

6. FOREST BIOLOGY RANGER REPORT
PRINCE ALBERT AND NORTHERN DISTRICTS
SASKATCHEWAN
1953

by
J. A. Drouin
Winnipeg

CANADA DEPARTMENT OF AGRICULTURE
SCIENCE SERVICE
FOREST BIOLOGY DIVISION
MARCH, 1954

6.1. INTRODUCTION

Field surveys to determine the status of forest insects and tree diseases were carried out in the Prince Albert and Northern districts from early May to mid-October. During that period outbreaks of the forest tent caterpillar, larch sawfly, and large aspen tortrix were mapped via ground and aerial surveys. The occurrence and distribution of minor species were also determined. In mid-May a special survey was carried out to determine the effects of adverse weather on the survival of newly emerged forest tent caterpillar larvae. Larch sawfly population studies, based on the number of curled tips on tamarack, were conducted in several areas. Mass collections of larvae and pupae of several insect species were taken to determine the occurrence of parasites and disease. A forest tent caterpillar egg survey was carried out during the latter part of the season to determine the areas that are most likely to be defoliated by this species in 1954.

For the first time a full scale tree disease survey was carried out by forest biology rangers. A special survey was made for the trunk rot of white poplar, Radulum casearium (Morgan) Lloyd.

A total of 529 insect and 205 tree disease collections were made in the two districts in 1953. Collections submitted by personnel of the Department of Natural Resources totalled 41. Approximately eight hours flying time were provided by the Saskatchewan Department of Natural Resources. This greatly facilitated the mapping of insect outbreaks in otherwise inaccessible areas. The assistance and co-operation given by the Saskatchewan Forest Service are gratefully acknowledged.

6.2. REVIEW OF FOREST INSECTS AND TREE DISEASES

There were few changes in the insect picture in the Prince Albert and Northern districts in 1953. The larch sawfly continued to defoliate tamarack over a wide area in 1953. Severe infestations were prevalent from the agricultural areas in the south to the Churchill River in the north.

Forest tent caterpillar populations remained about the same as in 1952 but the infestations became more extensive. Adverse weather during the early part of the season, which contributed to a sharp decline in populations in Manitoba, did not affect the outbreak materially in Saskatchewan.

Populations of the large aspen tortrix were again widespread and occurred at outbreak levels at Bittern Creek and near Lac La Ronge in the Northern District. A leaf hopper, Idiocerus sp., was abundant, occurring in all white poplar and willow stands throughout the districts.

The jack-pine budworm, pitch nodule maker, American poplar beetle, white-pine weevil, and the owlet moths, Orthosia hibisci Gn. and Homoglaea hircina Morr., increased in abundance and distribution. On the other hand,

populations of the black-headed budworm, green-headed spruce sawfly, yellow-headed spruce sawfly, a pine scale, grey willow-leaf beetle, aspen blotch miner, and ugly nest caterpillar remained at about the same levels as in 1952.

Tree disease surveys carried out indicated that Arceuthobium americanum, a mistletoe on jack pine, was prevalent throughout the Prince Albert and Northern districts. A parasite, Wallrothiella arceuthobii on jack-pine mistletoe, was found on most mistletoe infections. The spruce needle rust, Chrysomyxa sp., was abundant and widespread and caused severe discoloration of white and black spruce foliage over an extensive area. A canker infection, Hypoxyton oruinatum, was prevalent and caused some mortality to white poplar stands. Other tree diseases found in the districts included the Armillaria root rot, Armillaria mellea; yellow witches'-broom, Peridermium coloradense; white trunk rot, Fomes igniarius; and a trunk rot of white poplar, Radulum casearium.

6.3. INSECT CONDITIONS

6.3.1. Larch Sawfly, Pristiphora erichsonii (Htg.)

Larch sawfly defoliation of tamarack stands in the Prince Albert and Northern districts of Saskatchewan ranged from light to moderate in the southern portions to severe in the north (Figures 8 and 9). From the Churchill River south to the agricultural areas, defoliation increased in intensity in 1953. Most of the stands examined during aerial and ground surveys showed severe defoliation. The first larch sawfly larvae were collected on June 23 south of Lac La Ronge.

Larch sawfly populations were low in tamarack stands in the Fort a la Corne Provincial Forest and north to Candle Lake. A few patches of heavy defoliation occurred at the northeast end of Candle Lake.

In the Holbein and Home blocks of the Nisbet Provincial Forest, defoliation ranged from light to moderate. The only heavy defoliation occurred in a small stand of tamarack in sec. 16, tp. 49, rge. 26, W2nd mer. north of the Nisbet Headquarters. Through the Round Lake, Steep Creek, and Red Rock blocks, defoliation was light to moderate except in sec. 27, tp. 49, rge. 25, W2nd mer. where severe defoliation was recorded.

North of Prince Albert to Sturgeon and Blue lakes, defoliation ranged from light to moderate. At Lake Four damage to tamarack was generally light. Northward to Bodmin Tower and the Big River townsite, defoliation increased in intensity in 1953 and ranged from light to moderate with pockets of severe defoliation. Heavy defoliation occurred in most tamarack stands in the Big River Provincial Forest, along the west shore of Cowan Lake, and west and north to Green Lake. The same conditions existed north of Green Lake in areas lying to the east and west of the Beaver River to the Waterhen River, north to Durocher and Beauval lakes, and east into the large tamarack stands in the Dore-Sled lakes area. North of Beauval to the Churchill River and east to Nemeiben Lake, defoliation was

light to moderate with occasional "pockets" of severe defoliation on drier sites.

East of Dore Lake to Emmaline Lake and south to the Prince Albert National Park boundary, defoliation was severe. Some light defoliation of tamarack was observed in flooded stands in this area. In completely defoliated stands in the Dore-Sled lakes area, sawfly larvae were found feeding on the bark and foliage of new terminals.

In Prince Albert National Park defoliation varied from moderate to heavy in the west and central portions to moderate along the east boundary. South of Waskesiu to the park boundary, defoliation ranged from light to heavy.

Mass collections of larch sawfly cocoons were taken from twelve points in the Prince Albert District and from two in the Northern District. The cocoons were dissected to determine the incidence of larch sawfly parasites and disease. The points from which larch sawfly cocoons were collected are shown in Table 1.

TABLE 1
Larch Sawfly Cocoon Collections

Plot No.	Place	Sec.	Tp.	Rge.	Mer.	Grid	No. of Cocoons
104	Railway Bog - P.A.	8	49	26	W ²	8-077-311	300
114	Red Rock Block	19	49	25	W ²	8-078-311	300
109	Steep Creek	28	48	23	W ²	8-081-311	300
113	Holbein	13	49	2	W ³	8-073-311	300
03	Crutwell	22	49	1	W ³	8-074-311	300
112	McDowall Block	21	46	1	W ³	8-074-307	300
06	Canwood	33	50	4	W ³	8-069-313	300
107	Fort a la Corne	4	50	20	W ²	8-087-312	300
110	Candle Lake	13	56	24	W ³	8-080-322	300
111	Mayview	24	53	2	W ³	8-073-317	300
106	Big River	32	55	7	W ³	8-064-311	300
02	Beaupre Lake	21	64	9	W ³	8-061-333	300
05	*Skunk Creek - N	14	62	24	W ²	8-079-330	300
--	*Lac La Ronge - N	18	70	22	W ²	8-087-343	300

* Northern District

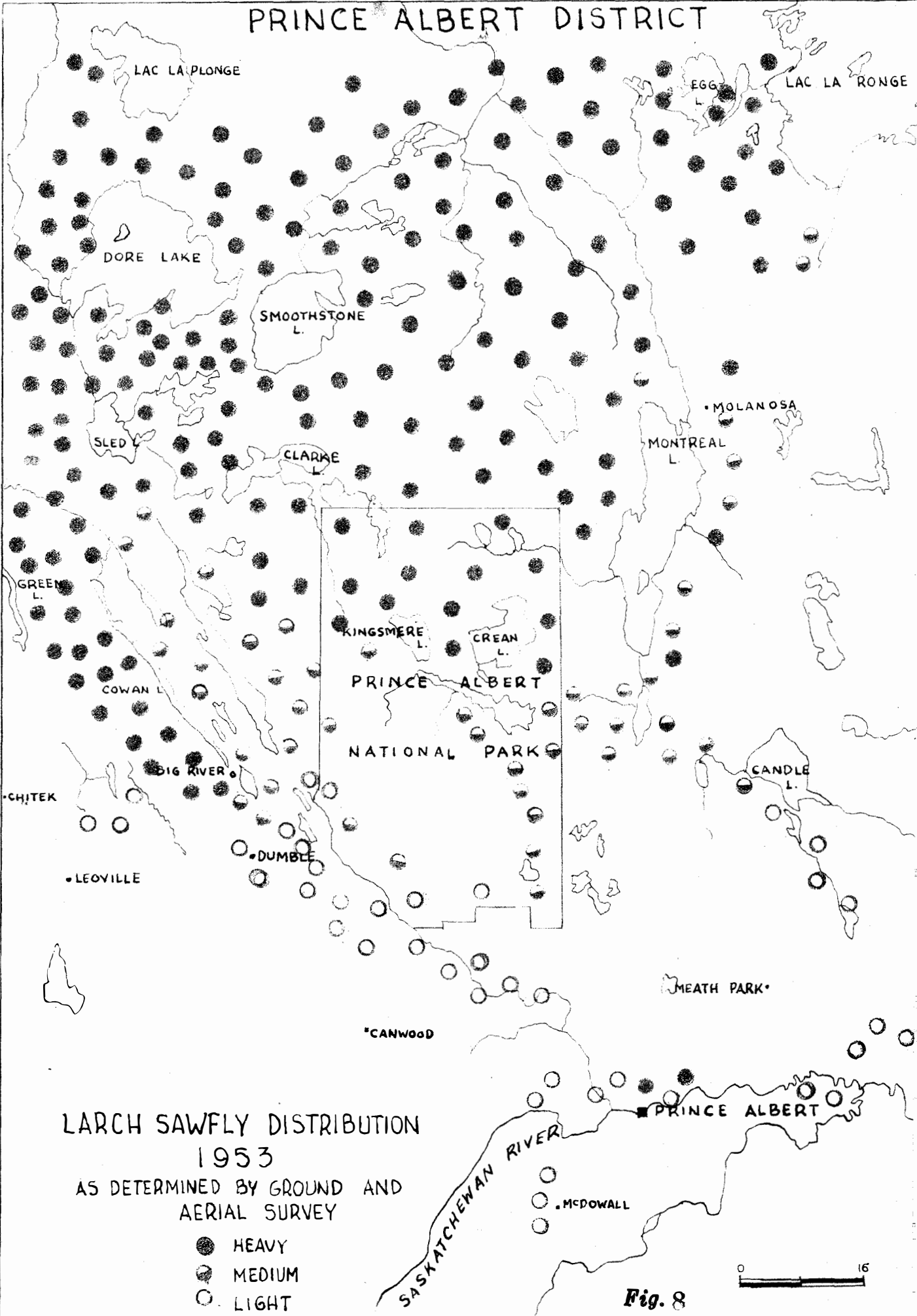
Results of the dissections are shown in Table 2. Bessa harveyi T.T. and Mesoleius tenthredinis Morley were the two main parasites recovered. M. tenthredinis was the most abundant of the two species, but owing to an immunity factor in the host sawfly larvae, a large number of eggs failed to hatch thereby greatly reducing its value as an important parasite.

TABLE 2

Summary of Larch Sawfly Parasitism Determined by Dissections

Plot No.	Place	Number Cocoons Examined	No. Larch Sawfly Larvae Containing Mesoleius		Per Cent Effective Parasitism			Per Cent Larvae Diseased	Per Cent Dead from Other Causes
			Eggs	Larvae	Bessa harveyi	Mesoleius tenthredinis	Tritnentis klugii		
104	Railway Bog P.A.	100	34	14	6	14	0	7	0
114	Red Rock Blk.	100	48	10	5	10	0	11	0
109	Steep Creek	100	31	4	3	4	0	11	0
113	Holbein	100	18	7	3	7	0	5	6
03	Crutwell	100	13	9	12	9	0	30	2
112	McDowall Blk.	100	20	3	3	3	0	48	0
06	Canwood	100	27	16	4	16	0	7	2
107	Fort a la Corne	100	21	9	2	9	0	20	0
110	Candle Lake	100	18	11	1	11	0	3	2
111	Mayview	100	16	8	5	8	0	4	3
106	Big River	100	56	7	6	7	0	5	0
02	Beaupre Lake	100	4	4	0	4	0	3	0
05	Skunk Creek	100	31	12	3	12	2	6	4
--	Lac La Ronge	100	5	3	1	3	0	2	0

PRINCE ALBERT DISTRICT



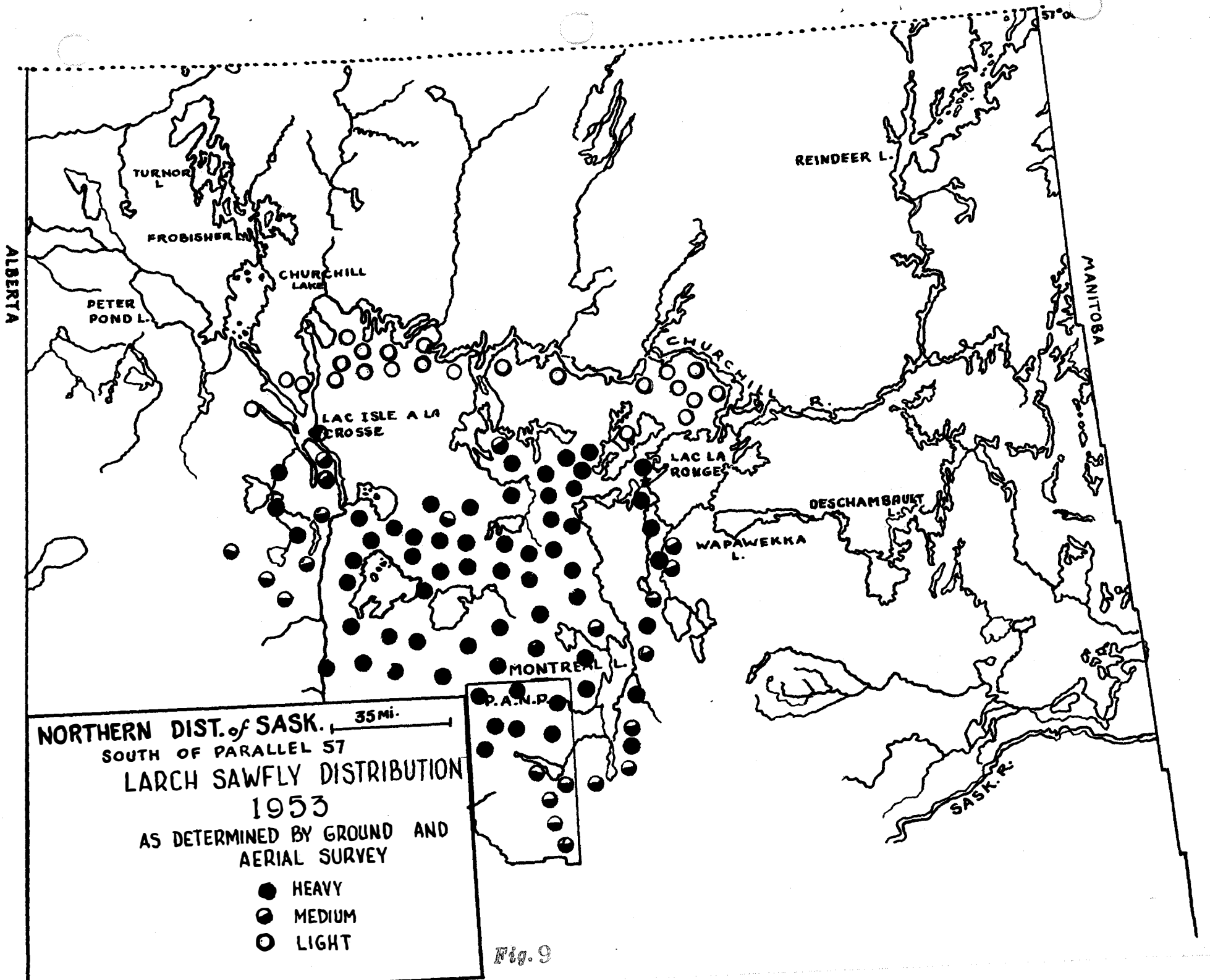


Fig. 9

Tritneptis klutii Ratz., a chalcid parasite, was recovered from only one area. Beauvaria bassiana was the most common fungus attacking the larch sawfly and was recovered from the following areas: Crutwell, Fort a la Corne, McDowall Block, Steep Creek, and Railway Bog at Prince Albert. Another fungus, Isaria sp., was recovered in the Fort a la Corne, Steep Creek and Holbein areas.

6.3.2. Forest Tent Caterpillar, Malacosoma disstria Hbn.

Populations of the forest tent caterpillar in 1953 remained at approximately the same levels as in 1952. However, there were some changes in the infestation boundaries (Fig. 10). Adverse weather during May, which was one of the main factors that contributed to the almost complete termination of forest tent caterpillar outbreaks in Manitoba, appeared to have very little effect on the outbreak in Saskatchewan. Temperatures as low as 24°F. were recorded in or near the infestation areas on May 13 and 14. At that time the buds on white poplar were still unopened and less than 35 per cent of the caterpillars had emerged from the egg bands. These adverse conditions had little or no effect on the larvae and development although retarded, was otherwise normal.

Northwest of Prince Albert, light defoliation occurred over most of the Nisbet Provincial Forest. Light defoliation also occurred in the agricultural areas around Sturgeon Lake and Lake Four and extending eastward to the Prince Albert National Park boundary. North of Lake Four to Bodmin, through Ladder Lake to Big River, defoliation was moderate but patchy.

In the large white poplar stands in the Big River Provincial Forest, through the Green Lake area, and north to Dore, Sled, Beaupre and Smoothstone lakes, defoliation was moderate to severe. In the Big River area, the infestation boundaries had moved southward into the immature white poplar stands and caused severe damage (Figures 1 - 3). North of Dore Lake, defoliation decreased to light in the Beauval area; however, heavy defoliation again extended west through Durocher Lake to the east shore of Canoe Lake. No forest tent caterpillar defoliation was observed north of Beauval to Ile a-la-Crosse and east along the Churchill River basin to Black Bear Island Lake.

The severe infestation at Weyakwin Lake was again active and had moved southward to merge with a severe outbreak around Crean, Kingsmere, and Waskesiu lakes in Prince Albert National Park. The forest tent caterpillar infestation at Bittern Creek, which had caused severe defoliation of white poplar in past years, declined in 1953. Observations indicated that most of the defoliation in this area in 1953 was caused by the large aspen tortrix. Light to moderate defoliation was recorded north of Bittern Creek to Lac La Ronge.

Several collections of larvae and egg bands were taken in the Fort a la Corne Provincial Forest but defoliation was negligible. In the Candle Lake area and south to Highway No. 55, populations were low and damage very light.

Mass collections of forest tent caterpillar larvae and pupae were taken from two areas in the Prince Albert and Northern districts in 1953. They were reared at the Winnipeg Laboratory to determine the incidence of parasites and disease. The location of the collection points, the number of larvae and pupae collected, and the date collected are shown in the following table.

Place	No. Larvae Collected	Date	No. Larvae & Pupae Collected	Date	No. Pupae Collected	Date
Lac La Ronge	200	June 24	200	July 8	200	Aug. 4
Bittern Creek	200	June 25	200	July 7	200	Aug. 23
Sled Lake	200	June 12	200	July 10	--	--

Results of the rearings showed the following: at Lac La Ronge 29 per cent of the larvae and 52 per cent of the pupae were parasitized; at Bittern Creek 30 per cent of the larvae and 72 per cent of the pupae were parasitized; and at Sled Lake 32 per cent of the larvae and 27 per cent of the pupae were parasitized. The main larval parasites in the three areas were Patelloa pachypyga A. & W. and Leschenaultia exul Tn. and the main pupal parasites were Sarcophaga aldrichi Park., Pseudosarcophaga affinis (Fall.), and Megaselia sp.

The only disease organisms identified in the mass collection areas were a fungus disease, Beauvaria bassiana and a polyhedral virus.

An egg band survey was carried out in the fall of 1953 in order to predict the probable extent and intensity of forest tent caterpillar infestations throughout the Prince Albert and Northern districts in 1954. A special survey was conducted in the Prince Albert National Park. Tables 3 and 4 give the results of the surveys and the predicted defoliation at the examination points.

TABLE 3

Summary of Forest Tent Caterpillar Egg Band Counts Based on Examination of Three White Poplar Trees at 62 Points in the Prince Albert and Northern Districts.

Place	Sec.	Tp.	Rge.	Mer.	Ave. D.B.H. in "	Ave. Height in '	Ave. No. Egg Bands	% Eggs Containing Living Larvae	% Parasitized	Forecast 1954
Shell River	32	49	3	W ³	3.2	33	1.4	95.8	4.7	L
Prince Albert 21 mi. E.	36	48	23	W ²	3.0	12.6	0.3	95.0	2.5	L
Shell Lake	12	49	8	W ³	2.6	19.3	0.3	89.7	0.0	L
Canwood	16	52	6	W ³	2.6	16.6	1.0	78.1	0.0	L
Prince Albert	10	49	27	W ²	3.0	18.3	0.3	100.0	0.0	L
Dumble 2 mi. S.	17	54	7	W ³	2.6	22.6	0.3	88.9	7.4	L
Dumble 3 mi. N.	4	55	7	W ³	2.6	25.6	0.6	75.8	11.2	L
Green Lake Rd. S.	34	59	10	W ³	6.0	68.0	9.6	96.5	1.3	L - M
Green Lake Dam	22	60	10	W ³	1.0	6.3	.03	82.9	2.9	L
Dore-Green Lake	5	59	9	W ³	5.0	56.0	6.6	94.1	0.5	L - M
Big River N. 5	36	56	8	W ³	2.6	19.3	5.3	92.4	1.8	M - H
Dore Lake 12 mi. S.	22	54	9	W ³	5.0	38.6	1.3	46.3	21.5	L
Sled Lake Road	8	63	8	W ³	5.0	39.3	2.3	91.1	2.2	L
Dore-Green Forks	29	57	8	W ³	3.0	20.0	9	91.8	3.0	H
Dore Lake Road	3	61	10	W ³	5.1	36.3	7.1	98.3	0.8	L - M
Beaupre Lake	21	64	9	W ³	4.0	39.4	6.1	83.4	8.3	L - M
Smoothstone Jct.	23	63	9	W ³	2.6	30.5	6.0	70.4	17.5	M - H
Dore Lake Road	14	58	9	W ³	7.6	64.6	20.0	84.1	9.3	H
Dore Lake Road	11	61	10	W ³	5.1	36.3	7.1	93.2	1.0	L - M
Dore Lake Road	23	63	10	W ³	8.3	59.6	2.0	84.3	3.8	L
Dore Lake	11	65	10	W ³	5.1	55.0	7.3	95.8	1.6	L - M
Dore Lake H.Q.	34	64	9	W ³	4.0	39.4	6.1	90.7	3.0	L - M
Sled Lake	4	63	9	W ³	2.6	30.5	6.0	88.0	2.2	M - H
Big River Road	11	57	8	W ³	3.0	21.6	8.0	80.1	4.5	M - H
Big River Nursery	34	56	8	W ³	2.9	21.0	3.6	94.5	1.0	L

TABLE 3 (cont'd)

	Sec.	Tp.	Rge.	Mer.	Ave. D.B.H. in "	Ave. Height in '	Ave. No. Egg Bands	% Eggs Containing Living Larvae	% Para- sitized	Forecast 1954
Otter Creek	21	56	9	W ³	3.0	17.3	0.6	98.4	1.6	L
Big River 11 mi. S.W.	1	56	10	W ³	2.0	11.3	0.3	100.0	0.0	L
Big River 16 mi. S.W.	4	57	10	W ³	2.2	18.6	0.4	99.0	0.0	L
Big River 21 mi. S.W.	7	57	10	W ³	2.0	20.7	0.3	97.7	0.0	L
Big River 26 mi. S.W.	1	57	11	W ³	3.0	20.3	0.6	94.3	0.0	L
Big River 31 mi. S.W.	12	56	11	W ³	5.6	47.6	5.3	94.5	2.0	L - M
Mount Nebo	33	49	6	W ³	2.6	20.6	0.3	100.0	0.0	L
Ordale	21	49	5	W ³	2.3	18.0	0.3	100.0	0.0	L
McDowall H.Q. S. 4	21	46	1	W ³	4.3	14.3	0.3	100.0	0.0	L
Canwood	28	51	5	W ³	3.0	19.2	0.6	98.5	1.4	L
Shellbrook	14	49	4	W ³	3.6	20.3	1.6	97.2	0.5	L
Shellbrook	29	49	5	W ³	3.0	16.8	1.3	91.2	6.1	L
English Cabin N.	33	50	19	W ²	4.0	34.3	0.6	94.1	2.0	L
English Cabin	16	50	19	W ²	3.0	21.3	0.6	92.5	2.5	L
English Cabin 4 mi. N.	3	56	23	W ²	2.6	26.0	1.0	79.6	10.8	L
Candle L. 10 mi. N.W.	24	56	24	W ²	5.6	45.5	1.1	74.1	0.0	L
Candle L. 19 mi. N.W.	11	57	24	W ²	6.3	52.3	1.3	86.7	22.7	L
Fort a la Corne	5	50	22	W ²	3.0	21.3	0.6	96.0	0.0	L
Candle Lake 1 mi. S.	7	55	22	W ²	4.0	40.6	2.0	95.0	2.8	L
Candle Lake	22	52	23	W ²	3.0	19.3	1.0	86.6	4.5	L
Bittern Creek	26	57	27	W ²	4.6	38.0	0.3	89.5	2.7	L
Lac La Ronge Hwy.	4	58	26	W ²	4.0	26.0	0.3	65.3	9.7	L
Montreal Lake	31	58	27	W ²	3.6	27.0	1.0	66.6	5.2	L
Montreal Lake	28	59	25	W ²	4.6	34.0	1.3	74.1	14.0	L
Lac La Ronge	30	70	22	W ²	2.3	18.6	0.6	100.0	0.0	L
Lac La Ronge 5 mi. S.	31	69	22	W ²	3.0	22.3	5.3	89.2	5.2	L - M
Lac La Ronge 10 mi. S.	2	63	29	W ²	5.0	40.0	1.3	89.2	7.5	L

TABLE 3 (cont'd)

Place	Sec.	Tn.	Rge.	Mer.	Ave. D.B.H in "	Ave. Height in '	Ave. No. Egg Bands	% Eggs Containing Living Larvae	% Para- sitized	Forecast 1954
Lac La Ronge 15 mi. S.	11	68	23	W2	6.6	60.3	2.3	93.2	4.2	L
Lac La Ronge 25 mi. S.	32	66	23	W2	3.0	30.0	0.6	72.5	20.8	L
Lac La Ronge 30 mi. S.	1	66	24	W2	4.6	39.0	3.0	80.8	13.8	L
Lac La Ronge 35 mi. S.	11	65	24	W2	5.0	38.3	2.6	91.6	3.2	L
Lac La Ronge 40 mi. S.	15	64	24	W2	2.6	20.3	2.0	46.1	6.1	L
Lac La Ronge Road	5	61	24	W2	2.6	22.6	4.3	95.0	1.7	L - M
Lac La Ronge Road	22	60	23	W2	2.6	18.3	1.6	75.8	14.4	L
Lac La Ronge 45 mi. S.	22	63	24	W2	3.6	27.6	2.3	89.1	5.8	L
Lac La Ronge 50 mi. S.	34	62	24	W2	2.6	18.0	2.0	51.0	45.3	L

TABLE 4

Summary of Forest Tent Caterpillar Egg Band Counts Based on Examination of Three White Poplar Trees at 33 Points in the Prince Albert National Park.

Place	Sec.	Tr.	Rge.	Mer.	Ave. D.B.H. in "	Ave. Height in '	Ave. No. Egg Bands	% Eggs Containing Living Larvae	% Parasitized	Forecast 1954
South Bay P.A.N.P.	1	57	2	W3	3.0	39.0	4.6	68.9	2.9	L - M
Narrows Camp	14	57	2	W2	2.6	41.3	16.0	88.7	3.1	H
Narrows Camp	14	57	2	W2	4.6	49.0	4.0	59.5	25.7	L - M
Hanging Heart Lake	10	58	2	W3	6.0	47.6	30.0	95.6	2.5	H
Hanging Heart Lake Rd.	26	57	1	W3	3.3	42.0	17.3	58.1	8.4	H
P.A.N.P.	31	57	2	W3	4.0	46.0	49.3	94.0	0.5	H
P.A.N.P.	11	57	2	W3	3.6	40.0	9.8	98.8	0.0	H
Narrows Camp	20	57	2	W2	5.3	42.0	18.0	76.1	13.8	H
Narrows Camp	32	57	2	W2	4.0	45.0	43.0	96.2	1.9	H
P.A.N.P.	15	57	1	W2	4.0	41.0	4.6	64.1	8.1	L - M
P.A.N.P.	1	57	2	W3	3.3	39.0	4.6	75.0	28.2	L - M
P.A.N.P.	28	57	2	W3	4.5	42.0	40.0	96.4	2.2	H
Waskesiu	15	56	1	W3	3.3	39.6	0.3	91.9	3.5	L
Clare Beach	22	57	2	W2	3.3	36.6	23.6	75.9	1.1	H
Waskesiu	5	57	1	W3	3.0	36.6	0.6	91.5	4.2	L
Waskesiu	14	57	1	W3	3.3	28.6	3.0	75.2	19.0	L
Waskesiu	10	57	1	W3	5.3	51.0	1.6	75.9	1.4	L
P.A.N.P.	11	55	1	W3	3.3	34.0	1.3	71.9	2.4	L
Crean Lake	22	58	2	W3	5.0	33.0	13.3	98.1	0.6	M - H
Crean Lake	23	58	2	W3	4.6	31.3	6.6	92.3	1.4	L - M
Waskesiu	3	57	1	W3	3.6	36.3	3.0	81.5	1.9	L
Waskesiu	26	54	1	W3	2.3	23.6	0.6	96.3	0.8	L
Hanging Heart Lake Rd.	31	57	1	W3	6.8	61.3	22.3	98.3	0.0	H
" " " "	1	57	2	W3	3.3	39.0	4.6	95.5	1.1	L - M
Waskesiu - La Ronge Jct.	14	57	1	W3	3.6	34.3	2.0	79.5	7.5	L

TABLE 4 (cont'd)

Place	Sec.	Tp.	Rge.	Mer	Ave. D.B.H. in "	Ave. Height in '	Ave. No. Egg Bands	% Eggs Containing Living Larvae	% Para- sitized	Forecast 1954
Crean Lake	29	58	2	W ³	5.6	31.0	4.3	70.6	9.4	L
Hanging Heart Lake	1	58	2	W ³	6.6	62.6	16.0	95.6	2.2	L - M
Crean Lake	6	59	2	W ³	6.3	63.3	6.6	64.0	4.4	L - M
Waskesiu - La Ronge Jct.	14	57	1	W ²	3.6	34.3	2.0	88.8	2.5	L
P.A.N.P.	2	57	2	W ²	6.6	73.6	23.0	96.3	0.0	H
Hanging Heart Road	28	57	1	W ³	2.6	28.0	6.3	93.7	4.9	M - H
Hanging Heart Road	29	57	1	W ³	4.6	40.0	5.0	94.6	2.3	L - M
Hanging Heart Road	15	58	2	W ³	7.6	58.0	10.3	49.0	6.7	L - M

PRINCE ALBERT DISTRICT

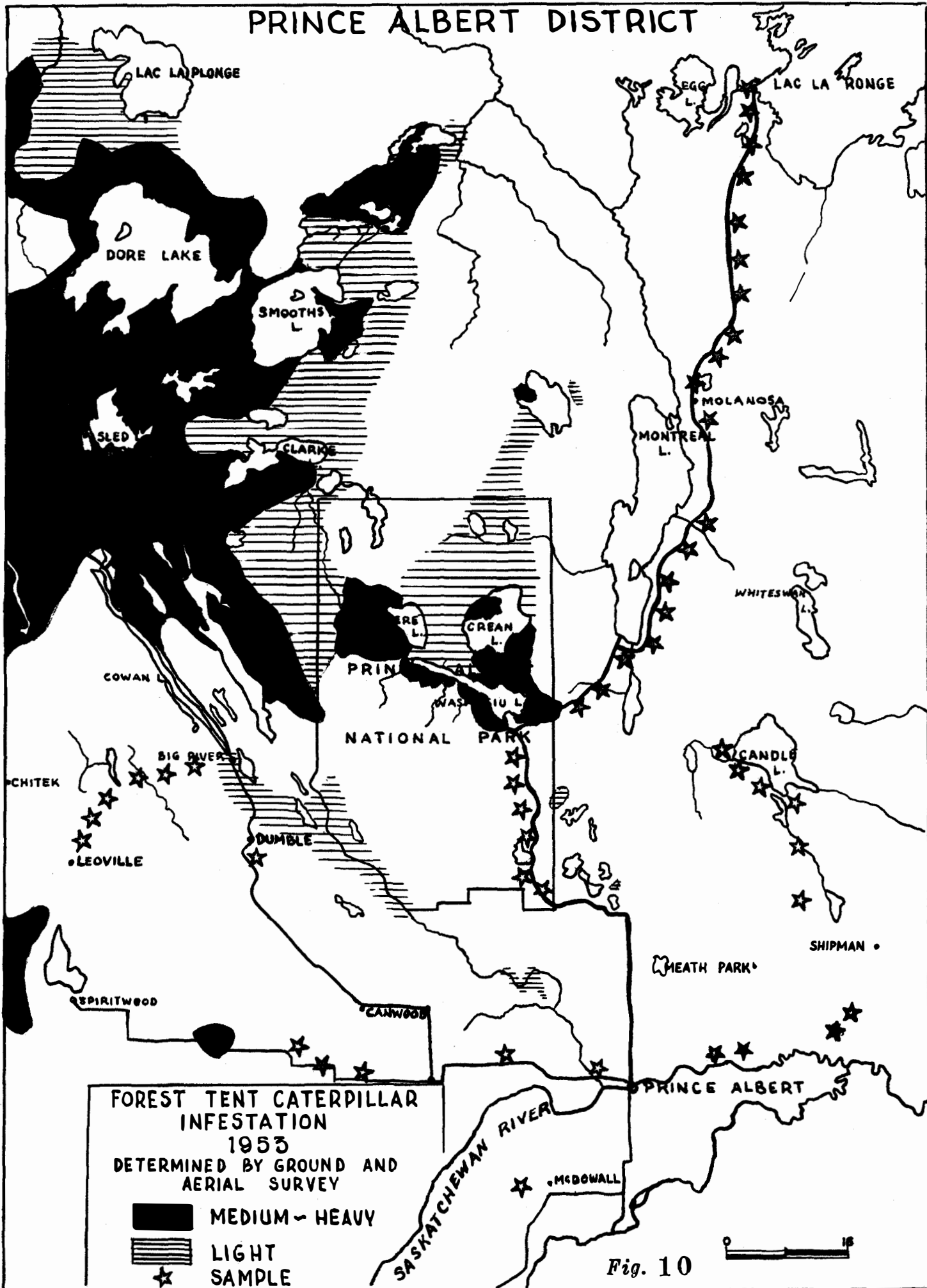


Fig. 10





**Fig. 1: Forest Tent Caterpillar
defoliation north of Big
River Saskatchewan.**



**Fig. 2: Forest Tent Caterpillar
defoliation north of Big
River Saskatchewan,
June 30 1953.**

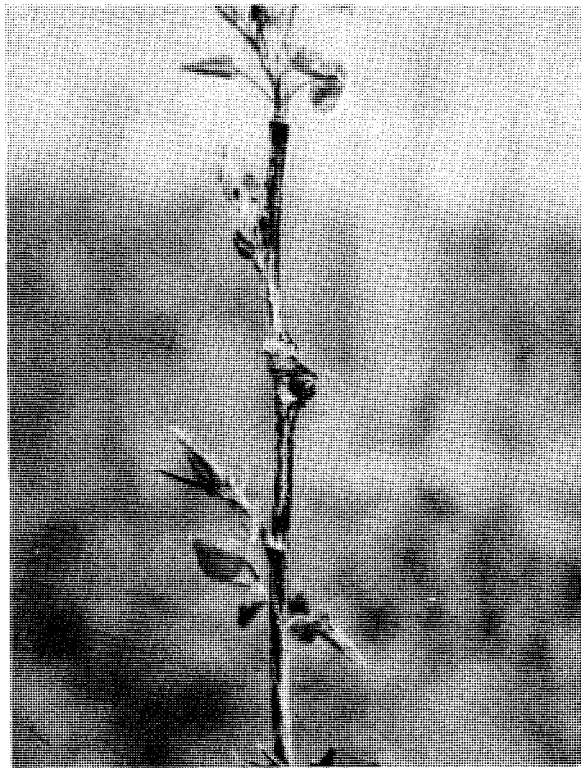


Fig. 3: Forest Tent Caterpillar
attacking partially opened
white poplar leaves.
May 21 1953.



Fig. 4: Deformed white poplar buds,
May 21 1953.

6.3.3. Large Aspen Tortrix, Archips conflictana Wlk.

The large aspen tortrix caused less defoliation of poplar in 1953 than in previous years but a much wider distribution of the species was recorded (Fig. 5). Larvae were found at all points where white poplar was examined during the latter part of May. At this time the larvae were observed boring into the buds or feeding on newly formed leaves. As a result, many white poplar buds were deformed (Fig. 4).

The outbreak in the Lac La Ronge area decreased in size and only two small infestations occurred; one area was located along the east side of Nemeiben Lake and the other along the east and west shores of Egg Lake. Larvae were still abundant in the Lac La Ronge area but they were not numerous enough to cause any noticeable defoliation. South of Lac La Ronge to Prince Albert National Park, defoliation was generally light. A patch of moderate defoliation occurred in sec. 35, tp. 57, rge. 27, W2nd mer. In the Waskesiu area of Prince Albert National Park and south into the agricultural areas, defoliation was light. Light populations of the large aspen tortrix were also prevalent through the Nisbet and Big River Provincial forests, in the Dore-Sled lakes area, and at Candle Lake.

A mass collection was made during the larval and pupal stage of the insect for parasite studies. The collection was taken at Lac La Ronge and consisted of 200 larvae and pupae. Results of the rearings indicated that three unidentified Diptera attacked the larvae and accounted for 50 per cent parasitism. Glypta fumiferana (Vier.) and Pseudosarcophaga affinis (Fall.) were also important parasites and together caused approximately 34 per cent parasitism.

6.3.4. Pitch Nodule Maker, Petrova albicapitana (Busck.)

A marked increase in the abundance of the pitch nodule maker was evident in the Nisbet Provincial Forest in 1953. In this area damage was most severe in the Home and Holbein blocks. This species was prevalent throughout the remainder of the Prince Albert District but only light damage to Jack pine regeneration was recorded.

6.3.5. A Pine Scale, Toumeyella sp.

Light damage to jack pine by a scale, Toumeyella sp., was observed at various points in the Prince Albert and Northern district, but in most cases, only a few trees were attacked.

The most active infestations occurred in the jack-pine stands in the Home and Holbein blocks of the Nisbet Provincial Forest. In the Home Block the infestation covered approximately 160 acres and the intensity of the attack was heavy. In the Holbein Block the infestation was limited to about 150 trees.

6.3.6. Jack-Pine Budworm, Choristoneura pinus Free.

Increased populations and a more widespread distribution of the jack-pine budworm was evident in 1953. The first collections obtained consisted

PRINCE ALBERT DISTRICT

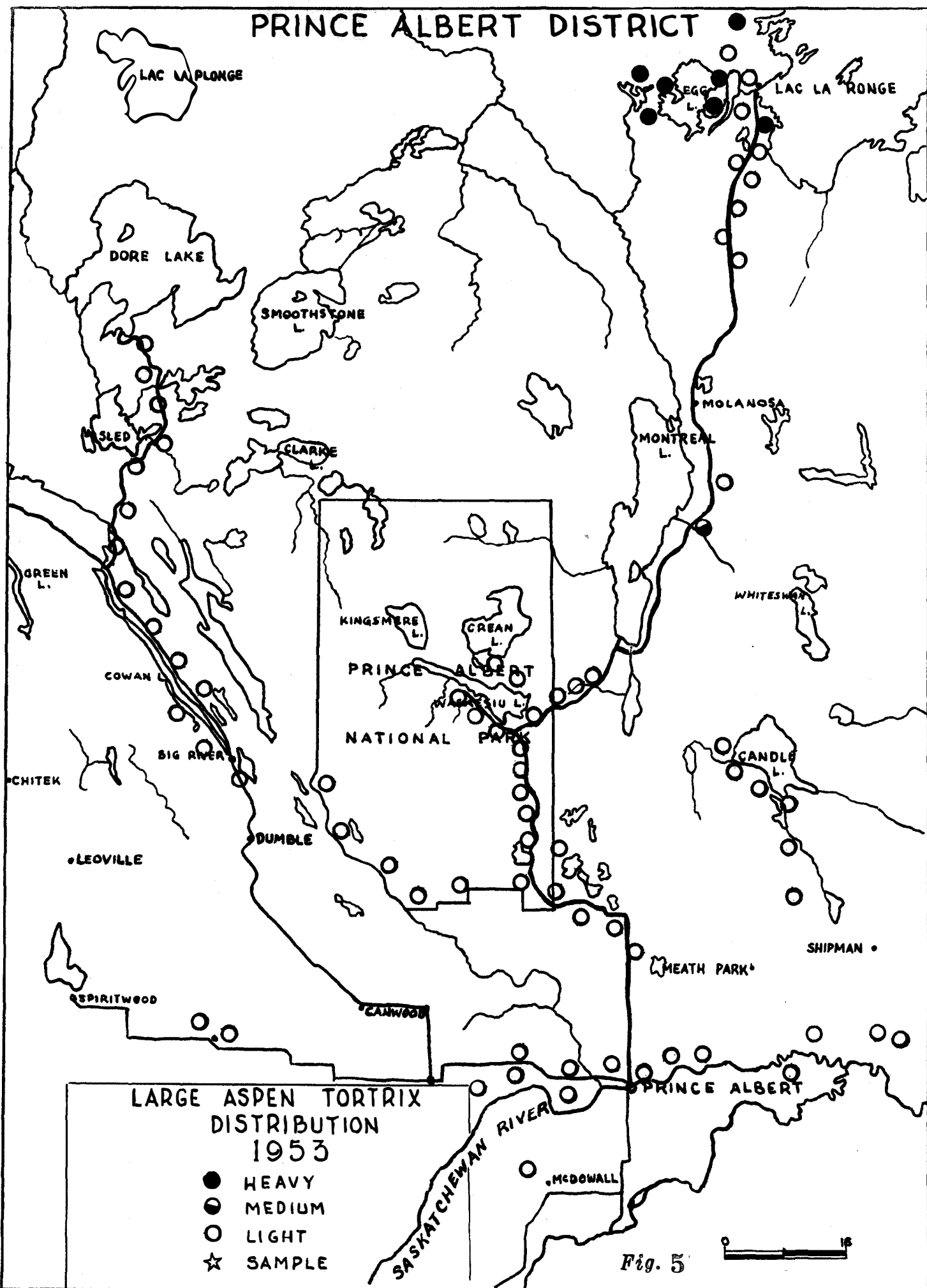


Fig. 5



of 3rd instar larvae and were taken on June 4 in a jack-pine stand in the Home Block of the Nisbet Provincial Forest.

Light populations of this species were general through the Prince Albert area and in the Home, Holbein, Round Lake, Red Rock, McDowall, and Steep Creek blocks. Of these areas, the highest populations were recorded in sec. 13, tp. 49, rge. 2, W3rd mer. of the Home Block but defoliation was still very light.

In the Fort a la Corne Provincial Forest, populations were generally light at most points where jack pine was examined. Damage was negligible.

Additional collections of jack-pine budworm were also taken in sec. 29, tp. 50, rge. 4, W3rd mer. in the Canwood Block of the Nisbet Provincial Forest.

6.3.7. Spruce Budworm, Choristoneura fumiferana Clem.

One larval and one pupal collection of this insect were obtained in sec. 6, tp. 49, rge. 2, W3rd mer. in the Holbein Block. The collections were taken from black spruce and defoliation was negligible. No other collections of this species were obtained in the Prince Albert and Northern districts in 1953.

6.3.8. American Poplar Beetle, Phytodecta americana Schffr.

A notable increase in abundance of this species was evident in 1953. It was generally distributed through both the Prince Albert and Northern districts but defoliation was generally confined to immature white poplar stands.

Small pockets of moderate to severe defoliation occurred in sec. 3, tp. 50, rge. 20, W2nd mer. of the Fort a la Corne Provincial Forest; in sec. 2, tp. 50, rge. 27, W3rd mer. of the Home Block; and three miles south of Big River in sec. 32, tp. 55, rge. 7, W3rd mer.

Light to moderate defoliation of white poplar was noted at Bittern Creek and Lac La Ronge.

6.3.9. Grey Willow-Leaf Beetle, Galerucella decora (Say)

Populations of this insect remained at low levels in 1953 and damage to willow was negligible.

6.3.10. Black-headed Budworm, Acleris variana Fern.

Distribution and abundance of the black-headed budworm remained much the same as in 1952. It was recorded in most of the white spruce, black spruce, and balsam-fir stands in the Prince Albert and Northern districts.

Light populations were noted throughout the agricultural area in the vicinity of Prince Albert, in the Nisbet and Fort a la Corne Provincial

forests, at Candle Lake and north to the Prince Albert National Park.

West of Prince Albert, light populations occurred in the agricultural areas along Highway No. 55 and north to Canwood. In the Big River Provincial Forest and in the Sled-Dore lakes area, distribution was general but defoliation was very light. Larvae were also present in small numbers in black spruce stands at Lac La Ronge and south to Montreal Lake and Bittern Creek.

6.3.11. A Tent Caterpillar, Malacosoma lutescens (N. & D.)

A more widespread distribution of this species was recorded in the Prince Albert District in 1953. Small populations were scattered throughout the Nisbet and Fort a la Corne Provincial forests. Defoliation was limited to chokecherry, pincherry, and rose bushes.

6.3.12. White-pine Weevil, Pissodes strobi Peck

Damage by the white-pine weevil increased noticeably in the Prince Albert District in 1953. Dead or dying leaders of regeneration jack pine were common in the Home, Red Rock, and Holbein blocks of the Nisbet Provincial Forest and in the west half of the Fort a la Corne Provincial Forest.

The same conditions existed in a stand of white spruce south of Waskesiu in Prince Albert National Park. Light damage also occurred to jack pine in the Canwood area and south of Big River in the Big River Provincial Forest.

6.3.13. Aspen Blotch Miner, Lithocolletis tremuloidiella Braun.

This leaf miner caused discoloration of white poplar in parts of the Prince Albert and Northern districts but did not cause any serious damage. It was most prominent in stands of regeneration white poplar in the Home and Red Rock blocks of the Nisbet Provincial Forest.

6.3.14. Ugly Nest Caterpillar, Archips cerasivorana Fitch

Nests of this caterpillar were less common in 1953 than in previous years. Defoliation to chokecherry was very scattered and occurred mainly in the Nisbet and Fort a la Corne Provincial forests.

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

The yellow-headed spruce sawfly caused light to moderate defoliation of spruce in some areas in 1953.

Approximately 30 per cent defoliation was recorded in a small white spruce stand in sec. 17, tp. 59, rge. 24, W2nd mer. along Montreal Lake. About 40 per cent defoliation was also observed on a single black spruce in sec. 15, tp. 50, rge. 4, W3rd mer. in the Canwood Block.

Light populations occurred on white and black spruce in the Nisbet

Provincial Forest and Prince Albert National Park, and on white spruce in the Big River Provincial Forest north to the Dore Lake area.

6.3.16. Green-headed Spruce Sawfly, Pikonema dimmockii (Cress.)

The green-headed spruce sawfly was generally associated with the yellow-headed spruce sawfly. However, populations were very low and caused very little defoliation.

6.3.17. The Owlet Moths, Orthosia hibisci Gn. and Homoglaea hircina Morr.

There was a notable increase in the abundance of O. hibisci and H. hircina in 1953. The two species were commonly found in all white poplar stands examined in the Prince Albert and Northern districts during July and August.

Populations of O. hibisci were generally higher than those of H. hircina in most areas.

6.3.18. Leaf Beetle, Chrysomela interrupta Auct.

A small infestation of this beetle covering approximately 30 acres, occurred in sec. 2, tp. 66, rge. 9, W3rd mer. on Michel Point at Dore Lake. Populations were high and were observed feeding on white birch, white poplar, willow, and alder. Defoliation at the time of examination was light and limited to the lower third of the crown on mature white birch and white poplar.

6.3.19. A Pyralid Moth, Meroptera pravela Grt.

This species, which was generally distributed throughout the forest tent caterpillar outbreak area, increased in abundance. Distribution was general throughout the district but the higher populations occurred in areas where forest tent caterpillar had been prevalent earlier in the season.

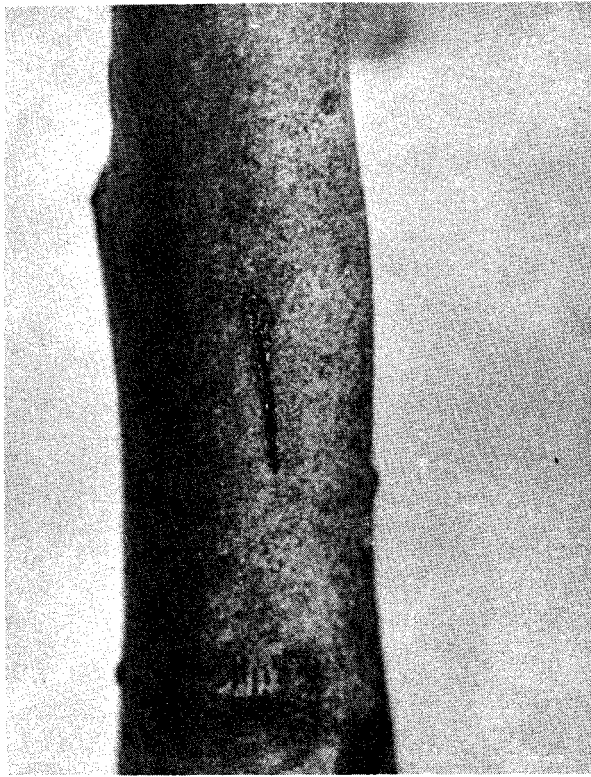
6.3.20. A Webworm, Tetralopha asperatella Clem.

This webworm was widely distributed throughout the Prince Albert and Northern districts and also appeared to be closely associated with the forest tent caterpillar. It was most abundant in the areas where forest tent caterpillar was prevalent.

6.3.21. Leaf Hoppers, Idiocerus sp.

Surveys carried out in 1953 indicated that light to moderate populations of the leaf hopper, Idiocerus sp., generally occurred in all white poplar and willow stands in the Prince Albert and Northern districts. The first emergence of this species was recorded on May 28 in an area 19 miles north of Big River along Cowan Lake. At that time several nymphs were observed emerging from the oviposition slits on branches.

Observations indicated that forest type poplar stands were more



6
Fig. 6: New oviposition damage
by leafhoppers.



7
Fig. 7: Old oviposition damage
by leafhoppers.

susceptible to attack than were immature or open growing white poplar trees. In early spring the oviposition damage showed up as minute slits in the soft bark of new growth and the smaller twigs. As growth progressed during the season, the slits continued to enlarge accordingly and thereby forming a somewhat larger wound on the new growth and twigs (Figures 6 and 7). In some instances the oviposition damage weakened the new growth to the extent that it caused distortion or complete killing of the shoot.

Mass collections of twigs and new growth, which showed oviposition damage, were made at periodic intervals during the season from Prince Albert, Bittern Creek, Dore Lake Road, and Lac La Ronge. Additional mass collections for further studies on the habits of this leaf hopper were taken during the latter part of the field season. New oviposition slits by Idiocerus sp. were first observed on August 27 indicating that oviposition takes place during late summer.

6.4. TREE DISEASE CONDITIONS

6.4.1. Armillaria Root Rot, Armillaria mellea (Vahl.) Quel.

This fungus, which causes rotting of the bark and wood of the roots and root collar, was commonly found on jack pine in widely scattered areas of the Prince Albert District. It occurred most frequently in the Home and Red Rock blocks of the Nisbet Provincial Forest. Scattered damage on regeneration jack pine caused by A. mellea was also located in the Fort a la Corne Provincial Forest, at Candle Lake, in the Big River Provincial Forest, Prince Albert National Park, Sled and Dore lakes area, and in the McDowall and Steep Creek blocks of the Nisbet Provincial Forest.

Light damage by the weevil, Hypomolyx piceus DeG., which appears to be closely associated with the root rot, A. mellea, was observed on the roots of dead and weakened trees at Candle Lake and along the Hanging-Hearts Road in Prince Albert National Park.

6.4.2. Yellow Witches'-Broom, Peridermium coloradense (Diet.) A. & K.

Light to moderate infections of this rust fungus were recorded at widely distributed points in the Prince Albert and Northern districts of Saskatchewan in 1953.

6.4.3. Spruce Needle Rust, Chrysomyxa poss. ledicola (Pk.) Lagerh.

This spruce needle rust increased in abundance and distribution in 1953. Severe discoloration of foliage was recorded during aerial surveys in white and black spruce stands through the Big River Provincial Forest and north along the Waterhen River to Sled, Dore, and La Plonge lakes. An area of severe damage also occurred south of Wasquesiu in Prince Albert National Park.

6.4.4. Mistletoe on Jack-Pine, Arceuthobium americanum Nutt.

Mistletoe on jack pine was prevalent throughout most jack-pine stands

in the Prince Albert and Northern districts. Light to moderate damage occurred in the Nisbet, Fort a la Corne, and Big River Provincial forests; the Canwood and Candle Lake areas; Prince Albert National Park; the Sled and Dore lakes area; and north along the Beaver River to Beauval. Light to moderate damage also occurred in jack-pine stands south of Lac La Ronge.

The most severe outbreaks of mistletoe were recorded in Nisbet and Fort a la Corne Provincial forests. In these areas infections ranged from moderate to severe and trees of all ages were affected resulting in the deformation of many trunks.

6.4.5. Parasite on Jack-Pine Mistletoe, Wallrothiella arceuthobii (Pk.) Sacc.

Observations made in 1953 indicate a fairly widespread distribution of this fungus parasite on jack-pine mistletoe. The parasite attacks the female flowers and prevents seed maturation.

It was abundant in all of the heavy mistletoe infections in the Nisbet and Fort a la Corne Provincial forests and south of Lac La Ronge. It usually occurred in mistletoe infections of jack-pine stands growing on high sandy tracts or ridges.

6.4.6. White Trunk Rot, Fomes igniarius (L.) Gill

The false tinder fungus, F. igniarius, which causes white trunk rot of hardwoods, was widespread in the Prince Albert and Northern districts.

6.4.7. Trunk Rot of White Poplar, Radulum casearium (Morgan) Lloyd

R. casearium, an important decay fungus of white poplar, was found in numerous areas in both the Prince Albert and Northern districts.

6.4.8. Canker of Poplar, Hypoxyylon pruinatum (Klotsche) Cke.

Cankers caused by H. pruinatum were observed in most white poplar stands in the Prince Albert and Northern districts. Damage varied from dead leaders to complete mortality of occasional trees in some areas.

6.4.9. Dying of Balsam Fir

The reddening of balsam fir was investigated in several areas in 1953. The root rot, Armillaria mellea (Vahl.) Quel., appeared to be primarily responsible for this condition. Reddening of balsam fir occurred in stands in the Big River Provincial Forest, along the Dore Lake Road, at Emma Lake, Prince Albert National Park, and along the Churchill River.

6.4.10. Larch Canker, Cytospora sp.

A larch canker, possibly Cytospora sp., caused increased mortality of larch in the McDowall Block of the Nisbet Provincial Forest. A canker, similar in appearance to the above, was also causing some damage and mortality in larch stands at Crutwell and north of English Cabin in the Fort a la Corne Provincial Forest.

6.5. PERMANENT SAMPLE PLOTS AND STATIONS

Tables 5 and 6 give the locations of permanent sample plots and stations that have been established to date in the Prince Albert and Northern districts of Saskatchewan.

TABLE 5

Permanent Sample Plots

Plot No.	Location	Size	Grid	Sec.	Tp.	Rge.	Mer.	Tree Species
101	Prince Albert District	1 x 8 chains	8-079-311	27	49	25	W2	Larch
102	" " "	1 x 10 "	8-074-311	27	49	1	W3	"
103	" " "	1 x 10 "	8-087-313	33	50	19	W2	"
104	" " "	1 x 5 "	8-077-311	8	49	26	W2	"
105	" " "	1 x 6 "	8-062-322	26	56	9	W3	"
106	" " "	1 x 8 "	8-064-321	32	55	7	W3	"
107	" " "	1 x 10 "	8-087-312	4	50	20	W2	"
109	" " "	1 x 10 "	8-081-311	28	48	23	W2	"
110	" " "	1 x 10 "	8-080-322	13	56	24	W2	"
111	" " "	1 x 10 "	8-073-317	24	53	2	W3	"
112	" " "	1 x 10 "	8-074-307	21	46	1	W3	"
113	" " "	1 x 10 "	8-073-311	13	49	2	W3	"
114	" " "	1 x 10 "	8-078-311	19	49	25	W2	"
101	" " "	1 x 6 "	8-076-311	10	49	27	W3	W. Poplar
103	" " "	1 x 5 "	8-061-331	25	62	10	W3	" "
104	" " "	1 x 5 "	8-060-330	23	62	10	W3	" "
105	" " "	1 x 5 "	8-061-331	8	63	8	W3	" "
106	" " "	1 x 5 "	8-072-323	21	57	2	W3	" "
107	" " "	1 x 5 "	8-078-328	15	60	25	W2	" "
108	" " "	1 x 5 "	8-088-313	33	50	19	W2	" "
109	" " "	1 x 5 "	8-080-323	15	57	24	W2	" "
110	" " "	1 x 5 "	8-082-320	7	55	22	W2	" "
111	" " "	1 x 5 "	8-061-325	14	58	9	W3	" "
112	" " "	1 x 5 "	8-060-328	3	61	10	W3	" "
120	" " "	1 x 2 "	8-074-307	21	46	1	W3	" "

TABLE 5 (cont'd)

Plot No.	Location	Size	Grid	Sec.	Tp.	Rge.	Mer.	Tree Species
101	Prince Albert District	x 5 chains	8-076-311	18	49	27	W2	Jack Pine
102	" " "	x 10 "	8-077-311	16	49	26	W2	" "
103	" " "	x 10 "	8-074-311	23	49	1	W3	" "
104	" " "	x 10 "	8-079-311	22	49	25	W2	" "
105	" " "	x 10 "	8-075-311	1	49	28	W2	" "
101	" " "	x 10 "	8-081-311	6	49	23	W2	B. Spruce
102	" " "	x 10 "	8-074-311	22	49	1	W3	" "
101	Northern District	x 5 "	8-080-340	11	68	23	W2	W. Poplar
102	" "	x 5 "	8-076-324	35	57	27	W2	" "

TABLE 6

Permanent Sample Stations

Station No.	Tree Species	Location	Sec.	Tp.	Rge.	Mer.	Grid
01	Larch	Prince Albert Dist.	9	57	10	W ³	8-060-322
02	"	" " "	21	64	9	W ³	8-061-333
03	"	" " "	22	49	1	W ³	8-074-311
04	"	" " "	9	50	22	W ²	8-083-312
05	"	" " "	14	62	24	W ²	8-079-330
06	"	" " "	33	50	4	W ³	8-069-313
01	Jack Pine	" " "	9	58	26	W ²	8-076-324
02	" "	" " "	31	49	24	W ²	8-079-311
05	" "	" " "	26	55	1	W ³	8-074-320
06	" "	" " "	5	49	23	W ²	8-081-311
07	" "	" " "	12	47	2	W ³	8-073-308
08	" "	" " "	1	50	20	W ²	8-087-314
10	" "	" " "	22	49	27	W ²	8-075-311
11	" "	" " "	26	49	2	W ³	8-073-311
01	B. Spruce	" " "	8	49	26	W ²	8-077-311
02	B. Spruce	" " "	27	57	1	W ³	8-074-323

6.6. PERSONNEL CONTACTED

Name	Position	Address	No. of Contacts
E.J. Marshall	Director of Forests	Prince Albert	4
B.A. Matheson	District Superintendent (P.A.)	" "	2
A. Hansen	" " (M.L.)	Meadow Lake	3
J. Johnson	Field Supervisor	Prince Albert	2
H. Stav	" "	Meadow Lake	2
E. Dodds	Field Supervisor (Northern)	Prince Albert	1
G. Hornecastle	Forester	" "	2
W. MacNeil	"	Meadow Lake	4
M. Laird	"	Lac La Ronge	5
B. Clays	Game Superintendent	Prince Albert	1
M. Nose	Cruiser	" "	3
A. Anderson	"	" "	3
F.J. Arnold	Field Officer	" "	2
C. Schell	" "	Strong Pine	3
E. Over	" "	Big River	2
T. Arsenault	" "	Dore Lake	2
D. Mazurak	" "	Candle Lake	1
L. Horne	" "	Holbein	2
B. Shannon	" "	Green Lake	3

TABLE (cont'd)

Name	Position	Address	No. of Contacts
W. Crothers	Field Officer	Glaslyn	1
W. Reise	" "	Lac La Ronge	5
A. Fremont	" "	Malenoza	2
D. Fraser	Pilot	Prince Albert	x
J. Cowie	Nurseryman	Big River	x
C. Colby	Patrolman	" "	x
J. Langford	"	Prince Albert	x
N. MacInnes	"	Big River	x
E.C. Nicholson	Conservation Officer	Prince Albert	x
A. Whitford	Towerman	Candle Lake	2
J.D. McFarlane	Park Superintendent	Waskesiu PANP	1
C. Davies	Chief Warden	" PANP	3
J. Leader	Warden	" PANP	1
E.L. Millard	"	" PANP	1
G.M. Millard	"	" PANP	1
D. Williams	Fire Hazard Research	Ottawa	6
M. Wheaton	" " "	Winnipeg	6
J. O'Halloran	Chief Engineer	Montreal	2
R. Fairford	Designing Engineer	"	2
D. Neilson	Agriculture Representative	Prince Albert	1
R. Thomas	Forest Pathology	Saskatoon	x
R.D. Whitney	" "	"	3
H.S. Whitney	" "	"	1
H. vanGroenewoud	" "	"	4

x Over 10 contacts.