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Status of Insects in the Chapleau  
District

Ropke, Dieter

Information Report O-X-45  
(Forest Research Laboratory, Ontario Region)

Information Report No.	Subject	Author
O-X-34	Forest Insect & Disease Surveys	
	--Lindsay District	W. J. Miller
O-X-35	--Tweed District	F. Livesey
O-X-36	--Kemptville District	J. Hook
O-X-37	--Pembroke District	R. A. Trieselmann
O-X-38	--Lake Simcoe District	A. A. Harnden
O-X-39	--Lake Huron District	R. L. Bowser
O-X-40	--Lake Erie District	J. R. Trinnell
O-X-41	--North Bay District	L. S. MacLeod
O-X-42	--Parry Sound District	C. A. Barnes
O-X-43	--Sault Ste. Marie District	H. G. McPhee
O-X-44	--Sudbury District	J. R. McPhee
O-X-45	--Chapleau District	D. Ropke
O-X-46	--Gogama District	W. Ingram
O-X-47	--White River District	D. C. Constable
O-X-48	--Cochrane District	H. R. Foster
O-X-49	--Kapuskasing District	G. T. Atkinson
O-X-50	--Swastika District	M. J. Applejohn
O-X-51	--Port Arthur District	K. C. Hall
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O-X-53	--Sioux Lookout District	P. E. Buchan
O-X-54	--Kenora District	H. J. Weir
O-X-55	--Fort Francis District	M. J. Thomson

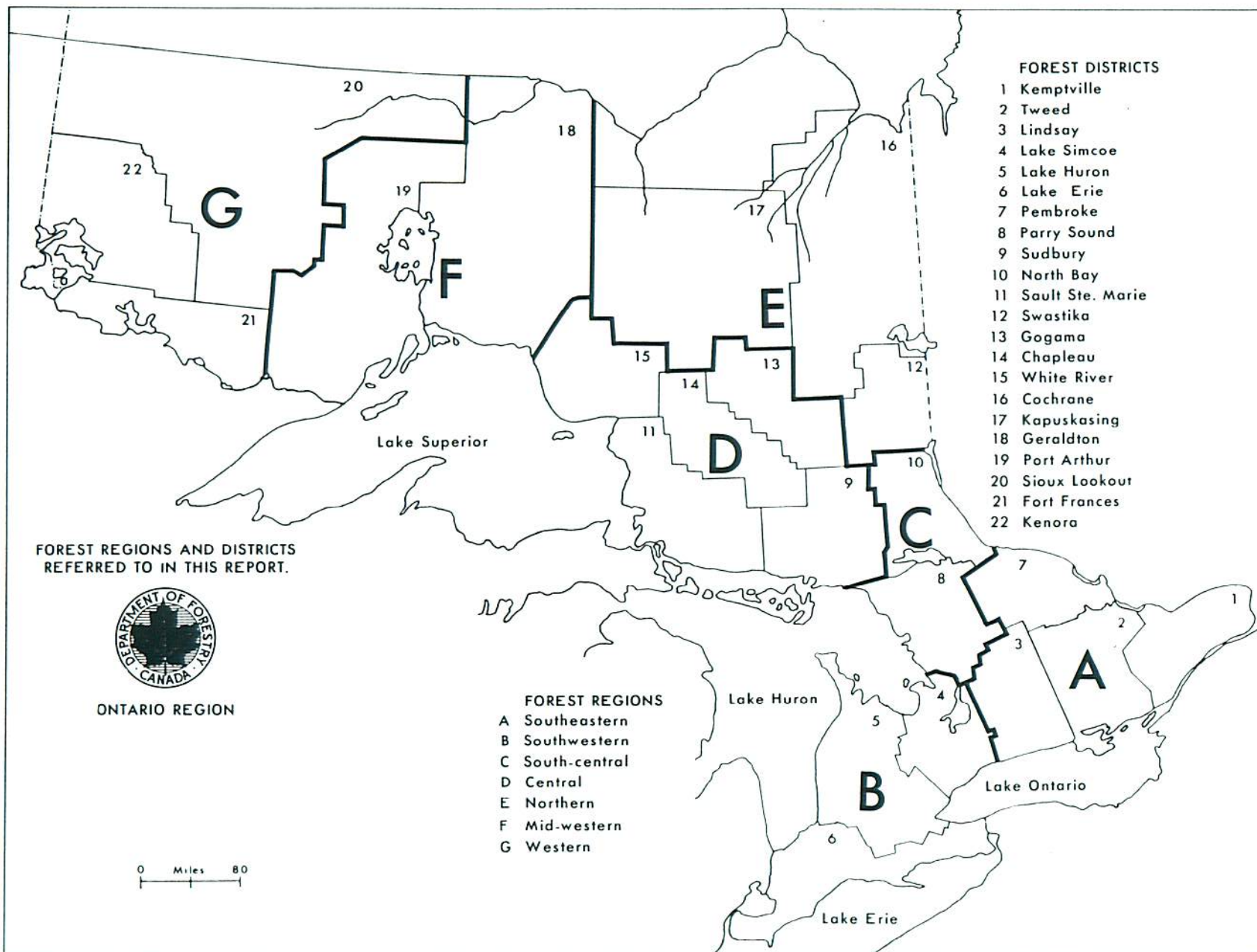
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Photographs

\* Regional Supervisors



## FOREWORD

J. E. MacDonald

A prolonged period of drought, extending from May until August, seriously affected the growth and survival of forest stands on shallow sites and in plantations, particularly in central and southern Ontario. This was evidenced in August when hardwoods on rocky sites in many areas turned brown and shed their foliage. Serious losses of conifers planted in 1966 were reported in the Sault Ste. Marie, Lake Huron, Lake Simcoe and Lindsay districts.

Intensive surveys were carried out in 1966 to determine the distribution and incidence of Scleroderris canker of pine and of Dutch elm disease. These revealed that Scleroderris canker is widely distributed in northern Ontario. Incidence and tree mortality was highest in young red and jack pine plantations, however, significant losses of jack pine reproduction were also observed in several areas. Incidence of the disease was low in southern Ontario. Dutch elm disease is well established throughout southern Ontario and in localized areas in North Bay and Sudbury districts in northern Ontario. The incidence of infection was particularly high in the Toronto, London and Windsor areas. Over 50 per cent of the elm trees in many areas in southwestern Ontario were infected and the disease has taken a heavy toll of trees in older areas of infection.

Noteworthy changes in the extent and intensity of infestations of the forest tent caterpillar and jack pine budworm occurred in 1966. Weather conditions in the spring brought about a collapse of the forest tent caterpillar outbreak that had occurred over a vast area in Sioux Lookout, Kenora and Port Arthur districts in recent years. Heavy infestations persisted in Fort Frances District and in numerous areas in central and southeastern Ontario, but no outstanding changes in their extent and intensity occurred. Forest tent caterpillar defoliation forecasts for 1967 are contained in the district reports that follow.

Jack pine budworm infestations were reported in three widely-separated parts of Ontario. The largest of these occurred in the western part of Fort Frances and Kenora districts. Pockets of infestation occurred in the southern part of Sault Ste. Marie District and on Manitoulin Island.

The European pine sawfly continued to be a serious pest in pine plantations in southern Ontario. Since its discovery in a Scots pine plantation on Manitoulin Island in 1965, it has been found in five additional plantations on the Island. The results of control measures using virus sprays to contain the sawfly in this northern location will be followed with interest in 1967.

Expansion of the forest research program of the Department of Forestry and Rural Development in Sault Ste. Marie and the establishment of new positions in the Insect and Disease Survey Section has resulted in many changes of duties for Survey technicians. Five new district technicians will be required for the 1967 field season and numerous district re-assignments will be made. A list of technicians and their district assignments will be issued to key personnel of the Department of Lands and Forests and Industry early in the field season.

STATUS OF INSECTS IN THE CHAPLEAU DISTRICT

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Deter Ropke

Birch Skeletonizer, Bucculatrix canadensisella Chamb.

Infestations of this insect collapsed in the district in 1966. Early instar larvae occurred at many locations but free-feeding late instar larvae were rarely seen.

Spruce Budworm, Choristoneura fumiferana (Clem.)

Numbers of this insect increased for the second consecutive year and larvae were collected at several widely separated locations. The most noteworthy increase occurred in a block of six townships in the central portion of Division 69 where balsam fir and white spruce were lightly infested (see map). Defoliation at 14 sampling stations ranged from 0.5 to 8.5 per cent and averaged 2.1 per cent of the current year's foliage. Egg sampling in the fall at three locations in the area of infestation gave negative results.

The female moth oviposits in late July and August. The eggs hatch in 8 to 12 days and the tiny larvae overwinter under bark scales and in crevices. The following spring larval activity coincides with the bursting of the buds. Young larvae prefer to feed on pollen in the staminate flowers. As the season advances and the larvae increase in size they feed on the new foliage. Pupation takes place in a silk web concealed in the twigs (see photograph).

Jack-pine Budworm, Choristoneura pinus Free.

Few collections of this insect have been made in the district in recent years. In 1966 however, the insect occurred commonly in townships D and H in Division 29 and in small numbers in Nimitz, 10E, Panet and Smuts townships (see map).

In a 30-day period at the time of the moth flight, 98 adults were recovered from a light trap. Surveys in 1967 will determine the significance of this concentrated moth flight.

Larch Casebearer, Coleophora laricella (Hbn.)

Population levels of this insect declined in 1966. This trend was particularly evident at a sample point in Chapleau Township where the number of larvae per 18-inch branch tip declined from 12.5 larvae to 0.6 larvae in 1966 (Table 5).

TABLE 5

Summary of Larch Casebearer Counts in  
Chapleau District from 1965 to 1966

Location by township	No. of 18" branch tips sampled	Average no. of larvae per 18-inch branch tip	
		1965	1966
Hoey	16	-	3.0
Chapleau	16	12.5	0.6

A Scolytid Beetle of Jack Pine, Conophthorus sp.

Numbers of these tiny, twig-boring beetles declined for the third consecutive year. As shown in Table 6, most counts were negative in 1966.

TABLE 6

Summary of Damage by Conophthorus sp. on Jack Pine Trees  
in Chapleau District from 1963 to 1966

Location by township	Average height in feet	Total no. of damaged shoots on ten trees			
		1963	1964	1965	1966
Panet	18	56	37	5	0
28	17	81	19	13	7
11B	22	161	14	0	0
12F	18	243	27	2	0
Halsey	17	251	37	8	6
11G	16	-	20	0	0

Birch Leaf Miner, Fenusa pusilla (Lep.)

This introduced leaf-mining sawfly was first recorded in North America in 1923. Since then the insect has invaded Ontario and spread towards the northwest. In 1966, first records of Fenusa pusilla were obtained in Chapleau District. The miner was collected in 10 widely separated townships in the southern portion of the district. A sample at one location in Township L on the Chapleau-Sudbury district boundary revealed that 58 per cent of the white birch foliage was mined.

The adult sawfly oviposits in the developing leaves in May and early June. The eggs hatch in about 8 days and the larva molts 5 times before entering the pupal stage. Feeding is usually completed within one to two weeks. The full grown larva drops to the ground and builds a pupal cell just below ground level. After a pupal period of 4 to 7 days, another generation of adults appears.

In Ontario there may be as many as three generations in a season. Oviposition occurs largely in the tender tissues of young leaves. Therefore, in the spring any of the leaves may be mined, but later in the year developing terminal leaves only are attacked.

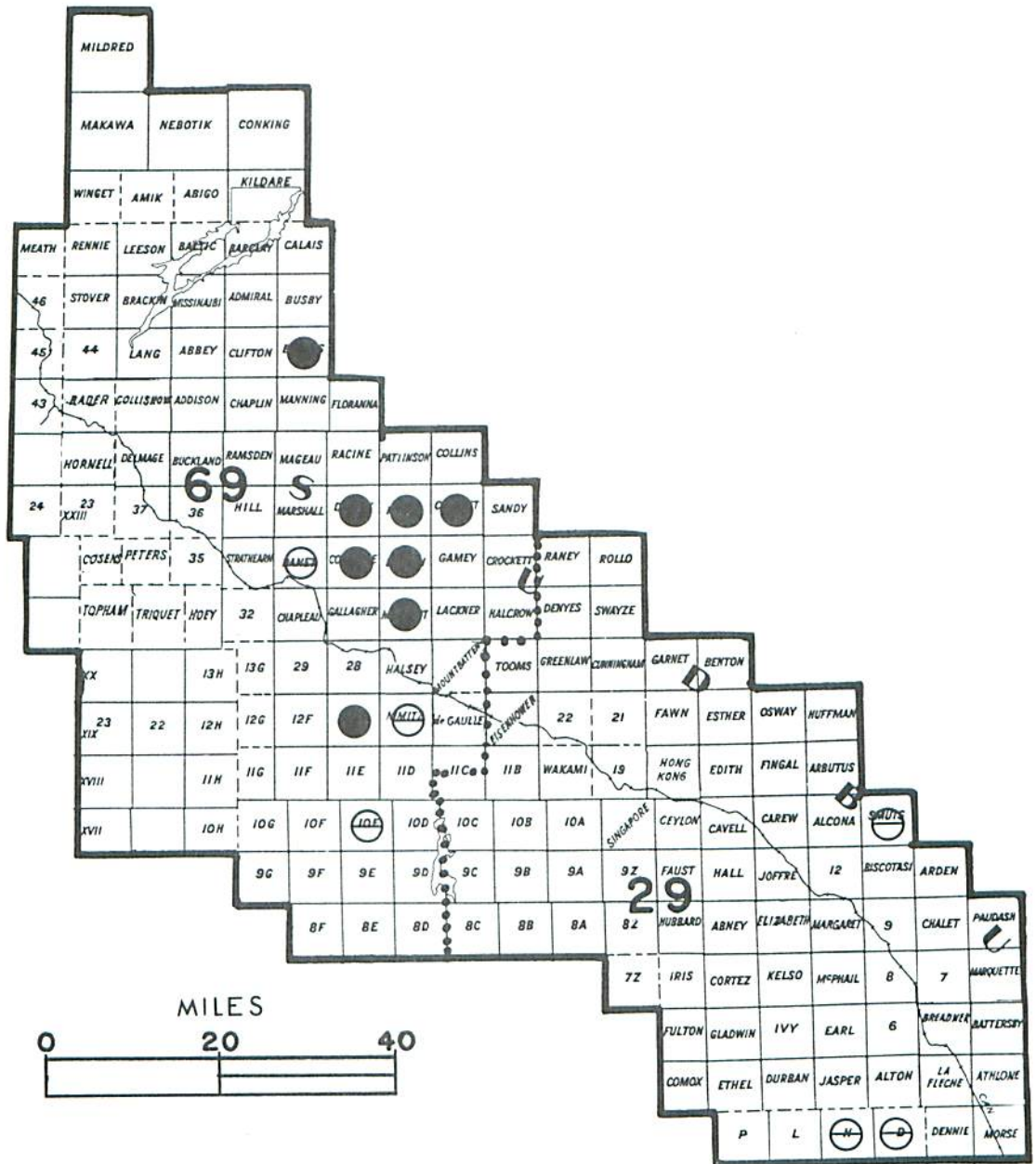
American Poplar Leaf Beetle, Gonioctena americana (Schaeff.)

A notable increase in population levels of this beetle occurred in 1966 and larvae were abundant throughout the district.

Trembling aspen reproduction in Joffre and Margaret townships along the Biscotasing road was heavily infested. Defoliation of a small pocket of large-tooth aspen in this area was light. Moderate to severe defoliation was also observed in Township 19 near Sultan and in the vicinity of Borden Lake in Cochrane Township. Understorey and roadside reproduction in Floranna, Racine, 11G, 11D and McPhail townships displayed light to moderate defoliation.



# CHAPLEAU DISTRICT



## BUDWORMS ON CONIFERS

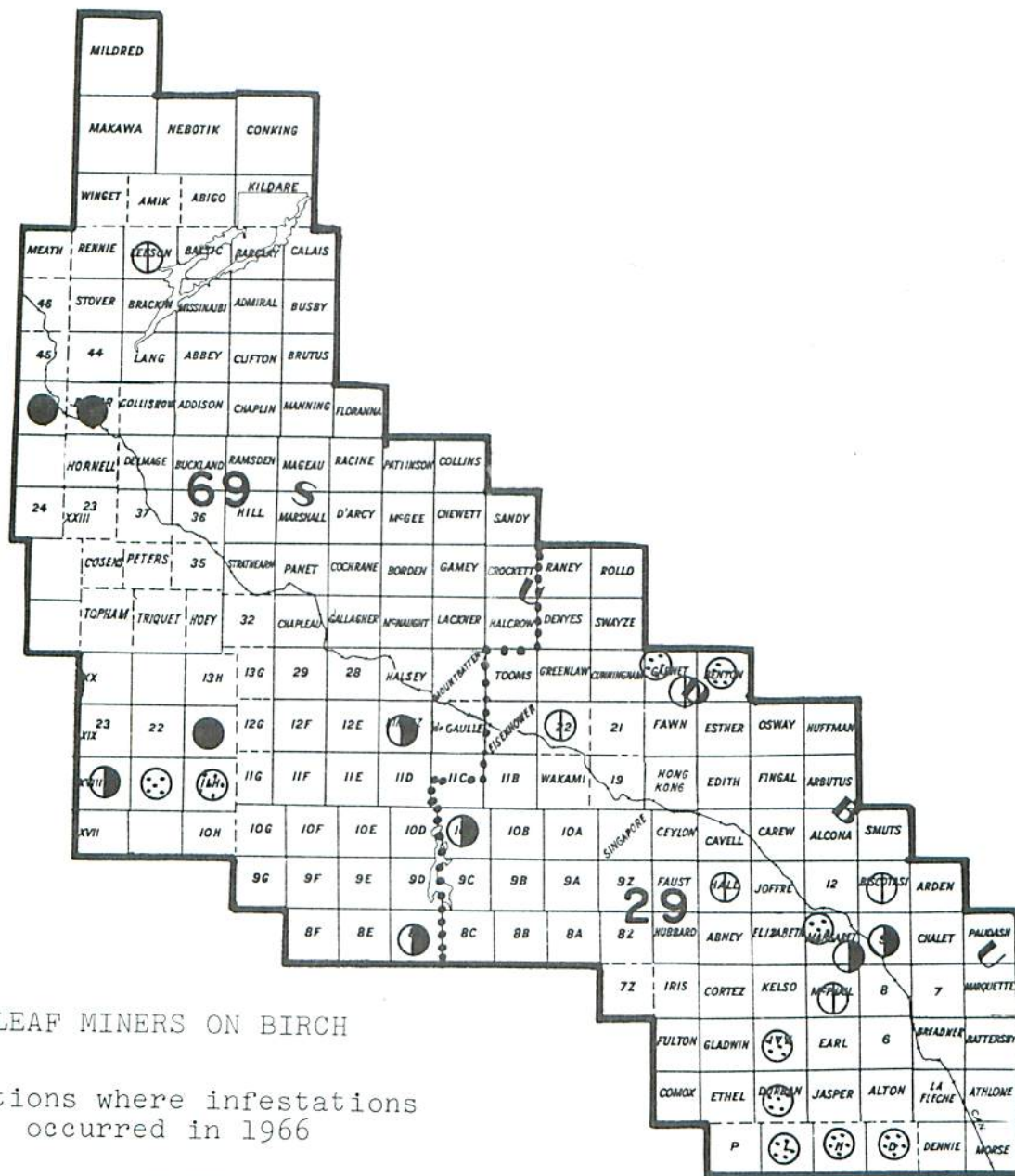
Areas of light infestation in 1966

### Legend

Spruce budworm . . . . . ●

Jack-pine budworm . . . . . ⊖

# CHAPLEAU DISTRICT



## LEAF MINERS ON BIRCH

Locations where infestations occurred in 1966

### Legend

*Fenusa pusilla*, locations . . . . . ⊙

*Profenusa thomsoni*

areas of light infestation . . . ⊖

areas of medium infestation . . . ⊕

areas of heavy infestation . . . ●



A Root Weevil, Hylobius warreni Woods

Damage by this destructive weevil was observed throughout Division 69, particularly in townships 11G, 12F, Racine, Stover, Busby and Lloyd.

The larval stage extends from 2 to 4 years and laboratory rearing of material collected in the field has been unsatisfactory. However, at the end of August, 2 adult weevils were found at the base of infested jack pine trees in Stover Township. These adults were concealed in pupal chambers composed of resinous matter and soil particles (see photograph). Two-inch jack pine trees showing only slight foliar discolouration were so weakened by girdling that pressure against the trunk would frequently result in breakage of the stem just below ground level.

Observations indicate that the insect favours pine up to 3 inches d.b.h. Many stands of this nature occur on old burns, particularly in Division 69. Damage in the district was confined to single and small groups of trees.

Aspen Blotch Miner, Lithocolletis salicifoliella Chamb.

In 1965 heavy infestations were observed at numerous locations in the district. Due to heavy parasitism few insects reached the adult stage. Consequently, most of these infestations collapsed in 1966 and high population levels occurred in only a few areas in the district. It is noteworthy that no moths emerged from samples taken at 8 sampling stations (see Table 8).

TABLE 7

Summary of Aspen Blotch Miner Counts in  
Chapleau District from 1964 to 1966

NOTE: Counts were based on examination of 100 leaves from three trees at each location.

Location by township	Per cent of leaves mined			Average no. of mines per leaf		
	1964	1965	1966	1964	1965	1966
Cochrane	16	84	4	0.19	2.62	0.04
12F	96	93	54	4.71	2.59	1.90
Manning	6	4	6	0.06	0.04	0.06
Fawn	14	14	14	0.15	0.15	0.15
Osway	67	14	0	2.82	0.15	0
9D	-	27	69	-	0.34	0.71
10C	19	51	0	0.42	1.16	0
Halsey	-	64	0	-	2.41	0

TABLE 8

Summary of First Instar Larval Mortality and Adult Emergence of the Aspen Blotch Miner in the Chapleau District from 1965 to 1966

Location by township	Total no. of mines in sample		*No. of dead first instar larvae		No. of emerged adults	
	1965	1966	1965	1966	1965	1966
Cochrane	262	4	77	0	0	0
12F	259	190	51	41	10	0
Manning	4	6	1	5	1	0
Fawn	15	15	11	12	0	0
Osway	15	0	13	0	0	0
9D	34	71	8	60	0	0
10C	116	0	26	0	4	0
Halsey	241	0	31	0	3	0

\* Mines up to 3 mm diameter.

Western Tent Caterpillar, Malacosoma pluviale (Dyar)

Population levels declined for the second consecutive year. In 1965 an overall decline of 40 per cent occurred and the number of tents observed in 1966 revealed a further reduction by 70 per cent as shown in Table 9.

TABLE 9

Summary of Western Tent Caterpillar Larval Colony Counts per Measured Mile in Chapleau District from 1963 to 1966

Location by township	Number of tents per mile of roadside			
	1963	1964	1965	1966
Manning	13	9	5	2
L	12	8	2	1
Panet	6	6	5	1
8D	7	21	4	3
Chewett	34	12	5	0
Blamey	16	0	5	3
Floranna	-	32	26	6
11C	-	-	3	1

Red-pine Sawfly, Neodiprion nanulus nanulus (Schedl.)

This sawfly was observed at numerous locations in the central and southern portions of the district. Damage to jack pine trees was light, but defoliation of red pine in townships H and D was light to moderate. Colony counts shown in Table 10 are indicative of population levels in the district.

TABLE 10

Summary of Red-pine Sawfly Larval Colony Counts  
in Chapleau District from 1964 to 1966

NOTE: Ten trees having a d.b.h. of one to three inches were examined at each location.

Location by township	Host	Average d.b.h. in inches	Average no. of colonies per tree		
			1964	1965	1966
Panet	jP	8	0.1	2.1	1.8
Chapleau	jP	2	0.1	1.5	1.0
Margaret	jP	7	-	-	2.6
Gallagher	jP	8	0	0.6	1.4
Smuts	jP	5	-	-	1.2
Busby	jP	2	-	-	0.1
L	jP	2	-	-	0.2

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

No significant change in the status of this defoliator was observed in 1966 (Table 11). The upper crowns of jack pine trees in the Mozhabong Lake area in Township H were severely defoliated. The insect appears to favour trees on shallow, dry sites on rock outcrops that occur on most of the lake shores in this area. Larval colonies were numerous in townships D and L. Occasional colonies were observed in townships Margaret and Biscotasi. The insect was not found in Division 69.

TABLE 11

Summary of Black-headed Jack-pine Sawfly Larval Colony Counts  
in Chapleau District in 1966

NOTE: Ten trees were examined at each location

Location by township	Average d.b.h.	Average no. of colonies per tree
Margaret	1.5	0.1
L	2	1.2

Red-headed Jack-pine Sawfly, Neodiprion virginianus complex

The general decline in numbers of larvae that occurred in 1966 is reflected in Table 12. However, groups of 6-foot jack pine in Benton Township were completely defoliated for the second consecutive year. Heavy defoliation of individual trees or small groups of trees also occurred at Flame Lake in Township 8D and near Nagasin Lake in 13G Township.

TABLE 12

Summary of Red-headed Jack-pine Sawfly Larval Colony Counts  
in Chapleau District from 1964 to 1966

NOTE: Ten trees having a d.b.h. of 1" to 3" were examined at each location.

Location by township	Average no. of colonies per tree		
	1964	1965	1966
11G	-	0.2	0
9E	-	1.0	0.3
Panet	0	0	0
Wakami	1.7	0.8	0.2
12F	0.6	0	0
Brutus	-	0.3	0.1

A Leaf Folding Sawfly, Phyllocolpa sp., formerly Nematus sp.

High numbers of these leaf folders persisted in Arbutus Township near Ramsay Creek and at the Spanish River Dam in Biscotasi Township. Larval mortality was high in the Arbutus Township infestation but low in Biscotasi Township.

Elsewhere in the district population levels fluctuated only slightly as shown in Table 13.

TABLE 13

Summary of Leaf Folding Sawfly Counts in  
Chapleau District from 1964 to 1966

NOTE: Counts were based on examination of 100 leaves from three trees at each location.

Location by township	Per cent of leaves folded		
	1964	1965	1966
10C	1	1	4
Osway	1	3	2
Fawn	-	1	3
Manning	1	1	1
Halsey	0	7	2
9D	2	4	2

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

Population levels have increased over recent years. Moderate to heavy defoliation occurred on understory white spruce in Chapleau and McGee townships. Light defoliation was observed in townships D'Arcy, D and Brutus.

Balsam Shoot-boring Sawfly, Pleroneura borealis Felt.

This insect is usually abundant in alternate years. Thus in 1964 high numbers of infested shoots were recorded and few were infested in 1965 (Table 14). The abnormally low numbers of the insects present in 1966 probably resulted from the severe late spring frosts in 1964 (Table 14).

TABLE 14

Summary of Damage by the Balsam-shoot Boring Sawfly  
in Chapleau District from 1963 to 1966

NOTE: Counts were based on the examination of 50 branch tips from 10 trees at each location.

Location by township	Average d.b.h. of sample trees in inches	Per cent of shoots infested			
		1963	1964	1965	1966
Borden	3	6.7	3.5	0.2	2.4
32	2	4.3	10.4	0	0
12F	2	-	10.7	0.6	0

Amber marked Birch Leaf Miner, Profenusa thomsoni (Konow)

Substantial increases in numbers of this leaf miner were observed throughout the district in 1966 (Table 15). Birch stands in townships 43, Bader and 12H near the western boundary of the district were heavily infested and medium infestations occurred in six townships in the southern part of divisions 69 and 29 (see map).

TABLE 15

Summary of Damage to White Birch Foliage  
in Chapleau District from 1964 to 1966

NOTE: Counts were based on examination of 100 leaves from three trees at each location.

Location by township	Average height of sample trees in feet	Per cent of leaves mined		
		1964	1965	1966
Leeson	13	1	2	8
Garnet	16	1	0	1
Nimitz	14	1	1	12
8D	15	0	0	15
10C	25	-	-	22

Spruce Bud Gall Midge, Rhabdophaga swainei Felt

Spruce reproduction throughout the district was damaged by this bud-destroying insect. Examination of six stands revealed a general increase in the number of infested shoots. High numbers of midges were observed at Little Wawa Lake in Peters Township and around Biscotasi Lake.

TABLE 16

## Summary of Buds Damaged by the Spruce Bud Gall Midge at Six Points in Chapleau District from 1964 to 1966

NOTE: Counts were based on the examination of five branch tips from each of ten black spruce at each point.

Location by township	Average d.b.h. of sample trees in inches	Per cent of terminal buds infested		
		1964	1965	1966
Arbutus	1 1/2"	0	1.0	1.2
24 Range XXII	1 1/2"	-	-	5.1
Busby	1 1/2"	-	-	8.2
29	1 1/2"	0	0	3.9
Sandy	1 1/2"	-	-	6.4
9D	1 1/2"	0	1.0	5.4

Pine Tip Moth, Rhyacionia adana Heinrich

The nursery stock infested in 1965 was lifted in 1966. Fully-stocked seedbeds containing 3-0 red pine were damaged for the second consecutive year. However, only an average of 3.3 per cent of the red pine was infested in 1966. Very low numbers were also recorded in adjacent 3-0 jack pine seedbeds.

TABLE 17

## Summary of Miscellaneous Insects Collected in Chapleau District in 1966

Insect	Host(s)	Remarks
<i>Acleris minuta</i> cinderella (Riley)	Leatherleaf	Numbers declining, heavily parasitized in Twp. 29, light in townships 12F and Smuts.
<i>Acleris variana</i> Fern.	bF	Low numbers in 12E Township.
<i>Archips cerasivoranus</i> (Fitch)	eCh, W	Pocket of heavy infestation along banks of creek, Twp. 22 Range XVIII
<i>Coleophora innotabilis</i> Braun.	tA	Occasional casebearers in Panet and Arbutus townships.
<i>Datana ministra</i> Dru.	Se, wB	Few shrubs completely defoliated in townships 9 and 9D.



TABLE 17 (continued)

Insect	Host(s)	Remarks
<i>Dendroctenus obesus</i> Mann.	wS	Bark beetles in windthrown spruce.
<i>Depressaria groteella</i> Rob.	Hazel	Common near Hwy. 129 in Twp. 11E.
<i>Dimorphopteryx pinguis</i> (Nort.)	wB, yB	Population levels declined, very low numbers in McPhail Township.
<i>Ecpantheria deflorata</i> Fabr.	-	One larva of this rare species collected in Chapleau Township.
<i>Epinotia corylana</i> McD.	Al	Heavy in staminate alder catkins, Wakami River, Benton Township.
<i>Epinotia solandriana</i> Linn.	wB	Low numbers in 6 townships mostly in Division 29.
<i>Epinotia sollicitana</i> Wlk.	wB	Larvae mine shoots and petioles of reproduction, small numbers at two locations.
<i>Feralia jocosa</i> Gn.	bF, jP	Few larvae collected in townships Smuts and 32.
<i>Galerucella nymphaeae</i> Linn.	Sweet Gale Water Lily	Leaf beetle, heavy infestations on lakeshores in Cochrane and Cortez townships.
<i>Gracillaria invariabilis</i> Braun.	p Ch	This leaf roller on pin cherry occurred commonly within the district.
<i>Halisidota maculata</i> Harr.	Al	Conspicuous Tiger Moth larvae common in D'Arcy and Hall townships.
<i>Hemichroa crocea</i> (Four.)	Al	Light defoliation in Hall Township.
<i>Melanagromyza schineri</i> (Gir.)	tA	Low numbers of twig deformers on reproduction in 4 townships, Div. 69.
<i>Nematus hyalinus</i> (Nort.)	W	Light defoliation on roadside willow in 10E Township.
<i>Nematus limbatus</i> Cress.	W	Population declined from 1965, light defoliation in Joffre and Hall twps.
<i>Nematus oligospilus</i> Forst.	tA	Understory trembling aspen lightly infested in Biscotasi Township.
<i>Nematus ventralis</i> Say	tA	Low numbers at Horton Lake.
<i>Neodiprion abietis</i> complex	bF	Population levels of the Balsam Fir Sawfly remain very low; 2 collections were obtained in the central portion of the district.
<i>Neurotoma inconspicua</i> (Nort.)	p Ch	Light infestation of web-spinning sawflies in the Biscotasi Township.
<i>Nymphalis antiopa</i> Linn.	tA	Pockets of heavy defoliation in Borden and Margaret townships.

TABLE 17 (concluded)

Insect	Host(s)	Remarks
<i>Pareophora minuta</i> (MacG.)	bAs	Light defoliation caused by this sawfly throughout the district, specifically in Benton and 11E twps.
<i>Phyllocnistis populiella</i> Chamb.	tA	Sucker growth at three locations was lightly infested by the Serpentine Leaf Miner.
<i>Phyllocolpa agama</i> (Roh.)	W	High numbers of leaf-folding sawflies around Henderson Lake in D'Arcy Twp.
<i>Pikonema dimmockii</i> (Cress.)	wS	Low numbers of the Green-headed Spruce Sawfly occurred in 4 townships.
<i>Pineus strobi</i> (Htg.)	wP	Pine Bark Aphids caused some twig mortality on understory white pine in 13H Township.
<i>Polygonia faunus</i> Edw.	yB, wB	Few larvae at 3 locations.
<i>Prociphilus tessellatus</i> Fitch	Al	Continued widespread infestations, status unchanged from 1965.
<i>Pseudexentera oregonana</i> Wlshm.	tA	Widespread throughout the district.
<i>Pyrausta futilalis</i> Led.	Dogbane	Occasional larvae in McPhail Twp.
<i>Pyrrhia exprimens</i> Hufn.	b Po	Widespread light infestation in the central portion of the district.
<i>Rheumaptera hastata</i> L.	Sweet Gale	High numbers of loopers in D'Arcy Township.
<i>Toumyella numismaticum</i> P. & M.	jP	Pine Tortoise Scales declined sharply throughout the district.
<i>Trichiocampus irregularis</i> (Dyar)	W	Few larvae in Fawn and 22 townships.
<i>Trichotaphe levisella</i> Fyles	Large Leaf Aster	Abundant leaf rollers in McPhail Twp., small numbers in 11D Township.
<i>Trisetacus alborum</i> Keifer	rP	Light mite infestation Borden Twp.
<i>Vanessa cardui</i> Linn.	Thistle	Large spiny larvae feeding in Township D at Mozhabong Lake.