

CAN

Fo

46-14

O-X

125

AEOU

Sudbury District, 1969

Reports of Forest Research Technicians

Houser, E.L.

Information Report

O-X-125

(Forest Research Laboratory, Ontario Region)



OUR FILE NO.
NOTRE DOSSIER N°

YOUR FILE NO.
VOTRE DOSSIER N°

DEPARTMENT OF FISHERIES AND FORESTRY
CANADIAN FORESTRY SERVICE

MINISTÈRE DES PÊCHES ET DES FORÊTS
LE SERVICE CANADIEN DES FORÊTS

FOREST RESEARCH LABORATORY
BOX 400
SAULT STE MARIE, ONT.

25 May 70

Dear Sir:

This is a composite of 18 individual Information Reports of Forest Insect and Disease Surveys which were issued and mailed several weeks ago to district foresters and other key forestry personnel in the various districts across Ontario. These reports were numbered consecutively as listed under the table of contents beginning with Lindsay District as O-X-115 and continuing to Fort Frances District as O-X-134, with Geraldton and White River combined as O-X-131. The content is confined to the results of field surveys of insect and disease conditions exclusive of those directly associated with aerial spraying operations carried out by the Ontario Department of Lands and Forests in 1969. Brief resumés of these operations as prepared for the Interdepartmental Committee on Forest Spraying operations in November are provided for your information as supplement reports at the back.

Yours very truly,

W.L. Sippell,
Head, Insect and Disease Survey,
Ontario Region.

WLS/ar



TABLE OF CONTENTS
REPORTS OF FOREST RESEARCH TECHNICIANS
Ontario, 1969

Foreword, L.S. MacLeod	Page
 <u>A. SOUTHEASTERN FOREST REGIONS</u>	
Lindsay District, M.J. Thomson*	A 1 -10
Tweed District, F. Livesey	A 11-18
Kemptville District, M.J. Applejohn	A 19-32
 <u>B. SOUTHWESTERN FOREST REGION</u>	
Lake Simcoe District, R.L. Bowser*	B 1 -13
Lake Erie District, G.T. Atkinson	B 14-25
Lake Huron District, V. Jansons	B 26-36
 <u>C. SOUTH-CENTRAL FOREST REGION</u>	
North Bay District, L.S. MacLeod*	C 1 -9
Parry Sound District, D. Lawrence	C 10-19
Pembroke District, P.A. Trieselmann	C 20-28
 <u>D. CENTRAL FOREST REGION</u>	
Sault Ste. Marie District, K.C. Hall*	D 1 -14
Sudbury District, E.L. Houser	D 15-29
Chapleau District, W. Ingram	D 30-42
 <u>E. NORTHERN FOREST REGION</u>	
Cochrane District, H.R. Foster*	E 1 -13
Kapuskasing District, J. Baker	E 14-22
Swastika District, J. Lombard	E 23-33
 <u>F. MIDWESTERN FOREST REGION</u>	
Port Arthur District, H.J. Weir*	F 1 -3
Geraldton District, C.A. Davis	F 9 -17
White River District, H.J. Weir	F 18-24
 <u>G. WESTERN FOREST REGION</u>	
Sioux Lookout District, C.A. Barnes*	G 1 -8
Kenora District, J. Mason	G 9 -15
Fort Frances District, J. Hook	G 16-22

Supplement Reports on Aerial Spraying Operations

Regional Supervisors *

FOREWORD

The Forest Insect and Disease Survey Unit carried out their annual damage detection and censusing program in Ontario between May 1 and September 12, 1969. The results are reviewed in detail for the area shown in the title of each specific report. The following is a general summary of the more important insect and disease situations in the Province.

The spruce budworm was the dominant forest insect problem in 1969. In northeastern Ontario, new or enlarged infestations occurred in the forest districts of Chapleau, Kapuskasing, Cochrane, Sudbury, Swastika, and Sault Ste. Marie. In southeastern Ontario heavy infestations persisted in parts of Pembroke, Tweed and Kemptville districts, and in the western part of the Province two small areas of severe defoliation appeared in the Port Arthur District. Jack pine budworm population levels increased sharply; heavy infestations recurred in the Sault Ste. Marie and Pembroke districts and new areas of severe defoliation were recorded in the districts of Sudbury, North Bay, and Parry Sound.

Aerial spraying operations were carried out against the spruce budworm by the Ontario Department of Lands and Forests in the Port Arthur and Fort Frances districts and against the jack pine budworm and white pine weevil in the Sault Ste. Marie District. Jack pine budworm infestations on the Canadian Forces Base (Petawawa) and on the Petawawa Forest Experiment Station were sprayed by the Canadian Forestry Service. Field technicians were heavily involved in the delineation of areas to be treated, in the timing of spray applications, and in the assessment of populations before and after spraying. Separate reports of these operations are in preparation.

Disease surveys emphasized the evaluation of incidence, infection levels and degree of damage by various pathogens on infected stands. Although no extensive changes in the distribution of the Dutch elm disease occurred in 1969, the pathogen caused considerable mortality of elm, particularly in southern Ontario. Two important diseases of poplar were ink spot and Hypoxylon canker. Scleroderris canker of pine continued to be a major problem in pine plantations. Cankers of pines and hardwoods were evaluated in many stands and details on these and other problems are discussed in the following report.

On January 16, 1970 the Unit lost the valuable services of its Chief Field Technician, J.E. MacDonald, who retired after guiding the Survey Field Service in its various programs and in the compilation of annual district reports for the past 25 years.

The objectives and working principles of the Insect and Disease Survey are currently being thoroughly reviewed and re-evaluated, and it is now clear that fewer technicians will be involved in carrying out surveys of forest insect and disease conditions in Ontario in 1970. Future reports on the details of these surveys will probably cover five regions or sections of the Province.

L. S. MacLeod
Acting Chief Technician

April, 1970.

SUDBURY DISTRICT

1969

INTRODUCTION

INSECTS

	Page
Pine Spittle Bug	<u>Aphrophera parallela</u> D 15
Spruce Budworm	<u>Choristoneura fumiferana</u> D 15
Jack-pine Budworm	<u>Choristoneura pinus pinus</u> D 20
Larch Casebearer	<u>Coleophora laricella</u> D 21
Forest Tent Caterpillar	<u>Malacosoma disstria</u> D 21
Red-headed Pine Sawfly	<u>Neodiprion lecontei</u> D 21
Black-headed Jack-pine Sawfly . .	<u>Neodiprion pratti banksianae</u> D 22
European Pine Sawfly	<u>Neodiprion sertifer</u> D 22
Swaine Jack-pine Sawfly	<u>Neodiprion swainei</u> D 23
Red-headed Jack-pine Sawfly . . .	<u>Neodiprion virginianus</u> complex D 23
White Pine Weevil	<u>Pissodes strobi</u> D 24
Larch Sawfly	<u>Pristiphora erichsonii</u> D 25
Other Noteworthy Insects	D 25

TREE DISEASES

Dutch Elm Disease	<u>Ceratocystis ulmi</u> D 26
Ink Spot of Aspen	<u>Ciborinia whetzelii</u> D 26
Sweetfern Blister Rust	<u>Cronartium comptoniae</u> D 27
White Pine Blister Rust	<u>Cronartium ribicola</u> D 27
Eutypella Canker of Maple	<u>Eutypella parasitica</u> D 27
A White Rot of Hardwoods	<u>Fomes connatus</u> D 28
Hypoxylon Canker of Poplar	<u>Hypoxylon mammatum</u> D 28
Other Noteworthy Diseases	D 29

INTRODUCTION

The most important development in the district was the spectacular increase in area defoliated by the spruce and jack pine budworms. Data on these and other insects and on tree diseases are presented in the following report.

The 1969 tree disease survey program placed emphasis on canker causing organisms, and several pathogens causing this type of damage to commercially important tree species were evaluated. Evaluations were aimed at establishing representative incidence, mortality and levels of infection for each disease in the district.

Several days were devoted to Junior Ranger group talks in the district. The valuable assistance extended by the personnel of the Ontario Department of Lands and Forests and others is gratefully acknowledged.

E. L. Houser

Pine Spittle Bug, Aphrophora parallela Say

High populations and considerable damage persisted in Scots pine plantations in Dawson and Sandfield townships on Manitoulin Island. Medium infestations were observed in Gordon, Bidwell, and Carnarvon townships and on understory white pine and balsam fir in B Township.

Spruce Budworm, Choristoneura fumiferana (Clem.)

Because the current budworm outbreak is spread over a number of districts which cannot realistically be treated separately, a broader approach has been adopted. The following account was extracted from Information Report O-X-135 titled "The Current Spruce Budworm Situation in Northeastern Ontario", to which the reader is referred for additional information.

In 1968, aerial and ground reconnaissance revealed major increases in the intensity and extent of the Borden Township infestation and a number of new infestations were detected over a large part of northeastern Ontario. The Borden infestation northeast of Chapleau had increased to medium intensity and extended over approximately 300 square miles. New infestations extended over approximately 800 square miles in the northern parts of the Chapleau District and into the Kapuskasing District. Both first and second year infestations were largely of light or moderate intensity with pockets of severe defoliation in Borden, Conking, Ivanhoe, and Amundsen townships. New or enlarged infestations were also delineated in the Cochrane, Sudbury, Swastika, and Sault Ste. Marie districts. Elsewhere in northeastern Ontario, infestations were generally light, interspersed with small pockets of medium to heavy intensity, the most important of which were in Baden Township and Indian Reserve 72 in the Swastika District, in Fairbank Township in the Sudbury District, and in Parkinson Township in the Sault Ste. Marie District.

In 1969, a further major development was evident. In the Chapleau District and the southern part of the Kapuskasing District, medium and heavy infestation extended over more than 2,000 square miles (see map). Stands within this area have obviously been changing from mixed woods, with a dense hardwood overstory that overtopped the fir at the time of the last outbreak, to a predominantly spruce-fir forest with scattered mature white spruce in the overstory and a dense semi-mature balsam fir understory. In some stands the defoliation of balsam fir was particularly severe with upwards of 75 per cent of the old foliage removed in addition to all of the new needles. In the Sudbury District, a new medium to heavy infestation comprising approximately 400 square miles occurred in

the area between Onaping Lake and the Canadian National Railway. Also, the light infestation of 1968 in Emerald and Gouin townships increased to heavy intensity, and two widely-separated heavy infestations, in Fairbank and Asquith townships, expanded. Eight additional, but smaller and widely-separated infestations, ranging in size from 1 to 35 square miles, were observed in the district. In the Swastika District, an infestation in Yarrow Township enlarged and increased from medium to heavy intensity, and a new heavy infestation was found in Milner Township. Reductions in the extent of damage in the Cochrane District and the northern part of the Swastika District in 1969 compared with 1968 resulted from a severe frost in mid-June of 1968 that killed most of the new shoots of balsam fir thus eliminating the food supply for the budworm. In Parkinson Township, Sault Ste. Marie District, a small, heavy infestation on white spruce recurred in 1969.

In order to forecast damage in 1970, egg mass counts were made at a large number of points in and around the infested area. The results of this survey are shown in Table 1.

Moderate and severe defoliation can be expected again in 1970 providing, of course, that normal conditions prevail next spring. A major extension of moderate and light defoliation is expected southward and southwestward of the largest infestation in the Chapleau District and probably beyond the points at which samples were taken. Similar extensions are forecast around Horwood Lake and Foleyet in the eastern part of the Chapleau District and again to the east and south of the large Onaping Lake infestation in Sudbury District. A sufficient number of nil returns were obtained from areas north and west of the infestations in the Kapuskasing District to suggest a static situation in this area for 1970.

Because this outbreak was widespread and the weather at the time of moth flight (July 15 to 28 at Chapleau) was bright, dry, and conducive to moth dispersal, new infestations will probably extend in 1970 beyond the 1969 borders of infestation.

TABLE 1

Spruce Budworm

Summary of Balsam Fir Defoliation Estimates and
Egg Mass Counts in 1969, and Infestation Forecasts
for 1970 in Northeastern Ontario

Location (township by district)	Per cent defoliation of 1969 foliage	Number of egg clusters per 100 square feet of foliage	Damage forecast for 1970
<u>Chapleau</u>			
Abigo	3	0	O *
Borden	60	68	M
Brutus	0	0	O
Calais (Prov. Park)	66	633	S
Carty	11	10	L
Conking	8	47	M
Coppell	4	22	L
Denyes	2	40	M
Foleyet	16	56	M
Halcrow	0	0	O
Halsey	3	48	M
Hardiman	8	68	M
Hill	5	84	M
Horwood	12	64	M
Ivanhoe (Prov. Park)	60	309	S
Kapuskasing	71	860	S
Keith	32	89	M
Kirkwall	65	244	S
Lerwick	74	335	S
Lincoln	52	235	S
Makawa	1	0	O
Montcalm	6	20	L
Muskego	3	0	O
Ossin	33	185	S
Oswald	1	0	O
Penhorwood	2	12	L
Rollo	1	12	L
Saddler	3	83	M
Shenango	91	4008	S
11 D (Prov. Park)	2	7	L
11 H	1	6	L
12 F	1	0	O
12 G	1	13	L
12 H	1	42	M
13 G	3	54	M
29	2	8	L
32	1	60	M
35	3	5	L

* S - Severe; M - Moderate; L - Light; O - Nil or Very Light.

TABLE 1 (continued)

Location (township by district)	Per cent defoliation of 1969 foliage	Number of egg clusters per 100 square feet of foliage	Damage forecast for 1970
<u>Cochrane</u>			
Hassard	8	16	L *
<u>Kapuskasing</u>			
Champlain	63	107	M-S
Clouston	3	0	O
Lisgar	7	76	M
Mons	71	160	S
Puskuta	3	0	O
Radisson	1	0	O
<u>North Bay</u>			
Badgerow	1	10	L
Dunnet	31	151	S
<u>Sault Ste. Marie</u>			
Parkinson (white spruce)	83	677	S
<u>Sudbury</u>			
B	35	476	S
Baynes	2	0	O
Beresford	1	0	O
Beulah	37	363	S
Botha	6	81	M
D	3	6	L
Dale	6	9	L
Dunbar	18	36	M
Edinburgh	1	0	O
Emerald	14	37	M
Emo	55	547	S
Fairbank	64	191	S
Halliday	2	3	L
Hess	2	12	L
Howey	8	31	M
Inverness	6	14	L
Leask	5	9	L
MacMurchy	3	9	L
McCowan	1	9	L
Miramichi	64	822	S
Moher	50	466	S
Moncrieff	16	14	L
Muldrew	2	0	O
Northrup	4	0	O
St. Louis	3	0	O

* S - Severe; M - Moderate; L - Light; O - Nil or Very light.

TABLE 1 (continued)

Location (township by district)	Per cent defoliation of 1969 foliage	Number of egg clusters per 100 square feet of foliage	Damage forecast for 1970
<u>Sudbury (Cont'd.)</u>			
Shelly	51	475	S *
Starlak	1	3	L
Tyrone	2	4	L
<u>Swastika</u>			
Milner	67	324	S
Tyrell	1	0	O
Yarrow	66	273	S

* S - Severe; M - Moderate; L - Light; O - Nil or Very light.

Quantitative larval counts done in early June showed that populations of the spruce budworm were common in outlying areas of the district (Table 2)

TABLE 2

Summary of Spruce Budworm Larval Counts in the Sudbury District
in 1968 and 1969

Location (township)	Host	Av. d.b.h. of sample trees in inches	Total no. of larvae	
			1968	1969
Hallam	bF	6	4	16
Salter	wS	10	70	70
Balfour	wS	8	131	1054
Nairn	bF	6	4	21
Cosby	wS	9	—	52
Dublin	wS	9	—	5
Stobie	bF	5	—	8
Haentschel	bF	9	—	32

Jack-pine Budworm, Choristoneura pinus pinus Free.

Population levels of the jack-pine budworm increased sharply for the second consecutive year. In 1968 a light infestation was present along the French River and pockets of medium infestation occurred in Allen Township. In 1969 moderate to heavy defoliation occurred in a 98-square mile area along the north shore of the French River in Travers, Allen, Bigwood, and Scollard townships (Table 4). Light infestations were also observed at widely scattered locations in Rathbun, Parkin, and Nairn townships. The medium infestation in a Scots pine plantation in Gordon Township increased to heavy and caused severe defoliation and browning in the top third of the trees. Quantitative sampling of larval populations and egg mass surveys indicate continued high populations and possible expansion of infested areas in 1970 (Tables 3 and 4).

TABLE 3

Summary of Larval Counts of the Jack-pine Budworm in Sudbury District in 1968 and 1969

Note: Counts were based on examination of four 18 inch branch tips from each of four jack pine trees at each location.

Location (township)	Av. d.b.h. of sample trees in inches	Total no. of larvae	
		1968	1969
Allen	5	44	121
Scollard	4-6	28	102
Mason	6	—	22

TABLE 4

Summary of Jack-pine Budworm Defoliation and Egg Mass Counts in the Sudbury District in 1969

Note: Counts are based on examination of six 24 inch branch tips taken at mid-crown from each of six trees at each location.

Location (township)	Host	Av. d.b.h. of trees in inches	Per cent defoliation	Total no. of egg clusters
Gordon	ScP	3	52	15
Allen	jP	6	70	7
Bigwood	jP	6	14	1
Scollard	jP	6	53	2

Larch Casebearer, Coleophora laricella Hbn.

Population levels remained low at all sample locations in the district in 1969 (Table 5). The most noteworthy change occurred in Campbell Township where high populations in 1968 declined to endemic levels in 1969.

TABLE 5

Summary of Larch Casebearer Larval Counts at Four Points
in the Sudbury District in 1968 and 1969

Note: Counts were based on the examination of four 18-inch
branch tips from each of four trees at each point.

Location (township)	Av. d.b.h. of sample trees in inches	Av. no. of larvae per tip	
		1968	1969
Hallam	5	0.4	1.4
Cascaden	5	0.1	0.0
Dill	6	0.1	1.5
Delamere	5	0.2	0.1

Forest Tent Caterpillar, Malacosoma disstria Hbn.

The 120 square mile area in which aspen suffered moderate to severe defoliation in 1968 was reduced by half in 1969 (see map). Populations were high in the infested area which included parts of 137, Deagle, and Shedden townships. Egg band surveys indicate a further reduction of populations in this area in 1970.

Red-headed Pine Sawfly, Neodiprion lecontei (Fitch.)

Populations remained low at all quantitative sample locations in the district in 1969 (Table 6). Low populations were also observed in a roadside red pine shelterbelt in Salter Township.

TABLE 6

Summary of Red-headed Pine Sawfly Colony Counts in the Sudbury District
in 1968 and 1969

Note: Counts were taken on 100 red pine trees at each location.

Location (township)	Host	Av. ht. of sample trees in ft.	No. of trees infested		Av. no. of colonies per infested tree	
			1968	1969	1968	1969
Burwash	rP	10	4	25	1.5	1.1
Hallam	rP	12	2	0	1.0	0
Victoria	rP	10	-	2	-	1.0
May	rP	8	-	4	-	1.7
Gordon	ScP	6	-	4	-	1.7

Black-headed Jack-pine Sawfly, Neodiprion pratti banksianae Roh.

Populations remained at low levels throughout the district in 1969.
The highest colony count occurred in a small stand of jack pine near
Shakwa Lake in B Township (Table 7).

TABLE 7

Summary of Black-headed Jack-pine Sawfly Colony Counts
in the Sudbury District in 1968 and 1969

Note: One hundred jack pine trees examined at each location.

Location	Av. d.b.h. of sample trees in inches	Av. no. of colonies per tree	
		1968	1969
Harmer Twp.	5	.05	.13
Rathbun Twp.	6	.09	0.0
Nairn Twp.	7	.06	.08
Cloche Island	4	.33	0.0
B Twp.	5	--	1.04

European Pine Sawfly, Neodiprion sertifer (Geoff.)

Populations in Scots pine plantations on Manitoulin Island continued
at low levels in 1969 (Table 8). One sample containing diseased larvae was
collected in a plantation in Sandfield Township.

SUDBURY DISTRICT

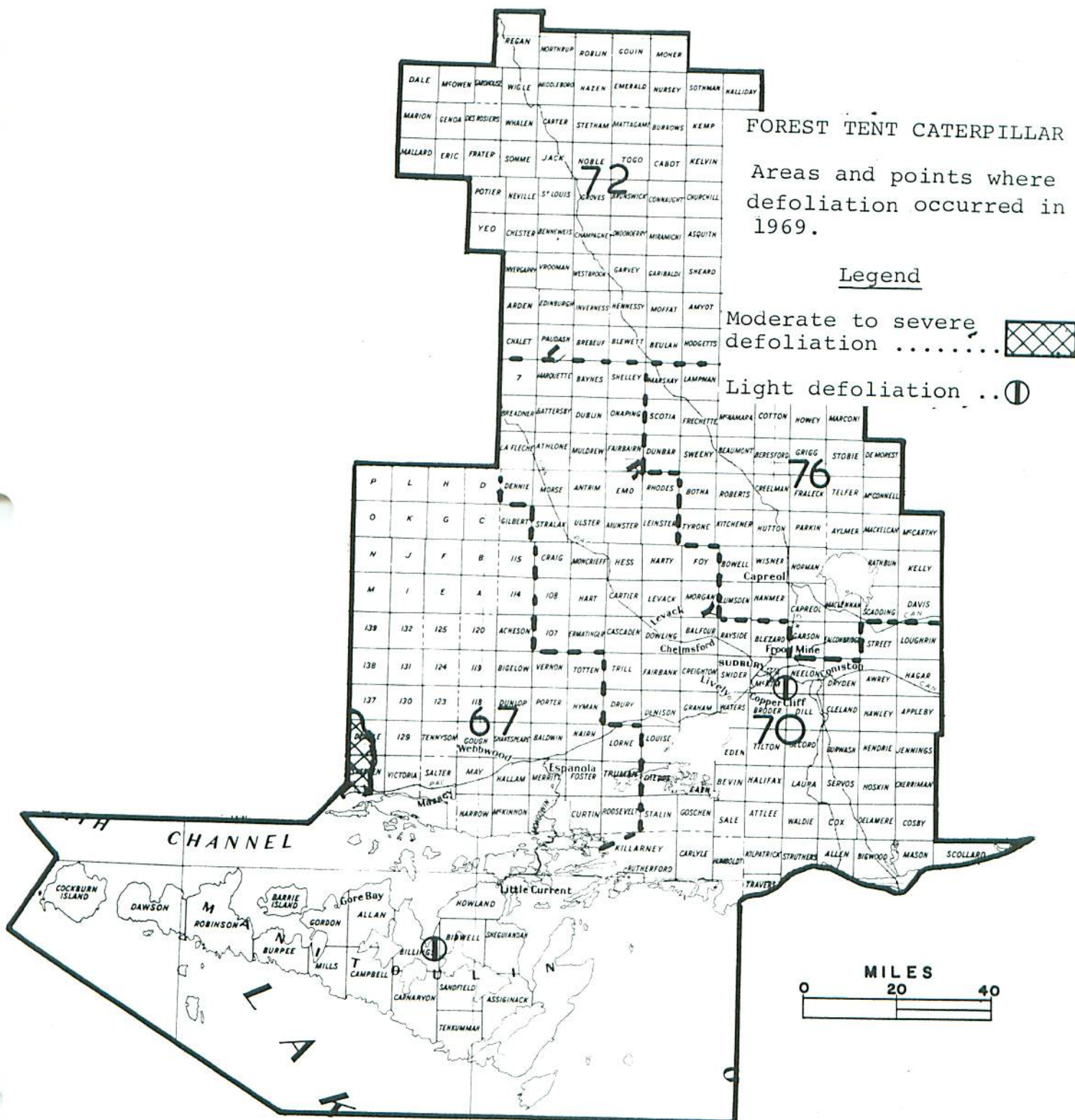


TABLE 8

Summary of European Pine Sawfly Colony Counts in Scots Pine Plantations on Manitoulin Island, Sudbury District in 1968 and 1969

Location (township)	Av. height of sample trees in ft.	No. of trees examined		Total no. of colonies		Average no. of colonies/tree	
		1968	1969	1968	1969	1968	1969
Dawson	6	1456	713	42	2	.029	.003
Carnarvon	8	872	405	20	21	.023	.052
Sandfield	6	679	200	42	14	.062	.070
Gordon	7	3420	424	83	43	.024	.102
Billings	7	3156	512	26	12	.008	.024

Swaine Jack-pine Sawfly, Neodiprion swainei Midd.

The medium infestations reported on two small islands in Shakwa Lake in 1968 increased in intensity in 1969. The populations on a small island in Onaping Lake declined to low levels due to host tree mortality, but low populations were observed along the shoreline near this old infestation. Low populations were also found in Cherriman Township and in Bigwood Township where a total of 34 colonies were recorded on a 100 tree count.

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

There was a general increase in population levels and in the number of areas infested in 1969. The heavy infestation near Marne Lake in Burrows Township increased from an average of 2.9 colonies per tree in 1968 to 7.5 colonies per tree in 1969 (Table 9). Defoliation of young jack-pine at this location was severe. Moderate populations and light defoliation to fringe and open grown trees occurred in Kemp, Groves, and Chester townships in the Gogama Division. Population levels were low at numerous locations throughout the central part of the district.

TABLE 9

Summary of Red-headed Jack-pine Sawfly Colony Counts
in the Sudbury District in 1969

Note: Counts are based on examination of 100 jack-pine trees
at each location.

Location (township)	Av. d.b.h. of sample trees in inches	Av. no. of colonies per tree
Burwash	4	0.08
Hallam	6	0.06
Parkin	6	0.11
Burrows	7	7.50

White Pine Weevil, Pissodes strobi Peck

Population levels remained relatively unchanged in 1969. High populations and severe leader damage occurred in white pine plantations in Kemp and Foster townships and in a Scots pine plantation in Baldwin Township. Moderate populations were found in a jack-pine plantation in Merritt Township and in a Scots pine plantation in May Township. Light infestations occurred in young jack-pine plantations at other points in the district (Table 10).

TABLE 10

Summary of Leader Damage by the White Pine Weevil in the Sudbury District
in 1968 and 1969

Note: Counts were made on 100 trees at each location.

Location (township)	Host	Per cent of trees infested	
		1968	1969
Kemp	wP	--	32
Foster	wP	--	24
Hart	jP	3	4
Merritt	jP	8	8
119	jP	6	4
Nairn	jP	--	4
Benneweiss	jP	--	2
Moncrieff	jP	--	3
Hanmer	ScP	--	5
May	ScP	--	13
Baldwin	ScP	38	29

Larch Sawfly, Pristiphora erichsonii Htg.

Population levels continued to increase in the southern part of the district in 1969. Moderate to severe defoliation occurred in small tamarack stands in Salter, Baldwin, and Dill townships. Low larval populations occurred at many widely scattered points in the northern and central parts of the district.

TABLE 11

Other Noteworthy Insects Collected in the Sudbury District in 1969

Insect	Host(s)	Remarks
<i>Choristoneura conflictana</i> Wlk.	tA, lA	Few individual trees moderately defoliated in Shedden Twp.
<i>Croesia semipurpurana</i> Kft.	rO	Moderate defoliation in a small woodlot in Gordon Twp.
<i>Diprion hercyniae</i> (Htg.)	wS	Populations increased at sample locations in Denison, Hagar, and Hallam twps.
<i>Enargia decolor</i> Wlk.	tA, lA	Moderate defoliation to aspen saplings in Kelvin Twp.
<i>Exoteleia pinifoliella</i> Cham.	jP	Medium infestation in a small stand of jack-pine on Cloche Island
<i>Fenusa pusilla</i> (Lep.)	wB	Suppressed and understory white birch trees infested in Cartier and Dill twps where 18 and 23 per cent of the leaves were mined respectively
<i>Pulicalvaria piceaella</i> Kft.	wS, bF	Moderate population levels in Bidwell and Sandfield twps.
<i>Zeiraphera canadensis</i> Mut. & Free.	wS	Medium infestations on individual trees in Mason and Billings twps.

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

Incidence of this disease and mortality of elm trees increased in the southern part of the district in 1969. Three 50 tree evaluations at Espanola, Massey, and Blezzard Valley revealed high levels of infection. Tree mortality was also observed along the Veuve River in Hagar Township.

TABLE 12

Summary of Incidence and Levels of Infection of Dutch Elm Disease in the Sudbury District in 1969

Note: Evaluations were based on the examination of 50 trees at each location.

Location	Tree height in feet	Per cent incidence	Per cent level of infection	Per cent mortality
Espanola	65	18	14	4
Blezzard Valley	70	4	4 *	0
Massey area	65	22	16	6

* Evaluations showing a level of infection of three per cent or more are considered to have a high level of infection.

Ink Spot of Aspen, Ciborinia whetzellii (Seaver) Seaver

Ink spot of aspen occurred generally throughout the southern and central parts of the district. Aerial observations showed several hundred acres of trembling aspen stands to be moderately infected in Moffat, Balfour, and Creighton townships. Evaluations revealed moderate level of infection ranging from 34 to 40 per cent at all but three locations (Table 13). Light level of infection occurred in Hanmer, Burpee, and Mongowen townships.

TABLE 13

Summary of Incidence and Levels of Infection of Ink Spot of Aspen
in the Sudbury District in 1969

Note: Evaluations are based on the examination of four trees
at each of ten plots at each location.

Location (township)	Host	Acres affected	Per cent incidence	Level of infection in per cent
Burpee	Hybrid poplar	50	100	12
Balfour	tA	50	100	39
Mongowen	tA	35	95	21
Shakespeare	tA	40	100	37
Hallam	tA	40	100	34
Dunlop	tA	100	100	40
Hanmer	tA	50	100	24

Sweetfern Blister Rust, Cronartium comptoniae Arth.

A high level of infection caused by this pathogen occurred in a plantation of young jack-pine trees in Hart Township. In this area 12.5 per cent mortality and an incidence of 32.5 per cent infection was recorded. The sapling size trees were growing adjacent to mature jack-pine in which considerable damage had occurred. Trace levels of infection were observed elsewhere, particularly in mature stands in Cartier, Nairn, and Noble townships.

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

No appreciable change in incidence or level of infection was observed in 1969. An evaluation in a mixed pine plantation in Nairn Township, showed a moderate level of infection, with an incidence of 12 per cent and 2.5 per cent tree mortality. Trace levels of infection were observed in Delamere, Dawson, and Carnarvon townships. In general this disease was found most commonly in the southern part of the district.

Eutypella Canker of Maple, Eutypella parasitica Davidson & Lorenz

This organism was found in several stands of maple in the southern part of the district and on Manitoulin Island. Evaluations revealed a moderate level of infection with no apparent tree mortality (Table 14).

TABLE 14

Summary of Incidence and Levels of Infection of *Eutypella* Canker
on Sugar Maple in the Sudbury District in 1969

Note: Evaluations were based on the examination of four trees
at each of ten plots at each location.

Location (township)	Tree height in feet	Per cent incidence	Per cent level of infection
Billings	40	7.5	7.5
Gough	60	12.5	12.5
Trill	50	7.5	7.5
Scollard	65	15.0	15.0

A White Rot of Hardwoods, *Fomes connatus* (Weinm.) Gill

Infections caused by this wood rotting pathogen were observed commonly in most stands of hard maple in the Espanola Division. The fruiting stages of this pathogen were often found associated with *Nectria* and *Eutypella* cankers. Evaluations carried out in Mongowin and Gough townships showed levels of infection of 10.0 and 12.5 per cent, respectively. Trace levels of infection were observed elsewhere in Baldwin and Drury townships.

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

This disease approximated the level of infection and incidence recorded in 1968. In 1969 evaluations (Table 15) are representative of sites in the western, central, and eastern parts of the district. Generally the highest levels of infection and tree mortality were found in the southern part of the district.

TABLE 15

Summary of Incidence and Levels of Infection of Hypoxyton Canker
of Poplar in the Sudbury District in 1969

Note: Evaluations are based on the examination of four trembling aspen
trees at each of ten plots at each location.

Location (township)	Tree height in feet	Acres affected	Per cent incidence	Level of infection	Per cent mortality
Loughrin	65	50	High	High	5.0
Shedden	30	50	High	High	5.0
Morgan	65	50	High	High	2.5

TABLE 16

Other Noteworthy Diseases in Sudbury District in 1969

Organism	Host(s)	Remarks
<i>Endocronartium harknessii</i> (J.P. Moore) Bald. & Cif.	jP, ScP	Trace infections were observed in Scollard and Carnarvon twps.
<i>Pollaccia radiosa</i> (Lib.) Bald. & Cif.	tA, lA	Trace infections on understory aspen along the new Timmins highway in Stethan Twp. and in Dawson Twp. on Manitoulin Island
<i>Pollaccia elegans</i> Serv.	bPo	Trace infections on roadside and understory trees in Gouin Twp.