ANNUAL DISTRICT REPORTS

FOREST INSECT AND DISEASE SURVEY

MANITOBA-SASKATCHEWAN REGION

1969

by

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INTRODUCTION

L. L. McDowall

Population levels of several forest insects and incidence of tree diseases were notably affected by inclement weather in 1969.

The most significant change was the virtual collapse of spruce budworm infestations in the northern sections of both provinces. Adverse weather conditions in the form of freezing temperatures and snow during the latter part of May and early June appeared to be a governing factor for this sudden decline. Egg surveys indicated that overall defoliation will probably be light in 1970. High populations persisted in the Interlake area of Manitoba and increased from light to moderate in the Spruce Woods Provincial Forest.

Larch sawfly populations remained low in Saskatchewan; however in Manitoba moderate to severe infestations continued in the southern and eastern areas and increased slightly in the west-central section.

Moderate to severe infestations of the large aspen tortrix were again present in the southwestern, west-central and Interlake areas of Manitoba but declined in southwestern Saskatchewan.

Anticipated high populations of the fall cankerworm in southern Saskatchewan were substantially reduced by severe frosts which inhibited the development of the insect and its hosts.

Other species of importance but causing only local disturbances in the region were the jack-pine budworm, yellow-headed spruce sawfly, balsam-fir sawfly, pine tortoise scale, white pine weevil, pine needle scale, American aspen beetle and the willow leaf beetle. A cedar leaf miner Pulicalvaria thujaella Kft. was collected in southern Manitoba for the first time in several years. The European spruce sawfly Diprion hercyniae (Htg.) has now spread into Manitoba and the first collections were made in the southeastern part of the province in July.

Incidence levels of tree diseases were generally lower although leaf spots and shoot blights were common in a number of districts and several small but severe needle rust infections of conifers occurred in localized areas. Special surveys were continued to further determine the distribution of spruce and jack-pine mistletoe, spruce needle rusts, Hypoxylon canker and leaf and shoot blight of poplars. Frost damage was reported over a wide area in the north as well as at scattered locations in the southern portion of the region.

Over 9,000 insect and tree disease samples were submitted by field survey technicians. Table I shows the number of samples and host trees sampled in each district. Approximately 90 hours of flying time were used for mapping outbreaks and collecting insect and disease material; 30 hours of this was supplied by the Forestry Branches of both provinces.

The conditions briefly outlined above together with other important forest insect and tree disease appraisals are described in detail in the following individual reports. The survey wishes to acknowledge the cooperation and assistance received from forestry officials and other government agencies of both provinces.

TABLE I

Insect and Disease Collections from the Principal Host Trees
Manitoba-Saskatchewan Region
1969

Ranger districts	Tree species																							
	wS		bS		bF		jP		tL		tA		bPo		wB		mM		wE		Misc.		Totals	
	I	D	I	D	I	D	I	D	I	D	I	D	I	D	I	D	I	D	I	D	I	D	I	D
Eastern Lowlands Man.	51	8	36	30	24	15	108	21	72	3	107	86	20	15	38	12	15	1	10	10	210	103	691	304
Central Lowlands Man.	109	20	30	18	5	3	13	17	61	3	125	66	39	13	13	2	41	1	28	1	266	94	730	238
Northern Lowlands and Northern Man.	69	30	59	65	22	18	31	24	83	6	68	79	54	27	49	37	7	4	2	-	133	80	577	370
Western Mixedwood Sask.	56	32	29	21	6	8	36	29	38	1	121	87	70	40	32	38	32	29	4	6	249	253	673	544
Central Mixedwood and Northern Sask.	87	16	57	26	13	15	83	33	45	1	71	51	41	21	41	34	12	7	-	-	172	136	622	340
Eastern Mixedwood Sask.	75	55	26	40	10	13	26	6	49	2	101	85	61	34	17	10	19	10	12	6	178	84	574	345
Eastern Prairie Man.	81	5	-	-	-	-	11	2	7	-	90	26	29	13	10	2	93	16	61	22	366	109	748	195
Central Prairie Man.	54	1	2	-	-	-	5	-	5	-	92	19	33	2	5	1	52	14	43	2	327	79	618	118
Western Prairie Man.	111	6	-	-	-	-	5	2	3	-	66	21	30	7	-	-	171	28	118	9	763	190	1267	263
Totals	693	173	239	200	80	72	318	134	363	16	841	520	377	172	205	136	442	110	278	56	2664	1128	6500	2717

I = Insect collections D = Disease collections

EASTERN LOWLANDS DISTRICT
MANITOBA

1969

by

G. N. Still

INTRODUCTION

This report deals with forest insect and disease surveys conducted from late May to mid September. During this period 697 insect and 314 disease samples were submitted to the Winnipeg laboratory. Approximately 14 hours and 50 minutes of charter and six hours and 55 minutes of non-charter flying were used for surveys of areas inaccessible by road.

In addition to general sampling, the following sub-projects were carried out: (1) studies to determine the spread of the introduced parasite Olesicampe sp. nr. nematorum (Tschek); (2) larch sawfly egg population studies at permanent plots; (3) population studies of the large aspen tortrix; (4) establishment of permanent plots to monitor spruce budworm populations; (5) mass collections of spruce budworm, large aspen tortrix, prairie tent caterpillar, and larch sawfly for parasite studies; (6) studies of the disease Pollaccia radiosa (Lib.) Bald. & Cif. at permanent plots; (7) small mammal population studies; and (8) special collections of insect and disease material for researchers at the Winnipeg laboratory.

Cool, wet weather prevailed throughout most of the 1969 field season and late spring frosts caused a notable amount of damage to trees in several areas of the district. Populations of the jack-pine budworm, fall cankerworm, and a leaf roller, Archips negundanus Dyar collapsed to endemic levels throughout the district while spruce budworm and large aspen tortrix infestations in the Interlake section continued at high levels. There was a noticeable increase in populations of the larch sawfly in the southeastern section of the district. No significant changes were evident in the status of important tree diseases.

INSECT CONDITIONS

LARCH SAWFLY, Pristiphora erichsonii (Htg.):- Infestation levels increased in the southeastern part of the district while remaining much the same as last year throughout the remainder (Figure 1). Populations were found in tamarack stands throughout the district, ranging as far north as the Leyond River.

In the southeast corner moderate to severe defoliation of scattered tamarack stands was common from the Trans Canada Highway through to the United States and Ontario borders.

In the Whiteshell Provincial Park moderate to severe defoliation occurred in the vicinities of Red Rock, Brereton, Cabin, Betula, and Nutimik lakes while only light defoliation was detected throughout the remainder of the park.

In the Agassiz Provincial Forest moderate to severe defoliation occurred north of Oak Lake and in the Buchan and Milner Ridge areas while it was light throughout the remainder of the area.

Defoliation in the Belair Provincial Forest was light throughout, with the exception of stands east of Balsam Bay and in the Murray Hill area where it ranged from moderate to severe.

East of Lake Winnipeg moderate to severe defoliation occurred along the lake from Powerview to Black River, north of Maskwa Lake, and in the Shallow Lake and Minago Creek areas. Light to moderate defoliation was common as far north as the Leyond River.

In the Interlake section patches of moderate to severe defoliation were recorded from Washow Bay west to approximately 15 miles east of Hodgson and north to Koostatak. Light to moderate defoliation was common from Riverton through to the Lake St. David area.

The results of sequential sampling of egg populations in permanent sample plots are shown below.

Location and plot number	No. of shoots examined	No. of shoots curled	Infestation rating - 1969
Piney 14-71-544-01	50	0	Light
Telford 15-32-552-01	110	20	Moderate
Agassiz 14-69-554-01	150	9	Light
Point Du Bois 15-31-557-01	110	5	Light
Riverton 14-63-567-01	90	4	Light

Cocoons were obtained at five locations using metal cages to rear larvae collected at three intervals during the larval period of the larch sawfly. Where possible, 200 larvae were dissected from each locality to determine the effective parasitism by Bessa harveyi (T.T.), Mesoleius tenthredinis Morley, and Olesicampe sp. nr. nematorum (Tschek), and to monitor the spread of the latter, an introduced species. The table below shows the results of these dissections.

	Percentages of Effective Parasitism		
Locality and UTM Grid	Olesicampe sp. nr. nematorum	Bessa harveyi	Mesoleius tenthredinis
Traverse Bay 14-68-561	Nil	45.0	03.0
Approx. 16 mi. east of Hodgson on Hwy. #325 14-62-567	04.5	18.5	12.5
Point Du Bois 15-31-557	06.0	35.0	08.5
Hwy. #234, 1 mi. S of Jct. Hwy. #325, 14-63-567	28.5	34.5	02.6
Hwy. #234, 7 mi. S of Jct. Hwy. #325, 14-63-566	19.0	23.5	04.0

The introduced parasite Olesicampe sp. nr. nematorum (Tschek) was released near Pine Falls in 1961 and near Riverton in 1962-1963. These studies indicate the parasite has spread a distance of approximately nine miles southerly from the Riverton release area to the south end of Washow Bay; and a distance of approximately 35 miles southeasterly from the Pine Falls release area to Point Du Bois.

SPRUCE BUDWORM, Choristoneura fumiferana (Clem.):- For the third consecutive year, moderate to severe defoliation of white spruce woodlots occurred in the Arborg-Geyser-Vidir area (Figure 2). A new woodlot infestation was detected three miles south of Sylvan where white spruce was moderately to severely defoliated while the infestation four miles south of Fisher Branch declined to light.

Endemic populations and traces of defoliation were well distributed throughout the remainder of the district.

Permanent sampling stations were established in white spruce stands near Vidir in the Interlake section and Bannock Point in the Whiteshell Provincial Park. These stations form part of a monitoring system, mainly for spruce budworm, which includes all of eastern Canada. Twenty-five trees were marked at each station and 10 of these are to be sampled each year. Two beating samples, using a 3' x 3' beating mat, were taken from each of 10 trees and the total number of spruce budworm larvae counted. The results of these counts are shown below.

Location and plot number	Defoliation rating	Number of spruce budworm larvae counted
Vidir 14-61-565-01	Severe	866
Bannock Point 15-31-555-01	Nil	Nil

JACK-PINE BUDWORM, Choristoneura pinus pinus Free.:- Populations of the jack-pine budworm virtually collapsed throughout the district including the northern aerial survey section.

The only significant population detected was in a localized area about five miles south of the Marchand Field Station in the Sandilands Provincial Forest where only occasional, scattered trees were lightly to moderately defoliated.

Low populations and very light defoliation was recorded at scattered points throughout the range of jack-pine in the district including sampling points on Gem, Round, Family, Flintstone, and Dogskin lakes in the northern aerial survey section.

WHITE-PINE WEEVIL, Pissodes strobi (Peck):- Infested saplings were observed at numerous localities indicating distribution throughout the range of jack pine in the district as far north as Manigotogan and Wallace Lake. Planted Scots pine were also attacked in some areas.

The occurrence of this weevil was most common in the southeastern part of the district and in the Agassiz Provincial Forest where incidences of up to five percent of jack-pine saplings infested were common. Up to 20 percent of saplings were infested in the Whitemouth Lake area and up to 10 percent at several locations in the Agassiz Provincial Forest.

YELLOW-HEADED SPRUCE SAWFLY, Pikonema alaskensis (Roh.):- Populations were not as high as last year though the insect was well distributed throughout the district including the northern aerial survey section. The only moderate to severe defoliation occurred on occasional, widely scattered, roadside spruce regeneration in the Whiteshell Provincial Park near Falcon, Red Rock, and Nutimik lakes and in the Lac Du Bois area. Elsewhere infestations were generally very light.

EUROPEAN SPRUCE SAWFLY, Diprion hercyniae (Htg.):- A considerable extension of the known range of this introduced insect was established in 1961 in Ontario when it was discovered in the Kapuskasing and Kenora districts of that province. At that time indications were that the sawfly was spreading gradually westward and northward throughout the Boreal Forest Region.

This year, in Manitoba, low populations were found on black and white spruce in the southeastern part of the province, as far north as Caddy Lake in the Whiteshell Provincial Park, and as far west as Marchand in the Sandilands Provincial Forest. Other collection points were in the Piney, Wampum, Moose Lake and Hadashville areas.

LARCH CASEBEARER, Coleophora laricella Hbn.:- A special survey carried out in March, 1969 indicated that the larch casebearer is still confined to southeastern Manitoba where it was first detected in 1965. Populations remain at very low levels. Results of the survey are shown below.

Areas sampled	No. of specimens collected
2 mi. east of Middlebro	Nil
4 mi. east of Sprague	2
10 mi. north of Sprague	Nil
1 mi. east of Piney	1
2 mi. north of Piney	Nil

LARGE ASPEN TORTRIX, Choristoneura conflictana (Wlk.):- Further increases were evident in infestation levels and distribution was extended. Moderate to severe infestations of trembling aspen woodlots continued in the Malonton-Fraserwood-Narcisse-Rembrandt area and outbreaks spread west and north to the Arborg, Poplarfield, and Fisher Branch areas and east and south to the Sandy Hook, Camp Morton, and Teulon areas.

Light defoliation was again commonly found throughout the Interlake section and low populations have spread throughout the remainder of the district excepting the northern aerial survey section.

A LEAF ROLLER ON MANITOBA MAPLE, Archips negundanus Dyar.:- There was a sharp decline in populations of this leaf roller on Manitoba maple throughout most of the district. The only moderate to severe defoliation occurred in a patch along the Red River, near the golf course at Selkirk. Though low populations were well distributed throughout the rest of the district, defoliation was generally very light. Collection points were River Hills, Dugald, Middlechurch, Selkirk, Warren, Arborg, and Vidir.

ASPEN BLOTCH MINER, Lithocolletis salicifoliella Cham.:- Small patches of moderate to severe leaf mining of poplar saplings and young, fringe trees were observed in the Marchand, Otter Falls, Wanipigow Lake, Gold Creek, and Wallace Lake areas and in the northern aerial survey section at Shallow and Weaver lakes. Light infestations were again found at scattered points throughout the forested sections of the district.

TENT CATERPILLARS, Malacosoma spp.:- Though tents were somewhat more commonly found than last year, populations of all recorded species remained low and tents were generally isolated and widely scattered.

M. lutescens (N. & D.) was the most prevalent species and tents on chokecherry and rose occurred at widely scattered points throughout the Interlake and southeastern sections of the district.

M. americanum (F.), except for a few tents on hawthorn near Stony Mountain, it was found mainly on chokecherry in the southeastern part of the district. Collections were made in the Menisino, Marchand, Hadashville, and Vivian areas.

M. pluviale (Dyar) was again confined to the east-central portion of the district and was found on pincherry and white birch in the West Hawk, Telford, Cat Lake and Davidson Lake areas.

FALL CANKERWORM, Alsophila pometaria (Harr.):- Populations of this cankerworm collapsed and the only areas where larvae were collected were Beausejour, Selkirk, and Stonewall. Only very light defoliation of Manitoba maple, white elm, and bur oak occurred in these areas.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Aceria parapopuli (Keifer)(Poplar bud-gall mite)	Aspen, trembling Poplar, balsam and hybrid	Winnipeg, Stead, Manigotogan, and Sassaginigak Lake	Moderately infested hybrid poplars observed at Rivercrest. A few moderately to severely infested trembling aspen saplings near Stead. Elsewhere infestations were light, localized, and widely scattered.
Acleris variana (Fern.)(Black-headed budworm)	Spruce, white	Moose Lake	Traces of bud damage.
Acraspis villosa Gill. (Hairy oak gall)	Oak, bur	Throughout the range of bur oak in the district	Scattered light leaf infestations common.
Acronicta dactylina Grt. (Dagger moth)	Willow Alder Birch, white	Throughout the forested sections of the district	Occasional widely scattered, localized traces of defoliation.
Actias luna Linn. (Luna moth)	Willow	Riverton	Localized light defoliation.
Adelges cooleyi Gill. (Cooley spruce gall aphid)	Spruce, white	Throughout the district	A few trees light to moderately infested at West Hawk Lake and Stonewall. Light localized infestations widely scattered throughout the district.
Adelges lariciatus (Patch)(Spruce pine-apple gall aphid)	Spruce, white and black	Throughout the district	Widely scattered, localized, light infestations.
Anacampsis innocuella (Zell.)(A leaf roller)	Aspen, trembling	Woodridge, Marquette, and Gem Lake	Scattered light leaf rolling.
Anoplonyx spp. (Sawflies on tamarack)	Tamarack	Throughout the range of tamarack in the district	Both A. canadensis Htgn. and A. luteipes (Cress.) were commonly found in tamarack stands but populations were low and no significant damage was observed.

Insect	Host(s)	Locality	Remarks
Aphrophora spp. (Spittle bugs)	Pine, jack Fir, balsam	Throughout the forested sections of the district	Scattered low populations common; damage very light. A. permutata Uhl. found at several points in the Whiteshell Provincial Park.
Archippus packardianus (Fern.)(A leaf roller)	Spruce, white	Birds Hill and Malonton	Traces of bud infestation.
Archips cerasivoranus (Fitch)(Ugly-nest caterpillar)	Chokecherry	Throughout the district	Well distributed, nests not as common as last year.
Archips fervidanus (Clem.)(Oak webworm)	Oak, bur	Interlake section	A few nests found in the Poplarfield and Arnes areas.
Arge clavicornis (Fab.)(Willow sawfly)	Alder Birch, white	Throughout forested sections of the district	Widely scattered, localized light defoliation.
Arge pectoralis Leach. (Birch sawfly)	Birch, white	Pinawa	Localized light defoliation.
Argyresthia laricella Kft. (Larch shoot moth)	Tamarack	Southeastern part of the district	Traces of shoot infestations in the Middlebro, Sprague, and Piney areas.
Argyrotaenia occultana Freeman (A tortricid)	Pine, jack Spruce, black	Wallace and Maskwa lakes and Gammon River	Traces of needle infestations.
Badebecia urticana Hbn. (Leaf roller)	Aspen, trembling Willow	Sandilands, Beaver Creek, and Jackfish Point	Light leaf infestations.
Biston cognataria Gn. (Pepper and salt moth)	Birch, white	Seddons Corner, Otter Falls, and Pinawa	Scattered traces of defoliation.

Insect	Host(s)	Locality	Remarks
Bucculatrix canadensisella Cham. (Birch skeletonizer)	Birch, white	Pinawa and Beaver Creek	Light leaf skeletonizing.
Caliroa cerasi (Linn.) (Pear slug)	Plum Cotoneaster	Lac Du Bonnet and St. Francois Xavier	Moderate to severe leaf skeletonizing of ornamental cotoneaster and tame plums.
Calligrapha alni (Schffr.)(Leaf beetle)	Alder	Beaver Creek; Horseshoe and Flintstone lakes	Patches of light leaf skeletonizing.
Campaea perlata (Gn.) (Fringed looper)	Birch, white Aspen, trembling	Agassiz and Whiteshell Provincial forests and northern part of Interlake section	Scattered light defoliation.
Cecidomyia balsamicola Lintn. (Balsam gall midge)	Fir, balsam	Moose Lake, Caribou Tower, Stead, and Beaver Creek	Occasional widely scattered, localized light needle infestations.
Cecidomyia negundinis Gill. (Boxelder gall midge)	Maple, Manitoba	Throughout the range of Manitoba maple in the district	Light leaf gall infestations common.
Chionaspis furfura (Fitch)(Scurfy scale)	Alder	Eastern half of the district	Scattered localized light to moderate stem and branch infestations.
Chrysomelid sp. (Leaf beetle on elm)	Elm, white	Southeastern section of the district	Moderate to severe leaf skeletonizing in the Marchand and Hadashville areas and light near Middlebro and Silver Falls.
Chrysomela crotchi Brown (Aspen leaf beetle)	Aspen, trembling	Throughout forested sections of the district	Populations, though well distributed, continue at low levels. Defoliation generally light and scattered.
Chrysomela knabi Brown (Leaf beetle)	Poplar, balsam Aspen, trembling Alder	Throughout forested sections of the district	Widely scattered light infestations.

Insect	Host(s)	Locality	Remarks
Chrysomela scripta Fab (Cottonwood leaf beetle)	Poplar, balsam Birch, white Willow	Caribou Tower, Stead, and Hecla Island	Localized light larval skeletonizing.
Cimbex americana Leach (Elm sawfly)	Birch, white	Moose Lake and Point Du Bois	Traces of defoliation.
Curculionid sp. (A leaf mining weevil)	Willow	Hecla Island and Powerview	Roadside patches of moderate to severe leaf mining.
Contarina virginianiae (Felt) (The chokecherry midge)	Chokecherry, eastern	Selkirk	Light fruit infestations.
Cryptocephalus notatus	Birch, white Willow	Moose Lake, Otter Falls, and Dogskin Lake	Localized light infestations.
Cyphon variabilis Thunb. (False flower beetle)	Spruce Pine Tamarack Aspen, trembling Birch, white	Eastern half of the district as far north as Round Lake	Adults common; no noticeable damage.
Datana ministra (Drury) (Yellow-necked caterpillar)	Willow Birch, white	Eastern half of the district	Populations noticeably increased. Widely scattered, individual saplings and willow clumps moderately to severely defoliated, particularly along roadsides.
Dichelonyx subvittata Lec. (A leaf chafer)	Most deciduous trees	Throughout the Interlake section	Notable adult populations common but only light defoliation observed.
Empria multicolor Nort. (A sawfly)	Birch, white	Darwin, Seddons Corner and Beaver Creek	Localized light defoliation.
Enargia decolor Wlk. (A Noctuid)	Aspen, trembling	Throughout forested sections of the district	Scattered light leaf rolling common.

Insect	Host(s)	Locality	Remarks
Epinotia solandriana Linn. (Leaf roller)	Aspen, trembling Birch, white Poplar, balsam Willow	Throughout the district	Scattered light leaf rolling common.
Eriosoma americanum (Riley)(Woolly elm aphid)	Elm, white	Throughout the range of white elm in the district	Light leaf infestations common.
Eufidonia notataria Wlk. (A looper)	Pine, jack Fir, balsam Tamarack	Pinawa, St. George, Washow Bay, and Rosenberg	Low populations; no significant damage.
Eupithecia luteata Pack. (A looper)	Tamarack Spruce, white Fir, balsam	Throughout forested sections of the district	Low populations common; no significant damage.
Fenusa dohrnii (Tischb.)(European alder leaf miner)	Alder	Throughout forested sections of the district	Scattered patches of moderate to severe leaf mining along the east and west sides of Lake Winnipeg, near Wanipigow and Wallace lakes, and at Red Rose. Scattered, localized light infestations throughout the remainder.
Feralia jocosa (Guen.)(Green-striped caterpillar)	Fir, balsam Spruce, white	Pinawa, Stead, and Sassaginigak Lake	Scattered low populations; no significant damage.
Gonioctena americana (Schaef.)(American aspen beetle)	Aspen, trembling	Throughout the district	Scattered light defoliation well distributed throughout the district. Notable populations frequently found associated with large aspen tortrix infestations in the Interlake section.
Gracillaria negundella Chamb. (Box-elder leaf roller)	Maple, Manitoba	Southern portion of the district	Light infestations in the Beausejour, Selkirk, Fortier, Portage la Prairie, and Stonewall areas.

Insect	Host(s)	Locality	Remarks
Gracillarid sp. (Leaf miner on willow)	Willow	Northern aerial survey section of the district	Patches of moderate to severe leaf mining at Weaver and Molson lakes and at Norway House.
Halisidota maculata (Harr.)(Spotted tussock moth)	Birch, white Willow	Whiteshell and Birds Hill Provincial parks and near Piney and Riverton	Scattered light defoliation.
Hemichroa crocea (Fourcroy)(Striped alder sawfly)	Birch, white Alder	Throughout forested sections of the district	Occasional, widely scattered light defoliation.
Hylobius spp. (Root-collar weevils)	Pine, scots and jack	Southeastern section and at Wallace Lake	Up to four percent of young planted Scots pine infested in the Sandilands, Bedford, and Milner Ridge areas. Adults of H. pinicola Couper beat from trees near Marchand and Wallace Lake.
Hylurgopinus rufipes (Eichh.) (Native elm bark beetle)	Elm, white	Selkirk and St. Vital	Occasional heavily infested individual trees.
Hypagyrtis piniata Pack. (A looper)	Tamarack	Throughout the range of tamarack in the district	Scattered low populations common; no noticeable damage.
Hyphantria cunea (Drury)(Spotless fall webworm)	Willow Birch, white Alder	Throughout the district	Not as common as last year but occasional isolated nests well distributed.
Idiocerus populi L. (A leaf hopper)	Aspen, trembling	Throughout the district	Scattered light infestations common.
Ips pini Say (Pine engraver)	Pine, jack and Scots	Southeastern section and Point Du Bois	Frequently found in the bark of dead and dying trees.

Insect	Host(s)	Locality	Remarks
Lambdina fiscellaria fiscellaria (Guen.) (Eastern hemlock looper)	Fir, balsam Tamarack	Telford, Pinawa and Stead	Low populations; no significant damage.
Lepyrus palustris Scop. (A weevil)	Willow Aspen, trembling	Middlebro, Marchand, and Red Rose	Occasional adults collected in beating samples.
Lithocolletis sp. (A leaf miner on bur oak)	Oak, bur	Throughout the range of bur oak in the district	Small, open growing oak moderately to severely infested in the Camp Neustadt area. Widely scattered light infestations elsewhere.
Lithophane amanda Sm. (A Noctuid)	Birch, white	Moose Lake, Milner Ridge, Pinawa, and Red Rose	Scattered low populations.
Malacosoma disstria Hbn. (Forest tent caterpillar)	Aspen, trembling	Darwin, Milner Ridge, and St. Ouens	Very low populations; traces of defoliation.
Mayetiola rigidae (O.& S.)(Beaked willow-gall fly)	Willow	Throughout the district	Occasional individual clumps light to moderately infested in the Marchand and Traverse Bay areas; generally light and localized.
Messa populifoliella (Townsend)(A leaf mining sawfly)	Cottonwood	Stony Mountain	Occasional young trees light to moderately infested.
Mordwilkoja vagabunda (Walsh) (Poplar vagabond aphid)	Aspen, trembling	Throughout the district including Round Lake in the northern aerial survey section	Occasional localized, light sapling infestations.
Nematus ventralis Say (A sawfly)	Willow	Throughout forested sections of the district including Red Willow and Elliot lakes in the northern aerial survey section	Occasional individual clumps moderately skeletonized in the Caribou Tower and Wanipigow Lake areas. Generally widely scattered, localized, and light.

Insect	Host(s)	Locality	Remarks
Neodiprion abietis complex (Balsam fir sawfly)	Spruce, black and white	Hadashville and Elliot Lake	Localized light defoliation.
Neodiprion compar Leach (A jack-pine sawfly)	Pine, jack	Sundown and Caddy Lake	Occasional tree lightly defoliated.
Neodiprion nanulus nanulus Schedl. (Red-pine sawfly)	Pine, jack	Pinawa and Red Willow Lake	Occasional trees lightly defoliated.
Neodiprion swainei Midd. (Swaine jack-pine sawfly)	Pine, jack	Menisino, Moose Lake and Hodgson	Occasional trees lightly defoliated.
Neodiprion virginianus complex (Red headed jack-pine sawfly)	Pine, jack	Meditation Lake, Hodgson, Wallace Lake, and Gammon River	Occasional trees lightly defoliated.
Nycteola cinereana N. & D. (Owlet moth)	Poplar, balsam	Stead, Lac Du Bois, and Davidson Lake	Light leaf skeletonizing of scattered saplings.
Nycteola frigidana Wlk. (A web-maker)	Willow	Eastern half of the district	Scattered light infestations.
Nymphalis antiopa (L.) (Mourning cloak butterfly)	Willow Aspen, trembling Elm, white	Throughout the eastern half of the district and near Beaver Creek	Noticeable increase in the incidence of infested trees. Light to moderate, and occasional severe defoliation of scattered individual, young trees.
Olingonychus ununguis (Jac.) (Spruce spider mite)	Pine, jack	Marchand and Hadashville	Localized light infestations.
Operophtera bruceata (Hulst) (Bruce span worm)	Aspen, trembling	Interlake section of the district	Usually associated with large aspen tortrix infestations.
Orthosia hibisci Gn. (A fruit worm)	Willow Aspen, trembling	Throughout the district	Occasional very light infestations.
Pandemis canadana Kft. (Leaf roller)	Willow Aspen, trembling Birch, white	Throughout the eastern half of the district including Weaver Lake in the northern aerial survey section	Widely scattered traces of leaf rolling.

Insect	Host(s)	Locality	Remarks
Pemphigus populicaulis Fitch (Leaf-stem gall)	Poplar, balsam	Marchand, Otter Falls, and Norway House	Occasional trees lightly infested.
Petrova albicapitana (Busck.)(Pitch nodule maker)	Pine, jack	Throughout the range of jack-pine in the district including Family and Weaver lakes in the northern aerial survey section	Low populations commonly found; light branch and stem damage noted in young plantations in southeastern section.
Phenacaspis pinifoliae (Fitch) (Pine needle scale)	Spruce, white and black Pine, jack	Throughout the district including Obukowin and Elliot lakes in the northern aerial survey section	Moderate to severe infestations of ornamental white spruce at St. Francois Xavier and Pine Falls. Occasional light infestations widely distributed throughout the district.
Phratora americana canadensis Brown (Leaf beetle)	Willow Aspen, trembling	Marchand, Point Du Bois and Beaver Creek	Scattered traces of defoliation.
Phyllocnistis populiella Cham. (Aspen leaf miner)	Aspen, trembling Poplar, balsam	Throughout the district including Sassaginigak Lake in the northern aerial survey section	Scattered traces of leaf mining commonly found.
Pikonema dimmockii (Cresson)(Green-headed spruce sawfly)	Spruce, white and black Fir, balsam	Throughout the district including the northern aerial survey section	Low populations and traces of defoliation commonly found.
Pissodes terminalis Hopping (Lodgepole terminal weevil)	Pine, Scots and jack	Milner Ridge and Otter Falls	Found associated with P. strobi (Peck) in dead tops. Low incidences of infested saplings.
Pithyophthorus sp. (Bark beetles)	Pine, Scots and red	Southeastern section of the district	Frequently found in the bark of weakened and recently dead trees in the Menisino, Sandilands, Bedford, and Marchand areas.

Insect	Host(s)	Locality	Remarks
Proteoteras willingana (Kft.) (Boxelder twig borer)	Maple, Manitoba	Throughout the range of the host in the district	Light infestations common.
Protoboarmia porcelaria indicataria Wlk. (Dotted line looper)	Pine, jack and red Spruce, white and black Fir, balsam	Throughout the forested sections of the district	Scattered low populations common; no significant damage.
Pulicalvaria thujaella Kft. (A cedar leaf miner)	Cedar, eastern White	Southeastern section and Belair Provincial Forest	Scattered light leaf mining common in cedar stands.
Pyrrhalta decora (Say)(Gray willow-leaf beetle)	Willow Aspen, trembling	Eastern half of the district and Interlake section	Patches of moderate to severe skeletonizing along the Bissett highway, south of O'Hanley Creek. Generally widely scattered and light in other areas.
Recurvaria canusella Freeman (Needle miner)	Pine, jack	Throughout the eastern half of the district	Scattered light needle mining of jack pine common, particularly in the southeastern section.
Rhabdophaga salicibates	Willow	Eastern half of the district and Lundar Beach	Occasional, isolated and localized light gall infestations.
Rhabdophaga strobiloides O.S. (Willow cone-gall midge)	Willow	Throughout the forested sections of the district	Occasional localized, light to moderate infestations in the Dawson Cabin, Meditation Lake, and Otter Falls areas; generally widely scattered, localized, and light.
Rhogogaster californica Nort. (A sawfly)	Alder Birch, white	Throughout the forested sections of the district	Occasional scattered, localized, light defoliation.

Insect	Host(s)	Locality	Remarks
Saperda concolor Lec. (Poplar-gall saperda)	Willow	Sundown and Beaver Creek	Localized light infestations.
Schizura concinna (J.E. Smith)(Red-humped caterpillar)	Willow Aspen, trembling	Throughout the eastern half of the district and Interlake section	Noticeable increase in populations. Widely scattered light to moderate defoliation of individual small trees, particularly in the eastern half of the district.
Sciaphila duplex Wlshm. (A leaf roller)	Aspen, trembling	Throughout the district including Weaver Lake in the northern aerial survey section	More frequently collected than last year. Light infestations well distributed throughout the district.
Semiothisa spp. (Loopers)	Pine, jack and red Tamarack Spruce, black Fir, balsam	Throughout the district including the northern aerial survey section	Though most species were commonly found, populations were generally low and damage negligible. S. bicolorata Fabr. was common on jack pine; S. sexmaculata Pack. common on tamarack; S. signaria dispuncta Wlk. common on black spruce and balsam fir; and S. oweni Swett. occasionally found on tamarack in the Rennie, Pine Falls and Beaver Creek areas.
Tetralopha aplastella Hlst. (Aspen webworm)	Aspen, trembling	Throughout the district	Scattered light infestations common.
Tetralopha robustella Zell. (Pine webworm)	Pine, jack	Sundown and Whitemouth Lake	Infestations very light and scattered.
Thecabius affinis Kalt. (Leaf-gall aphid)	Poplar, balsam Aspen, trembling	Throughout the eastern half of the district and at Camp Morton	Occasional widely scattered, localized light leaf infestations.

Insect	Host(s)	Locality	Remarks
Toumeyella numiscmaticum P.& M. (Pine tortoise scale)	Pine, jack and Scots	Southeastern section of the district	Occasional saplings light to moderately infested in the Sandilands, Badger, and Menisino areas; light in the Marchand and Falcon Lake areas.
Trichiosoma triangulum Kby. (A sawfly)	Willow Alder Birch, white	Eastern half of the district and Interlake section	Widely scattered, localized light defoliation.
Xylomyges dolosa Grt. (A Noctuid)	Aspen, trembling	Throughout the eastern half of the district and near Hodgson	Scattered light infestations.
Zeiraphera diniana Gn. (Spruce tip moth)	Tamarack	Throughout the range of tamarack in the district	Scattered low populations; no significant damage.
Zeiraphera fortunana Kft. (Spruce bud moth)	Spruce, white	Marchand, Birds Hill, Malonton, and Rosenburg	Light bud damage.
Zelleria haimbachi Busck. (A pine needle miner)	Pine, jack	Milner Ridge and Rosenburg	Very light needle mining.
Zeugophora sp. (A leaf mining beetle)	Poplar, balsam Aspen, trembling	Throughout the eastern half of the district	Occasional localized, light leaf mining, mainly to saplings.

DISEASE CONDITIONS

JACK-PINE MISTLETOE, Arceuthobium americanum Nutt. ex Engelm.:- Special efforts have been made during recent years to establish the distribution of jack-pine mistletoe in the district. The main centre of infection lies east and south of Traverse Bay in the general area of the Belair Provincial Forest and includes Elk Island and Victoria Beach. Mistletoe has been found as far south as Stead in this area.

Concentrations of mistletoe brooms were detected during aerial surveys this year at the eastern ends of both Punk and Black islands.

In 1967 mistletoe was found northeast of Clements Point near the Hole River Indian Reserve, establishing the presence of the disease on the east side of Lake Winnipeg.

Brooms found on jack-pine in the Dawson Cabin area of the Sandilands Provincial Forest proved to be caused by A. pusillum Peck., a mistletoe which normally occurs on spruce.

The hyperparasite, Wallrothiella arceuthobii (Pk.) Sacc. was found on mistletoe plants in the north end of the Belair Provincial Forest.

SPRUCE MISTLETOE, Arceuthobium pusillum Peck.:- Spruce mistletoe is found at scattered points throughout the Manitoba Lowlands and Rainy River forest sections in the district and eastern limits of its range have been established in the Birch Point area of Buffalo Bay and near Falcon Lake, Seven Sisters, and McArthur Falls.

Aerial observations this year determined the presence of spruce mistletoe on Hecla, Black, and Punk islands and along the east side of Lake Winnipeg from Virrs Point south to the Black River.

SPRUCE NEEDLE RUSTS, Chrysomyxa spp.:- C. ledi deBary occurred on Hecla Island and at scattered points throughout the eastern half of the district including the northern aerial survey section. Needle infections were generally light though pockets of moderate to severe were found on Hecla Island and in the Point Du Bois and Telford areas and a light to moderate infection occurred at Shallow Lake.

Light infections of C. ledicola Lagerh. were common throughout the district including the northern aerial survey section. Pockets of moderate to severe infection occurred in the Otter Falls and Riverton-Hodgson areas and occasional moderately infected individual trees were observed at Obukowin and Stevenson lakes and near Manigotogan.

FROST DAMAGE:- Frosts occurring in the first half of June caused fairly widespread damage to foliage of both deciduous and coniferous trees, particularly in the eastern half of the district. Damage was most noticeable on green ash and bur oak but was also evident on trembling aspen and Manitoba maple in some areas. Wilting of the new buds and current needles of spruce and balsam fir was observed at scattered localities throughout the eastern half of the district.

LEAF AND TWIG BLIGHT OF POPLARS, Pollaccia spp.:- Though well distributed throughout the district, including the northern aerial survey section, infection levels of P. radiosa (Lib.) Bald. & Cif. on trembling aspen were generally somewhat lower than last year. Scattered pockets of moderate to severe shoot infection were observed in the Wallace Lake and Long Lake areas and light to moderate in the northern part of the Interlake section, in the Whiteshell Provincial Park, and near Middlebro. The study plot at Narcisse was reexamined for infected shoots but, though light infections were seen in the vicinity of the plot, none were found on the tagged trees.

P. elegans Serv. was found on balsam poplar on Hecla Island and in the Ft. Alexander, Point Du Bois, and Long Lake areas. All infections were localized and light.

LEAF RUSTS, Melampsora spp.:- Localized moderate to severe infections of willow by M. bigelowii Thum. were again common at widely scattered points throughout the district including the northern aerial survey section. The hyperparasite Eudarluca australis Speg. was found in the St. Labre and Hodgson areas.

M. medusae Thum., a rust on trembling aspen, was also commonly found at scattered points throughout the district. Leaf infections were generally light but occasional moderate to severe infections of young trees were observed in some areas.

A light infection of M. abieti-capraerum Tub. was found on balsam fir needles near Seven Sisters and localized moderate to severe leaf infections of willow occurred in the Hecla, Oak Point, and Wallace Lake areas.

LEAF SPOTS OF BALSAM POPLAR, Septoria musiva Pk. and Linospora tetraspora Thompson:- These leaf spots, usually closely associated, were again commonly found throughout the district. Moderate to severe infections were recorded in the Birds Hill, Red Rose, and Hecla Island areas but were generally light throughout the remainder of the district.

RUSTS, Gymnosporangium spp.:- G. clavipes Cooke & Peck was again found at scattered points throughout the district occurring on both juniper and saskatoon. Though moderate infections were found on juniper, saskatoon was only lightly infected in most areas.

Moderate to severe infections of G. clavariaforme (Jacq.) DC. were found on juniper and saskatoon in the Contour, Dawson Cabin, and Poplarfield areas.

A light infection of G. corniculans Kern on mountain ash was observed at Red Rock Lake.

INK SPOT, Ciborinia whetzelii Seaver:- Traces of this leaf spot were commonly found scattered throughout the district including the northern aerial survey section. Up to 10 percent of the leaves were infected in small patches in the Middlebro, Whitemouth Lake, and Wanipigow Lake areas.

OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Caliciopsis calicioides (Ell. & Ev.) Fitzp. (Bark fungus)	Poplar, balsam	Wampum	Common on mature trees.
Chrysomyxa arctostaphyli Diet. (Yellow witches' broom on spruce)	Spruce, black	Cat, Wallace, and Weaver lakes	Occasional isolated trees infected with single brooms.
Ciborinia foliicola (Cash & Davidson) Whetzel (Black rib of willow)	Willow	Throughout the forested sections of the district including the northern aerial survey section	Localized light leaf infections found as far north as Elliot Lake.
Coccomyces hiemalis Higgins (Shot-hole of cherry)	Chokecherry Pincherry	Throughout the district	Scattered patches of moderate to severe infection.
Coleosporium asterum (Diet.) Syd. (Needle rust)	Pine, jack	Badger, Sandilands, and Hole River	Up to 70% of the old needles infected on scattered young trees in the Badger and Sandilands areas. A trace of infection at Hole River.
Cronartium commandrae Peck (Commandra rust)	Pine, jack	Hadashville	Occasional trees lightly infected.
Diatrype disciformis (Hoffm. ex Fr.) Fr.	Alder	Red Willow Lake	Localized light infection.
Diplodia tumefaciens (Shear) Zalasky (Globose gall of poplars)	Aspen, trembling Poplar, balsam	Buffalo Bay, Sandilands, Red Rock Lake, Sandy River, and Sassaginigak Lake	Occasional single trees moderately galled in the Birch Point and Sandilands areas. Localized light infections elsewhere.
Drepanopeziza populorum (Desm.) Hohn. (Leaf spot)	Aspen, trembling	Eastern half of the district	Patches of moderate to severe leaf infection in the Sundown, Wallace Lake, and O'Hanley River areas.
Euryachora betulina (Fr.) Schroet. (Tar spot)	Birch, white and swamp	Throughout the forested areas of the district as far north as Shallow Lake	Small patches of light leaf infection.

Organism and Disease	Host(s)	Locality	Remarks
Fomes spp. (Trunk rots)	Spruce, black and white Alder	Family, Molson and Red Willow lakes	F. pinicola (Swartz) Cke. found on black spruce at Family Lake; F. scutellatus (Schw.) Cke. on alder at Red Willow Lake; and F. subroseus (Weir) Overh. on white spruce at Molson Lake.
Gnomonia ulmea (Schw.) Thum. (Leaf spot)	Elm, white and Chinese	Throughout range of white elm in the district	Light infections common. Occasional patches of moderate to severe leaf infection.
Hypodermella ampla (Davis) Dearn. (Needle cast)	Pine, jack	Eastern half of the district	Moderate to severe infections of scattered saplings in the Menisino and Milner Ridge areas. Scattered light needle infections common.
Lenzites saeparia (Wolf) Fr. (Brown cubical pocket rot)	Aspen, trembling	Gem Lake	Conks found on one fallen tree.
Lophodermium pinastri (Schrad. ex Fr.) Chev. (Needle cast)	Pine, jack	Badger	Scattered light needle infections.
Melampsorella caryophyllacearum Schroet. (Yellow witches' broom on balsam fir)	Fir, balsam	Caribou Tower, Betula Lake, Bird Lake, and Black River	Broomed trees isolated and widely scattered.
Melampsoridium betulinum (Pers.) Kleb. (Leaf rust)	Birch, swamp	Telford and Riverton	Moderate to severe leaf infection of individual scattered trees.
Peridermium harknessii J.P. Moore (Western gall rust)	Pine, jack	Throughout the range of jack pine in the district	Infections generally light and scattered.
Peridermium stalactiforme Arth. & Kern (Stalactiform rust)	Pine, jack	Contour Tower	A few trees lightly infected.

Organism and Disease	Host(s)	Locality	Remarks
Phaoramularia maculicola (Rom. & Sacc.) Sutton (A leaf spot)	Aspen, trembling	Throughout the district as far north as Molson Lake	Scattered light leaf infections common; moderate to severe patches of infection in the Woodridge, Marchand, Meditation Lake, Hodgson, and Red Rose areas.
Phragmidium speciosum (Fries) Cooke (Rust)	Rose	Eastern half of the district as far north as Molson Lake	Scattered light infections of leaves, stems, and fruit common; moderate to severe localized infections at Marchand and Powerview.
Poria obliqua (Pers. ex Fr.) Karst.	Birch, white	Obukowin and Weaver lakes	Light infections.
Pucciniastrum epilobii Otth. (Needle rust)	Fir, balsam	Eastern half of the district as far north as Molson Lake	Scattered traces of needle rust common.
Pucciniastrum geoppertianum (Kuhn.) Kleb. (Needle rust)	Fir, balsam	Moose Lake, Caribou Tower, and Wallace Lake	Traces of needle rust.
Ramularia rosea (Fckl) Sacc.	Willow	Sundown, Riverton, and Flintstone Lake	Localized light leaf infections.
Rhytisma punctatum Pers. ex Fr. (Speckled tar spot)	Maple, mountain	Hecla Island	Localized light to moderate leaf infection.
Rhytisma salicinum Pers. ex Fr. (Tar spot)	Willow	Throughout the district	Widely scattered localized, light leaf infections common. Some moderately to severely infected clumps in the Otter Falls area.
Septoria caraganae (Jacz.) Died. (Caragana leaf spot)	Caragana	Throughout the district	Light to severe leaf infections common.
Septoria didyma Fckl. (Leaf spot)	Willow	Wampum and St. Labre	Localized light leaf infections.

Organism and Disease	Host(s)	Locality	Remarks
Taphrina amentorum (Sadeb.) Rostr.	Alder	Little Grand Rapids	Localized light infection.
Uncinula salicis (Fr.) Wint. (Powdery mildew)	Willow Poplar, balsam	Throughout the district as far north as Molson Lake	Scattered, localized light leaf infections common; occasional moderate to severe infections in the Sundown and Otter Falls areas.

CENTRAL LOWLANDS DISTRICT

MANITOBA

1969

by

D. N. Shepherd

INTRODUCTION

Field surveys to determine the status of forest insects and tree diseases were carried out from May 26 to September 12. Totals of 722 insect and 238 disease samples were submitted to the Winnipeg Laboratory.

Heavy June frosts caused severe damage to deciduous stands in the Porcupine Mountains as well as to new growth on white spruce in the northern half of the district and in Riding Mountain National Park.

There was a sharp decline in the intensity of the spruce budworm infestation in the Dawson Bay area. A complete collapse of the fall cankerworm infestation in the Dauphin area occurred and willow leaf beetle populations were significantly lower throughout the district.

Notable increases in the populations and distribution of the large aspen tortrix were recorded in a number of areas.

Surveys indicated a significant increase in both distribution and intensity of the leaf and twig blight of poplar Pollaccia radiosa (Lib.) Bald. & Cif.; of the ink spot of aspen Ciborinia whetzelii Seaver; and of the leaf spot Drepanopeziza populorum (Desm.) v. Hohn.

Considerable flooding of stands, brought about by beaver activity, was evident in the Riding Mountain National Park and poor drainage caused a high mortality of all tree species along the Grand Rapids highway.

In addition to general sampling, the following sub-projects were carried out: (1) studies to determine the spread of the introduced larch sawfly parasite Olesicampe sp. nr. nematorum (Tschek); (2) larch sawfly egg population studies at permanent plots; (3) a retally of trees at permanent plots to study the affects of Pollaccia radiosa (Lib.) Bald. & Cif. on trembling aspen; (4) establishment of permanent plots to monitor spruce budworm populations; (5) mass collections of large aspen tortrix, alder sawfly and larch sawfly for parasite studies; (6) special collections of gall insects; and (7) small mammal population studies.

INSECT CONDITIONS

LARGE ASPEN TORTRIX, Choristoneura conflictana (Wlk.):- For the second consecutive year, populations of this aspen defoliator remained at infestation levels in the Riding Mountain National Park. Light to moderate damage was observed in the Wasagaming area and west of the town of Riding Mountain. A considerable decline in populations occurred along the Lake Audy and Norgate roads.

A notable increase in populations occurred in the Dauphin Lake area with pockets of moderate to severe defoliation observed in the Oak Brae-Weiden-Cayer areas, while patches of light to moderate defoliation were common in the Toutes Aides-Meadow Portage-Volga areas.

In the Interlake section of the district, there was a marked increase in population levels and distribution of this defoliator. Moderate to severe defoliation was common along Highway 6 from Ashern to Mulvihill.

Though widely distributed throughout the remainder of the district, populations were low and defoliation generally light.

LEAF ROLLER, Sciaphila duplex Wlshm.:- This leaf roller of aspen, often associated with C. conflictana, was widely distributed throughout the district. Population levels remained low and defoliation was generally light.

AMERICAN ASPEN BEETLE, Gonioctena americana (Schaef.):- There was a slight increase in populations of this early season defoliator of aspen, and for the second consecutive year moderate to severe defoliation occurred in the Birdtail Valley of Riding Mountain National Park. Pockets of severe damage to aspen regeneration were observed at Blue Lakes in the Duck Mountain Provincial Park and light to moderate defoliation at Devils Lake, Gypsumville, Mafeking, Anama Bay, Rolling River and Lake Audy. Population levels were low and damage generally light throughout the remainder of the district.

UGLY NEST CATERPILLAR, Archips cerasivoranus Fitch:- Though populations of this defoliator remained relatively low, isolated pockets of severe damage occurred. Moderate to severe defoliation of chokecherry was evident at Swan River, Homebrook, Pine River, Broken Pipe Lake and along the Agassiz ski road. Severe damage to chokecherry was observed in the Shell Valley where over 100 tents were counted in 100 feet of hedgerow. Patches of trembling aspen regeneration were moderately defoliated at Homebrook and along the Vogar road. Widely scattered nests were found on chokecherry throughout the remainder of the district.

YELLOW-HEADED SPRUCE SAWFLY, Pikonema alaskensis (Roh.):- Larval collections of this sawfly were made throughout the district. Defoliation to ornamentals and small open growing trees was generally light except for one or two locations. Moderate to severe damage to black spruce plantings occurred at Childs Lake for the second consecutive year while moderate damage to white spruce ornamentals was observed at Methley and Rainbow beaches on Lake Dauphin.

GREEN-HEADED SPRUCE SAWFLY, Pikonema dimmockii (Cress.):- This sawfly was collected throughout the district and was usually found in association with P. alaskensis. Population levels were generally low and damage light.

SPRUCE BUDWORM, Choristoneura fumiferana (Clem.):- There was a notable decline in the population levels of this insect throughout the district. The infestation in the Lake Winnipegosis area at Dawson Bay, Pelican Lake and Birch Island collapsed and only a few scattered larvae were collected. Low populations causing very light damage, were common throughout the remainder of the district.

LARCH SAWFLY, Pristiphora erichsonii (Htg.):- Populations of this defoliator of tamarack remained at infestation levels in many areas of the district. In the Interlake, moderate to severe defoliation occurred in the Grand Rapids area. Scattered moderate to severe areas of defoliation were observed at Ketchum and Laurie lakes in the Duck Mountain Provincial Park and at the Overflowing River north of Mafeking. Populations declined and defoliation was very light in the Riding Mountain National Park.

Sequential sampling of egg populations was carried out in permanent study plots, and the results are tabled below.

Location	Plot No.	No. of shoots examined	No. of shoots curled	Infestation rating 1969
Whitewater Lake 14-40-562	01	60	0	light
Cowan 14-38-577	01	60	0	light
Mafeking (Steep Rock) 14-36-585	01	60	0	light

Larval dissections indicated that 8% died of unknown causes, while 6% were parasited by Mesoleius tenthredinis Morley. No parasitism by Bessa harveyi (T.T.) was evident.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Aceria parapopuli (Keifer)(Poplar bud-gall mite)	Aspen, trembling Poplar, balsam Poplar, hybrid Willow	Reeve, Meadow Portage, Kenville, Alpine, Madge Lake Road, Grand Rapids, Gypsumville, Moosehorn, Makinak, Bell and West Blue lakes, the Birdtail River district of the Riding Mountain National Park and Methley Beach on Lake Dauphin	Severe damage to most poplar sp. at Methley Beach; pockets of moderate to severe damage at Meadow Portage, Gypsumville and and Moosehorn; light elsewhere.

Insect	Host(s)	Locality	Remarks
Acleris variana (Fern.) (Black-headed budworm)	Spruce, white and Colorado	Roblin, Toutes Aides, Dauphin, Clear Lake, Baldy Mountain, Blue Lakes, Ethelbert and Hwy. 10 at the Red Deer River	Low populations; a trace to light damage.
Acraspis villosa Gill. (Hairy oak gall)	Oak, bur	Broken Pipe and Dauphin lakes, Meadow Portage, Lake Manitoba Narrows and Riding Mountain National Park	Scattered, light infestations.
Acronicta innotata Gn. (A dagger moth)	Birch, white	Waterhen River and Grand Rapids	Low populations; no visible damage.
Adelges cooleyi Gillette (Cooley spruce gall aphid)	Spruce, Colorado black and white	Dead Ox Creek, Durban, Waterhen River, Grand Rapids, Moosehorn, Inglis, Camperville and at Deep, Mantagao and Blue lakes	Severe infestations of white spruce 5 miles east of the Blue Lakes and to scattered white spruce at Childs, Dauphin and Deep lakes; light to moderate damage to black spruce at the Waterhen River; elsewhere damage was light.
Adelges lariciatus (Patch)(Spruce pineapple gall aphid)	Spruce, white black and Colorado	Dauphin, Dawson Bay, Ethelbert, Rolling River, Waterhen River, Gypsumville, Camperville, Cowan and Durban	Severe in a white spruce shelterbelt at Dauphin and on fringe black spruce at Cowan; light infestations in remainder of district.
Alsophila pometaria (Harr.) (Fall cankerworm)	Maple, Manitoba	Mafeking	A trace of damage to roadside maple at Mafeking.

Insect	Host(s)	Locality	Remarks
Amauronematus spp. (Sawflies)	Aspen, trembling Willow	Throughout the district	Low populations; occasionally light feeding damage.
Anacampsis innoculella Zell. (A leaf roller)	Aspen, trembling Poplar, balsam	St. Martin, Ashern, Lake Manitoba Narrows and at Steep Rock and Clear lakes	Low populations usually found with a complex of leaf rollers.
Anoplonyx luteipes (Cress.) (A sawfly)	Tamarack	Throughout the range of tamarack	Common, but no significant defoliation.
Aphid spp.	Tamarack, Birch, dwarf Aspen, trembling Alder Caragana Ash, green Hawthorn	Throughout the district	Caragana infested in shelterbelt at Kenville; occasional tree severely infested at Baldy Mountain and Grahamdale.
Archippus packardianus (Fern.) (A solitary web-maker)	Spruce, white black, and Colorado	Waterhen River, Dauphin, Gypsumville and Riding Mountain National Park	Low populations; no visible damage.
Archips fervidanus (Clem.) (Oak webworm)	Oak, bur	Eddystone, Lake Manitoba Narrows, Gypsumville and Riding Mountain National Park	Moderate damage to regeneration oak at Gypsumville; occasional tent elsewhere.
Archips negundanus Dyar (A leaf roller)	Maple, Manitoba Elm, white	Gilbert Plains, Norgate, Riding Mountain National Park and Inglis	Low populations; a trace of damage.
Arge clavicornis (Fab.) (Willow sawfly)	Birch, dwarf Alder	Riding Mountain National Park	Low populations; a trace of damage.

Insect	Host(s)	Locality	Remarks
Badebecia urticana Hbn. (A leaf roller)	Aspen, trembling Elm, white Maple, Manitoba	Laurier, Roblin, Makaroff, Dauphin, Gilbert Plains and Wasagaming	Low populations; very light damage.
Biston cognataria (Gn.)(Pepper and salt moth)	Maple, Manitoba Poplar sp.	Durban and Makaroff	Low populations; no damage.
Campaea perlata (Gn.) (Fringed looper)	Elm, white Maple, Manitoba Willow	Makaroff, Roblin, Kenville, Venlaw and Whitewater Lake	Low populations; no visible damage.
Catocala relicta Grt. (A noctuid)	Alder Willow	Gilbert Plains and Whitewater Lake	Low populations; no damage.
Cecidomyia negundinis Gill. (Boxelder gall midge)	Maple, Manitoba	Throughout range of maple	Light damage.
Choristoneura roseceana Harr. (Oblique-banded leaf roller)	Aspen, trembling Maple, Manitoba Poplar, balsam Willow	Toutes Aides, Waldersee, Kenville, Clear Lake and Rolling River	Light damage at Waldersee; a trace elsewhere.
Chrysomela crotchi Brown (Aspen leaf beetle)	Aspen, trembling	Riding Mountain National Park	Light larval damage to regeneration aspen.
Cimbex americana Leach (Elm sawfly)	Poplar, balsam Aspen, trembling Willow	Waterhen River, Grand Rapids and the Blue Lakes	Very low populations; only a trace of damage.
Clepsis persicana Fitch (A solitary leaf roller)	Willow	St. Martin	Light damage to willow in area.
Compsolechia niveopulvella Cham. (A leaf tier)	Aspen, trembling	Dawson Bay	A single larva collected.
Croesus latitarsus Nort. (Dusky birch sawfly)	Birch, dwarf Alder	Waterhen River, Blue Lakes and Grand Rapids	Pockets of light to moderate damage to Alder sp. at East Blue Lake; light damage to single thickets elsewhere.

Insect	Host(s)	Locality	Remarks
Depressaria groteella Rob. (Solitary leaf roller)	Hazelnut	Riding Mountain National Park	Light damage to most thickets in area.
Dioryctria reniculella (Grt.) (Spruce coneworm)	Spruce, white	Moosehorn, Blue Lakes and Hwy. 10 at Red Deer River	Only a trace of damage.
Empria multicolor Nort. (A sawfly)	Birch, swamp	Meadow Portage	Low populations; no damage.
Enargia decolor Wlk. (A noctuid)	Aspen, trembling	Weiden, Ethelbert, Gilbert Plains, Ashern, Homebrook and Riding Mountain National Park	A trace of defoliation.
Epinotia solandriana Linn. (A leaf roller)	Aspen, trembling Poplar, balsam Birch, dwarf	Kenville and Riding Mountain National Park	Scattered light leaf rolling.
Erannis tiliaria (Harr.)(Linden looper)	Maple, Manitoba	Norgate, Dauphin and Waldersee	Low populations; very light damage.
Eriophyes fraxiniflora (Felt) (Ash flower gall)	Ash, green	Kenville	A trace of damage on most ash in shelterbelt.
Eriosoma americanum (Riley)(Woolly elm aphid)	Elm, white	Throughout range of elm in the district	Moderate damage in shelterbelts at Durban and Kenville; light elsewhere.
Euparecphora purca (Cr.) (Ash sawfly)	Ash, green	Dauphin	A trace of damage to ornamentals in Vermillion Park.
Eupithecia spp. (Loopers)	Willow Alder sp. Tamarack Spruce, white	Waterhen River, Red Deer River, Oak Lake and Riding Mountain National Park	Low populations causing very light damage; species collected: E. ravocostaliata Pack., E. luteata Pack., E. filmata Pears., E. gelidata Moesch.

Insect	Host(s)	Locality	Remarks
Eupsilia tristigmata Grt. (A noctuid)	Maple, Manitoba	Dauphin, Neepawa and Lake Dauphin	A trace of feeding damage to shoreline maple at Lake Dauphin.
Fenusa dohrnii (Tischb.) (European alder leaf miner)	Alder	Throughout range of alder in district	Light to moderate pockets of mining damage at Blue Lakes, Birch River and Grand Rapids; moderate damage on occasional shrubs at Squance and Greyling lakes, and Steep Rock River; light elsewhere.
Feralia jocosa (Guen.) (Green-striped spruce caterpillar)	Spruce, white and Colorado	Kenville, Dauphin, Devils Lake, Vogar Road, Pine River, Camperville and Riding Mountain National Park	No damage.
Gracillaria negundella Cham. (Boxelder leaf roller)	Maple, Manitoba	Dauphin, Waldersee, Makinak, Gilbert Plains, Mafeking and the town of Riding Mountain	Low populations; light damage.
Griselda radicana Wlshm. (A micro moth)	Spruce, white	Overflowing and Red Deer rivers, Madge Lake Road, Gilbert Plains and Waterhen River	Very low populations; a trace of damage.
Hemichroa crocea (Fourcroy) (Striped alder sawfly)	Alder	West Blue Lake	Severe skeletonizing of alder around West Blue Lake.
Hylurgopinus rufipes (Eichh.) (Native elm bark beetle)	Elm, white	Makinak and Dauphin	Light infestation of dead elm.
Hypagyrtis nebecularia Gn. (A looper)	Elm, Chinese Caragana	Roblin and Kenville	No damage.
Hypagyrtis piniata Pack. (A looper)	Spruce, white	Clear Lake	A single larva collected.

Insects	Host(s)	Locality	Remarks
Hyphantria cunea (Drury)(Fall webworm)	Willow	Dauphin	Moderate feeding damage to occasional clump.
Itame loricaria Evers. (A looper)	Aspen, trembling Willow	Plumas, Dauphin, Arden, Toutes Aides, Mafeking, Gilbert Plains, Waterhen River, Homebrook and Ashern	Low populations; no significant damage.
Lambdina fiscellaria fiscellaria (Guen.) (Hemlock looper)	Spruce, white	Hwy. 10 at Red Deer River	Low populations; no damage.
Lithocolletis salicifoliella Cham. (Aspen blotch miner)	Willow	Roblin	Light damage to occasional willow shelterbelt.
Lithophane amanda Sm. (A noctuid)	Birch, white	Waterhen River	Single larva collected.
Lobophora nivigerata Wlk. (A looper)	Alder	Grand Rapids	No visible damage.
Lomanaltes educatalis Wlk. (A noctuid)	Alder	Whitewater Lake	A single larva collected; no visible damage.
Lycia ursaria Wlk. (A looper)	Willow	Mantagao Lake	Low populations; a trace of damage.
Malacosoma disstria Hbn. (Forest tent caterpillar)	Oak, bur	Riding Mountain National Park	A single larva collected; no visible damage.
Malacosoma lutescens (N. & D.) (Prairie tent caterpillar)	Chokecherry, eastern Rose	The aspen-oak area of the district, Lake Audy, Ethelbert and Gypsumville	Moderate feeding damage to Rose at Plumas and Ethelbert; light damage elsewhere.

Insects	Host(s)	Locality	Remarks
Malacosoma pluviale Dyar (Western tent caterpillar)	Chokecherry, eastern Willow Hazelnut	Devils Lake, Grand Rapids, Long Point and Anama Bay	Light feeding damage; only the occasional tent.
Mayetiola rigidae (O.& S.) (Beaked willow-gall fly)	Willow	Waterhen River, Makinak and Riding Mountain National Park	Light gall making in all instances.
Melanolophia canadaria Gn. (A looper)	Maple, Manitoba	Kenville	A single larva collected; no damage.
Mordwilkoja vagabunda (Walsh) (Poplar vagabond aphid)	Aspen, trembling	Throughout district	Pockets of severe infestation of regeneration aspen in the Camperville area; light gall making elsewhere.
Nematus pinquidorsum Dyar (A sawfly)	Birch, white Alder Willow	Grand Rapids and Grayling Lake	Low populations; a trace of damage.
Nematus ventralis Say (A sawfly)	Willow	Kenville	Light to moderate feeding damage to shelterbelt willow.
Neodiprion abietis Complex (Balsam fir sawfly	Spruce, white and black	Durban, Whitewater Lake and north of Mantagao Lake	Light damage to occasional black spruce north of Mantagao Lake.
Nepytia canosaria Wlk. (False hemlock looper)	Spruce, white	Dauphin	Low populations; no damage.
Neuroterus umbilicatus Bass. (Button galls)	Oak, bur	Rainbow Beach on Lake Dauphin	Light to moderate gall making on oak in area.
Neurotoma inconspicua (Nort.) (A plum web-spinning sawfly)	Cherry, pin	Swan River	Light damage to pin cherry in area.
Oligonychus ununguis (Jac.) (Spruce spider mite)	Spruce, white and Colorado	Makaroff, Kenville, Gilbert Plains, Million and Durban	Light to moderate infestation of white spruce at Million; light elsewhere.

Insects	Host(s)	Locality	Remarks
Operophtera bruceata (Hulst) (Bruce spanworm)	Aspen, trembling Maple, Manitoba Willow Oak, bur	Widespread throughout the district	Low populations; light damage.
Orthosia hibisci (Guen.) (A fruit worm)	Aspen, trembling Willow Elm, white	Laurier, Overflowing River, Durban, Makinak and Riding Mountain National Park	Low populations; light damage.
Parorgyia plagiata (Wlk.) (Grey spruce tussock moth)	Spruce, white	Audy and Whitewater lakes	Low populations; no visible damage.
Pemphigus populi-caulis Fitch (A gall aphid)	Poplar, balsam Cottonwood, plains	Grand Rapids and Rainbow Beach on Lake Dauphin	Severe gall infestations on scattered balsam poplar at Grand Rapids; light damage at Rainbow Beach.
Pemphigus populi-transversus Riley (A poplar petiole gall aphid)	Poplar, balsam Cottonwood, plains	Kenville, Long Point, Dauphin Beach and Oak Brae	Light gall infestations on scattered trees.
Petrova albicapitana (Busck.) (Pitch nodule maker)	Pine, jack	Grand Rapids, Cowan and Bell Lake	Scattered light infestations.
Phenacaspis pinifoliae (Fitch) (Pine needle scale)	Spruce, white and Colorado Pine, jack	Kenville, Ethelbert, Dauphin, Madge Lake Road and Devils Lake	Severe infestations of shelterbelt and ornamental white spruce in the Dauphin area; elsewhere light damage confined to occasional trees.
Phratora americana canadensis Brown (A solitary leaf beetle)	Aspen, trembling Willow	Baldy Mountain and Pine River	Light larval feeding on willow at Pine River.
Phyllocnistis populiella Cham. (Aspen leaf miner)	Aspen, trembling Poplar, balsam	Throughout the district	Widely scattered leaf mining.

Insects	Host(s)	Locality	Remarks
Phyllocolpa spp. (A sawfly)	Aspen, trembling Poplar, balsam Cottonwood, plains Willow	Waterhen River, Grand Rapids, Long Point, Anama Bay, Gypsumville, Overflowing River, Moosehorn and at East Blue, Bell and Dauphin lakes	P. nr. agama - widely distributed; pockets of moderate damage to balsam poplar at Gypsumville; P. nr. nigrata - light damage to willow at Dauphin Beach; and P. nr. robusta - light damage to trembling aspen.
Pissodes strobi (Peck) (White-pine weevil)	Spruce, white and black	Duck Mountain Provincial Forest, Deep Lake and Wasagaming	Moderate infestations of white spruce saplings at Valley River dam and in the Wasagaming area.
Plagodis alcoolaria Gn. (A looper)	Birch, white	Grand Rapids	Low populations; no visible damage.
Psilsocoris quercicella Clem. (A solitary leaf roller)	Oak, bur	Meadow Portage and Makinak	Low populations; a trace of damage to regeneration oak.
Pyrrhalta decora (Say) (Gray willow-leaf beetle)	Willow Aspen, trembling Balsam, poplar	Waterhen River, Homebrook, Grand Rapids, Dawson Bay, Overflow River and at Bell, Steep Rock and Childs lakes	Moderate larval feeding damage to occasional willow thickets at Bell and Childs lakes; low adult populations elsewhere.
Raphia frater Grt. (A noctuid)	Aspen, trembling	Waterhen River	Low populations; light damage.
Rhabdophaga strobiloides O.S. (Willow cone-gall midge)	Willow	Widespread throughout district	Pockets of moderate to severe gall making at Waterhen River and Grand Rapids; light in remainder of district.
Rhogogaster californica Nort. (A sawfly)	Birch, white	Bell Lake	Low populations; no damage.

Insect	Host(s)	Locality	Remarks
Schizura concinna (J.E. Smith) (Red-humped caterpillar)	Aspen, trembling Poplar, balsam Birch, white Oak, bur Rose	Grand Rapids and Meadow Portage	100% defoliation occurring within a pocket of aspen regeneration at Grand Rapids; light damage to other tree species.
Scolioptery libratix Linn. (A noctuid)	Willow	Pine River	Low populations; light damage.
Semiothisa spp. (Loopers)	Spruce, white and Colorado Tamarack Poplar, balsam Willow	Throughout the district	Populations generally low; no significant damage. S. bicolorata Fabr. on Colorado spruce at Dauphin; S. sexmaculata Pack. throughout the range of tamarack in the district; S. signaria dispuncta Wlk. on tamarack at Waterhen River.
Smerinthus cerisyi Kby. (A sphinx moth)	Willow	Dauphin	Light damage to single willow clump.
Syngrapha alias Ottol. (A semi-looper)	Fir, balsam Spruce, white and black	Grand Rapids and Whitewater Lake	Low populations; no damage.
Tetralopha aplastella Hlst. (Colonial web maker)	Aspen, trembling Oak, bur	Gypsumville, Moosehorn and Riding Mountain National Park	Scattered light infestations.
Tetralopha expandens Walker (Colonial web maker)	Oak, bur	Lake Manitoba Narrows and Makinak	Light infestation of regeneration oak.
Tortricid spp. (A leaf roller)	Most deciduous species	Throughout the district	Widespread populations; light damage.
Toumeyella numismaticum P.& M. (Pine tortoise scale)	Pine, jack	Cowan	Single regeneration tree lightly infested.

Insect	Host(s)	Locality	Remarks
Trichiosoma triangulum Kby. (A sawfly)	Willow Poplar, balsam Alder	Inglis, Grand Rapids, and at Blue and Bell lakes	Low populations; light damage.
Zeiraphera fortunana Kft. (Spruce bud moth)	Spruce, white	Throughout district	Generally low populations and light damage.
Zenobia pleonectusa manitobae Stand (An owlet moth)	Aspen, trembling	Makinak, Ethelbert and Oak Brae	Low populations; light damage.
Zeugophora scutellaris Suffr. (Cottonwood leaf mining beetle)	Poplar, balsam Cottonwood, plains Poplar sp.	Grayling Lake, Rainbow Beach and Makaroff	Moderate leaf mining damage to cottonwood plantings at Rainbow Beach on Lake Dauphin; light damage elsewhere.

DISEASE CONDITIONS

ASPEN SHOOT BLIGHT, Pollaccia radiosa (Lib.) Bald. & Cif.:- There was a definite increase in both the incidence and intensity of this annual disease. Pockets of moderate to severe shoot damage were observed along the Central Road of the Riding Mountain National Park and counts in this area revealed that most regeneration aspen along a half mile stretch had from 50 to 75% of their shoots infected. Severe localized infections were noted in the Birdtail Valley and along the Agassiz ski road in the McCreary area. Pockets of light to moderate damage were common around Clear and Audy lakes.

Localized pockets of moderate to severe damage were observed in the Blue Lakes area of the Duck Mountain Provincial Park, along the Garland-Singoosh Lake road, at Pine River and at Oak Brae on Lake Dauphin.

Though widely distributed throughout the remainder of the district, infections were generally light.

Tallies at the Clear Lake and Meadow Portage plots show a slight increase in infections. The figures obtained are summarized as follows:

Plot No. and Location	No. of tA Counted	% of Trees Infected				Av. % of Shoots Infected Per Tree			
		1966	1967	1968	1969	1966	1967	1968	1969
Clear Lake 01	20	100	100	66	95	22.7	12.3	3.5	5.2
Meadow Portage 01	20	22	0	0	1	2.5	0	0	.05

AN INK SPOT, Ciborinia whetzelii Seaver:- This disease of aspen was widely distributed throughout the district and notable increases in both incidence and intensity were evident. Severe foliage damage was observed along the Central Road of the Riding Mountain National Park where a count along one-half mile of roadside showed 30% of the foliage infected. Pockets of light to moderate leaf damage was noted along the Rolling and Waterhen rivers. Throughout the remainder of the district infections, though common, were generally light.

A LEAF SPOT, Drepanopeziza populorum (Desm.) Hohn.:- A definite increase was noted in the Dauphin Lake-Makinak areas. Pockets of severe damage were observed along Highway 20 east of Dauphin, while most aspen clones in the Makinak-Ochre River area suffered light to moderate foliage damage. In the Interlake area at Spearhill, severe damage to the occasional fringe aspen was evident.

SPRUCE NEEDLE RUSTS, Chrysomyxa spp.:- Severe infections of black spruce saplings by C. ledi (Alb. & Schw.) deBary occurred east of Gypsumville. Light infections of black spruce were noted at Grand Rapids and Waterhen River and of white spruce at Whitewater Lake. A trace of this rust was detected on Colorado spruce in a shelterbelt at Durban. Scattered moderate infections of C. ledicola (Pk) Lagerh. occurred on black spruce at Venlaw, East Blue and Whitefish lakes and Rolling River. Light infections of both black and white spruce were common throughout the remainder of the district. A few white spruce at the Blue Lakes were moderately infected by C. weirii Jacks.

Brooms caused by C. arctostaphyli Diet. were found on both white and black spruce. Occasional white spruce at Venlaw were severely infected with some individual trees having as many as eight brooms. Light brooming of white spruce was observed at Ashern, Pine River and Timberton. Brooms on black spruce were common at Long Point on Lake Winnipeg and at Camperville.

OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Apiosporina collinsii (Schw.) Hohn. (A witches' broom)	Saskatoon	Grandview, Ashern and Red Deer River	Common in these areas but infections light.
Arceuthobium americanum Nutt. ex Engelm. (Jack-pine mistletoe)	Pine, jack	Cowan, Long Point and Devils Lake	Moderate infection of jack pine in these areas.

Organism and Disease	Host(s)	Locality	Remarks
Arceuthobium pusillum Pk. (Eastern dwarf mistletoe)	Spruce, white and black	Long Point, Anama Bay and Mantagao Lake	A high mortality of white spruce along the Anama Bay road; black spruce moderately infected at Long Point and north of Mantagao Lake; the Mantagao Lake collection may be a new collection point.
Coccomyces hiemalis Higgens (Shot-hole of cherry)	Chokecherry, eastern Cherry, pin	Throughout the district	Patches of moderate foliage infection at Roblin, Pine River and in the Riding Mountain National Park; generally light elsewhere.
Coleosporium asterum (Diet.) Syd. (Needle rust)	Pine, jack	Bellsite, Cowan, Grand Rapids, Rolling River and Bell and Blue lakes	Very light infections.
Cronartium comandrae Peck (Comandra rust)	Pine, jack Comandra sp.	Cowan, Grandview, Grand Rapids, Spearhill and at Blue and Whitewater lakes.	Light gall making at Blue Lakes and Cowan; alternate host moderately to severely infected in other areas.
Dibotryon morbosum (Schw.) T. & S. (Black knot of cherry)	Chokecherry, eastern Cherry, pin	Durban, Merridale, Riding Mountain National Park, and at Blue, Ebb and Flow lakes	Patches of moderate to severe infections in these areas; more common on chokecherry.
Diplodia tumefaciens (Shear) Zalasky (Globose gall of poplars)	Aspen, trembling Poplar, balsam	Kenville, Bellsite, Camperville, Methley, Mulvihill and at Ebb and Flow lakes	Pockets of moderate to severe damage to poplar sp. at Camperville and Methley; elsewhere damage confined to occasional trees.
Frost damage	Birch, white Spruce, white	Porcupine Provincial Forest and Duck Mountain Provincial Park	Severe frost damage to birch stands along the eastern escarpment of the Porcupine Mountains and to regeneration white spruce in the Duck Mountain Provincial Park.

Organism and Disease	Host(s)	Locality	Remarks
Hypoxylon mammatum (Wahl) Miller (Hypoxylon canker)	Aspen, trembling	Ogilvie, Laurier, Winnipegosis, Grandview and Riding Mountain National Park	Usually one or two cankers confined to a single tree.
Laxitertum crassum (Lev.) Lentz (A fungus)	Maple, Manitoba	Roblin	A light infection on over-mature maple in a shelterbelt.
Lophodermium piceae (Fckl.) Hoehn.	Spruce, white	Clear Lake	Light infections of white spruce.
Melampsora abieti capraearum Tubeuf (A rust)	Willow	Wasagaming	Light infections of most willow in area.
Melampsora bigelowii Thum. (Larch-willow rust)	Tamarack Willow	Riding Mountain National Park, Dauphin, Mafeking, Roblin, and at Singoosh and East Blue akes	Pockets of moderate infections of willow in the Dauphin and Mafeking areas; generally light on tamarack.
Peridermium harknessii J.P. Moore (Western gall rust)	Pine, jack and lodgepole	Gypsumville, Grand Rapids, Pine River, Cowan, Birch River and at Bell, Steep Rock and Devils lakes	Very light infections; found mostly on jack pine.
Phaeoramularia maculicola (Rom. & Sacc.) Sutton	Aspen, t rembling	Valley River Dam, Grand-view and Grand Rapids	Very light infections of occasional trees.
Pollaccia elegans (Serv.) (Leaf and twig blight of poplar)	Pop ar, balsam	Shortdale and East Blue Lake	A pocket of regeneration balsam poplar lightly infected at East Blue Lake; a trace of shoot blight on a single tree at Shortdale.

Organism and Disease	Host(s)	Locality	Remarks
Puccinia spp. (Rusts)	Gooseberry Buffaloberry	Anama Bay and at Mantagao, Squance, Whitewater, East Blue and Whitefish lakes	Species collected in order of importance: P. caricis var. grossulariata - common on Gooseberry at Squance Lake; P. coronata - common on Buffaloberry at Whitefish Lake; and P. recondita - a single collection made.
Rhytisma salicinum (Pers.) Fr. (Tar spot on willow)	Willow	Dauphin and West Blue lakes	Pockets of moderate damage at West Blue Lake; a marked decline elsewhere in the district.
Sclerophoma pithyophila (Cda.) Hohn.	Juniper	Devils Lake	Light localized infection.
Septoria didyma Fckl. (Leaf spot)	Willow	West Blue Lake	Light infections on scattered willow.
Septoria musiva Pk. (A leaf blight)	Poplar, balsam	Throughout the district	Moderate to severe at Gypsumville, Whitewater Lake and Spearhill; light elsewhere.
Septoria shepherdiae (Sacc.) Desm. (Leaf spot)	Buffaloberry	East Blue Lake	Light on an occasional shrub.
Taphrina pruni (Fckl) Tul. (Fruit rot)	Chokecherry, eastern	Pine River, Dauphin Beach, Grand Rapids and at Devils and Broken Pipe lakes	Moderate damage to fruit in the Dauphin Beach area; light in rest of district.
Taxonomic Genus 24	Aspen, trembling	Birdtail River	The second collection of this for the Winnipeg Lab.
Tympanis prunicola Groves	Cherry, pin	Wasagaming	Single shrub moderately infected.
Wallrothiella arceuthobii (Pk) Sacc. (A hyperparasite)	Arceuthobium americanum	Long Point on Lake Winnipeg	Light infections on mistletoe plants.

NORTHERN LOWLANDS DISTRICT

AND

NORTHERN MANITOBA

1969

by

W.B. Crawford

INTRODUCTION

A warm, early spring followed by a period of cold weather was, in part, responsible for delayed development of insects and diseases. Field activities began on May 22 and terminated on September 26 during which time a total of 571 insect and 362 disease collections were submitted to the Winnipeg laboratory. Numerous observations made from the ground and air were later compiled at Winnipeg and are incorporated into this report. In addition to general sampling and observation reports, survey sub-projects included: (a) sequential sampling of larch sawfly egg populations; (b) egg population sampling of spruce budworm; (c) larch sawfly larval collections for disease and parasite studies; (d) small mammal population survey; (e) aspen shoot counts of Pollaccia radiosa (Lib.) Bald. & Cif.

Approximately 37 hours of flying time were used for survey in the northern areas, of this time 14 hours were supplied by the Manitoba Government Air Service to complete the tenth annual survey of the Thompson Smoke Easement area. General sampling for other insects and diseases was carried on in conjunction with this survey.

A marked decrease in populations of spruce budworm in the Namew Lake infestation occurred this year and was mainly attributed to adverse climatic conditions that occurred in the spring and early summer. A moderate infestation of yellow-headed spruce sawfly occurred in the Neultin Lake area. Larch sawfly populations declined in most areas of the Manitoba Northern Lowlands and Manitoba Northern Aerial districts.

The spruce needle rusts, Chrysomyxa spp. and the leaf and twig blights, Pollaccia spp. decreased in all areas as did the leaf blights of balsam poplars, Linospora tetraspora Thompson and Septoria musiva Pk. Although these pathogens were common to most areas, the incidence and intensity was low.

INSECT CONDITIONS

SPRUCE BUDWORM, Choristoneura fumiferana (Clem.):- Adverse weather conditions, referred to in DISEASE CONDITIONS of this section, are believed to have been responsible, at least in part, for a near total collapse of this insect in the Namew Lake Infestation and only an occasional pocket of light defoliation of white spruce was recorded (Figure 2).

A trace of light defoliation was observed in the previous areas of moderate to severe infestations at: Rocky and Atik lakes, Third Cranberry Lake, Elbow and Iskwasum lakes, Amisk and Athapapuskow lake areas, along the Sturgeon-weir River, Kisseynew and Cumberland lake areas and around Clearwater and Cormorant lakes.

Low populations causing light defoliation to white spruce occurred at the north end of Elbow Lake. An island in Sipiwesk Lake, north of Bear Island had light to moderate populations on white spruce and balsam fir, and very light populations on black spruce. This represents a decrease in size and intensity from that of 1968.

Areas of trace to light defoliation were sampled at: the west end of Cormorant Lake, Simonhouse, Rocky, Egg and Goose lakes, Iskwasum, Granite, Kisseynew, Athapapuskow, Manistikwan, Elbow and Third Cranberry lakes, and along the road between Denare Beach and Sturgeon-weir River. Most samples were from white spruce that had incurred light to moderate frost damage.

LARCH SAWFLY, Pristiphora erichsonii (Htg.):- A general decrease in populations was noted throughout the Northern Lowlands and Northern Aerial districts of Manitoba (Figure 1).

Aerial surveys, along with ground checks, in the Northern Aerial District revealed low, scattered populations in most areas. Moderate defoliation was observed at Jetait, Drybrough, Engen Lake, Lynn Lake and Brochet. Light defoliation caused by scattered colonies was noted at Lac Brochet, Big Sand Lake, Gods Lake Narrows and Neultin Lake near the North West Territories boundary.

In the Northern Lowlands District, numerous observations, in conjunction with frequent sample points, showed low populations causing trace to light defoliation along Highway 10 between the Overflowing River and The Pas and as far north as Simonhouse. Also, light defoliation was recorded along Highway 10 north of Cranberry Portage to Flin Flon, south of Denare Beach to the Sturgeon-weir River and along the Radio Range and Chisel Lake roads.

Isolated colonies caused moderate defoliation to individual trees at Simonhouse and four miles north of the Sturgeon-weir River. Moderate defoliation occurred to tamarack stands three miles west of Guy Hill and one mile north of Simonhouse.

GRAY WILLOW-LEAF BEETLE, Pyrrhalta decora (Say):- Moderate skeletonization occurred at the Overflowing River on Highway 10 to a few willow bushes. Light feeding damage was found at Westray, Guy Hill, Radio Range Road, (M.4), Nisto Lake, Sipiwesk Lake and south of Denare Beach near the Sturgeon-weir River. Light skeletonizing was recorded at Red Sucker Lake on willow in the Northern Aerial District.

YELLOW-HEADED SPRUCE SAWFLY, Pikonema alaskensis (Roh.):- A moderate infestation was recorded at Tree Line Lodge on Neultin Lake in the Northern Aerial District on black spruce. Moderate defoliation was also recorded on a few white spruce at Wanless, and south of Denare Beach on the road to the Sturgeon-weir River.

Trace to light defoliation was recorded on white spruce at Cormorant Lake, Radio Range Road, (M.4), Rocky, Athapapuskow and Chisel lakes. A trace defoliation on black spruce occurred on the Radio Range Road, (M.4), Neso and Payuk lakes.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Aceria parapopuli (Keifer) (Poplar bud-gall mite)	Aspen, trembling	Westray and between Denare Beach and Sturgeon-weir River	Trace to light infestations on a few trees.
Acleris variana (Fern.) (Black-headed budworm)	Spruce, white	Overflowing River, Meridian Tower	Low populations; trace damage.
Adalia frigida (A lady beetle)	Aspen, trembling Poplar, balsam Birch, white Fir, balsam	Atikameg Lake, Simonhouse Lake, Root Lake, Meridian Tower	Single adult collections in all sampled areas.
Adelges cooleyi Gillette (Adelges gall aphid)	Spruce, white and black	Root and Sisipuk lakes	Very light infestations restricted to individual trees.
Adelges lariciatus (Patch) (Spruce pineapple gall aphid)	Spruce, white and black	Radio Range Road, (M.4), Nisto Lake, Granite Lake, Simonhouse Lake, Kipahagan Lake, Forestry Island on Little Playgreen Lake	Moderate infestations on a few trees at Simonhouse Lake and Forestry Island; trace to light in remainder of sampled areas.
Anoplonyx canadensis Hgtn. (A sawfly)	Tamarack	Radio Range Road, (M.4)	Two larval collections causing trace defoliation.
Anoplonyx luteipes (Cress.) (A sawfly)	Tamarack	The Pas, Radio Range Road, (M.3, M.4), Simonhouse, Cranberry Portage, Guy Hill, Payuk Lake, Neso Lake, Meridian Tower, Big Sand Lake	Light defoliation in all sampled areas.

Insect	Host(s)	Locality	Remarks
Archips cerasivoranus (Fitch) (Ugly nest caterpillar)	Chokecherry	Radio Range Road, (M.3), Rocky Lake, Iskwasun Lake	Scattered tents along roadside causing light damage.
Badebecia urticana Hbn. (A leaf roller)	Willow	Overflowing River and Kiski Creek	Trace damage.
Choristoneura conflictana (Wlk.) (Large aspen tortrix)	Aspen, trembling Spruce, white	Sturgeon-weir River, Wekusko Lake, Sipiwesk Lake	Trace defoliation.
Chrysomela crotchi Brown (Aspen leaf beetle)	Aspen, trembling	Radio Range Road, (M.4)	Two regeneration trembling aspen having light defoliation.
Chrysomela scripta F. (Cottonwood leaf beetle)	Willow Alder	Cranberry Portage and Sisipuk Lake	Moderate skeletonization of alder along the shoreline at Sisipuk Lake; light larval defoliation to willow at Cranberry Portage.
Cynipid spp. (Gall midges)	Aspen, trembling Willow	Radio Range Road, (M.4), Kipahagan Lake Atikameg Lake, Rocky Lake, Denare Beach, Sipiwesk Lake	Low, scattered populations on aspen regeneration.
Cyphon variabilis Thumb. (False flower beetle)	Most coniferous trees Maple, Manitoba Birch, white Poplar, balsam Willow	Overflowing River, The Pas, Radio Range Road, (M.3), Guy Hill, Rocky Lake, Kiski Lake, Root Lake, Setting Rapids	Adult collections, no visible damage, low populations.
Epinotia spp. (Leaf rollers)	Willow	Cranberry Portage, Wekusko Lake, Sipiwesk Lake, Hanson Lake Road, (M.196), Gods Lake Narrows	Low populations causing light defoliation.

Insect	Host(s)	Locality	Remarks
Epinotia solandriana Linn. (A leaf roller)	Aspen, trembling Poplar, balsam	Simonhouse and Wekusko lakes	Single larval collections; no defoliation.
Eriophyes spp. (Leaf gall mites)	Birch, white Willow Cherry, pin	Throughout the district	Moderate infestations at Red Sucker Lake on white birch and pin cherry. Moderate damage to white birch at Island Lake; remainder of areas sampled were trace to lightly damaged.
Fenusa dohrnii Tischb. (European alder leaf miner)	Alder	Sisipuk Lake, Lynn Lake, Gods Lake Narrows	Moderate amount of leaf mining at Sisipuk Lake; trace to light in other areas.
Feralia jocosa Gn. (Green-striped caterpillar)	Spruce, black and white	Rocky, Athapapuskow, and Kisseynew lakes, Sturgeon-weir River	Single larval collections; no noticeable defoliation.
Geometrid spp. (Loopers)	Tamarack Spruce, white Pine, jack Birch, white Alder Cherry sp. Dogwood Willow Aspen, trembling	Overflowing River, Swan Lake, The Pas, Radio Range Road, (M.4), Tyrrell, Athapapuskow, Chisel, Kipahagan, Sisipuk, Jan and Traders lakes, Sturgeon-weir River, Reindeer Lake	Single larval collections responsible for trace to light defoliation.
Gracillarid spp. (Blotch miners)	Willow Birch, white	Cormorant Lake, Guy Hill, Atik, Neso Lake, Granite Lake, Chisel Lake, Sturgeon-weir River, Sisipuk Lake, Traders Lake, Lac Brochet	Light mining to all areas examined except along the Chisel Lake Road where one willow clump was moderately infested.

Insect	Host(s)	Locality	Remarks
Hylobius pinicola Couper (Pine root collar weevil)	Tamarack Spruce, white and black Pine, jack	The Pas, Egg Lake, Radio Range Road, (M.4), Cranberry Portage, Island Lake, Lac Brochet	Low adult populations; no visible damage.
Hylurgopinus rufipes (Eichh.) (Native elm bark beetle)	Elm, white	The Pas area (Carrot River Valley)	Ten adults found on two trees in one stand.
Lambdina fiscellaria fiscellaria (Guenee) (Hemlock looper)	Tamarack	The Pas, Radio Range Road, (M.3), Cranberry Portage	Trace defoliation in conjunction with P. erichsonii.
Lithocolletis salicifoliella Cham. (Aspen blotch miner)	Aspen, trembling Willow	Radio Range Road, (M.4), Guy Hill, Atikameg Lake, Simonhouse Lake, Kipahagan Lake, Sturgeon-weir River south of Denare Beach, and Denare Beach	Moderate infestation of mining located in campgrounds on regeneration aspen at Denare Beach. Other areas lightly infested on scattered trees.
Mayetiola rigidae (O.S.) (Beaked willow gall fly)	Willow	Cranberry Portage, Granite, Wekusko, Chisel and Sipiwesk lakes, between Denare Beach and Sturgeon-weir River, Gods Lake Narrows, west end of Red Sucker Lake, Lynn Lake, Big Sand Lake, Lac Brochet	A small number of galls on scattered trees with the exception of Sipiwisk Lake where there was a light to moderate infestation over a small area and Lynn Lake where there was a moderate infestation on one clump of willows.
Messa populifoliella (Townsend) (A leaf mining sawfly)	Aspen, trembling Poplar, balsam	The Pas and Sisipuk Lake	Light infestations responsible for light amount of blotching.

Insect	Host(s)	Locality	Remarks
Mordwilkoja vagabunda (Walsh) (Poplar vagabond aphid)	Aspen, trembling	Rocky Lake, Denare Beach, Forestry Island	Light infestations in most areas except at Forestry Island near Norway House.
Nematus spp. (Sawflies)	Willow Aspen, trembling Poplar, balsam Birch, white and bog Alder	Overflowing River, Kiski Creek, Granite Lake, Denare Beach, Rahl's Island east of The Pas, Sisipuk Lake, Kipahagan Lake, Red Sucker Lake, Lac Brochet, Big Sand Lake, Fort Hall Lake, Negassa Lake	Moderate damage to willow at Negassa Lake along the shoreline. All other areas examined were found to be trace to light damage.
Neodiprion abietis complex (Balsam fir sawfly)	Fir, balsam Spruce, white and black	Kisseynew, Third Cranberry, and Sipiwesk lakes	Low collections; trace defoliation.
Neodiprion nanulus nanulus Schedl. (Red-pine sawfly)	Pine, jack	Lynn Lake	One small colony on one tree; light defoliation.
Neodiprion pratti banksianae Roh. (Black-headed jack-pine sawfly)	Pine, jack	Kisseynew Lake	Low populations; trace damage.
Neodiprion virginianus complex (Red-headed jack-pine sawfly)	Pine, jack	The Pas and Kipahagan Lake	One colony per sample area causing light defoliation.
Petrova albicapitana (Busck) (Pitch nodule maker)	Pine, jack	Westray, Guy Hill, Hanson Lake Road, (M.187), Granite Lake	Low, scattered populations causing trace mortality to infested branches.
Phenacaspis pinifoliae (Fitch) (Pine needle scale)	Spruce, white	Overflowing River and Cormorant Lake	Light infestations; light damage.

Insect	Host(s)	Locality	Remarks
Phratora americana canadensis Brown (A leaf beetle)	Willow Aspen, trembling Poplar, balsam Birch, white	Westray and west end of Red Sucker Lake	Low populations; light damage.
Phyllocnistis populiella Cham. (Aspen leaf beetle)	Aspen, trembling Poplar, balsam	Radio Range Road, (M.4), Guy Hill, Atik, Denare Beach, Jan Lake	Light mining; low populations.
Phyllocolpa spp. (A sawfly)	Poplar, balsam Willow	Swan Lake, Radio Range Road, (M.4), Rocky Lake, between Denare Beach and the Sturgeon-weir River, Hanson Lake Road, (M.196), Jan Lake, Negassa Lake, Traders Lake	Light damage to balsam poplar by P. sp. nr. agama to willow by P. sp. nr. nigrata and to trembling aspen by P. sp. nr. robusta.
Pikonema dimmockii (Cress.) (Green-headed spruce sawfly)	Spruce, white and black	Cormorant, Kipahagan, Sisipuk, Sipiwesk and Jan lakes, Norway House	Low populations collected in conjunction with other insects causing negligible defoliation.
Pontania spp. (A sawfly)	Willow	Overflowing River, Cormorant, Wekusko, Chisel, Sisipuk, and Negassa lakes, Lac Brochet	Low populations; light damage to scattered trees.
Proteoteras willingana (Kft.) (Boxelder twig borer)	Maple, Manitoba	Overflowing River, Forestry Island at Norway House	Trace damage to new shoots at sampled areas.
Rhabdophaga strobiloides (Walsh) (Willow cone gall midge)	Willow	Overflowing River, Guy Hill, Cranberry Portage, Neso and Chisel lakes, Sturgeon-weir River south of Denare Beach, Wekusko, Traders and Red Sucker lakes	Low populations common to most areas causing light damage.

Insect	Host(s)	Locality	Remarks
Saperda populnea moesta Lec. (Poplar-twig borer)	Poplar, balsam Aspen, trembling	Atik, Cranberry Portage, Denare Beach, Traders, Sisipuk and Sipiwesk lakes, Forestry Island at Norway House	Low populations; light damage to balsam poplar.
Sciaphila duplex Wlshm. (A leaf roller)	Aspen, trembling Poplar, balsam	Overflowing River, Westray, Simonhouse and Granite lakes	Low populations; trace to light damage.
Semiothisa sexmaculata Pack. (Green larch looper)	Tamarack	Overflowing River, The Pas, Radio Range Road, (M.3), Simonhouse, Meridian Tower, Granite and Neultin lakes	Collected in conjunction with mass collections of Pristiphora erichsonii (Htg.).
Semiothisa signaria dispuncta Wlk. (A looper)	Tamarack Fir, balsam Spruce, black	Radio Range Road, (M.3), Simonhouse, Cranberry Portage, Chisel Lake	Low populations; light damage.
Tetralopha aplastella Hlst. (A webworm)	Aspen, trembling Poplar, balsam	Cranberry Portage and Simonhouse Lake	Light damage; low populations.
Trichiosoma triangulum Kby. (A sawfly)	Poplar, balsam Aspen, trembling	Sturgeon-weir River south of Denare Beach, Traders and Sisipuk lakes	Single larval collections; a trace of defoliation.

DISEASE CONDITIONS

SPRUCE NEEDLE RUSTS, Chrysomyxa spp.:- Trace infections of C. ledi (Alb. & Sch.) deBary were recorded on black spruce and the alternate host, Ledum sp., at Overflowing River, Atikameg, Cranberry Portage, The Pas and Chisel Lake.

A moderate infection of C. ledicola (Peck) Lagerh. occurred on a small stand of black spruce in a swampy area near Lynn Lake. Approximately 10% of the new foliage of about 70% of the stand was infected. Trace to light infections were found on black spruce at The Pas, Clearwater, Chisel, Negassa, Sisipuk, Kipahagan, and Big Sand lakes. Approximately 5% of the needles were infected on one white spruce along the Radio Range Road. This rust was collected on it's alternate host, Ledum sp. at Egg Lake, Sipiwesk, Natawahunan, Neso, Big Sand, Lac Brochet, Lynn, Reindeer and Negassa lakes. Infections were generally light with the exception of Egg Lake where approximately 60% of the shrubs had 10% of their foliage infected.

LEAF AND TWIG BLIGHTS OF POPLAR, Pollaccia spp.:- Light infections to regeneration aspen by P. radiosa (Lib.) Bald. & Cif. were sampled at Simonhouse Lake, Cranberry Portage, Payuk Lake, Flin Flon, Neso, Johnson, Jan and Traders lakes, Norway House, and on the Burntwood River. Trace infections were located at Westray, Guy Hill, Radio Range Road, (M.4), Atikameg, Wanless, Chisel, Sisipuk and Lynn lakes.

Trace to light infection by P. elegans Serv. on regeneration balsam poplar was restricted to a few trees at the Sturgeon-weir River south of Denare Beach, Paint Lake and Norway House.

TAR SPOT OF WILLOW, Rhytisma salicinum (Pers.) Fr.:- This disease was common to willows scattered throughout the districts. Moderate infections to small, scattered clumps of willow occurred at Sisipuk Lake and Lynn Lake in the Northern Aerial District. Areas of trace to light infection were found at Westray, Rahl's Island east of The Pas, Egg Lake, Cranberry Portage, Chisel Lake, Sturgeon-weir River south of Denare Beach, Traders Lake, Lac Brochet, Reindeer, Fort Hall, Neultin and Negassa lakes. Infections in these areas accounted for less than 5% of the foliage.

WESTERN GALL RUST, Peridermium harknessii J.P. Moore:- These galls were confined to scattered trees within jack pine stands and were responsible for trace to light damage at The Pas, Guy Hill, Radio Range Road, (M.3), (M.4), Thompson Highway, (M.10), Hanson Lake Road, (M.196), and Jan Lake.

HYPOXYLON CANKER, Hypoxylon mammatum (Wahl.) Miller:- An extensive survey of aspen stands showed light infections at Guy Hill, Rocky Lake, Root Lake in the Northern Lowlands District and Wintering Lake in the Northern Aerial District. Approximately one tree in ten was infected in all areas sampled.

LEAF BLIGHTS OF BALSAM POPLAR:- A light incidence by the pathogen Linospora tetraspora Thompson occurred in conjunction with the pathogen Septoria musiva Pk. on balsam poplar at the Overflowing River, Westray and Simonhouse Lake. Traces of damage caused by S. musiva occurred at Cranberry Portage, Atikameg Lake and Norway House and by L. tetraspora along the Radio Range Road, (M.4).

OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Apiosporina collinsii (Schw.) Hohn. (Witches' broom)	Saskatoon	Overflowing River	Light infection causing brooming to a few shrubs.
Bifusella crepidiformis	Spruce, white and black	Radio Range Road, (M.4) and Island Lake	Approximately 5% of old foliage infected on individual trees at sample areas.
Caliciopsis calicioides (Ellis & Ev.) Fitzp. (Bark fungus)	Poplar, balsam	Westray, Radio Range Road, (M.4), Guy Hill, Sturgeon-weir River	Trace to light infections on scattered trees in small stands.
Chrysomyxa arctostaphyli Diet. (Yellow witches' broom)	Spruce, white and black Arctostaphylus sp.	Overflowing River, Radio Range Road, (M.4), Tyrrell Lake, Reed Lake, Lac Brochet, Reindeer and Fort Hall lakes	Moderate infection on alternate host, Arctostaphylus sp. at Reed Lake. Moderate brooming near Reindeer and Fort Hall lakes on black spruce, approximately 10 out of 30 trees with an average of 2 brooms per tree.
Chrysomyxa ledi var. cassandra (Pk & Clint.) Savile	Chamaedaphne calyculata	Lynn Lake	Moderate infection on 60% of the shrubs surrounding a swampy area.
Chrysomyxa pirolata Wint. (Spruce cone rust)	Spruce, black	Lynn Lake	One tree had 40% of its cones infected with this rust.
Ciborinia foliicola (Cash & Davidson) Whetzel (Black rib of willow)	Willow	Negassa and Neultin lakes	A moderate infection occurred to 100% of the trees along the shoreline for approximately 100 yards at Neultin Lake on the south-west end. Trace at Negassa Lake.
Coccomyces hiemalis Higgins (Shot hole of cherry)	Cherry, pin Chokecherry, eastern	The Pas and Denare Beach	Light infections on a few shrubs.

Organism and Disease	Host(s)	Locality	Remarks
Cronartium comandrae Peck (Comandra blister rust)	Pine, jack Myrica gale	The Pas, Radio Range Road, (M.3), Cranberry Portage	Moderate infection on 5/20 plants of the alternate host Myrica gale. Light infections to scattered jack pine.
Cytospora spp. (A canker)	Willow Aspen, trembling Spruce, black	Overflowing River, The Pas, Guy Hill, Rocky, Twin, Paint and Jan lakes	Light infections to individual trees.
Cytospora chrysosperma Fr.	Aspen, trembling	Meridian Tower	Light infections on one tree.
Diplodia tumefaciens (Shear) Zalasky (Globose gall of poplars)	Aspen, trembling	Overflowing River and Guy Hill	Light infections on a few trees.
Fomes fomentarius (L. ex Fr.) Kickx. (White mottled rot)	Birch, white	Sturgeon-weir River, Simonhouse Lake, Setting Rapids and Kipahagan Lake	Common on scattered trees in sampled areas.
Fomes igniarius (L. ex Fr.) Gill (White trunk rot)	Aspen, trembling	Throughout the Northern Lowlands District	Common to a few trees in aspen stands in the district; 1-10 conks per infected tree.
Hemimyriangium betulae Reid & Pirozynski (A tar spot)	Birch, white	Radio Range Road, (M.4), Cranberry Portage, Athapapuskow Lake, Thompson Highway, (M.10), Jan Lake, Sisipuk Lake	Light infections on a few scattered trees.
Hypoxylon fuscum (Pers. ex Fr.) Fr. (A canker)	Alder Willow	Sturgeon-weir River south of Denare Beach, Granite, Tyrrell, and Sisipuk lakes	Common to most areas in the districts.

Organism and Disease	Host(s)	Locality	Remarks
Leptosphaeria hendersoniae (Fckl) Sacc. (A die-back)	Willow	Chisel Lake	A moderate infection to three trees that infected about 25 shoots.
Lophodermium pinastri (Schrad. ex Fr.) Chev. (A needle cast)	Pine, jack	Guy Hill, Wekusko, Jan Lake	5-10% of old needles infected on individual trees.
Melampsora bigelowii Thum. (Larch-willow rust)	Willow	Guy Hill, Gods Lake Narrows, Sisipuk and Negassa lakes	Moderate infection on two trees at Sisipuk Lake; light infection in other sample areas.
Phaeoramularia maculicola (Rom. & Sacc.) Sutton (Leaf spots)	Aspen, trembling	Simonhouse, Simonhouse Lake, Cranberry Portage, Elbow and Island lakes	Individual trees having about 5% of the foliage infected except at Island Lake where the infection was up to 30% on one tree.
Ramularia destructiva Phill. & Plowr. (Leaf spot)	Myrica gale	Fort Hall Lake	80% of the shrubs in a small area had infection on 30% of their foliage.
Tryblidiopsis pinastri (Fr.) Karst. (A saprophyte)	Spruce, black and white	Throughout the Northern Lowlands and Northern Aerial districts	Common to all areas and on most dead lower branches.
Uncinula salicis (Fr.) Wint. (Powdery mildew)	Poplar, balsam Aspen, trembling Willow	The Pas, Radio Range Road, (M.4), Atikameg, Kipahagan, Sisipuk and Big Sand lakes	Moderate damage to balsam poplar at The Pas and to trembling aspen at Kipahagan Lake. Light in the remainder of the sampled areas.

SUMMARY OF FOREST INSECT AND TREE DISEASE CONDITIONS

IN THE THOMPSON SMOKE EASEMENT AREA

1969

The tenth annual survey of this smoke easement area was conducted from July 7 to 11. Six predetermined flight lines running east and west at approximately 12 mile intervals between Harding and Asean lakes in the north to Sipiwisk and Cottonwood lakes in the south. A total of fourteen hours flying time was provided by the Manitoba Government Air Service of which nine hours and ten minutes were used to survey an area of approximately 9,200 square miles of potentially susceptible forested area. The remaining four hours and fifty minutes were used for aerial surveys with ground checks to assess the conditions in the eastern portion of the district. A total of 74 insect and 32 disease samples were collected in the vicinity of the 10 sulpher dioxide stations.

Aerial observations revealed no appreciable amount of fume damage to any tree specie in the above mentioned area. Very light fume damage occurred on black spruce at Wintering Lake (SO2 #19 and SO2 #5) and at Paint Lake (SO2 #18).

TABLE 1

FOREST INSECT CONDITIONS

SMOKE EASEMENT AREA, THOMPSON, MANITOBA

1969

Insect	Host(s)	Location and Sampling Station No.	Remarks
Amauronematus spp. (Sawflies)	Willow	SO2 #8 Natawahunan Lake SO2 #17 Ospwagan Lake SO2 #5 Wintering Lake (N)	Very light larval populations; no appreciable damage.
Anacampsis innocuella Zell. (Gelechiid moth)	Aspen, trembling Poplar, balsam Birch, white Alder	SO2 #16 Nelson House SO2 #15 Harding Lake SO2 #10 Burntwood River SO2 #9 Isbister Lake SO2 #8 Natawahunan Lake SO2 #17 Ospwagan Lake SO2 #19 Wintering Lake (S)	Low populations; light defoliation.
Anoplonyx luteipes (Cress.) (A sawfly)	Tamarack	SO2 #9 Isbister Lake	Trace defoliation by low populations.

Insect	Host(s)	Location and Sampling Station No.	Remarks
Bibio sp. (March fly)	Willow	SO2 #5 Wintering Lake (N)	Collection of three adults; no visible damage.
Camponotus herculeanus (Ant)	Birch, white	SO2 #8 Natawahunan Lake	Single adult collection; no visible damage.
Cantharis sp. (Soldier beetle)	Willow	SO2 #15 Harding Lake	Very low populations; no visible damage.
Cecidomyid spp. (Gall midges)	Aspen, trembling Poplar, balsam	SO2 #10 Burntwood River SO2 #17 Ospwagan Lake SO2 #5 Wintering Lake (N)	Low populations; galls scattered and light.
Cerambycid sp. (Long-horned woodborer)	Spruce, white	SO2 #16 Nelson House	No visible damage.
Choristoneura conflictana (Wlk.) (Large aspen tortrix)	Aspen, trembling	SO2 #17 Ospwagan Lake	Light amount of leaf rolling.
Chrysomelid sp. (A leaf beetle)	Willow	SO2 #15 Harding Lake	Trace skeletonization.
Cicadellid sp. (Leaf hopper)	Birch, white	SO2 #19 Wintering Lake (S)	Low populations; no visible damage.
Curculionid sp. (Weevil)	Saskatoon	SO2 #19 Wintering Lake (S)	Single adult; no visible damage.
Cynipid sp. (Gall midges)	Willow	SO2 #17 Ospwagan Lake	Light amount of galls from low populations on a few scattered trees.
Dioryctria reniculella (Grt.) (Spruce coneworm)	Spruce, white	SO2 #17 Ospwagan Lake	Trace damage to cones.

Insect	Host(s)	Location and Sampling Station No.	Remarks
Enargia decolor Wlk. (A noctuid)	Aspen, trembling	SO2 #17 Ospwagan Lake	Low populations; trace damage.
Epinotia spp. (A leaf roller)	Willow Poplar, balsam	SO2 #15 Harding Lake SO2 #9 Isbister Lake SO2 #17 Ospwagan Lake	Light amount of leaf rolling from low populations.
Epinotia solandriana Linn. (A leaf roller)	Birch, white Poplar, white	SO2 #15 Harding Lake SO2 #18 Paint Lake SO2 #17 Ospwagan Lake	Light amount of leaf rolling by low populations.
Eriophyes spp. (A mite)	Birch, white Willow	SO2 #15 Harding Lake SO2 #12 Witchai Lake SO2 #9 Isbister Lake SO2 #8 Natawahunan Lake SO2 #17 Ospwagan Lake SO2 #19 Wintering Lake	Moderate damage to foliage on a few trees at Witchai, Isbister and Natawahunan lakes. Other areas were trace to lightly damaged.
Geometrid sp. (Loopers)	Birch, white	SO2 #19 Wintering Lake (S)	Single larval collection; no visible defoliation.
Hylobius pinicola Couper (Pine root collar weevil)	Spruce, white	SO2 #12 Witchai Lake	Single adult collection; no visible damage.
Idiocerus sp. (Leaf hopper)	Poplar, balsam	SO2 #17 Ospwagan Lake	Light amount of egg scars on twigs.
Lepyrus palustris Scop. (A weevil)	Willow	SO2 #16 Nelson House	Low adult populations.
Lithophane sp. (Owlet moth)	Poplar, balsam	SO2 #18 Paint Lake	No visible damage.
Mayetiola rigidae (O.S.) (Beaked willow gall fly)	Willow	SO2 #12 Witchai Lake	Low populations; light infestation of galls on scattered trees.

Insect	Host(s)	Location and Sampling Station No.	Remarks
Nematus spp. (Sawflies)	Willow Poplar, balsam	SO2 #16 Nelson House SO2 #15 Harding Lake SO2 #8 Natawahunan Lake SO2 #18 Paint Lake SO2 #5 Wintering Lake (N)	Low populations; trace to light defoliation.
Nycteola frigidana Wlk. (A webworm)	Willow	SO2 #17 Ospwagan Lake	Trace defoliation.
Orsodacne atra (Ahr.) (A leaf beetle)	Caragana	SO2 #8 Natawahunan Lake	Low populations; trace damage.
Phratora americana canadensis Brown (A leaf beetle)	Aspen, trembling Willow	SO2 #9 Isbister Lake	Single adult collections; trace damage.
Phyllocnistis populiella Cham. (Aspen leaf beetle)	Poplar, balsam Aspen, trembling	SO2 #9 Isbister Lake SO2 #17 Ospwagan Lake	Light defoliation from low populations.
Pontania spp. (A sawfly)	Willow	SO2 #16 Nelson House SO2 #12 Witchai Lake SO2 #15 Wintering Lake (N)	A few galls on scattered trees at all sampled areas.
Rhabdophaga strobiloides (Walsh) (Willow cone gall midge)	Willow	SO2 #12 Witchai Lake	Trace populations; very light damage.
Saperda concolor Lec. (Poplar-gall saperda)	Willow	SO2 #12 Witchai Lake	Light populations; light amount of twigs damaged.
Saperda populnea moesta Lec. (Poplar twig borer)	Poplar, balsam	SO2 #10 Burntwood River SO2 #17 Ospwagan Lake SO2 #5 Wintering Lake (N)	Light damage to twigs on occasional tree.
Syngrapha alias Ottol. (A semi-looper)	Spruce, white	SO2 #17 Ospwagan Lake	No noticeable defoliation.

Insect	Host(s)	Location and Sampling Station No.	Remarks
Syneta pilosa Brown (A leaf beetle)	Spruce, black Tamarack	S02 #16 Nelson House S02 #9 Isbister Lake S02 #8 Natawahunan Lake	Very low populations; trace defoliation.
Tenthredinid spp. (Sawflies)	Birch, white Saskatoon	S02 #10 Burntwood River S02 #18 Paint Lake S02 #17 Ospwagan Lake S02 #19 Wintering Lake (S)	Low populations; light damage.
Tortricid spp. (A leaf roller)	Willow Poplar, balsam	S02 #16 Nelson House S02 #15 Harding Lake S02 #10 Burntwood River S02 #9 Isbister Lake	Light amount of leaf rolling on scattered trees which were mainly willow.

TABLE II

TREE DISEASE CONDITIONS

SMOKE EASEMENT AREA, THOMPSON, MANITOBA

1969

Organism and Disease	Host(s)	Location and Sampling Station No.	Remarks
Chrysomyxa arctostaphyli Diet. (A rust broom)	Spruce, black	S02 #8 Natawahunan Lake S02 #10 Burntwood River	Single trees with one small broom infecting less than 5% of the crown.
Chrysomyxa ledicola (Peck) Lagerh. (Spruce needle rust)	Ledum sp.	S02 #8 Natawahunan Lake	Trace infection to a small area.
Cytospora chrysosperma Fr.	Aspen, trembling	S02 #12 Witchai Lake	Light infection to one tree.

Organism and Disease	Host(s)	Location and Sampling Station No.	Remarks
Daldinia concentrica (Bolt. ex Fr.) Ces. & deNot.	Birch, white	SO2 #8 Natawahunan Lake	Single tree with light infection.
Fomes fomentarius (L. ex Fr.) Kickx (White mottled rot)	Birch, white	SO2 #17 Ospwagan Lake	Light infection to one tree.
Fomes igniarius (L. ex Fr.) Gill. (White trunk rot)	Aspen, trembling	SO2 #10 Burntwood R. SO2 #5 Wintering Lake (N)	Light infections to a few trees.
Hypoxylon fuscum (Pers. ex Fr.) Fr. (A canker)	Alder	SO2 #10 Burntwood River	Trace infection.
Melampsora bigelowii Thum. (Larch-willow rust)	Willow	SO2 #18 Paint Lake	Light infection on one clump of trees.
Melampsorella caryophyllacearum Schroet.	Fir, balsam	SO2 #19 Wintering Lake (S)	One broom infecting about 5% of the crown.
Poria obliqua (Pers. ex Fr.) Karst.	Birch, white	SO2 #16 Nelson House	One tree infected with one fruiting body.
Tryblidiopsis pinastri (Fr.) Karst. (A saprophyte)	Spruce, black and white	SO2 #15 Harding Lake SO2 #8 Natawahunan Lake	Light amount of infection located on dead lower branches of either host.
Tympanis spermatiospora (Nyl.) Nyl.	Aspen, trembling	SO2 #12 Witchai Lake	Light infection to one tree.
Tympanis truncatula (Pers. ex Fr.) Rehm	Fir, balsam	SO2 #19 Wintering Lake (S)	Light infection.
Valsa sp.	Poplar, balsam	SO2 #15 Harding Lake	10% of the branches on one tree infected.

A warm early spring, followed by exceptionally cool weather and freezing temperatures, caused considerable frost damage to both coniferous and deciduous trees throughout the northern area north of The Pas.

Frost damage was mainly confined to deciduous trees and in particular, trembling aspen. The main area of damage occurred north of Root Lake along Highway 10 to Flin Flon and west into Saskatchewan and south from Denare Beach to the Sturgeon-weir River where pockets of moderate to severe damage occurred to white spruce, balsam poplar and white birch. Moderate to severe frost damage to trembling aspen also occurred along the Manitoba-Saskatchewan border from Flin Flon north to Sisipuk Lake and in the east from Snow Lake north to Harding Lake. Similar conditions existed in an area bordered by Reed, Snow and Wekusko lakes. Widely scattered patches of light to moderate damage were observed near Thompson and south along Highway 391 to Reed Lake.

Light frost damage was also observed on white spruce at Rocky Lake, north of Cranberry Portage and west of Bakers Narrows.

Considerable winter drying was also recorded to coniferous trees, particularly black spruce, in low lying areas of the Northern Lowlands and Northern Aerial districts. This condition was most prevalent over a wide area extending from Wekusko Lake northeastward to Nelson House and Moak Lake, north of Thompson. Areas of severe damage on black spruce were observed at Wimapedi Lake, Thicket Portage, in the area around Thompson and south along Highway 391 to Soab Lake. Smaller pockets of less severe damage was observed from Westray north to The Pas and from Simonhouse north to Flin Flon.

EASTERN MIXEDWOOD DISTRICT

SASKATCHEWAN

1969

by

R.C. Tidsbury

INTRODUCTION

Cool weather during the early part of the field season caused retarded foliage development and frost damage occurred throughout the district. Frosts were common as late as mid-June with snow and sleet recorded on June 10 and 11. Temperatures were near normal during July and August, but cool in September with above average precipitation. Field surveys commenced on May 20 and terminated on September 24, during which time 576 insect and 364 disease samples were submitted to the Winnipeg laboratory. In addition to general sampling, survey sub-projects included: (a) collecting larch sawfly cocoons for disease and parasite studies; (b) sequential sampling of larch sawfly egg populations; (c) small mammal population survey; and (d) collecting insect and disease material for personnel of the Winnipeg laboratory. Approximately four hours of flying time was supplied by the Saskatchewan Department of Natural Resources.

Spruce budworm populations collapsed in the Birch River and Sipanok Channel areas. There was also a slight decrease in populations of the yellow-headed spruce sawfly.

Changes in the status of diseases included a marked increase of the leaf spot, Phaeoramularia maculicola (Rom. & Sacc.) Sutton, on trembling aspen and decreases in the spruce needle rusts, Chrysomyxa spp.

INSECT CONDITIONS

SPRUCE BUDWORM, Choristoneura fumiferana (Clem.):- The infestation along the Birch River (Twp. 55, range 3, W 2nd mer.) collapsed and no defoliation was observed by an aerial survey of this area nor along the Sipanok Channel.

Elsewhere in the district very light larval populations were recorded on white spruce at Clear Lake, Usherville, Greenwater Lake Provincial Park, and farm shelterbelts near Preeceville and Kelvington. Similar collections were made from balsam fir near Parr Hill Lake and along the Otosquen highway in the Pasquia Hills at Mile 38 and 53.

LARCH SAWFLY, Pristiphora erichsonii (Htg.):- There was no change in the status of this insect throughout the district (Figure 1). Moderate defoliation was recorded on a few small regeneration tamarack 20 miles south of Armit and in the Squaw Rapids area. Elsewhere, very light defoliation was recorded at Madge, Clear, Saginas, Pepaw and Parr Hill lakes, Nipawin, Peesane, Tisdale, Bjorkdale, along the Cumberland Lake Road, Erwood, the Ridge and Fir River roads, Pasquia Hills, Bertwell, Reserve, Pelly, Hudson Bay, Prairie River, Battle Heights, McKague and the Greenwater Lake Provincial Park.

Sequential sampling of larch sawfly egg populations was continued in two permanent tamarack plots, and the results are shown in the following table.

TABLE 1

Plot No.	Location	No. of shoots examined	No. of shoots curled	Infestation rating for 1969
01	Armit 13-69-585	50	0	light
01	Pepaw Lake 13-68-581	50	0	light

A total of 98 cocoons were collected at the Armit plot. Subsequent examination of the cocoons at the laboratory indicated that two per cent were destroyed by diseases and one per cent by undetermined causes. Larval dissection indicated that 18.4 and 2 per cent were parasitized by Bessa harveyi (T.T.) and Mesoleius tenthredinis Morley respectively.

YELLOW-HEADED SPRUCE SAWFLY, Pikonema alaskensis (Roh.):- Populations of this insect decreased slightly from the previous year. Very low populations were recorded on white spruce at Nipawin, Usherville, Pelly, Carrot River, along the Ridge Road, Somme, Buchanan, Preeceville, Duck Mountain and Greenwater Lake Provincial parks, Kelvington, the Parr Hill Lake area and from a few black spruce near Carrot River.

ASPEN LEAF BEETLE, Chrysomela crotchi Brown:- Larvae of this leaf beetle caused severe defoliation on a few scattered aspen reproduction along the Cumberland Lake Road. Light defoliation was recorded on aspen reproduction in the Reserve and Tall Pines areas and along the Ridge Road.

GRAY WILLOW-LEAF BEETLE, Pyrrhalta decora (Say):- Severe skeletonizing was recorded on scattered willow clumps along the Fir River Road, the Otosquen highway at Mile 26 and in the Greenbush area. Moderate damage was recorded on willow clumps at Parr Hill Lake, Greenwater Lake Provincial Park and Hudson Bay. Light skeletonizing was recorded at Archerville, Nipawin, Codette, Carrot River and Battle Heights, as well as throughout the forested areas of the district. Very low populations were also collected from trembling aspen, balsam poplar, white birch and alder.

AMERICAN ASPEN BEETLE, Gonioctena americana (Schaef.):- Larvae caused moderate defoliation on small pockets of reproduction trembling aspen in the Pepaw and McBride lakes areas of the Porcupine Provincial Forest. Light defoliation occurred on scattered reproduction trembling aspen in the Parr Hill, Saginas and Ruby lakes areas, Mile 28 on the Otosquen highway, Greenbush, Hudson Bay, Crooked River, Reserve, Somme, Bertwell and along the Ridge and Fir River roads.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Aceria parapopuli (Keifer) (Poplar bud-gall mite)	Poplar sp.	Buchanan, St. Phillips, Kelvington, Hudson Bay	Very light populations on a few trees.
Acleris variana (Fern.) (Black-headed budworm)	Spruce, white	Ridge Road, (Mile 18), Elbow Lake	Low larval populations; no visible damage.
Adelges cooleyi Gill. (Cooley spruce gall aphid)	Spruce, white	Nipawin, Somme, Archerville, Nora, Tisdale and the Greenwater Lake Provincial Park	Generally light to moderate infestations on a few trees.
Adelges lariciatus (Patch) (Spruce pineapple gall aphid)	Spruce, white	Nipawin, Greenwater Lake Provincial Park, Ruby and Madge lakes, Kelvington and the Ridge Road	Moderate damage on several trees at Greenwater Lake Provincial Park and Madge Lake; light damage elsewhere.
Anoplonyx canadensis Hgtn. (A sawfly)	Tamarack	Fir River Road, Tisdale, Peesane, Bjorkdale, Pasquia Hills and Porcupine Provincial Forest	Very light larval populations; no noticeable defoliation.
Anoplonyx luteipes (Cress.) (A sawfly)	Tamarack	Cumberland Lake Road, Squaw Rapids, Pasquia Hills, Bertwell, Buchanan, Madge Lake and the Fir River Road	Common; no defoliation.
Archips cerasivoranus (Fitch) (Ugly-nest caterpillar)	Chokecherry	Danbury and the Ridge Road	Localized infestations; moderate to severe damage.
Archips negundanus Dyar. (A leaf roller)	Maple, Manitoba	Codette, Buchanan, Kelvington	Very light infestations on shelterbelts.

Insect	Host(s)	Locality	Remarks
Arge clavicornis Fab. (Willow sawfly)	Birch, white Willow Cherry	Madge Lake, Kelvington, Fir River Road	Very low larval populations; a trace of damage.
Badebecia urticana Hbn. (A leaf roller)	Poplar, balsam Aspen, trembling Willow	Pasquia Hills, St. Phillips, Pelly, Duck Mountain Provincial Park	Very light damage.
Cecidomyia balsamicola Lintner (Balsam gall midge)	Fir, balsam	Parr Hill Lake	Moderate damage on a few trees.
Choristoneura conflictana (Wlk.) (Large aspen tortrix)	Chokecherry Willow Aspen, trembling	Greenwater Lake Provincial Park, Fir River Road, Madge Lake, Reserve and Usherville	Very light damage on scattered reproduction.
Choristoneura rosaceana Harr. (Oblique-banded leaf roller)	Caragana	Codette and Kelvington	Traces of damage.
Chrysomela knabi Brown (A leaf beetle)	Willow	Pasquia Hills (Chemong)	Very light defoliation on scattered clumps.
Cyphon variabilis Thunb. (False flower beetle)	Spruce, white and black Pine, jack Tamarack Aspen, trembling Poplar, balsam	Throughout the district	Generally low adult populations; no damage.
Dioryctria reniculella Grt. (Spruce coneworm)	Spruce, white	Mistatim, Kelvington, Porcupine Provincial Forest	Very low larval populations.
Enargia decolor Wlk. (A noctuid)	Aspen, trembling	Caragana, Somme and Kelvington	Very light larval populations; no appreciable damage.

Insect	Host(s)	Locality	Remarks
Epinotia solandriana Linn. (A leaf roller)	Birch, white Poplar, balsam Aspen, trembling	Fir River Road, Madge Lake, Otosquen highway, (Mile 37), Usherville, Bjorkdale, Chelan, Hudson Bay and Greenwater Lake Provincial Park	Generally very light larval damage.
Eriosoma americanum Riley (Woolly elm aphid)	Elm, white and Chinese	Codette, Buchanan, Carrot River, Kamsack and Tobin Lake areas	Generally light infestations.
Fenusa dohrnii Tischb. (European alder leaf miner)	Alder	Throughout most portions of the forested areas	Moderate leaf mining on scattered clumps in the Duck Mountain Provincial Park, Pasquia Hills and at Usherville; light damage elsewhere.
Lithocolletis salicifoliella Cham. (Aspen blotch miner)	Aspen, trembling Poplar, balsam	Throughout the district	Very light to light damage on scattered reproduction.
Lopidea dakota Kngt. (Caragana plant bug)	Caragana	Buchanan, Moose Range, Carrot River, Kelvington, Battle Heights and Codette	Low populations.
Malacosoma disstria Hbn. (Forest tent caterpillar)	Chokecherry	Pasquia Regional Park	One larva collected.
Nematus populi Marl. (A sawfly)	Poplar, balsam Aspen, trembling Poplar sp.	Moose Range, Somme, Saginas Lake and Preeceville	Colony collection on trembling aspen at Somme; very light defoliation elsewhere.
Neodiprion abietis complex (Balsam-fir sawfly)	Spruce, white	Madge Lake and Preeceville	Very low larval populations.

Insect	Host(s)	Locality	Remarks
Neodiprion maurus Roh. (A pine sawfly)	Pine, jack	Otosquen highway, (Mile 40), Clear Lake	Light colony defoliation at Clear Lake; very light defoliation elsewhere.
Neodiprion nanulus nanulus Schedl. (Red-pine sawfly)	Spruce, colorado	Buchanan	Single larva collected.
Neodiprion virginianus complex (Red-headed jack-pine sawfly)	Pine, jack	Nipawin and Otosquen highway, (Mile 40)	Very light defoliation.
Operophtera bruceata (Hulst) (Bruce spanworm)	Willow	Nipawin, Mistalim and the Greenwater Lake Provincial Park	Very light larval populations.
Orsodacne atra (Ahr.) (A leaf beetle)	Aspen, trembling Chokecherry Caragana Poplar, balsam	Bertwell, Mistalim, Chelan, Greenwater Lake Provincial Park, Bjorkdale, Crooked River, Hudson Bay and the Fir River Road	Low populations; no appreciable defoliation.
Pandemis canadana Kft. (A tortricid moth)	Willow Aspen, trembling Caragana Birch, white	Chelan, Madge Lake, Reserve, Pontrilas, Carrot River, Armit and Crooked River	Low larval populations; traces of damage.
Petrova albicapitana Busck. (Pitch nodule maker)	Pine, jack	Nipawin, Fir River Road, (Mile 28), Otosquen highway, the Ridge Road	Very light damage.
Phenacaspis pinifoliae Fitch (Pine needle scale)	Spruce, white	Preeceville	Light to moderate infestation of a few trees in a farm shelterbelt.
Phyllocnistis populiella Cham. (An aspen leaf miner)	Aspen, trembling Poplar, balsam	Throughout most portions of the district	Generally low populations; light damage.

Insect	Host(s)	Locality	Remarks
Phyllocolpa nr. agama (A sawfly)	Poplar, balsam	Throughout the district	Generally light to moderate populations on small reproduction.
Pikonema dimmockii (Cress.) (Green-headed spruce sawfly)	Spruce, white	Nipawin, Codette, Carrot River, Mistalim, Ruby Lake, Kelvington, Greenwater Lake Provincial Park, Madge and Parr Hill lakes	Low populations in association with Pikonema alaskensis (Roh.).
Sciaphila duplex Wlshm. (A leaf roller)	Aspen, trembling Poplar, balsam Willow	Greenwater Lake and Duck Mountain Provincial parks, Somme, Otosquen highway, (Mile 37), Reserve, and Woody Lake	Low larval damages.
Semiothisa sexmaculata Pack (Green larch looper)	Tamarack	Throughout the district	Generally low populations; no damage.
Semiothisa signaria dispuncta Wlk. (A looper)	Spruce, white and black Tamarack	Fir River Road, Parr Hill Lake, Tisdale, Codette, Nipawin, Tall Pines and Carrot River	Very low larval populations.
Tenthredinid spp. (Sawflies)	Willow Aspen, trembling	Bjorkdale, Hudson Bay	Traces of defoliation.
Tetralopha aplastella Hlst. (A webworm)	Aspen, trembling	Pepaw and Saginas lakes, Smoky Burn	Light damage on scattered reproduction.
Trichiocampus irregularis Dyar (A sawfly)	Willow	Greenbush and Greenwater Lake Provincial Park	Light defoliation on a single clump at Greenbush; traces of defoliation elsewhere.
Trichiosoma triangulum Kby. (A sawfly)	Aspen, trembling Willow Birch, white	Madge Lake, Preeceville, Fir River Road, Battle Heights and Parr Hill Lake	Low larval populations; traces of defoliation.

Insect	Host(s)	Locality	Remarks
Zeiraphera fortunana Kft. (Spruce bud moth)	Spruce, white	Woody Lake Road and Kelvington	Very low larval populations.
Zeugophora scutellaris Suffr. (Cottonwood leaf-mining beetle)	Poplar sp.	Nipawin	Very light damage.
Zeugophora varians Cr. (Leaf-mining beetle)	Poplar, balsam	Mistatim	Very light damage on single reproduction.

DISEASE CONDITIONS

A LEAF AND TWIG BLIGHT, Pollaccia radiosa (Lib.) Bald. & Cif.:- The incidence of this blight remained unchanged from the previous year. Moderate infections of a few scattered small reproduction trembling aspen were recorded near Nipawin and Parr Hill Lake. Elsewhere, only very light to light intensities were recorded throughout the remainder of the district.

A permanent plot established in 1966 was retallied and the results are shown in the following table:

Location	Percentage of tagged trees infected				Percentage of shoots infected			
	1966	1967	1968	1969	1966	1967	1968	1969
Ridge Road 13-69-585	100.0	33.3	94.1	35.3	14.2	1.1	21.4	1.0

A LEAF AND TWIG BLIGHT, Pollaccia elegans Serv.:- The incidence of this blight was unchanged from 1968 and light infections of balsam poplar reproduction were recorded at Cumberland House, Archerville, Codette, Nipawin, Moose Range and Mile 28 on the Otosquen highway.

SPRUCE NEEDLE RUSTS, Chrysomyxa spp.:- There was a marked decrease in infections of this rust throughout the district. A severe infection of C. ledicola (Peck) Lagerh. was recorded on one white spruce with light infections on a few surrounding white and black spruce in the Clear Lake area of the Porcupine Provincial Forest. Moderate infections were recorded on pockets of black spruce at Erwood. Very light infections were recorded on black spruce at Bjorkdale, Greenwater Lake Provincial Park, Peesane, along the Cumberland Lake and Fir River roads, Pasquia Hills, Pelly, Hudson Bay, and in the Parr Hill, Saginas and Madge lakes areas; and on white spruce at Nipawin, Armit and along the Woody Lake and Fir River roads. A very light infection on Ledum sp. was collected near Mistatim and at Mile 13 on the Fir River Road. Light infections of C. ledi (Alb. & Schw.) deBary were recorded on small pockets of black spruce at Spirit Lake, Mile 15 on the Woody Lake Road,

Miles 28 and 47 on the Otosquen highway and along the Fir River Road. Ledum sp. was also very lightly infected at Mile 4 on the Cumberland Lake Road, Peesane, Pelly, Mile 15 on the Woody Lake Road, Mistatim and Saginas Lakes. Light infections of C. weirii Jacks. occurred on a few white spruce in the Somme, Elbow Lake, Madge Lake and Bertwell areas. Very light infections were recorded 10 miles north of Elbow Lake and 16 miles south of Armit on the Woody Lake Road, both on black spruce.

A LEAF SPOT, Phaeoramularia maculicola (Rom. & Sacc.) Sutton:- The intensity and incidence of this leaf spot on trembling aspen increased considerably over the previous year. Areas of moderate to high intensity and fairly uniform moderate to high incidence were recorded from Nipawin and Smoky Burn, south through Tisdale and Mistatim to the Hendon and Preeceville areas. Generally lower intensity and less uniform incidence was recorded throughout the remaining eastern portion of the district. Outbreak areas were recorded in the Tisdale, Arborfield, Smoky Burn and Porcupine Plain areas.

INK SPOT OF ASPEN, Ciborinia whetzelii Seaver:- A moderate infection on a small patch of reproduction trembling aspen was recorded in the Greenwater Lake Provincial Park. Elsewhere, very light to light infections were recorded on a few reproduction at Stenen, Hudson Bay, Erwood, Swan Plain, Porcupine Plain, Prairie River, Carrot River, Smoky Burn and scattered locations throughout the Pasquia Hills, Porcupine Provincial Forest and the Duck Mountain Provincial Park.

A RUST BROOM, Chrysomyxa arctostaphyli Diet.:- Widely scattered infections of this rust, usually one broom per tree, were common on black spruce throughout the district. Single brooms were noted on one white spruce near Parr Hill and Bowassa lakes, Mile 38 on the Otosquen highway, and in the Birch River area south of Cut Beaver Lake.

LEAF BLIGHTS OF BALSAM POPLAR:- Septoria musiva Pk. caused moderate to heavy infections on scattered patches of young balsam poplar at Codette, Cumberland House, Mile 28 on the Otosquen highway, Moose Range, along the Fir River Road and the Duck Mountain and Greenwater Lake Provincial parks.

Moderate infections by Linospora tetraspora Thompson were recorded on a few young balsam poplar along the Fir River Road and in the Nipawin and Battle Heights areas.

Elsewhere, light infections by both pathogens, were recorded in most portions of the district.

HAIL DAMAGE:- A hail storm caused moderate to severe damage on all balsam poplar-trembling aspen field bluffs and farm shelterbelts along a 2 1/2 mile strip north from the outskirts of Wadena. The damage extended easterly where moderate damage was recorded 4 1/2 miles north of Kylemore.

OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Coleosporium asterum (Diet.) Syd. (Needle rust)	Pine, jack	Chemong, (Pasquia Hills) Fir River Road, (Mile 15)	Very light infection on regeneration.
Diplodia tumefaciens (Shear) Zalasky (Globose gall of poplars)	Aspen, trembling Poplar, balsam	Bjorkdale, Reserve, Ridge Road and Cumberland House area	Moderate infection on a few balsam poplar at Cumberland House; light infections on aspen elsewhere.
Eurychora betulina (Fr.) Schroet. (A tar spot)	Birch, white	Fir River Road, Greenwater and Duck Mountain Provincial parks, Porcupine Provincial Forest and Smoky Burn	Generally light infections on scattered patches of regeneration.
Hypoxylon mammatum (Wahl) Miller (Hypoxylon canker)	Aspen, trembling	Greenwater and Duck Mountain Provincial parks, Carrot River, Arborfield and Porcupine Plain	Very light tree mortality in stands examined.
Lophodermium sp. (Needle cast)	Spruce, black and white Fir, balsam	Parr Hill, Ruby and Woody lakes, Greenwater Lake Provincial Park, Fir River Road, and Pasquia Hills	Severe infection on two white spruce in a Carrot River farm shelterbelt; light infections elsewhere.
Lophodermium filiforme Darker (Needle cast)	Spruce, white	Nipawin Regional Park	Light infection on a few trees.
Melampsora abieti-capraearum Tubeuf (A rust)	Willow	Greenwater Lake Provincial Park, Squaw Rapids and Prairie River	Light infections on a few clumps.
Melampsora bigelowii Thum. (Larch-willow rust)	Willow	Fir River Road, Carrot River, Cumberland Lake Road, Duck Mountain Provincial Park and Porcupine Provincial Forest	Very light to light infections on scattered clumps.

Organism and Disease	Host(s)	Locality	Remarks
Melampsorella caryophyllacearum Schroet. (Witches' broom)	Fir, balsam	Parr Hill Lake and the Otosquen highway, (Mile 37)	One broom collected at each location; no tree mortality.
Nothophacidium abietinellum (Dearn.) Reid & Cain (Needle cast)	Fir, balsam	Parr Hill Lake	Light infection on a few trees.
Peridermium harknessii J.P. Moore (Western gall rust)	Pine, jack	Clear Lake	Light infection on a few regeneration; no branch mortality.
Ramularia rosea (Fckl.) Sacc. (Leaf spot)	Willow	Tisdale	Heavy infection on several clumps.
Rhytisma salicinum Pers. ex Fr. (Tar spot on willow)	Willow	Battle Heights, Fir River Road, Cumberland Lake Road, Squaw Rapids, Carrot River, Pasquia Hills, Madge Lake, Smoky Burn, Porcupine Provincial Forest	Light infections at Parr Hill Lake, Fir River Road, Chemong, Clear Lake, Woody Lake Road; very light to a trace elsewhere.
Septoria caraganae (Jacz.) Died. (A leaf spot)	Caragana	Moose Range, Carrot River and Battle Heights	Very light infections on shelterbelts.
Uncinula salicis (Fr.) Wint. (Powdery mildew)	Poplar, balsam Willow Dogwood Aspen, trembling	Throughout the district	Common but incidences generally very light.

CENTRAL MIXEDWOOD DISTRICT

AND

NORTHERN SASKATCHEWAN

1969

by

R.A. McLeod

INTRODUCTION

Field surveys were conducted from May 26 to September 23, during which time 622 forest insect and 340 tree disease samples were submitted to the Winnipeg laboratory.

The weather for the early part of the season was cool and dry, followed by near normal temperatures and continued below normal rainfall. Frost in the early part of the season caused discoloration of the foliage of trembling aspen and white birch, and some reddening of balsam fir shoot tips. This condition was particularly evident in the northeastern part of the district, and may have been responsible for the collapse of the spruce budworm infestation.

Approximately 22 hours of charter and 7 hours of non-charter flying time was used for northern aerial surveys.

In addition to general collecting, survey sub-projects included: (1) sequential sampling of larch sawfly egg populations; (2) continuing studies of the biological control of the larch sawfly at Crutwell; (3) population and defoliation studies of the larch sawfly at permanent plots; (4) small mammal population studies; (5) infected shoot counts in permanent trembling aspen disease plots; (6) cone collections from tamarack, black spruce, white spruce, jack pine and balsam fir.

A number of special collections were made for personnel of the Winnipeg laboratory.

INSECT CONDITIONS

SPRUCE BUDWORM, Choristoneura fumiferana (Clem.):- Of greatest significance was the total collapse of the budworm infestation that has persisted for the last five years in northeastern Saskatchewan. Sampling on June 23 in the Jan Lake-Pelican Narrows area indicated moderate larval populations, but the very cool weather at that time had interferred with the normal feeding and later intensive sampling in the area of Pelican Narrows and Ballantyne Bay yielded but three larvae in each area and these appeared to be malformed. No defoliation was recorded when the entire infestation area was flown in July, although frost damage was evident on deciduous trees of the area.

LARCH SAWFLY, Pristiphora erichsonii (Htg.):- Populations of the larch sawfly remained at low levels throughout most of the Central Mixedwoods and Northern Districts (Figure 1). In the Central district defoliation was generally confined to roadside and woodlot tamarack. Ornamental larch were moderately defoliated at the Nesbit Headquarters and at the old D.N.R. radio site, 10 miles north of Prince Albert.

Populations remained low in the vicinity of the parasite release area at Crutwell, west of Prince Albert. A total of 576 larvae were collected and the cocoons sent to the Winnipeg laboratory for rearing.

Dissections of 200 larvae from the plot at Red Rock (approximately five miles northeast of Prince Albert) showed the following: 13% destroyed by the dipterous parasite Bessa harveyii (T.T.) and 20% by the hymenopterous parasite Mesoleius tenthredinis Morley, while at the Mayview plot in Prince Albert National Park only 17 larvae were dissected.

Sequential sampling of egg populations was carried out in four permanent plots and the infestation ratings, based on the utilization of current shoots for oviposition, are summarized in Table 1.

TABLE I

Location and plot no.		No. of shoots examined	No. of shoots curled	Infestation rating for 1969
Crutwell 13-42-590	01	50	0	light
Red Rock Blk. 13-45-589	01	50	0	light
Mayview, P.A.N.P. 13-42-593	01	50	0	light
Lac La Ronge 13-47-607	01	50	0	light

BALSAM-FIR SAWFLY, Neodiprion abietis complex:- Only very light infestations were recorded throughout the Central Mixedwoods District. Occasional larvae were collected from balsam fir, white, black and Colorado spruce at Crutwell, Birch Hills, Brancepeth and Sandfly and Wintego lakes. Although larvae were somewhat more numerous on islands in Dead Lake, populations were still at relatively low levels.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Acantholyda sp. (A false webworm)	Spruce, white Fir, balsam Pine, jack	Candle Lake, Dead Lake, Fort à la Corne and La Ronge	Very low populations.
Aceria parapopuli (Keifer) (Poplar bud-gall mite)	Aspen, trembling Poplar, balsam	Mayview, MacDowall and Reindeer Lake in northern Saskatchewan	Very low populations.
Actias luna Linn. (Luna moth)	Willow	Christopher Lake	One larva only.

Insect	Host(s)	Locality	Remarks
Adelges cooleyi Gillette (Adelges gall aphid)	Spruce, white and black	Prince Albert National Park and Emma Lake	Damage confined to an occasional tree.
Adelges lariciatus (Patch) (Spruce pineapple gall aphid)	Spruce, white and black	Candle Lake, Timber Bay, Nipawin Provincial Park, Prince Albert National Park and Whitefox	Damage confined to an occasional tree.
Amauronematus spp. (Sawflies)	Aspen, trembling Poplar, balsam Willow Alder	Sturgeon Lake, MacDowall, La Ronge, Crutwell, Prince Albert National Park, Candle Lake, Dead Lake, and Waterbury Lake in northern Saskatchewan	Very low populations.
Anoplonyx canadensis Hgtn. (A sawfly)	Tamarack	Crutwell, Prince Albert National Park, Otter Rapids, Junction of Highways 165 and 106, Torch River at Highway 106 and Porter Lake in northern Saskatchewan	Generally low populations.
Anoplonyx luteipes (Cress.) (A sawfly)	Tamarack	La Ronge, Crutwell, Prince Albert National Park, Otter Rapids and Fort á la Corne	Low populations.
Archips cerasivoranus (Fitch) (Ugly-nest caterpillar)	Choke cherry, eastern	Prince Albert	Occasional small patches of moderate damage.
Archippus packardianus (Fern.) (A solitary web maker)	Spruce, white	Pelican Narrows	Very low populations.

Insect	Host(s)	Locality	Remarks
Arge clavicornis (Fab.) (A sawfly)	Alder Birch, white	Prince Albert National Park, Candle Lake, McIntosh Lake, Potato Lake, Halkett Lake, Highway 165 and Cree Lake and Black Birch Lake in northern Saskatchewan	Generally low populations, very light defoliation.
Badebecia urticana Hbn. (A leaf roller)	Poplar, balsam	Smeaton	Very low populations.
Biston cognataria (Gn.) (Pepper and salt moth)	Willow	Torch River	Very low populations.
Buccalatrix canadensisella Cham. (Birch skeletonizer)	Birch, white	Molanosa, MacDowall and Crutwell	Generally low populations.
Campaea perlata Gn. (Fringed looper)	Poplar, balsam	MacDowall and Sandy Lake	Very low populations.
Cecidomyia reeksi Vock. (Jack-pine resin midge)	Pine, jack	Porter Lake in northern Saskatchewan	Very low populations.
Choristoneura conflictana (Wlk.) (Large aspen tortrix)	Aspen, trembling Poplar, balsam Choke cherry, eastern	Whelan Bay, MacDowall, Molanosa, and Fort a la Corne	Low populations, no appreciable defoliation.
Chrysomela crotchi Brown (Aspen leaf beetle)	Aspen, trembling Poplar, balsam	Otter Rapids, Prince Albert, Fort a la Corne, and Crutwell	Light defoliation to a few trees at Prince Albert. Trace elsewhere.
Dioryctria reniculella (Grote) (Spruce coneworm)	Spruce, white	Pelican Narrows, Ballantyne Bay, and Besnard Lake	Low populations in previous spruce budworm infestation area.
Epinotia solandriana Linn. (A leaf roller)	Aspen, trembling	Sandy Lake	Very low populations.

Insect	Host(s)	Locality	Remarks
Eupithecia filmata Pears. (Early brown looper)	Spruce, white	Prince Albert National Park, Timber Bay, Pelican Narrows and Candle Lake	Generally low populations.
Fenusa dohrnii (Tischb.) (European al er leaf miner)	Alder	La Ronge, Potato Lake, Prince Albert National Park and Haultain Lake and Deception Lake in northern Saskatchewan	Moderate infestations at La Ronge, low elsewhere.
Feralia jocosa (Guen.) (Green striped spruce caterpillar)	Spruce, white and black	Prince Albert National Park, Wildnest Lake, Wintego Lake and La Ronge	Generally low populations.
Gonioctena americana (Schaef.) (American aspen beetle)	Aspen, trembling	Fort a la Corne, and Molanosa	Damage negligible.
Gracillarid sp. (A blotch miner)	Willow Alder Caragana	Besnard Lake, Sandfly Lake, La Ronge, Otter Rapids, McIntosh Lake, Birch Hills and La Loche in northern Saskatchewan	Moderate to heavy on willow one mile west of La Ronge, light elsewhere.
Halisidota maculata (Harr.) (Spotted tussock moth)	Birch, white Al er	McIntosh Lake and Emmeline Lake	Single larva collections.
Hemichroae crocea (Fourcroy) (Striped alder sawfly)	Al er	Black Birch Lake, and Cree Lake in northern Saskatchewan	Occasional stripping of individual branches.
Hylobius pinicola Couper (Pine root collar weevil)	Tamarack	Otter Rapids	Single adult.
Hyphantria cunea (Drury) (Spotless fall webworm)	Willow	Crutwell	Low populations.

Insect	Host(s)	Locality	Remarks
Idiocerus lachrymalis Fitch (A leaf hopper)	Aspen, trembling Poplar, balsam Spruce, black	Prince Albert, MacDowall, and Close Lake in northern Saskatchewan	Low populations.
Idiocerus populi L. (A leaf hopper)	Poplar, balsam Aspen, trembling Birch, white Pine, jack Willow	Prince Albert National Park, Anglin Lake, Candle Lake, La Ronge and MacDowall	Low populations.
Itame loricaria Evers. (A looper)	Aspen, trembling Poplar, balsam	Prince Albert National Park, Crutwell, Sturgeon Lake, MacDowall, Otter Rapids, and La Ronge	Generally low populations.
Lepyrus palustris Scop. (A weevil)	Aspen, trembling Willow	Nipawin Provincial Park, Sturgeon Lake and Candle Lake	Occasional adults.
Lithocolletis salicifoliella Cham. (Aspen blotch miner)	Aspen, trembling Poplar, balsam	Fort á la Corne, Crutwell, Besnard Lake, La Ronge, Prince Albert National Park, Nipawin Provincial Park and La Loche in northern Saskatchewan	Very light damage.
Malacosoma lutescens (N. & D.) (Prairie tent caterpillar)	Choke cherry, eastern	Prince Albert, MacDowall, Fort á la Corne and Crutwell	Light to moderate infestations, confined to small areas.
Mayetiola piceae Felt (Spruce gall midge)	Spruce, white	Otter Rapids and Waskesiu	Moderate damage at Otter Rapids.

Insect	Host(s)	Locality	Remarks
Mayetiola rigidae (O.S.) (Beaked willow gall fly)	Willow	Otter Rapids, Crutwell, Nipawin Provincial Park, and La Loche in northern Saskatchewan	Generally low populations.
Melanolophia canadaria Gn. (A looper)	Poplar, balsam Maple, Manitoba Willow	Fort á la Corne, Whitefox and Otter Rapids	Very low populations.
Mordwilkoja vagabunda (Walsh) (Poplar vagabond gall aphid)	Aspen, trembling	Otter Rapids, Sturgeon Lake, Fort á la Corne, and in northern Saskatchewan	Very light damage.
Nematinus unicolor (Marl.) (A sawfly)	Alder Birch, white	Molanosa, MacDowall and Waterbury Lake in northern Saskatchewan	Very low populations.
Nematus ventralis Say (A sawfly)	Willow	Waterbury, Haultain, Deception, and Nagle lakes in northern Saskatchewan	Low populations.
Nematus populi Marl. (A sawfly)	Aspen, trembling Poplar, balsam	Sturgeon Lake, La Ronge and MacDowall	Low populations; no defoliation.
Neoborus amoenus Reut. (A mirid)	Ash, green Maple, Manitoba	Birch Hills and Brancepeth	Trace of damage to ash foliage in shelterbelts.
Neodiprion pratti banksianae Roh. (Black-headed jack-pine sawfly)	Pine, jack	Otter Rapids	One collection only, no appreciable damage.
Neodiprion nanulus nanulus Schedl. (Red-pine sawfly)	Pine, jack	Crutwell	Two collections only, no appreciable defoliation.
Neodiprion virginianus complex (Red-headed jack-pine sawfly)	Pine, jack	McIntosh Lake, Otter Rapids and Nagle Lake in northern Saskatchewan	Light defoliation on isolated trees, very low populations.

Insect	Host(s)	Locality	Remarks
Nymphalis antiopa (L.) (Mourning cloak butterfly)	Willow	Dead Lake	One collection only, no appreciable defoliation.
Orsodacne atra (Ahr.) (A leaf beetle)	Caragana Aspen, trembling Pine, jack Spruce, white Poplar spp. Poplar, balsam Birch, white Alder	Birch Hills, Hagen, Brancepeth, Torch River, Sturgeon Lake, Otter Rapids, Prince Albert National Park, La Ronge, Molanosa, Timber Bay, and Fort á la Corne	Generally very low populations.
Orthosia hibisci Gn. (An owlet moth)	Willow	Sturgeon Lake	Very low populations.
Parorgyia plagiata (Wlk.) (Grey spruce tussock moth)	Spruce, white and black Fir, balsam	Prince Albert National Park, Besnard Lake, Dead Lake, La Ronge and Sturgeon Lake	Very low populations.
Parorgyia vagans (B. & McD.) (A gall aphid)	Alder	La Ronge	Single larva.
Pemphigus populi-transversus Riley (A poplar petiole gall aphid)	Poplar, balsam	Nipawin Provincial Park	Only a trace of damage.
Pemphigus populi-caulis Fitch (A gall aphid)	Poplar, balsam	Mayview, MacDowall, and Prince Albert National Park	Trace of damage.
Petrova albicapitana (Busck.) (Pitch nodule maker)	Pine, jack and Scots	Crutwell, Holbein, White Gull Creek, Candle Lake, La Ronge, Prince Albert and at Wollaston, Cree, Close, and Porter lakes in northern Saskatchewan	Generally very low populations. Light damage in Scots pine plantation at Holbein.

Insect	Host(s)	Locality	Remarks
Phenacaspis pinifoliae (Fitch) (Pine needle scale)	Spruce, white	Whitefox	No appreciable damage.
Phratora americana canadensis	Aspen, trembling Poplar, balsam Willow	Prince Albert National Park, La Ronge, Candle Lake, Besnard Lake and Nagle Lake in northern Saskatchewan	Very low populations.
Phyllocnistis populiella Cham. (Aspen leaf miner)	Aspen, trembling	McIntosh Lake and Nipawin Provincial Park	Trace of damage.
Phyllocolpa spp. (Leaf-folding sawflies)	Aspen, trembling Poplar, balsam Poplar spp.	Prince Albert National Park, Besnard Lake, Sandfly Lake, La Ronge, Sturgeon Lake, Prince Albert, MacDowall, Fort á la Corne, and Mayview	Light damage confined to smaller trees.
Physokermes piceae (Schr.) (Spruce bud scale)	Spruce, white	Whitefox	Very low populations.
Pikonema alaskensis (Roh.) (Yellow headed spruce sawfly)	Spruce, white black and Colorado	Widely scattered throughout central mixedwoods and northern district	Generally very light defoliation, occasional shoreline tree moderately defoliated in northern Saskatchewan.
Pikonema dimmockii (Cress.) (Green-headed sawfly)	Spruce, white and black	Nipawin Provincial Park, Fort á la Corne, McIntosh Lake, Crutwell, Prince Albert National Park, La Ronge, Sandfly Lake, Otter Rapids and Upper Foster Lake in northern Saskatchewan	Occasional larvae no appreciable defoliation.

Insect	Host(s)	Locality	Remarks
Pissodes strobi (Peck) (White-pine weevil)	Pine, jack and Scots Spruce, white and Colorado	Holbein, Prince Albert and MacDowall	Generally light damage.
Pissodes terminalis Hopping (Lodgepole terminal weevil)	Pine, Scots	Holbein	Light damage confined to a small area.
Protoboarmia porcelaria indictaria Wlk. (Dotted line looper)	Willow Poplar spp.	Prince Albert National Park, and Hagen	Very low populations.
Pyrrhalta decora (Say) (Gray willow-leaf beetle)	Caragana Aspen, trembling Willow Poplar, balsam Birch, white Poplar spp.	Birch Hills, Crutwell, Meath Park, Foxford, Nipawin Provincial Park, Sturgeon Lake, Prince Albert National Park, MacDowall, La Ronge, Whitefox, Candle Lake, Wintego Lake, Fort à la Corne, Christopher Lake, Crutwell and Halkett Lake	Moderate defoliation confined to isolated willow clumps in the Christopher and Halkett lakes regions, otherwise light.
Rhogogaster californica Nort. (A sawfly)	Birch, white Ash, green Willow Aspen, trembling Poplar, balsam	Crutwell, Brancepeth, Sandfly Lake, McIntosh Lake, MacDowall and Otter Rapids	Very low populations.
Saperda concolor Lec. (Poplar-gall saperda)	Aspen, trembling	Prince Albert National Park	Light damage to isolated trees.
Schizura unicornis	Alder	La Ronge	One larva collected, no defoliation.
Sciaphila duplex Wlshm. (Leaf roller)	Aspen, trembling Poplar, balsam	Smeaton, Shell-brook and Sandy Lake	Very low populations.

Insect	Host(s)	Locality	Remarks
Semiothisa bicolorata Fabr. (A geometrid)	Pine, jack	Torch River, Molanosa, Prince Albert National Park, Prince Albert, MacDowall and Otter Rapids	Only one or two larvae per collection.
Semiothisa sexmaculata Pack (Green larch looper)	Tamarack	Prince Albert National Park, Fort á la Corne, Crutwell, Torch River, La Ronge and Otter Rapids	Common, but no defoliation.
Semiothisa signaria dispuncta Wlk. (A looper)	Tamarack Spruce, white and black Fir, balsam	Fort á la Corne, La Ronge, Torch River, Molanosa, Prince Albert National Park, Prince Albert, Crutwell, Otter Rapids and Jewett Lake in northern Saskatchewan	Common, no defoliation.
Syneta pilosa Brown (A leaf beetle)	Spruce, white and black Pine, jack Tamarack	Whelan Bay, Molanosa, Prince Albert National Park and Otter Rapids	Very low populations.
Tetralopha aplastella Hlst. (A webworm)	Aspen, trembling	MacDowall	Trace of damage.
Toumeyella numismaticum (Pt. & McD.) (Pine tortoise scale)	Pine, jack	Crutwell	One collection only, light infestation.
Trichiosoma triangulum Kby. (A sawfly)	Poplar, balsam Poplar spp. Willow Alder	Crutwell, Hagen, MacDowall Otter Rapids and McIntosh Lake	Trace of damage.
Zeiraphera diniana Gn. (Spruce tip moth)	Tamarack	Prince Albert National Park and Candle Lake	Very low populations.

DISEASE CONDITIONS

LEAF AND SHOOT BLIGHT OF POPLARS, Pollaccia radiosa (Lib.) Bald. & Cif.:- The incidence and intensity of this pathogen was at a very low level throughout both the Central Mixedwoods and Northern Districts of Saskatchewan. Collections were made from La Loche and Jewett Lake in the Northern District and from Mayview, Crutwell, Nipawin Provincial Park and Crean, Potato and McIntosh lakes in the Central Mixedwoods District. In all cases only isolated shoots of regeneration aspen were affected.

Counts were continued in the study plots at Mayview and Crutwell and a summary of the results are shown in the following table:

Location of plot	Year	Percent of trees infected	Percent current shoots infected
Crutwell	1966	90	4.20
	1967	50	.22
	1968	30	.11
	1969	0	0.00
Mayview	1966	100	9.10
	1967	75.2	1.06
	1968	80	2.00
	1969	35	.43

SPRUCE NEEDLE RUSTS, Chrysomyxa spp.:- Infections of needle rusts were generally low throughout the Central Mixedwoods and Northern Aerial districts. Chrysomyxa ledicola Peck., the most widespread, was collected on white spruce and Labrador tea at Candle Lake, Otter Rapids, Ballantyne Bay, Mayview, La Ronge, Molanosa in the Central Mixedwoods District and at Upper Foster, Wollaston, Cree, Reindeer, Waterbury, Nagle, Close and Deception lakes in the northern district. Low infections of Chrysomyxa ledi (Alb. & Schw.) deBary, occurred from Labrador tea and black spruce at Mayview, Ballantyne Bay and McIntosh Lake in the Central Mixedwoods District and from black spruce at Nagle, Wollaston and Deception lakes in the northern district. Chrysomyxa ledi var. cassandrae was collected from leather leaf in the northern district at Close, Waterbury, Deception, Haultain, Wollaston and Nagle lakes. In all cases only a trace of infections were found.

OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Apiosporina collinsii (Schw.) Hohn. (Witches' broom)	Saskatoon	Sturgeon Lake	Light infections in Regional Park.
Arceuthobium americanum Nutt. (Mistletoe of jack pine)	Pine, jack	Crutwell, Ballantyne River La Ronge, Emmeline Lake and La Loche in northern Saskatchewan	Heavy in the Ballantyne River and Emmeline Lake areas.

Organism and Disease	Host(s)	Locality	Remarks
Biatorella resinae (Fr.) Mudd. (A hyperparasite)	Globose rust gall Jack pine resin	Nipawin and at Haultain Lake and Reindeer Lake in northern Saskatchewan	Found on insect pitch nodule.
Caliciopsis calicioides (Ell. & Ev.) Fitzp. (A bark fungus)	Poplar, balsam	MacDowall	Light infections on mature trees.
Chrysomyxa arctostaphyli Diet. (Witches' broom)	Spruce, white and black Bear berry	Prince Albert National Park, Ballantyne Bay, La Ronge, Potato Lake, Candle Lake and Upper Foster Lake, Buffalo Narrows, La Loche, Wollaston Lake, Haultain Lake, and Waterbury Lake in northern Saskatchewan	Generally light infections, one broom per tree. Found on bear berry near Waskesiu in Prince Albert National Park.
Ciborinia foliicola (Cash & Davidson) Whetzel (Black rib of willow)	Willow	Smeaton	One collection only, trace of infection.
Ciborinia whetzelii Seaver (Ink spot of aspen)	Aspen, trembling	MacDowall	Trace of infection.
Cronartium comandrae Peck (Comandra blister rust)	Pine, jack Comandra	Candle Lake, MacDowall and Deception Lake in northern Saskatchewan	Trace of infections.
Cryptochaete rufa (Fr.) Karst. (Slash fungus)	Aspen, trembling Poplar, balsam	Meath Park, Prince Albert, Nipawin Provincial Park, Prince Albert National Park and Birch Hills	Slash fungus.
Cucurbitaria staphula Dearn. ex R.H. Arnold and R.C. Russell	Aspen, trembling	Emmeline Lake	Light infection.

Organism and Disease	Host(s)	Locality	Remarks
Cytospora chrysosperma	Aspen, trembling	Nipawin Provincial Park	Trace of infection.
Dibotryon morbosum (Schw.) T. & S. (Black knot of cherry)	Chokecherry, eastern	MacDowall	Light infections.
Diplodia tumefaciens (Shear) Zalasky (Globose gall of poplars)	Aspen, trembling	Ballantyne Bay and Emmeline Lake	Light infections.
Euryachora betulina (Fr.) Schroet. (A leaf spot)	Birch, white Alder	Prince Albert National Park, La Ronge, Crutwell, Prince Albert, Emmeline Lake and Reindeer Lake and Nagle Lake in northern Saskatchewan	Common, but generally light infections.
Exidia glandulosa	Elm spp. Birch, white Alder	Crutwell, Smeaton, Prince Albert National Park and La Loche and Haultain Lake in northern Saskatchewan	Trace of infection.
Fomes fomentarius (L. ex Fr.) Kickx (White mottled rot)	Birch, white	Prince Albert National Park, Cub Creek and La Loche in northern Saskatchewan	Slash fungus, common on dead trees.
Fomes igniarius (L. ex Fr.) Gill. (White trunk rot)	Aspen, t embling	Prince Albe t National Park, Otter Rapids and Crutwell	Light, scattered infections.
Fomes pinicola (Swartz) Cke. (Brown cubical rot)	Fir, balsam Spruce, white	Prince Albe t National Park, Crutwell and La Ronge	Slash fungus.
Fomes scutellatus	Alder	Emmeline Lake	Light infection.

Organism and Disease	Host(s)	Locality	Remarks
Hypoxylon fuscum (Pers. ex Fr.) Fr. (A slash fungus)	Elm sp. Alder Birch, white	La Ronge, Pelican Narrows and La Loche in northern Saskatchewan	Generally low incidence and intensity.
Hypoxylon mammatum (Wahl) Miller (Hypoxylon canker)	Aspen, trembling Willow	Crutwell, Molanosa and Emmeline Lake	Widely scattered, common in aspen stand at Molanosa.
Linospora tetraspora Thompson (Leaf blight)	Poplar, balsam	Crutwell, Mayview and Nipawin Provincial Park	Light infections.
Lophodermium picea (Fckl.) Hohn. (Needle cast)	Spruce, white and black	MacDowall, La Ronge, Prince Albert National Park and Fort á la Corne	Light infections.
Lophodermium pinastri (Schrad. ex Fr.) Chev. (A needle cast)	Pine, jack	Deception Lake and Close Lake in northern Saskatchewan	Found on occasional isolated tree.
Lophodermium sphaerioides (Alb. & Schw. ex Fr.) Duby	Labrador Tea	Waterbury Lake in northern Saskatchewan	Very low incidence.
Melampsora abieti-capraearum Tubeuf (A rust)	Willow	Potato Lake and at La Loche in northern Saskatchewan	Confined to occasional clumps, light infections.
Melampsora bigelowii Thum. (Larch-aspen rust)	Willow	La Ronge, Mile 31 Highway 165, Fort á la Corne Prince Albert National Park, Prince Albert and Crutwell	Light to moderate infections, confined to widely scattered clumps.

Organism and Disease	Host(s)	Locality	Remarks
Melampsorella caryophyllacearum Schroet. (Witches' broom)	Fir, balsam	Prince Albert National Park	One broom only observed.
Melampsoridium betulinum (Pers.) Kleb. (A rust)	Birch, white	Otter Rapids, Mile 45 Highway 165, Emmeline and Nagle lakes in northern Saskatchewan	Scattered light infections, moderate at Emmeline Lake.
Nectria cinnabarina (Tode ex Fr.) Fr.	Chokecherry, eastern Elm, American Chinese	Prince Albert and Emma Lake	Moderate infection of Chinese elm at D.N.R. headquarters at Emma Lake, otherwise light.
Peridermium harknessii J.P. Moore (Western gall rust)	Pine, jack	Throughout the district	Common in most jack-pine stands, but generally light.
Phaeoramularia maculicola (Rom. & Sacc.) Sutton	Aspen, trembling	Fort à la Corne, Molanosa, Anglin Lake, Candle Lake, MacDowall, Mayview and at Reindeer Lake and Deception Lake in northern Saskatchewan	Generally light infections.
Phragmidium speciosum (A rust)	Rose	Crutwell, Sturgeon Lake, Prince Albert National Park and La Ronge and at La Loche in northern Saskatchewan	Light to moderate infections.
Pollaccia elegans Serv. (Leaf and shoot blight)	Poplar, balsam	Cub Creek and La Ronge	Very light infections.
Polyporus tomentosus Fr. (White pocket rot)	Duff	La Ronge and Wildnest Lake	Sporophores common at Wildnest Lake.

Organism and Disease	Host(s)	Locality	Remarks
Puccinia caricis (Schum) Schroet. var. grossulariata Arth. (A leaf rust)	Gooseberry	Smeaton	Very light infection.
Puccinia coronata Cda. (A leaf rust)	Buckthorn	Candle Lake, La Ronge and Mayview	Abundant.
Puccinia recondita	Thalectrum (meadow rue)	Crutwell	Light infection.
Ramularia rosea (A leaf spot)	Willow	La Ronge, McIntosh Lake, Prince Albert National Park and Crutwell	Generally light infections.
Ramularia tulsonei (A leaf spot)	Strawberry	Prince Albert National Park	Light infection.
Rhytisma salicinum Pers. ex Fr. (Tar-spot on willow)	Willow	La Ronge, Potato Lake, Mile 31 on Highway 165, Emmeline Lake and at La Loche, Wollaston Lake, Waterbury Lake, Nagle Lake and Deception Lake in northern Saskatchewan	Widespread but only a trace of infections.
Sciniatosporium nearucosum	Spruce, white	Waskesiu	New extension in range.
Septoria alnifolia Ell. & Ev.	Alder	Haultain Lake in northern Saskatchewan	Light infection.
Septoria caraganae (Jacz.) Died. (A leaf spot)	Caragana	Birch Hills, Hagen, Brancepeth and Prince Albert	Generally light infections.
Septoria musiva Pk. (Leaf spot)	Poplar, balsam	Prince Albert National Park, Crutwell, Mayview and Nipawin Provincial Park	Very light infections.

Organism and Disease	Host(s)	Locality	Remarks
Tryblidiopsis pinastri (Fr.) Karst. (A saprophyte)	Spruce, white	Prince Albert National Park	Found on dead branches.
Tuberculariа ulmi	Elm, Chinese	Brancepeth and Emma Lake	Heavy on a few trees at Emma Lake.
Tympanis hyphopodia (A hyperparasite).	Globose rust gall of jack pine	Mile 17 on Highway 165	Parasite on Peridermium harknessii gall.
Uncinula salicis (Fr.) Wint. (Powdery mildew)	Poplar, balsam Aspen, trembling Willow	La Ronge, Prince Albert, Prince Albert National Park, Birch Hills and at La Loche, Waterbury Lake, Deception Lake and Nagle Lake in northern Saskatchewan	Moderate on the occasional understory tree.
Wallrothiella arceuthobii Pk. Sacc. (A hyper-parasite)	Jack pine mistletoe	Ballantyne River and at La Loche in northern Saskatchewan	Found on the occasional mistletoe plant.

WESTERN MIXEDWOOD DISTRICT

SASKATCHEWAN

1969

by

W.J.G. Beveridge

INTRODUCTION

Field surveys for the detection of forest insects and tree diseases was carried out from May 26 to September 19. Totals of 673 insect and 544 disease samples were submitted to the Winnipeg laboratory for identification. Three hours of flying, provided by the Saskatchewan Department of Natural Resources, was used to survey the more inaccessible areas.

In addition to the general survey, the following sub-projects were carried out: (1) sequential sampling of larch sawfly egg populations; (2) larch sawfly populations at permanent plots; (3) small mammal population studies; (4) shoot counts in Pollaccia radiosa (Lib.) Bald & Cif. plots.

Frost late in June appeared to be responsible for light shoot and leaf damage to conifers and deciduous trees in the northern portion of the district. A further decline in larch sawfly populations, leaves this insect almost non-existent in this district. Foliage rusts appeared only in trace form throughout.

INSECT CONDITIONS

LARCH SAWFLY, Pristiphora erichsonii (Htg.):- No noticeable defoliation was observed in the district.

Sequential sampling of egg populations was carried out in three permanent plots and the infestation rating, based on the utilization of current shoots for oviposition, is summarized in Table I.

TABLE I

Location and plot no.		No. of shoots examined	No. of shoots curled	Infestation rating for 1969
Loon Lake 12-62-598	01	50	0	light
Pierceland 12-57-602	01	50	0	light
St. Cyr 12-69-600	01	50	0	light

EUROPEAN ALDER LEAF MINER, Fenusa dohrnii Tischb.:- This leaf miner occurred commonly throughout the district. Light leaf damage was found at St. Cyr, Corn Beef Creek, Beacon Hill, and Fish, Ministikwan, Keeley, Peck and Brightsand lakes. Moderate leaf mining was found at Chitek and Cold lakes.

AMERICAN ASPEN BEETLE, Gonioctena americana (Schaef.):- Moderate larval populations were found on the east shore of Cold Lake, where damage was confined to the aspen regeneration. Adults were found at Michel Point on Dore Lake, but no noticeable damage was observed.

A BLOTCH MINER OF WILLOW, Gracillarid sp.:- Light blotching was recorded along Highway 155 at Corn Beef Creek and Lac la Plonge; 25 miles north of Big River, and at Jeannette and Ministikwan lakes. A patch of moderate to severe blotching with considerable leaf damage occurred on the southeast shore of Canoe Lake.

ASPEN BLOTCH MINER, Lithocolletis salicifoliella Cham.:- This blotch miner was found on trembling aspen throughout the district, but populations were generally low. Moderate damage occurred to a small patch of regeneration 25 miles north of Big River, elsewhere traces of damage were found throughout the Meadow Lake Provincial Park, The Battleford's Provincial Park, Corn Beef Creek, Mont Nebo, Erinferry, Turtleford, Brightsand, Cold, Martins, Memorial, and Ministikwan lakes.

POPLAR VAGABOND APHID, Mordwilkoja vagabunda (Walsh):- This aphid was very common on aspen regeneration. Although in most cases only several colonies were found per tree, considerable leaf damage did occur. Colonies were recorded at The Battleford's Provincial Park, Meadow Lake Provincial Park, Ile a la Crosse, Beauval, Green Lake, Big River, Frenchman Butte, Hafford, Pierceland, Canwood and Fishing Lake. A moderate population was found two miles south of Loon Lake where every tree had more than one colony.

GRAY WILLOW-LEAF BEETLE, Pyrrhalta decora (Say):- The adult of this species appeared quite commonly throughout the district but no noticeable defoliation was observed. Some light larval feeding was observed at Lac la Plonge and Meeting Lake.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Aceria parapopuli (Keifer) (Poplar bud-gall mite)	Aspen, trembling Poplar, balsam	Ile a la Crosse, Jeannette, Dore, Greig, Martins, and Worthington lakes	Traces found in these areas.
Acleris logiana Linn. (A solitary leaf roller)	Birch, white	Corn Beef Creek	No visible damage.
Adelges cooleyi Gillette (Adelges gall aphid)	Spruce, white	Birch, Loon, and Peck lakes	Light infestation at Birch Lake.

Insect	Host(s)	Locality	Remarks
Adelges lariciatus (Patch) (Spruce pineapple gall aphid)	Spruce, white and black	Corn Beef Creek, Pierceland, Dorintosh; Lac des Iles, Loon, Birch, and Turtle lakes	Light infestation at Birch Lake.
Anoplonyx canadensis Hgtn. (A sawfly)	Tamarack	Corn Beef Creek and Memorial Lake	Low populations.
Anoplonyx luteipes Cress. (A sawfly)	Tamarack	Throughout the district	Low populations with little damage.
Archips cerasivoranus (Fitch) (Ugly nest caterpillar)	Chokecherry, eastern	Beacon Hill and Loon Lake	Single tents, damage light.
Archips negundanus Dyar (A leaf roller)	Maple, Manitoba	Dorintosh, Hafford, and Glenbush	Very low populations.
Archippus packardianus Fern. (A leaf roller) (A solitary web maker)	Spruce, white	Prince and Glenbush	Very low populations.
Arge clavicornis F. (A sawfly)	Willow Alder Aspen, trembling	Steele Narrows; Canoe and Keeley lakes	Low populations; no noticeable damage.
Badebecia urticana Hbn. (A leaf roller)	Birch, white Aspen, trembling Chokecherry, eastern	Bolney, Canwood and Green Lake	Low populations.
Campaea perlata Gn. (Fringed looper)	Elm, white Ash, green Caragana Birch, white	Prince, and Mont Nebo	Trace, no visible damage.
Carynota stupida Wlk. (A tree hopper)	Birch, white	Jeannette Lake	High populations, causing light damage to branches.

Insect	Host(s)	Locality	Remarks
Cecidomyia negundinis Gill. (A Midge)	Maple, Manitoba	Dorintosh and Krydor	Light damage to foliage.
Chermes lariciatus Patch (Spruce pineapple gall aphid)	Spruce, white	Greig Lake and Hafford	Moderate damage to regeneration at Greig Lake.
Choristoneura conflictana Wlk. (Large aspen tortrix)	Aspen, trembling	Bolney and Hafford	Very low populations.
Chrysomela crotchi Brown (Aspen leaf beetle)	Aspen, trembling	Cold, Flotten, and Jeannette lakes	Complete defoliation to several saplings at Jeannette Lake.
Coccinella transversoguttata richardsonii Brown (A ladybeetle)	All hosts	Throughout the district	Moderate populations feeding on aphids.
Cyphon variabilis Thunb. (False flower beetle)	Pine, jack Spruce, black Tamarack	Buffalo Narrows, Canwood, Turtleford; Memorial and Peck lakes	No noticeable damage.
Eriophyes spp. (Mites)	Birch, white Willow Chokecherry, eastern	Corn Beef Creek; Lac la Plonge, Cold, Pierce, Hertz, Worthington and Bronson lakes.	Severe leaf damage to cherry at Worthington Lake.
Eriosoma americanum (Riley) (Woolly elm aphid)	Elm	Turtleford, Glenbush and The Battleford's Provincial Park	Light damage to leaves of shelterbelt trees.
Hemichroa crocea (Fourcroy) (Striped alder sawfly)	Alder	Canoe, Flotten and Keeley lakes	Severe defoliation to lake shore alder at Flotten and Canoe lakes.
Idiocerus lachrymalis Fitch (A leaf hopper)	Aspen, trembling Poplar, balsam Pine, jack	Bronson, Fishing, Memorial and Little Loon lakes, Turtleford and Bolney	Common but causing little damage.

Insect	Host(s)	Locality	Remarks
Idiocerus populi L. (A leaf hopper)	Aspen, trembling Poplar, balsam	Throughout the district	Moderate populations; damage light.
Itame loricaria Evers. (A looper)	Aspen, trembling Poplar, balsam	Sled Lake and Frenchman Butte	Very low populations.
Lepyrus palustris Scop. (A weevil)	Aspen, trembling Poplar, balsam Willow	Lac des Iles, Green, Cold, Bronson, Brightsand, Loon and Little Loon lakes	Low adult populations.
Mayetiola rigidae (O.S.) (Beaked willow gall fly)	Willow	Throughout the district	Light populations causing very little damage.
Oberea schaumi Lec. (Poplar twig borer)	Aspen, trembling	Canwood; Loon and Midnight lakes	Populations low; damage trace.
Operophtera bruceata Hlst. (Bruce spanworm)	Willow Aspen, trembling Maple, Manitoba	Bolony, Glaslyn and Meeting Lake	Low populations.
Orsodacne atra Ahr. (A leaf beetle)	Most deciduous hosts	Throughout the district	Common but causing little damage.
Pandemis canadana Kft. (A leaf roller)	Willow Aspen, trembling Birch, white	Buffalo Narrows, Glaslyn, Bolney, and Lilac; Meeting, Fishing and Memorial lakes	Light damage to foliage.
Pemphigus populi-caulis Fitch (A gall aphid)	Poplar, balsam	Corn Beef Creek; Loon, Little Loon, Meeting and Ministikwan lakes	Low populations with a trace of damage.
Pemphigus populi-transversus Riley (Poplar petiole gall aphid)	Poplar, balsam	Lac la Plonge, Loon, Brightsand, Memorial, Ministikwa and Fish lakes	Common, causing very light damage.
Petrova albi-capitana (Busck.) (Pitch nodule maker)	Pine, jack	Edwards, Loon and Brightsa d lakes	Populations very low.

Insect	Host(s)	Locality	Remarks
Phyllocolpa spp. (Leaf folding sawflies)	Aspen, trembling Willow Poplar, balsam	Throughout the district	Moderate populations of P. nr. agama. Light Light populations of P. nr. robusta. A trace of P. nr. nigrata.
Phyllocnistis populiella Cham. (Aspen leaf miner)	Poplar, balsam Aspen, trembling	Throughout the district	Light damage to single leaves.
Pikonema alaskensis (Roh.) (Yellow-headed spruce sawfly)	Spruce, white	Dorintosh, Glenbush; Memorial, Loon, and Peck lakes	Light defoliation to shelterbelt at Glenbush.
Pikonema dimmockii (Cress.) (Green-headed spruce sawfly)	Spruce, white	Steele Narrows and Glenbush	Low populations; trace of damage.
Pontania sp. (A sawfly)	Willow	Buffalo Narrows; Canoe and Pierce lakes; Lilac, St. Cyr and Martins Lake Regional Park	Galls light throughout.
Rhabdophaga strobiloides (Walsh) (Cone gall midge)	Willow	Canoe, Jeannette, Fishing, Little Loon, Ministikwan, Chitek lakes; Goodsoil and The Battleford's Provincial Park	Very low populations.
Saperda calcarata Say (The poplar borer)	Poplar, balsam Aspen, trembling	Loon, Ministikwan and Mewasin lakes	Moderate root damage to regeneration balsam poplar at Mewasin Lake
Thecabius affinis (Kalt.) (Leaf-gall aphid)	Aspen, trembling	Fishing, Loon and Worthington lakes	Low populations.
Trichiosoma triangulum Kby. (A sawfly)	Aspen, trembling Poplar, balsam	Lac la Plonge and Cold Lake	Moderate adult populations at Cold Lake.
Zeugophora scutellaris Suffr. (Cotton-wood leaf mining beetle)	Aspen, trembling Poplar sp.	Hertz Lake and the Battleford's Provincial Park	High population with moderate leaf damage at the Battleford's Provincial Park.

DISEASE CONDITIONS

MISTLETOE OF JACK PINE, Arceuthobium americanum Nutt. ex Engelm.:- This parasite of Pinus banksiana Lamb. appeared throughout the district, but was most common in old unburned stands. Heavy brooming occurred in the Meadow Lake Provincial Park near Matheson Lake; at Ile a la Crosse, Keely and Fishing lakes. Light brooming was recorded at Jeannette, Dore, Brightsand, Canoe and Clearwater lakes; Mont Nebo, 25 miles north of Beauval and at Blue Bell on the Beaver River. The hyperparasite Wallrothiella arceuthobii (Pk) Sacc. was found at Jeannette Lake.

LEAF RUSTS, Puccinia spp.:- These rusts were commonly found on a number of hosts throughout the district. Puccinia caricis-urticata moderately infected the host Urtica gracilis Ait. - common nettle, in the Loon Lake area. Puccinia recondita Rob. ex Desm. was found infecting whole plants of Thalictrum venulosum Trel. - viney meadow rue, at Glenbush, Memorial and Meeting lakes. Puccinia coronata Cda, the most common rust was found lightly infecting three hosts throughout the district; Shepherdia canadensis (L.) Nutt. - Canada buffalo berry, Elaeagnus commutata Bernh. - silverberry and Rhamnus alnifolia L'Her, - alder-leaved buckthorn. Other rusts causing light infections appear in the following table:

Rust	Host
Puccinia calthae Link	Caltha palustris L.
Puccinia caricis (Schum.) Schroet var. grossulariata Arth.	Ribes sp.
Puccinia caricis-shepherdiae J.J. Davis	Shepherdia canadensis (L.) Nutt.
Puccinia hieracii (Roehling) Mart.	Hieracium canadense Michx.
Puccinia linkii Klotzsch	Viburnum trilobum Marsh
Puccinia punctata Link	Galium boreale L.

HYPOXYLON CANKER, Hypoxylon mammatum (Wahl):- This canker appears commonly on Populus tremuloides Michx. throughout the district. Light mortality was recorded at Big River, Erinferry, Canwood, Meadow Lake, Loon Lake, Lac des Iles; Martins, Fish, Meeting, and Ministikwan lakes. One collection was taken from Populus balsamifera L. at Big River.

LEAF AND TWIG BLIGHT OF POPLAR, Pollaccia radiosa (Lib.) Bald. & Cif.:- Traces of this infection were found at Steele Narrows, Lac des Iles, Canoe Fishing, Cold, Keeley and Ministikwan lakes.

Study plots established in 1966 were retallied and a summary of the results is shown in Table II.

TABLE II

Location and size of plot	Year	Percent of trees infected	Percent current shoots infected
Goodsoil	1966	100	5.67
46.5' x 46.5'	1967	100	2.98
	1968	79	2.89
	1969	60	1.06
Nelson Hill	1966	90	1.83
46.5' x 46.5'	1967	53	0.76
	1968	90	3.15
	1969	15	0.09

SPRAY DAMAGE:- The use of weed killer caused extensive damage within the Battleford's Provincial Park. Some branch mortality was noted on planted trees. Heavy damage was also recorded at Mewasin Lake where a parking lot was sprayed for weeds. One hundred and twenty miles of powerline was sprayed from Green Lake to Buffalo Narrows along Highway 155. The result was not only tree and shrub mortality but some insects as well.

REDDENING OF BALSAM FIR:- This condition was noted at Flotten, Canoe, Shirly lakes and at Buffalo Narrows, usually to trees that had been exposed as a result of road construction and cutting. In most cases, the whole tree was affected resulting in mortality.

FROST DAMAGE:- This condition occurred throughout the district as a result of frost late in June. Extensive damage to the shoots of white spruce regeneration was noted at Hertz and Brightsand lakes. Heavy leaf damage occurred to white birch and trembling aspen in the Cold, Edwards and Muskeg lakes area.

OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Apiosporina collinsii (Schw.) Hohn. (A witches' broom)	Saskatoon	Throughout the district	Some heavy brooming at Frenchman Butte.
Caliciopsis calicioides (Ell. & Ev.) Fitzp. (A bark fungus)	Poplar, balsam	Corn Beef Creek, Lac la Plonge; Canoe, Cowan, Martins, and Memorial lakes	Traces found on mature trees.

Organism and Disease	Host(s)	Locality	Remarks
Chrysomyxa arctostaphyli Diet. (Yellow witches' broom)	Spruce, black and white	Throughout the northern portion of the district	Scattered brooms; light branch mortality.
Chrysomyxa ledi (Alb. & Schw.) deBary (Spruce needle rust)	Labrador tea	Goodsoil	Trace.
Chrysomyxa ledicola (Peck) Lagerh. (Spruce needle rust)	Labrador tea Spruce, white	Buffalo Narrows, St. Cyr, Beacon Hill	Trace.
Ciborina foliicola (Cash & Davidson) Whetzel (Black rib of willow)	Willow	Loon Lake	Light infection on a single clump of willow.
Coccomyces hiemalis Higgins (Shot hole of cherry)	Chokecherry Pin cherry	Ile a la Crosse, Beacon Hill, Hafford; Loon, Worthington, Martins and Clearwater lakes	Infections causing light leaf damage.
Cronartium comandrae Pk (Comandra blister rust)	Pine, jack Pale comandra	Steele Narrows, Nelson Hill and Mewasin Lake	Very low infections.
Dibotryon morbosum (Schw.) T. & S. (Black knot of cherry)	Chokecherry, eastern	Buffalo Narrows, Ile a la Crosse, Nelson Hill; Ministikwan and Clearwater lakes	Moderate infections at Buffalo Narrows and Ministikwan Lake.
Diplodia tumefaciens (Shear) Zalasky (Globose gall of poplar)	Aspen, trembling	Ile a la Crosse, Nelson Hill and Loon Lake	Heavy infection with branch and tree mortality at Loon Lake.
Euryachora betulina (Fr.) Schroet. (A leaf spot)	Birch, white	Buffalo Narrows, Corn Beef Creek and St. Cyr	Very light infections.
Fomes igniarius (L. ex Fr.) Gill. (White trunk rot)	Aspen, trembling	Ile a la Crosse, Canoe, Keeley, Flotten and Fishing lakes and Frenchman Butte	Light scattered infections causing some tree mortality.

Organism and Disease	Host(s)	Locality	Remarks
Gymnosporangium clavipes Cooke & Peck (A rust)	Saskatoon	Loon Lake	Light infections causing some damage to leaves and fruit.
Hemimyriangium betulae Reid & Pirozynski (A tar spot)	Birch, white	Buffalo Narrows, Corn Beef Creek, Steele Narrows; Birch, Bronson, Brightsand, Round, Cold and Jeannette lakes	Light infections to the glands causing very little damage.
Hypoxylon fuscum (Pers. ex Fr.) Fr. (A canker)	Birch, white	Corn Beef Creek, Steele Narrows, Flotten Lake, and Big River	Light infections.
Libertella betulina Desm. (A dieback)	Birch, white	Buffalo Narrows, Steele Narrows; Fish, Canoe and Loon lakes	Very low incidence.
Melampsora bigelowii Thum (Larch-willow rust)	Willow	Throughout the district	Common with light infections.
Nectria cinnabarina (Tode ex Fr.) Fr. (Canker and dieback)	Maple, Manitoba Raspberry	Northern Pine, Beacon Hill, Dorintosh, Glaslyn, Loon and Pierce lakes	Common on shelterbelt maple.
Peridermium harknessii J.P. Moore (Western gall rust)	Pine, jack	Corn Beef Creek; Jeannette, Edwards, Macallum and Fishing lakes	Very light infections.
Phaeoramularia maculicola (Rom. & Sacc.) Sutton (A leaf spot)	Aspen, trembling	Throughout the district	Very common but causing little leaf damage.
Phragmidium speciosum (Fries) Cooke (Rust)	Rose	Throughout the district	Moderate infections on whole plants at Loon Lake and Dore Lake.
Pollaccia elegans Serv. (Leaf and shoot blight)	Poplar, balsam	Jeannette and Loon lakes	Very low incidence.

Organism and Disease	Host(s)	Locality	Remarks
Polyporus pargamenus Fr. (A slash fungus)	Poplar, balsam Aspen, trembling	Buffalo Narrows; Jeannette, Dore, Fish, Martins and Little Loon lakes	Common on old dead trees.
Pucciniastrum epilobii Otth. (A needle rust)	Fir, balsam	Buffalo Narrows	Light on balsam fir regeneration.
Ramularia tulasnei Sacc. (A leaf spot)	Strawberry	Lac la Plonge and Loon Lake	Light to moderate leaf infection.
Rhytisma salicinum Pers. ex Fr. (Tar spot on willow)	Willow	Throughout the district	Moderate infections on the south shore of Lac des Iles.
Shaeropsis albescens Ell. & Ev. (A leaf spot)	Maple, Manitoba	Pierce Lake, Edam, Hafford, Dorintosh and Krydor	Common but causing little damage.
Taphrina pruni (Fckl) Tul. (Fruit rot)	Pembina plum Chokecherry	Martins Lake and Beacon Hill	Moderate infections causing foliage and fruit damage to a plum orchard at Beacon Hill.
Tryblidiopsis pinastri (Fr.) Karst. (A saprophyte)	Spruce, white	Buffalo Narrows, Dorintosh, Mont Nebo, Prince; Brightsand and Memorial lakes	Common on dead branches of living trees.
Tubercularia ulmea Carter (Dieback)	Maple, Manitoba	Turtleford, Prince, Glenbush, Edam, Spruce Lake and the Battleford's Provincial Park	Light damage to shelterbelt trees.
Uncinula salicis (Fr.) Wint. (Powdery mildew)	Willow Poplar, balsam	Lac la Plonge, Steele Narrows, Big River; Pierce, Meeting, Rusty, and Ministikwan lakes	Light infections throughout.

WESTERN PRAIRIE DISTRICT

SASKATCHEWAN

1969

by

B.E. Mroske

INTRODUCTION

The Western Prairie District was surveyed for forest insects and tree diseases from May 21 to September 5. During this period 1,267 insect and 263 disease samples were submitted to the Winnipeg laboratory for identification.

Heavy frost was recorded during mid-June which impeded insect and host development throughout the district.

Sixty-nine farm shelterbelts were sampled twice during the season as well as the majority of Regional and Provincial parks.

In addition, a number of mass and special collections were made and the following survey sub-projects were carried out: (1) tree disease studies in the Cypress Hills Provincial Park, (2) a small mammal survey in the Cypress Hills Provincial Park and (3) Aceria parapopuli (Keifer) counts in the southern portion of the district.

In the Cypress Hills Provincial Park, large aspen tortrix populations were very light. Isolated pockets of fall cankerworm occurred throughout the district. Spruce budworm remained at very low population levels in the west block of the Cypress Hills. Unusually high populations of aphids on caragana were present over most of the district.

INSECT CONDITIONS

POPLAR BUD-GALL MITE, Aceria parapopuli (Keifer):- Moderate to severe branch damage caused by old galls was recorded at Environ, Demaine, Lac Pelletier and Maxstone. Moderate to severe infestations of new galls were recorded at Leader, Kindersley, Neville, Kyle and Gravelbourg. Lighter infestations occurred at Battleford, Kerrobert, Pike Lake Provincial Park and Piapot. Individual galls were found at Frontier and Consul.

Hybrid poplars were more susceptible to this pest than the native trembling aspen.

In addition to general survey, a specific bud-gall count was made at points across the district.

APHIDS on Caragana:- A steady build-up of aphid populations took place during the summer. By late summer and early fall, there was a premature dropping of leaves which could be attributed to these infestations. In certain areas, defoliation was quite severe. The defoliation was most conspicuous in the area from Plunkett to Asquith and Borden, as well as in the vicinity of Conquest. Defoliation was also noticeable in the area between Hazlet and Leader.

PRAIRIE TENT CATERPILLAR, Malacosoma lutescens (N. & D.):- This insect occurred throughout the district. Moderate to high populations were recorded on Rose sp. between Mortlach and Ernfold and on Chinese elm at Gull Lake. Other collections were made at Riverhurst, Piapot, Leader, Abbey, Saskatchewan Landing, Pike Lake Provincial Park, Bordeau, Battleford and Atton's Lake Regional Park.

Mass collections were taken in the vicinity of Mortlach and Gull Lake.

FALL CANKERWORM, Alsophila pometaria (Harr.):- Low populations of this insect were present throughout the district. Severe defoliation occurred on white elm in the McCord-Aneroid area. Light to moderate populations were recorded at Cutbank and Mortlach. Other collections were made at Limerick, Meyronne, Gravelbourg, Bounty, Conquest, Ernfold, Palliser Regional Park, Richlea, Eastend, Frontier, Climax, Stranraer and Kindersley. There were indications that a heavy frost on June 12 reduced larval populations.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Acronicta lepusculina Gn. (Dagger moth)	Maple, Manitoba	Wymark	No damage.
Adelges cooleyi Gillette (Cooley spruce gall aphid)	Spruce, white	Smiley and Scott	Low populations; no damage.
Agrilus criddlei Frost (A wood borer)	Willow	Limerick	Low populations.
Amauronematus spp. (Sawflies)	Poplar sp. Maple, Manitoba Willow	Conquest, Stranraer and Wood Mountain	Low populations; light damage.
Archips cerasivoranus (Fitch) (Ugly-nest caterpillar)	Cherry Chokecherry, eastern	Saskatchewan Landing, Saskatoon and Borden	Low populations; light damage.
Archips negundanus (Dyar) (A leaf roller)	Maple, Manitoba	Common in the northern portion of the district	Low populations; light defoliation.
Archippus packardianus (Fern) (A leaf roller)	Spruce, white	Waldheim and Laird	Trace on farm shelterbelts.

Insect	Host(s)	Locality	Remarks
Biston cognataria (Gn.) (Pepper-and-salt moth)	Maple, Manitoba Elm, white Caragana Willow	Throughout the southern portion of the district	Very low populations; no damage.
Bucculatrix canadensisella Cham. (Birch skeletonizer)	Birch, water	Battleford	Moderate infestation.
Campaea perlata (Gn.) (Fringed looper)	Elm, Chinese Maple, Manitoba Chokecherry, eastern Caragana	Kerrobert, Maymont, Borden, Waseca and Wilbert	Scattered larvae; no damage.
Cecidomyia negundinis Gill. (Boxelder gall midge)	Maple, Manitoba Ash, green	Throughout the district	Light scattered infestations.
Chalcoides sp. (A leaf beetle)	Willow Poplar sp.	Meyronne and Leader	Low populations; very light damage.
Chermes lariciatus (Patch) (Spruce pineapple gall aphid)	Spruce, white	Laird	Single collection.
Choristoneura conflictana (Wlk.) (Large aspen tortrix)	Aspen, trembling Poplar spp.	All blocks of the Cypress Hills, Wood Mountain, Meyronne, Tompkins, Battleford, and Craik Regional Park	Moderate populations in the East Block of the Cypress Hills; otherwise trace to low populations.
Choristoneura fumiferana (Clem.) (Spruce budworm)	Spruce, white and Colorado	Northern portion of the district and in the Cypress Hills	Low populations; no visible defoliation.
Choristoneura pinus pinus Free. (Jack-pine budworm)	Pine, Scots	Hazlet	Trace of population; no damage.

Insect	Host(s)	Locality	Remarks
Choristoneura rosaceana Harr. (Oblique-banded leaf roller)	Caragana Elm, white Ash, green Poplar sp.	Rosthern, Uren, Richlea, Portreeve, Hazlet, Shaunavon and Assiniboia	Trace to low populations; very light damage.
Cimbex americana Leach. (Elm sawfly)	Willow	Birsay	Single collection.
Contarinia virginianiae (Felt.) (Chokecherry midge)	Chokecherry, eastern	Kerrobert, Conquest, Riverhurst, Moose Jaw, Outlook and Maple Creek	Low to moderate populations; light damage.
Curculionid sp. (A weevil)	Poplar spp. Aspen, trembling	Mortlach, Conquest and Wood Mountain	Low to moderate populations; catkins infested.
Cynipid spp. (Gall midges)	Aspen, trembling Poplar sp. Willow Caragana	Throughout the district	Low, scattered populations mainly on aspen.
Cyphon variabilis Thunb. (False flower beetle)	Poplar spp.	Hazenmore and Maxstone	Low populations; light damage.
Dichelonyx subvittata Lec. (A leaf chafer)	Aspen, trembling	Piapot	Single collection.
Dioryctria reniculella (Grote) (Spruce coneworm)	Spruce, white and Colorado	Maymont, Elstow, and Pike Lake Provincial Park	Low populations; very light defoliation.
Epicnaptera americana (Harr.) (A lappet moth)	Poplar sp.	Biggar	Single collection.
Epinotia solandriana Linn. (A leaf roller)	Birch sp. Aspen, trembling	Borden and Waseca	Traces of populations; no damage.
Erannis tiliaria (Harr.) (Linden looper)	Maple, Manitoba Elm, Chinese Elm, white Poplar sp. Caragana Chokecherry, eastern	Scattered throughout the district	Trace to low populations; very light damage.

Insect	Host(s)	Locality	Remarks
Eriophyes fraxiniflora (Felt) (Ash flower gall)	Ash, green	Herbert and Scott	Moderate infestation on one tree at Scott; trace elsewhere.
Eriosoma americanum (Riley) (Woolly elm aphid)	Elm, white	Throughout the district	Moderate infestations at Leader, Smiley, Gravelbourg and Hazenmore; light elsewhere.
Eupareophora purca (Cr) (Ash sawfly)	Ash, green	Maxstone, Meyronne and Hanley	Moderate infestation and damage at Meyronne; light elsewhere.
Gonioctena americana (Schaef.) (American aspen beetle)	Aspen, trembling Willow	East and Park Blocks - Cypress Hills	Light to moderate infestations in the Park Block; skeletonizing light.
Gracillarid spp. (Blotch miners)	Elm, white Poplar, balsam Maple, Manitoba Birch, water	Throughout the district	Moderate infestation at Outlook on white elm; little damage elsewhere.
Gracillaria negundella Cham. (Boxelder leaf roller)	Maple, Manitoba	Bounty, Meyronne, Elstow, Osler and Borden	Traces of populations; very light damage.
Halisidota maculata (Harr.) (Spotted tussock moth)	Maple, Manitoba Ash, green Elm, white Poplar sp.	Wymark, Antelope, Stewart Valley, Gull Lake, Neville and Canuck	Trace to low populations; very light damage.
Hyphantria cunea (Drury) (Spotless fall webworm)	Chokecherry, eastern	Saskatchewan Landing and Palliser Regional Park	Single tents at both locations.
Idiocerus lachrymalis Fitch (A leaf hopper)	Aspen, trembling	West and Park Blocks of the Cypress Hills	High populations in the West Block but little damage.
Idiocerus populi L. (A leaf hopper)	Poplar sp. Aspen, trembling	Wood Mountain and Park Block of the Cypress Hills	Trace to low populations; very light damage.

Insect	Host(s)	Locality	Remarks
Itame loricaria Evers. (A looper)	Elm, white and Chinese Aspen, trembling Birch, water Poplar, balsam Poplar sp.	Scattered throughout the district	Traces to low populations; usually found in conjunction with fall cankerworm.
Itame ribearia Fitch. (A looper)	Gooseberry	Leader	Single larval collection.
Leptocoris trivittatus (Say) (Boxelder bug)	Maple, Manitoba Elm, white	Demaine and Eastend	Low populations; very light damage.
Linsleya sphaericollis (Say) (A blister beetle)	Maple, Manitoba Ash, green	Lemsford and Saskatchewan Landing	Trace of populations.
Lithocolletis salicifoliella Cham. (Aspen blotch miner)	Aspen, trembling Poplar, balsam	Battleford, Birsay, Pike Lake Provincial Park and the East Block of the Cypress Hills	Low populations; light damage.
Lithophane sp. (Owlet moth)	Elm, white Willow Ash, green Maple, Manitoba Caragana Poplar sp.	Hazlet, Portreeve, Climax, Bracken, Eastend and McCord	Traces of populations; no visible damage.
Lopidea dakota (Knight) (Caragana plant bug)	Caragana Elm, Chinese and white Chokecherry, eastern	Throughout the district	Generally low populations; damage negligible.
Malacosoma disstria Hbn. (Forest tent caterpillar)	Poplar, balsam Aspen, trembling	East Block of the Cypress Hills	Low populations; nil defoliation.
Mayetiola rigidae (O.S.) (Beaked willow gall fly)	Willow	Mortlach, West and Park Blocks of the Cypress Hills	Low to moderate populations; light damage.
Melanolophia canadaria Gn. (A looper)	Maple, Manitoba Gooseberry	Keeler and Saskatchewan Landing	Traces of populations; no visible damage.

Insect	Host(s)	Locality	Remarks
Messa populifoliella (Townsend) (A leaf mining sawfly)	Poplar spp.	Wymark	Low population; little damage.
Mordwilkoja vagabunda (Walsh) (Poplar vagabond gall aphid)	Aspen, trembling Poplar spp.	Scattered throughout the district	Low populations with limited damage.
Nematocampa filamentaria Gn. (A solitary defoliator)	Elm, white Caragana Maple, Manito a	McCord, Bracken Hazenmore and Gull Lake	Low populations; very light damage.
Nematus populi Marl. (A sawfly)	Poplar sp. Poplar, balsam	Portreeve and Hazlet	Low populations and very light damage.
Neoborus amoenus Reut. (A mirid)	Ash, green	Throughout the district	Moderate infestation in the Leader area; otherwise low populations.
Nymphalis antiopa (L.) (Mourning cloak butterfly)	Elm, Chinese and white	Maple Creek, Lemsford, Portreeve, Eastend, Gull Lake and Saskatchewan Landing	Traces to low populations; light damage. Most common in parks.
Oligonychus ununguis (Jac.) (Spruce spider mite)	Spruce, white and Colorado	Throughout the district	Light to moderate populations and damage in most spruce shelterbelts.
Operophtera bruceata (Hulst.) (Bruce spanworm)	Chokecherry, eastern Maple, Manito a Poplar spp. Ash, green Willow Aspen, trembling	Scattered points throughout the district	Trace to low populations; very little damage.
Orsodacne atra (Ahr.) (A leaf beetle)	Caragana	Wilbert and Maidstone	Traces of populations; no damage.
Orthosia hibisci Gn. (An owlet moth)	Poplar, balsam Aspen, trembling Elm, white Birch, water Poplar spp.	Outlook, Piapot, Battleford and the West Block of the Cypress Hills	Traces to low populations; very light damage.

Insect	Host(s)	Locality	Remarks
Pandemis canadana Kft. (A tortricid)	Maple, Manitoba Caragana Elm, white Aspen, trembling Birch sp.	Assiniboia, Hanley, Rosthern, Borden, Highgate, Battleford, Wilbert and Maidstone	Moderate infestation at Assiniboia; otherwise low populations.
Parorgyia vagans B. & McD. (A tussock moth)	Aspen, trembling Poplar sp.	Birsay and Meyronne	No visible damage.
Pemphigus populi-transversus Riley (A poplar petiole gall aphid)	Poplar, balsam	Birsay and Kenaston	Moderate infestation at Kenaston.
Pemphigus spp. (Aphids)	Poplar, balsam Poplar spp.	Throughout the Cypress Hills, Mendham and Mortlach	Low populations; light damage.
Phenacaspis pinifoliae (Fitch) (Pine needle scale)	Spruce, white and Colorado Pine, Scots and lodgepole	Throughout the district	Moderate damage at Smiley, Waldeck and Gravelbourg; otherwise light infestations.
Phigalia titea Cr. (A looper)	Ash, green	Maple Creek	Single larval collection.
Phyllocnistis populiella Cham. (Aspen leaf miner)	Poplar spp. Poplar, balsam Aspen, trembling	West and Park Blocks of the Cypress Hills, Portreeve, Tompkins, Lucky Lake, Borden, Maidstone and Maple Creek	Moderate population in the Cypress Hills; otherwise light.
Phyllocolpa spp. (Sawflies)	Poplar, balsam Poplar spp. Aspen, trembling Willow	Throughout the district	P. nr. agama, moderate at Saskatchewan Landing, Kenaston, and Richmound; P. nr. nigrata, low populations; P. nr. robusta, moderate at Gull Lake.

Insect	Host(s)	Locality	Remarks
Physokermes piceae Schr. (Spruce bud scale)	Spruce, white	Cypress Hills Provincial Park	Trace of population; single collection.
Pikonema alaskensis (Roh.) (Yellow-headed spruce sawfly)	Spruce, white and Colorado	Tompkins, Kerrobert, Marsden, Marshall, Lilac, Maymont and Laird	Very low populations at all points.
Pikonema dimmockii Cress. (Green-headed spruce sawfly)	Spruce, white and Colorado	Simmie, Tompkins, Waseca, Denzil Lone Rock and the West Block of the Cypress Hills	Low populations; no visible damage.
Pontania proxima Lep. (A sawfly on willow)	Willow	Scattered points throughout the district	Moderate gall populations at Stewart Valley and Pambrun; otherwise light infestations.
Proteoteras willingana Kft. (Boxelder twig borer)	Maple, Manitoba	Throughout the district	Light damage to maple twigs.
Pseudexentera oregonana Wlshm. (A leaf roller moth)	Aspen, trembling	Birsay and Battleford	Light populations; no visible damage.
Pyrrhalta decora (Say) (Gray willow-leaf beetle)	Aspen, trembling	Battleford and Waseca	Traces of populations; no damage.
Saperda populnea moesta Lec. (A poplar wood borer)	Poplar sp.	Neville	Single collection.
Schizura unicornis J.E. Smith	Ash, mountain	Wymark	Single larval collection.
Sciaphila duplex Wlshm. (Leaf roller)	Aspen, trembling	East Block of the Cypress Hills	Single larval collection.

Insect	Host(s)	Locality	Remarks
Tetralopha aplastella Hlst. (Aspen webworm)	Aspen, trembling	Pike Lake Provincial Park	Trace of population.
Thecabius affinis (Kalt.) (Leaf-gall aphid)	Poplar, balsam	Birsay	Single gall collection.
Trichiosoma triangulum Kby. (A sawfly)	Saskatoon	Cypress Hills Provincial Park	Low population; no damage.
Zenobia pleonectusa manitobae Stand (An owlet moth)	Aspen, trembling Poplar sp.	Battleford and Highgate	Traces of populations; no damage.
Zeugophora abnormis Lec. (Leaf mining beetle)	Poplar sp.	Kelfield	Very light population.
Zeugophora scutellaris Suffr. (Cottonwood leaf mining beetle)	Poplar spp.	Shaunavon, Stewart Valley, Tompkins, Hazlet and Highgate	Light populations at all points; little damage.

DISEASE CONDITIONS

CYTOSPORA CANKER, Cytospora spp.:- Moderate infections of this disease were recorded at Leader on Poplar sp., and at Besant on green ash, and in the Cypress Hills Provincial Park on trembling aspen. Other collections were made at Davidson, Lemsford, Fox Valley, Eyebrow, Maple Creek, West Block of the Cypress Hills, Neville, Pambrun, Mortlach, Moose Jaw and Lemsford.

LEAF AND TWIG BLIGHT OF POPLARS, Pollaccia radiosa (Lib.) Bald & Cif.:- This shoot blight was largely confined to the Cypress Hills with collections taken from the Park and West Block of the Cypress Hills.

A permanent plot of aspen located in the Cypress Hills Provincial Park was retallied this year and a summary for the past four years is outlined in the following table.

Locality	Year	Percent of trees infected	Percent of current shoots infected
Cypress Hills Provincial Park	1966	100	64.1
	1967	85	1.4
	1968	80	4.3
	1969	90	4.6

OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Apiosporina collinsii (Schw.) Hohn (A witches' broom)	Saskatoon	Cypress Hills Provincial Park	Light infection; single collection.
Camarosporium caraganae Karst. (Slash fungus)	Caragana	Mortlach, Loreburn, Highgate, Battleford, Wilbert and Denzil	Light infections; confined to small patches.
Coccomyces hiemalis Higgins (Shot hole of cherry)	Chokecherry, eastern	Saskatchewan Landing	High incidence but a low intensity.
Cryptochaeta rufa (Fr.) Karst. (Slash fungus)	Aspen, trembling	Besant and Cutbank	Light infections on dead, lower branches.
Cucurbitaria caraganae Karst. (A stem canker)	Caragana	Rosthern, Kerrobert and Waldheim	Confined to small patches in shelterbelts.
Cytospora chrysosperma Fr.	Poplar spp.	Waldheim, Macklin and Kerrobert	Only the occasional tree infected.
Drepanopeziza populorum (Desm.) v. Hohn. (A leaf spot)	Aspen, trembling	North Battleford and Asquith	Occasional moderate infection at North Battleford and Asquith.

Organism and Disease	Host(s)	Locality	Remarks
Drepanopeziza sphairoides (Fr.) Nannf. (Witches' broom on willow)	Willow	Besant	Light infection; single collection.
Gymnosporangium corniculans Kern (A rust)	Saskatoon	Saskatchewan Landing and Outbank	Moderate infection at Saskatchewan Landing; light at Outbank.
Gymnosporangium cornutum Arth. ex Kern	Ash, mountain	West Block of the Cypress Hills	One clump of ash infected.
Hypoxylon mammatum (Wahl) Miller (Hypoxylon canker)	Aspen, trembling	Scattered throughout the northern portion of the district	Generally very low infections.
Hysterographium fraxini (Pers. ex Fr.) deNot.	Ash, green Elm, white	Outlook	Light infection; only collected at Outlook.
Melampsora bigelowii Thum. (A larch-willow rust)	Willow	Cypress Hills Provincial Park, Besant and Bridgeford	Moderate infections at Besant and Bridgeford.
Nectria cinnabarina (Tode ex Fr.) Fr.	Ash, mountain	Muenster	From dead standing stems.
Phragmidium speciosum (Fries) Cooke (Rust)	Rose	West Block of the Cypress Hills	Moderate infection; single collection.
Podosphaera oxyacanthae (DC.) Lev	Cherry, shubert	Saskatchewan Landing	Moderate infection.
Pollaccia elegans Serv. (Leaf and twig blight of poplar)	Poplar sp. Poplar, balsam	East Block of the Cypress Hills and Limerick	Light infection at both points.
Sclerophoma pithyophila (Cda) Hohn.	Pine, jack	Mortlach	Very light infection.

Organism and Disease	Host(s)	Locality	Remarks
Septoria musiva Pk (A leaf blight)	Poplar, balsam	East Block of the Cypress Hills	Light infection.
Sphaeropsis albescens Ell. and Ev. (Dieback)	Maple, Manitoba	Pambrun	Light infection; single collection.
Stigmia negundinis (Berk. and Curt.) M.B. Ellis (Dieback)	Maple, Manitoba	Mortlach, Fox Valley, Lemsford, Borden, Kerrobert and Laird	Light infections associated with Manitoba maple dieback.
Tubercularia ulmea Carter (A dieback)	Maple, Manitoba	Neville and Pambrun	Light infections in farm shelterbelts.
Uncinula salicis (Fr.) Wint. (Powdery mildew)	Poplar, balsam Aspen, trembling Willow Poplar sp.	Throughout the Cypress Hills and Davidson	Moderate infection in the Cypress Hills.
Valsa sp. (Canker)	Poplar spp. Elm, Chinese Willow Chokecherry, eastern	Scattered points throughout the southern portion of the district	Moderate infection at Saskatchewan Landing; otherwise light infections.

CENTRAL PRAIRIE DISTRICT

SASKATCHEWAN

1969

by

C.L. Rentz and K.L. Mortensen

INTRODUCTION

Forest insect and tree disease surveys for 1969 commenced on May 20, and terminated on September 5. Exceptionally cool weather during the second week of June retarded both foliage and insect development. This was followed by above normal precipitation in July and in August by above normal temperatures. Totals of 618 insect and 118 disease samples were submitted to the Winnipeg Laboratory during the field season.

In addition to general and shelterbelt sampling, greater emphasis was placed on the sampling of Provincial and Regional parks.

The almost complete collapse of the fall cankerworm, Alsophila pometaria (Harr.) highlighted the field season. However, the woolly elm aphid, Eriosoma americanum (Riley) was found on most of the elm sampled.

In addition to sampling for distribution purposes, mass and special collections for parasite and life history studies, small mammals were trapped for population studies, and two disease plots were retallied.

There was a decline in all annual diseases, however, hail and wind did cause severe damage in some localized areas.

INSECT CONDITIONS

COTTONWOOD LEAF MINING BEETLE, Zeugophora scutellaris Suffr.:- Severe leaf-mining damage to a single row of Northwest Poplars occurred at the Indian Head Forest Nursery Station. Three trees were moderately infested in the Echo Valley Provincial Park and light leaf-mining was recorded in a shelterbelt near Weyburn and on a few trees near Ft. Qu'Appelle. Elsewhere damage was very light and widely scattered.

PRAIRIE TENT CATERPILLAR, Malacosoma lutescens (N. & D.):- These tent caterpillars were commonly found and infestations were generally confined to roadside chokecherry and rose. Occasionally light populations were recorded on aspen reproduction and ornamental shrubs. The heaviest populations occurred along the Qu'Appelle Valley, where patches of chokecherry were moderately infested. In the remainder of the district usually only individual clumps or small trees were affected.

APHIDS ON CARAGANA:- Aphids were very commonly found on caragana throughout the district. Very high populations were recorded at the Indian Head Nursery Station, Regina, Moose Jaw, Weyburn, Estevan, Melville and Plunkett. Early leaf drop of caragana in these areas was attributed to these aphids. In some of these areas however, partial refoliation took place but the foliage was quite small. In almost all other areas of the district populations were quite high, but damage was much less noticeable.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Aceria parapopuli (Keifer) (Poplar bud-gall mite)	Poplar spp. Aspen, trembling Poplar, balsam	Scattered throughout the district	Severe infestations on hybrid poplars at Wilcox and Oungre; light elsewhere.
Acleris variana (Fern) (Black-headed budworm)	Spruce, white	Regina, Stockholm and Abernathy	Occasional larvae; no visible damage.
Adelges cooleyi Gillette (Spruce gall aphid)	Spruce, white and Colorado	Indian Head, Burgis, Dysart and Canora	Light infestations to individual trees.
Adelges lariciatus (Patch)(Pineapple gall aphid)	Spruce, white	Wadena and Good Spirit Lake	Occasional galls observed.
Alsophila pometaria (Harr.) (Fall cankerworm)	Maple, Manitoba Elm, white Ash, green	Assiniboia, Briercrest and Plunkett	Very light defoliation in farm shelterbelts.
Anoplonyx luteipes (Cress.) (Marlatt's larch sawfly)	Tamarack	Indian Head	Low populations at Forest Nursery Station.
Archips cerasivoranus (Fitch) (Ugly-nest caterpillar)	Chokecherry, eastern	Throughout the district	Usually only single tents.
Archips negundanus Dyar (A leaf roller)	Maple, Manitoba	Weyburn, Indian Head, Stalwart and Govan	Very low populations.
Badebecia urticana Hbn. (A leaf roller)	Deciduous trees	Throughout the district	Populations low; no appreciable damage.
Calligrapha verrucosa Suffr. (A leaf beetle)	Willow	Indian Head	Low populations.
Cecidomyia negundinis Gill. (Boxelder gall midge)	Maple, Manitoba	Throughout the district	Common, but causing only light damage.
Choristoneura conflictana (Wlk.) (Large aspen tortrix)	Aspen, trembling	Carievale, Glen Ewen, Redvers, Moosomin and Willow Bunch	Very light populations.

Insect	Host(s)	Locality	Remarks
Choristoneura fumiferana (Clem.) (Spruce budworm)	Spruce, white and Colorado	Lanenburg, Indian Head, Echo Lake Provincial Park and Muenster	Single larvae; no noticeable defoliation.
Chrysomela crotchi Brown (Aspen leaf beetle)	Aspen, trembling	Moose Mountain Provincial Park, Duval and Kipabiskau	Light skeletonizing to individual regeneration aspen.
Chrysomela knabi Brown (A leaf beetle)	Poplar spp.	McLean	Light damage to individual planted poplars.
Chrysomela scripta Fabr. (Cottonwood leaf beetle)	Poplar spp.	McLean	Very light on a few trees.
Chrysomelid sp. (A leaf beetle)	Elm, white	Willow Bunch	Moderate skeletonizing to white elm in the Regional Park by these larvae.
Croesus latitarsus Norton (Dusky birch sawfly)	Birch, bog	Marieval Regional Park	Commonly found along lake edge; defoliation light to individual trees.
Dioryctria reniculella (Grote) (Spruce cone worm)	Spruce, white and Colorado	Echo Valley Provincial Park, Muenster, Meacham, Ft. Qu'Appelle and Indian Head	Trace; no visible defoliation.
Enargia decolor Wlk. (A noctuid)	Aspen, trembling Ash, green	Qu'Appelle Valley	Trace of populations.
Epinotia solandriana Linn. (A leaf roller)	Aspen, trembling	Most of the district	Populations light and widespread.
Eriosoma americanum (Riley) (Woolly elm aphid)	Elm, white	Throughout the district	Generally light; moderate populations on individual trees.
Gonioctena americana (Schaef.) (American aspen beetle)	Poplar sp.	Weyburn	Very low populations.

Insect	Host(s)	Locality	Remarks
Gracillaria negundella Chambers (Boxelder leaf roller)	Maple, Manitoba	Tuxford, Stalwart, Hatfield and Muenster	Scattered low populations.
Gracillarid sp. (Blotch miners)	Elm, white	Throughout the district	Commonly found; but only a few trees with light leaf blotching. Mainly a trace throughout.
Hylurgopinus rufipes (Eichh.) (Native elm bark beetle)	Elm, white	Estevan and Trossachs	Low populations on dying elm branches.
Itame loricaria Evers. (A looper)	Aspen, trembling Ash, green Maple, Manitoba	Scattered throughout the district	Very low populations.
Lithocolletis salicifoliella Cham. (Aspen blotch miner)	Aspen, trembling	Moose Mountain Provincial Park and Middle Lake	Very light on reproduction.
Lopidea dakota Kngt. (Caragana plant bug)	Caragana	Indian Head, Katepwa, Assiniboia, Estevan and Melville	Populations low; no visible damage.
Mayetiola rigidae (O.S.) (Beaked willow gall fly)	Willow	Indian Head, Kronau and Dysart	Light infestations on individual willow clumps.
Messa populifoliella (Townsend) (A le f mining sawfly)	Aspen, trembling Poplar spp.	Throughout the district	Mainly low populations with light to moderate mining at Nickel Lake Regional Park.
Mordwilkoja vagabunda (Walsh) (Poplar vagabond gall aphid)	Aspen, trembling	Throughout the district	Moderate on three acres near Moffat; light in the remainder of the district.
Nematus ventralis Say (A sawfly)	Willow	Humbolt, Katepwa, Oyama Regional Park, Moose Mountain Provincial Park and Marieval Regional Park	Commonly found at Katepwa; light defoliation to individual clumps in all areas.

Insect	Host(s)	Locality	Remarks
Neoborus amoenus (Reut.) (A mirid)	Ash, green	Briercrest and Moose Jaw	Low populations; no visible damage.
Nymphalis antiopa (L.) (Mourning cloak butterfly)	Elm, Chinese Aspen, trembling	Briercrest and Moose Mountain Provincial Park	Defoliation confined to single branches.
Oligonychus ununguis (Jac) (Spruce spider mite)	Spruce, white black and Colorado	Throughout the district	Generally low populations.
Operophtera bruceata (Holst)(Bruce spanworm)	Maple, Manitoba Aspen, trembling Caragana	Markinch, Bulyea and Assiniboia	Populations low; no visible damage.
Orsodacne atra (Ahr.) (A leaf beetle)	Aspen, trembling Birch, white	Moffat, Bulyea and Crystal Springs	Adults only.
Paleacrita vernata (Peck) (Spring cankerworm)	Elm, white	Assiniboia	Trace in a shelterbelt.
Pandemis canadana Kft. (A leaf roller)	Willow Aspen, trembling Poplar spp.	Katepwa, Ituna and Indian Head	Populations very low; trace of leaf rolling.
Pemphigus populi-transversus Riley (Transverse poplar petiole gall)	Poplar, balsam Aspen, trembling Poplar spp.	Throughout most of the district	Low populations causing very light damage.
Phenacaspis pinifoliae (Fitch) (Pine needle scale)	Spruce, white and Colorado	Throughout the district	Commonly found; usually very light with some individual trees moderately infested.
Phyllocolpa nr. agama (A leaf folding sawfly)	Poplar, balsam Aspen, trembling Poplar spp.	Throughout the district	Light leaf folding in all parts of the district.
Phyllocolpa nr. robusta (A leaf folding sawfly)	Aspen, trembling Poplar spp.	Throughout the district	Commonly found near Stockholm; trace of populations in the remainder of the district.
Phylloconistis populiella Cham. (Aspen leaf miner)	Aspen, trembling Poplar spp.	Dysart, Ituna, Lemberg, Katepwa and Wolseley	Trace of populations.

Insect	Host(s)	Locality	Remarks
Phyllophaga anxia (Lec.) (White grub beetle)	Soil	Humbolt	Single adult collection.
Pikonema alaskensis (Roh.) (Yellow-headed spruce sawfly)	Spruce, white and Colorado	McLean, Creelman, Katepwa and Meacham	Severe on several trees in shelterbelts at Katepwa and Meacham; very light defoliation in remainder of areas.
Pontania sp. (A sawfly)	Willow	Throughout the district	Commonly found; infestations generally light.
Pristiphora erichsonii (Htg.) (Larch sawfly)	Larch sp.	Indian Head, Balcarres and Tonkin	Light to moderate defoliation to individual trees at Indian Head Tree Nursery. Single colonies at Balcarres and Tonkin.
Proteoteras willingana (Kft.) (Boxelder twig borer)	Maple, Manitoba	Throughout the district	Common, but causing only very light damage.
Pyrrhalta decora (Say) (Gray willow-leaf beetle)	Willow Aspen, trembling	Maryfield, Bulyea, Fishing Lake Regional Park, Francis and Kronau	Generally low populations; very light feeding damage.
Rhabdophaga strobiloides O.S. (Willow cone gall midge)	Willow	Throughout the district	Low populations; very little damage.
Sciaphila duplex Wlshm. (Leaf roller)	Aspen, trembling Poplar, balsam	Carievale, Redvers and Whitesand	Trace of leaf rolling damage.
Semiothisa sexmaculata (Pack.) (A geometrid)	Tamarack	Indian Head Tree Nursery	Several larvae in a single collection.
Zenobia pleonectusa manitobae Stand (An owlet moth)	Aspen, trembling	Willow Bunch	Populations low; no appreciable damage.
Zeiraphera fortunana Kft. (Spruce bud moth)	Spruce, Colorado	Burgis	Damage negligible.

DISEASE CONDITIONS

FROST DAMAGE:- Heavy frosts near mid-June were recorded throughout the district. Foliage of all deciduous trees was severely affected, as well as the new shoots of white and Colorado spruce. However in most instances, refoliation was complete except for shelterbelts containing ash in the Kronau area.

HAIL AND WIND DAMAGE:- On August 20, a wind and hail storm in the Grenfell area caused severe damage to crops, gardens and trees. In some areas north of Grenfell foliage was almost completely stripped.

Also a severe wind and hail storm on August 25, in the Lewven-Colfax area did heavy damage. Trees, power lines, and buildings were smashed and broken.

Severe hail damage occurred in the Wadena-Quill Lake area. In some instances aspen bluffs in the area were almost completely stripped of foliage.

Light hail damage was also recorded in a number of other small areas, but damage to trees was insignificant.

OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Apiosporina collinsii (Schw.) Hohn. (Witches' broom)	Saskatoon	Marieval, Stockholm, Moose Mountain and Crooked Lake	Scattered light infections.
Camarosporium caraganae Karst (Dieback of caragana)	Caragana	Oungre, Davin and McLean	Light infections on stems.
Camarosporium salicinum Grove (A dieback)	Willow	Indian Head Nursery Station	Light on several branches.
Ciborinia foliicola (Cash & Davidson) Whetzel (Black rib of willow)	Willow	Nickel Lake Regional Park	Single collection.

Organism and Disease	Host(s)	Locality	Remarks
Coccomyces hiemalis Higgins (Shot hole of cherry)	Chokecherry, eastern	Balcarres and Katepwa Provincial Park	Commonly found on several clumps.
Cytospora annulata Ell. & Ev. (A dieback)	Maple, Manitoba	Burgis and Indian Head	Light dieback to individual branches.
Diplodia tumefaciens (Shear) Zalasky (Globose gall of poplars)	Aspen, trembling	Lucien Lake Regional Park	Light infections.
Drepanopeziza populorum (Desm.) Hohn. (Leaf spot)	Aspen, trembling	Balcarres and Moose Mountain	Trace on a few scattered trees.
Fomes fomentarius (L. ex Fr.) Kickx (White mottled rot)	Birch, white	Moose Mountain	Conks common on individual dead trunks.
Fomes igniarius (L. ex Fr.) Gill (White trunk rot)	Aspen, trembling Birch, white	Good Spirit Provincial Park and Moose Mountain Provincial Park	Very light on older trees.
Gymnosporangium clavipes (Cke & Pk) Cke & Pk (Leaf rust)	Saskatoon	Echo Lake Provincial Park and Estevan	Very light infections.
Gymnosporangium corniculans Kern (Leaf rust)	Saskatoon	Estevan	Single collection.
Hypoxylon mammatum (Wahl) Miller (Hypoxylon canker of poplar)	Aspen, trembling	Throughout the district	Light; more common in northern half of the district.
Melampsora bigelowii Thum. (Larch-willow rust)	Willow	Most of the district	Only traces found throughout.
Melampsora medusae Thum. (Larch-aspen rust)	Aspen, trembling	Moose Mountain Provincial Park	Trace on several trees.
Nectria cinnabarina (Tode ex Fr.) Fr. (Canker and dieback)	Elm, Chinese Ash, mountain	McLean and Muenster	Very light dieback.

Organism and Disease	Host(s)	Locality	Remarks
Phoma fumosa Ell. & Ev. (A dieback)	Maple, Manitoba	Indian Head	Light; associated with dieback.
Phragmidium speciosum (Fries) Cooke (Rust)	Rose sp.	Moffat	Light on several roadside bushes.
Pollaccia radiosa (Lib.) Bald. & Cif. (Leaf and shoot blight)	Aspen, trembling Poplar sp.	Oyama Regional Park, Moosomin, Moose Mountain and Sintaluta	Trace of shoot blight in all areas mentioned.
Polyporus tulipiferus (Schw.) Overh. (A slash fungus)	Maple, Manitoba Caragana	Oungre Regional Park and Davin	Light infections on dead stems.
Ramularia stolonifera Ell. & Ev. (Leaf spot)	Dogwood	Moose Mountain Provincial Park	Light infections on foliage.
Rhytisma salicinum (Pers.) Fr. (A tar spot on willow)	Willow	Marieval, Katepwa, Willow Bunch and Moose Mountain	Very light infections to foliage.
Sclerophoma pithya (Thum.) Hohn.	Pine, lodgepole	Creelman	Trace of needle cast. Possible new regional record.
Septoria musiva Pk. (Leaf spot)	Poplar, balsam	Moose Mountain and Qu'Appelle Valley	Trace to individual leaves.
Sphaeropsis albescens Ell. & Ev. (Dieback)	Maple, Manitoba	Indian Head	Light infections.
Stigmina negundinis (Berk. & Curt.) M.B. Ellis (Dieback)	Maple, Manitoba	Lorlie, Stockholm and Indian Head	Generally low infections.
Tubercularia ulmea Carter (A dieback)	Most deciduous species	Throughout the district	Generally confined to twigs and branches.
Uncinula salicis (Fr.) Wint. (Powdery mildew)	Willow	Moose Mountain Provincial Park, McLean and Marieval Regional Park	Light infections only.

EASTERN PRAIRIE

MANITOBA

1969

by

B.G. Sutherland

INTRODUCTION

Field surveys were conducted from May 26 to September 12; in this period 748 insect and 195 disease samples were submitted to the Winnipeg laboratory. Survey sub-projects included: (1) night trapping of June beetles; (2) population studies of the large aspen tortrix; (3) establishment of a spruce budworm plot to monitor population levels; (4) sequential counts of the poplar bud gall mite; and (5) a small mammal survey.

Mass collections of insects for parasite recovery included: (1) spruce budworm; (2) large aspen tortrix; (3) prairie tent caterpillar; and (4) yellow-headed spruce sawfly.

A special collection of jack pine cones was made for recovery of seed and cone insects.

Forty-five farm shelterbelts were also sampled in addition to the above projects and general sampling.

Below normal temperatures and occasional frosts in June appeared to slightly inhibit early insect activity and host development. July and August recorded near normal temperatures and light precipitation. The southwest portion of the district was subject to occasional hot dry spells in July and August.

An increase in intensity of a leaf spot Septoria musiva Pk.was noted in a number of locations plus an increase in the occurrence of a leaf and shoot blight of poplar, Pollaccia radiosa (Lib.) Bald. and Cif. in the Carberry area, were the most significant changes in the status of important tree diseases.

INSECT CONDITIONS

LARGE ASPEN TORTRIX, Choristoneura conflictana (Wlk.):- Populations of this insect declined slightly from 1968 and defoliation was generally patchy although infestation centres remained essentially the same as in 1968 (Figure 3). The area bounded by Wasagaming, Riding Mountain National Park to Highway #5, Provincial Road 357 through Mountain Road to Erickson, Sandy Lake and Rackham, showed generally moderate defoliation with a few severe patches along Highway #10 between Onanole and Wasagaming.

Pockets of moderate defoliation occurred along Highway #10 between Minnedosa and Erickson and moderate to severe in the northwest portion of Spruce Woods Provincial Forest and east of Carberry along Highways #1 and #351 through Melbourne to Sidney.

A small severe infestation was recorded northwest of Holland near the junction of the Cypress and Assiniboine Rivers and the 1968 infestation bounded by Findlay, Grande Clairiere, Hartney and Deleau in southwest Manitoba declined slightly being generally moderate with occasional patches of severe defoliation. Elsewhere defoliation was generally light.

SPRUCE BUDWORM, Choristoneura fumiferana Clem.:- Populations of this insect increased over those of 1968 in the northwest portion of the Spruce Woods Provincial Forest causing moderate defoliation with severe patches and decreased to moderate and light east and south of this main outbreak area. Moderate defoliation was recorded in a farm shelterbelt at Cypress River and very light in shelterbelts at Foxwarren, Crystal City, Pilot Mound, Morden and Cromer. Very low populations were recorded in white spruce plantations at Max Lake in the Turtle Mountain Provincial Forest.

YELLOW-HEADED SPRUCE SAWFLY, Pikonema alaskensis (Roh.):- Severe damage occurred on a few young spruce in a shelterbelt near Reeder and moderate damage was noted in a spruce shelterbelt near Cromer. Collections were also made at Crystal City, Killarney, Shilo, Morden, Cypress River, Clanwilliam and Olha; however, no appreciable damage was noted at these locations.

FALL CANKERWORM, Alsophila pometaria (Harr.):- Populations of this insect have decreased steadily in the last two years. No major infestations were encountered this year. Very light populations were present at Boissevain, Killarney, Emerson, Morden, Morris and Winnipeg. The town of Emerson had effectively reduced populations of this insect by chemical control.

OTHER NOTEWORTHY INSECTS

Insect	Host(s)	Locality	Remarks
Aceria parapopuli (Keifer) (Poplar bud-gall mite)	Poplar spp.	Deleau, Lyelton and Reston	Moderate infestation at Deleau and severe at Lyleton and Reston.
Acleris logiana Linn. (A leaf roller)	Birch, white	Lake Max	Trace of damage.
Acleris variana (Fern.) (Black-headed budworm)	Spruce, white	Clanwilliam and Morden	Light damage in shelterbelts.
Acraspis villosa Gill. (Hairy oak gall)	Oak, bur	Glenboro, Shilo, Moore Park, St. Lazare, Killarney and Hartney	Moderate populations at Moore Park, light elsewhere.
Acronicta americana Harr. (Dagger moth)	Maple, Manitoba Willow	Lyleton, Horod, and Hartney	Trace of damage.
Adelges cooleyi Gillette (Spruce gall aphid)	Spruce, white	Cypress River	Light infestation in a shelterbelt.

Insect	Host(s)	Locality	Remarks
Adelges lariciatus (Patch) (Spruce pineapple gall aphid)	Spruce, white	Shilo	Light infestation.
Altica populi Brown (A poplar flea beetle)	Poplar, balsam	Oakner	Moderate skeletonizing in a shelterbelt.
Anacampsis innoculella Zell. (A leaf roller)	Elm, white	Lyleton	Single collection from a shelterbelt.
Anoplonyx luteipes (Cress.) (A sawfly)	Tamarack	Pilot Mound and Olha	Trace of damage.
Aphid spp.	Most deciduous and coniferous species	Throughout the district	Heavy damage to caragana spp. at Miniota, Holland, Deloraine and Hartney.
Archippus albertus McD. (A solitary defoliator)	Spruce, white	Spruce Woods Provincial Forest	Single collection; no visible damage.
Archippus packardianus (Fern.) (A solitary web maker)	Spruce, white	Boissevain, Brandon, Souris, Cypress River, Pilot Mound, Morden and Holland	Very light defoliation in shelterbelts.
Archips cerasivoranus (Fitch) (Ugly-nest caterpillar)	Chokecherry, eastern	Glenboro, Onanole, Holland, Melbourne, and Spruce Woods Provincial Forest	Low populations.
Archips negundanus Dyar (A leaf roller)	Maple, Manitoba	Throughout southern half of district i.e. south of trans-Canada Hwy.	Moderate damage at Portage la Prairie and Morden, light damage in shelterbelts elsewhere.
Arge clavicornis (Fab.) (A sawfly)	Willow Birch, white	Morris, Winkler, and Lake Max	Low populations; a trace of damage.

Insect	Host(s)	Locality	Remarks
Badebecia urticana Hbn. (A leaf roller)	Aspen, trembling Chokecherry, eastern	Onanole, Virden and Russell	Trace of damage.
Biston cognataria Gn. (Pepper-and-salt moth)	Maple, Manitoba Willow	Deloraine, Lyleton, Hartney and Souris	Moderate damage to occasional maple at Lyleton shelterbelt; light elsewhere.
Caliroa sp. poss. quercus-alba (A sawfly)	Oak, bur	Lake Max	Moderate damage to regeneration.
Campaea perlata (Gn.) (Fringed looper)	Willow Chokecherry, eastern	Glenboro	Trace of damage.
Cecidomyia negundinis Gill. (Boxelder gall midge)	Maple, Manitoba	Throughout the district	Light infestations in shelterbelts.
Choristoneura pinus pinus Free. (Jack-pine budworm)	Pine, jack and Scots	Spruce Woods Provincial Forest	Very light damage in pine plantations.
Choristoneura roseceana Harr. (Oblique-banded leaf roller)	Caragana, Willow Elm, white Aspen, trembling	Glenboro, Morris, Lyleton and Spruce Woods Provincial Forest	Low populations; trace of damage.
Chrysomela crotchi Brown (Aspen leaf beetle)	Aspen, trembling	Melbourne	Light damage.
Chrysomela knabi Brown (A leaf beetle)	Willow	Oakner	Moderate skeletonizing in one shelterbelt.
Corythucha arcuata (Say) (A lace bug)	Oak, bur	Foxwarren and Lake Max	High incidence at Lake Max causing moderate discoloration; trace of damage at Foxwarren.
Corythucha ulmi (A lace bug)	Elm, white	Deloraine and Lake Max	Low populations causing a trace of damage.
Dimorphoteryx pinguis Nort. (A sawfly)	Birch, white	Lake Max	Trace of damage; low population.

Insect	Host(s)	Locality	Remarks
Dioryctria reniculella (Grt.) (Spruce coneworm)	Spruce, white	Lake Max	Single collection; no visible damage.
Epinotia solandriana Linn. (A leaf roller)	Aspen, trembling Poplar, balsam	Throughout the northwest portion of district; north of Hwy. #1 and west of Hwy. #10	Very light damage; often associated with other leaf rollers.
Epizeuxis americalis Gn. (An owlet moth)	Spruce, white and Colorado	Pilot Mound and Deleau	Very light damage in shelterbelts.
Erannis tiliaria (Harr.) (Linden looper)	Elm spp. Willow Maple, Manitoba	Pilot Mound, Deloraine and Morden	Low populations and a trace of damage.
Eriophyes fraxiniflora (Felt) (Ash flower gall)	Ash, green	Morden, Crystal City, Killarney and Oakner	Low populations.
Eriosoma americanum (Riley) (Woolly elm aphid)	Elm, white	Throughout the district	Moderate infestations at Brandon, Killarney and Wellwood; light elsewhere.
Eupareophora purca (Gr) (Ash sawfly)	Ash, green	Glenboro	Light infestation in a shelterbelt.
Eupithecia filmata Pears. (A looper)	Tamarack Spruce, white Willow	Olha and Boissevain	Very low populations.
Eupsilia tristigmata Grt. (A Noctuid)	Maple, Manitoba Ash, green	Boissevain and Brandon	A trace of damage.
Geometrid spp.	Most deciduous hosts	Throughout the district	Light populations; no appreciable damage.
Gonioctena americana (Schaef.) (American aspen beetle)	Aspen, trembling Poplar, balsam Caragana	Onanole, Olha, Oakburn Mountain Road, Miniota and Birtle	Light infestations at Onanole and Olha, elsewhere widely scattered collections.
Gracillaria negundella Cham. (Boxelder leaf roller)	Maple, Manitoba	Throughout southern portion of district; south of Hwy. #1	Scattered light infestations in shelterbelts and parks.

Insect	Host(s)	Locality	Remarks
Gracillariid spp. (Leaf miners)	Elm, white Birch, white Oak, bur Willow Chokecherry, eastern Poplar spp.	Throughout the district	Trace of damage.
Halisidota maculata (Harr.) (Spotted tussock moth)	Maple, Manitoba	Boissevain	Moderate defoliation to one tree in a shelterbelt.
Hylurgopinus rufipes (Eichh.) (Native elm bark beetle)	Elm, white	Morris	One collection from a single dead tree.
Itame loricaria Evers. (A looper)	Aspen, trembling Willow	Findlay, Deleau Russell, Shoal Lake and Crystal City	Low populations.
Lithocolletis salicifoliella Cham. (Aspen blotch miner)	Aspen, trembling Poplar, balsam Poplar spp. Willow	Throughout the district	Moderate leaf mining at Clanwilliam; light elsewhere.
Malacosoma disstria Hbn. (Forest tent caterpillar)	Aspen, trembling Poplar sp.	Deleau and Crystal City	Light occurrance of egg bands and larvae at Deleau; trace of damage at Crystal City.
Malacosoma lutescens (N. & D.) (Prairie tent caterpillar)	Chokecherry, eastern Rose Aspen, trembling Willow	Spruce Woods Provincial Forest, Deleau Onanole, Beulah and Glenboro	Tents common in Spruce Woods west of Carberry; scattered tents elsewhere.
Messa populifoliella (Townsend) (A leaf mining sawfly)	Aspen, trembling Poplar, balsam	Beulah, Foxwarren, and Oakburn	Trace of damage.
Mordwilkoja vagabunda (Walsh) (Poplar vagabond gall aphid)	Aspen, trembling	Throughout the western portion of the district	Moderate infestation on regeneration along Mountain Road.
Nematus spp. (Sawflies)	Willow Poplar, balsam Aspen, trembling	Throughout the district	Generally low populations and a trace of damage.
Nematus ventralis Say (A sawfly)	Willow	Lake Max	Light damage to a single willow clump.

Insect	Host(s)	Locality	Remarks
Neodiprion abietis complex (Balsam-fir sawfly)	Spruce, white	Morden and Souris	Single collections from shelterbelts.
Nycteola frigidana Wlk. (An owlet moth)	Willow	Shilo	Trace of damage.
Nymphalis antiopa (L.) (Mourning-cloak butterfly)	Elm, w ite	Morden	Single collection from a shelterbelt.
Olingonychus ununguis (Jac.) (Spruce spider-mite)	Spruce, white and Colorado	Throughout the western portion of the district	Light damage in shelterbelts.
Operophtera bruceata (Hulst.) (Bruce spanworm)	Willow Oak, bur Aspen, trembling Chokecherry, eastern Maple, Manitoba Elm, white	Throughout the district	Low populations.
Orthosia hibisci Gn. (An owlet moth)	Maple, Manitoba Willow Ash, green Aspen, trembling Elm, white Prunus sp.	Throughout the district	Low populations; a trace of damage.
Paleacrita vernata (Peck) (Spring cankerworm)	Maple, Manitoba Elm, w hite	Pipestone, Morris, Glenboro and Brandon	Light damage at Brandon; nil elsewhere.
Pandemis canadana (Kft.) (A leaf roller)	Willow Caragana Oak, bur Elm, white Chokecherry, eastern	Killarney, Emerson, Lyleton, Beulah and Russell	Single collections; no visible damage.
Pemphigus populicaulis Fitch (A gall ap id)	Poplar spp.	Harte, Crystal City, Broomhill and Lake Max	Moderate infestation at Lake Max; light elsewhere.
Periclista sp. (A sawfly)	Alder Gooseberry	Glenboro and Morden	Moderate damage on gooseberry at Morden; single collection at Glenboro.

Insect	Host(s)	Locality	Remarks
Petrova albicapitana (Busck.) (Pitch nodule maker)	Pine, jack and Scots	Spruce Woods Provincial Forest	Low populations in pine plantations.
Phenacaspis pinifoliae (Fitch) (Pine needle scale)	Spruce, white Pine, Scots	Throughout the district	Light in shelterbelts.
Phyllocnistis populiella Cham. (Aspen leaf miner)	Aspen, trembling Poplar, balsam	Throughout the district	Very light damage in all areas.
Phyllocolpa spp. (Sawflies)	Poplar spp. Poplar, balsam Willow Aspen, trembling	Scattered throughout the district	Light damage at all collection points; Phyllocolpa nr. agama most common throughout district; Phyllocolpa nr. robusta and Phyllocolpa nr. nigrata also collected.
Pikonema dimmockii (Cress.) (Green-headed spruce sawfly)	Spruce, white and Colorado	At scattered points throughout the district	Very light damage in shelterbelts and on ornamentals.
Pontania spp. (Gall sawflies)	Willow	Throughout the district	Generally light in farm shelterbelts; a high incidence of Pontania proxima on a shelterbelt at Lena and moderate at Deleau and Souris shelterbelts.
Pristiphora erichsonii (Htg.) (Larch sawfly)	Tamarack	Olha	Light defoliation.
Proteoteras willingana (Kft.) (Boxelder twig borer)	Maple, Manitoba	Killarney, Lyleton, Souris Hamiota, Forrest, Rivers, Holland, Treherne and Bethany	Light damage at all locations.
Pyrrhalta decora (Say) (Grey willow leaf beetle)	Willow Aspen, trembling Poplar sp. Elm, white	Boissevain, Minnedosa, Deleau, Emerson, Glenboro, Lake Max and Spruce Woods Provincial Forest	Very low populations.

Insect	Host(s)	Locality	Remarks
Rhabdophaga strobiloides O.S. (Willow cone gall midge)	Willow	Holland, Boissevain, Lyleton, Horod, Sandy Lake and Glenboro	Light in all locations.
Sciaphila duplex Wlshm. (A leaf roller)	Aspen, trembling Willow Poplar, balsam	Throughout the district	Low populations; often in association with Choristoneura conflictana (Wlk.).
Semiothisa signaria dispuncta (Wlk.) (A looper)	Spruce, white and Colorado	Souris and Hartney	A trace of damage in farm shelterbelts.
Tenthredinid spp. (Sawflies)	Most deciduous species	Throughout the district	Very low populations; light damage.
Tetralopha aplastella (Hlst.) (Aspen webworm)	Aspen, trembling	Lake Max and Clanwilliam	Very light damage on regeneration.
Tetralopha expandens Walker (Colonial web-maker)	Oak, bur	Bunclody	Moderate damage to scattered regeneration.
Thecabius affinis (Kalt.) (Leaf-gall aphid)	Aspen, trembling Poplar, balsam	Clanwilliam, Sandy Lake, Elm Creek and Beulah	Light damage.
Tortricid spp. (Leaf rollers)	Most deciduous species	Throughout the district	Light damage; in association with other leaf rollers.
Zeiraphera fortunana (Kft.) (Spruce bud moth)	Spruce, white	Cypress River and Souris	Very light damage in shelterbelts.

DISEASE CONDITIONS

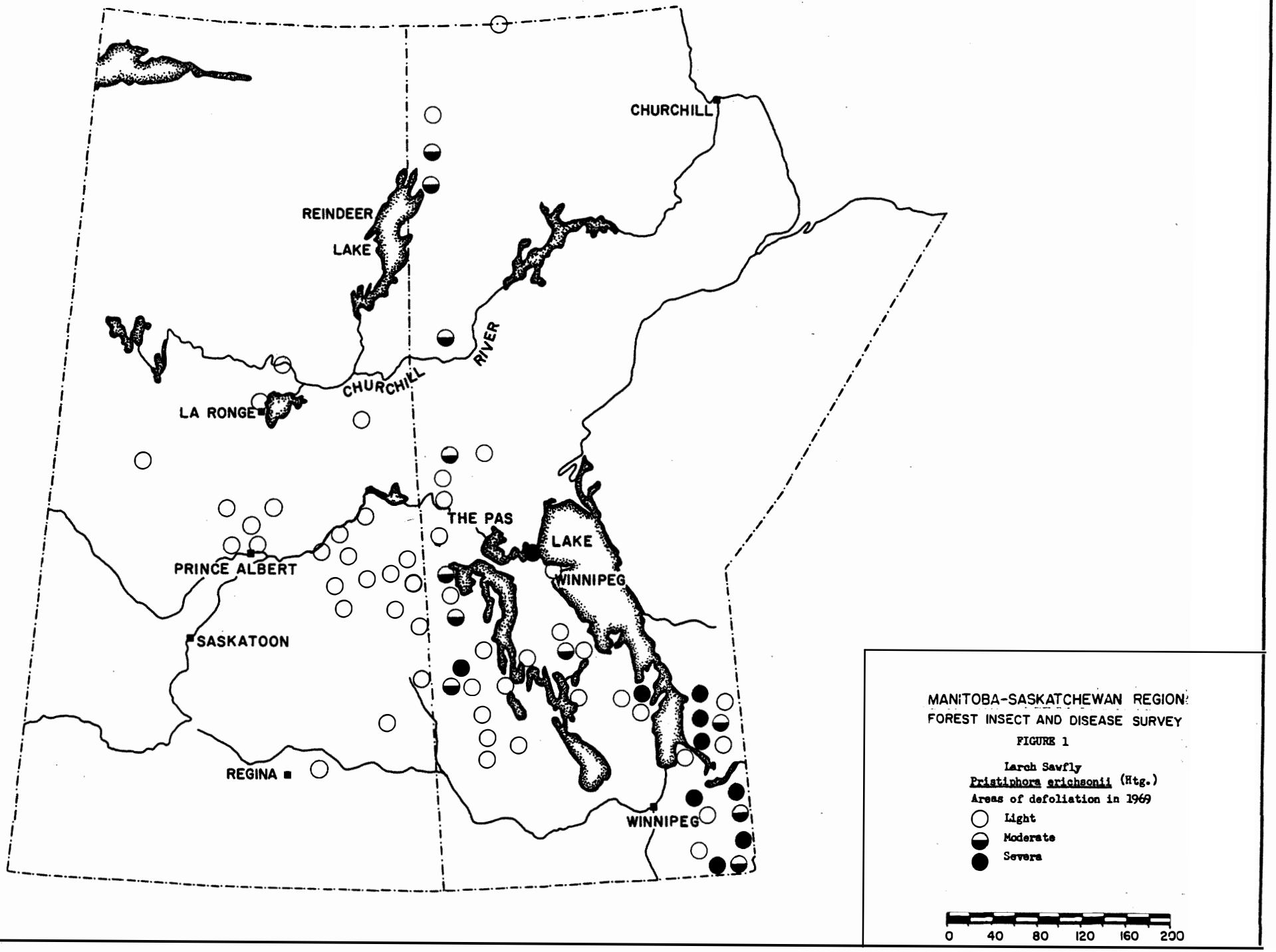
LEAF AND SHOOT BLIGHT OF POPLAR, Pollaccia radiosa (Lib.) Bald. and Cif.:- This disease increased above 1968 levels in the area of Sidney, Melbourne, Carberry and in the northwest portion of Spruce Woods Prov ncial Park where scattered pockets of moderate to severe infections were recorded. Reproduction aspen in a vacated school yard at Clanwilliam showed a moderate infection. At Lake Max in the Turtle Mountain Provincial Forest, the severe rat ng of 1968 had subsided to light. Light infections were noted at Shilo, Mariapolis, Belmont, Emerson, Holland, Glenboro and Bethany.

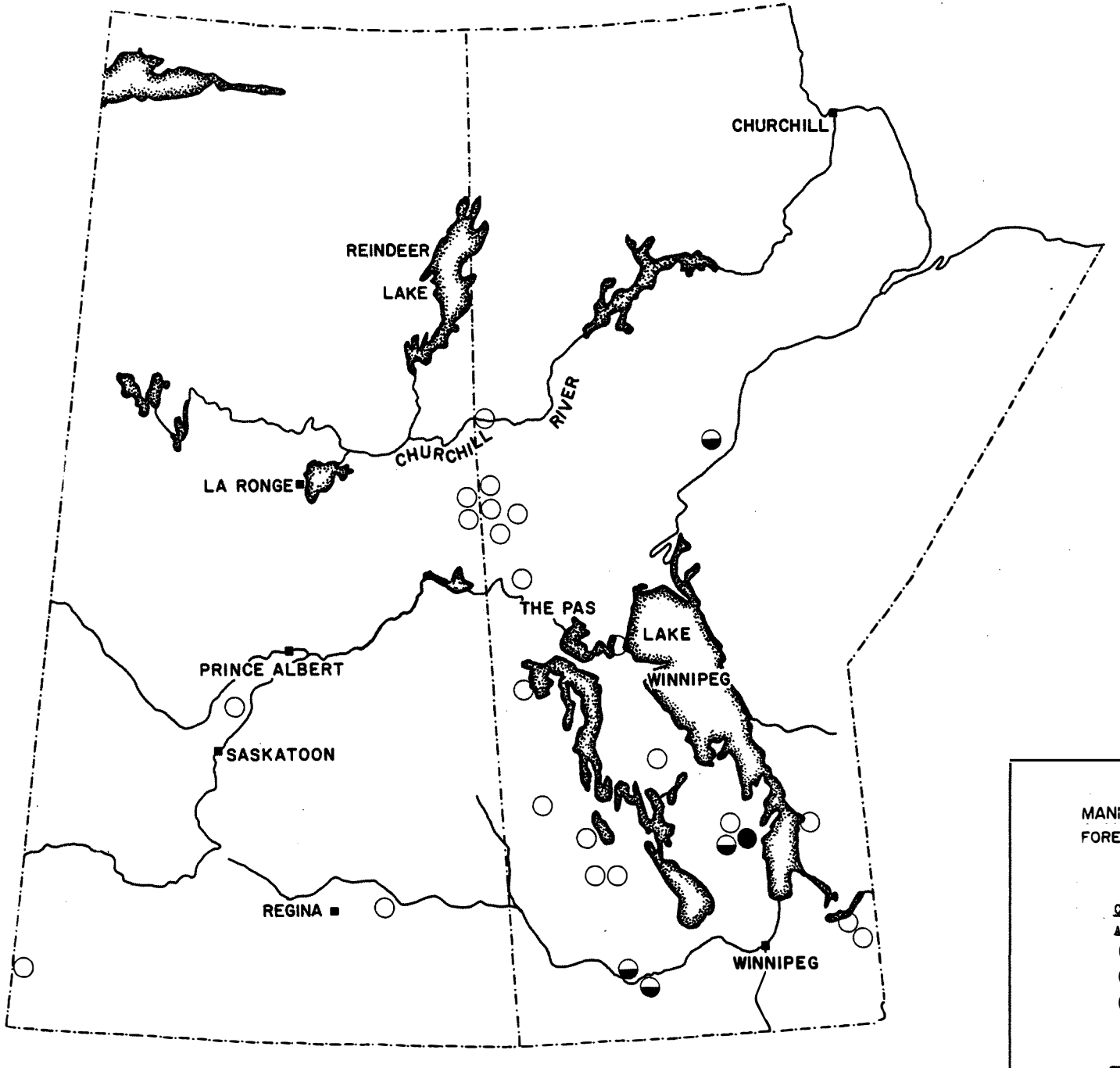
OTHER NOTEWORTHY DISEASES

Organism and Disease	Host(s)	Locality	Remarks
Arceuthobium pusillum Pk. (Eastern dwarf mistletoe)	Spruce, white	Glenboro (Assiniboine River)	Occasional trees moderately to severely broomed.
Ciborinia foliicola (Cash and Davidson) Whetzel (Black rib of willow)	Willow	Lake Max and Baldur	Very light infections in these areas.
Ciborinia whetzelii (Seaver) Seaver (Ink-spot of aspen)	Aspen, trembling	Lake Max	Light infestation.
Coccomyces hiemalis Higgins (Shot-hole of cherry)	Chokecherry, eastern	Holland, Glenboro, Pipestone, Lake Max, Sandy Lake, Beulah and Spruce Woods Provincial Forest	Moderate infections of most areas; light intensity at Pipestone and Holland.
Coleosporium asterum (Diet.) Syd. (Needle rust)	Goldenrod	Sandy Lake, Woodworth and Lake Max	Moderate on this alternate host of the jack pine needle rust.
Dibotryon morbosum (Schw.) Thiess. and Syd (Black-knot of cherry)	Chokecherry, eastern	Shilo, Beulah and Pope	Light infections.
Fomes spp. (Fr.) Kickx	Aspen, trembl ng Ash, green Spruce, white	Beulah, Wawanesa, Brandon and Pilot Mound	F. fometarius (L. ex Fr.) Kickx on aspen at Beulah; F. fraxinophilus (Pk) Sacc. on ash at Souris R. (Hwy. #2) and Brandon; F. subroseus (Weir) Overh. on spruce in a Pilot Mound shelterbelt.

Organism and Disease	Host(s)	Locality	Remarks
Gnomonia ulmea (Schw.) Thum. (A leaf spot)	Elm, white and Chinese	Throughout the district	Light infections primarily in shelterbelts.
Gymnosporangium corniculans Kern (A leaf rust)	Saskatoon	Spruce Woods Provincial Forest	Scattered pockets of moderate and severe infections.
Melampsora abieti-capraearum Tubeuf (A rust)	Willow	Steinbach, Marco, Lake Max, Shilo, Cracknell and Cromer	Light intensity.
Melampsora bigelowii Thum. (A larch-willow rust)	Willow	Throughout the district	Moderate infections at Winkler and Glenboro; light elsewhere.
Melampsora medusae Thum. (A larch-aspen rust)	Aspen, trembling	Throughout the district	Severe pockets of infection on regeneration at Glenboro and Killarney; moderate on regeneration at Shilo; light infections elsewhere.
Peridermium harknessii J.P. Moore (Western gall rust)	Pine, Scots	Spruce Woods Provincial Forest	Light occurrence in a number of pine plantations.
Pollaccia elegans Serv. (A leaf and shoot blight)	Poplar, balsam	Spruce Woods Provincial Forest	Trace incidence found on regeneration.
Polyporus spp. (A slash fungus)	Aspen, trembling Caragana Oak, bur	Belmont, Erickson, and Hartney	P. adustus Willd ex Fr. on aspen at Belmont; P. tulipiferus (Schw.) Overh. on caragana at Erickson; P. versicolor L. ex Fr. on oak at Hartney.

Organism and Disease	Host(s)	Locality	Remarks
Rhytisma salicinum Pers. ex Fr. (Willow tar spot)	Willow	Throughout the district	Moderate infections at Shilo, Baldur, Russell; light elsewhere.
Septoria caraganae (Jacz.) Died. (A leaf spot)	Caragana	Bethany, Virden, and Lake Max	Light intensity.
Septoria musiva Pk (A leaf spot)	Poplar, balsam	Throughout the district	Severe intensity on poplar south of Boissevain and along Hwy. #1 at Carberry; moderate at Glenboro and Clanwilliam; light elsewhere.
Septoria negundinis Ell. & Ev. (A leaf spot)	Maple, Manitoba	Boissevain, Treherne, and Emerson	Light infections.
Uncinula salicis (Fr.) Wint. (Powdery mildew)	Willow Poplar, balsam	Minnedosa, Oakner, Baldur, Woodnorth, Croll, Lake Max and Spruce Woods Provincial Forest	Isolated moderate to severe infections at Croll, Woodnorth and Oakner; elsewhere very light.


CHURCHILL
REINDEER
LAKE
RIVER
CHURCHILL
LA RONGE
THE PAS
LAKE
WINNIPEG
PRINCE ALBERT
SASKATOON
REGINA
WINNIPEG
MANITOBA-SASKATCHEWAN REGION
FOREST INSECT AND DISEASE SURVEY
FIGURE 1
Larch Sawfly
Pristiphora erichsonii (Htg.)
Areas of defoliation in 1969
Light
Moderate
Severe
0 40 80 120 160 200



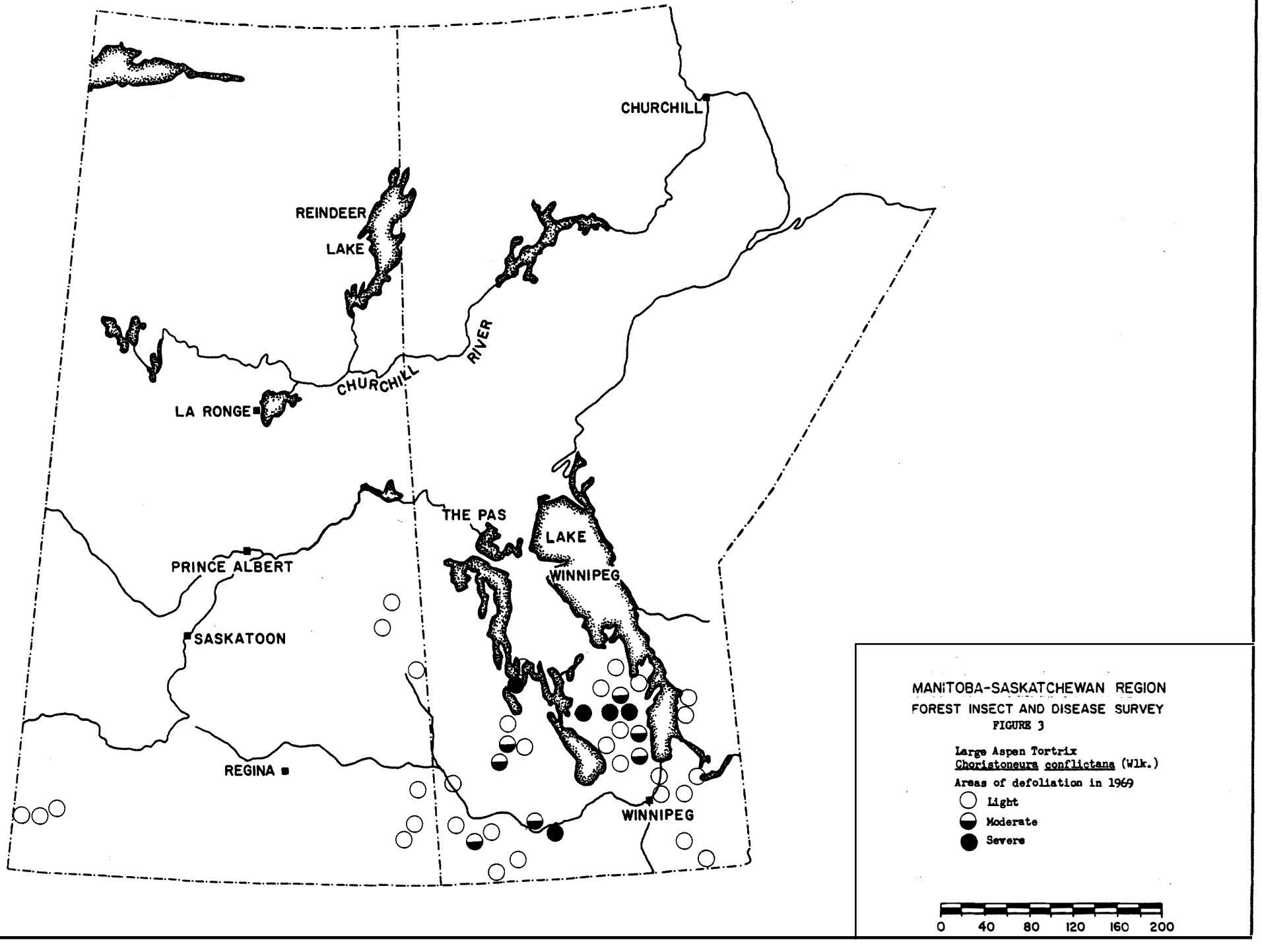
MANITOBA-SASKATCHEWAN REGION
FOREST INSECT AND DISEASE SURVEY

FIGURE 2

Spruce Budworm
Choristoneura fumiferana (Clem.)
Areas of defoliation in 1969

- Light
- Moderate
- Severe

0 40 80 120 160 200


CHURCHILL
REINDEER
LAKE
RIVER
CHURCHILL
LA RONGE
THE PAS
LAKE
WINNIPEG
PRINCE ALBERT
SASKATOON
REGINA
WINNIPEG
MANITOBA-SASKATCHEWAN REGION
FOREST INSECT AND DISEASE SURVEY
FIGURE 3
Large Aspen Tortrix
Choristoneura conflictana (Wlk.)
Areas of defoliation in 1969
Light
Moderate
Severe
0 40 80 120 160 200

INDEX TO INSECT SPECIES

P

R

INDEX TO TREE DISEASES