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Status of Insects in Tweed District

Livesey, F.

Information Report O-X-58
(Forest Research Laboratory, Ontario Region)

1967

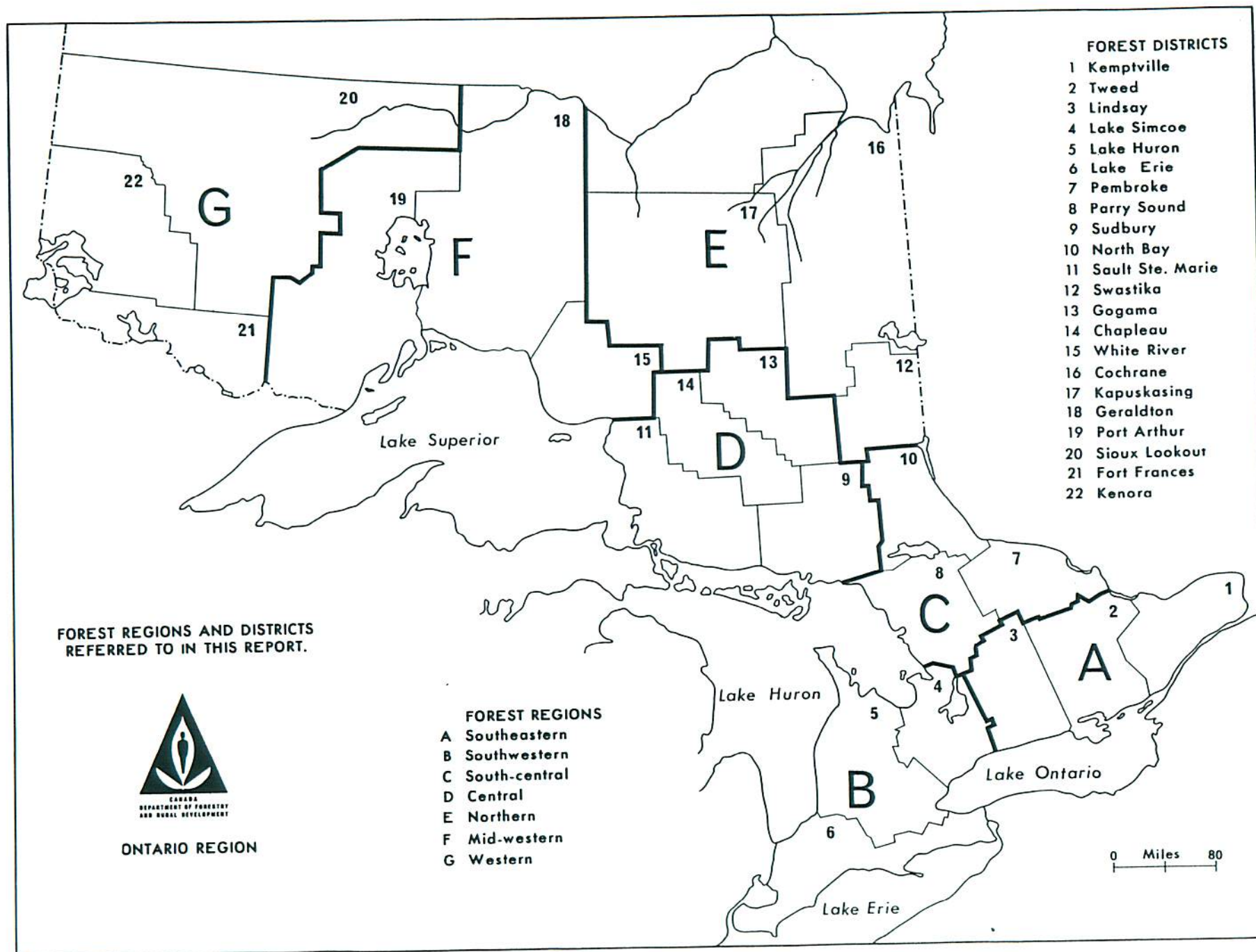
Information Report No.	Subject	Author
O-X-57	Forest Insect & Disease Surveys	
	--Lindsay District	M. J. Thomson
O-X-58	--Tweed District	F. Livesey
O-X-59	--Kemptonville District	M. J. Applejohn
O-X-60	--Lake Simcoe District	R. L. Bowser
O-X-61	--Lake Erie District	G. T. Atkinson
O-X-62	--Lake Huron District	V. Jansons
O-X-63	--North Bay District	L. S. MacLeod
O-X-64	--Parry Sound District	C. A. Barnes
O-X-65	--Pembroke District	R. A. Trieselmann
O-X-66	--Sault Ste. Marie District	H. J. Weir
O-X-67	--Sudbury District	G. W. Cameron
O-X-68	--Chapleau District	D. Ropke
O-X-69	--Cochrane District	W. Ingram
O-X-70	--Cochrane District	H. R. Foster
O-X-71	--Kapuskasing District	F. F. Foreman
O-X-72	--Swastika District	H. R. Foster
		L. S. MacLeod
		W. Ingram
O-X-73	--Port Arthur District	K. C. Hall
O-X-74	--Geraldton District	K. C. Hall
		D. C. Constable
O-X-75	--White River District	D. C. Constable
O-X-76	--Sioux Lookout District	P. E. Buchan
O-X-77	--Kenora District	P. E. Buchan
		J. Hook
O-X-78	--Fort Francis District	J. Hook

TABLE OF CONTENTS
REPORTS OF FOREST RESEARCH TECHNICIANS

Ontario		Page
Foreword, J. E. MacDonald		
A.	<u>SOUTHEASTERN FOREST REGION</u>	<u>A1-51</u>
	Lindsay District, M.J. Thomson*	A 8
	Tweed District, F. Livesey	A 19
	Kemptville District, M.J. Applejohn	A 36
B.	<u>SOUTHWESTERN FOREST REGION</u>	<u>B1-46</u>
	Lake Simcoe District, R.L. Bowser*	B 9
	Lake Erie District, G.T. Atkinson	B 24
	Lake Huron District, V. Jansons	B 36
C.	<u>SOUTH-CENTRAL FOREST REGION</u>	<u>C1-49</u>
	North Bay District, L.S. MacLeod*	C 8
	Parry Sound District, C.A. Barnes	C 19
	Pembroke District, R.A. Trieselmann	C 33
D.	<u>CENTRAL FOREST REGION</u>	<u>D1-49</u>
	Sault Ste. Marie District, H.J. Weir*	D 7
	Sudbury District, G. Cameron	D 21
	Chapleau District, D. Ropke	D 27
	Gogama District, W. Ingram	D 34
E.	<u>NORTHERN FOREST REGION</u>	<u>E1-45</u>
	Cochrane District, H.R. Foster*	E 12
	Kapuskasing District, F. Foreman	E 25
	Swastika District, H.R. Foster, L.S. MacLeod, W. Ingram	E 36
F.	<u>MID-WESTERN FOREST REGION</u>	<u>F1-27</u>
	Fort Arthur District, K.C. Hall*	F 7
	Geraldton District, K.C. Hall, D. Constable	F 14
	White River District, D. Constable	F 19
G.	<u>WESTERN FOREST REGION</u>	<u>G1-36</u>
	Sioux Lookout District, P.E. Buchan*	G 11
	Kenora District, P.E. Buchan, J. Hook	G 20
	Fort Frances District, J. Hook	G 29

Photographs

Regional Supervisors *



FOREWORD

Population levels of the spruce budworm increased sharply in widely-separated parts of Ontario in 1967. Heavy infestations occurred in the Burchell Lake area in Port Arthur District and in woodlots in parts of Pembroke, Tweed and Kemptville districts. A light infestation persisted east of Chapleau in the Central Forest Region. The Burchell Lake infestation is of particular concern because of the nature of the forest in that area. Stands currently infested, as well as those to the north as far as Lac Des Mille Lacs, contain considerable mature balsam fir and white spruce which are highly susceptible to attack by the spruce budworm.

For the second consecutive year, weather conditions during May had a pronounced effect on infestations of the forest tent caterpillar. Mortality of eggs and newly-emerged larvae greatly reduced population levels of this pest. The only major areas of infestation remaining in the Province were in the eastern part of Fort Frances District and the southern part of Sault Ste. Marie District.

Two species of sawflies were of major importance in pine plantations. The European pine sawfly continued to extend its range in southeastern Ontario and two new centers of infestation were found on Manitoulin Island. The red-headed pine sawfly caused severe defoliation in red pine shelterbelts and plantations at numerous locations in the central and southern parts of the Province.

Intensive surveys were continued to determine the distribution and incidence of Dutch elm disease and Scleroderris-canker of pine. The discovery of Ceratocystis ulmi (Buism.) C. Moreau in Sault Ste. Marie constituted a marked westward extension of the range of the disease caused by this pathogen. Scleroderris-canker of pine continued to cause severe losses of young red pine and, to a lesser extent, jack pine in numerous plantations in central and northern Ontario. By comparison, damage in southern Ontario was negligible.

Diseases of spruce were caused by Cytospora kunzei Sacc. and Polyporus tomentosus Fr. at widely-separated points in southern Ontario and pockets of infection of Fomes annosus (Fr.) Cke. root-rot persisted in several red pine plantations in Lindsay, Lake Simcoe and Lake Erie districts. Details on the distribution and damage caused by these and other forest diseases and insects are contained in the regional and district sections of this report.

J. E. MacDonald

STATUS OF INSECTS IN TWEED DISTRICT

	Page
Fall Cankerworm	<u>Alsophila pometaria</u> A 19
Spruce Budworm	<u>Choristoneura fumiferana</u> A 19
Larch Casebearer	<u>Coleophora laricella</u> A 20
Nursery Pine Sawfly	<u>Diprion frutetorum</u> A 20
European Spruce Sawfly	<u>Diprion hercyniae</u> A 21
Pine Bud Moth	<u>Exoteleia dodecella</u> A 21
Birch Leaf Miner	<u>Fenusa pusilla</u> A 22
Elm Bark Beetles	<u>Hylurgopinus rufipes</u> A 22 <u>Scolytus multistriatus</u>
Eastern Tent Caterpillar	<u>Malacosoma americanum</u> A 22
Forest Tent Caterpillar	<u>Malacosoma disstria</u> A 23
Cedar Sawfly.....	<u>Monoctenus fulvus</u> A 23
Balsam Fir Sawfly	<u>Neodiprion abietis</u> complex A 24
Red-headed Pine Sawfly	<u>Neodiprion lecontei</u> A 25
A Jack Pine Sawfly	<u>Neodiprion pratti paradoxicus</u> A 25
European Pine Sawfly	<u>Neodiprion sertifer</u> A 26
Yellow-headed Spruce Sawfly	<u>Pikonema alaskensis</u> A 26
White Pine Weevil	<u>Pissodes strobi</u> A 26
European Pine Shoot Moth	<u>Rhyacionia buoliana</u> A 27
A Mite on Red Pine	<u>Setoptus jonesi</u> A 27
Summary of Miscellaneous Insects	A 28

F. Livesey

Fall Cankerworm, Alsophila pometaria Harr.

Population levels of the fall cankerworm increased in the southern half of the district and many mixed hardwood stands were lightly defoliated. Elm was the most common host tree. Light infestations occurred at Springbrook in Rawdon Township; near Conway in South Fredericksburgh Township; at Cherry Valley in Athol Township; around Devil's Lake in Bedford Township; and on open-grown trees along Highway 17 between Arnprior and Renfrew.

Spruce Budworm, Choristoneura fumiferana (Clem.)

This insect was much more common than for many years, particularly in the northeastern part of the district (see map).

A medium-to-heavy infestation occurred in a mature 4-acre white spruce woodlot near Renfrew in Renfrew County. Numerous groups of white spruce trees were moderately defoliated between Dacre and Renfrew along Highway 162. Balsam fir trees in this area were lightly infested. Light damage was observed on open-grown white spruce in Palmerston and Oso townships in Frontenac County.

A light infestation of several years' duration persisted in a small stand of mixed spruce and balsam fir west of Springbrook in Hastings County. Small numbers of larvae were found at five other widely-separated locations in the district.

Defoliation in 1967 and infestation forecasts for 1968 at four sample locations are presented in Table 4.

TABLE 4

Summary of Spruce Budworm Egg Mass Counts in Tweed District in 1967 and Infestation Forecast for 1968

Location	Host	Av. no of egg masses per 100 sq. ft. of foliage	Infestation rating in 1967	Forecast for 1968
Admaston Twp., Haleys Station	wS	96	M	L - M
Admaston Twp., Shamrock	wS	31	L	L
Admaston Twp., Shamrock	bF	62	L	L
Palmerston Twp., near Lavant	wS	0	L	Nil to L

Note: L: Light, L - M: Light to Medium

Larch Casebearer, Coleophora laricella Hbn.

Population levels of this insect were low in the district in 1967. Table 5 shows the slight increase in numbers which occurred at most permanent sample points.

TABLE 5

Summary of Larch Casebearer Counts in the Tweed District from 1965 to 1967

Note: Counts were made on sixteen 18-inch branch tips, four from the mid-crown of each of four trees.

Location (township)	Av. d.b.h. of trees in inches	Av. no. of larvae per 18-inch branch tip		
		1965	1966	1967
Anglesea	6	-	1.0	1.3
Bagot	6	0.2	0.5	1.0
Carlow	4	0	0.7	0.6
Cashel	5	0.2	3.7	5.1
Elzevir	7	0.8	2.0	2.2
Faraday	3	0.2	1.5	1.6
Kaladar	4	0.6	1.0	2.3
Olden	6	0.2	1.1	1.1
Palmerston	5	0.3	1.3	1.9
Tudor	3	0.2	1.0	1.1
Wollaston	4	0	0.5	0.5

Nursery Pine Sawfly, Diprion frutetorum (F.)

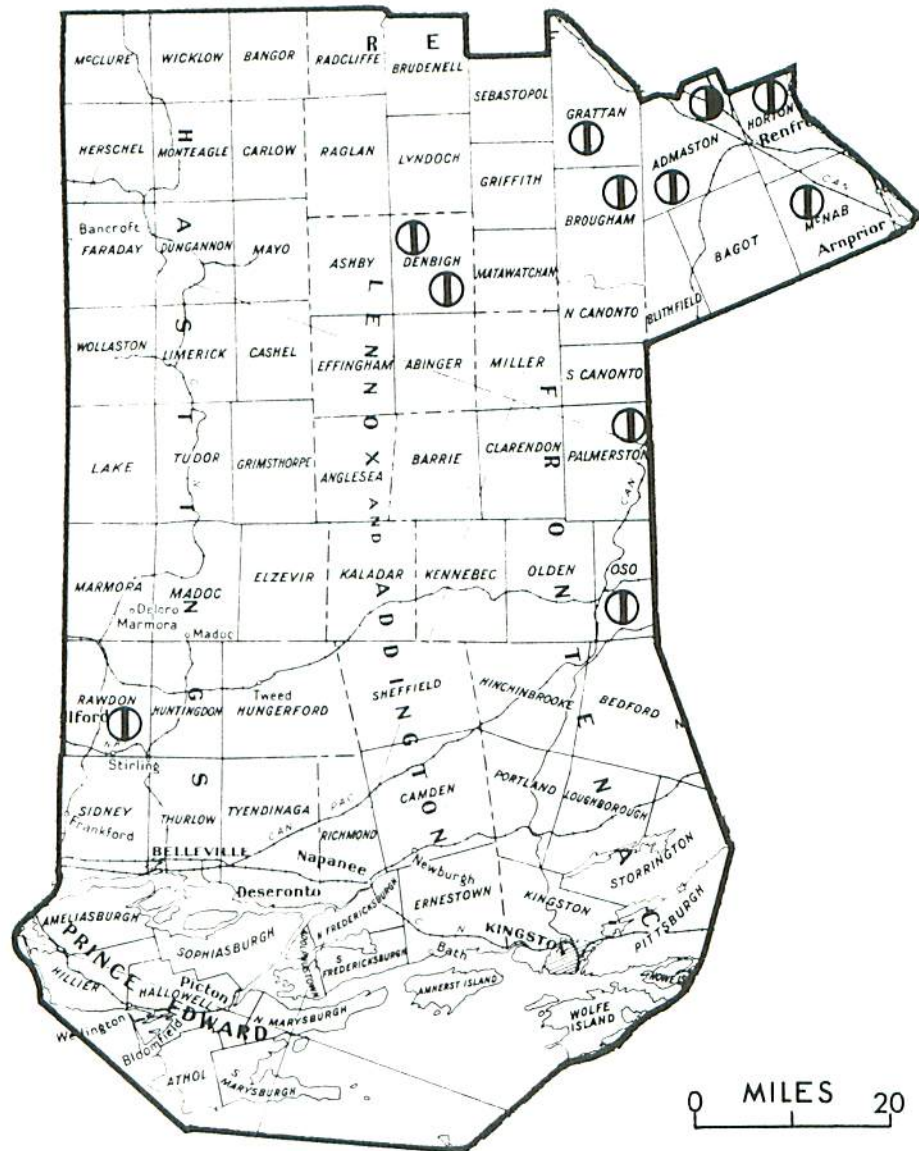
This sawfly occurred in extremely low numbers at all sample points. Counts ranged from 2 larvae per 15-tray sample in Sidney Township to 12 larvae in Elzevir Township (Table 6). All samples were taken from Scots pine trees.

TABLE 6

Summary of Nursery Pine Sawfly Larval Counts on Scots Pine in the Tweed District from 1964 to 1967

Location (township)	Av. d.b.h. of sample trees in inches	Total no. of larvae per 15-tray sample			
		1964	1965	1966	1967
Elzevir	6	--	8	4	12
Hungerford	2	10	4	12	11
Sheffield	5	--	--	7	4
Sidney	2	29	16	12	2
Tyendinaga	7	25	35	53	8

TWEED DISTRICT



SPRUCE BUDWORM

Locations where infestations were observed
in 1967

Legend

Light infestation ○
Medium infestation ●

European Spruce Sawfly, Diprion hercyniae (Htg.)

Although populations remained low, quantitative sampling revealed an approximate 7-fold increase in larval numbers (Table 7). The insect was found everywhere that white spruce trees were examined.

TABLE 7

Summary of European Spruce Sawfly Larval Counts in Tweed District from 1964 to 1967

Location (township)	Av. d.b.h. of wS trees in inches	Total no. of larvae per 15-tray sample			
		1964	1965	1966	1967
Brougham	6	--	6	8	41
Faraday	9	2	13	3	38
Herschel	6	6	70	15	36
Hungerford	6	7	15	3	33
Limerick	5	6	18	4	17
McClure	4	11	10	3	41
McNab	5	3	12	6	27
Oso	7	--	12	5	23
Wicklow	5	2	3	1	33
Wollaston	8	6	12	2	55

Pine Bud Moth, Exoteleia dodecella Linn.

This insect was found more commonly in 1967 than in recent years, especially in the southern half of the district. Damaged buds were most common in a 40-acre Scots pine plantation in North Fredericksburgh Township where 18 per cent of the buds examined were destroyed and at the Mountain View Airport in Prince Edward County where 20 per cent of the buds were infested (Table 8). Shelterbelts planted at three locations along Highway 401 between Belleville and Trenton were also lightly infested, as was a small roadside plantation south of Joyceville in Pittsburgh Township. In each instance only Scots pine trees were infested.

TABLE 8

Summary of Damaged Buds Caused by the Pine Bud Moth in the Tweed District from 1964 to 1967

Note: Counts were based on the examination of 50 bud clusters from each of four Scots pine trees

Location (township)	Av. d.b.h. of sample trees in inches	Per cent of buds destroyed			
		1964	1965	1966	1967
Ameliasburgh	2	--	--	--	20.5
Hinchinbrooke	2	7.0	2.0	1.0	1.5
Kaladar	3	3.0	2.5	2.0	3.5
N. Fredericksburg	1	--	--	6.5	18.0
Sheffield	3	12.0	4.0	1.0	1.0

Birch Leaf Miner, Fenusa pusilla (Lep.)

This miner was observed much more commonly in 1967 than in recent years, especially in the eastern half of the district. Ornamental birch trees in Kingston and Belleville and scattered trees in the town of Tweed were heavily infested. Light infestations occurred on small trees in Hinchinbrooke, Barrie, Oso, Pittsburgh, and Kennebec townships in Frontenac County; in Athol and Sophiasburgh townships in Price Edward County; and in Brudenell Township in Renfrew County.

Elm Bark Beetles, Hylurgopinus rufipes Eich. and
Scolytus multistriatus (Marsh.)

The native elm bark beetle, H. rufipes, was observed in greatly increased numbers at numerous locations in the district. Dead elm trees were heavily infested in the southern half of the district, particularly along Highway 33 between Bath and the Glenora Ferry, and east of Mountain Grove in Olden Township.

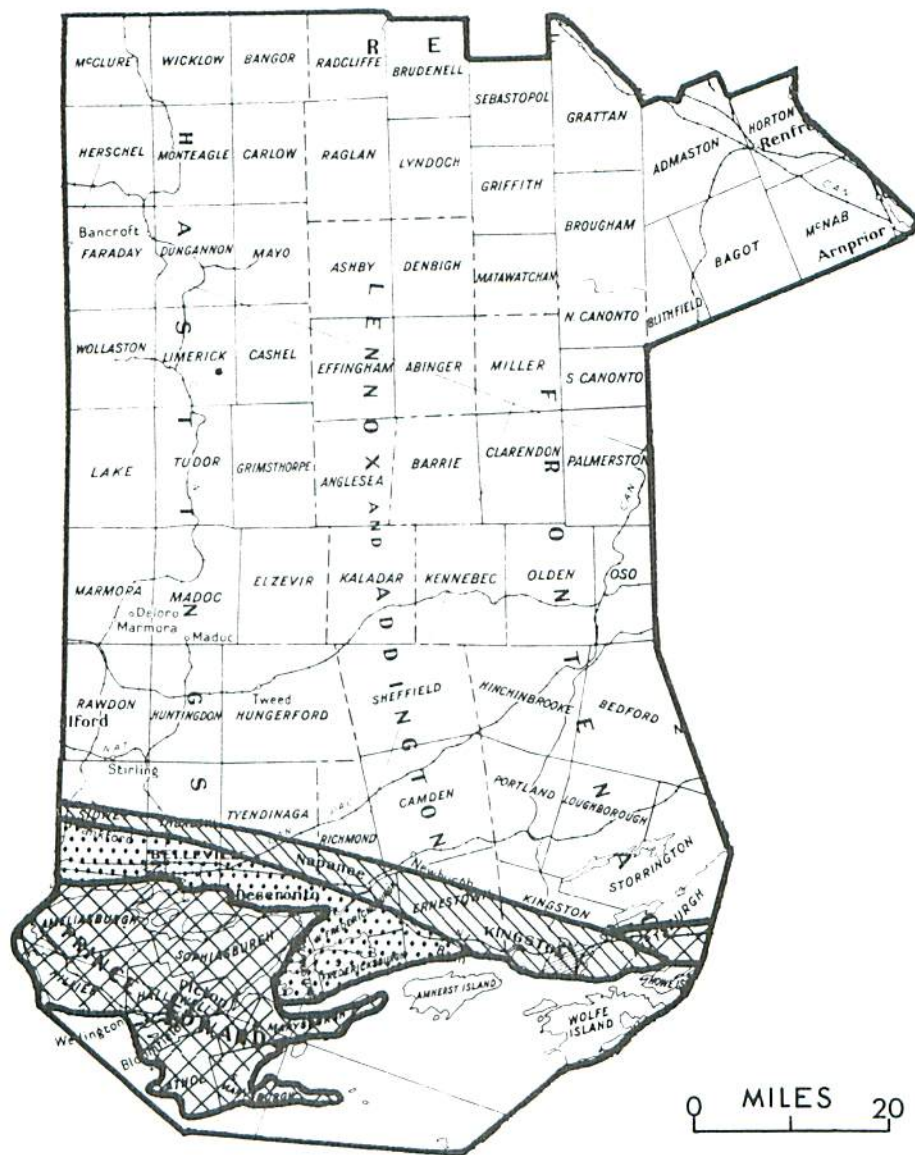
The smaller European elm bark beetle, S. multistriatus, continued its eastward advance and now occurs in a narrow band along the north shore of the Bay of Quinte and Lake Ontario (see map). Typical feeding galleries were found for the first time throughout Prince Edward County. Both S. multistriatus and H. rufipes are important vectors of the Dutch elm disease.

Eastern Tent Caterpillar, Malacosoma americanum (F.)

A general downward trend in population levels of this insect was observed at most quantitative sample points (Table 9). The decline was most evident in Grattan Township, where the number of tents per mile of roadside decreased from 962 in 1966 to 171 in 1967. In Sheffield Township, where the count of larval tents declined from 274 in 1966 to 14 in 1967, a polyhedrosis virus was present in diseased larvae submitted to the Insect Pathology Research Institute. Population levels were generally lightest in the eastern part of the district (see map).

Location		Year		No. of tents per mile of roadside	
Township		1966	1967	1966	1967
Grattan		962	171		
Sheffield		274	14		
Hinchinbrooke					
Barrie					
Oso					
Pittsburgh					
Kennebec					
Frontenac					
Price Edward					
Renfrew					

TWEED DISTRICT



SMALLER EUROPEAN ELM BARK BEETLE

Known areas of distribution
1963 - 1967

Legend

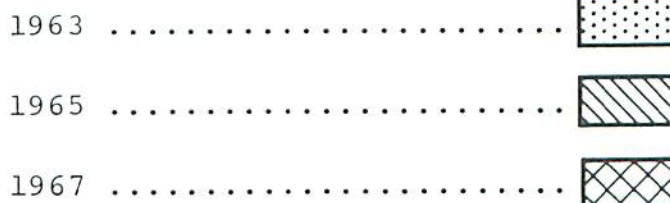


TABLE 9

Summary of Eastern Tent Caterpillar Colony Counts in the Tweed District from 1965 to 1967

Location (township)	Number of tents observed per mile of roadside		
	1965	1966	1967
Bagot	14	160	117
Elzevir	16	126	40
Faraday	15	31	9
Grattan	114	962	171
Griffith	39	156	92
Hinchinbrooke	73	66	155
Lyndoch	10	117	201
Madoc	114	380	62
McNab	46	240	228
Oso	103	61	42
Radcliffe	62	12	20
Raglan	41	94	16
Sheffield	538	274	14
ThurLOW	40	91	76
Wicklow	7	28	21
Wollaston	3	4	7

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Cold weather in May delayed the foliation of aspen trees and larvae that hatched about May 1 in the main area of heavy infestation in Radcliffe and Bangor townships died of starvation. As shown in Table 10, a high percentage of the eggs hatched. However, larval survival was low and the infestations virtually collapsed. Small light infestations in Kaladar, Horton, and McNab townships also subsided.

Since egg surveys yielded negative results, it appears unlikely that infestations of any consequence will occur in the district in 1968.

TABLE 10

Summary of Spring Hatch of Forest Tent Caterpillar in the Tweed District in 1967

Location (township)	Emerged	Failed	Diseased	Sterile	Parasitized	Total eggs	Per cent hatch
Bangor	759	301	31	142	40	1263	55.9
Radcliffe	1208	218	0	52	0	1478	81.1

Cedar Sawfly, Monoctenus fulvus Nort.

Populations of the cedar sawfly remained at a very low level throughout the district. As shown in Table 11, counts ranged from one larva in a 15-tray sample in Matawahan Township to 30 larvae in Oso Township.

TABLE 11

Summary of Cedar Sawfly Larval Counts in the Tweed District from 1965 to 1967

Location (township)	Av. d.b.h. of sample trees in inches	Total number of larvae per 15-tray sample		
		1965	1966	1967
Admaston	6	11	4	2
Bangor	5	23	3	2
Huntingdon	4	34	9	3
Kingston	2	5	6	2
Limerick	3	70	3	5
Matawachan	6	9	7	1
Oso	6	8	6	30
Rawdon	4	29	2	7
Wollaston	4	13	9	10
McNab	5	--	--	6

Balsam Fir Sawfly, Neodiprion abietis complex

The numbers of balsam fir sawfly increased greatly in the northeast part of the district on both balsam fir and white spruce trees (Table 12). The upper part of the crowns of balsam fir trees in mixed balsam-spruce stands were severely defoliated at numerous locations in Renfrew County. Moderate-to-severe damage occurred along the Bonnecherre River west of Renfrew almost as far as Eganville.

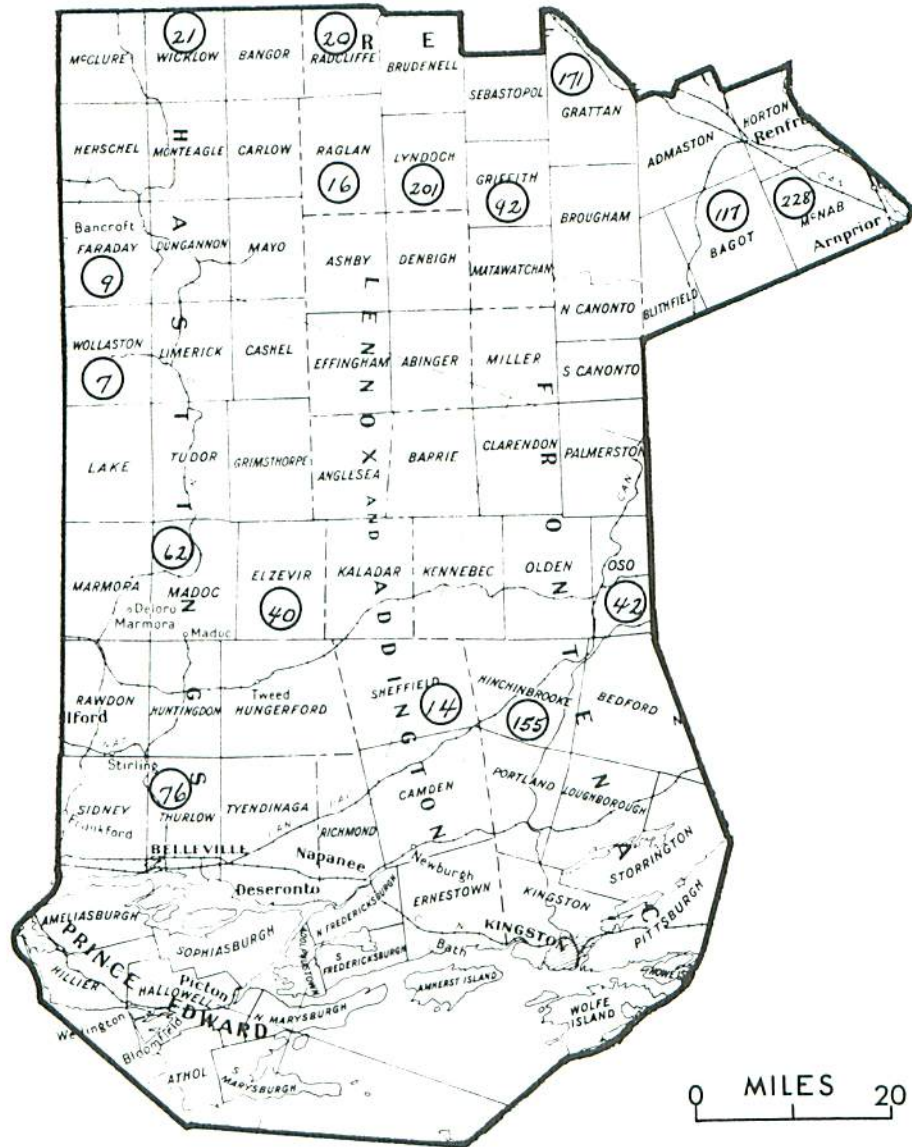
Numerous small pockets of light-to-moderate defoliation were observed in woodlots and in second growth stands along highways 162, 41, 17, 508, and 60. Several small pockets of heavy infestation occurred on semi-mature balsam trees near Purdy Lake in Bangor Township. Light infestations were numerous in woodlots in Horton, McNab, Admaston, Grattan, Brougham and Bagot townships.

TABLE 12

Summary of Balsam-fir Sawfly Larval Colony Counts in the Tweed District from 1965 to 1967

Location (township)	Av. d.b.h. of 10 bf sample trees in inches	Av. no. of colonies per tree		
		1965	1966	1967
Bangor	4	3.0	6.0	25+
Dungannon	4	0.0	0.0	1.0
Faraday	3	0.0	0.7	6.0
Herschel	6	2.0	0.7	3.0
McNab	3	--	--	25+

TWEED DISTRICT



EASTERN TENT CATERPILLAR

Number of tents per measured mile
of roadside

Legend

Number of tents 16

Red-headed Pine Sawfly, Neodiprion lecontei (Fitch)

This sawfly was found in all red pine plantations examined in the district, but with few exceptions populations were lower than in 1966.

The heaviest infestation occurred in a small private plantation near Roblin in Lennox-Addington County where 20-foot trees were almost completely defoliated. Several young plantations in the Bancroft area contained pockets of severe damage, as did a large private plantation near Cordova Mines in Hastings County.

A large area of light infestation occurred on small trees along a county road between Actinolite and Finton in Elzevir Township. Colony counts in five representative plantations over a 3-year period are shown in Table 13.

TABLE 13

Summary of Red-headed Pine Sawfly Colony Counts in the Tweed District from 1965 to 1967

Location (township)	No. of red pine trees examined	Av. height of trees in feet	No. of trees infested	Av. no. of colonies per infested tree		
				1965	1966	1967
Effingham	100	8	12	1.3	1.5	1.5
Elzevir	100	5	20	1.2	1.3	1.5
Grattan	100	5	6	1.0	1.8	1.0
McNab	50	10	1	6.0	4.8	1.0
Olden	20	7	3	2.1	1.6	1.0

A Jack-pine Sawfly, Neodiprion pratti paradoxicus Ross

A slight decrease in population levels was observed throughout the district. The greatest decline occurred on roadside jack pine trees near Marmora in Hastings County where the number of colonies per tree declined from over 50 in 1966 to 3.8 in 1967 (Table 14). In this area six consecutive years of severe defoliation combined with salt damage have seriously weakened the trees. A medium infestation recurred on 9-inch trees north of the town of Tweed in Hungerford Township.

TABLE 14

Summary of Jack-pine Sawfly Colony Counts in the Tweed District from 1965 to 1967

Note: Ten jack pine trees were examined at each location.

Location (township)	Av. d.b.h. of sample trees in inches	Av. no. of colonies per tree		
		1965	1966	1967
Abinger	3	1.7	1.1	12.1
Elzevir	9	8.5	12.7	4.7
Hungerford	7	14.1	25.0	25.0
Marmora	6	50+	50+	3.8
McNab	5	--	--	14.2
Olden	4	8.1	7.1	4.3
Pittsburgh	2	--	8.3	8.6
Radcliffe	1	--	--	2.2

European Pine Sawfly, Neodiprion sertifer (Geoff.)

The known northern range of this insect in Tweed District was extended approximately 25 miles by the discovery of one colony of larvae in the town of Tweed by Department of Lands and Forests personnel. This colony was found on red pine at the Chief Ranger's Headquarters in Tweed. Intensive surveys in the area failed to reveal further colonies. Lightly infested ornamental trees were again observed in and around Belleville. As in 1966, a single colony was collected from Scots pine in Sand Banks Provincial Park in Prince Edward County.

Yellow-headed Spruce Sawfly, Pikonema alaskensis Roh.

Hundreds of 4-to-6-foot white spruce trees were completely defoliated by this insect in a Christmas tree plantation at Flinton in Lennox-Addington County. A large area of light infestation recurred on under-planted spruce trees in Sand Banks Provincial Park in Prince Edward County. Numerous ornamental trees throughout the district were heavily infested and light infestations were observed commonly in natural stands, plantations, and shelterbelts.

White Pine Weevil, Pissodes strobi Peck

Populations remained at approximately the same level as in 1966 except in a private plantation in Pittsburgh Township, Frontenac County, where a count of weevilled leaders increased from 3 per cent to 38 per cent (Table 15). White pine, jack pine, red pine, and white spruce trees were lightly infested at scattered points in the district.

TABLE 15

Summary of White Pine Weevil Counts in the Tweed District from 1965 to 1967

Note: 100 trees were examined at each location.

Location (township)	Host	Av. d.b.h. of sample trees in inches	Per cent of leaders weevilled		
			1965	1966	1967
Effingham	wP	2	25	16	10
Effingham	rP	2	9	3	1
Grattan	wP	2	4	5	1
Hungerford	wP	2	21	12	10
Kaladar	wP	2	9	7	11
Madoc	wP	2	6	4	4
McNab	wP	1	5	3	14
Pittsburgh	wP	1	--	3	38
Radcliffe	jP	1	6	5	1
Sidney	wP	2	--	3	1

European Pine Shoot Moth, Rhyacionia buoliana (Schiff.)

This important and destructive pest increased in numbers in 1967. Small Scots pine plantings along Highway 401 between Belleville and Trenton were heavily infested, and Scots pine trees in Sand Banks Provincial Park were lightly infested. Typical damage was observed in September on small red pine trees in 4 plantations in the northern part of Hastings County.

A Mite on Red Pine, Setoptus jonesi (Keifer)

In the spring of 1966, severe damage to 1965 red pine foliage was observed in plantations in Mayo, Herschel, Faraday, Raglan, and Marmora townships. A mite S. jonesi, was usually but not always associated with the severe needle droop which characterized the condition. No new damage occurred in the spring of 1967, but surveys in early October in plantations that had been most severely affected in 1966 revealed eggs in two plantations. Low numbers of bent needles on 1967 shoots were seen in a plantation at McArthur's Mills, Mayo Township. S. jonesi eggs were also found by microscopic examination of apparently healthy foliage from Bird's Creek, Herschel Township.

At this time the extent of damage to 1967 foliage is unknown, since most of the needle droop apparently occurs in late autumn or during the winter.

TABLE 16

Summary of Miscellaneous Insects Collected in Tweed District

Insect	Host(s)	Remarks
Abbotana clemataria J. E. Smith	bPo, wB	Small numbers in Kennebec Township
Acleris variana Fern.	wS	Found in small numbers at numerous locations
Acrobasis juglandis (LeBar.)	Wa	Light infestation of casebearers on scattered trees in Sand Banks Provincial Park
Acrobasis stigmella Dyar	sHi	Small numbers feeding in unopened buds in Ameliasburgh Township
Agonopterix robinella Pack.	Loc	Light leaf roller infestation near Springbrook, Rawdon Township
Agromyza aristata Mall.	E	Small numbers of miners at scattered locations
Altica corni Woods	Dogwood	Beetles common near Belleville
Altica ulmi Woods	E	Small trees heavily infested at O'Hara's Mill, Madoc Township
Anacamptis innocuella Zell.	tA	Small light infestation of leaf rollers near Denbigh, Abinger Township
Anacamptodes vellivolata Hlst.	wP	Few found in beating samples near Brewer's Mills
Anatis mali (Say)	jP	Predator on scale insects near Combermere, Radcliffe Township
Anisota senatoria J. E. Smith	bO	Small group of trees completely defoliated by orange-striped oakworm in Sidney Township
Anomoea laticlavata Forst	W	Beetles feeding on open shrubs near Cordova Mines, Marmora Township
Archippus packardianus Fern.	wS	Small numbers near Springbrook, Rawdon Township
Archips cerasivoranus Fitch	ecCH	Heavy infestations of recent years in Prince Edward County subsided. Rarely found in district

TABLE 16 (continued)

Insect	Host(s)	Remarks
<i>Archips fervidanus</i> (Clem.)	rO	Small numbers near Silver Lake, Oso Township
<i>Argyresthia oreasella</i> Clem.	Se	Small light infestation at Actinolite, Kaladar Township
<i>Argyresthia thuiella</i> Pack.	eC	Heavy infestation near Verona in Portland Township
<i>Argyrotaenia pinatubana</i> Kft.	wP	Small numbers at numerous locations
<i>Argyrotaenia quercifolia</i> Fitch	rO	Small numbers of leaf tiers at Traverse Lake, Storrington Township
<i>Banasa dimidiata</i> Say	J	Predators on loopers at White Lake, McNab Township
<i>Biston cognataria</i> Gn.	Loc	Small numbers at widely scattered locations
<i>Calligrapha philadelphica</i> Linn.	W	Small numbers of leaf beetles at White Lake, Olden Township
<i>Campaea perlata</i> Gn.	bF	Small numbers found in beating samples in Oso Township
<i>Caripeta angustiorata</i> Wlk.	wP, scP	Small numbers in Kaladar and Pittsburgh townships
<i>Caripeta divisata</i> Wlk.	wS	Low populations near Clarendon, Oso Township
<i>Caripeta piniata</i> Pack.	scP	Low numbers in plantation north of town of Tweed
<i>Cecidomyia reeksi</i> Vock.	jP	Plantation near Belleville lightly infested
<i>Cenopsis acerivorana</i> Mack.	sM	Light leaf roller infestation near Balaclava, Grattan Township
<i>Cenopsis pettitana</i> Rob.	sM	Low populations of leaf rollers at Springbrook, Rawdon Township
<i>Cephalcia marginata</i> Midd.	rP	Light infestation on small plantation at White Lake, Olden Township
<i>Chlamisus eubati</i> Brown	blackberry	Light casebearer infestation in Pittsburgh Township
<i>Choristoneura rosaceana</i> Harr.	rO	Small numbers at Traverse Lake, Storrington Township

TABLE 16 (continued)

Insect	Host(s)	Remarks
<i>Chrysomela lineatopunctata</i> Forst	cPo	Hundreds of trees lightly infested by leaf beetles in Sand Banks Provincial Park
<i>Chrysomela scripta</i> F.	cPo	Several fringe trees heavily infested at Sand Banks Provincial Park
<i>Coleophora innotabilis</i> Braun	bPo	Single casebearer found at Finton, Kaladar Township
<i>Coleophora ulmifoliella</i> McD.	sE	Low numbers near Roslin, Thurlow Township
<i>Coleophora</i> sp.	sHi	Low populations observed at four locations in southern part of district
<i>Corythucha arcuata mali</i> Gib.	bO	Clumps of trees heavily infested at scattered locations
<i>Datana integerrima</i> G. & R.	Wa, bO, sHi, sE	Small heavy infestations at numerous points
<i>Disonycha alternata</i> Ill.	W	Light infestation of leaf beetles in Sand Banks Provincial Park
<i>Ecdytolopha insiticiaria</i> Zell.	Loc	Locust twig borer common throughout district
<i>Erannis tiliaria</i> (Harr.)	E, Ba	Basswood looper populations increased, but still remained low
<i>Erynnis icelus</i> Scud. & Burg.	W	Low numbers of leaf folders at White Lake, Olden Township
<i>Eufidonia notataria</i> Wlk.	wP	Low populations at Brewer's Mills, Pittsburgh Township
<i>Eupithecia filmata</i> Pears.	wS	Low numbers in Denbigh and Rawdon townships
<i>Euschistus tristigmus</i> Say	J	Low numbers at White Lake, McNab Township
<i>Euura hospes</i> (Walsh)	W	Light leaf gall infestation near Ompah, Palmerston Township
<i>Euura salicis-pisum</i> (Walsh)	W	Light gall infestation at Sharbot Lake, Oso Township
<i>Evodinus monticola</i> (Rand.)	wS	Retrieved from trap logs in Raglan Township

TABLE 16 (continued)

Insect	Host(s)	Remarks
<i>Exoteleia pinifoliella</i> (Cham.)	jP	Light infestation north of Combermere, Radcliffe Township
<i>Fenusa ulmi</i> Sund.	sE	Heavy leaf miner infestations throughout southern half of district
<i>Filatima pseudoacaciella</i> Cham.	bLoc	Low populations near Bloomfield, S. Marysburgh Township
<i>Galerucella cavicollis</i> Lec.	Ch	Extremely heavy leaf beetle infestation at Brewer's Mills, Pittsburgh Township
<i>Gargaphia tiliae</i> Walsh	Ba	Moderate discolouration caused by lace bugs at Henderson, Kennebec Township
<i>Griselda radicana</i> Wlshm.	wS	Low population at White Lake, McNab Township
<i>Halisidota tessellaris</i> J. E. Smith	Clammy Locust	Low population near town of Tweed, Hungerford Township
<i>Hydriomena divisaria</i> Wlk.	wS	Few larvae near Arnprior, McNab Township
<i>Hylobius radialis</i> Buch.	scP	Two Christmas tree plantations at Flinton infested. Little mortality as yet
<i>Hypagyrtis piniata</i> Pack.	wS	One larva at spruce plot in Oso Township
<i>Hyphantria cunea</i> (Dru.)	deciduous	More common than in recent years, especially in Bay of Quinte area
<i>Ipomorpha pleonectusa</i> Grt.	tA	Low numbers in Olden and Kaladar townships
<i>Ips pini</i> Say	rP	High populations of bark beetles caused mortality to many trees weakened by salt injury between Arnprior and Renfrew
<i>Lambdina fiscellaria</i> <i>fiscellaria</i> Gn.	wS	One collection made near Shamrock, Admaston Township
<i>Lapara bombycoides</i> Wlk.	wP	Low populations south of Mackavoy Lake, Abinger Township
<i>Lecanium</i> sp.	wAs	Extremely heavy scale infestations caused twig mortality near Belleville and along Highway 17 between Arnprior and Renfrew

TABLE 16 (continued)

Insect	Host(s)	Remarks
<i>Leucanthiza dircella</i> Braun	leatherwood	Two small pockets of heavy infestation by leaf miners
<i>Limenitis archippus</i> Cram.	sPo	Low numbers at Sand Banks Provincial Park
<i>Lithocolletis caryaefoliella</i> Clem.	Bu,Hi	Light leaf miner infestations in four southern townships
<i>Lithocolletis hamadryadella</i> Clem.	bO	Light leaf miner infestation along Moira River, Hungerford Township
<i>Lithocolletis hamameliella</i> Busck.	witch hazel	Moderate foliage damage west of Gananoque, Pittsburgh Township
<i>Lithocolletis ostryarella</i> Cham.	I	Widespread light-to-medium infestations
<i>Lithocolletis robiniella</i> Clem.	Loc	Light leaf miner infestations in South Marysburgh and Hungerford townships
<i>Lithocolletis</i> sp.	bO,wO	Extremely heavy leaf miner infestations in the south-eastern part of the district
<i>Megacyllene robiniae</i> Forst.	Loc	Stem borers caused branch and tree mortality to ornamentals in Bay of Quinte area
<i>Messa populifoliella</i> Town	cPo	Light infestation of miners near Cherry Valley, Athol Township
<i>Messa</i> sp.	wB	Light infestation of this previously unknown miner in Marmora Township
<i>Metalus rohweri</i> MacG.	raspberry	Miners common on wild shrubs in Olden Township
<i>Monoctenus juniperinus</i> MacG.	rJ	Very rare. Found only once in Ameliasburgh Township
<i>Monoctenus suffusus</i> (Cress.)	Common Juniper	Common in low numbers throughout the district
<i>Nematus populi</i> Marl.	tA,lA	Low populations on fringe trees in Dungannon and Limerick townships

TABLE 16 (continued)

Insect	Host(s)	Remarks
<i>Neodiprion nanulus</i> <i>nanulus</i> Schedl	rP	Heavy infestation on roadside plantings between Barry's Bay and Combermere. Light infestation in village of Tweed
<i>Neomysia pullata</i> <i>randalli</i> Csy.	wP	Low population on mature white pine at Brewer's Mills, Pittsburgh Township
<i>Nephoteryx subcaesiella</i> Clem.	Loc	Low populations north of Tweed
<i>Nepytia canosaria</i> Wlk.	wS,eC,rJ	Low numbers of the false hemlock looper at six locations
<i>Nymphalis antiopa</i> Linn.	deciduous	Common throughout the district
<i>Orgyia antiqua</i> L.	eC	Low numbers near L'Amable, Dungannon Township
<i>Orthosia hibisci</i> Gn.	E,wS	Low populations in McNab and Hungerford townships
<i>Paleacrita vernata</i> Peck	E,Ba	Light infestations in Rawdon and South Fredericksburg townships
<i>Panthea furcilla</i> Pack.	wP	Low populations on mature trees at Brewer's Mills
<i>Pareophora minuta</i> MacG.	bAs	Light infestation along the Moira River
<i>Parorgyia plagiata</i> Wlk.	wS	One collection from White Lake, McNab Township
<i>Pemphigus populi-</i> <i>transversus</i> Riley	cPo	Light petiole gall infestation in Sand Banks Provincial Park
<i>Periclista albicollis</i> Nort.	rO,wO	Roadside trees near Belleville and Bloomfield lightly infested
<i>Petrova albicapitana</i> Busck.	jP	Light pitch nodule maker infestation at Belleville
<i>Phenacaspis pinifoliae</i> Fitch	scP	Heavy needle scale infestation in Sand Banks Provincial Park
<i>Phigalia titea</i> Cram.	rO,wE	Low looper populations in south part of Lennox-Addington County
<i>Phratora purpurea</i> <i>purpurea</i> Brown	bPo	Light leaf beetle infestation near Flinton
<i>Pikonema dimmockii</i> (Cress.)	wS	Green-headed spruce sawfly. Widespread in low numbers

TABLE 16 (continued)

Insect	Host(s)	Remarks
<i>Pineus strobi</i> Htg.	wP	Heavy infestation of pine bark aphid on semi-mature trees south of Flinton
<i>Pissodes approximatus</i> Hopk.	scP	Several trees killed in a Christmas tree plantation near Flinton
<i>Pityophthorus canadensis</i> Sw.	wP	Bark beetles in mechanically injured trees in Lyndoch Township
<i>Plagiodera versicolora</i> Laich.	W	Light leaf beetle infestations near Madoc and Sharbot Lake
<i>Podapion gallicola</i> Riley	rP	Light branch gall weevil infestations in plantings along Highway 17 north of Renfrew
<i>Pristiphora erichsonii</i> (Htg.)	tL	Larch sawfly populations remained low. Collected at numerous locations
<i>Pristiphora lena</i> Kinc.	wS	One colony of this little-known sawfly collected south of Denbigh
<i>Protoboarmia porcelaria</i> indicataria Wlk.	wS, He	Commonly found in low numbers
<i>Pseudexentera oregonana</i> Wlshm.	tA	Light leaf roller infestation near Northbrook
<i>Pulicalvaria piceaella</i> Kft.	wS	Light needle miner infestation in Sand Banks Provincial Park
<i>Rhabdophaga strobiloides</i> O.S.	W	Light gall infestation at White Lake, Olden Township
<i>Rhabdophaga swainei</i> Felt	wS	Light bud midge infestations between Calabogie and Griffith
<i>Rhyacionia buoliana</i> (Schiff.)	scP	Populations in south part of the district increased slightly, but are still low
<i>Schizura concinna</i> J. E. Smith	W, wE	Widely separated colonies
<i>Semiothisa bisignata</i> Wlk.	wP	Low numbers of loopers
<i>Semiothisa dispuncta</i> Wlk.	wS, bF	Low populations at several locations
<i>Semiothisa minorata</i> Pack.	wP	Low populations near Flinton

TABLE 16 (concluded)

Insect	Host(s)	Remarks
<i>Semiothisa ocellinata</i> Gn.	Loc	Few larvae in Hungerford Township
<i>Semiothisa orillata</i> Wlk.	eC	Widespread low numbers
<i>Semiothisa sexmaculata</i> Pack.	tL	Low looper population near Ompah
<i>Semiothisa submarmorata</i> Wlk.	tL	Few found at three locations in Palmerston Township
<i>Stenoma algidella</i> Wlk.	Po	Low numbers near Bloomfield
<i>Thera juniperata</i> L.	Common Juniper	One collection from White Lake, McNab Township
<i>Tolyte laricis</i> Fitch	wS	Low numbers at Silver Lake, Oso Township
<i>Tolyte velleda</i> Stoll.	wP	Few larvae on mature trees at Brewer's Mills
<i>Toumeyella numismaticum</i> P. & M.	jP	Small heavy infestation of the pine tortoise scale north of Combermere, Radcliffe Township
<i>Xylomyges dolosa</i> Grt.	tA	Low numbers of leaf rollers at Mackavoy Lake
<i>Zale duplicata largera</i> Sm.	wP	Few larvae found near Cloyne, Abinger Township
<i>Zale undularis</i> Dru.	Loc.	Low populations south of Springbrook, Rawdon Township
<i>Zeiraphera fortunana</i> Kft.	wS	Light infestation feeding under bud caps in Sand Banks Provincial Park
<i>Zeiraphera canadensis</i> Mut. & Free.	wS	Light infestations of spruce bud moth at two locations in eastern Renfrew County