Western Region, 1965
Status of Insects in the Sioux Lookout District

Buchan, P.E.

Information Report O-X-24
(Forest Research Laboratory, Ontario Region)

FOREWORD

J. E. MacDonald

Outbreaks of the forest tent caterpillar have highlighted reports dealing with forest insect surveys for the past several years. In 1965, the outbreak in Western Ontario reached its peak and poplar stands within an area of about 34,000 square miles were severely defoliated. Egg surveys in the fall revealed that a marked decline in infestation intensity will occur in Sioux Lookout and Kenora districts but high larval populations will persist in Fort Frances and Port Arthur districts in 1966. Trends in infestation intensities will vary from area to area in eastern Ontario, with the most noteworthy increase in the extent of infestations occurring in the Lake Nipissing outbreak.

The development of new infestations of Bruce spanworm and the European pine sawfly were of particular interest in 1965. Infestations of the former occurred in Sault Ste. Marie, Sudbury and Pembroke districts. Severe defoliation of hardwoods that resulted in relatively large areas represented first records of extensive infestations in Ontario. A major extension in the known distribution of the European pine sawfly was recorded when the insect was found in two Scots pine plantations on Manitoulin Island. This extension places the insect much closer to major stands of jack pine in northern Ontario.

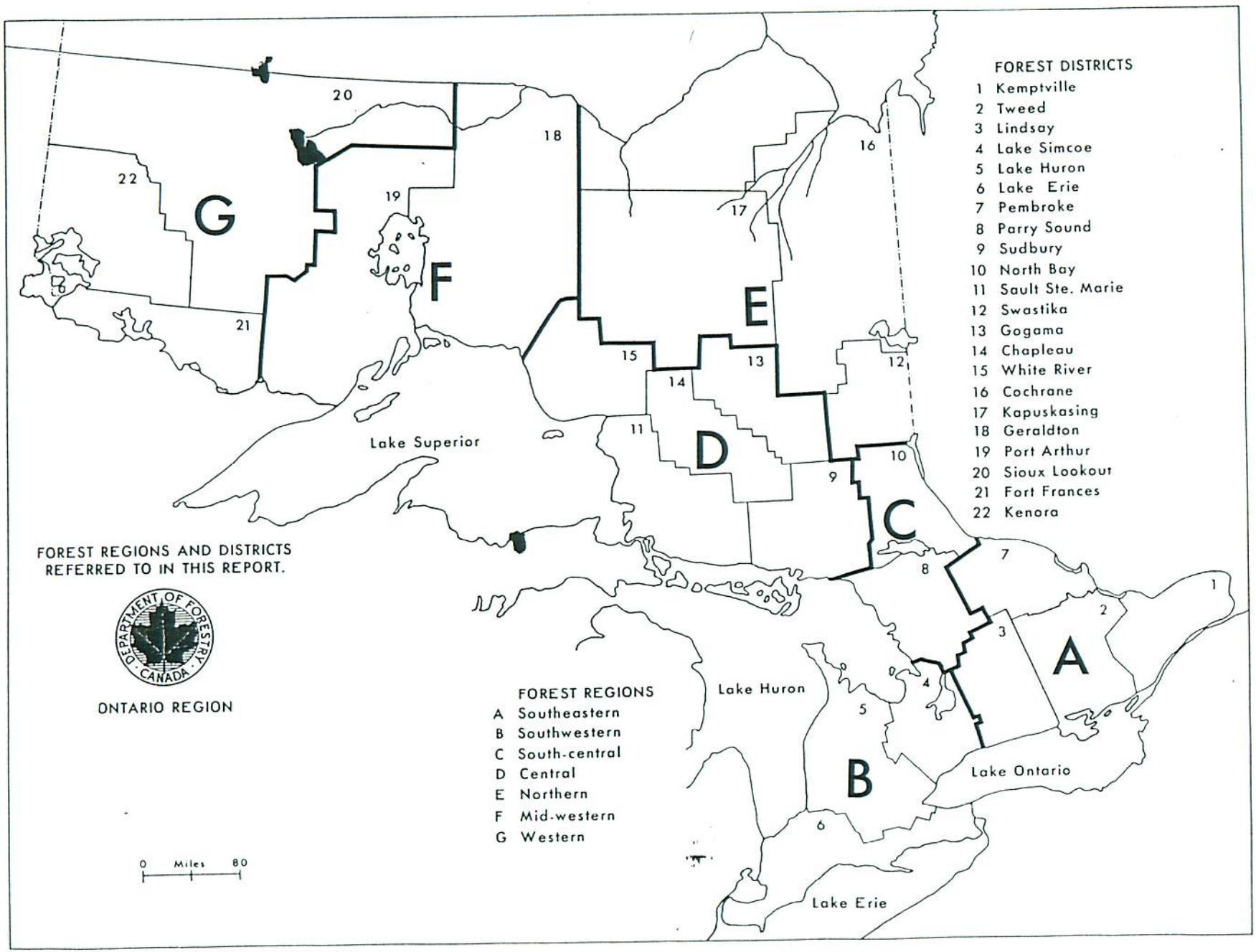
For the third consecutive year low temperatures in the spring caused considerable mortality of the current year's shoots of balsam fir and white spruce at many locations in Ontario. Continued cold weather throughout the summer delayed the development of many insects and in some instances larvae failed to reach maturity before freezing temperatures occurred in the fall.

Tree disease surveys continued to reveal serious losses of white elm resulting from Dutch elm disease in southern Ontario. In northern Ontario two centers of infection occurred on Manitoulin Island and infected elm were found at one location near Spanish on the North Shore of Lake Huron. Intensive surveys to determine the distribution and incidence of this disease will be continued in 1966.

During the early years of the Survey in Ontario Field Technicians were largely concerned with determining the distribution and abundance of forest insects and appraising losses in forest stands. As a consequence the detection aspect of survey work was of a high order. Later, added responsibility for disease surveys and the development of more elaborate sampling procedures, reduced the time available for purely detection work. To compensate for this, greater emphasis has been placed on systematic aerial reconnaissance throughout the vast forested areas of central and northern Ontario.

The Survey welcomed the addition of a Forest Research Technician to its staff in 1965. This appointment now provides one field representative for each district in the Southeastern Region where formerly three men were responsible for survey work in four districts.

In the reports that follow, insects and tree diseases that are of interest in adjoining districts are dealt with on a regional basis. Others are dealt with in detail on a district basis.


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
FOREST REGIONS AND DISTRICTS REFERRED TO IN THIS REPORT.
DEPARTMENT OF FORESTRY · CANADA ·
ONTARIO REGION
FOREST REGIONS
A Southeastern
B Southwestern
C South-central
D Central
E Northern
F Mid-western
G Western
0 Miles 80
Lake Superior
Lake Huron
Lake Ontario
Lake Erie

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* Regional Supervisors

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O-X-9	--Lake Simcoe District	A. A. Harnden
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O-X-11	--Lake Erie District	J. R. Trinnell
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WESTERN REGION

1965

STATUS OF INSECTS (REGIONAL)

STATUS OF TREE DISEASES (Regional)

STATUS OF INSECTS (District)

INTRODUCTION

Western Forest Region

This report summarizes forest insect and tree disease conditions in the Western Forest Region in 1965. Tree diseases and the forest tent caterpillar are written on a regional basis, whereas information on the status of other insects is dealt with in the district sections of the report.

The 1965 field season was unusually cool with far above average rainfall throughout the region. Late spring frosts caused moderate damage to the new growth of most coniferous species at numerous locations, but otherwise surveys revealed little change in incidence and intensity of diseases. Needle rusts on conifers were observed commonly in the region and ground surveys in the Lake of the Woods area, where deterioration of coniferous stands occurred in 1964, revealed a marked increase in tree mortality.

An increase in the extent of forest tent caterpillar infestations occurred for the sixth consecutive year and larch sawfly infestations increased in intensity and a further extension in the known distribution of European spruce sawfly, Diprion hercyniae Htg. and a leaf miner on birch, Profenusa thomsonii Konow was recorded. However, population levels of the spruce budworm and jack-pine sawflies continued to decline.

In co-operation with the Department of Lands and Forests and at the request of the Dryden Pulp and Paper Company, short courses of instruction on forest insects and tree diseases were given to high school students by technicians in their respective districts. Numerous extension and service calls resulting from forest insect and tree disease problems were received from property owners, industry and the Department of Lands and Forests.

The Forest Research Technicians in the Western Region gratefully acknowledge the interest and assistance of Provincial Departments and forest industries.

P. E. Buchan

Forest Tent Caterpillar, Malacosoma disstria Hbn.

An increase in the extent of the current forest tent caterpillar outbreak occurred for the sixth consecutive year. Aerial and ground surveys revealed that trembling aspen stands were severely defoliated in an area approximating 29,700 square miles (Map 1). The most noteworthy increase was in Quetico Park in Fort Frances District where an estimated 1,500 square miles of new heavy infestation occurred. In the Fort Frances District rather extensive heavy infestations have persisted since 1962 and in the Kenora District since 1961. It is interesting to note that the northern periphery of the current outbreak and the outbreak that occurred from 1948 to 1953 virtually coincided. To the north of this area sufficient egg bands have been present each year to result in heavy infestations but these have failed to materialize. The most plausible explanation for this anomaly is that weather extremes create a northern barrier beyond which the insect cannot survive in large numbers. Evidence of this was observed along the northern periphery of the outbreak in 1965. During May weather conditions were cool and damp, with a mean temperature of approximately 49° and a range of 26° to 75°F. Precipitation totalled three and one-half inches including one and one-half inches of snow. Considerable larval mortality occurred near Red Lake and of 134 egg bands on ten trees examined in Baird Township only 11 colonies developed.

Examination of egg bands in the field revealed that the average number of eggs laid per band in 1965 was lower than in previous years, particularly in older areas of infestation in Sioux Lookout and Kenora districts. Mortality in the egg stage resulted mainly from sterility and the inability of larvae to emerge. Parasitism was slightly higher than in previous years (Table 1).

TABLE 1

Summary of Per Cent of Forest Tent Caterpillar Egg Hatch at 15 Points in the Western Forest Region in 1965

Location	Av. no. of eggs per band	Per cent of eggs hatched	Per cent egg mortality caused by: Parasite	Unsuccess. emergence	Sterile eggs	Degree of infestation
Sioux Lookout District						
Block 10	170	92	2	1	5	H
Norway Lake	166	67	6	25	2	H
Baird Twp.	194	89	1	5	5	H
Ear Falls	199	89	1	7	3	H
Corman Twp. #1	140	5	0	60	35	H
Corman #2	181	22	1	76	6	H
Ignace Twp.	133	64	2	26	8	H
Vermilion Add.	178	88	2	7	3	H
Ilsey Twp.	150	84	1	13	2	H
Savant Rd.	200	1	-	90	9	H

TABLE 1 (continued)

Location	Av. no. of eggs per band	Per cent of eggs hatched	Per cent egg mortality caused by: Parasite	Unsuccess. emergence	Sterile eggs	Degree of infestation
Fort Frances District						
Atikokan	255	88	1	6	5	H
N.E. Bay Rainy Lake	192	70	1	12	17	H
Redgut Bay Rainy Lake	184	87	2	6	5	H
Kenora District						
Dyment	135	69	8	19	4	H
MacIntosh	179	71	0	11	18	H

Despite the abundance of forest tent caterpillar larvae in the early instars, very few insects reached the pupal stage in areas where heavy infestations have occurred for four to five consecutive years. This resulted in part from a spectacular polyhedral virus epizootic. Almost total mortality of forest tent caterpillar larvae occurred in the third to fourth instars near Sioux Lookout and Redditt. Thousands of dead larvae were massed in the upper portion of tree trunks and branches but few were found on the understory. In contrast, near English River where the larval population was infected with a virus in the fourth and fifth instars, the majority of the dead insects were found adhering to the undergrowth.

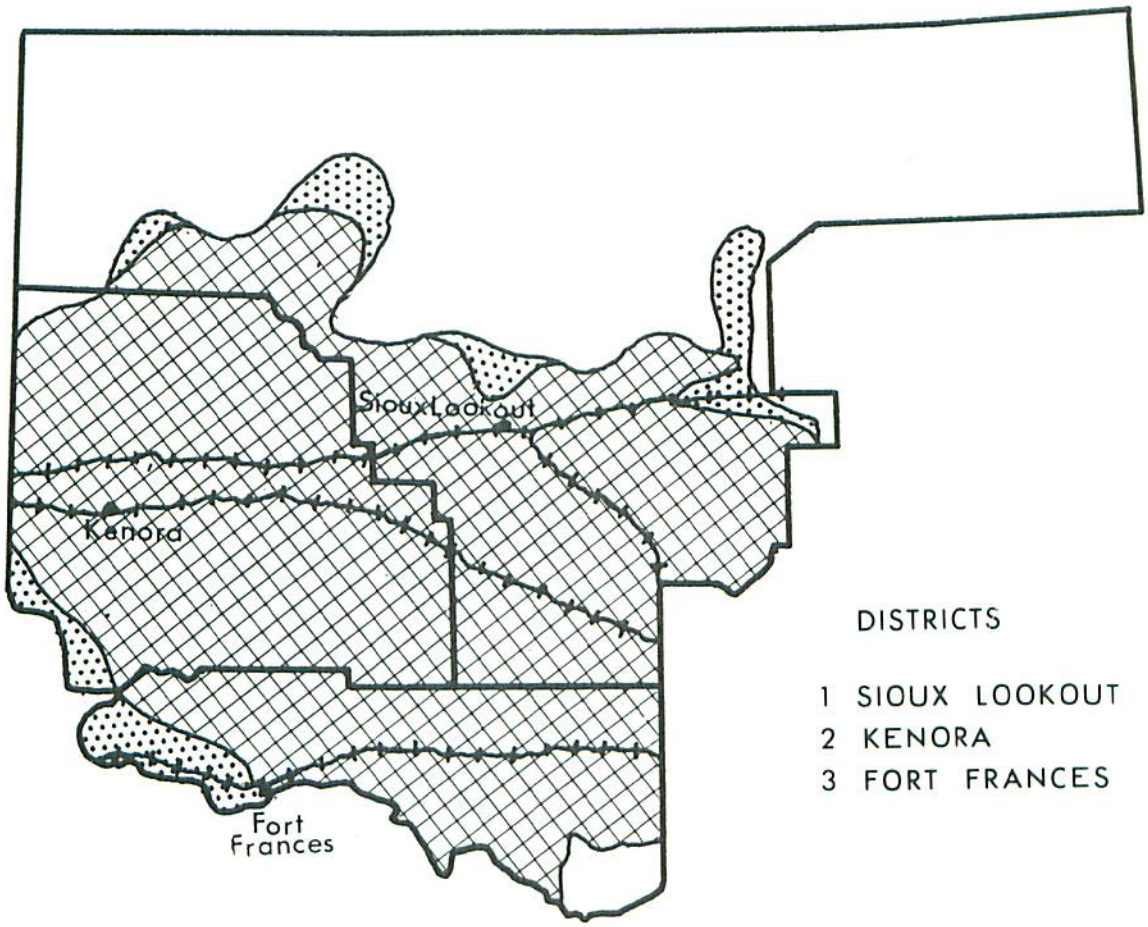
Parasitism was the most important control factor in the cocoon stage but the incidence of disease also increased compared with previous years. To assess these control factos and their effect on moth emergence large numbers of cocoons were examined at 26 points in the region (Table 2).

TABLE 2

Summary of Forest Tent Caterpillar Cocoon Dissection in the Western Region in 1965

Location	Per cent parasitized 1964	Per cent parasitized 1965	Per cent diseased 1964	Per cent diseased 1965	Per cent emerged 1964	Per cent emerged 1965
Sioux Lookout District						
Skey Twp.	-	56	-	17	-	27
Savant Lake	-	63	-	17	-	20
Wapikaimaski Lake	-	56	-	6	-	38
Harris Bay Sturgeon Lake	-	56	-	20	-	24
Baird Twp.	-	81	-	8	-	11

WESTERN FOREST REGION



DISTRICTS

1 SIOUX LOOKOUT
2 KENORA
3 FORT FRANCES

MILES
0 20 40

FOREST TENT CATERPILLAR

Areas in which defoliation occurred in 1965

Legend

Light defoliation.....

Moderate to severe defoliation.....

TABLE 2 (continued)

Location	Per cent parasitized 1964	Per cent parasitized 1965	Per cent diseased 1964	Per cent diseased 1965	Per cent emerged 1964	Per cent emerged 1965
Sioux Lookout District						
Pakwash Lake	41	73	2	9	57	18
Ear Falls	53	70	1	19	44	11
Block 10	49	78	5	15	57	15
Ilsley Twp.	37	69	4	4	60	27
Kenora District						
Sand Lake	51	58	21	29	28	13
Southworth Twp.	19	36	14	21	65	53
Aubrey Twp.	24	22	17	30	58	48
Mutrie Twp.	41	59	13	18	56	23
Zealand Twp.	38	31	20	20	42	48
Willingdon Twp.	26	19	17	20	57	60
Redditt Twp.	61	74	28	17	11	9
Satterly Twp.	19	27	14	33	67	39
Upper Manitou Lake	48	41	29	27	22	31
Canyon Lake	27	24	9	26	63	50
MacNicol Twp.	-	38	-	47	-	15
Fort Frances District		*				
Redgut Bay	54	60	6	-	36	40
Quetico Lake	-	70	-	-	-	30
Jackfish Lake	-	68	-	-	-	32
Atikokan	37	72	2	-	61	28
Northwest Bay Rainy Lake	53	66	5	-	39	34
Northeast Bay Rainy Lake	65	70	4	-	30	30

* % mortality undifferentiated as to parasitism and disease.

Moth populations have been measured by light trapping each July since 1960. Results show that adult populations were highest in 1962 and 1963 and declined in 1964 and 1965(Table 3). The percentage of female moths captured in the four years from 1962 to 1965 were 30, 26, 11 and 5 respectively. Therefore the decrease in numbers of egg bands can be explained partially by the lower numbers of female moths.

TABLE 3

Summary of Forest Tent Caterpillar Adults Captured in Light Traps Over a Six Year Period at Two Points in the Western Region

Location	No. of adults captured					
	1960	1961	1962	1963	1964	1965
Vermilion Bay	-	262	1324	545	491	263
Sioux Lookout	37	1252	1988	4527	1961	211

Egg band counts made at 52 widely-separated points in the region indicate that light to severe defoliation will occur in 1966 and will be most severe in Fort Frances District. In all but one of the areas sampled in Sioux Lookout and Kenora districts a marked decline in numbers of egg bands per tree was recorded. Past experience reveals that a general decline in egg counts after several years of heavy infestation usually heralds the termination of an outbreak. Experience also shows that although population levels based on egg counts near the termination of an outbreak appear to be sufficiently high to cause considerable damage, larval mortality during the early instars results in less damage than anticipated. It will be interesting to note whether these observations will be borne out in Sioux Lookout and Kenora districts in 1966 (Table 4).

TABLE 4

Summary of Forest Tent Caterpillar Egg Band Counts and Infestation Forecasts for 1966 in the Western Region

Location	Av. d.b.h. in inches	Av. no. egg bands per tree			Forecast for 1966
		1963	1964	1965	
Sioux Lookout District					
Ilsley Twp.	4	34	17	2	Light
Block 10	4	27	48	4	Moderate
Uchi Road	3	7	38	2	Light
Baird Twp.	3	5	70	1	Light
Valora Road	4	22	33	2	Light
Corman Twp.	4	10	14	4	Moderate
Norway Lake	4	83	90	11	Severe
McAree Twp.	4	17	12	3	Moderate
Sturgeon Lake	5	46	17	3	Moderate
Wapesi Lake	4	5	7	2	Light
Raggedwood Lake	4	4	8	1	Light
Savant Lake	4	15	12	4	Moderate
Highstone Lake	3	-	-	3	Moderate
Otatakan Lake	3	-	-	1	Light
Vermilion Add. Twp.	4	-	-	6	Severe

TABLE 4 (continued)

Location	Av. d.b.h. in inches	Av. no. egg bands per tree 1963	1964	1965	Forecast for 1966
Kenora District					
Southworth Twp.	3	26	29	3	Moderate
Slaterly Twp.	4	75	14	1	Light
Zealand Twp.	4	33	36	11	Severe
Mutrie Twp.	3	66	8	6	Severe
Tustin Twp.	3	14	20	2	Light
Canyon Lake	4	71	27	13	Severe
Sand Lake	3	31	23	9	Severe
Lemay Twp.	5	16	23	10	Severe
Willingdon Twp.	3	36	31	3	Moderate
Work Twp.	4	41	12	5	Moderate
Minaki	4	109	49	7	Severe
Upper Manitou Lake	5	87	32	4	Moderate
Perrault Lake	4	31	19	6	Severe
Bay Is. (Lake of the Woods)	5	0	10	13	Severe
Godson Twp.	3	-	10	6	Severe
Redditt Twp.	3	-	48	2	Light
Camp Robinson	3	-	-	6	Severe
Ewart Twp.	4	-	-	8	Severe
Atikwa Lake	3	-	-	5	Moderate
Sabaskong Bay	4	-	-	9	Severe
Fort Frances District					
Northeast Bay Rainy Lake		-	19	31	Severe
Sandpoint Is. " "		-	7	17	Severe
Kingsford Twp.		-	1	8	Severe
Claxton Twp.		2	15	3	Moderate
Eltrut Lake		8	8	8	Severe
Little Turtle Lake		24	19	3	Moderate
McCrosson Twp.		2	3	5	Moderate
Dobie Twp.		-	-	1	Light
Robinson Lake		-	-	4	Moderate
*East District Boundary				53	Severe
*Quetico Lake				23	Severe
*Atikokan				33	Severe
*Kairaskons Lake				19	Severe
*Manion Lake				27	Severe
*Redgut Bay Rainy Lake				23	Severe
*Northwest Bay " "				23	Severe
*Eye Lake				37	Severe

* Only onetree sampled at each point.

A Foliage Rust of Spruce, Chrysomyxa ledi deBary

A marked increase in the incidence of this disease occurred throughout the region particularly on black spruce. Severe rusting of the current year's foliage was observed in Drayton Township near Sioux Lookout and in Ignace Township near Ignace in the Sioux Lookout District, in stands along Highway 17 in Ewart and MacNicol townships and at Mileage 29 on the Jones Road in the Kenora District; in Sifton Township north of Stratton and near Williamson Lake north of Atikokan in the Fort Frances District (Table 6).

TABLE 6

Incidence of Infected Spruce Shoots at Nine Points in the Western Region

Note: Counts are based on shoots from ten 18-inch branch tips from five sample trees at each point.

Location	Tree sp.	Av. d.b.h.	No. trees infected	No. available shoots	Per cent infected	Degree of infection
Sioux Lookout District						
Drayton Twp.	bS	2	5	423	86.2	Heavy
Bamaji Lake	bS	3	5	212	52.3	Moderate
Gulliver Lake	wS	4	5	337	15.7	Light
Young Lake	wS	3	5	295	12.2	Light
Pickle Lake	bS	3	5	332	51.6	Moderate
Ignace Twp.	bS	1	5	342	100	Heavy
Fort Frances District						
Williamson Lake	bS	2	5	520	94.6	Heavy
Sifton Twp.	bS	1	5	387	83.4	Heavy
Kingsford Twp.	wS	1	5	264	16.2	Light

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

This foliage disease caused browning of foliage on trembling aspen trees along the Ignace-Pickle Lake road 10 miles south of Rat Rapids on Lake St. Joseph (see photograph). Light infection was observed at one point elsewhere in Sioux Lookout District, at three points in the Kenora District and at one point in the Fort Frances District.

Hypoxylon Canker of Poplar, Hypoxylon pruinatum (Klotsche) Cke.

This pathogen was found in most aspen stands throughout the region and was most prevalent in stands on poor sites (see photograph). Examination of permanent sample plots at ten points showed that light tree mortality occurred in one sample plot in the Sioux Lookout District and in four plots in the Fort Frances District. No change occurred in the status of the disease at sample plots in the Kenora District (Table 7).

Summary of New Infection of Hypoxylon Canker and Mortality in Sample Plots in Trembling Aspen Stands in 1965

Location	Av. d.b.h. in inches	Site quality	Per cent incidence new infection 1965	Per cent incidence new mortality 1965	Total per cent mortality 1965
Sioux Lookout District					
Red Lake	6	Fair	0	2	25
Ear Falls	6	Good	0	0	0
Kenora District					
Caribou Falls	5	Fair	0	0	0
Sioux Narrows	4	Fair	0	0	0
Kekekwa Lake	5	Good	0	0	0
Fort Frances District					
Redgut Bay Rainy Lake	4	Good	0	1	4
Northeast Bay Rainy Lake	6	Poor	0	6	11
Northwest Bay Rainy Lake	4	Fair	4	5	9
Eltrut Lake	5	Fair	2	3	6
Kingsford Twp.	3	Good	0	0	1

Leaf and Twig Blight of Aspens, Pollaccia radiosa (Leb.) Bald. & Cif.

This leaf and twig blight was common on trembling aspen regeneration in the region. Quantitative sampling showed that infection was heavy in the Sioux Lookout District, moderate in the Kenora District, and from light to moderate in the Fort Frances District (Table 8).

TABLE 8

Incidence of Twig Blight Injury on Regeneration Aspen in the Western Region, 1965

Note: Counts are based on examination of available shoots on the top 3-foot section of the crown on each of ten trembling aspen trees at each point.

Location	Av. d.b.h.	No. trees infected	No. available shoots	Per cent infected	Degree of infection
Sioux Lookout District					
Block 10	1	10	160	80	Heavy
Baird Twp.	1	10	149	81	Heavy
Ignace Twp.	1	10	175	90	Heavy
Cathcart Twp.	1	10	130	77	Heavy
Kenora District					
Wabigoon Twp.	1	9	195	38	Moderate
Hawk Lake	2	10	181	41	Moderate
Jones Rd.	1	7	176	25	Moderate
Forgie Twp.	1	8	244	33	Moderate
Van Horne Twp.	1	8	191	38	Moderate
Fort Frances District					
Basswood Lake	1	2	103	2	Light
Blue Twp.	1	7	228	4	Light
Morson Twp.	1	10	238	24	Moderate
Richardson Twp.	1	10	217	31	Moderate

Field observations and sampling showed that the incidence of infection was most common on open-growing and roadside regeneration trees.

Foliage Rust on Balsam-fir, Pucciniastrum epilobi Otth.

Little change in the status of this foliage disease occurred in the region. Heavy infection of fringe trees was recorded in Pickerel Township south of Sioux Lookout (Table 9). Light infection was observed at four widely-scattered points elsewhere in the Sioux Lookout District, at one point in the Kenora District and at four points in the Fort Frances District.

Incidence of Infected Shoots at Six Points
in the Western Region

Note: Counts are based on examination of all available shoots on ten 18-inch branch tips, two from each of five trees at each point.

Location	Av. d.b.h.	No. trees infected	No. available shoots	Per cent infected	Degree of infection *
Sioux Lookout District					
Pickerel Twp.	4	5	409	56.9	H
Jordan Twp.	3	5	404	12.3	L
Baird Twp.	3	5	151	17.2	L
Savant Road	4	5	379	10.2	L
Uchi Road	3	5	306	7.1	L
Fort Frances District					
Potts Twp.	4	3	198	11.2	L

* H - heavy, L - light.

Drought Injury of Jack-pine

In 1964 considerable deterioration and mortality of jack pine and to a lesser degree other conifers occurred in an area of approximately 1,200 square miles on islands and along shorelines of Lake-of-the-Woods. The causal agent was identified as drought.

Examination of jack pine in three permanent sample plots established in 1964 showed that considerable mortality occurred in 1965 in stands growing on high shallow sites but was less severe in stands growing in fair to good sites (Table 10).

TABLE 10

Summary of Jack-pine Mortality at Three Points Where Deterioration Attributed to Drought Occurred in the Western Region in 1964 and 1965

Location	No. of trees examined	Av. d.b.h. in inches	Approx. age of stand (yrs.)	Per cent stem mortality 1964	Per cent stem mortality 1965	Total per cent stem mortality
Aulneau Peninsula* (Lake-of-the-Woods)	223	3.8	25-30	19.6	2.6	22.2
Sabaskong Bay (Lake-of-the-Woods)	95	6.2	60-70	39.9	11.5	51.4
Morson Twp.	171	2.3	20-25	35.6	11.6	47.2

* Fair site

Although a sharp decline in numbers of trees dying can be expected in succeeding years, some additional mortality can be expected to occur in trees showing severe deterioration in 1965.

Frost Injury

Frost in late May caused light to moderate injury to the new shoots of balsam-fir and spruce at widely-scattered points in the region (see photograph).

The heaviest shoot mortality occurred in Baird and Dewan townships in the Sioux Lookout District. Quantitative samples from black spruce and balsam fir in Baird Township and on balsam-fir in Dewan Township showed 12, 20 and 3 per cent shoot mortality respectively. Light damage occurred on exposed trees at widely-scattered points elsewhere in the Sioux Lookout District, in the north-central part of the Kenora District and throughout the Fort Frances District.

Winter Drying of Conifers

Severe winter conditions caused damage to small diameter trees in pine plantations in Kenora and Fort Frances districts. Extensive damage occurred in mixed red, white and jack pine plantations in Zealand and Willingdon townships and in a mixed red and white pine plantation in Van Horne Township in the Kenora District. Counts in each plantation showed that approximately 50 per cent of the trees were damaged above the snow line.

In the Fort Frances District, 85 per cent of the trees in a Scots pine plantation in Miscampbell Township were damaged. Light damage was also recorded in a red pine plantation in Woodyatt Township.

TABLE 11

Other Noteworthy Diseases in the Western Region in 1965

Organism	Host(s)	Remarks
Apiosporinia collinsii (Schw.) Hoehn.	Sask	Low incidence recorded near Waldhof in Division 18.
Armillaria mellea (Fr.) Kummer	bF	Single tree infected near Sioux Lookout
Aureabasidium pullulans (deBary)	tL	Light infection of this fungus on cones at Valora-Division 19.
Chrysomyxa arctostaphyli Diet.	bS	Small clump of trees infected at Knox Lake, Division 26.
Chrysomyxa ledicola Lagerh.	wS, bS	Needle rust very common in all districts. Severe infection occurred near Triangle Lake in Division 18.
Chrysomyxa pirolata Wint.	bS	Surveys at sevel locations in the region resulted in negative counts at four points, and 11, 9, and 2 per cent infection Jones, Hawk Lake, and Forgie Township respectively.

TABLE 11 (continued)

Organism	Host(s)	Remarks
Coleosporium asterum (Deit.) Syd.	jP, aster	Light infections common throughout region.
Cronartium commandre Peck.	jP	Found only in Wabigoon Township, Kenora District.
Cryptosporella paucispora (Pk.) Berl. & Vogl.	Al	Collected from small pocket of light infection in Mutrie Township, Kenora District.
Cytospora chrysosperma (Pers.) Fr.	tA, bPo, W	Observed at two locations in both Kenora and Fort Frances districts.
Dibotryon morbosum (Schw.) Theiss. & Syd.	ecCh, pCh	Moderate incidence in Division 21 near Kenora. A marked increase occurred at Finlayson Lake, Fort Frances District.
Fomes ignarius (L. ex Fr.) Gill.	tA	Individual trees infected throughout the region, particularly in mature and overmature aspen stands.
Gnomonia setaceae (Pers.) Ces. & deNot	wB	Four trees infected at Rat Rapids, Albany Lake in Sioux Lookout District.
Gymnosporangium sp.	aMo	Foliage rust common throughout the three districts in the region.
Hypodermella ampla (J. J. Davis) Dearn.	jP	Single collection submitted from Eagle Lake (Canoe Narrows) in Division 18.
Lenzites saepiaria (Wulf.)	bS	Observed on individual host tree in decadent condition, Eagle Lake, Division 18.
Linospora tetraspora Thompson	bPo	Common throughout Sioux Lookout and Kenora districts.
Marssonina populi (Lib.) Sacc.	tA	Light infection of this leaf spot disease in Pickerel Township-Division 25.
Melampsora medusae Thum.	tL	Needle rust infection recorded in Burris Twp.-Division 22.
Melampsorella caryophyllacearum Schroet.	bF	Two collections submitted from areas of light infection in the Kenora District.
Monilinia seaveri (Rehm.) Hon.	ecCh	Wilting of new shoots and leaves observed near Rainy River.
Nothophacidium abietinellum (Dearn.) Reid & Cain	bF	Single tree severely attacked at Dobie Lake in Division 32.
Nyssopsora clavellosa (Berk.) Arth.	Aralia	Observed most frequently in the Sioux Lookout District.
Pezicula ocellata (Pers.) Seav.	tA	Moderate infection of roadside aspen in Bridges Township-Division 18.

TABLE 11 (continued)

Organism	Host(s)	Remarks
Pezicula populi (Thompson) Seav.	bPo	Fruiting bodies on branches and twigs. Low incidence near Kenora.
Pollacia elegans Serv.	bPo	Small clumps of light infection were common throughout the region.
Polyporus perennis (L.) Fr.	Ground	Fruit bodies plentiful near Barrel Lake Falls - Division 19.
Puccinia asteris Duby.	Aralia	Rust common in all districts.
Puccinia hieracii (Roehling) Martius	Fall dandelion	Submitted from Jordon Twp., Sioux Lookout District.
Puccinia mesomajalis Berk. & Curt ex Pk	Clintonia	Light infection recorded at Sesegenaga Lake in the Sioux Lookout District.
Rhytisma salicinum Pers. ex Fr.	W	Collected in all districts.
Septoria alni Saec.	Al	Leaf blight observed at Gulliver Lake in Division 25.
Septoria musiva Pk.	bPo	Moderate infection of this shoot blight near Richan north of Dryden.
Taphrina flava Farl.	wB	Single tree lightly infected at Mile 37, Valora.

STATUS OF INSECTS IN THE SIOUX LOOKOUT DISTRICT

Black-headed Budworm, Acleris variana (Fern.)

Population levels of this insect were lower at permanent sample locations in 1965 than in 1964 (Table 11). A small pocket of medium to heavy infestation occurred on black spruce trees approximately 10 miles south of Highway 17 on the Norway Lake Road. The insect occurred in 40 samples from June 9 to August 10 averaging five larvae per collection.

TABLE 11

Summary of Black-headed Budworm Larval Counts on 15 Mat Samples from 18 Points in the Sioux Lookout District in 1965

Location	Tree species	Av. d.b.h. in inches in 1965	Total no. of larvae 1963	1964	1965
Vermilion Add. Twp.	bS	3	42	24	11
Eaid Lake	bS	2	23	65	13
Raven Lake	bS	4	8	11	2
Sowden Lake	wS	4	12	11	1
Drayton Twp.	wS	4	13	17	8
Highway 105	bS	3	118	26	3
Uchi Road	wS	3	7	21	4
Scotch Lake	wS	2	1	16	2
Block 10	bS	3	67	136	19
Lomond Twp.	wS	5	-	18	5
Ilsley Twp.	bS	2	-	20	6
Pickerel Twp.	wS	3	-	17	3
White Otter Lake	wS	3	-	26	11
Highway 105	wS	2	-	30	3
Split Lake	bF	4	-	7	3
Dewan Twp.	bF	4	-	6	6
Dien Lake	bF	3	-	2	3
Norway Lake	bS	4	-	5	71

Birch Leaf Skeletonizer, Bucculatrix canadensisella Chamb.

Following three years of moderate to severe defoliation of extensive stands of white birch, this insect virtually disappeared in 1965. In 1962 severe browning of foliage was observed near Lake St. Joseph and the Albany River. By 1964 infestations had spread southward in a salient to encompass McCrea, DeLessups, and Highstone lakes. Two outbreaks of this insect have occurred in the past ten years, originating in 1956 and in 1962.

A Bark Beetle of Jack Pine, Conophthorus sp.

Light infestations were common. The only consistent trends in numbers at sample stations occurred in Rivell and Vermilion Additional townships where an increase has been recorded for two years (Table 12).

TABLE 12

Summary of Damage Caused by Conophthorus Sp. on 50 Jack Pine Trees at Each Sampling Point in the Sioux Lookout District from 1963 to 1965

Location	Av. d.b.h. in inches	No. of trees attacked			Total no. of damaged shoots		
		1963	1964	1965	1963	1964	1965
Revell Twp.	3	3	16	19	12	23	29
Vermilion Add. Twp.	4	5	5	9	4	5	11
Highway 105	2	-	3	3	-	3	5
Wenasaga Road	4	-	14	3	-	20	3
Martin Road	2	4	1	0	4	1	0
Echo Twp.	3	7	2	0	8	2	0
Sandbar Lake	2	-	-	1	-	-	1
Valora	3	-	-	2	-	-	2

European Spruce Sawfly, Diprion hercyniae (Htg.)

This insect was recorded for the first time in the district in 1964. In 1965 small numbers of larvae were found at four locations in Division 19 representing a northward extension in distribution of approximately 50 miles (Table 13).

TABLE 13

Summary of European Spruce Sawfly Larval Counts Made on White Spruce Trees in the Sioux Lookout District in 1965

Location	Av. d.b.h. of trees in inches in 1965	Total no. of larvae per 15-tray sample
White Otter Lake	4	4
Raleigh Falls	3	4
Sowden Lake	3	4
Norway Lake	3	4*

* only one tree sampled

White-pine Shoot Borer, Eucosma gloriola Heinr.

Damage by this insect was somewhat lighter than in recent years (Table 14). Jack pine regeneration near Sandbar Lake north of Ignace and in McIlraith Township were most heavily infested. To date this insect has been found only on jack pine in the Sioux Lookout District (see photograph).

TABLE 14

Summary of Terminal and Lateral Shoot Damage by the White Pine Shoot Borer on 50 Jack-pine Trees at Each Point in the Sioux Lookout District in 1965

Location	Av. d.b.h. in inches	No. of trees attacked		No. of shoots attacked			
				Laterals		Leaders	
		1964	1965	1964	1965	1964	1965
Corman Twp.	2	6	1	1	0	6	1
Echo Twp.	2	28	6	14	2	24	4
McIlraith Twp.	1	32	14	9	8	27	9
Vermilion Add. Twp.	1	23	7	2	1	22	6
Valora	3	10	0	0	0	10	0
Sandbar Lake	1	11	23	3	8	9	18
Centrefire Lake	1	-	6	-	1	-	6

Hemlock Looper, Lambdina fiscellaria fiscellaria Gn.

This insect was more prevalent on balsam fir and spruces than for many years. Counts were highest at sample stations in Dewan and Gour townships in Ignace Division (Table 15) but the insect could be collected with ease in most fir and spruce stands in the district. The insect was collected as far north as Zionz Lake near the 51st parallel (see photograph).

TABLE 15

Summary of Hemlock Looper Larval Counts in the Sioux Lookout District in 1965

Location	Tree species	Av. d.b.h. in inches in 1965	Total no. of larvae per 15-mat sample	
			1964	1965
Uchi Road	wS	3	1	1
Drayton Twp.	wS	4	2	3
Sowden Lake	wS	4	8	6
Pickerel Twp.	wS	3	7	3
Dien Lake	bF	3	4	8
Norway Lake Road	bF	4	9	8
Echo Twp.	wS	4	3	2
Dewan Twp.	bF	4	14	24
Alcona Road	bF	3	-	1
McAree Twp.	bF	3	-	2
Pickerel Twp.	bF	3	-	3
Sturgeon Lake	wS	5	-	6
Ilsley Twp.	wS	3	-	15
Gour Twp.	bF	4	-	21
Cathcart Twp.	bF	4	-	11
Bell Lake	bS	4	-	2

Western Tent Caterpillar, Malacosoma pluviale Dyar

An appreciable increase in numbers of this insect occurred along an access road north of Sioux Lookout. However, in Vermilion Additional Township where the numbers of colonies had increased for three consecutive years, a considerable decline occurred. Other changes in population levels are shown in Table 16.

TABLE 16

Summary of Larval Colony Counts of Western Tent Caterpillar in the Sioux Lookout District in 1965

Location	No. of tents per mile of roadside			
	1962	1963	1964	1965
Drayton Twp.	4	3	2	3
Mi 33 Valora Rd.	3	3	2	7
Vermilion Add.	7	10	34	22
Deception Bay Rd.	2	6	11	25
Echo Twp.	5	17	9	2
Baird Twp.	-	1	6	2
Mi 38 Valora Rd.	-	11	10	3

A Jack-pine Sawfly, Neodiprion maurus Rohwer.

This insect occurred more commonly than for some years. The highest colony count was obtained in a sample plot in Pickerel Township (Table 17).

TABLE 17

Summary of Neodiprion maurus Rohwer. Colony Counts on 10 Jack Pine Trees at Each Location in the Sioux Lookout District 1964 and 1965

Location	Av. d.b.h. of trees in inches in 1965	Total no. of colonies counted	
		1964	1965
Jordan Twp.	3	5	1
Ilsley Twp.	4	3	6
Dewan Twp.	4	7	2
Drayton Twp.	3		2
Moonlight Falls	4		1
Norway Lake Rd.	3		2
Pickerel Twp.	3		11
Revell Twp.	4		2
Kathryn Lake	2		2
Vermilion Add. Twp.	3		5

Red Pine Sawfly, Neodiprion nanulus nanulus Schedl.

Population levels of this insect were highest since 1954 when nine colonies per tree were recorded near Sioux Lookout. Quantitative sampling revealed that the highest number of colonies occurred in Dewan Township Division 19 (Table 18).

TABLE 18

Summary of Red Pine Sawfly Colony Counts on 10 Jack Pine Trees at Each Location in the Sioux Lookout District in 1965

Location	Av. d.b.h. of trees in inches	Total no. of colonies found
Vermilion Add. Twp.	3	2
Drayton Twp.	2	1
Dewan Twp.	3	6
Martin Road	2	2
Raven Lake	3	1
Pickerel Twp.	3	2

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

Appreciable numbers were collected for the first time in several years (Table 19). Colonies were found commonly from Sioux Lookout to Ignace, the highest number occurring in Pickerel Township (see photograph).

TABLE 19

Summary of Black-headed Jack Pine Sawfly Colony Counts on 10 Jack Pine Trees at Each Location in the Sioux Lookout District in 1965

Location	Av. d.b.h. of trees in inches	Total no. of colonies found
Drayton Twp.	2	3
Dewan Twp.	4	1
Pickerel Twp.	3	5
Hanna Lake	3	2
Frog Rapids	3	1
Kathryn Lake	2	3

Red-headed Jack Pine Sawfly, Neodiprion virginianus complex

Little change on population levels of this insect has occurred for several years. Moderate to heavy infestations occurred on jack pine regeneration in Divisions 19, 25, and 32. The highest numbers of colonies were found near Medcalf Lake south of Lake St. Joseph and in Pickerel Township south of Sioux Lookout (Table 20).

Small numbers of Neodiprion nigroscutum Midd. were associated with Neodiprion virginianus complex larval colonies in Pickerel Township.

TABLE 20

Summary of Red-headed Jack Pine Sawfly Colony Counts on 10 Jack Pine Trees at Each Location in the Sioux Lookout District from 1962 to 1965

Location	Av. d.b.h. of trees in inches in 1965	Total no. of colonies found 1962	1963	1964	1965
Jordan Twp.	2	2	8	13	2
Moonlight Falls	4	0	3	17	2
Wenasaga Road	4	2	2	11	3
Drayton Twp.	3	16	15	17	12
Pickerel Twp.	3	-	-	26	69
Martin Road	2	1	6	13	23
Raven Lake	4	3	3	6	2
Echo Twp.	2	-	-	-	19
Medcalf Lake	3	-	-	-	71

Yellow-headed Spruce Sawfly, Pikonema alaskensis Roh.

Population levels of this sawfly changed only slightly with highest numbers occurring on white spruce (Table 21). Although this insect is capable of severely defoliating open-grown trees (see photograph) it has not been found in high numbers in the district for several years.

TABLE 21

Summary of Yellow-headed Spruce Sawfly Larval Counts in the Sioux Lookout District from 1963 to 1965

Location	Tree species	Av. d.b.h. of trees in inches in 1965	Total no. of larvae found per 15-mat sample 1963	1964	1965
Vermilion Add. Twp.	bS	4	3	3	4
Eaid Lake	bS	3	2	4	0
Drayton Twp.	wS	3	4	2	2
McAree Twp.	wS	4	7	-	7
White Otter Lake	wS	4	-	4	1
Scotch Lake	wS	3	-	18	5
Highway 105	bS	3	-	3	1
Ilsley Twp.	bS	3	-	17	3
Ear Falls	wS	4	-	-	7
Sturgeon Lake	wS	5	-	-	3

Green-headed Spruce Sawfly, Pikonema dimmockii Cress.

Generally, population levels of this insect approximated those of recent years. The highest number of larvae in a single collection was recorded at White Otter Lake south of Ignace (Table 22).

TABLE 22

Summary of Green-headed Spruce Sawfly Larval Counts on 15 Mat Samples from Each Point in the Sioux Lookout District in 1965

Location	Tree species	Av. d.b.h. in inches	Total no. larvae found 1963	1964	1965
Block 10	bS	4	2	1	8
Wenasaga Road	wS	3	5	6	12
Drayton Twp.	wS	2	1	7	9
McAree Twp.	wS	4	6	14	14
Upper Scotch Lake	wS	2	-	15	10
Highway 105	wS	2	-	7	13
White Otter Lake	wS	3	-	-	23
Pickerel Twp.	wS	3	-	-	7
Haggart Lake	bS	2	-	-	5
Webb Twp.	wS	4	-	-	7
Cairns Lake	bS	3	-	-	1
Jordan Twp.	wS	3	-	-	2

White Pine Weevil, Pissodes strobi Peck

Generally, the incidence of weevilled jack pine trees was similar to 1964. The highest number of damaged leaders was found on jack pine reproduction near Ignace. Counts based on examination of 50 trees at each sample location are summarized in Table 23.

TABLE 23

Summary of Damage by the White-pine Weevil at 8 Points in the Sioux Lookout District in 1965

Location	Av. height in feet	Per cent of trees weevilled 1964	1965
Echo Twp.	8	1	2
Norway Lake Road	8	4	2
Valora	14	6	6
Ignace	6	5	10
Corman Twp.	6	2	2
Dewan Twp.	5	-	6
McIlraith Twp.	7	-	8
Centerfire Lake	6	-	4

Larch Sawfly, Pristiphora erichsonii Htg.

An increase in population levels of this insect occurred in most of the southern half of the district. Pockets of medium to heavy infestation were found along Highway 17, east and west of Ignace, near Sioux Lookout and southeast of Sturgeon Lake, Division 19.

Since the decline of high populations in 1951 pockets of medium to heavy infestation occurred sporadically in 1953, 1957 and 1959. The upward trend in population levels in 1965 represented the most significant change in the status of the insect in recent years.

Spruce Bud Gall Midge, Rhabdophaga swainei Felt

Populations of this insect have remained at a low level since 1962. The highest percentage of infested buds occurred in Hodgson Township west of Ignace (Table 24).

TABLE 24

Summary of Counts of Terminal Buds Infested by the Spruce Bud Gall Midge on Black Spruce in the Sioux Lookout District from 1963 to 1965

Location	Av. d.b.h. in inches	No. of shoots examined in 50 branch tips	Per cent terminal buds infested 1963	1964	1965
Osaquan Twp.	3	137	1.3	1.4	2.1
Hodgson Twp.	3	125	-	-	4.0
Echo Twp.	3	147	-	-	1.3
Corman Twp.	4	133	-	-	1.5
Ignace Twp.	2	168	-	-	1.8
Baird Twp.	4	122	-	-	2.4

Pine Tortoise Scale, Toumeyella numismaticum P. & M.

This insect was found at several locations in 1965. The highest numbers occurred on second growth jack pine 15 miles west of Ignace. An outbreak of the insect in 1955 and 1956 caused considerable mortality in jack pine stands 25 miles south east of Sturgeon Lake Division 19.

TABLE 25

Summary of Miscellaneous Insects Collected in the Sioux Lookout District

Insect	Host(s)	Remarks
Acleris logiana Linn.	wB	Low populations near Ignace.
Acrobasis betulella Hlst.	wB	Scarce throughout district.
Anomogyna elimata Gn.	bF, bS	Recurs yearly.
Archippus strianus Fern.	bF, bS	Low populations.
Argyresthia laricella Kft.	lT	Populations remain low.
Badebecia urticana Hbn.	Mountain maple	Found yearly in low numbers throughout district.

TABLE 25 (continued)

Insect	Host(s)	Remarks
Cecidomyia occelaris O.S.	rM	Leaf galls noticeable along Norway Lake road.
Choristoneura fumiferana Clem.	bS, wS, bF	Found more frequently than in past few years.
Choristoneura rosaceana Harr.	wS, Al	Found in beating samples.
Chrysomela mainensis mainensis Bechne.	Al	Leaf skeletonizing very light Kirkness Lake.
Cimbex americana Leach.	W	Found in low numbers each year.
Dasyneura balsamicola (Lint.)	bF	Found from June 19 to Sept. 27 throughout the district. Heaviest in Drayton Twp.
Dimorphopterx pinguis (Nort.)	wB	Recurs yearly. The collection from Kapikik Lake contained most larvae found.
Dioryctria reniculella Grt.	bS	Individual larva collected.
Epinotia corylana McD.	Al	Wherever found appeared in moderate numbers.
Eupithecia filmata Pears	wS, bF, bS	Quantitative mat samples from points revealed low numbers throughout.
Feralia jocosa Gn.	wS, bS, bF	Highest number of collections ever made in district; quantitative data showed no more than 2 insects per 15 mats.
Halisidota maculata Harr.	bPo, tA	Two colonies found in northern part of the district.
Ips pini Say.	jP	Found throughout the district.
Monochamus scutellatus Say.	jP	Heavy mortality to fringe trees at two points in the district.
Phyllocolpa sp.	tA	Highest number observed at Moar Lake.
Nematus limbatus Cress.	W	Three colonies found at Bamaji Lake.
Neodiprion abietis complex	bF, bS	As previously reported it is occurring further east. Highest number found 10 miles east of Ignace.
Neodiprion abbotti Cress.	jP	Occurred in 1958 at Nungesser Lake, in 1960 near Ignace and in 1965 near Sioux Lookout, each time as single colonies.
Neodiprion nigroscutum Midd.	jP	Most plentiful 21 miles south of Sioux Lookout, associated with N. virginianus complex.

TABLE 25 (continued)

Insect	Host(s)	Remarks
Nepytia canosaria Wlk.	wS, bF, bS	One collection made in 1963 as compared to 15 collections in 1965. Ten quantitative samples showed an average of approximately 4 larvae per 15-mat sample.
Nyctobia limitaria Wlk.	bF	Small numbers of larvae found at each point.
Nycteola cinereana N. & D.	bPo	Found from July 16 to Sept. 16.
Nycteola frigidana Wlk.	W	Occurs yearly in small numbers.
Orthosia hibisci Gn.	wB, Al, W	Small numbers taken in beating samples.
Orthotomicus caelatus Eichh.	bS	Bark beetles found in stems from roadway clearing.
Papilio glaucus Linn.	bPo	Occurs yearly in small numbers.
Pityogenes plagiatus (Lec.)	jP	Blow down trees lightly infested.
Polygraphus rufipennis Kby.	wS, jP	Found in clearing for cabins.
Pristiphora lena Kincaid	wS, bS	An increase in number of collections occurred in 1965. Highest number of larvae found at Knox Lake.
Profenusa thomsoni (Konow)	wB	Found at headwaters of Albany River in 1965; heaviest near Sioux Lookout.
Protoboarmia porcelaria indicataria Wlk.	bF	Low populations near Sioux Lookout.
Semiothisa dispuncta Wlk.	bF	Active from mid July to end September. Highest numbers taken near Ignace.
Sparganothis acerivoeana MacK.	Mountain maple	Small numbers of these leaf tiers found.
Sparganothis sulfereana Clem.	jP	Populations low 10 miles north of Ignace.
Trisetacus grosmanni Keifer.	bF	Single collection of 20 adults taken in Dewan Twp.