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Midwestern Forest Region, 1965  
Status of Insects in the Port Arthur  
District

Hall, K.C.

Information Report O-X-22  
(Forest Research Laboratory, Ontario Region)

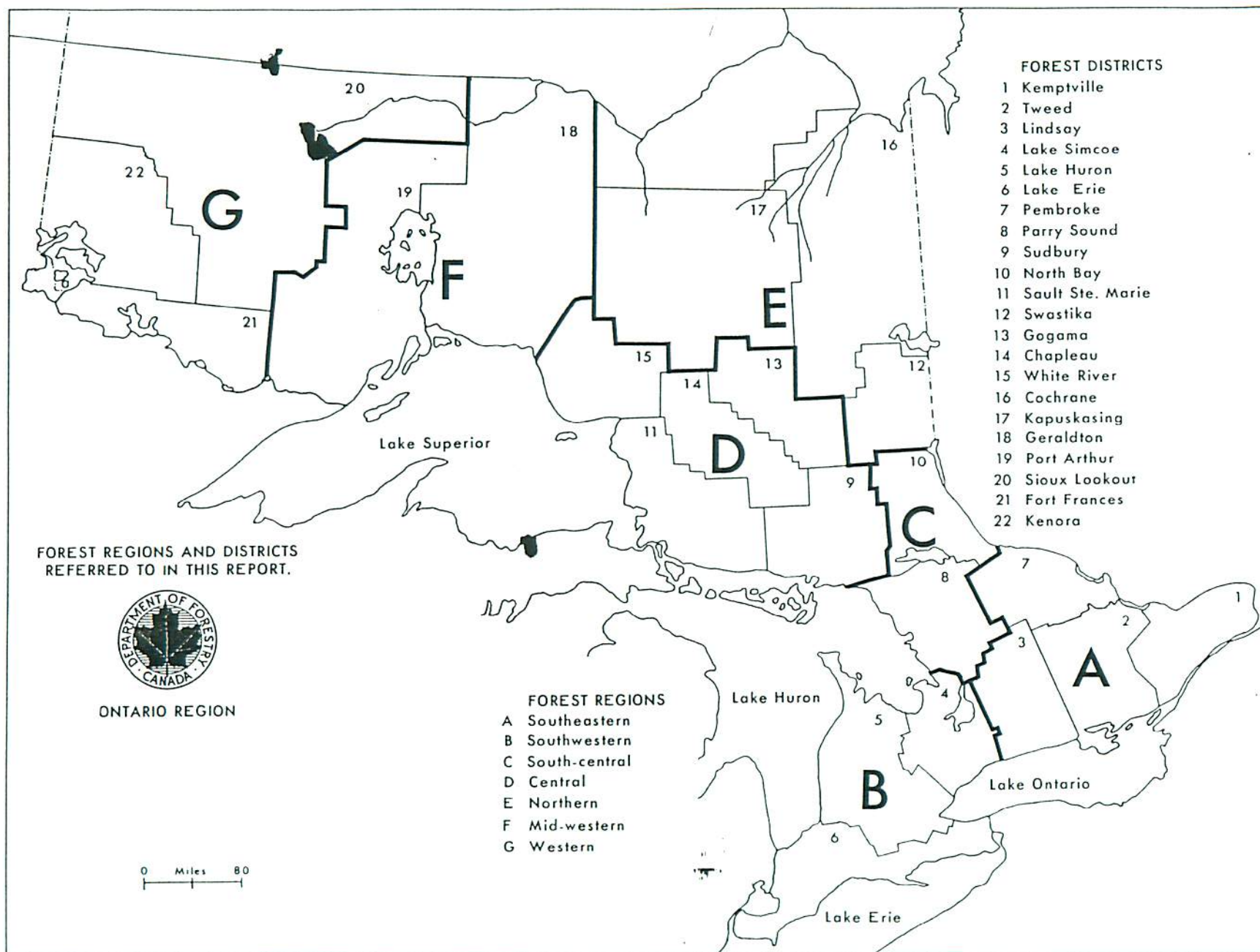


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MIDWESTERN FOREST REGION

1965

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WESTERN FRONTIER

1913

STATUS OF TERRITORIES

Arizona Territory (1908) ..... 100

STATUS OF THE DISTRICT OF COLUMBIA

100	1908	Arizona Territory	100
101	1909	Arizona Territory	100
102	1910	Arizona Territory	100
103	1911	Arizona Territory	100
104	1912	Arizona Territory	100
105	1913	Arizona Territory	100
106	1914	Arizona Territory	100
107	1915	Arizona Territory	100
108	1916	Arizona Territory	100
109	1917	Arizona Territory	100
110	1918	Arizona Territory	100
111	1919	Arizona Territory	100
112	1920	Arizona Territory	100
113	1921	Arizona Territory	100
114	1922	Arizona Territory	100
115	1923	Arizona Territory	100
116	1924	Arizona Territory	100
117	1925	Arizona Territory	100
118	1926	Arizona Territory	100
119	1927	Arizona Territory	100
120	1928	Arizona Territory	100
121	1929	Arizona Territory	100
122	1930	Arizona Territory	100
123	1931	Arizona Territory	100
124	1932	Arizona Territory	100
125	1933	Arizona Territory	100
126	1934	Arizona Territory	100
127	1935	Arizona Territory	100
128	1936	Arizona Territory	100
129	1937	Arizona Territory	100
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132	1940	Arizona Territory	100
133	1941	Arizona Territory	100
134	1942	Arizona Territory	100
135	1943	Arizona Territory	100
136	1944	Arizona Territory	100
137	1945	Arizona Territory	100
138	1946	Arizona Territory	100
139	1947	Arizona Territory	100
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141	1949	Arizona Territory	100
142	1950	Arizona Territory	100
143	1951	Arizona Territory	100
144	1952	Arizona Territory	100
145	1953	Arizona Territory	100
146	1954	Arizona Territory	100
147	1955	Arizona Territory	100
148	1956	Arizona Territory	100
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STATUS OF TERRITORIES

## INTRODUCTION

### Midwestern Forest Region

The following report contains the status of forest insects and tree diseases in the Midwestern Region in 1965. The results of surveys on the larch sawfly and tree diseases are presented on a regional basis while the status of other insects are dealt with in the district sections of the report.

The forest tent caterpillar infestation in the Port Arthur District increased in extent with the area of heavy defoliation of aspen comprising approximately 5,000 square miles. Forecasts for 1966 indicate that heavy infestations will continue and spread into the southwestern portion of the region. Light infestations are expected to occur in the MacDiarmid area and the Lake Nipigon Islands. Population levels of the larch sawfly increased and light infestations were observed at numerous locations. An abrupt collapse of birch leaf skeletonizer infestations was noted after three consecutive years of high populations. Infection caused by needle rust was severe on white and black spruce in two areas and a general increase in the incidence of the organism occurred elsewhere in the region.

The program for sampling insects on balsam fir, bark beetle surveys and spore trap exposures for the detection of Fomes annosus were continued in 1965. The recovery in 1964 of Fomes annosus spores in two areas of the region far remote from known centres of infection was a noteworthy development.

Short courses of instruction on forest insects and tree diseases were given at junior forest ranger stations throughout the region. Considerable extension and service work was carried out for companies and private owners involving insect and disease problems in stands, plantations and ornamental trees.

The valuable assistance given by Woods Operators and Department of Lands and Forests personnel is gratefully acknowledged.

K. C. Hall

## STATUS OF INSECTS

Larch Sawfly, Pristiphora erichsonii (Htg.)

An increase in population levels was observed in the region. Pockets of light to moderate infestation occurred east of Longlac and in the central portion of Geraldton District, and along Highway 17 West, along the Atikokan road and in the Black Sturgeon area of the Port Arthur District (see map). Defoliation in these areas ranged from 10 to 30 per cent and in most instances was confined to the upper third of the crowns of infested trees. Heavy defoliation of isolated small roadside tamarack trees was observed at Pays Plat, and along the Armstrong and Auden roads and in the Lac Du Mille Lac area. Elsewhere in the region colonies of insects occurred more frequently, however, defoliation did not exceed 10 per cent.

## STATUS OF TREE DISEASES

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

The incidence of this organism increased in young fire origin jack pine stands in Irwin and Sandra townships, Geraldton District. In the past three years the incidence has been increasing gradually and in 1965 dead trees were seen in small widely-scattered groups. A count in a 1/20 acre sample plot in one stand along Sturgeon River road showed 4 per cent mortality. In a hail-damaged sample plot in Errington Township 8 per cent of trees were killed by this disease.

Needle Rust of Spruce, Chrysomyxa arctostaphili Diet

Severe infections of this rust were observed in two areas in the region in 1965. The largest area affected occurred in Township 82, Geraldton District, where severe browning of current year's needles of white spruce was common on trees in all diameter classes in a 50-acre stand. In Port Arthur District, pronounced discoloration of small diameter black spruce was prevalent in one stand in Trewartha Township. Although the incidence was high on adjacent larger diameter spruce trees less discoloration occurred.

Needle Rust of Spruce, Chrysomyxa ledi de Bary

For the second consecutive year the incidence of this rust increased in the region. In 1965 high levels of incidence and severity were noted 5 miles west of Huronian on Highway 11 where severe discoloration occurred in several stands of small diameter black spruce. Elsewhere in the Port Arthur District, light infections of spruce were found from Raith to the Sioux Lookout District boundary. In the Geraldton District medium infection occurred commonly in balsam fir stands.

Needle Rust of Spruce, Chrysomyxa ledicola Lagerh.

This foliar rust caused light discoloration of white spruce trees at Black Sturgeon Lake in the Port Arthur District. The incidence and severity of the disease were low and confined to open-grown trees in one stand.

Ink Spot of Aspen, Ciborinia whetzeli (Seav.) Seav.

The incidence of this disease fluctuated in the region in 1965 declining in the Geraldton District and increasing in the Port Arthur District. The highest incidence occurred in scattered stands of aspen along the Armstrong, Devon, Spruce River and Dog Lake roads and along Highway 61 in Port Arthur District and in Fulford Township in Geraldton District. Although 70 to 100 per cent of the leaves were infected, the severity of infection in most areas was light. A light degree of infection was widespread elsewhere in Port Arthur District but, in Geraldton District, the disease



was found only in scattered clumps of small diameter fringe aspen in Fulford and Rupert townships, south of Caramat and along the Goldfield Road (See photograph).

A Needle Rust of Pine, Coleosporium asterum (Diet.) Syd.

In 1964, high incidence and severity of this rust occurred in jack pine plantations in Sandra Township, Geraldton District, and in O'Connor Township of the Port Arthur District. In 1965, incidence declined to a low level in these areas. However, pockets of light infection persisted for the second consecutive year along the Atikokan road in Port Arthur District. The diseased needles were confined to lower branches of small diameter trees.

Black Knot of Cherry, Dibotryon morbosum (Schw.) Theiss. & Syd.

Varying degrees of infection of this disease occurred in the region in 1965. A high level of incidence was recorded in Pic, 78, Legault and Vivian townships in Geraldton District and in Hele and Nipigon townships and on Sibley Peninsula in the Port Arthur District. Pockets of light infection were common at numerous other locations in the region.

A Leaf Rust of Mountain Ash, Gymnosporangium sp.

In the Geraldton District, heavy infection of mountain ash by this rust persisted for the fourth consecutive year in Pic Township and townships 79 and 87. Light infection was observed commonly elsewhere in the district. In Port Arthur District, a high incidence of Gymnosporangium sp. occurred on serviceberry one mile west of Raith in Golding Township. At other sample points the incidence and severity were low and occurred principally on mountain ash.

TABLE 1

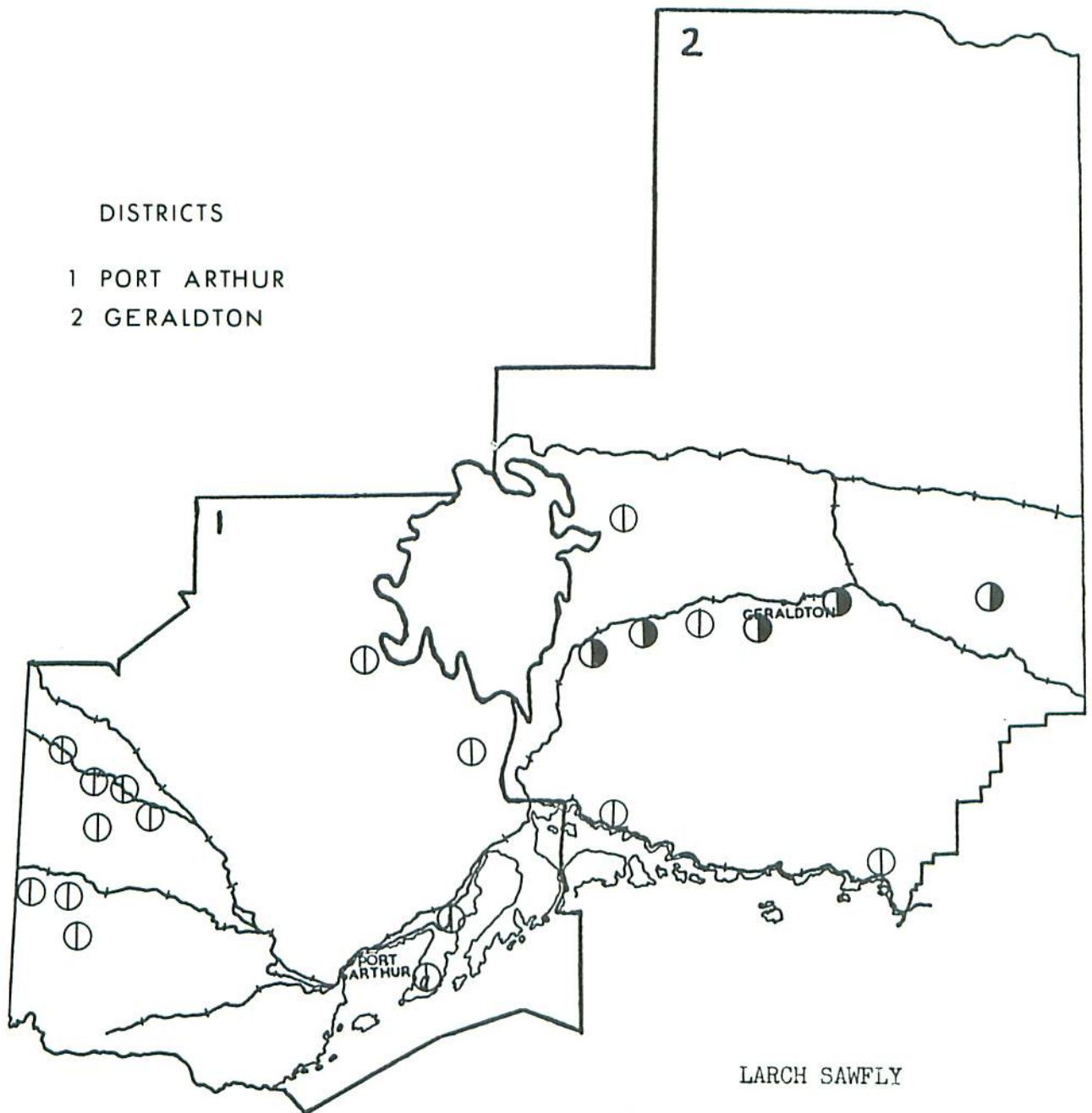
Summary of Infection of Mountain Ash Caused by Gymnosporangium sp. in the Midwestern Region in 1964 and 1965

Location	Per cent of leaflets infected	
	1964	1965
Township 79	100	43
Township 87	78	100
Pic Tp.	64	36
Kopka Lake	2	1

Needle Cast of Jack Pine, Hypodermella ampla (J. J. Davis)

Severe infection by this organism caused browning of the foliage on the lower crowns of the trees in a young jack pine stand in Eva Township, Geraldton District. A count in a one-twentieth acre sample plot showed that 28 per cent of trees were affected. The incidence of this disease was generally low in the region as a whole in 1965.

# MIDWESTERN FOREST REGION



Eastern Gall Rust, Peridermium sp.

No important change in the status of this rust occurred in the region in 1965. The highest incidence was again recorded in Stirling Township where 75 per cent of the trees were infected. At other sample points the degree of infection was comparable to 1964 (Table 2). In Gorham Township and at Black Sturgeon Lake only scattered trees were infected; however, a moderate number of infections per tree was noted.

TABLE 2

Comparison of Incidence of Infection of Peridermium sp. in Jack-Pine Plots in the Midwestern Region, 1964 and 1965

Location	Tree species	Av. d.b.h.	Incidence of Infection		Severity
			1964	1965	
Stirling Tp.	jP	6	72	75	moderate
English River	jP	3	33	38	low
Ames Tp.	jP	3	36	36	low

Leaf and Twig Blight of Poplar, Pollaccia elegans Serv.

High levels of incidence and severity of this disease occurred on regeneration balsam poplar at Batwig Lake in Div. 34. Elsewhere in the Port Arthur District the incidence was comparable to 1964 but the severity of infection was considerably lighter (Table 3). In Geraldton District, pockets of light balsam poplar twig mortality were observed in Exton Township.

TABLE 3

Severity of Pollaccia elegans Infections on Balsam Poplar in the Port Arthur District in 1964 and 1965

Location	Av. No. of Damaged tips per tree		Severity
	1964	1965	
MacGregor Tp.	14.8	2.7	low
Marks Tp.	8.6	3.1	low
Black Sturgeon Lake	1.8	1.1	low
Pine Portage	1.0	1.3	low

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

In 1964 this disease occurred commonly on small aspen throughout the region. In 1965 the incidence declined to a low level except at Gull River, Port Arthur District where incidence and severity was high (Table 4).

TABLE 4

Severity of Pollaccia radiosa Infections on Aspen in the Midwestern Region  
in 1965

Location	No. of trees in sample	Incidence of infection		Severity
		1964	1965	
Spruce River road	50	100	8	low
Dog River road	50	100	18	low
Gull River	100	100	92	high
Sibley Peninsula	50	100	50	low
Houck Tp.	50	-	7	low

## Frost Injury

Late spring frosts caused widespread damage to new shoots of balsam fir throughout the central and northern parts of Geraldton District in 1965. The most severe damage occurred on open-grown balsam fir regeneration in Rupert and Legault townships and at Lukinto and MacLeod Lakes where 80 to 90 per cent loss of new shoots was recorded on scattered trees (See photograph). The following table shows the percentage of damage at sample points.

TABLE 5

Summary of Frost Damage to Current Years Growth of Balsam fir and White  
Spruce in 1965

Location	Tree species	Av. d.b.h.	No. of sample trees	No. of trees affected	Per cent of shoots damaged
Rupert Tp.	bF	3	10	10	42
MacLeod Lake	bF	4	6	6	42
Lukinto Lake	bF	1	10	10	38
Onaman River	bF	4	10	10	21
Lemay Road	wS	4	4	4	32

## Snow Damage

During the winter of 1964-1965 numerous jack pine trees were bent over by snow at several locations in the Geraldton District. The damage was most severe in dense stands affecting trees in the 1- to 3-inch diameter classes east of Lukinto Lake and in Exton and O'Meara townships. Small numbers of bent-over trees were observed along Highway 625 at MacKay Lake and at Mileage 123 along the Canadian National Railway east of Nakina. The affected trees remained bent-over during the summer months.

Light to moderate breakage of the twigs in the upper crown of jack pine trees occurred in young stands in Errington, Lindsley and Exton townships and through the Marathon Boy Scout Tree Farm in Pic Township.

TABLE 6

Other Noteworthy Diseases in the  
Midwestern Region in 1965

Organism	Host(s)	Remarks
<i>Aureobasidium pullulans</i> (deBary) Arnaud	ScP	Heavy infection on two trees, MacGregor Tp., P. Arthur District.
<i>Bifusella crepidiformis</i> Darker	bS	Severe browning of old foliage on a small clump of shaded trees in Lindsley Tp., Geraldton Distr.
<i>Chrysomyxa pirolata</i> Wint.	bS	Very low incidence on cones in MacComber Tp.
<i>Cladosporium</i> sp.	wB	Light infection on several large trees.
<i>Coccomyces hiemalis</i> Higgins	ecCh	Generally light infection along Armstrong rd.; high severity on scattered trees 1 mile E. of English River, P. Arthur District.
<i>Cronartium comandrae</i> Peck	jP	Very light infection of this rust persisted at the Thunder Bay Nursery.
<i>Cryptomyces pteridis</i> (Rob.) ex (Fr.) Rehm.	Bracken	Affecting a few plants in Pardee Tp., P. Arthur District.
<i>Cryptospora betulae</i> Tul.	wB	Collected on dead branches along Armstrong road.
<i>Cytospora chrysosperma</i> (Pers.) Fr.	W,tA,pCh	Common on dead willow branches in hail damaged area in Errington Tp. and on numerous small aspen at LeMay road, Geraldton District. Found on open grown willow at one location in Fallis Tp., P. Arthur District.
<i>Diaporthe tessella</i> (Pers.) Rehm.	W	High incidence of branch mortality on scattered shrubs in Pic Tp.
<i>Diatrypella betulina</i> (Pk.) Wehm.	wB	Found on one dead tree top.
<i>Fomes igniarius</i> (L. ex Fr.) Gill.	tA	Stem cankers common on large trees through Blacksand Park, Geraldton Distr.
<i>Glocosporium</i> sp.	wB,W,bAs	Light infections in Marks and Blake tps., P. Arthur Distr. and in Legault Tp., Geraldton Distr.
<i>Kabatia lonicerae</i> (Harkn.) Hoehn.	Lonicera	High incidence at Black Sturgeon Lake, P. Arthur District.
<i>Mamiania coryli</i> (Fr.) Ces. & de Not.	Hazel	Common in Black Sturgeon L. area; one small collection from Orient Bay, Geraldton Distr.
<i>Melampsora medusae</i> Thum.	tL	Very light infection on several hosts in Nipigon Tp., P. Arthur Distr., and at Polly Lake, Geraldton Distr.

TABLE 6 (continued)

Organism	Host(s)	Remarks
<i>Melampsora</i> sp.	W	Low incidence at scattered locations in P. Arthur Distr.
<i>Melampsorium betulinum</i> (Fr.) Kleb.	Dwarf birch	Found on several small trees in Stedman Tp., P. Arthur District. First records for Northern Ont.
<i>Melanconis alni</i> var. <i>marginalis</i>	Al	Collected on scattered dead branches.
<i>Melanconium</i> sp.	wB,W	Found on dead parts of birch in Oliver Tp., P. Arthur Distr., and at three widely scattered locations in Geraldton Distr.
<i>Nothopacidium abietinellum</i> (Dearn.) Reid & Cain	bF	Occurred on lower branches at numerous locations along Armstrong road, P. Arthur Distr. and in Ashmore Tp., Geraldton Distr.
<i>Nyssospora clavellosa</i> (Berk.) Arth.	Aralia	High incidence and severity at Marie Louise Lake; widely distributed through P. Arthur District.
<i>Puccinia asteris</i> Duby <i>Puccinia coronata</i> Cda.	Aster Rhamnus sp.	Low incidence; widely distributed. Heavy incidence on shoreline shrubs at Owl Lake, light at two other collection points, Geraldton District.
<i>Puccinia linkii</i> Klotzsch.	Viburnum	Common at scattered locations in Devon and Gorham tps., P. Arthur Distr.; one collection from Tp. 81, Geraldton Distr.
<i>Puccinia mesomajalis</i> Berk. & Curt. ex Pk.	Clintonia borealis	Low incidence widely distributed.
<i>Puccinia porphyrogenita</i> Curt. ex Thum.	Cornus canadensis	Patches of infected plants on Geikie Island, Lake Nipigon.
<i>Puccinia recondita</i> Rob. ex Desm.	Anemone	Collected in Errington Tp.
<i>Puccinia waldsteiniae</i> Curt. ex Pk.	Waldsteinia fragaroides	Small collection from Errington Tp.
<i>Pucciniastrum epilobii</i> Oth	bF, fireweed	Pockets of light needle rust common throughout the central and northern portions of Geraldton District and on Sibley Peninsula, P. Arthur District. Found on alternate host in Lindsley Tp.
<i>Pucciniastrum potentillae</i> Korn.	Potentilla tridentata	Collected in Tp. 86, Geraldton District; possible alternate stage of <i>Pucciniastrum</i> sp. on fir cones.
<i>Rhytisma salicinum</i> Pers. ex Fr.	W	Rare throughout the region.

TABLE 6 (continued)

Organism	Host(s)	Remarks
<i>Sarcotrochila balsameae</i> (Davis) Korf	bF	High severity on one tree, Shelter Bay road, P. Arthur District.
<i>Taphrina caerulescens</i> (Mont. & Desm.) Tul.	O	Moderate severity on open grown planted trees, Middle Falls, P. Arthur District.
<i>Taphrina</i> sp.	pCh	Light incidence of infection through Pic Twp. and the Castlebar Lake area, Geraldton District.
<i>Thyronectria balsamea</i> (Cke. & Pk.) Seav.	bF	Organism found on dead portion of a tree.
<i>Tubercularia vulgaris</i> Tode. ex Fr.	Se	Present on dead branches in Tp. 87.
<i>Valsa leucostoma</i> Pers. ex Fr.	Mo	Found on dead branches at Killala Lake.
<i>Venturia</i> sp.	Bog Rosemary	One collection west of Huronian on Atikokan road, P. Arthur District.

STATUS OF INSECTS IN THE PORT ARTHUR DISTRICT

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K. C. Hall



## STATUS OF INSECTS

Ugly-nest Caterpillar, Archips cerasivorana Fitch

The light infestation of this caterpillar which has persisted for several years along the Twin City Crossroads in Paipoonge Township increased to heavy intensity in 1965. Forty colonies per mile of roadside was recorded at this location compared with seven in 1964. At sample points in MacGregor and O'Connor townships counts averaged 2 and 4 colonies per mile, respectively.

Birch Leaf Skeletonizer, Bucculatrix canadensisella Chamb.

In 1962 high populations of this insect built up in an area of 400 square miles along the Nipigon River in the Port Arthur District. The outbreak increased in extent and intensity in 1963 and by 1964 heavy infestation extended north to Kaiashk Bay and Cheeseman Lake comprising an area of approximately 1200 square miles. An abrupt reversal of this trend occurred in 1965 when populations declined to endemic levels.

Spruce Budworm, Choristoneura fumiferana (Clem.)

The most recent outbreak of this economically important insect occurred in the southwestern part of the district commencing in 1957. The peak period of infestation was reached in 1961 when severe defoliation was mapped in an area of approximately 600 square miles. Since 1962 a gradual declining trend has occurred until in 1965 only a small residual population was present at Plummes Lake. Severe defoliation for several years by the insect has resulted in light to moderate mortality of balsam fir extending from Ross and Plummes lakes to the U.S. border. Aerial surveys in 1965 failed to show any increase or further expansion of mortality beyond this area. Elsewhere in the district very small numbers of spruce budworm larvae were collected on mat samples.

Larch Casebearer, Coleophora laricella (Hbn.)

No important change in the status of this insect was observed in 1965. Minor declines in population levels were recorded at all sample points except in MacGregor Township and on Sibley Peninsula where larval densities were somewhat higher than in 1964 (Table 7). No new distribution records were established as a result of detection surveys made in 1965.

TABLE 7

Summary of Larch Casebearer Counts on Tamarack Trees in the Port Arthur District from 1963 to 1965

Location	Av. d.b.h. in inches	Av. number of larvae per 18" branch tip		
		1963	1964	1965
Paipoonge Tp.	6	2.2	.06	0
MacGregor Tp.	4	3.6	4.0	5.4
O'Connor Tp.	6	1.0	.7	.1
Crookes Tp.	4	3.4	4.6	1.9
Tp. 92	3	-	1.4	.2
Lyon Tp.	5	-	1.2	.4
Sibley Peninsula	5	-	1.2	1.6

A Bark Beetle of the Genera Conophthorus sp.

One small pocket of moderate infestation of this beetle occurred in Upsala Township in 1965. Populations were confined to jack pine windbreaks and averaged 2.9 infested shoots per tree. Elsewhere in the district populations were low.

European Spruce Sawfly, Diprion hercyniae (Htg.)

Population levels of this insect were low at all sample points, the largest numbers being recovered in Paipoonge Township (Table 8). This sawfly is an important pest in the Atlantic provinces but no serious outbreaks have occurred in Ontario.

TABLE 8

Summary of Collections of the European Spruce Sawfly in the Port Arthur District in 1965

Location (township)	No. of mat samples	No. of insects collected	Date sampled
O'Connor	20	4	July 7
Stirling	20	1	" 12
Paipoonge	30	32	" 17
Haines	5	1	" 21
Devon	5	3	" 26

Poplar Leaf Beetle, Gonioctena americana (Schaeff.)

Five new pockets of heavy infestation occurred in the Dog Lake area in 1965, the infested areas varying in size from 1/2 acre to 2 acres. Defoliation in the 1- to 5-inch diameter class ranged from 60 to 90 per cent, whereas defoliation of 10 to 50 per cent occurred commonly on smaller aspen trees. Moderate numbers of colonies were observed on small roadside hosts at various locations along the Armstrong road.

Birch Leaf Roller, Gracillaria sp.

A heavy infestation of this roller persisted on large white birch trees at Plummés Lake. Populations declined to endemic levels along the Burchell Lake road and near Huronian where light to moderate infestations occurred in 1964. Small numbers of the insect were observed in the remainder of the district.

Aspen Blotch Miner, Lithocolletis salicifoliella Chamb.

The moderate infestation of this miner reported in the Lac Du Mille Lac area in 1964 declined to light intensity in 1965. New light infestations occurred at numerous locations along the Atikokan road and in the Shelter Bay area. Infestations were confined to small diameter roadside aspen trees.

Blotch Miner on Balsam Poplar, Lithocolletis sp.

Pockets of light to heavy infestation of this miner persisted on balsam poplar trees at numerous locations in Division 24. Heavy infestations were observed at

scattered locations in O'Connor, Oliver, Scoble, Commee and Paipoonge townships. Quantitative counts at sample points in the latter three areas were similar to 1964 but in O'Connor Township an upward trend in larval populations and the percentage of leaves mined was recorded (Table 9). Moderate infestations continued in Marks Township and a decline from heavy to moderate intensity was recorded in McIntyre Township. Light infestations persisted in Neebing Township.

A substantial increase in adult emergence occurred at all sample points in 1965 (Table 10). An assessment of larval mortality revealed that parasitism ranging from 5 to 22 per cent constituted the major control factor. Predation was generally low except in Neebing and Marks townships where 13 and 33 per cent respectively was recorded. Mortality from unknown causes averaged nine per cent at each sample point.

TABLE 9

Comparison of Counts of Lithocolletis sp. in the Port Arthur District in 1964 and 1965

Note: 100 leaves examined at each location

Location (township)	Per cent of leaves mined		Av. no. of mines per affected leaf		Av. no. of mines per leaf	
	1964	1965	1964	1965	1964	1965
Marks	40	54	1.1	1.3	.4	.6
O'Connor	60	98	1.5	3.9	.9	3.8
Neebing	14	15	1.1	1.0	.1	.1
Scoble	82	79	1.8	1.7	1.4	1.4
Commee	67	61	1.4	1.5	.9	1.0
Paipoonge	100	96	4.5	3.9	4.5	3.7
Oliver	89	67	2.5	1.4	2.4	1.0
McIntyre	86	55	1.4	1.3	1.2	.7

TABLE 10

Summary of Adult Emergence and Larval Mortality of Lithocolletis sp. in the Port Arthur District in 1964 and 1965

Note: 100 leaves examined at each location

Location (township)	Per cent of mines showing adult emergence		Per cent total larval mortality	
	1964	1965	1964	1965
Marks	37	41	63	59
O'Connor	46	84	54	16
Neebing	50	67	50	33
Scoble	54	70	46	30
Commee	69	73	31	27
Paipoonge	61	67	39	33
Oliver	58	70	42	30
McIntyre	44	67	56	33

Western Tent Caterpillar, Malacosoma pluviale (Dyar)

Although population levels of this caterpillar were low in the district in 1965, slight increases were recorded at three sample points (Table 11). The highest colony count was obtained in MacGregor Township where the number of colonies increased from 4 to 6 along one mile of roadside. The light infestation reported in Paipoonge Township in 1964 virtually subsided in 1965. Winter ploughing damaged roadside hosts and probably contributed to the decline.

TABLE 11

Summary of Colony Counts of the Western Tent Caterpillar in the Port Arthur District from 1963 to 1965

Location (township)	Sampling unit	Number of tents per sampling unit		
		1963	1964	1965
MacGregor	1 mile of roadside	6	4	6
McIntyre	" "	2	1	3
Paipoonge	" "	-	16	4
Paipoonge	1 square chain	4	1	3

Forest Tent Caterpillar, Malacosoma disstria Hbn.

A marked spread of heavy infestation of the forest tent caterpillar occurred in the Port Arthur District. Severe defoliation of aspen stands occurred in an area of approximately 5,000 square miles compared with 600 square miles in 1964. This enlargement in the area of infestation had been forecast on the basis of egg surveys in 1964.

The main body of heavy infestation extended from Mac Lake on the Fort Frances border northeasterly to Kaiashk Bay on Lake Nipigon thence west to Uneven Lake on the Sioux Lookout District boundary. Small isolated pockets of heavy infestation occurred along the south shore of Obonga Lake, at Chief Bay and on the west side of Black Sturgeon Lake (see map). Defoliation ranging from 75 to 95 per cent occurred in most aspen stands throughout these areas. To the east a band of light infestation extended from McIntyre Bay on Lake Nipigon to Eayrs Lake.

Surveys at numerous locations in the infestation revealed that the degree of egg hatch was generally high (Table 12). However at Golding and Nipigon and at Black Sturgeon Lake a prolonged period of low temperatures in the spring resulted in poor larval survival.

Detailed examination of unhatched eggs showed that parasitism was low and that only 2.3 to 8.5 per cent of the eggs were sterile. The main reason for hatch failure was therefore due to the inability of the larvae to emerge. The only area of extremely low hatch was located in one stand in Pyramid Township where the absence of a protective covering of spumaline (foamy brown substance) on the egg masses may have been significant.

TABLE 12

## Summary of Per Cent of Forest Tent Caterpillar Egg Hatch in the Port Arthur District

Note: Ten egg masses examined at each location

Location	Av. number of eggs per band	Per cent of eggs hatched	Degree of defoliation
Upsala Tp.	220	77.9	Severe
Fort Frances-Port Arthur border	223	80.9	Severe
Trewartha Tp.	188	75.4	Severe
Pyramid Tp.	196	4.6	Very light
Lac Du Mille Lac	233	66.4	Severe
Trewartha Tp.	195	82.7	Severe
Golding Tp.	198	78.5	Light
Black Sturgeon Lake	199	88.1	Light
Nipigon Tp.	234	87.7	Nil

Cool summer temperatures retarded larval and cocoon development. As a result, moth emergence occurred two to three weeks later than normal. Following moth emergence, 100 cocoons from each of eleven widely-separated areas were examined to assess natural control factors (Table 13). Results showed that parasitism ranged from 21 to 44 per cent and that control by other agents (disease, predation, etc.) was low.

TABLE 13

## Summary of Forest Tent Caterpillar Cocoon Dissections in the Port Arthur District

Note: One hundred cocoons examined at each location

Location	Per cent mortality				Per cent Successful emergence
	Parasitism	Predation	Disease	Unknown	
Burchell Lake	28	1	1	5	65
Kabitotikwai Lake	32	3	1	5	60
Fort Frances-Port Arthur border	31	0	3	7	59
Holinshead Lake	24	3	1	6	66
Poshkokagan Lake	21	0	0	3	76
Trewartha Tp.	44	5	2	4	45
Pyramid Tp.	31	1	3	5	60
Lac Du Mille Lac	33	0	4	5	58
Upsala Tp.	25	1	1	6	67
3 miles east of Fort Frances border	30	2	9	5	54
Black Sturgeon Lake	34	19	1	1	45

Although no major moth flights were observed in urban areas in 1965, a substantial increase of adult moths was recorded in a light trap at Black Sturgeon Lake (Table 14). The most significant result of the trapping was the sharp increase in numbers of female moths captured (5998 in 1965 compared with 2884 in 1964).

TABLE 14

Summary of Recovery of Forest Tent Caterpillar Adults from One Light Trap at Black Sturgeon Lake from 1961 to 1965

Year	Adults recovered		Total
	Males	Females	
1961	262	0	262
1962	2031	11	2042
1963	18248	29	18277
1964	10876	2884	13760
1965	38440	5998	44438

The sharp increase in the ratio of female to male moths was probably responsible for the marked increase in numbers of egg masses that occurred at numerous locations in the district (Table 15). On the basis of egg mass counts population levels of larvae will greatly increase in 1966 throughout the area of 1965 infestation. Egg counts also indicate that heavy infestation will spread into the southwestern part of the district. Light infestation is forecast for the Dog Lake and eastern Shebandowan areas (See photograph).

TABLE 15

Summary of Forest Tent Caterpillar Egg Band Counts and Infestation Forecasts for 1966 in the Port Arthur District

Location	Av. d.b.h. in inches	Av. no. of egg bands per tree		Forecast for 1966
		1964	1965	
Upsala Tp.	12	-	295	Severe
North of Buck Lake	14	-	257	Severe
Kabototikwia Lake	10	-	227	Severe
Pyramid Tp.	9	144	185	Severe
30 miles N, Dog River road	5	-	153	Severe
Lac Du Mille Lac	8	33	115	Severe
Fort Frances-Port Arthur border	6	15	99	Severe
Upsala Tp.	5	-	68	Severe
12 miles east of Fort Frances border (Atikokan rd.)	5	5	61	Severe
Burchell Lake	7	6	59	Severe
Muskeg Lake	6	5	55	Severe
Trewartha Tp.	4	28	47	Severe
Holinshead Lake	9	-	42	Severe
Inwood Tp.	5	-	40	Severe
Poskokokagan Lake	7	7	37	Severe
Colliver Tp.	5	-	36	Severe
Titmarsh Lake	5	-	32	Severe
Athelstane Lake road	5	-	28	Severe

TABLE 15 (cont'd.)

Summary of Forest Tent Caterpillar Egg Band Counts and Infestation Forecasts  
for 1966 in the Port Arthur District

Location	Av. d.b.h. in inches	Av. no. of egg bands per tree		Forecast for 1966
		1964	1965	
Lac Du Mille Lac	5	10	26	Severe
Black Sturgeon Lake (L & F)	4	-	25	Severe
Pyramid Tp.	4	-	18	Severe
Saganagons Lake	4	-	12	Severe
Golding Tp.	4	5	10	Severe
Black Sturgeon Lake (south)	8	69	7	Moderate
Mileage 55 Spruce River rd.	6	6	5	Moderate
Batwing Lake (Boreal rd.)	5	.3	5	Moderate
Black Sturgeon Lake (Dam)	4	3	2	Moderate
Mileage 45 Spruce River rd.	7	22	2	Light
Fowler Tp. (Hawkeye Lake)	4	5	2	Light
Soper Tp.	5	-	2	Light
Blackwell Tp.	4	1	1	Light
McMaster Tp.	4	1	1	Light
Canthook Lake	5	-	1	Light
Goldie Tp.	4	.3	1	Light
Gorham Tp. (Trout Lake)	4	2	1	Light
Ware Tp. (Kam River)	4	-	1	Light
Fowler Tp. (Dog Lake)	5	-	1	Light
Conmee Tp.	4	-	1	Light
MacGregor Tp.	4	0	0	Nil
Purdom Tp.	9	0	0	Nil
Mileage 25 Spruce River rd.	4	4	0	Nil
Mileage 35 Spruce River rd.	6	16	0	Nil
Glen Tp.	6	4	0	Nil
Sandstone Lake	5	-	0	Nil
Paipoonge Tp.	4	0	0	Nil

Balsam-fir Sawfly, Neodiprion abietis complex

A general increase in numbers of larval colonies of this sawfly was observed in 1965. The highest populations occurred on balsam fir in Blackwell Township and at Black Sturgeon Lake where the number of colonies per tree averaged .5 and 1 respectively. The highest count (2.5 per tree) was recorded on several hosts in Inwood Township. In O'Connor, Marks and Gillies townships small numbers were collected on white spruce trees.

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

One small pocket of medium-to-heavy infestation of this sawfly occurred on open-grown jack-pine trees at the Department of Highways headquarters on the Atikokan road. An average of seven colonies per tree was recorded and defoliation ranged from 40 to 75 per cent. Elsewhere in the district population levels were low.

Yellow-headed Spruce Sawfly, Pikonema alaskensis Roh.

Medium to heavy infestations of this sawfly persisted at numerous locations in Division 24 in 1965. The highest populations were observed in Dorion and Blake townships where from 40 to 60 per cent defoliation occurred commonly on small white spruce trees. Moderate defoliation, not in excess of 25 per cent, was observed at numerous other sample points in the division. Elsewhere in the district small numbers of larvae were recovered primarily on mat samples.

White Pine Weevil, Pissodes strobi Peck.

No important change in the status of this weevil was observed in 1965. Generally damage was light at most sample points and counts of infested leaders were similar to 1964 (Table 16). This weevil is widely distributed in the district.

TABLE 16

Summary of Leader Damage by the White Pine Weevil in the Port Arthur District from 1963 to 1965

Location	Tree species	Av. d.b.h.	Number of trees examined	Per cent of trees weevilled		
				1963	1964	1965
Thunder Bay Nursery (Paipoonge Tp.)	wP	2	696	6	7	9
	jP	3-4	183	9	3	6
	jP	1-2	272	-	10	8
Boy Scout Tree Farm (Paipoonge Tp.)	wP	2	155	4	8	9
	ScP	3-4	709	-	9	6
	ScP	1-2	343	-	13	12

Woolly Alder Aphid, Prociphilus tessellatus (Fitch)

Pockets of heavy infestation of this aphid occurred commonly in Gorham, Ware, Blackwell, Conacher and Blake townships. Low populations were observed at scattered locations from Raith to English River on Highway 17. Colonies of the aphid are readily observed as large woolly masses on the trunk or branches of alder trees.

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

Population levels of this miner were low at all sample points in the district. New distribution records were established for the insect when small numbers of mined leaves were collected in the Dog River area, along the Armstrong road and west of Whitefish Lake.

Spruce Bud Gall Midge, Rhabdophaga swainsei Felt

Population levels of this insect remained low in the district in 1965. At sample points in Joynt, Goldie, 92 and Paipoonge townships a decline in the number of infested buds was recorded (Table 17).



TABLE 17

Summary of Damage by the Spruce Bud Gall Midge in the Port Arthur District from 1962 to 1965

Location (township)	Tree species	Per cent of terminal buds infested			
		1962	1963	1964	1965
Joynt	bS	4.2	1.1	1.6	1.1
Goldie	bS	1.2	1.4	1.4	1.0
92	bS	.5	.4	4.0	1.9
MacGregor	wS	1.1	1.2	1.0	1.1
Paipoonge	wS	-	-	3.1	2.4

Spruce Bud Moth, Zeiraphera ratzeburgiana Ratz.

Population levels of this insect remained low in the district in 1965. Larval counts were comparable to 1964 except in Paipoonge Township where a substantial decline was recorded (Table 18). The insect is found in early summer under the bud caps of white spruce trees, occurring most frequently on open-grown hosts.

TABLE 18

Summary of Larval Counts of the Spruce Bud Moth in the Port Arthur District from 1962 to 1965

Location (township)	Av. no. of insects per 18" branch tip			
	1962	1963	1964	1965
O'Connor	11.2	1.1	.3	.5
MacGregor	8.4	4.1	4.7	4.1
Paipoonge	.3	3.5	7.7	4.4
Marks	-	-	1.1	1.0

TABLE 19

Summary of Miscellaneous Insects Collected in the Port Arthur District in 1965

Insect	Host(s)	Remarks
<i>Acleris logiana</i> Linn.	wB	Small numbers at Canthook and Sandstone Lakes
<i>Acleris minuta cinderella</i> (Riley)	Leather leaf	Light to moderate populations 5 miles west of Huronian Lake
<i>Acleris variana</i> Fern	wS, bF	Small numbers recovered on mat samples at numerous locations
<i>Acraspis villosa</i> Gill	0	Light populations along Harthstone road
<i>Adelges abietis</i> Linn.	wS	Low populations at scattered locations in Division 24

TABLE 19, Port Arthur District

Insect	Host(s)	Remarks
<i>Adelges lariciatus</i> (Patch)	wS	Collected in small numbers in two plantations.
<i>Altica tombacina shoemakeri</i> Mann.	Wildrose	Small numbers on Atikokan road
<i>Chrysomela crotchii</i> Brown	tA	Commonly in small numbers in western part of district.
<i>Dimorphopteryx pinguis</i> (Nort)	wB	One colony, Booth Township.
<i>Dioryctria reniculella</i> Grt.	wS	Very small numbers, Hagey Township.
<i>Eupithecia filmata</i> Pears	wS	Recovered on mat samples, Hagey Tp.
<i>Fenusa dohrnii</i> (Tischb.)	Al	Light to moderate infestation in Scoble, MacGregor, Paipoonge, and Stirling townships.
<i>Fenusa pusilla</i> (Lep.)	wB	Light infestation in Lakehead cities and one location in Paipoonge Tp. No new distribution points in 1965.
<i>Hyphantria cunea</i> Dru	Al, W	Few colonies in Paipoonge, Scoble and O'Connor townships.
<i>Lambdina fiscellaria</i> Gn.	bF	Recovered in small numbers in the western part of district. More common in 1965 than in previous years.
<i>Macremphytus intermedius</i> (Dyar)	Do	Heavy populations at scattered locations in the Sandstone and Canthook lakes area. Defoliation from 50 to 80 per cent on some hosts.
<i>Macremphytus varianus</i> (Nort.)	Do	Small numbers, MacGregor Township.
<i>Nematus fulvicrus</i> Prov.	W	Average 1.7 colonies per tree at one location in Fallis Tp.
<i>Nematus limbatus</i> Cress.	W	Average 2.4 colonies per tree, Fallis Tp. Elsewhere small numbers usually confined to open-grown hosts.
<i>Nematus</i> sp. ( <i>Phyllocolpa</i> sp.)	tA	Small numbers Division 24.
<i>Nematus ventralis</i> Say	W	Few colonies, Conmee Tp. Defoliation 5 per cent.
<i>Neodiprion maurus</i> Rohwer	jP	Small numbers, Upsala Tp.
<i>Neodiprion nanulus nanulus</i> Schedl.	jP, rP	Scattered colonies on open-grown host in Inwood, Upsala, and Fowler townships. Av. one colony per tree at Burchell Lake.
<i>Neodiprion pratti banksianae</i> Roh	jP	Few colonies, Hagey Tp.
<i>Nepytia canosaria</i> Wlk.	bF	Small numbers at numerous locations.
<i>Neuroteras umbilicatus</i> Bass	O	Light populations along Harthstone road.
<i>Neurotoma inconspicua</i> (Nort.)	ecCh	Low populations, Joynt Tp.

TABLE 19, Port Arthur District

Insect	Host(s)	Remarks
<i>Nycteola cinerea</i> N. & D.	bPo	Small numbers found in association with <i>Pyrrhia umbra</i> exprimens on Sibley Peninsula and Boreal road.
<i>Nycteola frigidana</i> Wlk.	W	Small numbers, Blackwell Tp.
<i>Nymphalis antiopa</i> Linn	tA	Marked population decline in 1965. Found commonly in 1964.
<i>Phlyctaenia tertialis</i> Gn.	Elderberry	Moderate populations at Oliver Lake, defoliation 10 per cent.
<i>Phratora americana canadensis</i>	W	Twenty per cent of leaves skeletonized at one location in MacGregor Township.
<i>Phratora purpurea purpurea</i> Brown	W, tA	Common in Hagey Township. Small numbers elsewhere.
<i>Pikonema dimmockii</i> (Cress.)	wS	Recovered in small numbers at numerous locations.
<i>Pristiphora cadma</i> (W. & R.)	wB	One colony, Black Sturgeon Lake.
<i>Schizura concinna</i> J. E. Smith	W	Very low populations.
<i>Sternochetus lapathi</i> (Linn)	W	Small numbers in Division 24.
<i>Trichiocampus irregularis</i> (Dyar)	W	Light populations, Hagey Township, defoliation 10 per cent.
<i>Trichiosoma triangulum</i> Kby.	W	Small numbers, Division 24.