Status of Insects in the White River District

Constable, D.C.

Information Report O-X-75
(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	--Kemptville 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	--Cogama 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
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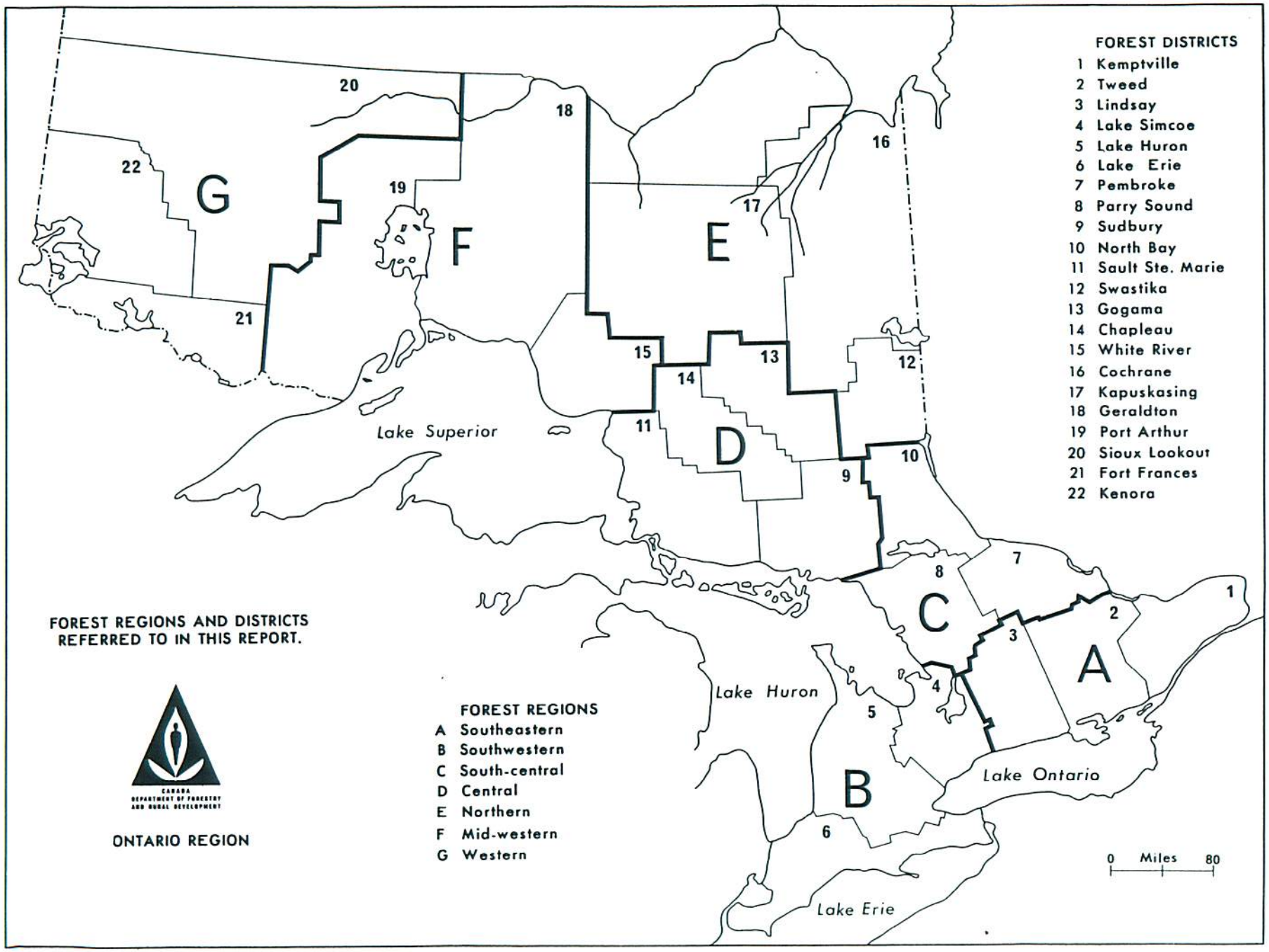
Photographs

Regional Supervisors *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A Southeastern
B Southwestern
C South-central
D Central
E Northern
F Mid-western
G Western
CANADA DEPARTMENT OF FORESTRY AND RURAL DEVELOPMENT
ONTARIO REGION
Lake Superior
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0 Miles 80

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

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D. C. Constable

STATUS OF INSECTS

Ugly-nest Caterpillar, Archips cerasivoranus (Fitch)

Trends in population levels of this insect varied in 1967 (Table 4). Counts in the vicinity of the Michipicoten Gun Club were 313 tents per mile of roadside less than in 1966. In a square-chain plot at Quebec Harbour on Michipicoten Island a total of over 2000 tents was recorded. Elsewhere in the district, no significant change in numbers occurred.

TABLE 4

Summary of Ugly-nest Caterpillar Colony Counts in the White River District from 1965 to 1967

Location	Sample unit	No. of tents observed		
		1965	1966	1967
Township 29 Range 23	1 square chain	0	1	2
Township 74	1 mile roadside	0	0	1
Township 30 Range 23	1 mile roadside	435	461	148
Township 29 Range 23	1 square chain	56	49	79
Michipicoten Island	1 square chain	-	-	2000

Wandering Sawfly, Dimorphopteryx melanognathus Roh.

For the third consecutive year population levels of this sawfly increased in a 1-acre stand of immature white birch in Pic Township. An average of 42 larvae per 100 leaves was recorded in 1967, compared with 39 larvae in 1966. Unlike infestations in the Sault Ste. Marie District where larvae appear to enter diapause and remain in the soil several years before developing, larval populations have persisted annually at this location.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Quantitative sampling showed a decline in population levels of this introduced sawfly (Table 5). The highest count obtained was in Hunt Township where a total of 4 larvae was collected from 15 tray samples. In 1966, a total of 20 larvae was obtained from 15 tray samples in Township 71. All the larvae were collected from white spruce.

TABLE 5

Summary of European Spruce Sawfly Larval Counts in the White River District in 1966 and 1967

Location	Av. d.b.h. of sample trees in inches	Total no. of larvae per 15-tray sample	
		1966	1967
Township 71	5	20	1
Hunt Township	3	1	4
Township 74	4	1	3
Township 29 Range 24	4	1	2

Aspen Blotch Miner, Lithocolletis salicifoliella Chamb.

Population levels of this leaf miner decreased compared with 1966. This trend was apparent at four of six sample stations (Table 6). Light to moderate infestations occurred on trembling aspen regeneration at numerous locations throughout the district.

TABLE 6

Summary of Aspen Blotch Miner Counts at Five Locations in the White River District from 1965 to 1967

Note: Counts were based on the examination of 100 leaves from three aspen trees at each location.

Location	Av. d.b.h. of sample trees in inches	Per cent of leaves mined		
		1965	1966	1967
Mikano Township	4	1	28	7
Hunt Township	2	1	18	12
Barbara Creek	4	1	14	22
Mi. 2 Cp. 70 road	3	1	10	28
Township 30 Range 23	3	2	40	10
Hunt Township	2	15	14	10

Western Tent Caterpillar, Malacosoma pluviale (Dyar)

The results of sampling at five locations were comparable to 1966 (Table 7). Numerous tents were observed at scattered locations throughout the district. Willow, cherry and white birch shrubs were common host species.

TABLE 7

Summary of Western Tent Caterpillar Counts per Measured Mile of Roadside in the White River District

Location	Number of tents per mile of roadside		
	1965	1966	1967
Mi. 18 Manitouwadge Road	8	10	0
Bryant Township	5	5	3
Magone Township	0	7	4
Mi. 7 Cp. 70 road	4	6	14
Township 71	5	5	8

Red-pine Sawfly, Neodiprion nanulus nanulus Schedl.

This insect was observed more commonly than in 1966. Counts at sample stations were about the same as in 1966 (Table 8). Defoliation was light.

TABLE 8

Summary of Larval Colony Counts of the Red-pine Sawfly in the White River District in 1966 and 1967

Location	Av. d.b.h. of sample trees in inches	No. of trees examined	Av. no. of colonies per tree	
			1966	1967
Township 70	5	10	0.1	1.2
Township 27	3	10	1.2	0.0
Challener Township	4	10	0.4	0.0
Hunt Township	3	10	0.4	0.2
Pearkes Township	3	10	0.2	0.4
Hunt Township	3	10	-	1.0
Township 64	3	10	-	0.2
Matthews Township	1	10	-	0.4

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

In 1967, low population levels of this insect were recorded at six widely-scattered sample plots where negative results had been obtained in 1966 (Table 9). The highest count was in Rumsey's plantation in Hunt Township where an average of 1 colony per tree was recorded. Single larval colonies were observed at scattered points elsewhere in the district.

TABLE 9

Summary of Larval Colony Counts of Red-headed Jack-pine Sawfly in the White River District from 1965 to 1967

Location	Av. d.b.h. of sample trees in inches	No. of trees examined	Av. no. of colonies per tree		
			1965	1966	1967
Hunt Township	5	20	.15	0.0	0.3
Hunt Township	2	20	.10	0.0	1.0
Township 70	4	20	.33	0.0	0.1
Township 64	5	20	.50	0.0	0.4
Township 71	3	10	1.45	0.0	0.1
Pearkes Township	5	10	.00	0.0	0.0

Spiny Elm Caterpillar, Nymphalis antiopa Linn.

Population levels of this insect were very low from 1964 to 1966. However, in 1967 single and clumps of trees ranging up to 15 feet in height were severely defoliated in Township 49 and in Welsh, Pic, Gertrude and Mikano townships. Trembling aspen was most commonly attacked but willow and balsam poplar were also infested.

Pitch Nodule Maker, Petrova albicapitana Busck.

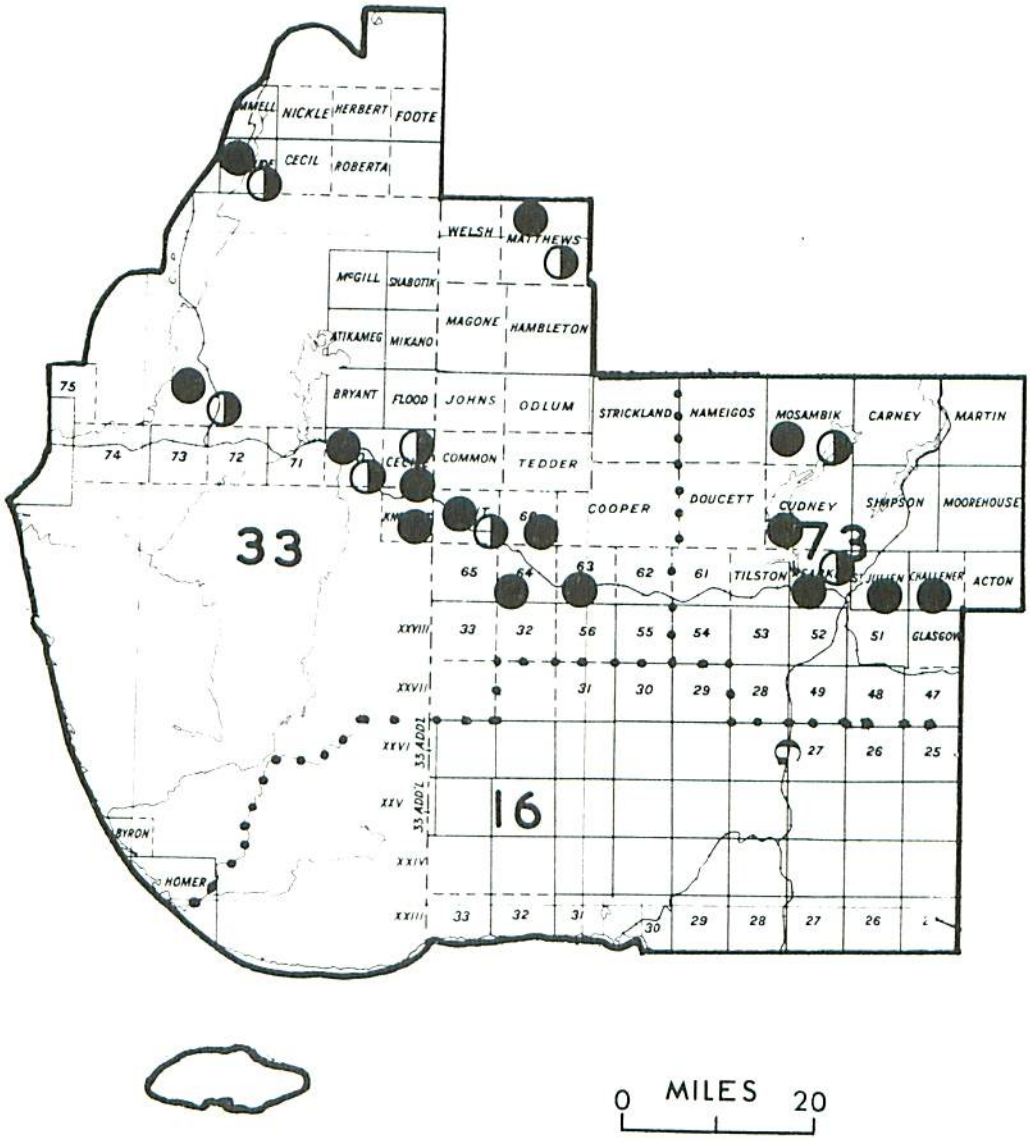
Population levels of the pitch nodule maker declined in 1967 after unusually large numbers had been recorded for two consecutive years. Approximately 10 miles south of Camp 70 in the Ontario Paper Limits, quantitative sampling revealed 18 new nodules on 100 trees compared with 188 in 1966.

In 1966, twenty trees were tagged and the location of nodules were marked with metal tags to determine survival and emergence in the Camp 70 area. Of 41 nodules marked in 1966, 37 produced adults, three contained dead larvae and one contained a pupa, representing over 90 per cent successful emergence. Elsewhere in the district, the insect was found in low numbers.

Leaf Folding Sawflies, Phyllocolpa spp.

Population levels of these sawflies decreased in 1967 (Table 10). Open-grown trembling aspen and roadside regeneration were lightly to moderately infested at several locations. As in 1966, the number of larvae was relatively low compared with the number of folded leaves. Light infestations were observed throughout the district.

WHITE RIVER DISTRICT



PINE SAWFLIES

Locations where two species of pine sawflies were observed in 1967

Legend

Red-headed jack-pine sawfly .....

Red-pine sawfly .....

TABLE 10

Summary of Leaf Folding Sawfly Counts in the White River District in 1966 and 1967

Note: Counts were based on the examination of 100 leaves from three aspen trees at each location.

Location	Per cent of leaves folded		No. of folds containing larvae	
	1966	1967	1966	1967
Franz	30	20	5	7
Dubreuilville	40	23	8	12
Hawk Junction	20	12	5	7
Lochalsh	14	6	5	5
Bryant Township	40	27	11	14
Township 70	31	14	6	8
Pic Township	33	18	5	9

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

Population levels of this sawfly increased in 1967. Small pockets of severe defoliation occurred on black spruce reproduction in Shabotik and Bryant townships and on white spruce reproduction in Pearkes Township and Township 71. Elsewhere in the district larvae were found commonly in beating tray samples.

White Pine Weevil, Pissodes strobi (Peck.)

Population levels of the white pine weevil declined as indicated by quantitative sampling at 3 widely-separated locations in the district (Table 11). About 8 per cent fewer trees were weevilled at the Barbara Creek plantation on the Manitouwadge road. Elsewhere damage was very light. Black spruce was the preferred host.

TABLE 11

Summary of Leader Damage by the White Pine Weevil in the White River District in 1966 and 1967

Location	Host	Av. d.b.h. of sample trees in inches	No. of trees examined	Per cent trees weevilled	
				1966	1967
Barbara Lake	wS	2	500	11.4	3.6
Camp 70 Road	bS	2	500	10.8	4.4
Flood Lake Road	jP	3	500	2.6	2.0

Balsam Shoot Boring Sawfly, Pleroneura borealis Felt.

This shoot-mining sawfly occurred commonly in the district in 1967. The insect was most abundant in Township 32 Range 28 where 12.8 per cent of new buds of balsam fir were infested (Table 12). In other districts of the Province quantitative sampling has shown a fairly consistent pattern of high numbers in alternate years. However, this biennial trend has not applied in the White River District in recent years. In 1964, high counts were recorded but in 1965 and 1966 results were negative. It is probable that late spring frosts accounted for the negative results obtained in 1965 and 1966.

TABLE 12

Summary of Balsam-fir Shoot Boring Sawfly Counts in the White River District from 1964 to 1967

Note: Counts were based on the examination of 20 branch tips, four from each of five balsam fir trees at each location.

Location	Av. d.b.h. of sample trees in inches	No. of shoots examined				Per cent of shoots infested			
		1964	1965	1966	1967	1964	1965	1966	1967
Mi. 10 Manitouwadge road	4	351	480	462	437	13.1	0	0	8.3
Township 70	4	378	462	389	413	12.2	0	0	8.2
Township 32 Range 28	2	331	578	431	397	6.6	0	0	12.8
Township 29 Range 23	4	-	-	-	501	-	-	-	6.1

Mountain-ash Sawfly, Pristiphora geniculata Htg.

For the second consecutive year, a heavy infestation occurred on mountain ash at Quebec Harbour on Michipicoten Island. Mountain ash trees of all size classes were severely defoliated. In 1960, this insect was first reported in the district in Township 30 Range 25 where scattered colonies were found. In 1966 it was discovered on Michipicoten Island and in 1967 light defoliation was observed in Pic Township about 80 miles west of Township 30 Range 25. This represents the most westerly collection of this European pest in Canada.

The adults generally emerge during late May or early June varying in different localities and seasons. Eggs are laid in slits cut by the female near the edges of the leaves. The larvae generally hatch from early June to middle of July. The larvae are gregarious and feed between the veins, skeletonizing the leaves. The cocoons are spun in the duff and winter is passed as prepupal larvae in the cocoons. The adults emerge in spring. Laboratory studies have indicated there may be a second generation late in August and September. Being strong fliers, the adults may travel long distances before laying eggs.

Amber-marked Birch Leaf Miner, Profenusa thomsoni (Konow)

High population levels of this birch leaf miner persisted in the district in 1967 (Table 13). An area of heavy infestation occurred from White River westward to Township 73 and north to Magone Township (see map). The insect was most abundant in Cecile Township where 92 per cent of the leaves of white birch regeneration were mined. Also, for the first time in the district, a small pocket of heavy infestation was observed on pin cherry in Township 70. Light to medium damage occurred elsewhere in the district.

TABLE 13

Summary of Damage by the Amber-marked Birch Leaf Miner in the White River District

Note: Counts were based on the examination of 100 leaves from three trees at each location.

Location	Av. d.b.h. of sample trees in inches	Per cent of leaves mined	
		1966	1967
Township 32 Range 28	3	80	69
Hunt Township	3	75	84
Township 28 Range 28	3	60	18
Township 28 Range 24	3	65	23
Bryant Township	3	80	83
Magone Township	3	80	76
Barbara Creek	2	-	34
Township 70	4	-	83
Township 27 Range 24	4	-	11
Township 72	3	-	84
Township 73	3	-	83
Township 71	3	-	80
Cecile Township	4	-	92

Spruce Bud Midge, Rhabdophaga swainei Felt.

An increase in population levels of this insect occurred at quantitative sample points in the district (Table 14). The highest count occurred at the white spruce sample station in Township 29 Range 23 where 20.9 per cent of the new buds were infested. No major bud damage occurred elsewhere in the district.

TABLE 14

Summary of Spruce Bud Midge Counts in the White River District in 1966 and 1967

Note: Counts were based on examination of 50 branch tips, five from each of ten trees at each location.

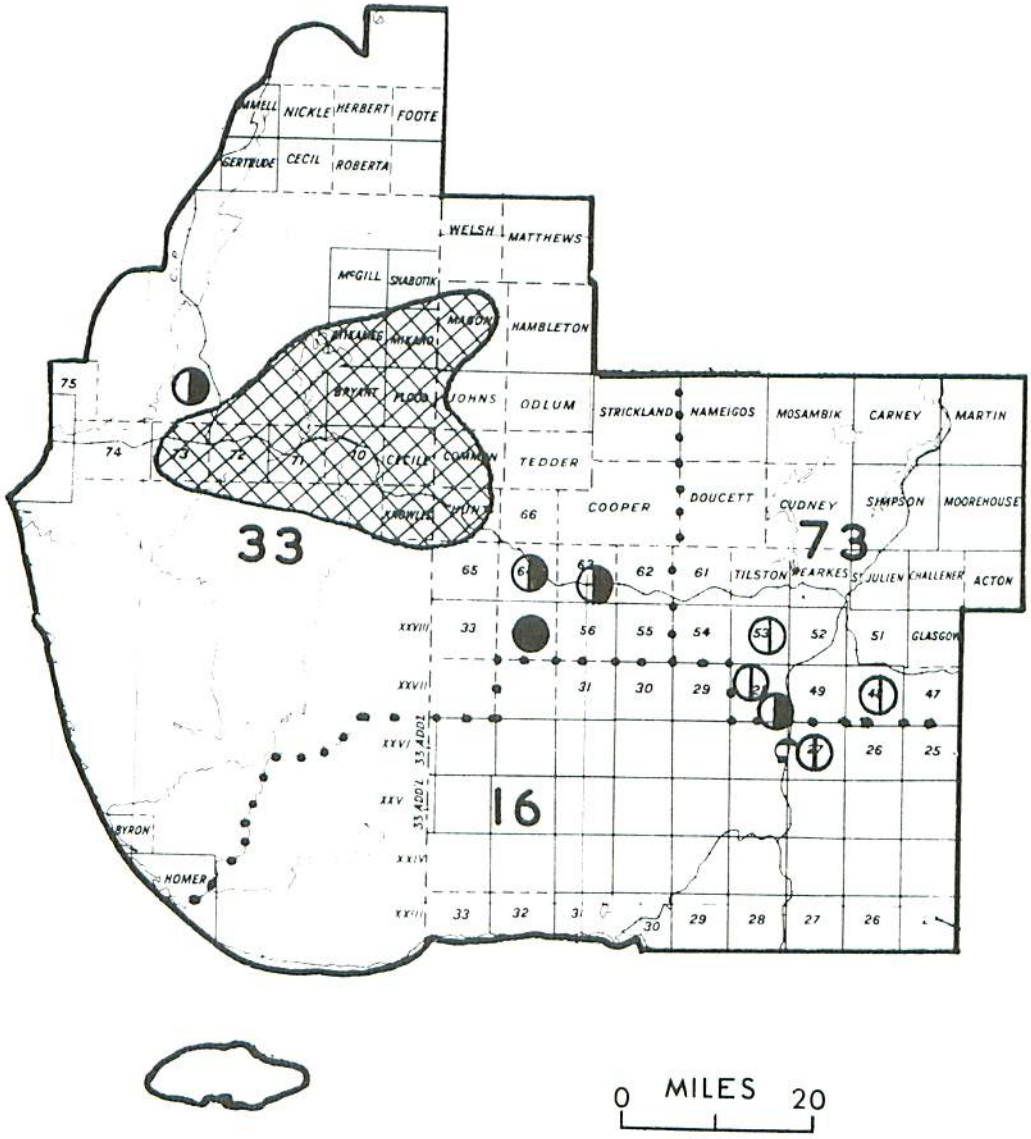
Location	Host	Av. d.b.h. of sample trees in inches	No. of shoots examined		Per cent of terminal buds infested	
			1966	1967	1966	1967
Township 74	wS	4	176	151	7.9	7.9
Township 70	bS	4	162	165	4.9	6.6
Twp. 32 Range 27	bS	2	161	151	4.9	3.3
Twp. 29 Range 23	wS	4	182	143	0.0	20.9

TABLE 15

Summary of Miscellaneous Insects Collected in the White River District in 1967

Insect	Host(s)	Remarks
Adelges abietis Linn.	bS	Common on fringe trees in Township 48
Adelges strobilobius Kalt.	bS	Numerous galls found on immature trees in Flood Twp.
Anoplonyx luteipes (Cress.)	tL	Low numbers found on beating tray samples
Argyresthia aureorgentella Brower.	eC	Low levels found in five townships
Argyresthia pygmaeella Hbn.	W	Light infestations at scattered locations
Choristoneura fumiferana (Clem.)	wS	Single larva found in Hunt and Pic townships
Coleophora laricella (Hbn.)	tL	Low levels throughout the district
Coleophora pruniella Clem.	wB	Low levels found on immature trees along Manitouwadge road
Compsolechia niveopulvella Chamb.	tA	Light throughout district
Depressaria groteella Rob.	Hazel	Small pocket of heavy infestation in Cecile Township
Eiletus gregarius (Marl.)	W	Sawflies found commonly in Township 30 Range 26 and Township 64

WHITE RIVER DISTRICT



AMBER-MARKED BIRCH LEAF MINER

Areas and locations where infestations were observed in 1967

Legend

Light infestation .....

Medium infestation .....

Heavy infestation ..... or

TABLE 15 (concluded)

Insect	Host(s)	Remarks
Epinotia lindana Fern.	Dogwood	Light mining new shoots at several locations
Epinotia solandriana Linn.	wB	Light infestations at scattered locations
Fenusa dohrnni (Tischb.)	A	Light at several locations
Gonioctena americana (Schaeff.)	w,tA	Small pockets of light infestation
Halisidota maculata Harr.	W	Single colony of caterpillars found in Matthews Township
Nematus limbatus Cress.	W	Light defoliation found on fringe willow in Township 30 Range 27
Nematus populi (Marl.)	tA	Single colony found in Hunt Twp.
Nematus salicisodoratus Dyar	W	Scattered colonies found in Township 29 Range 26
Neodiprion maurus Rohwer	jP	One colony found in Hunt Twp.
Nycteola frigidana Wlk.	W	Small numbers
Orthotomicus caelatus Eich.	wP	Found in stem of dead white pine
Pareophora minuta (MacG.)	bAs	Found commonly on fringe trees along shoreline of Puskaswa River
Pegohylemia anthracina Czermy	wS	Diptera larvae mining 1967 cones at several locations
Phyllocnistis populiella Cham.	tA	Serpentine miners found on aspen regeneration at few locations
Pikonema dimmockii (Cress.)	wS	Found commonly on beating tray samples
Pyrrhia umbra exprimens Wlk.	bPo	Found commonly mining terminal shoot of this host
Rhyacionia adana Heink.	jP	Light throughout the district
Trypodendron retusum Lec.	tA	Found in stump in Township 72
Zeiraphera improbana (Walker)	tL	Small numbers found on beating tray samples