Northern Forest Region, 1967
Status of Insects in the Cochrane District

Foster, H.R.

Information Report O-X-70
(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
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O-X-63	--North Bay District	L. S. MacLeod
O-X-64	--Parry Sound District	C. A. Barnes
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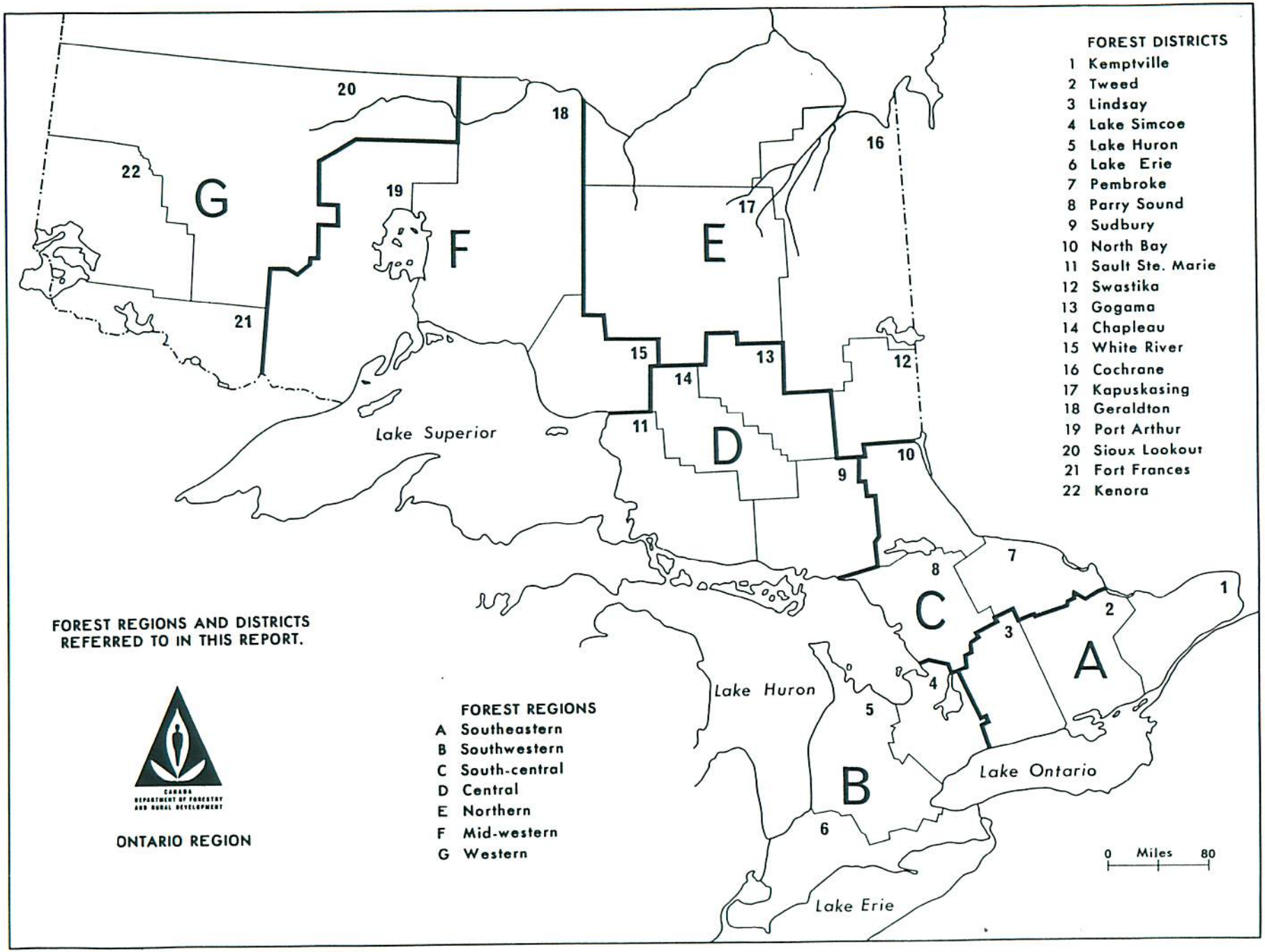

FOREST DISTRICTS
1 Kemptville
2 Tweed
3 Lindsay
4 Lake Simcoe
5 Lake Huron
6 Lake Erie
7 Pembroke
8 Parry Sound
9 Sudbury
10 North Bay
11 Sault Ste. Marie
12 Swastika
13 Gogama
14 Chapleau
15 White River
16 Cochrane
17 Kapuskasing
18 Geraldton
19 Port Arthur
20 Sioux Lookout
21 Fort Frances
22 Kenora
G
F
E
D
C
B
A
Lake Superior
Lake Huron
Lake Ontario
Lake Erie
0 Miles 80
FOREST REGIONS AND DISTRICTS REFERRED TO IN THIS REPORT.
FOREST REGIONS
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

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

NORTHERN FOREST REGION

1967

INTRODUCTION

STATUS OF TREE DISEASES (REGIONAL)

INTRODUCTION

Northern Forest Region

This report deals with insect and tree disease conditions in the Northern Region in 1967. Tree diseases are presented on a regional basis, and data on insects are contained in the district section of the report. Because of a shortage in field staff, surveys were carried out by two technicians in the region assisted periodically by technicians in the neighbouring districts. Under these circumstances, service and extension work was somewhat curtailed in favour of high priority sampling.

Population levels of most important insects were low in the region in 1967. However, mild weather with little frost damage in the spring favoured some increase in numbers of bud and foliage worms on conifers, such as spruce and jack pine budworms. Following a downward trend in recent years, population levels of the larch sawfly increased in the northern part of Cochrane District and in the northwestern part of Kapuskasing District. Population levels of the yellow-headed spruce sawfly increased generally in the region. A leaf roller on white birch, Gracillaria sp., was the only insect to show a noteworthy increase in 1967, and it caused total curling of leaves in extensive stands in the Little Long Rapids and Abitibi Canyon areas of Kapuskasing and Cochrane districts. Considerable deterioration of white birch and some tree mortality occurred in these areas. New records of Fenusa pusilla Lep. advanced the distribution of this imported insect north to Montreuil Lake in the Cochrane District.

Forest pathology work was concentrated on general sampling with emphasis on Scleroderris canker of pine. Several diseases of plantations and nurseries were found in appreciable numbers including Scleroderris lagerbergii, Scoleconectria cucubitula, Cenangium atropurpureum and Valsa pini. Tar spot diseases of willow and aspen increased considerably but rusts on conifers generally declined. Severe winter drying occurred in many red pine plantations in the region.

Sincere appreciation is again expressed for the assistance given to field technicians by timber operators and personnel of the Ontario Department of Lands and Forests.

H. R. Foster

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

Collections of this disease were made from jack pine trees in Dundonald, German and Timmins townships and from balsam fir in German Township in the Cochrane District. Further sampling will be required to assess the impact of this disease on both coniferous and deciduous host species in the region.

In 1967, light tree mortality occurred in extensive jack pine plantations established in 1965 and 1966 in Timmins and Sheraton townships in the Cochrane District. The planting sites were scarified, and although the trees showed vigorous growth for one or two years, small numbers died in 1967. One hundred dead trees in Sheraton Township were pulled up and the roots, stems and crowns were carefully examined in the field for symptoms and signs of disease. Thirty-six per cent of the trees showed white mycelial growth and dark pitch masses at the root collar that are symptomatic of root rot caused by Armillaria. Tallies of 100 jack pine each at two locations revealed one and five per cent mortality respectively.

Cone Rusts, Chrysomyxa pirolata Wint., and Pucciniastrum sp.

Light infection of the cone rust Chrysomyxa pirolata occurred on white spruce cones in Sydere and Leitch townships in the Cochrane District, and in Torrance Township, Kapuskasing District. White spruce and balsam fir bearing heavy cone crops were checked at several other points in the region, but results were negative. However, light infection of a rust, Pucciniastrum sp. occurred on balsam fir cones in Laidlaw and Homuth townships in Cochrane District, and in Seaton Township in Kapuskasing District.

Ink Spot Disease of Poplar, Ciborina whetzelii (Seav.) Seav.

The general decline in infection levels of this organism that began in 1966, continued in 1967. Areas of severe infection occurred near Lipsett Lake in Timmins Township and in Clive, Singer and St. Laurent townships in Cochrane District. Medium infection occurred in Gauthier and Arnold townships in Swastika District. Elsewhere in the above districts and in the Kapuskasing District, infection levels declined sharply.

Sweetfern Blister Rust, Cronartium comptoniae Arth.

Heavy infections of this rust recurred along the Texas Gulf Road, north of Timmins, and on gravel eskers from Nellie Lake to Lipsett along the eastern border of Division 43. The only new record of the disease in the Cochrane District in 1967 was in Whiteside Township, where light infection occurred. In Swastika District, light to medium infection recurred at several points. Checks for the disease in extensive jack pine stands in the Hornepayne Division in Kapuskasing District showed negative results again in 1967.

Studies of the effect of this disease on natural jack pine stands were started in 1965 when fifty trees from 12 to 72 inches in height were tagged in a heavily infected area in Sheraton Township in Cochrane District. Table 1 shows the effect of the disease on leader growth of infected trees as compared to non-infected trees and the per cent of tree mortality from 1965 to 1967.

TABLE 1

Summary of Spore Production, Tree Leader Growth and Mortality in Sheraton Township from 1965 to 1967

Year	Per cent of trees producing spores	Average leader growth of trees in inches		Per cent of trees killed by disease
		Infected	Non-infected	
1965	68	4	10	0
1966	52	4	8	9
1967	48	5	9	18

White Pine Blister Rust, Cronartium ribicola J. C. Fischer

Light infection of white pine blister rust occurred at several points in Swastika District (Table 2). Light infection occurred in young mixed-age stands of white pine in McArthur, Musgrove and Bartlett townships and in white pine plantations in Whitesides Township in Cochrane District. The disease was collected in a white pine plantation in Studholme Township and from the alternate host, Ribes sp., in Studholme and Devitt townships in the Kapuskasing District.

TABLE 2

Incidence of White Pine Blister Rust in the Swastika District in 1966 and 1967

Location (township)	No. of trees examined	Average d.b.h. of trees in inches	Per cent of trees infected	
			1966	1967
Hudson	50	3	18	12
Grenfell	100	4	12	6
Harris	50	6	3	2
Milner	50	8	7	4
Tyrrell	50	5	-	6

A Needle Rust on Tamarack, Melampsora medusae Thuem.

Infections of this rust declined from heavy in 1966 to medium intensity in 1967 in Calder and Clute townships in the Cochrane District. New heavy infections occurred on plantation tamarack trees in Sheraton Township and light infections were found on natural trees at the Spruce Needles Golf Course in Mountjoy Township. Light infection occurred in Lee, Gross, Hilliard and Hudson townships in Swastika District.

Yellow Witches' Broom on Balsam Fir, Melampsora caryophyllacearum Schroet.

Samples of a rust that causes yellow witches' broom on balsam fir trees were collected in 1967 in Scapa and Harker townships of Cochrane and Swastika districts respectively. Witches' brooms caused by the disease were observed along Highway 101 in Swastika District and along the Kamiskotia and Wade Lake roads in Cochrane District. Stem infections occurred on the upper crowns of several balsam fir trees in the Iroquois Falls-Wade Lake area.

A Gall Rust on Jack Pine, Peridermium sp.

Small numbers of galls were caused by this rust at scattered points in the Northern Region. Galls have been most abundant in recent years along the Wade Lake Road in Stimson Township in Cochrane District. In 1967, counts of 55 and 23 galls per tree were made on two jack pine trees in a mixed coniferous stand 20 miles south of Timmins in McArthur Township. The galls on the lower sections of the trees were considerably larger than most of those in the upper crowns and on branch ends. However, the small galls in the upper crown were readily observed because of the red appearance of the fruiting bodies. Only a few branches on the lower crowns were killed by the disease.

Leaf and Twig Blight of Polar, Pollaccia elegans Serv.

Infection levels of this leaf and twig blight on balsam poplar were generally lower than in 1966. An exception to this downward trend occurred in Iroquois Falls in Cochrane District, where large Carolina poplar trees were almost totally defoliated. Medium infections in Homuth, Glackmeyer and Robb townships in 1966 declined to light in 1967. Elsewhere in Cochrane and Swastika districts incidence of the disease was low. Medium infection occurred in a cutover area in Township 238 about 30 miles west of Hearst, but the disease was scarce elsewhere in Kapuskasing District.

Leaf and Twig Blight of Poplar, Pollaccia radiosa (Lib.) Bald. and Cif.

Heavy infections of this disease occurred in Robb, Loveland, Clergue, Clute, and Homuth townships in Cochrane District, and in McCool Township in Swastika District. Elsewhere in the above districts infections on trembling aspen were generally trace to light. Pockets of light infection occurred in Nassau, Slack, Torrance, and Clavet Townships in Kapuskasing District.

A Rust on Balsam Fir, Pucciniastrum epilobii Otth.

Medium infection of this rust occurred on a few balsam fir trees at several points in the western part of Division 44. The disease was widely distributed in the rest of the Cochrane District, but generally only a few needles per tree were affected. Light infections occurred in Eby, Garrison, Lamplugh, Taylor and McEvoy townships in Swastika District, and in Harmon, Parnell and McEwing townships in Kapuskasing District.

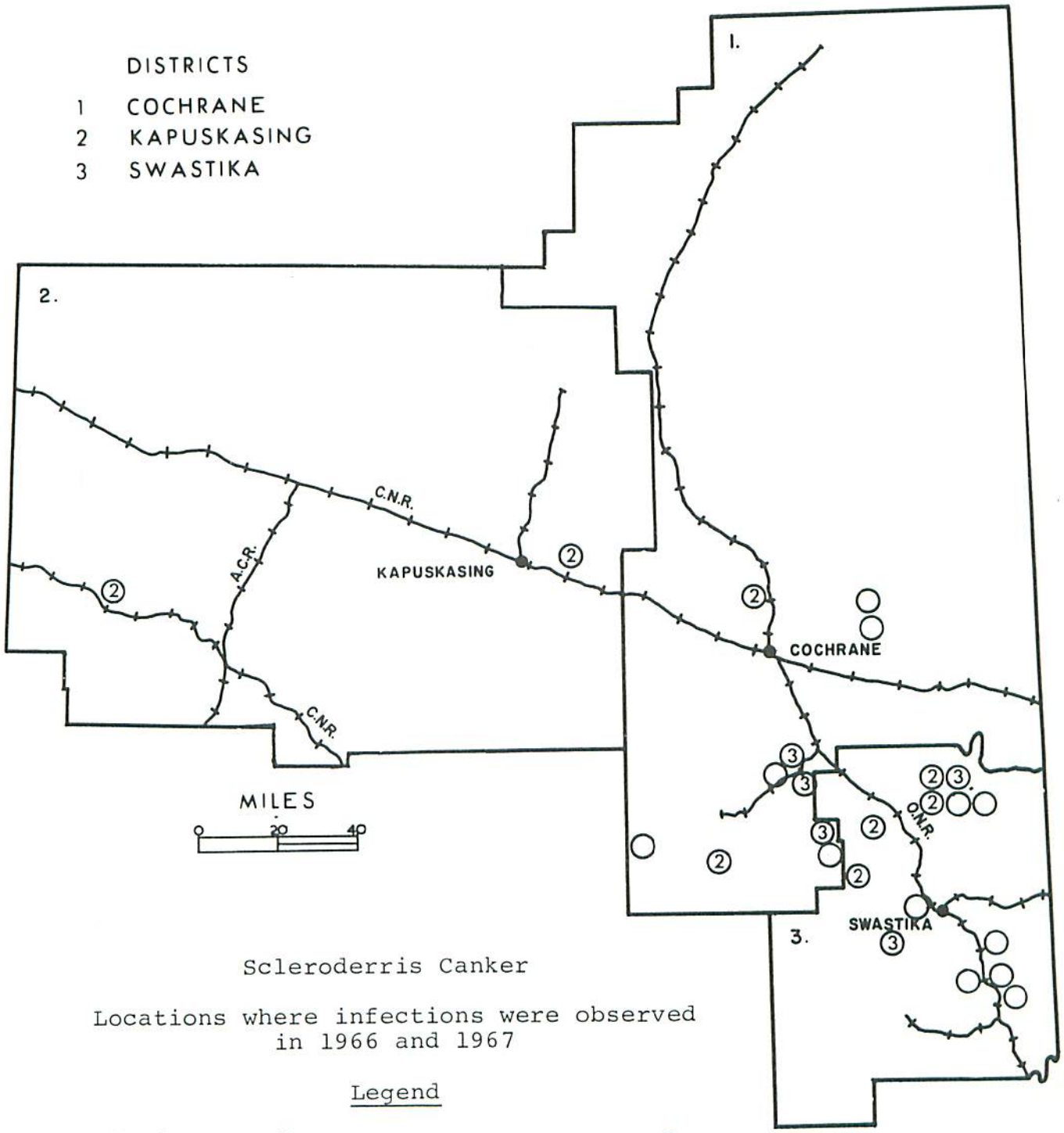
Scleroderris Canker of Pine, Scleroderris lagerbergii Gremmen

Since first collected in the Swastika Nursery in 1965, 17 records of this disease have been made in 13 townships in Swastika District, 18 records in nine townships in Cochrane District and four records in two townships in Kapuskasing District. Sampling to date in the region has indicated that plantation trees are most susceptible. All samples from red, Scots and white pine were from plantation trees, and the samples from natural jack pine trees were collected within plantation areas.

Severe damage recurred in red pine plantations in German and Sheraton townships, but incidence of the disease declined to light intensity in Dempsay, Adams and Dundonald townships in Cochrane District. Medium infection occurred on red pine shipping stock at the Swastika Nursery. Damage was light in red pine plantations in Nordica and McCann townships and a jack pine plantation in McCool Township in Swastika District. Moderate damage occurred on red and jack pine plantation trees in Wicksteed Township and incidence was low at the Spruce Falls Nursery in Kapuskasing District.

Tallies in Kettle Lakes Park showed that both the incidence of attack and the amount of tree mortality were highest in trees one to two feet in height (Table 3). Most of the attack on larger trees was on lower branches, and unless stem cankers developed, trees over four feet in height were seldom killed by this disease.

NORTHERN FOREST REGION



Scleroderris Canker

Locations where infections were observed in 1966 and 1967

Legend

Single record ..... ○

Several records ..... ②

TABLE 3

Summary of Incidence and Tree Mortality Caused by Scleroderris Canker in Relation to Tree Height in Keetle Lakes Park in 1967

Note: Based on examination of 200 trees in each height class.

Tree height in feet	Per cent of trees attacked	Per cent of trees killed
1 - 2	33	19
2 - 4	14	2
4 - 6	6	0

A Disease on Conifers, Scoleconectria cucurbitula (Tode ex Fr.) Booth

This disease, reported for the first time in 1966 in Fauquier Township in the Kapuskasing District, was recorded in nine widely-scattered plantations in the Northern Region in 1967. Two factors that may have favoured the increase in abundance of the disease were the severe damage in plantations by winter browning and the serious deterioration of plantation trees caused by insects and other disease organisms.

The highest incidence of the disease occurred in a jack pine plantation near Cree Lake in Wicksteed Township. Elsewhere in Kapuskasing District light infections occurred in jack pine plantations in Gurney and Fauquier townships and one sample was collected from white pine in Studholme Township (Table 4). Light infection occurred on jack, red, and Scots pine trees in Sheraton, German and Mountjoy townships in Cochrane District. In Swastika District light infections occurred in jack pine plantations in McCool and Garrison township and on Scots pine shelterbelts in the Swastika Nursery.

TABLE 4

Collections of S. cucurbitula, Levels of Infection, and Condition of Host Trees in the Northern Region in 1967

District	Township	Host	Level of infection	Condition of host tree
Kapuskasing	Fauquier	jp	Light	Recently dead
	Studholme	wP	Trace	Living
	Studholme	wP	Trace	Living
	Studholme	wP	Trace	Living
	Gurney	jP	Light	Recently dead
	Wicksteed	jP	Heavy	Living and dead
	Elgie	jP	Trace	Recently dead
	McMillan	jP	Trace	Living
Cochrane	German	scP	Medium	Living and recently dead
	Sheraton	rP	Light	Living
	Sheraton	rP	Light	Recently dead
	Sheraton	jP	Light	Recently dead
	Mountjoy	scP	Light	Living
	Mountjoy	scP	Light	Living

A Canker on Jack Pine, Valsa pini (Alb. and Schw.) Fr.

Fruiting bodies of this organism were collected in association with winter drying, Scleroderris canker and other diseases in jack pine plantations in 1967. Light infections occurred in Stimson and Sheraton townships in Cochrane District, Wicksteed Township, in Kapuskasing District, and McCool and Garrison townships in Swastika District.

Frost Injury

This type of injury caused severe damage in the Northern Region in 1965 and 1966 but was almost non-existent in 1967. Light damage was observed on balsam fir trees around Abitibi Lake in Cochrane District, along Highway 101 east of Matheson in Swastika District, and on white spruce shelterbelts in the Swastika Nursery.

Hail Injury

A hail storm late in 1966 caused severe twig and some branch mortality of balsam fir and spruce trees in the area northeast of Abitibi Lake in Cochrane District. Aerial surveys in 1967 showed that browning caused by the twig and branch mortality extended over large cutover areas of Bonis, Scapa, Sargent, Purvis and Hepburn townships. Although branch damage was severe only a minor amount of tree mortality occurred.

Winter Drying of Conifers

Severe winter drying occurred on red pine trees in Sheraton, Timmins, German, Dempsay, Mountjoy, Whitesides and Fournier townships in the Cochrane District. Damage was generally light on jack and white pine trees in the above areas. In Kapuskasing District browning was severe on red pine at the Spruce Falls Nursery and on red and jack pine trees planted near Cree Lake in Wicksteed Township. Severe browning of red pine occurred at many points in Swastika District with the highest damage in Chamberlain and Eby townships.

Deterioration of White Birch Stands

Considerable white birch deterioration occurred in Sheldon and Howells township in Kapuskasing District. Some of the better white birch stands in the region are located on the well-drained clay hills between the Abitibi and Mattagami rivers. Flights over the area showed light tree mortality and various stages of dieback in more than half of the white birch trees. Similar deterioration occurred in Sweet, Torrance and Arnott townships in Kapuskasing District. White birch deterioration in Cochrane and Swastika districts occurred mainly in cutover areas.

TABLE 5

Other Noteworthy Diseases Collected in the Northern Region in 1967

Organism	Host(s)	Remarks
Apiosporina collinsii (Schw.) Hoehn	Se	Generally found throughout the range of serviceberry in the Northern Region
Bifusella crepidiformis Darker	bS	Light infection at scattered points in the region
Cenangium acuum Cke. and Pk.	wP	Light on plantation trees in Sheraton Township, Cochrane District
Cenangium atropurpureum Cash and Davidson	rP,jP	First Ontario survey record made in Wicksteed Township, Kapuskasing District
Chrysomyxa arctostaphyli Diet	bS	Moderate attack in Elgie Township in Kapuskasing District, damage observed at many points in the region
Chrysomyxa ledi de Bary	wS,bS	Observed commonly in 1967 but infections were generally low

TABLE 5 (continued)

Organism	Host(s)	Remarks
Chrysomyxa ledicola Lagerh.	wS,bS	Severe infection in Heightington Township and light at several points in the region
Coccomyces heimalis Higgins	pCh	High incidence and severity in Timmins Township, generally light elsewhere in the region
Coccomyces tumidus (Fr.) De Not.	Se	Light infection in Whitney, German and Evelyn townships, Cochrane District
Coleosporium asterum (Diet.) Syd.	jP	Severe infection on a few small trees in Tisdale Township in 1966 was reduced to light in 1967. Severe infection on lower branches of jack pine trees planted along strip roads in Township 238, Kapuskasing District
Coryneum negundinis Berk. & Curt.	mM	Medium twig mortality in South Porcupine and Kirkland Lake
Cytospora pini Dfsm.	jP	Collected in a seriously deteriorated plantation at Cree Lake in the Kapuskasing District
Dasyscypha agassizi (Berk. & Curt.)	bF	Observed commonly on newly-dead balsam fir trees in the region
Dermea balsamea (Pk.) Seav.	bF	Collected in Parnell and Williamson townships in Kapuskasing District
Dibotryon morbosum (Schw.) Theiss. & Syd.	pCh	Observed commonly in the region
Exobasidium vaccini Wor.	blueberry	Collected in Sheraton Township in the Cochrane District
Godronia confertus (Hone) Groves	pCh	Light tree mortality in German Township, Cochrane District
Gymnosporangium cornutum Arth. ex Kern	moAs	Light infection in Stimson Township, Cochrane District

TABLE 5 (continued)

Organism	Host(s)	Remarks
Hypodermella ampla (J.J. Davis) Dearn.	jP	Light infection in Tisdale and Freele townships and trace in Sweatman Township north of Little Abititi Lake, all in Cochrane District
Hypoxylon mammatum (Wahl.) Miller	tA	Observed commonly in the region with appreciable tree mortality on either excessively wet or dry sites
Lenzites saepiaria (Wulf. ex Fr.) Fr.	bF	Collected in German Township, Cochrane District
Lophium mytilinellum (Pers. ex Fr.) Fr.	rP	Collected in a plantation in Fournier Township, Cochrane District
Lophodermium pinastri (Schrad. ex Fr.) Chev.	jP	Collected in Adams Township, Cochrane District
Marsonnina populi (Lib.) Sacc.	tA	Heavy on some large aspen trees on poor sites in Division 43 in Cochrane District
Melampsora epitea Thuem.	W	Severe infection and high incidence occurred in Whitney, Cody and Colquhoun townships in Cochrane District and light infections observed in Swastika and Kapuskasing districts
Melampsorella abieti-capraearum Schroet.	W	This disease that blackens the mid-rib veins of willow leaves occurred commonly at low infection levels in the region
Microsphaera alni (Allr.) Salm.	W	Light infection in Owen Township, Kapuskasing District
Nyssopsora clavellosa (Berk.) Arth.	aralia sp.	Observed at many points in Kapuskasing District and less commonly in Swastika and Cochrane districts

TABLE 5 (continued)

Organism	Host(s)	Remarks
Polyporus abietinus Dicks. ex Fries	wS,bS,bF	Five special collections made from dead trees in the Cochrane District
Poria obliqua (Pers.) Karst	wB	Found in all districts on second growth or slow growing white birch trees
Puccinia bolleyana Sacc.	elderberry	Collected in Howells and Sheldon townships in Kapuskasing District and observed at many points in Cochrane and Swastika districts
Puccinia coronata Cda.	buckthorn	Heavy infection occurred at many points in Cochrane and Swastika districts
Puccinia ellisiana Thuem.	violet	Severe infection in Clavet Township, Kapuskasing District
Puccinia linkii Klotzsch	squashberry	Light rust on leaves in Calder Township, Cochrane District
Puccinia mesomajalis Berk. and Curt.	clintonia	Medium infection in Sheldon Township in Kapuskasing District and light at other points in the region
Rhytisma acerinum Pers. ex Fr.	rM	Heavy infection at many points in the Cochrane and Swastika districts
Rhytisma punctatum Pers. ex Fr.	moM	Light to heavy occurred commonly in Cochrane and Swastika districts and light at a few points in Kapuskasing District
Rhytisma salicinum (Pers.) Fr.	W	Heavy infections in Bradburn, Cody, Hillary and Deloro townships in Cochrane District and in Stock and Walker townships in Swastika District

TABLE 5 (concluded)

Organism	Host(s)	Remarks
Septoria betulae (Lib.) West	wB	High incidence in Clavet Township, Kapuskasing District
Thyronectria balsamea (Cke.) and Pk. Seal.	bF	Causing dieback of single trees at scattered points in the region
Tubercularia vulgaris Tode. ex Fr.	Se,moM	Collected in Kapuskasing District
Tympanis hypopodia Nyl.	jP,wP	Found on white pine in McArthur and on jack pine in Stimson townships, Cochrane District
Uncinula salicis (D.C. ex Merat) Wint.	W	Severe on aspen and willow in Stock, and light on balsam poplar in Marriott and Eby townships in Swastika District

STATUS OF INSECTS IN THE COCHRANE DISTRICT

H. R. Foster

Jack Pine Resin Midge, Cecidomyia reeksi Vock.

Population levels of this midge were low in 1967 except in Sheraton Township where appreciable numbers of larvae occurred on twigs under the flowers of open-grown jack pine trees. Populations at quantitative sample plots were comparable to 1966 (Table 6). Twig mortality in the sample plots was negligible.

TABLE 6

Summary of Jack Pine Resin Midge Attack on Jack Pine Trees in Cochrane District in 1966 and 1967

Location (township)	Av. height of sample trees in feet	No. of shoots examined in 1967	Per cent of shoots infested	
			1966	1967
Robb	32	204	4.0	1.0
Murphy	22	194	0.6	2.6
German	20	200	1.2	2.5
Calvert	18	193	1.1	0.0
Stimson	15	191	0.3	0.5
Denton	25	197	0.5	1.6

Spruce Budworm, Choristoneura fumiferana (Clem.)

Minor increases in numbers of larvae occurred on large white spruce trees in Calder and Sydere townships and on balsam fir in Haggart Township. Population levels declined somewhat in Timmins, Tisdale and Hillary townships where appreciable numbers of larvae were found in 1966. Two male spruce budworm adults were recovered from traps in Calder Township.

Jack Pine Budworm, Choristoneura pinus pinus Free.

Populations of this insect increased on jack pine trees along the eastern border of Division 43. A medium infestation was observed on open-grown natural jack pine trees in Sheraton Township. Low populations occurred in jack pine plantations in Timmins and Sheraton townships and on natural jack pine in Calvert, Dundonald and Tisdale townships. Population levels declined somewhat on Scots pine trees in German Township.

Larch Casebearer, Coleophora laricella Hbn.

A light infestation recurred in a tamarack swamp south of Iroquois Falls in Calvert Township. Elsewhere in the district larvae were rarely observed. Counts were negative at sample stations in Carscallen and Haggart townships and low in Clute and Mountjoy townships (Table 7).

TABLE 7

Summary of Larch Casebearer Counts in the Cochrane District in 1967

Note: Counts were based on examination of four 18-inch branch tips taken from the mid-crown of each of five trees.

Location (township)	Av. d.b.h. of sample trees in inches	Average number of larvae per 18-inch branch tip
Calvert	4	1.3
Clute	4	0.2
Mountjoy	3	0.05

A Twig Borer on Jack Pine, Conophthorus sp.

Populations of this insect declined to low levels except in Robb Township where the numbers of damaged twigs on 20 jack pine trees increased from 15 in 1966 to 46 in 1967 (Table 8). No damage occurred at the sample station in Murphy Township.

TABLE 8

Summary of Damage by a Twig Borer on Jack-pine Trees in the Cochrane District from 1965 to 1967

Note: Based on counts of all damaged twigs on twenty trees at each location.

Location (township)	Av. d.b.h. of sample trees in inches	Total number of damaged shoots			Number of leaders infested in 1967
		1965	1966	1967	
Sheraton	5	9	2	1	0
Tisdale	5	41	5	3	0
Murphy	4	0	2	0	0
Robb	4	58	15	46	0
McKeown	4	10	1	2	0

European Spruce Sawfly, Diprion hercyniae (Htg.)

Small numbers of the European spruce sawfly occurred commonly on white spruce trees in the district but few larvae were found on black spruce trees in 1967. Larval counts were low at quantitative sample plots (Table 9).

TABLE 9

Summary of European Spruce Sawfly Larval Counts Made in the Cochrane District in 1966 and 1967

Location (township)	Host	Av. d.b.h. of sample trees in inches	Total number of larvae per 15-tray sample	
			1966	1967
Tisdale	wS	6	21	9
Whitney	wS	1	11	6
Teefy	wS	1	12	4
Leitch	wS	7	15	12
Calder	wS	9	13	11
Hanna	bS	3	6	0

Birch Leaf Miner, Fenusa pusilla Lep.

A heavy infestation recurred on ornamental trees in Timmins and South Porcupine. The distribution of this introduced pest increased considerably in Cochrane District in 1967 with collections from such widely-scattered townships as Hillary, Evelyn, Macklem and Swartman. Small white birch trees were the favoured hosts.

A Leaf Roller on White Birch, Gracillaria sp.

Heavy infestations occurred on white birch stands in Parliament, Kineras, Pinard and Mewhinney townships in the Abitibi Canyon area. Small areas of heavy infestation occurred in Alexandra, Mabee, Swartman and McQuibban townships. Light infestations were observed in Homuth and Avon townships.

This insect feeds only on a small part of the rolled leaf and was not fully responsible for the deterioration and mortality of white birch reported in the above areas in the regional section of this report.

Pine Root Weevil, Hylobius warreni (Wood)

A light infestation of this weevil recurred in a Scots pine provenance test plot in German Township. Tree growth in the plot has been poor and light tree mortality has been occurring since 1965. An Adirondack strain of Scots pine was most seriously affected in 1967.

TABLE 10

Summary of Scots Pine Tree Mortality in German Township from 1965 to 1967

Scots pine stain	Total number of trees examined in 1967	Number of dead trees infested by weevils		
		1965	1966	1967
Adirondack	132	4	2	13
Norfolk	167	5	3	8
Austria	260	1	0	0
Belgium	265	3	1	4
Denmark	312	10	4	10
Cevennes	127	-	-	6

Aspen Blotch Miner, Lithocolletis salicifoliella Cham.

Medium infestations occurred on young trembling aspen trees in Denton, Thorneloe and Hillary townships. Light infestation occurred on balsam poplar trees near Cochrane in Clute Township and on willow trees in Division 43. Elsewhere in the district population levels were low (Table 11).

TABLE 11

Summary of Aspen Blotch Miner Counts in the Cochrane District in 1966 and 1967

Location (township)	Tree species	Av. d.b.h. of sample trees in inches	Per cent of leaves mined in 1967	Total number of mines per hundred leaves	
				1966	1967
Dempsay	tA	2	12	2	12
Mountjoy	tA	2	2	4	2
Haggart	tA	2	4	6	4
Brower	tA	2	4	19	5
Brower	bPo	1	1	1	1
Murphy	tA	2	2	7	2
Clute	tA	2	4	1	4
Clute	bPo	2	5	9	5

Western Tent Caterpillar, Malacosoma pluviale (Dyar)

Pockets of medium infestation that were reported in German, Deloro and Whitney townships in 1966 declined to light intensity in 1967. Colony counts were negative in Calvert and German townships and low at four other sample stations (Table 12).

TABLE 12

Summary of Western Tent Caterpillar Colony Counts in Square Chain Plots in the Cochrane District from 1965 to 1967

Location (township)	Total number of colonies counted		
	1965	1966	1967
Calvert	3	1	0
Godfrey	3	4	2
German	3	1	0
Ogden	3	4	2
Thorneloe	6	3	1
Deloro	7	9	4

Red Pine Sawfly, Neodiprion nanulus nanulus Schedl.

Population levels of this sawfly increased on open-grown jack pine trees in Division 43. Larval colonies occurred commonly on jack pine in Dundonald, Clergue, Calvert, German, Robb, Whitney, Tisdale and Matheson townships and on red pine trees in Hillary and Kirkland townships.

Jack Pine Sawfly, Neodiprion virginianus complex

A medium infestation of this sawfly occurred on small trees on the western outskirts of Schumacher and light infestations were observed in Bartlett, Fripp, Denton, Robb, Tisdale, Fournier and Calvert townships. Colony counts at sample stations were comparable to 1966 (Table 13).

TABLE 13

Summary of Jack Pine Sawfly Colony Counts in the Cochrane District in 1966 and 1967

Note: Counts were based on the examination of ten jack pine trees at each point.

Location (township)	Av. d.b.h. of sample trees in inches	No. of trees infested in 1967	Average number of colonies per tree	
			1966	1967
Robb	4	3	12	3
Tisdale	5	5	21	11
Fournier	4	2	5	4
Calvert	5	6	7	11
Avon	4	0	3	0

Leaf-folding Sawflies, Phyllocolpa spp.

Populations on trembling aspen declined to the lowest levels since 1956 in quantitative sample plots (Table 14). Heavy infestations in 1966 along the southern border of the district and in Adair and Homuth townships declined to light intensity in 1967.

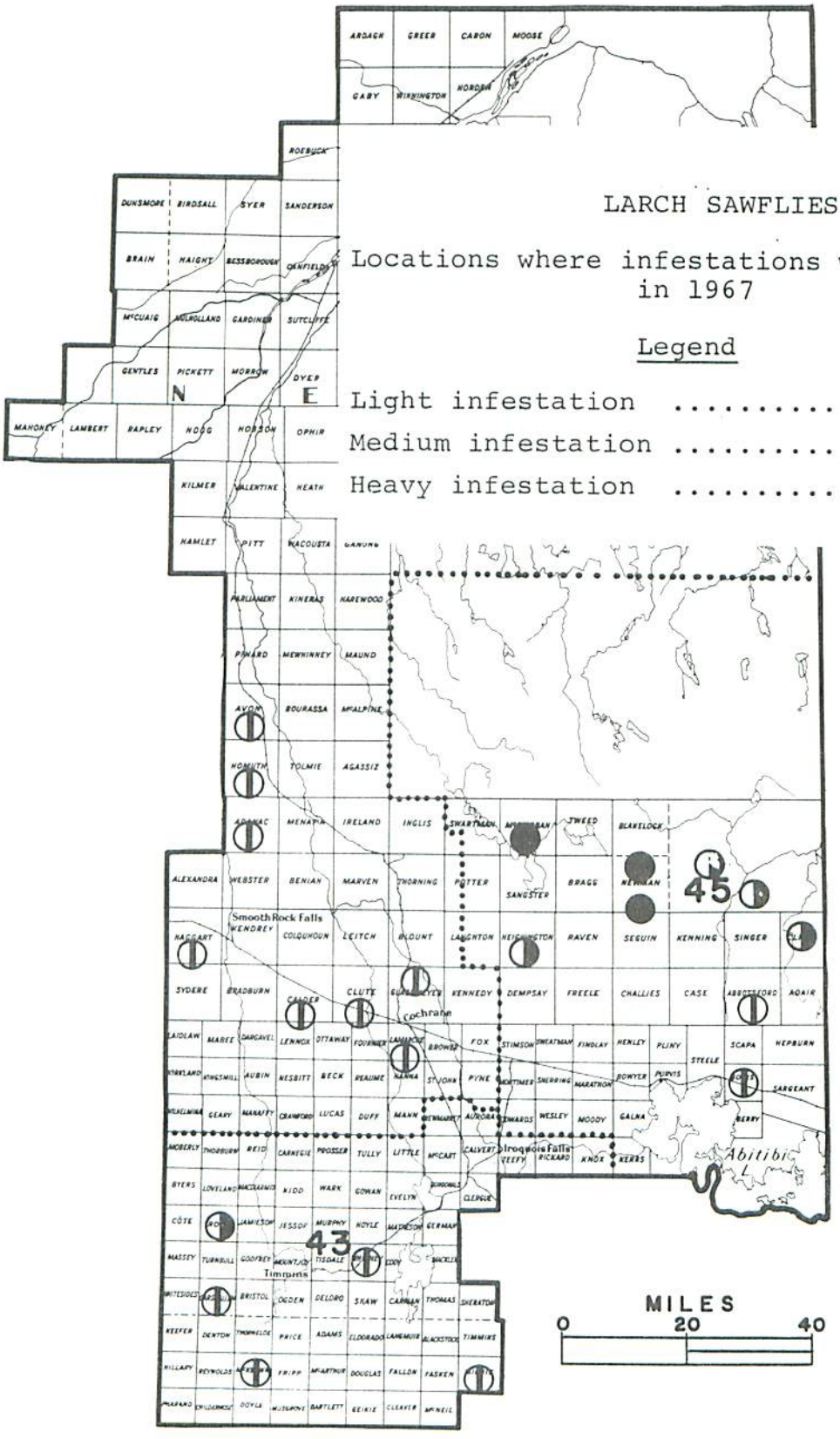
TABLE 14

Summary of Leaf-folding Sawfly Counts on Trembling Aspen in the Cochrane District in 1966 and 1967

Note: Based on the examination of 100 leaves taken at random from three trees at each point.

Location (township)	Av. d.b.h. of sample trees in inches	Total number of folds on on hundred leaves	
		1966	1967
Brower	3	2	0
Murphy	2	4	0
Haggart	2	7	0
Dempsay	2	6	4
Clute	2	3	0
Mountjoy	3	8	2

COCHRANE DISTRICT



LARCH SAWFLIES

Locations where infestations were observed in 1967

Legend

Light infestation .....

Medium infestation .....

Heavy infestation .....

Heavy infestations of a leaf-folding sawfly on balsam poplar persisted at many points in Division 43 and light to medium infestations occurred commonly in Divisions 44 and 45.

A Heavy infestation of a third species, Phyllocolpa agama (Roh.) occurred for the fourth consecutive year on narrow-leafed willow in Hanna Township. A medium infestation was observed in Shaw Township.

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

Infestations of this insect increased to heavy intensity in a white spruce plantation at Driftwood River in Calder Township and to medium intensity in a plantation in Greenwater Lake Park in Colquhoun Township. Light to heavy infestations occurred on ornamental black and white spruce trees in Timmins, South Porcupine, Cochrane and Smooth Rock Falls. Light infestations were observed commonly on open-grown spruce trees and small numbers of larvae were found consistently in mat samples late in the summer.

White-pine Weevil, Pissodes strobi (Peck)

A heavy infestation of this weevil on white spruce regeneration in Whitney Township and a medium infestation on Scots pine in a provenance test plot in German Township in 1966 declined to light intensity in 1967. Elsewhere in the district population levels were low (Table 15).

TABLE 15

Summary of Leader Damage by the White-pine Weevil in the Cochrane District in 1966 and 1967

Location (township)	Tree species	Av. height of sample trees in feet	Per cent of trees weevilled	
			1966	1967
Sheraton	bS	15	4	2
Sheraton	jP	15	5	4
Calder	wS	8	8	4
Whitney	wS	10	24	5
Hanna	bS	14	3	2
Homuth	bS	16	4	2
Dempsay	bS	12	1	0

Balsam Shoot-boring Sawfly, Pleroneura borealis Felt

Medium populations of this insect that occurred in Hillary, Musgrove and Haggart townships in 1966 declined to low levels in 1967. Population levels at sample stations in 1967 were comparable to 1966 (Table 16). The biennial occurrence of high numbers of this sawfly was broken in 1963 and 1965 and little change in numbers has occurred in recent years.

TABLE 16

Summary of Balsam Shoot-boring Sawfly Counts in the Cochrane District from 1960 to 1967

Note: Based on the examination of all buds on four branch tips from each of five trees at each point.

Location (township)	Av. ht. of sample trees in feet	No. of shoots examined in 1967	Per cent of shoots infested							
			1960	1961	1962	1963	1964	1965	1966	1967
Haggart	27	381	2.1	0.0	2.3	1.5	4.4	0.0	5.2	2.3
Thorneloe	14	350	2.4	0.0	7.2	0.0	12.0	0.0	2.3	4.2
Calder	35	367	2.5	0.0	6.7	3.9	7.3	4.6	2.2	2.0
Timmins	28	390	4.0	0.0	2.7	1.3	4.2	3.7	3.8	1.9
Pharand	20	400	-	-	19.0	4.8	11.2	2.8	2.1	2.0

Larch Sawfly, Pristiphora erichsonii (Htg.)

Infestation intensity increased sharply to medium and heavy at several points between Little Abitibi Lake and the Quebec border in Division 45 (see map). A medium infestation occurred on small tamarack trees in Robb Township in Division 43, but elsewhere in the district population levels remained low.

Mountain-ash Sawfly, Pristiphora geniculata (Htg.)

Infestations of this insect increased in number and intensity in 1967. Medium infestations occurred on showy mountain ash in MacIntyre Park and on American mountain ash in Scapa, Hepburn and Adair townships. New distribution records were obtained in Clergue, Scapa, Hepburn and Adair townships.

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

Infestations of this miner that declined from outbreak proportions in 1964 to low intensities in 1965 and 1966, increased sharply in several areas in 1967. Pockets of heavy infestation occurred west of Harris Lake in Division 45, north of Smooth Rock Falls to Abitibi Canyon and in Mortimer and Loveland townships. Damage at sample points was comparable to 1966 except in Mortimer Township where the number of mines per 100 leaves increased from 11 to 61 (Table 17).

TABLE 17

Summary of Damage Caused by the Amber-marked Birch Leaf Miner in the Cochrane District in 1966 and 1967

Location (township)	Av. height of sample trees in feet	Per cent of leaves infested in 1967	Total number of mines per hundred leaves	
			1966	1967
Tisdale	16	8	9	11
Glackmeyer	25	11	10	16
Timmins	18	5	7	5
Hillary	20	9	9	14
Evelyn	20	10	12	14
Mortimer	30	27	11	61

A Poplar Leaf Roller, Pseudexentera oregonana Wlshm.

Infestations of this leaf roller on trembling aspen declined to medium and light intensities respectively in the Jowett Lake area in Clute Township and in the Smooth Rock Falls-Cochrane are in Division 44. Small numbers were observed elsewhere in Division 44 and 43.

Spruce Bud Midge, Rhabdophaga swainei Felt

On the basis of results obtained at sample stations, no major change in population levels of this insect occurred between 1961 and 1967. Numbers were lowest in 1964 (Table 18).

TABLE 18

Summary of Damage Caused by the Spruce Bud Midge on Black Spruce Trees in the Cochrane District from 1961 to 1967

Location (township)	Av. d.b.h. of sample trees in inches	Per cent of buds infested						
		1961	1962	1963	1964	1965	1966	1967
Kendrey	3	2.2	7.8	4.2	0.0	1.0	0.0	2.0
Hanna	3	1.2	1.3	0.7	0.0	0.0	0.0	0.7
Stimson	4	1.5	1.5	3.3	0.0	1.0	0.0	1.3
Denton	4	3.1	0.7	0.03	0.0	1.0	1.3	2.0
Timmins	5	0.4	1.3	0.7	0.0	0.0	0.0	2.6

Pine Tip Moth, Rhyacionia adana Heinr.

Light infestations occurred commonly on jack pine regeneration along roadsides and in cutover areas in divisions 43 and 45 and in extensive jack pine plantations in Timmins and Sheraton townships. A light infestation recurred on red pine regeneration in Kirkland Township.

Pine Tortoise Scale, Toumeyella numismaticum (P. & M.)

Populations of the pine tortoise scale remained at approximately the same levels as in 1966. High populations recurred on several strains of Scots pine in provenance test plots in German Township. Light infestations recurred at the Kamistkotia Mine in Robb Township and in Shaw and Denton townships.

TABLE 19

Summary of Miscellaneous Insects Collected in the Cochrane District in 1967

Insect	Host(s)	Remarks
Acleris variana Fern.	wS,bF	Small numbers in beating samples
Acmaeops proteus Kby.	wS	A few larvae in log traps
Acrobasis betulella Hlst.	wB	Light in Laughton Township
Aleyrodidae (white flies)	bPo	Light in German, Leitch and Tisdale townships
Altica corni Woods	Do	Heavy in Whitney Township and light to medium at many other points
Anchylopera burgessiana Zell.	pCh	This insect observed commonly in 1965 but was scarce in 1967
Anoplonyx canadensis Htg.	tL	Light at several points in Division 43
Aphrophora parallela Say	jP	Light population observed in Kettle Lakes Park
Archips cerasivoranus (Fitch)	ecCh	Light in Leitch, Haggart, Sweatman and Glackmeyer townships
Argyresthia laricella Kft.	tL	Light in Leitch Township
Bucculatrix canadensisella Cham.	wB	The outbreak of this insect collapsed in 1966 and one collection made in 1967
Caripeta divisata Wlk.	bF	A few larvae in beating samples
Coleophora betulivora McD.	wB	Light on open-grown trees at points in divisions 43 and 45
Coleophora innotabilis Braun	bPo	A few larvae collected
Dasineura balsamicola Lintn.	bF	Light in Dundonald and St. Laurent townships
Datana ministra Dru.	wB	One colony collected in Mountjoy Township
Dimorphopteryx pinguis (Nort.)	wB	Low numbers at several points

TABLE 19 (continued)

Insect	Host(s)	Remarks
Elaphria versicolor Grt.	bF	One larva collected
Epinotia sp.	Al	Medium on alder catkins at several points
Epinotia solicitana Wlk.	wB	Light on open-grown trees in Hillary Township
Eupithecia filmata Pears.	wS	A few larvae in beating samples
Eupithecia transcanadata Mack.	wS	A few larvae in beating samples
Euura hospes (Walsh)	W	Light on a few trees in South Porcupine
Fenusa dohrnii (Tischb.)	Al	Light in Bradburn, Tisdale and Evelyn townships
Galerucella decora (Say)	W	This insect was scarce in the Smooth Rock Falls area where light infestations occurred in 1966
Gonioctena americana (Schaef.)	tA	Light in Hillary, Bartlett, German, Michie and Clergue townships
Gracillaria invariabilis Braun.	pCh	Light at several points in Division 43
Gracillaria syringella Fabr.	lilac	Medium in the Timmins-South Porcupine area
Lithocolletis aceriella Clem.	mM	Small number of mines in Hoyle Township
Lithocolletis betulivora Wlshm.	wB	Trace population in Timmins Township
Macremphytus varianus (Nort.)	Do	Light at many points in the district
Malacosoma disstria Hbn.	tA	Only one larva collected in 1967 and no egg bands recovered
Melanagromyza schineri (Gir.)	tA	Light at many points in the district
Messa populifoliella Town.	bPo	Observed at many points
Monochamus notatus Drury	wS	Larvae recovered from trap logs

TABLE 19 (continued)

Insect	Host(s)	Remarks
Monochamus scutellatus Say	wS	Larvae recovered from trap logs
Monoctenus fulvus Nort.	ewC	Light in Tisdale Township
Nematus limbatus Cress.	W	Light at several points in the southern part of Division 43
Neodiprion abietis complex	wS,bF	Small numbers in Tisdale and Hillary townships
Nyctobia limitaria Wlk.	bF	Collected in beating samples
Nymphalis antiopa L.	W	One colony found in Shaw Township
Orthosia hibisci Gn.	wS	A few larvae
Parornix conspicuella Dietz.	wB	Small numbers common in the district
Petrova albicapitana (Busck)	jP	Light at many points on young trees and jack pine plantations in Sheraton and Timmins townships
Phyllocnistis populiella Cham.	tA,bPo	Small numbers common in the district particularly in the second generation
Physokermes piceae Schr.	wS	Medium on a few trees in Tisdale Township
Pikonema dimmockii (Cress.)	wS,bS	Small numbers in beating samples
Pissodes approximatus Hopk.	scP	Collected in Mountjoy and German townships
Pityophthorus sp.	scP,rP	Found commonly in Timmins and Sheraton townships in 1966 but was scarce in 1967
Pristiphora lena Kinc.	wS	Collected in Whitney Township
Protoboarmia porcelaria indicataria Wlk.	wS	Collected in beating mat samples

TABLE 19 (concluded)

Insect	Host(s)	Remarks
Pseudexentera oregonana Wlshm.	tA	Medium in Clute Township and observed commonly in divisions 43 and 44
Rhyacionia busckana Heinr.	jP	Common on large open-grown trees
Rhynchaenus rufipes Lec.	W	Medium on shiny willow in South Porcupine
Semiothisa sexmaculata Pack.	tL	Small numbers in beating samples
Semiothisa submarmorata Wlk.	tL	One larva in beating sample
Taniva albolineana Kft.	blue S	Medium on two ornamentals in Timmins
Tenthredinidae #43	tA	Light on small open-grown trees in Homuth, Fournier, Tisdale and Mortimer townships
Tetropium cinnamopterum Kby.	wS	Larvae collected from trap logs
Thyridopteryx ephemeraeformis Haw.	rP,scP	Small numbers in Kettle Lakes Park
Trichiocampus irregularis (Dyar)	W	Collected in German and Glackmeyer townships
Trichiosoma triangulum Kby.	W	One collection in Glackmeyer Township
Xylomyges dolosa Grt.	tA	Found in one beating sample
Zeiraphera canadensis Mut. & Free.	wS	Small numbers in 1967
Zeugophora spp.	tA,bPo	Although only small numbers occurred in the early generation of two species of these tiny leaf mining beetles, there were appreciable numbers of both types in the second generation