. High levels of damage persisted in plantations and regeneration examined in the Blind River, Sault Ste. Marie and Temagami districts.

Quantitative counts of leader damage to white pine in the Blind River and Sault Ste. Marie districts showed an incidence range of 31% to 78%. Modest increases in numbers of leaders damaged occurred in Foster Township, Espanola District and Burwash Township, Sudbury District where levels reached 49% and 41%, respectively. In the balance of plantations examined in Espanola, Sudbury and North Bay districts, incidence levels continued to be moderate (Table 3).

Damage incidence in jack pine plantations and regeneration seldom exceeded 10%. Notable exceptions were in Firstbrook and Hartle townships, Temagami District where leader damage was 14% and 18%, respectively.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Populations of the larch sawfly fluctuated in the Sault Ste. Marie District. The high levels present in 1978 in the Garden River Indian Reserve and at one location in St. Joseph Township declined to light and light to moderate, respectively. The decline in the latter area could be attributed to the collecting of egg masses early in the development period for research purposes. Conversely, neighboring larch (*Larix* sp.) stands in St. Joseph Township suffered heavy defoliation. Trace levels were found infrequently elsewhere.

Mountain Ash Sawfly, *Pristiphora geniculata* (Htg.)

The highest populations occurred in the Temagami District where severe damage was common. In Wawa District, numbers of colonies declined sharply and only occasional hosts were heavily defoliated. The area west of Wawa has suffered severe defoliation for the past several years. In Sault Ste. Marie and Blind River districts levels were comparable to those of 1978. Elsewhere, populations were at a low level.

Aspen Leafroller, *Pseudexentera oregonana* Wlsh. m.

A small, moderate infestation which has persisted in the Temagami area for the past several years declined to light intensity in 1979. Small areas of light damage to trembling aspen and red oak occurred in Assiginack, Mongowin, Carnarvon and Billings townships, Espanola District; in Coldwell Township, North Bay District; and in the southern part of Sudbury District.

Table 3. Summary of leader damage to white pine and jack pine plantations in six districts in 1978 and 1979.

Location (Twp)	Host	Trees weeviled (%)	
		1978	1979
Blind River District			
Kamichisitit	wP	99	78
Parkinson	wP	72	67
Gladstone	wP	77	64
Lefroy	wP	-	32
Vance	wP	-	32
Patton	wP	-	31
Haughton	jP	-	7
Sagard	jP	-	4
Sault Ste. Marie District			
Curtis	jP	-	3
Espanola District			
Foster	wP	36	49
Hallam	scP	0	0
Merritt	wP	40	49
Nairn	jP	4	5
Oshell	jP	24	16
Plourde	jP	5	6
Victoria	jP	32	29
Sudbury District			
Burwash	wP	30	41
Delamere	wP	37	43
North Bay District			
Badgeron	wP	13	23
Boulter	wP	41	41
Lauder	wP	-	18
Papineau	wP	5	3
Temagami District			
Firstbrook	jP	16	14
Hartle	jP	13	18

Table 4. Other forest insects.

Insect	Host(s)	Remarks
<i>Acrobasis betulella</i> Hlst. Birch tubemaker	wB	higher than usual populations general throughout Temagami District, particularly in Barr, Law, South Lorrain, Gillies and Limit twp
<i>Acrobasis rubrifaciella</i> Pack. Alder tubemaker	A	moderate damage in Cascaden Twp, Espanola District and Pardo Twp, North Bay District
<i>Adelges strobilobius</i> Kalt. Woolly larch aphid	bS	high populations at one location in Rabazo Twp, Wawa District
<i>Archips argyrospilus</i> (Wlk.) Fruit tree leafroller	wB, rO	high populations and light damage common in Temagami District
<i>Archips mortuanus</i> Kft. Poplar and willow leafroller	A	second consecutive year of moderate populations along airport road in Patton Twp, Blind River District
<i>Cecidomyia reeksi</i> Vock. Jack pine resin midge	jP	light-to-moderate damage in semimature stand in Salter Twp, Espanola District; trace levels along Dubreuilville road, Wawa District
<i>Choristoneura rosaceana</i> Harr. Obliquebanded leafroller	wB, rM, W	moderate-to-high populations in Temagami District
<i>Chrysomela mainensis mainensis</i> Bech. Willow and poplar leaf beetle	A	heavily defoliated alder along lakeshores in Strathy, Olive and Strathcona twp, Temagami District
<i>Chrysomela</i> sp. Poplar leaf beetle	bPo	trace-to-low levels throughout Espanola, Sudbury and North Bay districts
<i>Conophthorus banksianae</i> McPherson Jack pine tip beetle	jP	numerous infested shoots in plantations in Firstbrook Twp, Temagami District; light populations in plantations and natural regeneration along Hwy 101, Wawa District

(continued)

Table 4. Other forest insects (concluded).

Insect	Host(s)	
<i>Croesia curvalana</i> Kft. Blueberry leafworm	W	large numbers of adults on High Falls road, Wawa District
<i>Dioryctria reniculelloides</i> Mut. & Mun. Spruce coneworm	WS	high numbers in Temagami District; light-to-moderate in Parkinson and Kirkwood twp, Blind River District; found in association with spruce budworm
<i>Eriophes</i> sp. Galls	tA	moderate-to-high numbers in most aspen stands in Temagami District
<i>Eucordylea resinosa</i> Free. Red pine needleminer	rP	common in young red pine stands in Strathcona and Strathy twp, Temagami District
<i>Hyphantria cunea</i> Dru. Fall webworm	As	low-to-moderate levels of damage persist on Beaucage Point, Beaucage Twp, North Bay District; high numbers throughout Temagami District
<i>Neodiprion lecontei</i> (Fitch) Redheaded pine sawfly	rP	small numbers in Proctor Twp, Blind River District; trace level in May Twp, Espanola District
<i>Neodiprion nanulus nanulus</i> Schedl. Red pine sawfly	rP, jP	scattered colonies in Temagami District; light populations on jP in Proctor Twp, Blind River District
<i>Neurotoma inconspicua</i> (Nort.) Plum webspinning sawfly	pCh	small pocket of heavy defoliation in Proctor Twp, Blind River District
<i>Petrova albicapitana</i> (Busck.) Pitch nodule maker	jP	light populations in small trees in Raimbault Twp, Blind River District
<i>Pristiphora acidovalva</i> Wong Willow sawfly	W	light populations in Parkinson Twp, Blind River District

TREE DISEASES

Needle Rust of Spruce, *Chrysomyxa ledicola* Lagh.

Needle rust of black spruce (*Picea mariana* [Mill.] B.S.P.) persisted along the Dubreuilville road. Foliar damage, however, declined from the light-to-moderate level present in 1978. Trace infection levels occurred commonly along Highway 101 on black spruce. Damage was much higher on scattered white spruce in the Budd Lake area. Needle rust also persisted along the Hydro Road, Rabazo Township, where defoliation levels increased to heavy for white spruce and light for black spruce. In the Sault Ste. Marie District, new light-to-moderate defoliation was found on black spruce in Gapp and Pine townships. Trace levels of damage were present at many other locations in the Region.

Ink Spot of Poplar, *Ciborinia whetzellii* (Seaver) Seaver

Incidence of ink spot remained high for the second consecutive year throughout the Region. Foliar damage, however, remained generally at trace levels (Table 5). Only one area of moderate damage was mapped in 1979 compared to five in 1978. This area was in Spragge Township, Blind River District. Several townships in the Blind River District had incidence rates of 100% although damage in these instances was low. Numerous pockets of infection at generally higher than average incidence rates, coupled with trace damage levels, were recorded in Espanola and Sudbury districts. Trace-to-low damage levels were reported in Temagami District, where incidence rates varied considerably.

Cherry Leaf Spot, *Coccomyces hiemalis* Higgins

This disease causes premature leaf drop of cherry (*Prunus* sp.). Foliar damage occurred again in the same general area affected in 1974. The disease incidence ranged from 8% to 50% along Highway 17 north in the townships of Fisher, Palmer and on the Montreal Mining Company property, Sault Ste. Marie District, and an additional area of heavy foliar damage was found in Poulin Township, Blind River District.

Western Gall Rust, *Endocronartium harknessii* (J.P. Moore) Y. Hiratsuka

Surveys conducted throughout the districts of Espanola, Sudbury and North Bay indicate that this disease is of little consequence in all stands examined. Scots pine and jack pine regeneration surveyed throughout the Region (including Scots pine plantations on Manitoulin Island) had infection rates of less than 3% for all areas examined. An exception was Carnarvon Township, Espanola District where a single occurrence of high damage was noted; all other stands surveyed suffered trace damage.

Table 5. Defoliation damage caused by ink spot of poplar surveyed in the Northeastern Region in 1979.

Location (Twp)	Avg tree ht (m) ^a	Area affected (ha) ^b	Trees affected (%)	Defoliation (%)
Wawa District				
Peever	5.1	< 1	5	> .5
Sault Ste. Marie District				
Kincaid	3.9	< 1	100	5
Herrick	9.0	1.6	100	5
Blind River District				
Proctor	5.3	20.1	100	10
Spragge	6	< 1	100	25
Cobden	9	2	100	23
Rose	8.7	2	5	5
Espanola District				
Baldwin	2	9	75	5
Dawson	4	1	0	0
Carnarvon	9	3	100	5
Nairn	2	3	100	6
Plourde	4	< 1	6	5
Dunlop		1	98	5
Allan	6	2	2	4
Sudbury District				
Hagar	6	2	76	5
Denison	4	< 1	40	5
Ulster	8	9	0	0
North Bay District				
Bonfield	4	1	100	5
Lauder	6	1	15	5
Widdifield	4	2	25	5
MacPherson	55	1	0	0
Pardo	3	1	100	5
Phelps	2	10	0	0
Temagami District				
Eldridge	17	< 1	35	5
Askin	18	< 1	75	40

^a 1 m = 3.28 ft
1 ha = 2.47 ac

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

This disease continues to exist at endemic levels throughout the greater portion of the Region. Exceptions that illustrate the potential of the disease occur in Rose Township, Blind River District, where there was a 10% mortality rate in a plantation which had 65% of the jack pine infected; and in Phelps Township, North Bay District, where 30% of the trees in a red pine plantation averaged 15% foliar damage. A small red pine planting on an unprotected hilltop site in Field Township, North Bay District (where the trees averaged .5 m in height) suffered 25% foliar damage levels on 30% of the trees examined.

Trace damage levels were detected on jack pine in Recollet and Gaudette townships in the districts of Wawa and Sault Ste. Marie, respectively, and on red pine in Boulter and French townships, North Bay District.

Hypoxyylon Canker of Poplar, *Hypoxyylon mammatum* (Wahl.) Miller

Surveys conducted in the Espanola, Sudbury and North Bay districts showed an incidence rate of 1-5% for Hypoxyylon canker in semimature trembling aspen stands. The disease remains widespread throughout the Region at generally low-to-moderate levels (Table 6).

Willow Rust, *Melampsora epitea* Thuem.

An increase in incidence and infection level of this disease was evident in 1979. Heavy infection was present on willow (*Salix* sp.) Gaudry Township, Sault Ste. Marie District and in Dumas and Noganosh townships, Wawa District. Trace-to-light levels occurred in many other areas in Sault Ste. Marie, Wawa and Blind River districts.

Shoot and Twig Blight, *Monilinia* sp.

Infection centres of this disease occurred on pin cherry (*Prunus pensylvanica* L.f.) in three areas in the Region. The highest incidence recorded (20%) was in Thessalon Township, Blind River District, where severe shoot mortality occurred on 8% of the infected trees. Incidence levels of 10% and 25% were found in Labelle Township, Wawa District, and in Slater Township, Sault District; however, the number of severely damaged trees was low.

Table 6. Incidence rates of Hypoxylon canker in trembling aspen stands examined in the Espanola, Sudbury and North Bay districts.

Location (Twp)	Avg ht of sample trees (m) ^a	Area affected (ha) ^b	Incidence rate (%)
Espanola District			
Salter	10	< 1	4
Gerow	11	2	4.9
Prescott	17	2.5	2
Dunlop	16	4	0
Moses	13	25	3
Assiginack	10	4	0
Sudbury District			
Ulster	15	2	3
Fraleck	20	15	3
Parkin	14	8	2
Fairbank	14	7.5	0
North Bay District			
Caldwell	15	8	2
Gibbons	17	10	1
Dana	18	8	4
Phelps	15	12	3

^a 1 m = 3.28 ft

^b 1 ha = 2.47 ac

Leaf and Twig Blight, *Venturia macularis* (Fr.) Muell. & Arx

The percentage of aspen affected varied considerably across the Region; generally trace-to-low levels of foliar damage caused only minor terminal damage. Some stands sustained high amounts of terminal damage. Five areas examined in the Sault Ste. Marie and Blind River districts had severe terminal infection levels. In one stand located in Kincaid Township, Sault Ste. Marie District, 20% of the trees examined had dead terminals. Cutovers surveyed in North Bay District showed damage to aspen regeneration at trace levels, with incidence rates in the 40-50% range. Incidence rates varied considerably in the Temagami District, while foliar damage remained at trace-to-low levels.

Jack Pine Planting/Natural Survey

In the summer of 1979 surveys were conducted in natural and planted jack pine stands to determine the status of these stands from the standpoint of insect infestation and disease frequency.

Twelve locations, widely distributed throughout the Region, were examined. The criterion for stand selection was height: stands were inspected for the insects and pathogens described (Table 7). All areas showed negative or endemic levels, with the exception of Rose Township, Blind River District, where 37% of the trees examined suffered an average of 10% defoliation from the needle cast, *Davisomycella ampla* (Davis) Darker.

Frost Damage

Heavy frost damage occurred in a private, immature plantation of Colorado spruce (*Picea pungens* Engelm.) in Jocelyn Township on St. Joseph Island. Evaluation showed 22% of the new growth damaged on 66% of the trees. There was light damage to current foliage in a white spruce plantation in Curtis Township, also in Sault Ste. Marie District. Light shoot mortality was commonly found in trembling aspen regeneration in Parkinson Township, Blind River District.

Table 7. Results of the jack pine planting/natural surveys conducted in 12 stands throughout the Northeastern Region.

Location (Twp)	Height class (m) ^a	White	Eastern	Jack pine	Swaine	Needle cast		Gall rust	Stem rust	Armillaria
		pine weevil current	pine shoot leaders	tip borer attacked (%)	jack pine sawfly Avg no. of colonies/tree	Incidence (%)	Avg % defol.	Severely galled (%)	Severely cankered (%)	root rot Affected (%)
Sault Ste. Marie District										
Curtis		3.3	0	0	.01	0	0	0	0	0
Blind River District										
Wardle		0	0	0	0	0	0	0	0	0
Espanola District										
Tennyson	< 2	1.3	.01	0	0	0	0	0	0	0
Sudbury District										
Parkin		2	2	0	0	0	0	0	0	0
Wawa District										
Recollet		4	0	0	0	4	10	0	0	1.3
Blind River District										
Rose		0	0	0	0	87	10	0	0	0
Sudbury District										
Lumsden	2-6	0	0	0	0	0	0	0	0	0
Sudbury District										
Street		0	4.7	0	0	0	0	0	0	0
Blind River District										
Sagard		0	0	0	0	0	0	0	0	0
Wawa District										
Iluotari		0	0	0	0	0	0	0	1.3	0
Espanola District										
Merritt	> 6	0	0	0	0	0	0	0	5.3	0
North Bay District										
French		0	0	0	0	0	0	0	0.7	0

^a 1 m = 3.28 ft

Table 8. Other forest diseases.

Organism	Host	Remarks
<i>Apiosporina morbosa</i> (Schw.) Arx Black knot of cherry	pCh	common throughout the Region
<i>Armillaria mellea</i> (Vahl ex Fr.) Kummer Armillaria root rot	rP, jP	trace levels common, particularly in immature stands
<i>Chrysomyxa ledi</i> (Alb. & Schw.) d By Needle rust of spruce	wS	trace infection in one planta- tion in Patton Twp, Blind River District
<i>Coleosporium asterum</i> (Diet.) Syd. Needle rust	jP	trace levels in several locations, north part of Blind River District
<i>Corirolellus variiformis</i> Peck Stem rot	wS	collected in Lake Superior Park, Wawa District
<i>Leptostroma</i> sp.	jP	trace levels on natural regeneration, Hart Twp, Sudbury District
<i>Lophodermium pinastri</i> (Schrad ex Hook.) Chev. Needle cast	rP, jP	trace levels of infection at scattered locations in Sudbury, Espanola and North Bay districts
<i>Kabatiella apocrypta</i> (Ell. & Ev.) Maple anthracnose	sM	pockets of moderate infection along Searchmont and Sylvan Valley road in Sault Ste. Marie District
<i>Phyllosticta sorbi</i> West. Leaf spot	mtA	increased to light infection levels along the High Falls road, Wawa District; trace levels along Ranger Lake road, Sault Ste. Marie District
<i>Pollaccia elegans</i> Serv. Shoot tip blight	bPo	high rate of terminal infection on regeneration, Gibbons Twp, North Bay District