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Chapleau District, 1969
Reports of Forest Research Technicians

Ingram, Wayne

Information Report O-X-126
(Forest Research Laboratory, Ontario Region)



CANADA

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 499
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-N-115 and continuing to Fort Frances District as O-N-134, with Geraldton and White River combined as O-N-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



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 Ontario, 1969

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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.

CHAPLEAU DISTRICT

1969

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INTRODUCTION

The following report deals with the status of forest insects and tree diseases in the Chapleau District in 1969. All insect and disease conditions are reported on a district basis except the Spruce Budworm, Choristoneura fumiferana Clem. which is described for all northeastern Ontario.

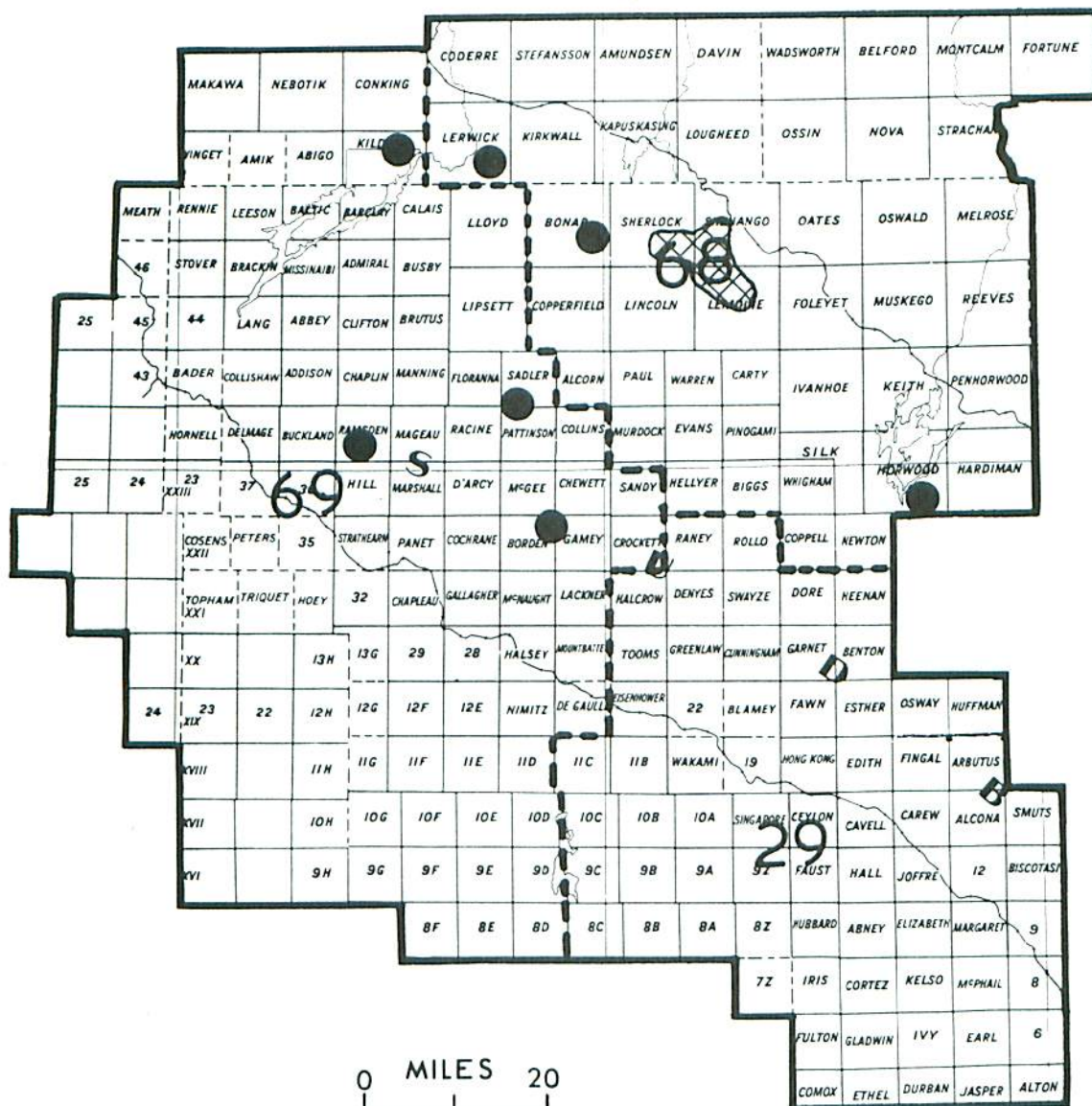
Insects causing considerable damage in the district were spruce budworm and the large aspen tortrix. Spruce budworm caused heavy defoliation over approximately 2,000 square miles while the large aspen tortrix Choristoneura conflictana Wlk. caused approximately 50 square miles of moderate to heavy defoliation in aspen stands.

A Needle Rust of Spruce, Chrysomyxa ledi de Bary again caused heavy damage over two acres in Ivanhoe Provincial Park and light infection was observed in surrounding stands.

Appreciation is expressed to Lands & Forests personnel and local lumber company officials for their cooperation and assistance during the past field season.

Wayne Ingram


CHAPLEAU DISTRICT



LARGE ASPEN TORTRIX

Areas within which severe defoliation of aspen occurred in 1969.

Legend

Severe defoliation ● or 

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Population levels increased and numerous pockets of heavy infestation occurred in the district in 1969 (see map). Moderate infestations were observed in Lloyd, Barclay and Oates townships and light infestations occurred in Leeson, Chapleau, Gallagher, l1D, and Ivanhoe townships.

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
Kapuskasung	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	0
Lisgar	7	76	M
Mons	71	160	S
Puskuta	3	0	0
Radisson	1	0	0
<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	0
Beresford	1	0	0
Beulah	37	363	S
Botha	6	81	M
D	3	6	L
Dale	6	9	L
Dunbar	18	36	M
Edinburgh	1	0	0
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	0
Northrup	4	0	0
St. Louis	3	0	0

* S - Severe; M - Moderate; L - Light; 0 - 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.

Larch Casebearer, Coleophora laricella (Hbn.)

A general decrease in numbers was noted at sample points in 1969. A light infestation occurred in Chapleau Township where an average of 14.2 larva per 18 inch branch tip was recorded (Table 2).

TABLE 2

Summary of Larch Casebearer Larval Counts in the Chapleau District
from 1967 to 1969

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

Location (township)	Average d.b.h. of sample trees in inches	Average number of larva per 18 inch branch tip		
		1967	1968	1969
Chapleau	4	0	19.7	14.2
Muskego	6	0	.4	.4
29	5	-	1.5	.4
Hoey	6	.9	2.8	1.1
Stover	5	--	--	.5
11 D	4	--	--	.2

Birch Leaf Miner, Fenusa pusilla (Lep.)

An increase in population levels of this insect was noted in 1969. Heavy infestations were observed in Coppell, Halsey, 13 G, Ivy, and Garnet townships. In Garnet Township 82 per cent of the leaves on birch and 40 per cent on alder were mined. Light infestations were also recorded on birch in Mageau, 32, Ivanhoe, 13 H, and Heenan townships.

American Aspen Beetle, Gonioctena americana (Schaeff.)

Population levels increased throughout the district in 1969. Damage was confined to small pockets of aspen regeneration and to trees up to thirty feet high. The heaviest defoliation occurred in Mageau and Chapleau townships where several trees were completely stripped. Moderate defoliation was recorded in Melrose Township and numerous pockets of light defoliation were recorded in Barclay, Borden, 36, 10 E and Lloyd townships.

Aspen Blotch Miner, Lithocolletis salicifoliella Cham.

Populations of this leaf miner declined at all sample points in the district (Table 3). The heaviest infestations were recorded in townships 29 and 36 where 23 and 44 per cent respectively of the leaves were mined.

TABLE 3

Summary of Leaf Damage Caused by the Aspen Blotch Miner
in the Chapleau District in 1969

Note: Counts were based on examination of 100 leaves at each location.

Location (township)	Per cent leaves infested	Average number of mines per infested leaf
Busby	2	1.1
Edith	4	1.0
Esther	3	1.0
Halsey	10	1.1
Ivy	4	1.0
Lloyd	1	1.0
Manning	5	1.1
Marshall	16	1.1
Nimitz	5	1.0
Osway	6	1.0
36	44	1.2
29	23	2.3
9 D	17	1.1
11 D	8	1.0

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

Population levels declined considerably at all sample points. In Carew Township three jack-pine trees of one hundred sampled were entirely stripped of old foliage. Light infestations were recorded in the following townships: Ivanhoe, 8D, Halsey, Lloyd, Durban, 36, and 28.

White Pine Weevil, Pissodes strobi Peck

Infestations were generally light (Table 4), and averaged 6 to 7 per cent weevilling except in Edith Township where a moderate infestation occurred on jack pine.

TABLE 4

Summary of Leader Damage by the White Pine Weevil in Chapleau District in 1969

Location (township)	Tree species	No. of trees sampled	Percentage of trees weevilled
Benton	JP	100	6
Durban	JP	100	1
Edith	JP	100	16
Lloyd	WP	100	11
	JP	100	2
Panet	WP	100	1
	JP	100	2
Strathearn	ScP	25	20
8 D	WP	100	10

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

Population levels increased in the district in 1969. Stands in Joffre, Heenan, and 136 townships were heavily infested and the leaves were conspicuously discoloured due to mining. Moderate infestations were recorded in Osway, McNaught, Lerwick, and Borden townships and light infestations were observed at numerous other locations (Table 5).

TABLE 5

Summary of Damage Caused by the Amber-marked Birch Leaf Miner
in the Chapleau District in 1969

Note: Counts were based on a total of 100 leaves from four branches
from each of three trees at each location.

Location (township)	Host	Per cent leaves infested	Average number of mines per infested leaf
Borden	wB	41	1.1
Busby	wB	9	1.0
Cavell	yB	8	1.0
Durban	wB	14	1.1
Edith	wB	10	1.1
Esther	wB	11	1.1
Heenan	wB	52	1.8
Joffre	wB	94	3.1
Lerwick	wB	26	2.1
Lloyd	wB	3	1.0
Manning	wB	22	1.1
Marshall	wB	5	1.0
McNaught	wB	41	2.0
Nimitz	wB	15	1.2
Osway	wB	26	1.2
32	wB	23	1.0
36	wB	20	1.4
9 D	wB	9	1.9
8 D	wB	67	1.0
9 C	wB	3	1.0

TABLE 6

Other Noteworthy Insects Collected in the Chapleau District in 1969

Insect	Host(s)	Remarks
<i>Acleris variana</i> (Fern.)	wS	Light infestations were recorded on white spruce in 13 G and Strathearn townships
<i>Aphrophora parallela</i> Say	jP	Branch tip mortality observed on jack pine in 8 D Township and low numbers in Chapleau and McNaught townships

TABLE 6 (continued)

Insect	Host(s)	Remarks
<i>Archips cerasivoranus</i> Fitch	ecCh, pCh, Aster, wB, W	Heavy defoliation again recorded in Ivanhoe Township
<i>Arge pectoralis</i> (Leach)	wB	Insect numbers were up from last year with a recurrence of the heavy infestation in Ivanhoe Provincial Park in Ivanhoe Township. Two additional light infestations were recorded in Cavell and 8 D townships
<i>Chionodes obscurusella</i> Cham.	mM	Severe defoliation of Manitoba maple recurred in the town of Chapleau; however, no further branch mortality occurred in 1969
<i>Choristoneura pinus pinus</i> Free.	jP	Low numbers were obtained in Ivanhoe and 8 D townships. The light infestation near Flame Lake declined to endemic levels
<i>Enargia decolor</i> Wlk.	tA	Found in conjunction with <u>C. conflictana</u> Wlk. at most locations. Caused moderate defoliation in Coppell, Kildare and Melrose townships
<i>Halisidota maculata</i> Harr.	wB, ecCh	Moderate populations in Lerwick Township and low numbers in Township 36
<i>Lithocolletis</i> sp.	Labrador tea	Heavy infestation on labrador tea in Alcorn Township
<i>Pleroneura borealis</i> Felt.	bF	Moderate infestations were recorded in Cosens Township and Township 46
<i>Pristiphora erichsonii</i> Htg.	tL	One large stand in townships 9 E and 10 E had the upper third of 50 foot trees completely defoliated

TABLE 6 (continued)

Insect	Host(s)	Remarks
<i>Pristiphora geniculata</i> Htg.	Mo	Heavy infestations were recorded in pockets along Hwy. 129 south and 101 east. Light infestations were observed in Chapleau, 11 C, and Kirkwall townships. The latter township is the most northerly distribution point to date
<i>Rheumaptera hastata</i> Linn.	wB, Sweet- gale	Heavy infestations on sweetgale in Heenan Township and light populations on white birch in Township 90

Needle Rust of Spruce, *Chrysomyxa ledi* de Bary

This organism was found commonly in the district in 1969. The heaviest infection again occurred in Ivanhoe Township in an area of approximately two acres (Table 7). Pockets of infection were generally small but in two instances exceeded 40 acres in size. Many trace levels of infection were recorded on black spruce in the southwestern part of the district.

TABLE 7

Summary of Incidence and Levels of Infection of Needle Rust on White Spruce in the Chapleau District in 1969

Location (township)	D.b.h. of sample tree	Acres affected	Level of incidence	Level of infection
Ivanhoe	12	2	High	High
Ivanhoe (bS)	10	2	Moderate	High
McNaught	8	25	Moderate	Moderate
Sadler	8	.5	Light	High
Strathearn	10	2	Moderate	High
13 G	8	15	Light	Light
28	10	10	Moderate	Moderate
35	6	7	Moderate	Light

Ink Spot of Aspen, Ciborinia whetzellii (Seaver) Seaver

This organism was found commonly in small pockets of heavy infection in 1969. The heavier pockets of infection are surrounded with large areas of light to trace levels of infection which extend in some cases up to two miles. In heavier pockets the incidence was as high as 100 per cent and trees infected were up to 60 feet in height (Table 8).

TABLE 8

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

Location (township)	D.b.h. of sample tree	Area affected (acres)	Per cent incidence	Per cent infection
Halsey	5"	13	95.0	35
Lloyd	5"	10	100.0	30
8 D	3"	5	92.5	40

Sweetfern Blister Rust, Cronartium comptoniae Arth.

This organism was found commonly in jack pine stands in the district. Heaviest incidence was recorded in Township 29 where 73.9 per cent of the trees were infected. Additional information was obtained in 1969 from two heavily infected sample plots established in 1965 (Table 9).

TABLE 9

Summary of Damage Caused by C. comptoniae in two jack pine plots in Chapleau District

Note: Plots were established in 1965 and re-examined in 1969.

Location (township)	No. of stems examined	No. of healthy stems	No. of stems infected	No. of dead stems	
9 D	1965	69	26	18	25
	1969	69	17	22	30
29	1965	43	21	17	5
	1969	43	15	15	13

Gall Rust of Hard Pine, Endocronartium harknessii (J.P. Moore)
Y. Hiratsuka

This organism formerly known as Cronartium coleosporioides Arth. complex was observed at trace infection level throughout the district. In Esther Township six per cent of the trees were affected. Trace levels of infection of this organism were also recorded in Durban, De Galle, Manning and 11 C townships and townships 28 and 29.

Eutypella Canker of Maple, Eutypella parasitica Davidson & Lorenz

This organism was collected at two locations in the district in 1969. In 8 D Township five per cent of the trees were diseased and in Durban Township two per cent of the trees were affected in an area of approximately three acres.

Needle Rust of Balsam Fir, Pucciniastrum epilobii Oth.

This pathogen occurring on balsam fir needles was observed frequently in the district in 1969. Infection levels of 6 and 15 per cent respectively were recorded in Township 32 and McNaught Township. Trace level infection was noted in an area encompassing approximately 50 acres in Ivanhoe Township.

Scleroderris Canker, Scleroderris lagerbergii Grømmen

In 1966 a plot to ascertain the progress of this organism was established in an eleven year old red pine plantation in Township 80. Subsequent examinations in the area revealed a steady increase in mortality, incidence, and number of shoots infected. Over the period mortality increased by 8 per cent, incidence by 39 per cent, and the average number of infected shoots per tree increased from 2.1 to 8.6. At last visit 84 per cent of the trees showed some sign of having the disease.

Snow Mold

This condition was first reported in 1967 in the Chapleau and Gogama nurseries. In the Chapleau Nursery in 1967 the agent caused 60 per cent mortality to the red pine and 53 per cent mortality to the white spruce. Trace infection level occurred in 1968 where as in 1969 22 per cent of the red pine were killed. The fungus responsible for the condition has not been nomenclaturally defined. Taxonomically this fungus is in the class Deuteromycete, family Sphaeropsidaceae.

TABLE 10

Other Noteworthy Diseases Collected in the Chapleau District in 1969

Insect	Host(s)	Remarks
<i>Arceuthobium pusillum</i> Pk.	bS	Heavy infections recorded in Osway and 10 D townships on poorly formed trees in black spruce bogs
<i>Armillaria mellea</i> (Vahl. ex Fr.) Kummer	jP, wP	This pathogen was found frequently in natural jP stands or planted wP stands but seldom causing any appreciable damage
<i>Chrysomyxa arctostaphyli</i> Diet.	bS	Light infection of yellow witches broom recorded in McNaught Township
<i>Cronartium ribicola</i> J.C. Fischer	Currant	Moderate damage to large white pine in Durban Township and light fruiting on the alternate host in Barclay Township
<i>Melampsorella caryophyllacearum</i> Schroet.	bF	Witches broom causing light damage to young balsam-fir in Township 36