

ANNUAL DISTRICT REPORTS
FOREST INSECT AND DISEASE SURVEY,
PRAIRIES REGION, 1970

by

J. K. Robins

G. N. Still, R. C. Tidsbury, V. B. Patterson,

K. L. Mortensen, E. J. Gautreau

G. Smith, J. Petty, J. Susut, R. Caltrell.

FOREST RESEARCH LABORATORY
EDMONTON, ALBERTA
INTERNAL REPORT A-43

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1971

TABLE OF CONTENTS

	Page
Introduction	1
Annual District Reports	
Southern Manitoba	4
Northwestern Manitoba	25
Southeastern Saskatchewan	33
Northeastern Saskatchewan	36
Western Saskatchewan	42
Southern Alberta	54
Central Alberta	64
Northeastern Alberta	70
Northwestern Alberta-Northwest Territories	75
Yukon Territory	82
Index to Insects and Diseases	86

Not for publication

ANNUAL REPORT
FOREST INSECT AND DISEASE SURVEY
PRAIRIES REGION
1970

FOREST RESEARCH LABORATORY
EDMONTON, ALBERTA
INTERNAL REPORT A-43

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY
JANUARY, 1971

Introduction

A number of significant developments affecting the Forest Insect and Disease Survey occurred in 1970; the Winnipeg and Calgary laboratories were combined and moved to new headquarters in Edmonton; Survey field staff for the new Prairies Region was reduced from 24 to 10; and funds were drastically reduced. As a result, Survey activities were concentrated in high use areas and on specific problems.

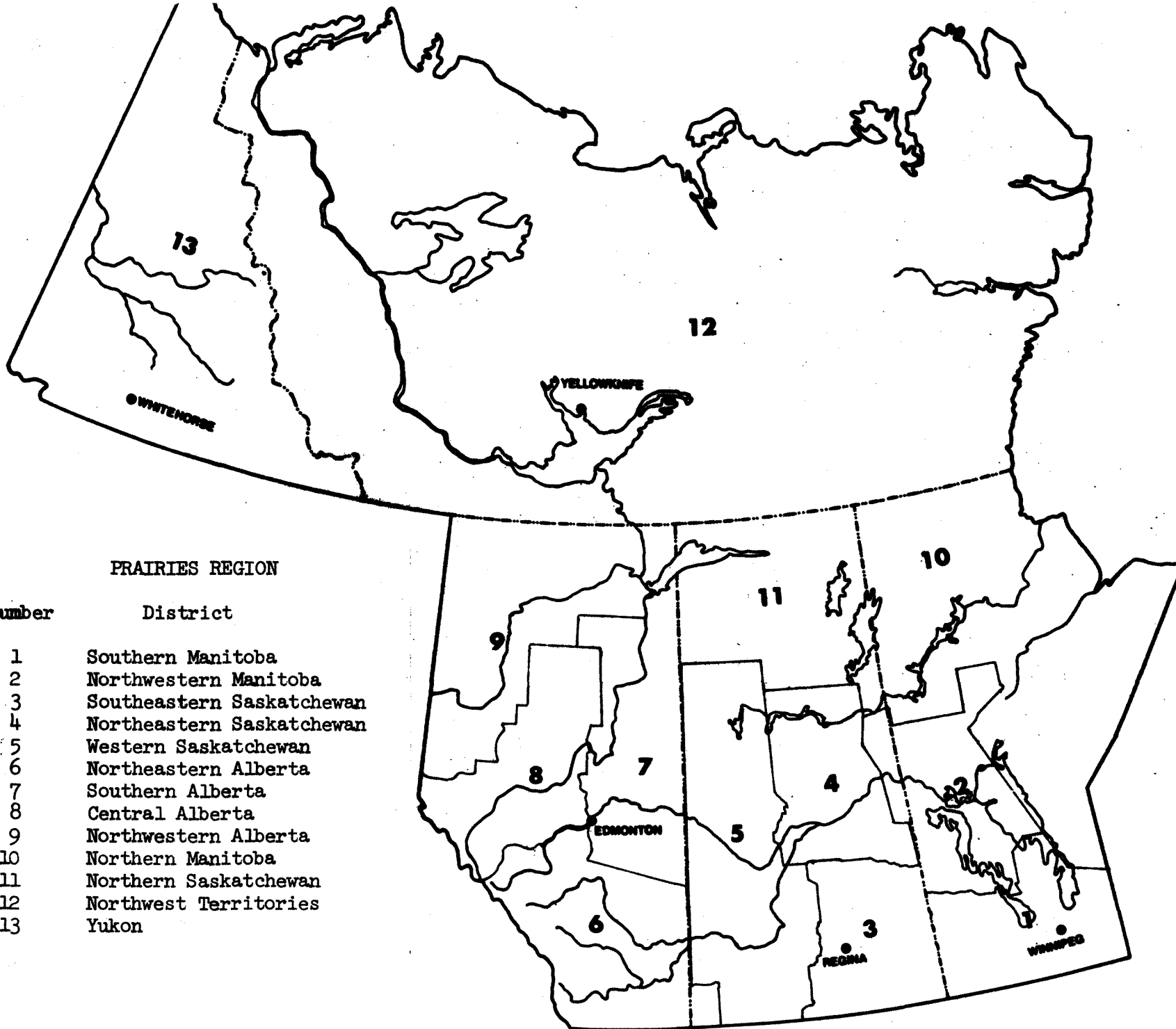
The field season commenced in early June and was terminated around the latter part of August. However, due to a shortage of funds and time lost in the move, Rangers averaged less than 10 weeks in the field. District assignments were as follows:

District 1	Southern Manitoba	G.N. Still
District 2	Northwestern Manitoba	R.C. Tidsbury
District 3	Southeastern Saskatchewan	V.B. Patterson
District 4	Northeastern Saskatchewan	R.L. Mortensen
District 5	Western Saskatchewan	E.J. Gautreau
District 6	Northeastern Alberta	J. Petty
District 7	Southern Alberta	G.J. Smith
District 8 & 13	Central Alberta and Yukon	J.P. Susut
District 9 & 12	Northwestern Alberta and N.W.T.	R.M. Caltrell

Summary of Insect and Disease Conditions

There were no major outbreaks of insects or significant increases in the incidence of disease organisms in the Region in 1970. The forest tent caterpillar outbreak continued in west-central Alberta where it has persisted since 1963. Spruce budworm populations continued their downward

trend throughout most of the Region except in the Interlake area and in the Sprucewoods Provincial Forest in Manitoba. The large aspen tortrix outbreaks increased in size in Manitoba, declined in Alberta, and collapsed in the Yukon Territory. Larch sawfly populations remained low except in Southeastern Manitoba where localized severe defoliation of tamarack occurred. Very few new attacks by the spruce beetle were found in Southwestern Alberta where severe damage to Engelmann spruce occurred from 1966 to 1968. Bruce spanworm populations increased in aspen stands along the Foothills in Alberta. The small outbreak of jackpine budworm in Sandilands Provincial Forest in southeastern Manitoba increased in size and intensity. Annually occurring disease organisms including leaf and twig blights of poplars and needle rusts of conifers, while prevalent throughout the Region, caused little damage.



PRAIRIES REGION

Number

District

- 1 Southern Manitoba
- 2 Northwestern Manitoba
- 3 Southeastern Saskatchewan
- 4 Northeastern Saskatchewan
- 5 Western Saskatchewan
- 6 Northeastern Alberta
- 7 Southern Alberta
- 8 Central Alberta
- 9 Northwestern Alberta
- 10 Northern Manitoba
- 11 Northern Saskatchewan
- 12 Northwest Territories
- 13 Yukon

ANNUAL DISTRICT REPORT
SOUTHERN MANITOBA
PRAIRIES REGION 1970

by

G. N. Still

FOREST RESEARCH LABORATORY
EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY
JANUARY, 1971

INTRODUCTION

Increases were evident in populations of large aspen tortrix, spruce budworm, and jack-pine budworm while populations of larch sawfly decreased in most areas. Yellow-headed spruce sawfly continued to be a significant pest in shelterbelts and parks.

There were further extensions to the known range of the larch casebearer and of the European spruce sawfly, two species which spread into Manitoba in recent years.

There was no significant change in the status of forest diseases. Needle rusts of spruce were again widespread, as were aspen shoot blight and poplar ink spot. A special survey was carried out along the Red River to determine whether or not the Dutch elm disease was present in Manitoba. No evidence of the disease was found.

INSECT CONDITIONS

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Populations increased and spread in the infestations in the Sprucewoods Provincial Forest, Riding Mountain National Park and Interlake areas. 1970 marks the third year of moderate to severe defoliation in these areas. (See map, Page 22).

The infestation in the Sprucewoods Provincial Forest spread into the Provincial Park area and northerly through Melbourne, Firdale, and Hummerston as far as the No. 4 Highway. Defoliation ranging from moderate to severe was prevalent throughout.

In the Riding Mountain National Park there was severe defoliation of aspen throughout the southeastern section, particularly in recreation areas around Clear Lake. Severe defoliation occurred from Lake Audy to the eastern slopes of the park, extending southerly to the Bethany area. Light to moderate defoliation was prevalent throughout an area bounded on the west by Elphinstone, Horod, and Whitewater Lake; on the north by Makinak, St. Rose du Lac, and Eddystone; on the east by the Lake Manitoba Narrows; and on the south by Reedy Creek, Alonsa, Beaver Dam Lake, and Minnedosa. Numerous patches of severe defoliation were scattered, sporadically throughout this area.

In the Interlake area light to moderate defoliation was prevalent between Lake Manitoba and Lake Winnipeg as far north as Mantagao Lake, Hodgson, and Riverton and as far south as Lundar,

Woodroyd, Teulon, and Gimli. Widely scattered patches of severe defoliation occurred sporadically throughout this area. There were two main areas where severe defoliation prevailed; one, east of The Narrows bounded by Ashern, Camper, Overton, Ericksdale, Sleeve Lake, and Mantagao Lake; the other, bounded by Chatfield, Broad Valley, Hodgson, and Arborg.

Infestations in the Deleau-Grande Clairiere area declined generally although some small patches of moderate defoliation were observed. This is the fourth consecutive year that moderate levels of infestation have been recorded in this general area.

Low larval populations were observed at many points throughout the remainder of the District including Moose Lake, Marchand, Birds Hill, Otter Falls, Stead, Manigotagan, Turtle Mountain, Brandon, and Silver Beach.

Spruce Budworm, Choristoneura fumiferana (Clem.)

Moderate infestations have occurred in the northwest corner of the Sprucewoods Provincial Forest since 1967. In 1970 populations increased and spread into the provincial park resulting in light to moderate defoliation throughout the entire area, interspersed with numerous patches of severe defoliation. (See map, Page 23). Similar infestations occurred on both sides of the Trans Canada Highway approximately six miles west of Sidney.

Moderate to severe defoliation occurred for the fourth consecutive year in farm woodlots in the Vidir-Arborg-Geyser area. A woodlot three miles south of Sylvan was moderately to severely defoliated for a second year and a new severe outbreak occurred four miles south of Fisher Branch, on the east side of Highway No.16.

Permanent sampling stations were established in white spruce stands in the District in 1969 to form part of a monitoring system for spruce budworm. Two beating samples were taken from 10 trees at each station and the numbers of larvae were tallied as follows:

Location & plot number	Defoliation rating	Number of spruce budworm larvae counted
Bannock Point 15-31-555-01	Nil	Nil
Vidir 14-61-565-01	Severe	*100+
Sprucewoods Prov.For. 14-46-552-04	Severe	436
Clear Lake 14-42-561-02	Trace	2

*Most of the budworm at the Vidir plot were in the pupal stage at the time of sampling.

Jack-pine Budworm, Choristoneura pinus pinus Free.

The infestation in the Sandilands Provincial Forest, which in 1969 was confined to a few acres south of the Marchand Ranger Station, increased in size and intensity. In 1970, moderate to severe defoliation occurred from two miles south of the ranger station almost to Woodridge.

Populations remained at low levels throughout the remainder of the District. Traces of defoliation were detected in the Whitemouth Lake, Vassar, Badger, Red Rock Lake, Brereton, Stead, and Grand Beach areas. Pine plantations in the Shilo and Hughes areas were examined but no budworm was found.

Yellow Headed Spruce Sawfly, Pikonema alaskensis (Roh.)

In the Whiteshell Provincial Park occasional roadside regeneration of black and white spruce were moderately to severely defoliated along Highway #307, near Brereton, Red Rock, White, Betula, and Nutimik lakes. Young spruce in the camping and picnic area at Falcon Lake was similarly defoliated.

Moderate to severe defoliation of ornamental and shelterbelt spruce was recorded in the following areas of the eastern half of the District: Elma, Whitemouth, Seddon's Corner, St. Ouens, Hazel Ridge, and St. George.

In the western half of the District moderate to severe defoliation of young spruce was observed in the Shilo plantation area; in the Riding Mountain National Park at the north end of Clear Lake, near the Wasagaming camp grounds, and at Audy Lake; and to the south of the park in the Rapid City, Erickson, and Virden areas. Damage was particularly extensive at the Min-Vale Honey Farm near Rapid City.

Light defoliation was recorded in the following areas: Moose Lake, Hadashville, Point du Bois, Milner Ridge, O'Hanley River, Wallace Lake, Vidir, Cartwright, Bethany, Moon Lake, and Rolling River.

Larch Sawfly, Pristiphora erichsonii (Htg.)

Infestation levels were lower in the Interlake and northeastern areas of the District while remaining approximately the same in the southeastern section as they were in 1969.

Severe defoliation was observed in the Sprague-Vassar-Piney area; along Highway 308 between East Braintree and Moose Lake; along the Trans Canada Highway from Hadashville to McMunn; along Highway 44 between West Hawk Lake and Rennie; and in the Hazel Creek, Milner Ridge, LacDuBonnet, and Black River areas.

Moderate defoliation occurred in the Gull Lake area of the Belair Provincial Forest; along Highway 304 south of Manigotagan; and in the Interlake area approximately 15 miles east of Hodgson. Elsewhere in the

District only light defoliation was observed.

Sequential sampling of egg populations in permanent sample plots was not carried out this year but visual estimates of infestation levels were as follows:

Location and plot number	Infestation rating - 1970
Piney 14-71-544-01	Severe
Telford 15-32-552-01	Light
Agassiz 14-69-554-01	Light
Point du Bois 15-31-557-01	Light
Riverton 14-63-567-01	Light

Cocoons were obtained at two locations by rearing larvae collected at intervals during the larval period of the larch sawfly. Two hundred larvae were dissected from each location to determine the effective parasitism by Bessa harveyi (T.T.), Mesoleius tenthredinis Morley, and the introduced species, Olesicampe benefactor Hinz. See following table for results.

Locality and UTM Grid	<u>Percentages of Effective Parasitism</u>		
	<u>Olesicampe benefactor</u>	<u>Bessa harveyi</u>	<u>Mesoleius tenthredinis</u>
Traverse Bay 14-68-561	18.0	04.5	02.0
Approx. 16 mi. east of Hodgson 14-62-567	8.5	10.5	05.0

A Leaf Roller on Manitoba Maple, Archips negundanus Dyar.

The infestation along the Red River near the Selkirk Golf Course declined somewhat although small patches of moderate defoliation still persisted and some trees were severely defoliated. In the Selkirk Park

the infestation was generally light with some pockets of moderate defoliation at the extreme north end.

Moderate to severe defoliation occurred in a woodlot south of Seven Sisters.

Low larval populations were observed in shelterbelts in the Morden, Pilot Mound, and Pipestone areas.

Mourning Cloak Butterfly, Nymphalis antiopa (L.)

Sporadic moderate to severe defoliation of willow and Chinese elm planted in the median of the Trans Canada Highway occurred from Winnipeg to Portage La Prairie. Similar damage occurred to native willow and trembling aspen in many other areas including Moose Lake, Whitemouth Lake, Marchand, Red Rock Lake, Otter Falls, Stead, Grand Beach, Birds Hill, Davidson Lake, O'Hanley River, Wallace Lake, Arborg, and Lake St. George.

European Spruce Sawfly, Diprion hercyniae (Htg.)

This sawfly was first detected in southeastern Manitoba in 1969. Special surveys that year determined its presence as far north as Caddy Lake and as far west as Marchand Ranger Headquarters, ranging over an area of approximately 2,000 square miles.

Surveys carried out in 1970 indicate further spread of the sawfly and it is now estimated to range over an area of approximately 3,000 square miles. The northern limits of its known range in Manitoba are now established as Otter Falls and Meditation Lake in the Whiteshell Provincial Park. Western limits are Seddon's Tower and Contour Tower in the Agassiz Provincial Forest and two miles east of the town of Marchand.

Other areas where the sawfly was found in 1970 were Falcon Lake, Dawson Cabin, Brereton Lake, Betula Lake, and the Marchand Ranger station.

The following table shows collection points, hosts, and the number of larvae collected in 1970. The Square-yard Fabric-tray method of sampling was used and at least 10 black and/or white spruce were sampled at each sample point.

Sample Point	Host	No. of <u>D.hercyniae</u> Larvae Collected
Brereton Lake Campsite	bS	2
5 mi. west of Falcon Lake	bS, wS	6
$\frac{1}{2}$ mi. N. of Dawson Cabin	bS	1
Meditation Lake	wS	2
Betula Lake	wS	2
Otter Falls	wS	1
2 mi. E. of Seddon's Tower	bS	2
Contour Fire Tower	bS	3
2 mi. east of Marchand	bS	7
Marchand Ranger Station	wS	4

As the table indicates populations were low in all areas and no significant damage was observed.

Larch Casebearer, Coleophora laricella Hbn.

The larch casebearer was first detected in southeastern Manitoba in 1965. Since that time, special surveys have been carried out annually in order to establish the distribution of the species and to monitor population levels.

By 1969 the surveys showed little change in distribution and populations remained very low. The species was still confined to the extreme southeastern part of the province, ranging between Piney and Birch Point.

The survey carried out in March of 1970 determined several new distribution points and extended the known range of the casebearer approximately 25 miles northwesterly to the Sandilands and Marchand areas. Although there were indications of an increase in populations east of Sprague, no significant damage was recorded.

The following table shows the areas sampled and the number of specimens collected at each point since 1965:

Sampling Point	No. of Larch Casebearer Specimens Collected					
	1965	1966	1967	1968	1969	1970
Middlebro, 2 mi.east	3	16	1	0	0	*NS
Birch Point	2	0	0	0	NS	1
Sprague, 4 mi.east	0	0	1	27	2	54
Piney, 1 mi.east	0	7	0	12	1	5
Piney, 2 mi.north	NS	NS	NS	NS	0	1
Caribou Tower, 6 mi. NW	0	0	NS	0	NS	0
East Braintree	0	0	NS	NS	NS	0
Falcon Lake, 2 mi.west	0	0	NS	NS	NS	0
McMunn area	NS	NS	NS	NS	NS	0
McMunn, $\frac{1}{2}$ mi.east	NS	NS	NS	NS	NS	0
Dawson Cabin	NS	NS	NS	NS	NS	0
Vassar, 4 mi.north	NS	NS	NS	NS	NS	2
Sandilands, 4 mi.SW	NS	NS	NS	NS	NS	39
Woodridge	NS	NS	NS	NS	NS	0
Marchand, 2 mi.east	NS	NS	NS	NS	NS	2
West Hawk Lake	0	0	NS	NS	NS	NS
Telford	0	0	NS	NS	NS	NS
Rennie	0	0	NS	NS	NS	NS
Elma	0	0	NS	NS	NS	NS
Richer, 8 mi.east	NS	NS	NS	NS	NS	0

*NS indicates the area was not sampled.

DISEASE CONDITIONS

Spruce Needle Rusts, Chrysomyxa ledi deBary and Chrysomyxa ledicola Lagerh.

Scattered patches of moderate to severe rust infection of current needles were fairly common in the Sandilands Provincial Forest near Hazel Creek and in the Whitemouth Lake, Point DuBois and Whiteway Point areas.

Light infections were common in the Riding Mountain National Park near Moon and Audy lakes and in the Lac DuBois and Wallace Lake areas.

Ink Spot, Ciborinia whetzeli (Seaver) Seaver

This leaf disease of trembling aspen was widespread in the District. Patches of light to moderate infection were observed in the St. Amelie, Lake St. George, Red Rose, Badger, Moose Lake, Whitemouth Lake, Brereton, and LacDuBois areas and along the Bird River Road near Tall Timber Lodge. Some small patches of severe infection occurred in the northeastern section of the District near Moore Lake.

Light infections were observed in the Max Lake, Shilo, Neepawa, Rockham, Basswood, Birds Hill, Jackhead Lake, Arborg, Stead, Julius, Marchand, Carrick, Falcon Lake, Otter Falls, Wallace Lake, and O'Hanley River areas.

Leaf and Twig Blight of Poplar, Venturia macularis (Fr.) E. Muell & V. Arx.

This disease of trembling aspen was again widespread in the District. Patches of moderate shoot damage of saplings were observed in the St. Malo, Stead, Marchand, Moose Lake, Red Rock Lake, Brereton, West Hawk, Otter Falls, Milner Ridge, and St. George areas.

Light damage was observed near Falcon, Big Whiteshell, Bird, Wallace, Max, Audy, Moon, and Clear lakes.

Dutch Elm Disease Survey

A special survey was carried out in co-operation with the Liaison Services, Winnipeg, to try to detect the presence of Dutch elm disease, Ceratocystis ulmi (Buism.) C. Moreau in Manitoba. The survey was concentrated along the Red River from Emerson to Selkirk. A boat was used and samples were taken from suspect trees spotted along the banks of the river. Suspect material was cultured at the Winnipeg laboratory and examined by Dr. J. Reid of the University of Manitoba. The survey failed to detect the presence of Dutch elm disease. The native elm bark beetle, Hylurgopinus rufipes (Eichh.), a known vector of the disease, was found at several points along the river. Although results are not complete as

yet, Verticillium wilts (Verticillium dahliae and V. albo-atrum), a fungus, Alternaria sp., and a black mold (Aspergillus niger) were diagnosed in some of the trees. Cephalosporium wilt (Dothiorella ulmi) was isolated from one tree sampled in St. Norbert, and is probably the first record of this fungus in Manitoba.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Poplar bud-gall mite, <u>Aceria parapopuli</u> (Keifer)	T. aspen Oottonwood	Moderate to severe infestation of mature trees in a shelterbelt near Deleau. Localized moderate infestations of fringe and understory saplings in the Turtle Mountain Provincial Park. Light in the Lake St. George area.
Black-headed budworm, <u>Accleris variana</u> (Fern.)	W. spruce	Traces at Otter Falls.
Cooley spruce gall aphid, <u>Adelges cooleyi</u> Gill.	W. spruce	Light to moderate infestation of a few trees in the West Hawk, Wallace Lake, and Glenboro areas.
Pineapple gall aphid, <u>Adelges lariciatus</u> (Patch)	W. spruce B. spruce	Moderate on a few trees in the Otter Falls area; light in the Falcon Lake, Red Rose, Lake St. George, Jackhead, and Moon Lake areas.
Birch skeletonizer, <u>Bucculatrix canadensisella</u> Cham.	W. birch	Scattered light leaf skeletonizing in the Whiteshell Provincial Park and in the Northwest Angle Provincial Forest.
Fall cankerworm, <u>Alsophila pometaria</u> (Harr.)	M. maple G. ash	Traces of defoliation in the Pipestone, Pilot Mound, Morden, Birds Hill, Stonewall, Selkirk, and Sprucewoods Provincial Park areas.
Ugly nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry	Scattered nests common in the following areas: Moose Lake, Whitemouth Lake, Carrick, Marchand, Brereton, West Hawk, Falcon Beach, Nutimik, Otter Falls, Point DuBois, Manigotagan, Julius, Milner Ridge, Grand Beach, Stead,

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
		Lockport, Arborg, Jackhead, Hughes, Shilo, Max Lake, Wawanesa, Bethany, Audy Lake, and Rolling River.
Oak webworm, <u>Archips fervidanus</u> (Clem)	B. oak	Occasional nests observed in the Birds Hill Provincial Park and near Vivian.
Pear slug, <u>Caliroa cerasi</u> (Linn.)	Cotoneaster	Moderate to severe in- festation of ornamentals in the Metropolitan Win- nipeg area.
Boxelder gall midge, <u>Cecidomyia negundinis</u> Gill	M. maple	Light leaf infestation in shelterbelts in the Pipe- stone, Glenboro, and Boissevain areas.
Leaf beetle, <u>Chrysomela aeneicollis</u> Schffr.	Willow	Light skeletonizing in the Sprucewoods Provincial Forest.
Aspen leaf beetle, <u>Chrysomela crotchii</u> Brown	T. aspen	Light infestations in the Marchand area.
Leaf roller, <u>Compsolechia niveopulvella</u> Cham.	T. aspen	Scattered light infestations in the Riding Mountain National Park.
Balsam gall midge, <u>Dasineura balsamicola</u> (Lint.)	B. fir	Localized light infestations in the Northwest Angle Provincial Forest.
Yellow-necked caterpillar, <u>Datana ministra</u> (Drury)	W. birch Willow	Widely scattered young trees lightly to mod- erately defoliated along Highway 304 from Manigota- gan to Wallace Lake.
Spruce coneworm, <u>Dioryctria reniculella</u> (Grt.)	W. spruce B. spruce	Traces of infestation in the Turtle Mountain Provincial Park and in the Cypress River and Red Rose areas.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Leaf beetle, <u>Disonycha alternata</u> Ill.	Willow	Small patches of moderate defoliation near Brereton Lake.
Ash flower gall, <u>Eriophyes fraxinflora</u> (Felt)	G. ash	Some trees moderately infested in the Sprucewoods Provincial Park and near Morden.
Woolly elm aphid, <u>Eriosoma americanum</u> (Riley)	W. elm	Light infestations of shelterbelt trees in the following areas; Glenboro, Brandon, Max Lake, Pilot Mound, Morden, Emerson, Treherne, Sprucewoods Provincial Park, Souris, Chillan, and Portage la Prairie.
Eastern pine-shoot borer, <u>Eucosma gloriola</u> Heinr.	J. pine	Scattered light shoot damage to young trees in the Northwest Angle, Sandilands, and Agassiz provincial forests and in the Whiteshell Provincial Park.
Ash sawfly, <u>Eupareophora purca</u> (Cr.)	G. ash	Traces of leaf skeletonizing in the Max Lake, Rock Lake, and Emerson areas.
European alder leaf miner, <u>Fenusa dohrnii</u> (Tisch)	Alder	Scattered patches of light to moderate leaf mining in the Whiteshell Provincial Park, Koostatak, Whiteway Point and Beaver Creek areas and along Highway 304.
American aspen beetle, <u>Gonioctena americana</u> (Schaef.)	T. aspen	Light to moderate and occasional severe defoliation of fringe and understory saplings scattered throughout the Riding Mountain National Park and in the Portia, Stead, and Red Rock Lake areas.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Root collar weevil, <u>Hylobius</u> sp.	S. pine	Some mortality in young pine plantations in the Agassiz Provincial Forest.
Native elm bark beetle, <u>Hylurgopinus rufipes</u> (Eichh.)	W. elm	Collections made at Souris and at scattered points along the Red River between Emerson and Selkirk.
Fall webworm, <u>Hyphantria cunea</u> (Drury)	W. elm Willow Alder Birch	Isolated light to moderate infestations of young trees widely scattered throughout the eastern part of the District and in the Interlake area. Representative points where infestations were observed were: Sprague, Vivian, St. Ouens, Beaconia, Riverton, and Koostatak.
Eastern hemlock looper, <u>Lambdina fiscellaria fiscellaria</u> (Guen.)	W. spruce	Traces in the Bannock Point and Betula Lake areas of the Whiteshell Provincial Park.
Forest tent caterpillar, <u>Malacosoma disstria</u> Hbn.	T. aspen	Traces in the Deleau, Chillon, Wasagaming, Clear Lake, and Arborg areas.
Prairie tent caterpillar, <u>Malacosoma lutescens</u> (N. & D.)	Chokecherry Rose	Commonly observed at many scattered points throughout the southern part of the District. Comparatively high incidence of tents in the Sprucewoods Provincial Forest.
Western tent caterpillar, <u>Malacosoma pluviale</u> (Dyar)	Pincherry W. birch	Occasional tents observed in the Lac DuBois area and near Jackhead, Falcon, and Davidson Lakes.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Leaf mining sawfly, <u>Messa populifoliella</u> (Townsend)	Cottonwood T. aspen B. poplar Hybrid poplar	Traces of leaf mining in the Turtle Mountain, Morden, Emerson, Spruce-woods, Silver Beach and Minnedosa areas.
Balsam fir sawfly, <u>Neodiprion abietis</u> complex	W. spruce B. spruce	Light defoliation in the Brereton, Falcon Lake, Bethany, and Moon Lake areas.
Owlet moth, <u>Nycteola cinereana</u> N. & D.	B. poplar	Light infestations of saplings near Moose Lake, Marchand, Brereton, Grand Beach, O'Hanley River, and Manigotagan.
A leaf roller on oak, <u>Oleuthreutidae</u> sp.	B. oak	Scattered light to moderate infestations throughout the Sprucewoods Provincial Forest.
Spruce spider mite, <u>Oligonychus ununguis</u> (Jac.)	W. spruce	Young planted trees moderately infested in the Birtle camping and picnic area.
Bruce spanworm, <u>Operophtera bruceata</u> (Hulst.)	T. aspen	Low populations associated with large aspen tortrix infestations in the Spruce-woods Provincial Forest and in the Deleau area.
Spring cankerworm, <u>Paleacrita vernata</u> (Peck)	W. elm M. maple	Traces in the Rock Lake and Treherne areas.
Pitch nodule maker, <u>Petrova albicapitana</u> (Busck.)	J. pine	Traces observed at scattered points throughout the range of jack-pine which included Rolling River, Red Rose, Stead, Grand Beach, Marchand, Badger, Moose Lake, Brereton, Falcon Beach, West Hawk, Big Whiteshell Lake, Otter Falls, Manigotagan and Shilo.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Pine needle scale, <u>Phenacaspis pinifoliae</u> (Fitch)	B. spruce W. spruce	A hedge of young ornamentals severely infested at Pine Falls; moderate infestations of some trees in the Cartwright and West Hawk areas; light at Glenboro, Killarney, Birds Hill, and Red Rose.
Aspen leaf miner, <u>Phyllocnistis populiella</u> Cham.	T. aspen	Traces of leaf mining in the Sprucewoods and Turtle Mountain provincial parks and in the Jackhead, Lake St. George, Red Rose, Otter Falls, and Bethany areas.
Spruce bud scale, <u>Physokermes piceae</u> (Schr.)	W. spruce	Light scale observed on trees previously defoliat- ed by <u>P. alaskensis</u> in the Hadashville and West Hawk areas.
Greenheaded spruce sawfly, <u>Pikonema dimmockii</u> (Cresson)	W. spruce B. spruce	Traces in the Big Whiteshell Lake, Otter Falls, Bannock Point, Falcon Lake, Elma, Betula Lake, and Milner Ridge areas.
White pine weevil, <u>Pissodes strobi</u> (Peck)	J. pine S. pine W. spruce	Scattered saplings with dead tops observed in the following areas: Dawson Cabin, Brereton, Falcon Lake, Otter Falls, Manigotagan, Audy Lake, Wasagaming, Moon Lake, Whirlpool Lake, Rolling River, Milner Ridge, Contour, Julius, Badger, and Shilo areas.
Boxelder twig borer, <u>Proteoteras willingana</u> (Kft.)	M. maple	Traces of twig boring in the Pilot Mound, Morden, and Treherne areas.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Gray willow leaf beetle, <u>Pyrrhalta decora</u> (Say)	Willow	Patches of moderate to severe skeletonizing in the Audy Lake and St. George areas and between Poplarfield and Arborg.
Poplar borer, <u>Saperda calcarata</u> Say	T. aspen	Several shelterbelt trees infested near Chillon.
Red humped caterpillar, <u>Schizura concinna</u> (J. E. Smith)	Willow	Widely scattered individual clumps moderately to severely defoliated along Highway 304 and in the Contour, Julius, Traverse Bay and Rennie areas.
Spruce needle miner, <u>Taniva albolineana</u> (Kearfott)	C. spruce W. spruce	Traces of needle mining on young shelterbelt trees in the Pipestone, Pilot Mound, Deleau, Rapid City, and Birds Hill areas.
Aspen webworm, <u>Tetralopha applastella</u> Zell.	T. aspen	Light infestations in the Red Rose, Wallace Lake and Rennie areas.
Pine webworm, <u>Tetralopha robustella</u> Zell.	J. pine	Traces near Red Rock Lake.
Pine tortoise scale, <u>Toumeyella numismaticum</u> P. & M.	J. pine	Light to moderate scale on occasional saplings near Grand Beach.
<u>Disease</u>		
A witches' broom, <u>Apiosporina collinsii</u> (Schw.) Hohn.	Saskatoon	Scattered patches of moderate and, occasional severe infection of understory trees found in the Northwest Angle, Sprucewoods, Sandilands, and Belair Provincial Forests; in the Grand Beach Provincial Park, and in the Deleau, White-mouth Lake, and Manigotagan areas.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Spruce mistletoe, <u>Arceuthobium pusillum</u> Pk.	B. spruce	Broomed trees observed east of Lake Winnipeg along Highway 304, a half mile south of the Sand River and at the north end of Jackhead Lake.
Bark fungus, <u>Caliciopsis calicioides</u> (Ell. & Ev.) Fitzp.	B. poplar	Fungus found on the bark of mature trees in the Rock Lake Campgrounds.
Yellow witches' broom, <u>Chrysomyxa arctostaphyli</u> Diet.	B. spruce W. spruce	Occasional broomed trees observed in the Northwest Angle Provincial Forest, and near Falcon Lake, Point DuBois, Grand Beach, Koostatak, Red Rose, Jackhead Lake, Wasagaming, McArthur Lake, and Grayling Lake.
Black rib of willow, <u>Ciborinia foliicola</u> (Cash & Davidson)	Willow	Occasional clumps with light infection near Red Rock, Brereton, and Davidson lakes.
Cherry shot-hole, <u>Coccomyces hiemalis</u> Higgins	Pincherry Chokecherry	Moderate infections on scattered trees in the Shilo plantation area; light throughout the Sprucewoods Provincial Forest and in the Marchand, Brereton, Otter Falls, Point DuBois, and Davidson Lake areas.
Needle rust, <u>Coleosporium asterum</u> (Diet.) Syd.	J. pine	Moderate to severe infection of last year's needles on occasional saplings in the Northwest Angle Provincial Forest; light in the Marchand, Stead, and Badger areas and in the Riding Mountain National Park.

Other Noteworthy Insects and Diseases - Cont'd.

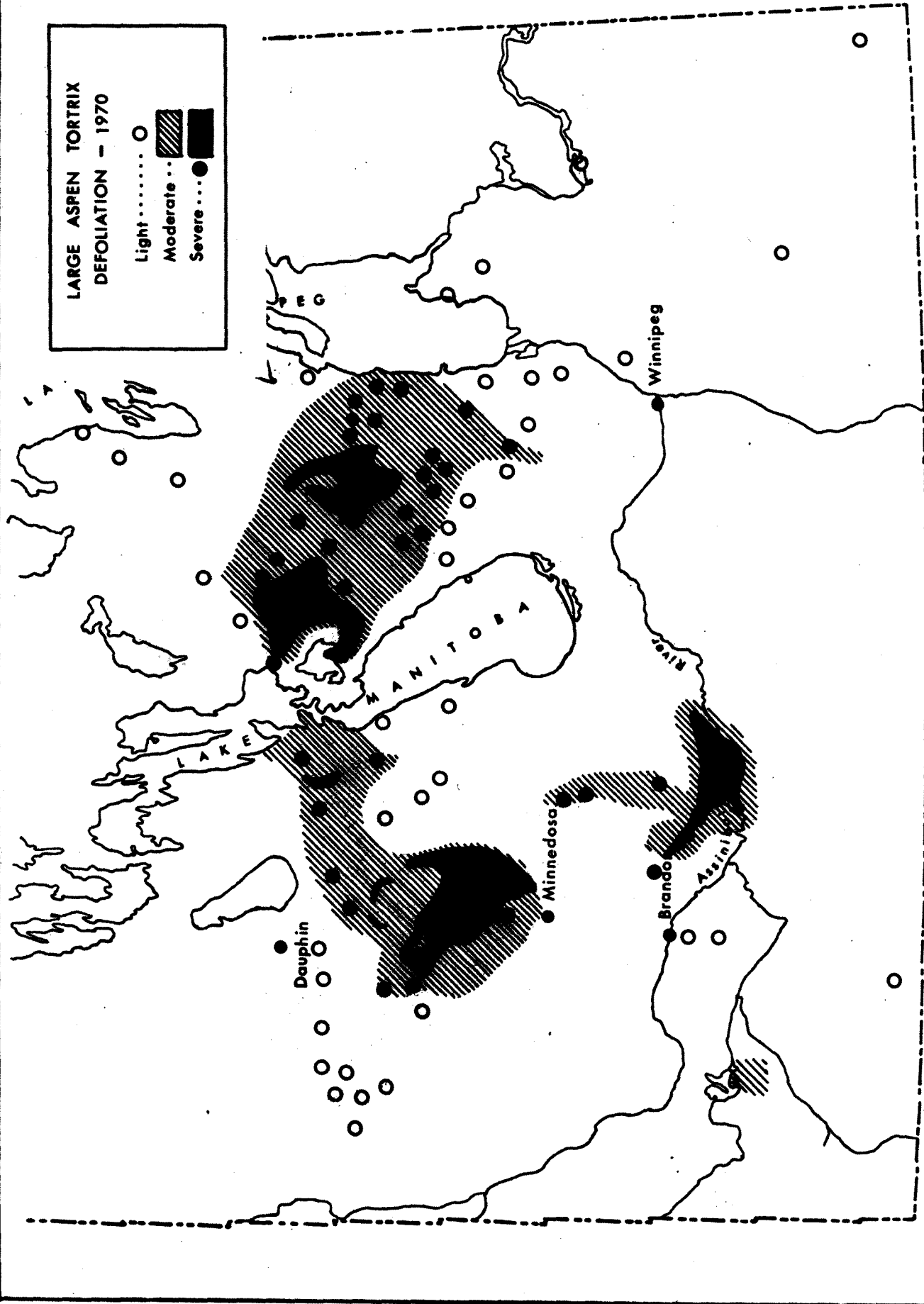
Causal Agent	Host	Remarks
Blacknot of cherry, <u>Dibotryon morbosum</u> (Schw.)	Chokecherry	Light to moderate infections near Glen Souris, Deleau, Shilo, Hughes, Stead, Grand Beach, Marchand, Whitemouth Lake, and Wallace Lake.
Heart rot of poplar, <u>Fomes igniarius</u> (L.ex Fr.) Gill	T. aspen	Conks commonly observed near Deleau and Rock Lake.
Leaf spot, <u>Gnomonia ulmea</u> (Schw.) Thum.	W. elm	Scattered light infections common throughout the range of elm. Some moderately infected trees in the Selkirk Park.
Rust, <u>Gymnosporangium clavipes</u> Cooke and Peck	Saskatoon	Scattered moderate to severe infections of leaves, fruit, and branches observed in the Sprucewoods Provincial Forest and in the Bethany, Brereton, Otter Falls, Point DuBois, Davidson Lake, and Wallace Lake areas.
Rust, <u>Gymnosporangium cornutum</u> Arth.	M. ash	Light leaf infection near Red Rock Lake.
Hypoxylon canker of aspen, <u>Hypoxylon mammatum</u> (Wahl) Miller	T. aspen Willow	Some recent mortality observed in the Glen Souris, Oak Lake, and Deleau areas; willow infected in a shelterbelt near Deleau.
Willow leaf rust, <u>Melampsora bigelowii</u> Thum.	Willow	Light to moderate infections in the Red Rock Lake and Hodgson areas.
Leaf rust, <u>Melampsora medusae</u> Thum.	T. aspen	Scattered light to moderate infections of young aspen in the White-shell Provincial Park, the Sandilands Provincial Forest and in the Interlake area.

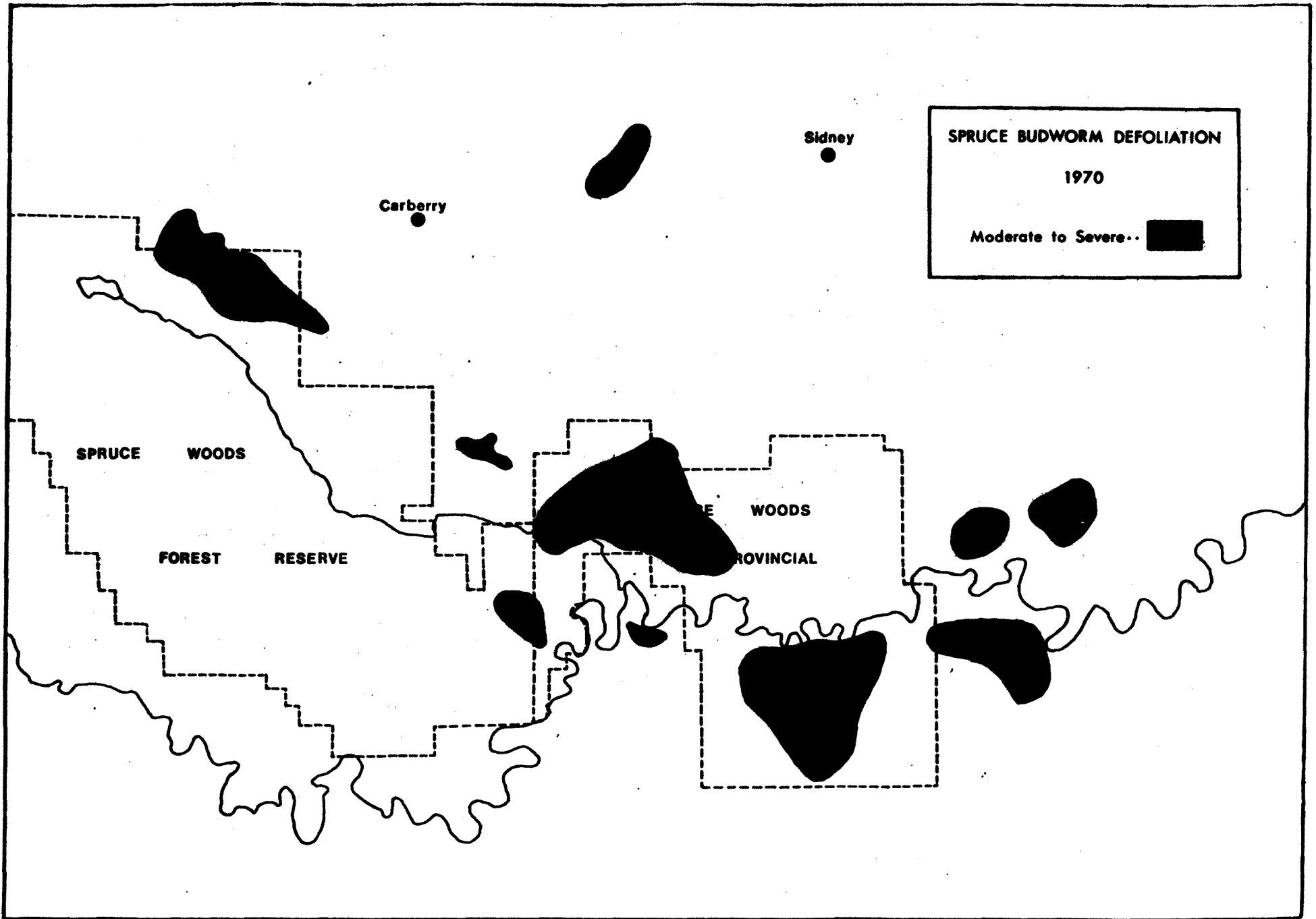
Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Yellow witches' broom, <u>Melampsorella caryophyllacearum</u> Schroet.	B. fir	Occasional isolated brooms observed in the Moose Lake, Falcon Lake, White Lake, and O'Hanley River areas.
Globose rust gall, <u>Endocronartium harknessii</u> (J.P.Moore) Y. Hiratsuka	J. pine	Light infections scattered throughout the range of jackpine in the District. Occasional moderate infection of saplings in the Northwest Angle Provincial Forest and in the Red Rose area. Some mortality of young trees in plantations near West Hawk and Meditation lakes.
Leaf spot, <u>Phaeoramularia maculicola</u> (Rom. & Sacc.)	T. aspen	Patches of severe infection in the Northwest Angle Provincial Forest.
Leaf and twig blight of poplar, <u>Venturia populina</u> (Vuill) Fabric.	B. poplar	Light infections in the Wallace Lake area.
Needle rust, <u>Pucciniastrum epilobii</u> Otth.	B. fir	Light infections of new needles scattered throughout the Northwest Angle Provincial Forest and Whiteshell Provincial Park and in the Lac DuBois and Wallace Lake areas.
Tar spot, <u>Rhytisma salicinum</u> Pers.ex Fr.	Willow	Traces of leaf infection in the Rennie area.
Caragana leaf spot, <u>Septoria caraganae</u> (Jacz.) Died	Caragana	Commonly found on caragana throughout the District. Premature leaf drop particularly evident in southwestern Manitoba.
Leaf spot, <u>Septoria musiva</u> Pk.	B. poplar	Occasional patches of moderate to severe infection of young trees in the Sprucewoods Provincial Forest and Riding Mountain National Park.

LARGE ASPEN TORTRIX
DEFOLIATION - 1970

- Light ○
- Moderate
- Severe ●





ANNUAL DISTRICT REPORT
NORTHWESTERN MANITOBA

1970

by
R. C. Tidsbury

FOREST RESEARCH LABORATORY
EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY
JANUARY, 1971

INTRODUCTION

High populations of the large aspen tortrix continued on trembling aspen throughout the area infested in 1969. There was no increase in populations of the spruce and jack-pine budworm. An increase in larch sawfly defoliation was observed in the Simonhouse Lake, Cranberry Portage, The Bog and The Pas areas. A sawfly, Profenusa thomsoni (Konow), caused moderate to severe leaf damage to white birch in the eastern portion of Flin Flon.

A marked increase in the spruce needle rusts, Chrysomyxa spp., occurred throughout the District. A considerable increase in infections of a leaf spot on balsam poplar, Linospora tetraspora Thompson, was recorded in the Carrot River Valley and Pasquia Hills areas. The eleventh annual survey of the Thompson Smoke Easement area was conducted in the vicinity of eight sulphur dioxide stations. No definite occurrence of fume damage was observed in the areas examined.

INSECT CONDITIONS

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Moderate to severe defoliation occurred on trembling aspen between Mulvihill and Ashern and in the Oak Brae area. Similar damage was recorded at the south end of Lake Winnipegosis in the Meadowlands - Volga area. Light to moderate defoliation was common in the Meadow Portage - Toutes Aids-Cayer areas. Throughout the remainder of the District defoliation was light.

American Aspen Beetle, Gonioctena americana (Schaeff.)

Widely scattered pockets of moderate to severe defoliation of trembling aspen reproduction occurred at Whitefish, Steeprock and Bell lakes in the Porcupine Provincial Forest and near Simonhouse and Egg Lakes. Elsewhere, defoliation was generally light.

Willow Leaf Miner, Lyonetia sp.

Populations of this leaf miner were common throughout the District. Moderate to severe damage to large patches of willow were recorded at Witchai, Isbister, Natawahunan, Wekusko, Snow, Chisel and Osborne lakes. The most severe damage occurred along the Snow and Chisel lakes roads. Light to moderate infestations were recorded at Dauphin, Wabowden, Ponton, Tyrrell and at Ospwagan, Clearwater, Simonhouse, Sipiwesk, Iskwasum and Reed lakes.

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

Moderate to severe defoliation of ornamental white spruce occurred at Dauphin Lake and in the Duck Mountain Provincial Park at

Childs and East Blue lakes. Moderate defoliation was recorded on several white spruce in the Moak Lake and Dunlop areas. Moderate to severe defoliation of the upper crowns of black spruce was observed from the Overflow Bay to the north end of The Bog. Similar defoliation was recorded on a few black spruce in the Kiski, Tyrrell, Clearwater lakes areas and in the Duck Mountain Provincial Park at Beautiful Lake. Throughout the remainder of the District, light defoliation was recorded on scattered white and black spruce.

Larch Sawfly, Pristiphora erichsonii (Htg.)

Moderate to severe defoliation of tamarack was recorded at Thompson, between Egg and Atik lakes, for two miles north from The Pas, in the San Clara area, at the junction of the Steeprock Bay road and Highway 10, on scattered trees throughout The Bog, 8 miles south of Cranberry Portage and at Root Lake.

Moderate defoliation was observed in the Cowan, Camperville, Overflow Bay, Clearwater Lake, Bakers Narrows and Simonhouse Lake areas. Low populations were observed throughout other tamarack stands examined in the District.

DISEASE CONDITIONS

Dwarf Mistletoe, Arceuthobium americanum Nutt.

Moderate to severe infections on jack pine were recorded five to eight miles north and six miles south of Grand Rapids. Moderate infections were observed on approximately a dozen trees near the Grand Rapids Camp Ground. A light to moderate infection, with a few scattered severely infected trees, was recorded at the southwest end of Swan Lake.

Spruce Needle Rusts, Chrysomyxa spp.

There was a marked increase of infections of this rust throughout the District. Generally moderate to severe infections were recorded on white spruce at Witchai, Setting, Paint, Natawahunan, Isbister, Wintering, Reed, Moak and Bell lakes, Pisew Falls and Mile 6 on the Sipiwesk Lake road.

Moderate to severe infections were recorded on black spruce at Witchai, Setting, Johnson, Bell, Wekusko, Osborne, Chisel and Snow lakes, Mile 6 on the Sipiwesk Lake road and in the Cranberry Portage area.

Light infections were observed on black spruce at Paint, Ospwagan, Natawahunan, Wintering, Sipiwesk, Reed, Shanty, Granite, Iskwasum, Amisk and Cormorant lakes, Pisew Falls, Tyrrell, Ponton, Pelican Narrows, Grand Rapids and along the Otosquen highway in the Pasquia Hills.

Light infections were observed on white spruce at Pelican Narrows, Tyrrell, Ponton, Grandview, the southeast boundary of the Duck Mountain Provincial Forest, and Granite, Wekusko, Amisk, Osborne, Chisel, Sipiwesk and Ospwagan lakes.

A Leaf Spot, Linospora tetraspora Thompson

This pathogen was common on scattered patches of balsam poplar reproduction throughout the District. More extensive areas of moderate to severe infections were recorded from The Pas along the Carrot River Valley and through the Pasquia Hills to the Hudson Bay-Erwood area. Similar infections were recorded along the southeast boundary of the Duck Mountain Provincial Forest and at Reed, Amisk, Chisel and Wekusko lakes.

Western Gall Rust, Endocronartium harknessii (J.P. Moore) Y. Hiratsuka

Moderate to severe infections causing light branch mortality on young jack pine were observed at Steeprock and Bell lakes in the Porcupine Provincial Forest. Light infections causing some branch mortality were recorded in the Westray tower area, at Whitefish Lake, in the Hart Mountain area and 5 and 10 miles north of Grand Rapids. Light infections with no branch mortality were observed at Tyrrell and Granite lakes and between Devils Lake and Grand Rapids.

Aspen Shoot Blight, Venturia macularis (Fr.) E. Muell & V. Arx.

Infections of this blight were common on trembling aspen reproduction. Moderate to severe infections were recorded at Isbister, Setting, Sipiwesk, Jan, Granite, Osborne, Chisel, Bell and Cormorant lakes, Wabowden, San Clara, Pelican Narrows, Ethelbert and in scattered patches throughout the Duck Mountain Provincial Park and Forest.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Spruce pineapple gall aphid, <u>Adelges lariciatus</u> (Patch)	W. spruce	Moderate damage at Clear-water, Amisk, Whitefish and Blue lakes and the Overflow Bay; elsewhere, light damage was common.
Ugly-nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry	Patches of moderate to severe damage between The Bog and Westray, near Iskwasum Lake, Cowan and Grandview.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Balsam gall midge, <u>Cecidomyia balsamicola</u> Lintner	B. fir	Light damage to scattered regeneration at Dawson Bay and Wekusko Lake.
Spruce budworm, <u>Choristoneura fumiferana</u> (Clem.)	W. spruce	Low larval populations at Simonhouse, Clearwater, Goose and Whitefish lakes.
Leaf beetle, <u>Chrysomela</u> spp.	T. aspen W. birch B. poplar	Moderate to severe damage to scattered patches of trembling aspen and balsam poplar reproduction throughout the Duck Mountain Provincial Park and Forest; light to moderate damage to aspen at Granite, Wekusko and Clearwater lakes, Grand Rapids and Grandview; light to moderate damage on white birch in the Setting Rapids - Pisew Falls area.
Woolly elm aphid, <u>Eriosoma americanum</u> Riley	W. elm	Light to moderate damage in the Durban, Dauphin Lake, Lenswood, Swan River and Childs Lake areas.
European alder leaf miner, <u>Fenusa dohrnii</u> Tischb.	Alder	Moderate to severe damage to scattered clumps at Cranberry Portage, Johnson Lake and along the Chisel Lake road; generally light elsewhere.
Spotless fall webworm, <u>Hyphantria cunea</u> (Drury)	Alder	Moderate defoliation of one clump in The Bog.
Aspen blotch miner, <u>Lithocolletis salicifoliella</u> Cham.	T. aspen B. poplar	Moderate to severe damage to aspen reproduction in the San Clara area;

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
		generally light to moderate in widely scattered pockets of reproduction throughout the remainder of the District.
Balsam-fir sawfly, <u>Neodiprion abietis</u> complex	W. spruce	Very light colony-defoliation at Glad Lake, Overflow Bay and along the Namew Lake road.
Jack-pine sawflies, <u>Neodiprion</u> spp.	J. pine	Moderate to severe defoliation of reproduction near Osborne Lake; light at Chisel Lake and near Bellsite.
Mourning cloak butterfly, <u>Nymphalis antiopa</u> (L.)	Willow T. aspen	Severe defoliation of individual willow clumps near Grand Rapids, Mafeking and Sipiwesk Lake; severe defoliation of individual branches of trembling aspen in the Meadow Portage and Makaroff areas.
Pitch nodule maker, <u>Petrova albicapitana</u> Busck.	J. pine	Low populations were common in stands examined; no appreciable branch or stem mortality.
Pine needle scale, <u>Phenacaspis pinifoliae</u> Fitch	J. pine	Severe on a few trees at Swan Lake.
An aspen leaf miner, <u>Phyllocnistis populiella</u> Cham.	T. aspen B. poplar	Light damage common on small aspen throughout the District.
Leaf-folding sawfly, <u>Phyllocolpa</u> nr. <u>agama</u> (Roh.)	B. poplar	Generally light damage recorded on reproduction throughout the District.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Green-headed spruce sawfly, <u>Pikonema dimmockii</u> (Cress.)	W. spruce	Low populations in association with <u>P. alaskensis</u> ; light defoliation at Denare Beach and Maligne Lake.
A birch mining sawfly, <u>Profenusa thomsoni</u> (Konow)	W. birch	A moderate to severe infestation covering approximately two square miles on the east side of Flin Flon; light damage southeast as far as Bakers Narrows.
Gray willow-leaf beetle, <u>Pyrrhalta decora</u> (Say)	Willow	Widely scattered moderate defoliation at Grand Rapids and Makaroff and at Childs, Clearwater, Isbister, Wintering and Beautiful lakes. Light defoliation at Wabowden, throughout the Pasquia Hills, the Duck Mountain Provincial Forest and at Shanty, Iskwasum, Laurie and Reed lakes.
<u>Disease</u>		
A rust broom, <u>Chrysomyxa arctostaphyli</u> Diet.	B. spruce W. spruce	Widely scattered infections on black spruce throughout the forested area (usually single brooms). Single brooms on white spruce at Whitefish, Iskwasum and Reed Lakes; near Timberton, Grandview and at Mile 33 on the Otosquen highway.
Black rib of willow, <u>Ciborinia foliicola</u> (Cash & Davidson) Whetzel	Willow	A moderate infection near Makaroff.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Ink spot of aspen, <u>Ciborinia whetzellii</u> Seaver	T. aspen	Light infections were observed on reproduction in the Devils and Shanty lakes areas, Grandview, Makaroff, and the Gypsumville-Waterhen River area.
Needle rust, <u>Coleosporium asterum</u> (Diet.) Syd.	J. pine	Moderate at Birch River and Bell Lake; light at Steeprock Lake, Hart Mountain, Rocky Lake, Cranberry Portage, Blue Lakes and near the junction of the Long Point road and Grand Rapids highway.
Comandra blister rust, <u>Cronartium comandrae</u> Pk	Comandra sp.	Moderate on a few plants near Grand Rapids and at Mile 28 on the Otosquen highway.
A leaf spot, <u>Euryachora betulina</u> (Fr.) Schroet.	W. birch	Light at Osborne, Wekusko, Pelican and Clearwater lakes.
Larch-willow rust, <u>Melampsora paradoxa</u> Diet. & Holw.	Willow	Moderate at San Clara and Pelican Narrows; light at Laurie, Mirond, Granite, Iskwasum, Wintering, Jan and Osborne Lakes, in The Bog, Cranberry Portage and Tyrrell areas.
A leaf spot, <u>Phaeoramularia maculicola</u> (Rom. & Sacc.) Sutton	T. aspen	Moderate to severe at Westray, Grandview, Childs Lake, Mile 28 on the Otosquen highway, Devils, Simonhouse and Neso Lakes, Armit and Grand Rapids areas.
A rust, <u>Pucciniastrum</u> spp.	W. spruce	Light on new foliage at Iskwasum, Simonhouse, Whitefish, Bell, Neso, Glad and Amisk lakes, Mile 10 on the Namew Lake road, Birch River and in the Hart Mountain area.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
A needle rust, <u>Pucciniastrum epilobii</u> Othh.	B. fir	Light on reproduction at Iskwasum, Amisk, Simonhouse, Shanty and Wintering lakes and at Dawson Bay, along the Namew Lake road, and Otosquen highway.
Tar spot of willow, <u>Rhytisma salicinum</u> (Pers.) Fr.	Willow	Moderate to severe at Cranberry Portage and in the Osborne-Chisel lakes areas; light at Witchai, Isbister, Reed, Shanty, Beautiful, Laurie, Jan and Mirond lakes, throughout the Carrot River Valley, Baldy Mountain and Tyrrell areas.
A leaf spot, <u>Septoria musiva</u> Pk.	B. poplar	Common on reproduction throughout the District; moderate to severe at Glad, Childs and Osborne lakes, and at Grand Rapids and Westray.
A hyperparasite, <u>Wallrothiella arceuthobii</u> (Pk) Sacc.	Jack-pine mistletoe	Light on a few mistletoe plants near Grand Rapids.

ANNUAL DISTRICT REPORT
SOUTHEASTERN SASKATCHEWAN
PRAIRIES REGION 1970

by

V. B. Patterson

FOREST RESEARCH LABORATORY

EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1971

INTRODUCTION

Forest insect and disease surveys for 1970 commenced June 9 and terminated August 28. All of July was spent outside of the District continuing the study of Hypoxyylon mammatum (Wahl.) J.H. Miller in Alberta, and in moving from Calgary to the new Edmonton headquarters. Due to the limited time for general field surveys emphasis was placed on sampling in campgrounds, Regional and Provincial parks, and a number of pre-selected farm shelterbelts.

The most common insects were: the wooly elm aphid, Eriosoma americanum (Riley); ash miridae, Neoborus amoenus (Reuter); and the cottonwood leaf mining beetle, Zeugophora scutellaris Suffr. Populations of the fall cankerworm, Alsophila pometaria Harr. and the forest tent caterpillar, Malacosoma disstria Hbn. remained very low.

Annual disease infections were at a low level. The most common were Septoria leaf spots on poplars and caragana.

INSECT CONDITIONS

Cottonwood Leaf Mining Beetle, Zeugophora scutellaris Suffr.

Severe damage occurred to Northwest poplar in Rowans Ravine Provincial Park. In an area covering several acres of poplar shelterbelts, the foliage appeared black due to the discoloration caused by the feeding of the leaf miners. Moderate damage occurred in shelterbelts at the Indian Head Tree Nursery and in Buffalo Pound Provincial Park.

Prairie Tent Caterpillar, Malacosoma lutescens (N. & D.)

Light infestations of these tent caterpillars were recorded at a number of locations in the central area of the District. There were numerous colonies on rose along the Qu'Appelle Valley lakes and in the Balcarres, Tonkin and Markinch areas.

Poplar Bud-gall Mite, Aceria parapopuli (Keifer)

Infestations of this gall forming insect were found at Balcarres, Oungre and Wilcox. The current year's damage was light at each location but the accumulative effect of previous years' damage detracted from the appearance of the trees.

In a hybrid-poplar shelterbelt near Wilcox, severe infestations occurred in previous years and control measures were used on an experimental basis. When this shelterbelt was examined in June, many

new galls were forming, indicating a continuation of the infestation.

DISEASE CONDITIONS

Leaf Spot, Septoria caraganae (Jacz.) Died.

Premature leaf drop of caragana, attributed to this leaf spot, was observed at a number of locations. At the Indian Head Tree Nursery, caragana in the field plots were severely infected, resulting in almost complete defoliation.

Leaf Spot, Septoria musiva Pk.

Balsam poplar in the area surrounding Good Spirit Lake was moderately infected with this leaf disease. At the Indian Head Tree Nursery, northwest poplar was lightly infected.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Fall cankerworm, <u>Alsophila pometaria</u> (Harr.)	G. ash M. maple	Light at Weyburn, Mayberry and Tuxford.
A scale insect, <u>Aspidiotus</u> sp.	Poplar sp.	Severe on stems and branches of several trees in a shelterbelt at Khedive.
Spruce cone worm, <u>Dioryctria reniculella</u> (Grote)	W. spruce	Light in Oungre area.
Gall mite, <u>Eriophyidae</u>	M. maple	Generally light in Stockholm-Canora area.
Woolly elm aphid, <u>Eriosoma americanum</u> (Riley)	A. elm.	Generally light throughout District.
Forest tent caterpillar, <u>Malacosoma disstria</u> Hbn.	T. aspen	A few larvae found in Moose Mountain Provincial Park.
A sawfly, <u>Nematus</u> sp.	Willow spp.	Moderate in Canora area. Severe in cutting plantations at the Indian Head Tree Nursery.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Ash mirids, <u>Neoborus amoenus</u> (Reuter)	G. ash	Recorded throughout the District wherever the host occurred. Generally light to moderate damage.
Pine needle scale, <u>Phenacaspis pinifoliae</u> (Fitch)	W. spruce C. spruce	Moderate in shelterbelts in the Weyburn-Radville area and near Tuxford.
Larch sawfly, <u>Pristiphora erichsonii</u> (Htg.)	Tamarack	Light infestations at Tonkin and the Indian Head Tree Nursery.
<u>Disease</u>		
A leaf spot, <u>Cylindrosporium fraxini</u> (Ell. & Kill) Ell. & Ev.	G. ash	Moderate infections at Indian Head Tree Nursery.
A leaf spot, <u>Drepanopeziza populorum</u> (Desm) Hohn.	T. aspen	Severe infection in the Gorlitz area.
White trunk rot, <u>Fomes igniarius</u> L. ex Fr. Gill	T. aspen	Moderate in Moose Mountain Provincial Park, light elsewhere.
Leaf spot, <u>Gnomonia ulmea</u> (Schw.) Thum.	A. elm	Light damage in plantations at Indian Head Tree Nursery.
Hypoxyton canker, <u>Hypoxyton mammatum</u> (Wahl.) J.H. Miller	T. aspen	Light to moderate throughout aspen belt.
Larch needle rust, <u>Melampsora medusae</u> Thum.	T. aspen	Light on the foliage of trembling aspen in the Gorlitz area.

ANNUAL DISTRICT REPORT
NORTHEASTERN SASKATCHEWAN
PRAIRIES REGION 1970

by

K. L. Mortensen

FOREST RESEARCH LABORATORY
EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY
JANUARY 1971

INTRODUCTION

The Northeastern District of Saskatchewan contains that portion of the Province lying easterly of a line from Snake Lake on the Churchill River to the city of Saskatoon, and north of the line formed by Highways 5 and 49 from Saskatoon to Pelly.

Surveys were carried out from June 1st to September 1st, during which time 65 insect collections and 48 tree disease collections were submitted to the new Research Building in Edmonton, Alberta.

No major insect nor disease outbreaks were recorded and climatic conditions could be considered near normal.

The American aspen beetle, Gonioctena americana (Schaef.) was the most prevalent defoliator of deciduous trees, especially in the Hudson Bay area, while the yellow-headed sawfly, Pikonema alaskensis (Roh.) caused sporadic defoliation, mainly to farm shelterbelts throughout the agricultural areas.

One and one-half hours flying time was provided by the Saskatchewan Department of Natural Resources, using their Beaver aircraft to do a general reconnaissance of the Candle, White Gull, and Fishing lakes area.

The assistance and cooperation of the Saskatchewan Department of Natural Resources is gratefully acknowledged.

INSECT CONDITIONS

American Aspen Beetle, Gonioctena americana (Schaef.)

Defoliation of trembling aspen by this leaf beetle was particularly common along roadsides and on the fringes of aspen stands throughout the Hudson Bay - Saginas Lake - McBride Lake area. Only low, scattered populations were found elsewhere in the Mixedwoods Region of the District.

Larch Sawfly, Pristiphora erichsonii (Htg.)

In general, populations showed a further decline throughout the District. An isolated woodlot of tamarack near Nipawin was moderately defoliated while fringe trees supported moderate populations in the vicinity of the tamarack study plot east of Prince Albert. Two larvae of the released parasite, Olesicampe benefactor Hinz were recovered from this latter study plot. This represents a spread of some 16 miles from the release area near Crutwell.

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

Very low populations were general throughout most of the spruce stands of the District with moderate defoliation confined to the picnic area around Shannon Lake in the Nipawin Provincial Park. Other notable defoliation was confined to farm shelterbelts with moderate to heavy defoliation observed at Sturgis, Gronlid, Bruno and Nipawin.

European Alder Leaf Miner, Fenusa dohrnii (Tisch.)

This insect was common throughout most of the surveyed area. Damage was heavy to fringe alder along the North Saskatchewan River at Cole Rapids, moderate along the hiking trail between The Narrows and Kingmere Lake in Prince Albert National Park, but generally light elsewhere.

An Aspen Webworm, Tetralopha aplastella Hlst.

Low populations of this webworm occurred throughout much of the trembling aspen from Prince Albert eastward to Hudson Bay. A small pocket of light to moderate damage was noted 10 miles northeast of Squaw Rapids.

White-pine Weevil, Pissodes strobi (Peck)

Serious damage was caused to planted Colorado spruce in the Department of Natural Resources nursery a few miles north of Prince Albert. Moderate terminal damage occurred in small open growing stands of black spruce in the Prince Albert-Crutwell-MacDowall area. Light attacks were recorded along the Fir River road and the Armit to Arran road on the eastern side of the District.

DISEASE CONDITIONS

Aspen Shoot Blight, Venturia macularis (Fr.) E. Muell & V. Arx.

This pathogen was common throughout the entire surveyed area. Infections were generally light and confined to fringe reproduction aspen. A severe infection occurred in a small, fire succession aspen woodlot northeast of Whitefox.

Dwarf Mistletoe, Arceuthobium americanum Nutt. ex. Engelm.

This mistletoe on jack pine was common throughout the mixedwoods forest section. Particularly heavy pockets of infection occur in the Prince Albert area; in the vicinity of the junction of Highways No. 2

and No. 165; and in the vicinity of the junction of the Ballantyne and Bear rivers.

A collection of the hyperparasite, Wallrothiella arceuthobii (Pk.) Sacc. was made near Squaw Rapids.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Poplar bud-gall mite, <u>Aceria parapopuli</u> (Kieffer)	T. aspen	Light damage at Nipawin and Kipabiskau Regional Parks.
Ugly-nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry	Moderate populations throughout the Nesbit Provincial Forest.
Birch skeletonizer, <u>Bucculatrix canadensisella</u> Cham.	W. birch	Trace of feeding damage throughout.
Spruce budworm, <u>Choristoneura fumiferana</u> (Clem.)	W. spruce	Light feeding damage at a vacant shelter-belt near Rosthern.
Aspen leaf beetle, <u>Chrysomela crotchi</u> Brown	T. aspen	Light to moderate defoliation in patches in the Prince Albert and Squaw Rapids areas.
Spruce coneworm, <u>Dioryctria reniculella</u> (Grote)	W. spruce Col. spruce	Low populations at Otter Lake, Hudson Bay and Muenster.
Woolly elm aphid, <u>Eriosoma americanum</u> (Riley)	A. elm	Generally low populations throughout the southern portion of the district.
Prairie tent caterpillar, <u>Malacosoma californicum lutescens</u> (N. & D.)	Rose Chokecherry	Low populations throughout the Nesbit and Ft. a la Corne Provincial forests and Tobin Lake area.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Balsam-fir sawfly, <u>Neodiprion abietis</u> complex	W. spruce	Occasional larvae at Shannon Lake, Ballantyne Bay and Little Bear Lake.
Jack-pine sawflies, <u>Neodiprion</u> sp.	J. pine	Very light infestations in the Prince Albert, Gronlid and Nipawin areas.
Mourning cloak butterfly, <u>Nymphalis antiopa</u> (L.)	B. poplar Willow	Defoliation confined to single trees at Melfort, Codette and Squaw Rapids.
Pitch nodule maker, <u>Petrova albicapitana</u> (Busck)	J. pine	Very low populations throughout the forested area. A high of 5% of plantation trees attacked near Crutwell.
Poplar borer, <u>Saperda calcarata</u> Say	T. aspen	Moderate stem boring damage over small localized area 15 mi. south of Otter Lake.
Leaf miner, <u>Zeugophora</u> sp.	Poplar	Moderate populations on several young hybrid poplars along a drainage ditch near Squaw Rapids.
<u>Disease</u>		
Spruce mistletoe, <u>Arceuthobium pusillum</u> Pk.	W. spruce	Common along Highway 123 Sipanok Channel to Cumberland House.
Bark fungus, <u>Caliciopsis calicioides</u> (Ell. & Ev.) Fitz	B. poplar	Very light infections at Choiceland, Squaw Rapids, and Nipawin Regional Park.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Spruce needle rust, <u>Chrysomyxa ledicola</u> Lagerh.	W. spruce B. spruce Ledum sp.	Light infections scattered throughout the District. Moderate in a B.spruce woodlot near Peesane.
Spruce cone rust, <u>Chrysomyxa pirolata</u> Wint.	B. spruce	Trace infection at Montreal Lake.
Poplar ink spot, <u>Cibornia whetzelii</u> (Seaver) Seaver	T. aspen	Lightly scattered throughout the Mixedwoods Forest Region with a moderate infection over a small area near Chelan.
Stalactiform blister rust, <u>Cronartium coleosporioides</u> Arth.	Cow-wheat	Moderate infections on alternate host, <u>Melampyrum lineare</u> Desr. near Squaw Rapids.
Comandra blister rust, <u>Cronartium comandrae</u> Pk.	J. pine Pale comandra	One collection from Little Sandy Lake on J. pine; common throughout on pale comandra.
Leaf spot, <u>Drepanopeziza populorum</u> (Desm.) Hoehn.	T. aspen	Widespread across the Aspen Grove Region.
Gall rust, <u>Endocronartium harknessii</u> (J.P. Moore) Y. Hiratsuka	J. pine	Trace infections throughout J. pine stands. Small, localized area of moderate intensity at Little Sandy Lake.
Leaf spot, <u>Linospora tetraspora</u> G.E.Thompson	B. poplar	Very light infections scattered throughout the Mixedwoods Forest Region.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Leaf spot, <u>Phaeoramularia maculicola</u> (Rom.& Sacc.) Sutton	T. aspen	Light infections in woodlots at Shipman, Star City and Kipabiskau Regional Park.
Leaf spot, <u>Septoria caraganae</u> (Jacz.)	Caragana	Infections common but light in shelterbelts.
Shoot blight of balsam poplar, <u>Venturia populina</u> (Vuill) Fabric.	B. poplar	Light infection over small, confined area near Chelan.

ANNUAL DISTRICT REPORT
WESTERN SASKATCHEWAN
PRAIRIES REGION 1970

by

E. J. Gautreau

FOREST RESEARCH LABORATORY

EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1971

INTRODUCTION

Insect defoliators in Western Saskatchewan were greatly reduced in 1970. There were heavy rains on the Prairies from the 11th to the 16th of June with totals of 4 to 5 inches reported over a 24-hour period. This could have caused many of the insects being washed off the trees. Some damage occurred to low lying shelterbelts due to flooding.

The most conspicuous diseases were rust and foliage disease.

A special effort was made to determine the distribution of hyperparasites on rust cankers and dwarf mistletoe.

INSECT CONDITIONS

Bark Beetles, Dendroctonus obesus (Mann.) and Dendroctonus valens Lec.

Observations in the spruce forest of Western Saskatchewan revealed that attacks by the spruce beetle, D. obesus were low. Endemic populations were found to be present near logging operations in the Meadow Lake and Big River areas.

An infestation of the red turpentine beetle, D. valens was located in a stand of jack pine severely weakened by dwarf mistletoe near Peitahigan Lake in Meadow Lake Provincial Park. A detailed survey was not possible but random inspection indicated that low populations of beetles were present in the area. Beetle activity was also observed north of Meadow Lake along Highway 104 near Broad Creek where a fire had recently passed over the area. High populations of beetles were found infesting weakened trees.

Warren's Collar Weevil, Hylobius warreni Wood

A survey for this weevil was conducted in stands of jack pine to define its distribution and abundance. The weevil was present in the Mixed Wood and Upper Churchill Section from near Big River north to Buffalo Narrows. Infestations were found to be light and confined to overmature stands. An examination of regeneration pine in Meadow Lake Provincial Park and the Ministikwan Lake forest planting area failed to locate any evidence of weevil attack.

Weevils, Pissodes terminalis Hopping and Pissodes strobi (Peck)

An examination of pine regeneration along Highway 155 north of Green Lake revealed that the lodgepole terminal weevil P. terminalis was present from Beauval to Buffalo Narrows. The greatest concentration of attacked trees appeared to be in the Beauval area where a light infestation was recorded. Elsewhere in the District populations were

generally low. Population levels of the white-pine weevil, P. strobil remained low throughout the Mixed Wood Section of the District.

Leaf Tiers, Pseudexentra improbana oregonana Wlsh. and Compsolechia niveopulvella Cham.

These leaf tiers caused pockets of light defoliation to aspen stands in the Aspen Grove section of the District. Light infestations were recorded in the Unity, Battleford, Borden, Saskatoon, Vanscoy, and Pike Lake Provincial Park areas. Patches of light to moderate leaf rolling occurred in the Eyebrow Hills.

DISEASE CONDITIONS

Dwarf Mistletoe, Arceuthobium americanum Nutt.

Dwarf mistletoe is a widespread parasite of jack pine stands in Saskatchewan. Recent surveys have shown it to be particularly damaging to immature stands. The areas most severely infected centred around older mistletoe infected trees which were residuals left after early fires or logging operations. Thus pockets of severe infections occur from north of the 53 parallel to the vicinity of Lake Athabasca.

The aerial growth of the mistletoe plant is sometimes attacked by fungi, one of the most common of these secondary parasites found was Wallrothiella arceuthobii (Pk.) Sacc. This hyperparasite caused severe damage to the female flowers, inhibiting the development of mistletoe seeds. Three other hyperparasites, Septogloeum gillii D. Ell., Colletotrichum gloeosporioides Panz. SENSU ARX, and Cladosporium sp. caused extensive damage to the reproductive shoots of dwarf mistletoe in several areas.

High winds in early August uprooted many trees in Meadow Lake Provincial Park. It was observed that jack pine severely infected with mistletoe brooms was the worst affected by blowdown and stem breakage.

Birch Dieback

Top dying of white birch with symptoms similar to those of birch dieback was recorded at several locations in Meadow Lake Provincial Park. In June the upper crown of affected trees were characterized by the dieback of branch tips and occasionally of complete crowns. The foliage was small, yellowish in color and sparsely distributed. The examination of birch trees weakened by dieback revealed that they were severely attacked by infestations of the bronzed birch borer.

Comandra blister rust, Cronartium comandrae Pk.

This stem rust was found on jack pine in the District as far north as Beauval. In all areas sampled damage to stands was light. Red squirrels caused considerable damage to infected trees by gnawing the bark from the margin of blister rust cankers.

Rust cankers are often attacked by hyperparasites. Two of the most common of these found was Cladosporium sp. and Biatorella resinae (Ehr. ex Fr.) Mudd. Another hyperparasite, Tuberculina maxima Rostr. known to occur in Alberta was not located.

Leaf Spot, Drepanopeziza populorum (Desm.) Hohn.

This disease which causes leaf spots on aspen was widespread throughout the Aspen Grove Section of the District. It was particularly noticeable in the Battleford-Saskatoon areas where pockets of severe infections occurred.

Gall Rust, Endocronartium harknessii (J. P. Moore) Y. Hiratsuka

Although no intensive surveys were made for gall rust, infections were commonly observed in the Mixedwood and Upper Churchill sections of the District. Damage to individual trees was light. Cladosporium sp. and Biatorella resinae (Ehr. ex Fr.) Mudd., hyperparasites of this rust were collected in the Whelan, Meadow Lake, Beauval and Buffalo Narrows area. Another hyperparasite Tympanis sp. was collected 16 miles south of Beauval.

The Zimmerman pine moth, Dioryctria zimmermani Art. was usually found tunneling in gall rust infections. High populations of aphids belonging to the genus Cinara sp. were also found in association with gall rust infections.

Rusts, Gymnosporangium corniculans Kern, Gymnosporangium connersii Parmelee, and Gymnosporangium clavariiforme (Pers.) DC.

The incidence of leaf rust was high especially in the agricultural zone. G. corniculans was the commonest species collected on saskatoon in the Battleford and Saskatoon area where severe foliage damage occurred. G. connersii was also found in the same area causing severe foliage damage to hawthorn. G. clavariiforme caused severe damage to the fruit and foliage of saskatoon in the vicinities of Assiniboia, Wood Mountain and Val Marie.

Juniper, the alternate host to a number of species of Gymnosporangium was observed infected with rust in several locations.

Porcupine Damage

The porcupine was the animal found to be the most destructive to Provincial Government Plantations at Saskatchewan Landing,

Diefenbaker Lake and Mortlach. They chewed the bark from roots, stems and branches often girdling and killing small trees and making ugly scars on larger trees.

Rabbit Damage

Rabbits caused severe damage to forest regeneration throughout most of the Mixedwood and Aspen Grove Section of the District. Light damage occurred to plantings in the reforestation program in the Loon-Ministikwan Lake areas. Severe damage occurred to balsam fir regeneration in the Dore Lake area. In many cases the trees were girdled or completely cut off approximately one foot above the ground.

Rhizinia Root Rot, Rhizinia undulata Fries

This fungus has been recorded in Canada causing death of young conifers of various genera both in nursery and under natural conditions. The disease appears around sites of fires which appear to be necessary for its spread.

In 1970 it was collected for the first time in Saskatchewan near Buffalo Narrows bisecting a 1200 mile east-west gap in its distribution. It is still not known whether the establishment of Rhizinia in Saskatchewan is causing any noticeable tree mortality.

A Leaf Spot, Septoria caraganae (Jacz.) Died.

Caragana has been extensively planted in shelterbelts and windbreaks throughout the agricultural zone. Disease is not usually a serious problem although the foliage is often attacked by a leaf spot. In 1970 an epidemic of S. caraganae caused severe premature leaf-fall during the latter part of August in the vicinities of Battleford, Saskatoon, Moose Jaw and Swift Current.

Leaf and Twig Blight of Poplar, Venturia macularis (Fr.) E. Muell. and Art.

In northwestern Saskatchewan the incidence of this disease was high in areas where recent forest fires occurred producing excellent aspen reproduction. Moderate to severe infection levels of damage occurred near the following locations: Green Lake, the Waterhen Indian Reserve and along Highway 104 between Waterhen Lake and Canoe Lake. Elsewhere light to moderate infections were observed throughout the range of aspen in southwestern Saskatchewan.

TABLE I
OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Poplar bud-gall mite, <u>Aceria parapopuli</u> (Keifer)	Poplar sp.	Common in agricultural area. Severe infestations occurred in some plantations in the Swift Current and Moose Jaw areas.
Cooley spruce gall, <u>Adelges cooleyi</u> (Gill.)	W. spruce	Low populations observed in the Mixedwood Section of the District.
Gall aphid on conifers, <u>Adelges lariciatus</u> (Patch)	W. spruce B. spruce	Light infestations on regeneration in the Meadow Lake area.
Bronze birch borer, <u>Agrilus</u> sp.	W. birch	Dying birch in Meadow Lake Provincial Park severely infested.
Fall cankerworm, <u>Alsophila pometaria</u> (Harr.)	M. maple A. elm	Trace to low populations throughout agricultural zone.
Ugly nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Saskatoon Chokecherry	Low populations.
Boxelder gall midge, <u>Cecidomyia negundinis</u> Gill.	M. maple	Low populations with very light damage in some areas.
A leaf beetle, <u>Chalcoides</u> sp.	Poplar Willow	Common, caused light foliage damage.
Spruce budworm, <u>Choristoneura fumiferana</u> Clem.	W. spruce	Low populations on shelterbelt near Conquest.
Aspen leaf beetle, <u>Chrysomela crotchii</u> Brown	T. aspen	Low population.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
A wood borer, <u>Dicerca</u> sp.	T. aspen	Adults commonly taken in beating samples.
A leaf chafer, <u>Dichelonyx subvitatta</u> Lec.	T. aspen B. poplar Willow	Common, caused severe foliage damage to aspen along the Monnery River.
Spruce coneworm, <u>Dioroctria reniculella</u> (Grt.)	W. spruce	Low populations at Loon Lake and Scott.
Wooly elm aphid, <u>Eriosoma americanum</u> (Riley)	A. elm	Found in all areas where elm have been planted. Infestations generally light.
Ash sawfly, <u>Eupareophora purca</u> (Cr.)	G. ash	Trace to low populations.
Alder leaf miner, <u>Fenusa dohrnii</u> Tischb.	Alder	Light to moderate pockets of mining damage in the Mixedwood Section.
American aspen beetle, <u>Gonioctena americana</u> (Schaefer.)	T. aspen	Caused light defoliation to regeneration in the Ministikwan Lake area.
A leaf miner, <u>Gracillariid</u> sp.	Elm	Found in all areas where elm are planted. Infestations generally light.
Spotted tussock moth, <u>Halisidota maculata</u> (Harr.)	T. aspen	Low populations.
Striped alder sawfly, <u>Hemichroa crocea</u> (Fourcroy)	Alder	Caused light damage to lake shore alder in the Green Lake, Beauval and Buffalo Narrows area.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Aspen blotch miner, <u>Lithocolletis salicifoliella</u> Cham.	T. aspen	Infestations generally light. Moderate leaf mining observed at Dore Lake and Brightsands Regional Park.
Willow leaf miner, <u>Lyonetia</u> sp.	Willow	Caused light damage to lake shore willow throughout the Mixedwood Section of District.
Forest tent caterpillar, <u>Malacosoma disstria</u> Hbn.	T. aspen	Light infestation observed on aspen bluffs in the Wood Mountain area.
Prairie tent caterpillar, <u>Malacosoma lutescens</u> (N. and D.)	T. aspen Chokecherry Saskatoon	Low populations.
Poplar vagabond gall aphid, <u>Mordwilkoja vagabunda</u> (Walsh)	T. aspen	Found in all aspen stands. Infestations light.
A sawfly, <u>Nematus populi</u> Marl.	B. poplar	Light damage throughout.
A. mirid, <u>Neoborus amoenus</u> (Reut.)	G. ash	Moderate infestations in the Assiniboia and Neuville areas.
A sawfly, <u>Neodiprion</u> sp.	Spruce Pine	Occasional colonies found, damage light.
Spring cankerworm, <u>Paleacrita vernata</u> (Peck)	Elm M. maple	Very low populations on shelterbelts in the Swift Current area.
A gall aphid, <u>Pemphigus</u> sp.	B. poplar	Caused light foliage damage.
Aspen leaf miner, <u>Phyllocnistis populiella</u> Cham.	T. aspen	Very low populations.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Spruce bud midge, <u>Rhabdophaga swainei</u> Felt.	W. spruce B. spruce	Light damage common on regeneration in the Central and Northern portion of District.
<u>Disease</u>		
Shoestring root rot, <u>Armillaria mellea</u> (Vahl. ex.Fre.) Qual.	B. fir	Associated with dying fir at Beauval.
Discomycete, <u>Ascocalyx abietis</u> Naumov.	B. fir	Common on dead branches in the Beauvre Lake area.
Spruce needle rust, <u>Chrysomyxa ledicola</u> Lagerh.	W. spruce B. spruce	Pocket of severe infection near Peerless. Elsewhere in the District infections were light.
Poplar ink spot, <u>Ciborinia whetzelii</u> (Seaver) Seaver	T. aspen	Pockets of light infections in the vicinities of Green Lake and Buffalo Narrows.
Parasitic, <u>Cladosporium</u> sp.	Buckbrush	Collected at Shellbrook and Flat Valley.
Shot-hole of cherry, <u>Coccomyces hiemalis</u> Higgins	Chokecherry	Light infection in Pike Lake Provincial Park.
Decay fungi, <u>Crepidotus</u> sp.	Chokecherry	Collected in Pike Lake Provincial Park.
Slash fungi, <u>Cryptochaete rufa</u> (Fr.)Karst.	T. aspen	Common, collected at Kelfield.
Canker, <u>Cytospora chrysosperma</u> Fr.	T. aspen Poplar	Throughout the District.
Black-knot of cherry, <u>Dibotryon morbosum</u> (Schw.) Thiess and Syd.	P. cherry Chokecherry	Common, infections usually light. Collected as far north as Big River.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Globose Gall of Poplar, <u>Diplodia tumefaciens</u> (Shear) Zalasky.	T. aspen	Collected in the Big River Indian Reserve.
Pine needle cast, <u>Elytroderma deformans</u> (Weir) Darker	J. pine	Light infection in the Lac des Isles area.
White spongy rot, <u>Fomes applanatus</u> (Pers. ex. Wallr.) Pat.	B. poplar	Collected near Beaupre Lake.
Heart rot, <u>Fomes ellisianus</u> Anders.	R. olive	Common on overmature trees in Glenburn Regional Park.
Red belt fungus, <u>Fomes pinicola</u> (Sw.) Cke.	B. fir	Throughout District. Collected at Beauval.
Slash fungus, <u>Hirschioporus abietinus</u> (Dicks.ex Fr.) Donk.	B. fir	Collected at Beauval.
Hypoxylon canker, <u>Hypoxylon mammatum</u> (Wahl.) Miller.	T. aspen	Infections usually light. Common in the Aspen Grove Section.
Spruce needle cast, <u>Isthmiella crepidiformis</u> (Darker) Darker.	W. spruce B. spruce	Infections light. Collected near Green Lake and Taylor Lake.
Slash fungus, <u>Laxitextum crassum</u> (Lev. Lentz.	G. ash	Collected at Maxstone.
Leaf blight of balsam poplar, <u>Linospora tetraspora</u> Thompson	B. poplar	Pockets of light infections in the Green Lake and Battleford areas.
Needle cast, <u>Lirula macrospora</u> (Hartig) Darker	W. spruce	Trace of infection at the Big River tree nursery.
Needle cast, <u>Lophodermella concolor</u> (Dearn.) Darker	J. pine	Trace of infection. Collected at Smiley and La Loche.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Needle cast, <u>Lophodermium nitens</u> Darker	J. pine	Common on fallen needles. Collected at Buffalo Narrows.
Needle cast, <u>Lophodermium piceae</u> (Fckl.)Hoehn.	W. spruce	Severe infection in the vicinity of Leoville.
Needle cast, <u>Lophodermium pinastri</u> (Schrad.ex Fr.) Chev.	J. pine	Trace collected at Big River Tree Nursery.
Leaf rust, <u>Melampsora</u> sp.	Tamarack Willow	Light infection throughout.
Leaf rust, <u>Melampsora medusae</u> Thfm.	T. aspen	Light infection throughout.
Leaf rust, <u>Melampsora paradoxa</u> Diet and Holw.	Tamarack	Trace infection at Brightsands Regional Park.
Yellow witches' broom of fir, <u>Melampsorella caryophyllacearum</u> Schroet.	B. fir	Incidence very low. Collected at Beauval.
Parasitic, <u>Melanconium</u> sp.	Chokecherry	Collected at Pike Lake Provincial Park.
Slash fungi, <u>Peniophora polygonia</u> (Pers.ex Fr.) Bourd & Galz.	T. aspen	Collected at Maidstone.
Slash fungi, <u>Phaeophlebia strigosozonata</u> (Scwh.)W.B.Cooke	T. aspen Chokecherry	Found in association with sapsucker damage near Battleford.
Leaf spot, <u>Phaeoramularia maculicola</u> (Rom.& Sacc.) Sutton	T. aspen	Light infection in the Waterhen Indian Reserve.
Rust, <u>Phragmidium andersonii</u> Shear	Cinquefoil	Moderate in Wood Mountain Regional Park.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Rust, <u>Phragmidium rubi-idaei</u> (D.C.) Karst.	Wild Raspberry	Moderate infections in the Green Lake area.
Powdery mildew, <u>Podosphaera oxycanthae</u> (D.C.) Lev.	Chokecherry Saskatoon	High incidence in localized areas.
Decay fungi, <u>Polyporus adustus</u> Willd. ex Fr.	Spruce P.cottonwood Apple	Collected at Cadillac, Glenburn Regional Park and near Green Lake.
Decay fungi, <u>Polyporus tulipiferae</u> (Schw.) Overh.	Caragana Chokecherry	Collected at Maxstone and Tramping Lake Regional Park.
Decay fungi, <u>Poria</u> sp.	M. maple	Common. Collected near Saskatoon.
Rust, <u>Puccinia comandrae</u> Pk.	Northern Comandra	Light. Collected at Buffalo Narrows.
Rust, <u>Puccinia coronata</u> Cda.	W. willow	Trace infection in the Borden area.
Rust, <u>Puccinia caricis</u> Schroet.var. <u>urticata</u> (Kern) Arth.	Gooseberry	Light infection in Battleford area.
Rust, <u>Puccinia crandallii</u> Pam. & Hume.	Buckbrush	Common. Collected at Battleford.
Needle rust, <u>Pucciniastrum</u> sp.	W. spruce R. strigosus	Light infection on regeneration near Green Lake.
Needle rust, <u>Pucciniastrum epilobii</u> Otth.	B. fir	Light. Collected in the Beauval and Green Lake area.
Tar spot, <u>Rhytisma salicinum</u> (Pers.) Fr.	Willow	Light. Wood Mountain Regional Park.
Slash fungi, <u>Schizophyllum commune</u> Fr.	Apple	Collected at Scott.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Dieback, <u>Stigmina negundinis</u> (Berk. & Curt.) M.B. Ellis	M. maple	Collected at Kelfield.
<u>Thelephora terrestris</u> Ehrh. ex Fr.	Alder	Common in the Buffalo Narrows area.
Needle fungus, <u>Thyriopsis halepensis</u> (Cke.) Theiss. & Syd.	J. pine	Light infection at Big River and Matheson Lake.
Decay fungi, <u>Trametes</u> sp.	P. cottonwood	Collected at Glenburn Regional Park.
Discomycete, <u>Tryblidiopsis pinastri</u> (Fr.) Karst.	W. spruce	Common on dead branches. Collected near Leoville.
Dieback, <u>Tubercularia ulmea</u> Carter	C. elm M. maple	Very common. Collected at Bigger.
Powdery mildew, <u>Uncinula salicis</u> (D.C. ex Merat) Wint.	T. aspen B. poplar	High incidence in localized areas.
Canker, <u>Valsa sordida</u> Nits.	T. aspen	Very common. Col- lected at Borden
Leaf and twig blight of poplar, <u>Venturia populina</u> (Vuill) Fabric.	B. poplar	Found throughout the Aspen Grove Section. Infections light.

ANNUAL DISTRICT REPORT

SOUTHERN ALBERTA

PRAIRIES REGION 1970

by

G. J. Smith

FOREST RESEARCH LABORATORY

EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1971

INTRODUCTION

Forest insect damage in 1970 was generally light with the exception of patchy severe aspen defoliation in the west-central area. Populations of the spruce bark beetle in the southwest part of the District remained low as in 1969. Spruce budworm caused moderate to severe defoliation in Kootenay National Park. Populations of the lodgepole needle miner decreased considerably from those of 1968, the previous flight year.

Conifer foliage diseases, namely needle casts and needle rusts caused patchy stand discoloration along the mountains and foothills. Foliage disease of aspen and poplar caused considerable stand discoloration in September. The incidence of root and butt rots, canker diseases, blister rusts, gall rusts and dwarf mistletoe remained approximately the same as in past years.

INSECT CONDITIONS

Spruce Bark Beetle, Dendroctonus obesus (Mann.)

In southwestern Alberta, including Waterton Lakes National Park, population levels of these beetles remained low. Most of the new attacks and larval broods were found in living trees that had been previously attacked or in fresh logging stumps and windfalls. Only a few successful first attacks were found on living trees in 1970. An infestation, not previously reported, was found along Lost Creek near the southern boundary of the Bow River Forest. In the same general area, a few beetle killed spruce were observed along Cummings Creek.

In Yoho National Park, a spruce bark beetle infestation, not previously reported, was found in standing Engelmann spruce near the upper end of the Amiskwi River Valley. In this area a number of trees had died and lost foliage from 1968 attack and a number were dead following 1969 attack but were still green. Individual beetle killed spruce were noted along the Yoho and Beaverfoot River valleys. Along the Ice River Road near Steep Creek, numerous fresh beetle attacks were found in spruce stumps on the recently cleared right-of-way.

In Kootenay National Park, a few fresh beetle attacks were found in living mature Engelmann spruce near the mouth of Numa Creek.

In Banff National Park, the previously reported beetle attacks along the Boom Creek Valley were re-examined and only 2 newly attacked living trees were found, hence populations were considered stable. On Mt. Murchison near the north end of the Park, a few overmature Engelmann spruce had been attacked by spruce beetles in past years.

Elsewhere in the District, individual beetle infested or killed mature white spruce were found along upper Colt Creek near Nordegg, along Thompson Creek in the upper Saskatchewan River area and in Marmot Creek Watershed in the Kananaskis Valley.

In addition to the annual beetle damage appraisal carried out in the Crowsnest Forest, all accessible mature spruce forests in the remainder of the District have been thoroughly surveyed each year to obtain information on timber loss and population trends for forest management people.

Bruce Spanworm, Operophtera bruceata (Hulst)

Populations of this aspen defoliating insect increased along the foothills from the Porcupine Hills northward to the North Saskatchewan River and eastward through the Red Deer area to a line from Tees to Pine Lake.

Patches of moderate to severe defoliation were observed intermittently on the north end of the Porcupine Hills, in the Turner Valley-Priddis area, in the Sarcee-Calgary area and along the south side of the Bow River between Cochrane and Morley. Similar defoliation was observed in the area between the eastern edge of the foothills coniferous belt and Highway 2 from Bottrel to the North Saskatchewan River. The moderate to severe defoliation east of Highway 2 was mostly confined to the tops of the hills east of Penhold and Lacombe to the Pine Lake-Tees area (see map, page 62).

In numerous localities these larvae were in competition with larvae of the forest tent caterpillar and large aspen tortrix, but were usually dominant and the resultant defoliation was attributed to them.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

The area of aspen defoliated by this insect decreased from approximately 60 townships of near continuous severe defoliation in 1969 to approximately 6 townships of patchy moderate to severe defoliation in 1970.

The defoliation was observed from the Willesden Green Oilfield-Willesden Green areas northwestward to the Buck Lake area and in isolated patches south of Lavesta, 10 miles south of Pigeon Lake and along the east side and north end of Pigeon Lake (see map, page 63).

In the portion of the old outbreak south of Highway 57, apart from the aforementioned areas, larvae were present but did not contribute significantly to the defoliation as they were usually in aspen stands defoliated by the Bruce spanworm which had fed to maturity before the tent caterpillars were half grown. Only a few of the larvae in such competition were able to continue feeding to pupation.

Elsewhere, larvae were present north of Highway 57 and east of Lacombe as far as Stettler but no significant defoliation was observed.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

In 1970, aspen defoliation caused by this species decreased throughout the District. Defoliation caused by them only, was light to moderate in small scattered patches in the Cremona, Harmattan, Garrington-Kevisville and Bingley areas. However, in these same general areas larvae were intermixed with those of the Bruce spanworm, hence the ensuing defoliation was attributed to both species and mapped as such (see map, page 62).

Spruce Budworm, Choristoneura biennis Freeman

This species caused severe defoliation of understory Engelmann spruce and alpine fir near the mouth of Numa Creek in Kootenay National Park. The crowns of the overstory trees in the infested area sustained mostly light defoliation. Elsewhere in the Park, light understory defoliation was observed along the Vermilion River Valley from the Paint Pots area south to Vermilion Crossing.

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

Larvae of this sawfly severely defoliated spruce shelterbelts in the following agricultural areas: near Hussar, Strathmore, Calgary, between Olds and Sundre, near Bowden, Sylvan Lake, Tees, Lacombe, Gull Lake and in Aspen Beach Provincial Park.

In the forested area, light defoliation of sapling spruce was observed along the Elbow River near the mouth of Ford Creek.

DISEASE CONDITIONS

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

In the upper Fall Creek area of the Clearwater Rocky Forest, numerous young white spruce that had been predisposed by winter damage have subsequently been killed by this root rot. Also, in the Colt Creek burn northeast of Nordegg, this fungus has caused considerable mortality to sapling lodgepole pine in the past few years.

In the previously reported infected areas in Banff, Kootenay and Waterton Lakes National Parks, additional conifer mortality was observed this year.

In Crimson Lake Provincial Park, root rot is killing a higher percentage of the remaining mature aspen each year, particularly in the campground area.

Pine Needle Casts

The complex involving the species Lophodermella concolor (Dearn.) Darker and Hendersonia pinicola Wehm., infecting the same needles concurrently, caused patchy light to moderate discoloration and needle loss of lodgepole pine along the foothills from the Castle River northwest to the Clearwater River. Similarly affected areas were noted in mountain valleys in Waterton Lakes, Banff, Kootenay and Yoho National Parks.

The species Thyriopsis halepensis (Cke.) Th. Syd., caused severe discoloration and loss of 2-year-old foliage of lodgepole pine along the foothills valleys from the James River northward to the Brazeau River.

The species Lophodermella montivaga Petr., caused severe defoliation of lodgepole pine foliage along the Mistaya and upper North Saskatchewan river valleys in Banff National Park and in small patches in the Cypress Hills.

The species Davisomycella ampla (J.J. Davis) Darker was severe on lodgepole pine along upper Willow Creek and light in numerous other locations along the foothills.

The species Phaeoseptoria contortae Parmelee & Hiratsuka, caused severe discoloration and needle loss to lodgepole pine in the Chungo-Blackstone Summit area north of Nordegg. This fungus was first described in 1970 from collections previously obtained along the foothills.

The species Bifusella linearis (Pk.) Hoehn., was severe on small patches of limber pine in Beauvais Lake Provincial Park and light in several other locations.

Spruce Needle Rusts

The species Chrysomyxa ledicola Lagerh., was severe on individual Engelmann spruce trees in the Ottertail and Amiskwi valleys in Yoho National Park and in the Cascade Valley in Banff National Park. Light to moderate infections were noted on white spruce near Crimson Lake, Medicine Lake, in the O'Cheise Indian Reserve and the Brown Creek-Chungo Creek and Blackstone River areas.

The species Chrysomyxa weirii Jacks., severely infected a few individual trees in the Kicking Horse, Otterhead and Amiskwi valleys in Yoho National Park. Elsewhere, light damage was noted in several locations along the foothills.

Climatic Damage

Severe red belt of conifers which occurred in early 1970 was observed in the following locations: on Mts. Eisenhower and Inglismaldie in Banff National Park, along the upper Highwood and Kananaskis river

valleys and upper Wilkinson, Cataract, Lost and Cummings creeks in the Bow River Forest, along the upper Racehorse, Vicary and Crowsnest creek valleys, on the west slopes of Crowsnest Mtn. and east slopes of Hailstone Butte and along the upper West Castle and South Castle river valleys in the Crowsnest Forest and in the Cameron and Pass creek valleys in Waterton Lakes National Park.

Severe winter damage to aspen buds and shoots occurred along the west slopes of the Porcupine Hills north of the Ranger Station and on the north slopes in Streeter Basin.

Similar winter damage to hybrid poplars occurred in Little Bow Provincial Park.

Severe snow break of sapling lodgepole pine occurred in a planted area in Cypress Hills Provincial Park in Saskatchewan.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Pine sawfly, <u>Acantholyda</u> sp.	Ip. pine	Low population near Mt. Crandell Campground W.L.N.P.
Spruce gall aphids, <u>Adelges</u> spp.	W. spruce E. spruce	Patchy concentrations observed in foothill and mountain valleys, and on individual ornamentals elsewhere.
Fall cankerworm, <u>Alsophila pometaria</u> (Harr.)	Manitoba maple	Noteworthy by its absence in Southern Alberta this year.
Birch skeletonizer, <u>Bucculatrix canadensisella</u> , Cham.	Paper birch Cutleaf birch	Caused severe foliage discoloration and loss throughout the City of Calgary and in native stands between Gull and Pigeon lakes.
Pear slug, <u>Caliroa cerasi</u> (L.)	Cottoneaster Hawthorn	Severely discolored hedges and ornamentals in Calgary and in large towns north to Red Deer.

Other Noteworthy Insects and Diseases - Cont'd.

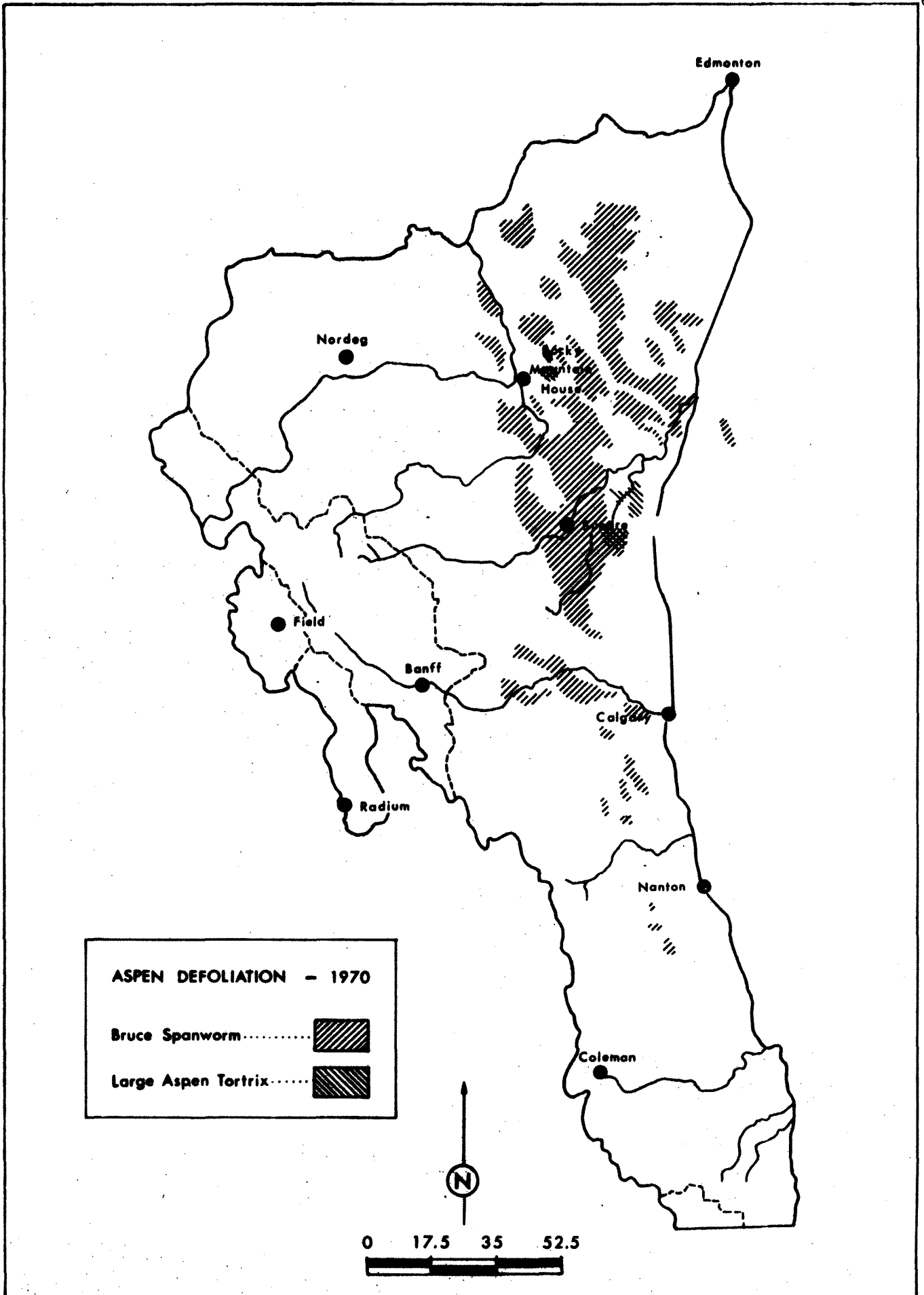
Causal Agent	Host	Remarks
Leaf beetle, <u>Chrysomela aeneicollis</u> Schffr.	Willow	Infestations present along the upper Cascade, Red Deer, North Saskatchewan and Amiskwi rivers and Boom Creek.
Leaf beetle, <u>Chrysomela</u> sp.	Narrowleaf cottonwood	Severely defoliated the stands along Ross Creek west of Irvine.
Lodgepole needleminer, <u>Coleotechnites starki</u> Freeman	Lp. pine	Caused patches of moderate foliage discoloration on Mt. Norquay and Mt. Inglismaldie in B.N.P.
Lodgepole pine beetle, <u>Dendroctonus murrayanae</u> Hopk.	Lp. pine	Noted fresh attacks on individual trees in Banff and Kootenay Nat.Parks and along Lost Creek in the Bow River Forest.
Mountain pine beetle, <u>Dendroctonus ponderosae</u> Hopk.	Lp.pine	Annual check along the boundaries of KNP revealed no attacks within the Park yet.
Douglas fir beetle, <u>Dendroctonus pseudotsugae</u> Hopk.	D. fir	Infested logs from Fording River, B.C. were hauled into the sawmill west of Coleman. Logs were processed before broods emerged.
American aspen beetle, <u>Gonioctena americana</u> (Schaeff.)	T. aspen	Caused patchy severe defoliation of saplings along stand fringes in the foothills, Porcupine Hills and Cypress Hills.
Oregon fir sawyer, <u>Monochamus oregonensis</u> (Lec.)	Lp. pine E. spruce	High populations of adults observed around mill sites in the Crowsnest Pass in mid-summer.
Sawfly, <u>Neodiprion</u> sp.	Scots pine	Severely defoliated 1970 growth on a planted belt in Kinbrook Island Provincial Park.

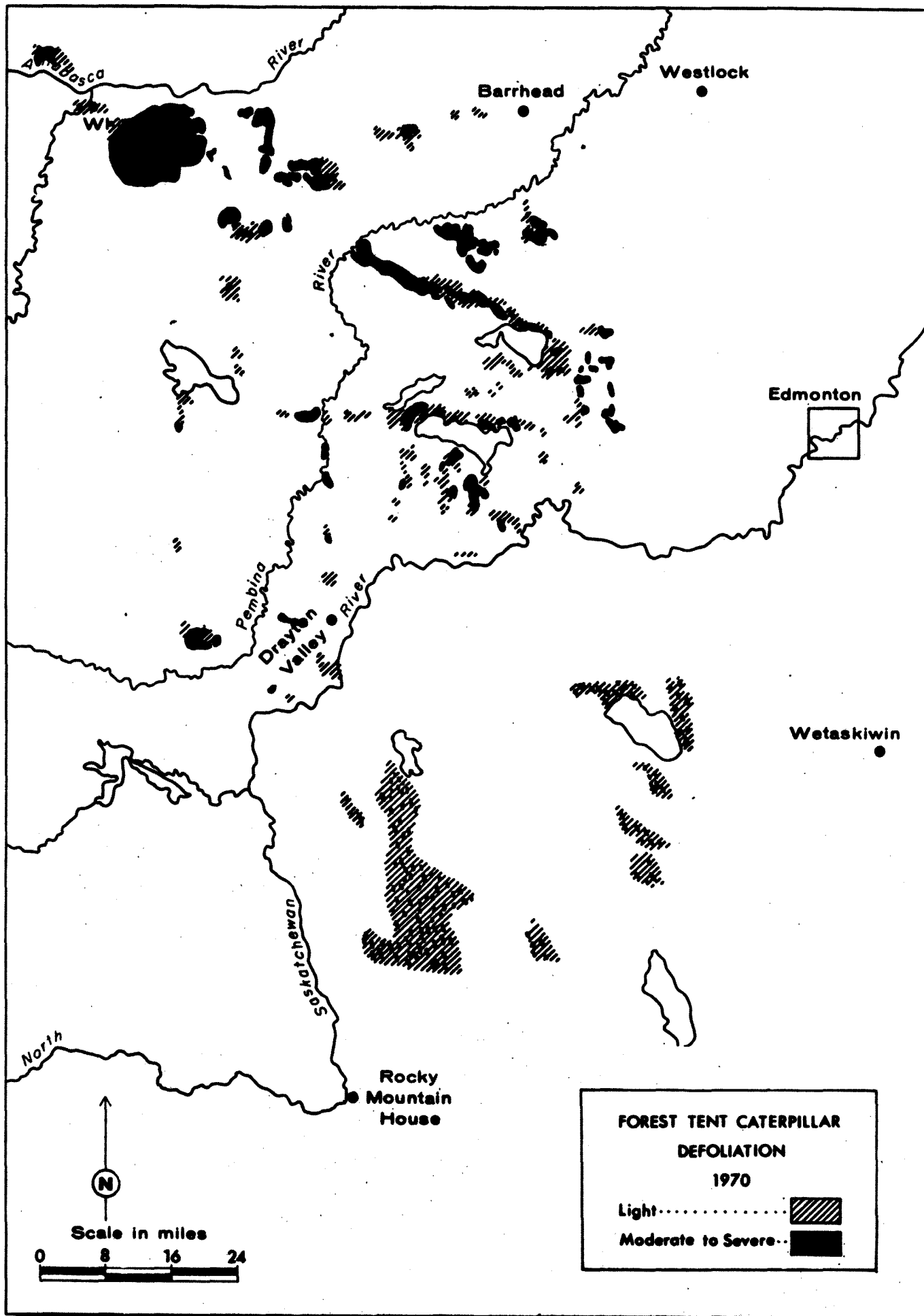
Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Spruce spider mite, <u>Oligonychus ununguis</u> (Jac.)	W. spruce	Severe infestations persist in densely branched trees throughout the agricultural area.
Pine needle scale, <u>Phenacaspis pinifoliae</u> (Fitch)	Lp. pine	Moderate infestation observed near Crandell Mtn. Campground in W.L.N.P.
Poplar serpentine miner, <u>Phyllocnistis populiella</u> Cham.	T. aspen	Caused patches of severe foliage discoloration along the mountains and foothills and in the Cypress Hills.
White-pine weevils, <u>Pissodes strobi</u> (Peck)	W. spruce	Noted increase in populations and new damage in young trees along Brown Creek flats in the Clearwater Forest.
Larch sawfly, <u>Pristiphora erichsonii</u> (Htg.)	Tamarack	Only a few larval colonies observed. No discernable defoliation.
<u>Disease</u>		
Dwarf mistletoe, <u>Arceuthobium americanum</u> Nutt. ex. Engelm.	Lp. pine	Causing severe crown and branch mortality in Tunnel Mtn. Campground B.N.P.
Spruce cone rust, <u>Chrysomyxa pirolata</u> Wint.	W. spruce B. spruce	Severe infection in the Nordegg River headwater area.
Poplar ink spot, <u>Ciborinia whetzellii</u> (Seaver) Seaver	T. aspen	Caused stand discoloration along the Highwood River, Cataract and Willow creeks.
Pine needle rust, <u>Coleosporium asterum</u> (Diet.) Syd.	Lp. pine	Severe on regeneration along the Emerald River in K.N.P. Light in Kananaskis Valley.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Whitepine blister rust, <u>Cronartium ribicola</u> J.C. Fischer	Wb. pine L.pine Currant	Severe infection in Crownsnest Forest and W.L.N.P. Alternate host severely infected along the Amiskwi River valley in K.N.P.
Indian paint fungus, <u>Echinodontium tinctorium</u> Ell. & Ev.	A. fir	Causing extensive heart rot in living mature trees in W.L.N.P.
Fire blight, <u>Erwinia amylovora</u> (Burrill) Winslow	Apple Crab apple	Common in the Red Deer- Lacombe area.
White trunk rot, <u>Fomes igniarius</u> (L.ex Fr.) Kickx.	T. aspen	High incidence in Crimson Lake Provincial Park.
Balsam poplar leaf blight, <u>Linospora tetraspora</u> Thompson	B. poplar	Severely infected patches in the Rocky Mountain House and Bowden-Pigeon Lake areas.
Poplar leaf spot, <u>Marssonina tremuloidis</u> (Ell. & Ev.) Kleb.	T. aspen	Caused considerable stand discoloration in west central portion of the District.
Larch needle rust, <u>Melampsora medusae</u> Thuem.	T. aspen	Caused considerable foliage discoloration on this host in the west central area.
Leaf rust, <u>Melampsora occidentalis</u> Jacks.	B. poplar	Common along the foothills.
Larch needle rust, <u>Melampsora paradoxa</u> Diet. & Holw.	A. larch	Moderate infection at tree line in Marmot Creek Basin and in Highwood Pass.
Stalactiforme rust, <u>Peridermium stalactiforme</u> Arth. & Kern.	Lp. pine	Causing sapling mortality in mountain and foothills valleys.





ANNUAL DISTRICT REPORT
CENTRAL ALBERTA
PRAIRIES REGION 1970

by

J. P. Susut

FOREST RESEARCH LABORATORY
EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY
JANUARY, 1971

INTRODUCTION

Forest tent caterpillar and Bruce spanworm were the most noteworthy insects in the District in 1970. Infestations of tent caterpillar dispersed and the severity of defoliation was reduced in the outbreak areas west and north of Edmonton. The Bruce spanworm continued to defoliate aspen between Edson and Hinton. Yellow-headed spruce sawfly caused damage to shelterbelts and ornamentals west of Edmonton. Populations of spruce gall aphids remained relatively high throughout the District.

Needle cast and needle rust infections were low throughout most of the District. Mortality of lodgepole pine due to winter drying in the 1967-68 winter occurred in the Obed Hills.

INSECT CONDITIONS

Forest Tent Caterpillar, Malacosoma disstria Hbn.

The forest tent caterpillar infestations that have persisted in the Wabamun Lake, Drayton Valley, Chip Lake and Whitecourt areas decreased in 1970. Defoliation dispersed into smaller pockets and was less continuous throughout the outbreak.

General boundaries of noticeable defoliation within the District were as follows: from Beach Corner southwest to Drayton Valley, south to the North Saskatchewan River, west to Lodgepole, north to Chip Lake and Mayerthorpe, northwest to Whitecourt, east along the Athabasca River to Blue Ridge, east to Thunder Lake and southeast to Lac La Nonne and Onoway.

Within the general outbreak, moderate to severe defoliation was observed in patches in the following areas: Beach Corner, Lake Eden, Onoway, Lac Ste. Anne, Wabamun Lake to Seba Beach, west of Gainford, near Tomahawk and Horen, west of Highvale, surrounding the north side of Low Water Lake, 10 miles north of Drayton Valley, along the North Saskatchewan River south of Drayton Valley, 6 miles north of Lodgepole, along Highway 43 from Gunn to Sangudo, between Greencourt and Helder and around Thunder Lake. A moderately large area of severe defoliation was present around Whitecourt and east to Blue Ridge. (See map page 69).

Scattered colonies of caterpillars were observed as far west as Edson and north to Hondo.

Bruce Spanworm, Operophtera bruceata (Hulst.)

Bruce spanworm remained at outbreak proportions in several locations in the Edson Forest.

Light defoliation of aspen was observed along Highway 16 from Edson west to Obed. Moderate defoliation, with small pockets of severe, was present on the east and south sides of Pedley. Defoliation decreased towards Hinton where light scattered patches were observed. Moderate defoliation was present near Tom Hill Tower and moderate to severe near Pioneer.

Scattered patches of light and moderate defoliation were present between Lodgepole and the Brazeau Dam.

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

Populations of this sawfly were observed in most of the agricultural areas of the District. Damage was generally restricted to spruce in shelterbelts or as ornamentals. Moderate and severe damage was observed in the Devon and Spruce Grove areas.

In Jasper National Park, moderate populations were observed on open grown spruce near the junction of Highway 16 and the Celestine Lake Road. Low populations were observed at Snake Indian Falls and Mt. Edith Cavell Teahouse.

DISEASE CONDITIONS

In the Obed area, where severe winter damage to lodgepole pine was reported in 1968, investigations in 1970 revealed scattered mortality and many trees in a weakened condition. The bark beetles, Ips sp. and Dendroctonus sp. were located in dead trees. No evidence of bark beetles in living trees was observed. Shoestring root rot, Armillaria mellea (Vahl. ex Fr.) Quel. was observed in all dead trees examined.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Poplar bud-gall mite, <u>Aceria parapopuli</u> (Kieffer)	T. aspen	Common in the eastern agricultural area. High populations near High Prairie.
Spruce gall aphids, <u>Adelges</u> spp.	W. spruce	Common throughout the District. High populations in Whistlers Campground and moderate in Rocky River Campground in J.N.P. Moderate damage in Wabamun Lake P.P.
Black-headed budworm, <u>Acleris variana</u> (Fern.)	W. spruce	Low populations throughout the District.

Other Noteworthy Insects and Diseases - Cont'd.

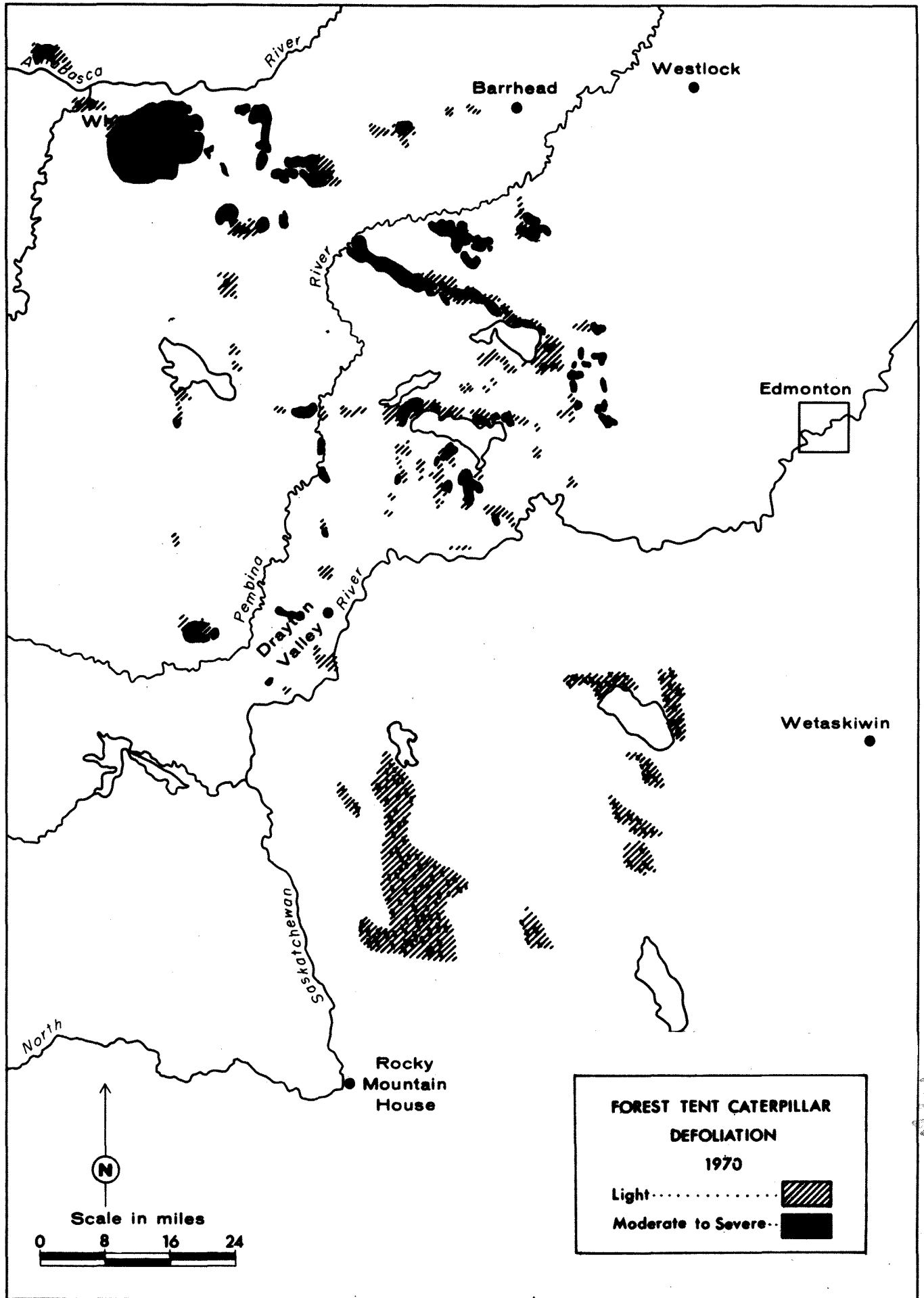
Causal Agent	Host	Remarks
A flea beetle, <u>Altica populi</u>	B. poplar	Light and moderate skeletonizing of poplar in the Wabamun Lake, Drayton Valley and Lodgepole areas.
Green rose chafer, <u>Dichelonyx backi</u> Kby.	T. aspen	High populations near Hondo.
American aspen beetle, <u>Gonioctena americana</u> (Schaeff.)	T. aspen	Moderate populations near Edson. Low populations in the eastern part of the District.
Pine root collar weevil, <u>Hylobius</u> sp.	Lp. pine	Scattered mortality of regeneration pine near Swan Hills, Edson and Robb.
Poplar leaf miner, <u>Lithocolletis</u> sp.	T. aspen	Common in the District.
Western tent caterpillar, <u>Malacosoma californicum pluviale</u> (Dyar)	T. aspen B. poplar	Low populations were observed near Wabamun Lake, Swan Hills and Lodgepole.
Spruce gall midge, <u>Mayetiola piceae</u> Felt.	W. spruce	Light twig damage at Snake Indian Falls in J.N.P.
Spruce spider mite, <u>Oligonychus ununguis</u> (Jac.)	W. spruce	Low populations in the agricultural area and in Lesser Slave Lake P.P.
Pitch nodule maker, <u>Petrova albicapitana</u> (Busck)	Lp. pine	High populations on regeneration pine in Entrance P.P. Low populations in the Swan Hills.
Poplar serpentine miner <u>Phyllocnistis populiella</u> Cham.	T. aspen	Low populations throughout the District.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Larch sawfly, <u>Pristiphora erichsonii</u> (Htg.)	Tamarack	Low populations between Edson and Hinton.
A pine twig beetle, <u>Pityophthorus</u> sp.	Lp. pine	Light twig damage in Entrance P.P.
Leaf tier, <u>Pseudexentera improbana oregonana</u> Wlshm.	T. aspen	Low populations in the Edson area.
Spruce bud midge, <u>Rhabdophaga swainei</u> Felt.	W. spruce	Light damage throughout the District.
<u>Disease</u>		
Dwarf mistletoe <u>Arceuthobium americanum</u> Nutt. ex. Engelm.	Lp. pine	Scattered mortality in N.W.P.P. lease area at Hinton and in Lesser Slave Lake P.P.
Spruce needle rust, <u>Chrysomyxa ledicola</u> Lagerh.	W. spruce	Light infection common in the forested area of the District.
Spruce needle rust, <u>Chrysomyxa</u> sp.	W. spruce	Light and scattered moderate infection of planted spruce seedlings near Slave Lake.
Hyperparasite of rust fungi, <u>Cladosporium</u> sp.	Whitebark pine	Collected on <u>Cronartium ribicola</u> J.C.Fischer near Athabasca Falls in J.N.P.
Stalactiforme rust, <u>Cronartium coleosporioides</u> Arth.	Lp. pine	Severe infection caused mortality at Sunwapta Falls in J.N.P.
Comandra blister rust, <u>Cronartium comandrae</u> Pk.	Lp. pine	Common throughout the forested area.
White pine blister rust, <u>Cronartium ribicola</u> J.C.Fischer	Whitebark pine	Mortality observed at Mt. Edith Cavell and along the Geraldine Fire Tower road in J.N.P.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Pine needle cast, <u>Elytroderma deformans</u> (Weir) Darker	Lp. pine	Moderate damage observed south of Jasper townsite. Severe damage along the Celestine Lake Road in J.N.P. and in Entrance P.P.
Pine needle cast, <u>Hendersonia pinicola</u> W. Wehm.	Lp. pine	Severe infection along the Celestine Lake Road in J.N.P.
Needle blight, <u>Isthmiella quadrispora</u> Ziller	A. fir	Moderate damage near Mt. Edith Cavell Teahouse.
Dieback, <u>Lachnellula arida</u> (Phill.) Dennis	Whitebark pine	Collected at Mt. Edith Cavell Teahouse in J.N.P.
Pine needle cast, <u>Lophodermella concolor</u> (Dearn.) Darker	Lp. pine	Severe infection along the Celestine Lake Road in J.N.P.
Leaf rust, <u>Melampsora occidentalis</u> Jacks.	B. poplar	Light infection west of Edmonton, moderate in Pembina River P.P.
Aspen shoot blight, <u>Venturia macularis</u> (Fr.E.Muell & V.Arxx)	T. aspen	Common throughout the District.



ANNUAL DISTRICT REPORT
NORTHEASTERN ALBERTA
PRAIRIES REGION 1970

by
J. Petty

FOREST RESEARCH LABORATORY
EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY
JANUARY, 1971

INTRODUCTION

Insect and disease conditions remained relatively static in 1970. The most notable condition was the general deterioration of aspen stands in the southern part of the District. This appeared to be a combination of factors over a period of years that has brought many aspen stands to their present state. The eventual result could be the loss of much of the forest cover in this area.

Spruce budworm populations were again present in spruce stands along the Athabasca River north of Ft. McMurray. Defoliation by yellow-headed spruce sawfly was evident in farm shelterbelts and urban plantings in the southern part of the District. The forest tent caterpillar was present in most areas of the southwest part of the District but did not cause notable defoliation.

Leaf blight of balsam poplar was common and, in some areas caused moderate discoloration and leaf drop. Hypoxylon canker, one of the main contributing factors to the deterioration of aspen stands, was present in most areas in the south part of the District. Infections of foliar diseases of aspen poplar and spruce needle rusts were generally low. A high incidence of a hyperparasite was recorded on mistletoe infections near Smoky Lake and Bellis.

INSECT CONDITIONS

Spruce Budworm, Choristoneura fumiferana (Clem.)

Spruce budworm was present in spruce stands along the west side of the Athabasca River north of Ft. McMurray. Moderate defoliation occurred for a distance of 4 miles from a point $3/4$ of a mile north of the bridge crossing the Athabasca River. Light defoliation was evident for an additional $4\frac{1}{2}$ miles north. Within the outbreak area dead tops on co-dominant and intermediate trees were noted.

Other areas where spruce budworm infestations were reported in 1969 were not surveyed this past season.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

The forest tent caterpillar was detected in many areas north-east, east and southeast of Edmonton and along the North Saskatchewan River in Edmonton. Defoliation was generally light and confined mainly to a few branches of individual trees or, at most, a few trees within a stand. In Edmonton moderate defoliation occurred in the southwest section but decreased eastward through the city to very light in the vicinity of Victoria Park. North of Edmonton to Clyde a few larvae were found but defoliation was not noticeable. Light defoliation occurred west of Gibbons. Southeast of Edmonton to Hay Lake and east of Ponoka low populations of tent caterpillar were present, but defoliation was minimal.

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

Spruce trees in farm shelterbelts and urban plantings in the agricultural part of the District were subject to infestations of spruce sawfly. The degree of defoliation was not consistent in any one area with light, moderate and severe defoliation noted throughout. In Edmonton moderate defoliation of white and Colorado spruce was present in many parks and, at a number of private residences moderate to severe damage was reported. Shelterbelts in the following areas had moderate or severe defoliation: Looma, Atmore, Lamont, Legal, Islay, Armena and Fort Kent. Several black spruce trees in a small area east of Abee were severely defoliated.

Poplar Borer, Saperda calcarata Say

The poplar borer was common in aspen stands of northeastern Alberta but the most notable damage occurred in aspen bluffs in the agricultural portions of the District. Damage was found mainly along roadsides and the periphery of aspen bluffs. In campsite areas damage caused by poplar borer poses a threat to the safety of individuals using these facilities.

DISEASE CONDITIONS

Hypoxylon Canker, Hypoxylon mammatum (Wahl.) J.H. Miller

Hypoxylon canker was serious in many parts of the District and was a contributing factor in the deterioration of poplar stands, particularly in the south. In some areas mortality of pole size trees has been appreciable. Infections of Hypoxylon canker have been more apparent in campsites and where some disturbance has occurred within the stand. A low incidence of infection was recorded 19 miles north of Ft. McMurray.

Leaf Blight of Poplar, Linospora tetraspora Thompson

Discoloration and early leaf drop of balsam poplar, a result of this leaf blight, occurred over most of the District. Infections were generally light although regeneration along roadsides and edges of poplar stands in the Cold Lake - Bonnyville - Moose Lake area had moderate infections.

Foliar Diseases of Aspen

Aspen shoot blight, Venturia macularis (Fr.) E.Muell. & Arx., was common on regeneration aspen throughout the District. Moderate infections occurred in many small, localized areas in the eastern part of the District.

Several small areas of light infection of poplar ink spot, Ciborinia whetzelli (Seaver) Seaver occurred along the Thickwood Tower Road west of Ft. McMurray and along Highway 63, 16 miles north of Atmore.

The poplar leaf spot, Marssonina tremuloidis (Ell. & Ev.) Kleb. caused severe discolouration in small areas of aspen in the Spedden-St. Paul area and northeast to Cold Lake.

Rabbits

Rabbit populations were notably high in many areas. Seedlings of spruce and pine had their leader chewed off. Results of the previous year's damage was multiple tops on many seedlings which in turn were chewed back in 1970. Rabbits have caused mortality of many small balsam fir (1'-3' tall) by girdling the main stems at ground level.

OTHER NOTEWORTHY INSECTS & DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Aspen leaf beetle, <u>Chrysomela crotchii</u> Brown	T. aspen	Many areas of light defoliation in southeast part of District.
American aspen beetle, <u>Gonioctena americana</u> (Schaeff.)	T. aspen	Moderate damage to regeneration aspen 17 miles north of Ft. McMurray.
Oregon fir sawyer, <u>Monochamus oregonensis</u> (Lec.)	W. spruce	Low populations in decked logs at Waterways.
Spruce spider mite, <u>Oligonychus ununguis</u> (Jac.)	W. spruce	Present in many shelterbelt and urban plantings. Populations generally low.
Bruce spanworm, <u>Operophtera bruceata</u> (Hulst.)	T. aspen	Moderate damage in small area east of Ponoka and Emily Murphy Park in Edmonton.
Larch sawfly, <u>Pristiphora erichsonii</u> (Htg.)	Tamarack	Very low populations throughout District.
<u>Disease</u>		
Shoestring root rot, <u>Armillaria mellea</u> (Vahl.ex.Fr.) Quel	W. spruce	Caused mortality in localized area at Mile 16 Heart Lake Tower Road.
Spruce needle rust, <u>Chrysomyxa</u> spp.	W. spruce	Low incidence general in District. Moderate in small area near Heart Lake Tower.
White trunk rot, <u>Fomes igniarius</u> (L. ex. Fr.) Kickx.	T. aspen	Notable throughout District.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Hyperparasite of mistletoe, <u>Wallrothiella arceuthobii</u> (Ph.) Sacc.	Dwarf mistletoe	High incidence in mistletoe infections near Smoky Lake & Bellis.

ANNUAL DISTRICT REPORT
NORTHWESTERN ALBERTA - NORTHWEST TERRITORIES
PRAIRIES REGION 1970

by

R. M. Caltrell

FOREST RESEARCH LABORATORY
EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY
JANUARY 1971

INTRODUCTION

Low populations of black-headed budworm were present throughout the District. The spruce budworm, rated as the most serious pest of our northern Alberta and Mackenzie District forests, continued to decline in population levels and damage occurrence. The American aspen beetle population remained relatively unchanged over last year's. Moderate damage was confined to one area. The Oregon sawyer beetle was present in endemic populations throughout the District with heavier concentrations in some slash areas. Infestations of poplar serpentine miner persisted throughout much of the southern portion of the Mackenzie District. The yellow-headed spruce sawfly continued to be a major defoliator of spruce in farm shelterbelts and urban ornamentals.

Stalactiforme rust was prevalent and mortality was evident in infected regeneration lodgepole pine. Western gall rust was common in most pine stands of the District. Aspen shoot blight was found throughout the aspen areas in varying degrees of infection. Winter drying of conifers was confined to one area.

INSECT CONDITIONS

Black-headed Budworm, Acleris variana (Fern.)

This budworm feeds mainly on the new growth of white spruce in our area. The populations have remained stable over the past three seasons. Defoliation caused by this insect was of no consequence in 1970. Light damage was observed at the following locations: Williamson Provincial Park, Winagami Provincial Park, O'Brien Provincial Park, Little Buffalo Falls, Pine Lake, and along the Kemp and Slave rivers.

Spruce Budworm, Choristoneura fumiferana (Clem.)

Infestations of spruce budworm in the Northwestern Alberta - Mackenzie District were reduced from those reported in 1969. Comparisons will be limited as many of the areas reported on in 1969 were not accessible for checking during the 1970 season. The accompanying map (page 81) based on aerial, boat and vehicle surveys, shows areas where known defoliation occurred. Much of the information on the populations and damage in the Footner Lake Forest is based on aerial surveys by Dr. H. F. Cerezke.

The populations of this insect were reduced significantly in the Footner Lake Forest. Two of the main spruce budworm outbreak areas were surveyed by aircraft, one along the Chinchaga River, in townships 107-111, the other on the Wabasca River between Muddy River and Senex Creek. A check was made along the Muddy River for a distance of 5 miles from the point where it flows into the Wabasca River. No defolia-

tion was discernible from the air in these areas. Ground checks revealed very low budworm populations.

In Wood Buffalo National Park low populations of spruce budworm occurred in the following areas: along the Peace River from Carlson's Landing to Peace Point, at Pine Lake, on Big Island and at Fort Smith. Medium populations were observed at Little Buffalo Falls along the Salt River and light to medium populations from Grand Detour to Brule Point. No defoliation was noted between Bell Rock and Grand Detour.

Aerial surveys were not conducted along the Mackenzie, Liard Rivers or their tributaries this year. No information is available for these areas.

American Aspen Beetle, Gonioctena americana (Schaeff.)

The American aspen beetle caused several square miles of severe defoliation of regeneration aspen east of Sulphur Lake. Low populations were noted 5 miles southeast of Grovedale and 5 miles northeast of Elmworth.

Oregon Fir Sawyer, Monoctonus oregonensis (Lec.)

The Oregon fir sawyer beetle was not a major problem to logging operators this year. Medium populations were located at Mile 28 Rainbow Lake Road in white spruce slash and as adults in flight at Two Lakes and Big Island. Low populations were observed at Grand Detour on the Slave River, 12 miles south of Keg River, at Mitchell's sawmill 2 miles north of Hotchkiss, Tomkins Landing on the Peace River and at Mile 64 Can For Road.

Poplar Serpentine Miner, Phyllocnistis populiella Cham.

Infestations of poplar serpentine miner were prevalent in Wood Buffalo National Park with high populations in the Pine Lake, Little Buffalo Fall, Fort Smith areas and at Grand Detour on the Slave River. Light infestations were generally found throughout the Mackenzie District.

DISEASE CONDITIONS

Stalactiforme Rust, Cronartium coleosporioides Arth.

This stem rust of pine is characterized by a slight spindle swelling on the branches and stems of young pine and an elongated canker on older trees. Areas of low incidence were observed at Mile 41 and 68 on the Two Lakes Road, Mile 52 and 80 on the Goodwin Trunk Road, Mile 42 Kakwa Tower Road, 11 miles west of Grovedale and 28 miles south

of Nose Lake. Areas of moderate intensity causing some mortality to young pine were located 9 miles east of Nose Tower and 13 miles south of Nose Lake.

Western Gall Rust, Endocronartium harknessii (J.P. Moore, Y. Hiratsuka)

This gall-forming rust of lodgepole and jack pine was noted in most pine stands checked this year. Areas of high incidence include, Mile 41 and 70 of the Two Lakes Road, Mile 80 on the Goodwin Trunk Road, 9 miles east of Nose Tower on the Cutoff Road, and 3 miles west of Demmitt. Low levels were noted at Mile 51 of the Imperial Lumber Road, Kakwa Tower area, 11 miles west of Grovedale, Mile 11 of the Two Lakes Road, 3 miles south of Shuttler Flats on the Nose Mountain Tower Road, 13 miles south of Nose Lake and east of the Porcupine Airstrip.

Aspen Shoot Blight, Venturia macularis (Fr.) E. Muell & Arx.

This shoot blight of aspen, which causes a characteristic "shepherd's crook" to new shoots of regeneration trembling aspen was widespread in the Northwestern Alberta and Mackenzie districts during 1970. Areas of high incidence observed were at Grand Detour on the Slave River and at Footner Lake. Light infections were noted in most aspen stands throughout the District.

Climatic Damage

Winter drying of conifers and deciduous trees was not a major problem the past season. Only one area of lodgepole pine showed the effects of winter drying. The area affected was located 8 miles east of Nose Tower and extended 7 to 8 miles east from this point and was approximately one mile wide. It is doubtful that any mortality will result.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Spruce gall aphids, <u>Adelges</u> spp.	W. spruce	Common.
Flatheaded borer, <u>Buprestidae</u> sp.	W. spruce T. aspen	Common.
Leaf tier, <u>Compsolechia niveopulvella</u> Cham.	T. aspen	Low populations observed in most aspen stands.

Other Noteworthy Insects and Diseases - Cont'd.

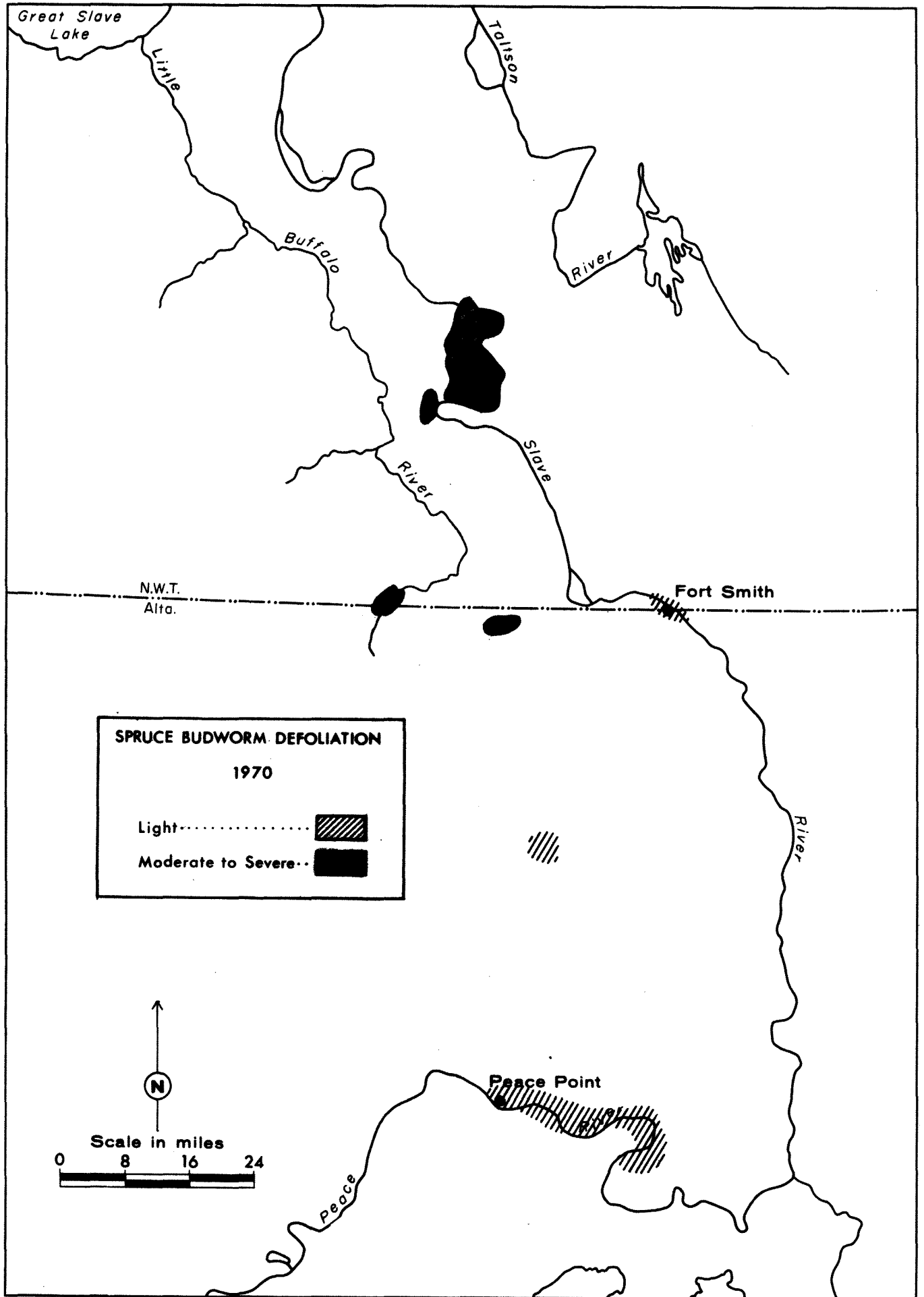
Causal Agent	Host	Remarks
Eastern larch beetle, <u>Dendroctonus simplex</u> Lec.	Tamarack	Low population at Mile 9 Two Lakes Road.
Wooly elm aphid, <u>Eriosoma americanum</u> (Riley)	A. elm	Medium population 6 miles west of Grande Prairie. Low populations at Grovedale Ranger Station, Winagami Provincial Park and at Grande Prairie.
Pine root collar weevil, <u>Hylobius</u> sp.	Lp. pine	Low populations along the Two Lakes, Kakwa, Goodwin Trail and Chinchaga roads, north of Sturgeon Lake, south of Nose Tower and at Twin Lakes.
Engraver beetle, <u>Ips</u> sp.	W. spruce	Low populations throughout the District.
Western tent caterpillar, <u>Malacosoma californicum pluviale</u> (D yar.)	Saskatoon Willow Birch	Low populations at Mile 0 N.W.T. Highway No.1, medium populations at Mile 75 Yellowknife Highway.
Forest tent caterpillar, <u>Malacosoma disstria</u> Hbn.	T. aspen	A trace found at Saskatoon Island Provincial Park.
Poplar twig borer, <u>Oberea schaumii</u> Lec.	T. aspen	Low populations 3 miles east of Bezanson.
Bruce spanworm, <u>Operophtera bruceata</u> (Hulst)	T. aspen	Trace to low levels in most aspen stands.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Pitch nodule maker, <u>Petrova albicapitana</u> (Busck)	Lp. pine J. pine	Low populations at Mile 110 Yellowknife Highway, Mile 42 Kakwa Tower Road, 11 miles west of Grovedale, 3 miles south of Shuttler Flats, Lac Cardinal Provincial Park and at Twin Lakes.
White pine weevil, <u>Pissodes strobi</u> (Peck)	W. spruce	Low populations at Mile 48 Imperial Lumber Road and at Mile 12 B.A. Oil Road.
Lodgepole terminal weevil, <u>Pissodes terminalis</u> Hopping	Lp. pine	Low population at Twin Lakes.
Larch sawfly, <u>Pristiphora erichsonii</u> (Htg.)	Tamarack	Trace to low populations throughout the District.
Poplar borer, <u>Saperda calcarata</u> Say	T. aspen B. poplar	Low populations common in Grande Prairie and Peace River Forests.
Wood borer, <u>Tetropium cinnamopterum parvulum</u> Casey	W. spruce	Common in Grande Prairie, Peace River Forests. High population at Mitchell's sawmill 2 miles north of Hotchkiss.
<u>Disease</u>		
Apiosporina witch's broom, <u>Apiosporina collinsii</u> (Schw.) v. Hhnel	Saskatoon	Common.
Dwarf mistletoe, <u>Arceuthobium americanum</u> Nutt.ex Engelm.	Lp. pine	Moderate south of Grande Prairie on banks of Wapiti River.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Atropellis canker, <u>Atropellis piniphila</u> (Weir) Lohman & Cash	Lp. pine	Common in pine stands south of Grande Prairie.
Yellow witch's broom, <u>Chrysomyxa arctostaphyli</u> Diet	W. spruce B. spruce	Common.
Spruce needle rust, <u>Chrysomyxa ledicola</u> Lagerh.	W. spruce	Light infections throughout the District.
Spruce cone rust, <u>Chrysomyxa pirolata</u> Wint.	W. spruce B. spruce	Common in Grande Prairie, Peace River and Footner Lake Forests.
Comandra blister rust, <u>Cronartium comandrae</u> Pk.	J. pine	Moderate infection at Mile 110 Yellowknife Highway.
Sweet fern blister rust, <u>Cronartium comptoniae</u> Arth.	J. pine	Light to moderate infection at Mile 110 Yellowknife Highway.
Pine needle cast, <u>Hypodermella concolor</u> (Dearn) Darker	Lp. pine	Moderate infection Mile 52 Goodwin Trunk Road.
Hypoxyton canker, <u>Hypoxyton mammatum</u> (Wahl.) J.H.Miller	T. aspen	Common in Grande Prairie and Peace River Forests.
Fir needle rust, <u>Pucciniastrum geoppertianum</u> (Kuehn) Kleb.	B. fir	Collected 13 miles south of Nose Lake.
Hyperparasite of rust fungi, <u>Tuberculina maxima</u> Rostr.	J. pine	Collected at Mile 110 Yellowknife Highway.



ANNUAL DISTRICT REPORT

YUKON TERRITORY

PRAIRIES REGION 1970

by

J. P. Susut

FOREST RESEARCH LABORATORY

EDMONTON, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1971

INTRODUCTION

A near complete collapse of the outbreak of large aspen tortrix occurred in the Yukon in 1970. Damage was restricted to two widely separated areas. Wood borers caused damage throughout the District. Poplar serpentine miner caused foliage discoloration of aspen in southeastern and southwestern Yukon.

Needle rust infections of spruce were generally light. Infections by pine needle casts were noted in several areas. Damage by aspen shoot blight was widespread.

INSECT CONDITIONS

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Population levels of this insect made a further decline throughout the Yukon in 1970. In the Dezadeash Valley, populations of large aspen tortrix were low and only a trace to light defoliation was observed. At Beaver Creek, populations declined to a trace and caused scattered pockets of light defoliation. There was no defoliation along the Klondike Highway between Whitehorse and Stewart Crossing, and between Ross River and Watson Lake. No new outbreaks were observed in the District.

Poplar Serpentine Miner, Phyllocnistis populiella Cham.

Populations of this insect remained high in southwestern Yukon, while decreasing in the southeast.

In the Watson Lake and Ross River areas discoloration was light. Light damage was also observed at Carcross. Severe foliage damage occurred at Beaver Creek and west to the Alaska border.

Wood Borers

The Oregon fir sawyer, Monochamus oregonensis (Lec.), was observed in numerous locations throughout the southern Yukon. Populations remained high in the logging sites near Watson Lake.

Populations of the borer, Saperda sp. were widely distributed throughout the range of aspen in the Yukon. This borer makes repeated attacks in the butt and root collar section of the tree causing weakness to a point where windthrow occurs. Moderate damage of this type occurred near McQuesten, along the Mayo-Dawson Highway.

DISEASE CONDITIONS

Comandra Blister Rust, Cronartium comandrae Pk.

Comandra rust continued to cause mortality of regeneration and sapling pine throughout the southern Yukon. Severe damage was noted 43 miles east of Whitehorse.

Pine Needle Casts

Needle casts caused foliage loss in several areas of the southern Yukon. The species, Davisomycella ampla (J.J. Davis) Darker, caused severe needle loss 16 miles east of Carcross. Lophodermium sp. caused heavy needle loss of regeneration pine 62 miles north of Watson Lake. Hypodermella sp. caused light damage 100 miles west of Watson Lake and near Jakes Corner. Phaeoseptoria contortae Parmelee & Hiratsuka, caused light damage 101 miles west of Watson Lake. The species, Lophodermella montivaga Petr. caused light damage 62 miles north of Watson Lake and at mile 706 of the Alaska Highway. This species, Gloeocoryneum cinereum (Dearn.) Weindlmayr, caused light damage 62 miles north of Watson Lake and at mile 1 of the Klondike Highway.

Aspen Shoot Blight, Venturia macularis (Fr.) E. Muell & V. Arx.

Light damage by shoot blight was observed throughout the District. Severe damage to a semi-mature stand of aspen was observed 17 miles east of Dawson City. Repeated infections have caused clumping of twigs and top kill.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
<u>Insect</u>		
Spruce gall aphids, <u>Adelges</u> spp.	W. spruce B. spruce	Light damage common. Severe damage around Kluane Lake.
A twig borer, <u>Agrilus</u> sp.	Willow	Collected near Ross River.
Aphidae	T. aspen	Medium and high popula- tions throughout the District.
Cone maggots, <u>Cecidomyid</u> sp.	W. spruce	Infested cones throughout the District.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Cone worm, <u>Laspeyresia youngana</u> (Kft.)	W. spruce	Damaged cones in several locations.
Poplar leaf miner, <u>Lithocolletis</u> sp.	T. aspen	Light damage near Champagne.
Willow leaf miner, <u>Lyonetia</u> sp.	Willow	Moderate damage near Watson Lake.
Pitch nodule maker, <u>Petrova</u> sp.	Ip. pine	Light damage 63 miles north of Watson Lake.
Weevil, <u>Pissodes canadensis</u> Hopk.	Ip. pine	Low populations 43 miles east of Whitehorse.
Carpenter worm, <u>Prionoxystus robiniae</u> (Peck)	B. poplar	One collection near Ross River.
Spruce bud midge, <u>Rhabdophaga swainei</u> Felt.	W. spruce	Light damage common in the Yukon.
A borer, <u>Saperda populnea moesta</u> Lec.	B. poplar	Collected near Ross River.
Horntails, <u>Urocerus gigas flavicornis</u> (Fab.)	Ip. pine	High populations near Watson Lake.
<u>Disease</u>		
Spruce needle rust, <u>Chrysomyxa ledi</u> de Bary	W. spruce	Present along the Canol Road near Johnson's Crossing.
Spruce needle rust, <u>Chrysomyxa ledicola</u> Lagerh.	W. spruce	Light infections common. Moderate at Johnson's Crossing.
Spruce needle rust, <u>Chrysomyxa woroninii</u> Tranz.	W. spruce B. spruce	Damage decreased from 1969. Light infection on Midnight Dome near Dawson City.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Western gall rust, <u>Endocronartium harknessii</u> (J.P.Moore) Hiratsuka (= <u>Peridermium harknessii</u> J. P. Moore)	Lp. pine	Severe infection 63 miles north of Watson Lake.
Leaf rust, <u>Pucciniastrum sparsum</u> (Wint.) Fisch.	Alpine bearberry	Collected at Burwash Flats.
Tar spot, <u>Rhytisma salicinum</u> (Pers.) Fr.	Willow	Severe infection in the Watson Lake area.
Shoot blight of balsam poplar, <u>Venturia populina</u> (Vuill.) Fabric.	B. poplar	Severe infection along Bonanza Creek 5 miles south of Dawson City.

INDEX TO INSECTS AND DISEASES

<u>INSECT</u>	<u>PAGE</u>
<u>Acantholyda</u> sp.	58
<u>Aceria</u> <u>parapopuli</u>	13, 33, 38, 46, 65
<u>Acleris</u> <u>variana</u>	13, 65, 75
<u>Adelges</u> <u>cooleyi</u>	13, 46
<u>Adelges</u> <u>lariciatus</u>	13, 27, 46
<u>Adelges</u> spp.	58, 65, 77, 83
<u>Agrilus</u> sp.	46, 83
<u>Alsophila</u> <u>pometaria</u>	13, 33, 34, 46, 58
<u>Altica</u> <u>populi</u>	66
<u>Archips</u> <u>cerasivoranus</u>	13, 27, 38, 46
<u>Archips</u> <u>pervidanus</u>	14
<u>Archips</u> <u>negundanus</u>	7
<u>Aspidiotus</u> sp.	34
<u>Bessa</u> <u>harveyi</u>	7
<u>Bucculatrix</u> <u>canadensisella</u>	13, 38, 58
<u>Buprestidae</u>	77
<u>Caliroa</u> <u>cerasi</u>	14, 58
<u>Cecidomyia</u> <u>balsamicola</u>	28
<u>Cecidomyia</u> <u>negundinis</u>	14, 46
<u>Cecidomyid</u> sp.	83
<u>Chalcoides</u> sp.	46
<u>Choristoneura</u> <u>biennis</u>	56
<u>Choristoneura</u> <u>conflictana</u>	4, 25, 56, 82
<u>Choristoneura</u> <u>fumiferana</u>	5, 28, 38, 46, 70, 75
<u>Choristoneura</u> <u>pinus pinus</u>	6
<u>Chrysomela</u> <u>aeneicollis</u>	14, 59
<u>Chrysomela</u> <u>crotchi</u>	14, 38, 46, 73
<u>Chrysomela</u> sp.	28, 59
<u>Cinara</u> sp.	44
<u>Coleophora</u> <u>laricella</u>	9
<u>Coleotechnites</u> <u>starki</u>	59
<u>Compsolechia</u> <u>niveopulvella</u>	14, 43, 77
<u>Dasineura</u> <u>balsamicola</u>	14
<u>Datana</u> <u>ministra</u>	14
<u>Dendroctonus</u> <u>murrayanae</u>	59
<u>Dendroctonus</u> <u>obesus</u>	42, 54
<u>Dendroctonus</u> <u>ponderosae</u>	59
<u>Dendroctonus</u> <u>pseudotsugae</u>	59
<u>Dendroctonus</u> <u>simplex</u>	78
<u>Dendroctonus</u> sp.	65
<u>Dendroctonus</u> <u>valens</u>	42
<u>Dicerca</u> sp.	47
<u>Dichelonyx</u> <u>backi</u>	66
<u>Dichelonyx</u> <u>subvitatta</u>	47
<u>Dioryctria</u> <u>reniculella</u>	14, 34, 38, 47

Dioryctria zimmermani 44

Diprion hercyniae 8

Disonycha alternata 15

Eriophyes fraxinflora 15

Eriophyidae 34

Eriosoma americanum 15, 28, 33, 34, 38, 47, 78

Eucosma gloriola 15

Eupareophora purca 15, 47

Fenusia dohrnii 15, 28, 37, 47

Gonioctena americana 15, 25, 36, 47, 59, 66, 73, 76

Gracillariid sp. 47

Halisidota maculata 47

Hemichroa crocea 47

Hylobius sp. 16, 66, 78

Hylobius warreni 42

Hylurgopinus rufipes 11, 16

Hyphantria cunea 16, 28

Ips sp. 65, 78

Lambdina fiscellaria fiscellaria 16

Laspeyresia youngana 84

Lithocolletis salicifoliella 28, 48

Lithocolletis sp. 66, 84

Lyonetia sp. 25, 48, 84

Malacosoma californicum lutescens 38

Malacosoma californicum pluviale 66, 78

Malacosoma disstria 16, 33, 34, 48, 55, 64, 70, 78

Malacosoma lutescens 16, 33, 48

Malacosoma pluviale 16

Mayetiola piceae 66

Mesoleius tenthredinis 7

Messa populifoliella 17

Monochamus oregonensis 59, 73, 76, 82

Mordwilkoja vagabunda 48

Nematus populi 48

Nematus sp. 34

Neoborus amoenus 33, 35, 48

Neodiprion abietis complex 17, 29, 39

Neodiprion sp. 29, 39, 48, 59

Nycteola cinereana 17

Nymphalis antiopa 8, 29, 39

Oberea schaumii 78

Olesicampe benefactor 7, 36

Oleuthreutidae sp. 17

Oligonychus ununguis 17, 60, 66, 73

Operophtera bruceata 17, 55, 64, 73, 78

Paleacrita vernata 17, 48

Pemphigus sp. 48

Petrova albicapitana 17, 29, 39, 66, 79

<u>Petrova</u> sp.	84
<u>Phenacaspis pinifoliae</u>	18, 29, 35, 60
<u>Phyllocnistis populiella</u>	18, 29, 48, 60, 66, 76, 82
<u>Phyllocolpa</u> nr. <u>agama</u>	29
<u>Physokermes piceae</u>	18
<u>Pikonema alaskensis</u>	6, 18, 25, 30, 36, 37, 56, 65, 71
<u>Pikonema dimmockii</u>	18, 30
<u>Pissodes canadensis</u>	84
<u>Pissodes strobi</u>	18, 37, 42, 60, 79
<u>Pissodes terminalis</u>	42, 79
<u>Pityophthorus</u> sp.	67
<u>Prionoxystus robiniae</u>	84
<u>Pristiphora erichsonii</u>	6, 26, 35, 36, 60, 67, 73, 79
<u>Profenusa thomsoni</u>	25, 30
<u>Proteoteras willingana</u>	18
<u>Pseudexentera improbana oregonana</u>	43, 67
<u>Pyrrhalta decora</u>	19, 30
<u>Rhabdophaga swaini</u>	49, 67, 84
<u>Saperda calcarata</u>	19, 39, 71, 79
<u>Saperda populnea moesta</u>	84
<u>Saperda</u> sp.	82
<u>Schizura concinna</u>	19
<u>Taniva albolineana</u>	19
<u>Tetralopha applastella</u>	19, 37
<u>Tetralopha robustella</u>	19
<u>Tetropium cinnamopterum parvulum</u>	79
<u>Toumeyella numismaticum</u>	19
<u>Urocerus flavicornis</u>	84
<u>Zeugophora scutellaris</u>	33
<u>Zeugophora</u> sp.	39

<u>DISEASE</u>	<u>PAGE</u>
<u>Apiosporina collinsii</u>	19, 79
<u>Arceuthobium americanum</u>	26, 37, 43, 60, 67, 79
<u>Arceuthobium pusillum</u>	20, 39
<u>Armillaria mellea</u>	49, 56, 65, 73
<u>Ascocalyx abietis</u>	49
<u>Aspergillus niger</u>	12
<u>Atropellis piniphila</u>	80
<u>Biatorrella resinae</u>	44
<u>Bifusella linearis</u>	57
Birch Dieback	43
<u>Caliciopsis calicioides</u>	20, 39
<u>Ceratocystis ulmi</u>	11
<u>Chrysomyxa arctostaphyli</u>	20, 30, 80
<u>Chrysomyxa ledi</u>	11, 84
<u>Chrysomyxa ledicola</u>	11, 40, 49, 57, 67, 80, 84
<u>Chrysomyxa pirolata</u>	40, 60, 80
<u>Chrysomyxa</u> spp.	25, 26, 67, 73
<u>Chrysomyxa weirii</u>	57
<u>Chrysomyxa woroninii</u>	84
<u>Ciborinia foliicola</u>	20, 30
<u>Ciborinia whetzellii</u>	11, 31, 40, 49, 60, 71
<u>Cladosporium</u> sp.	43, 44, 49, 67
Climatic Damage	57, 77
<u>Coccomyces hiemalis</u>	20, 49
<u>Coleosporium asterum</u>	20, 31, 60
<u>Colletotrichum gloeosporioides</u>	43
<u>Crepidotus</u> sp.	49
<u>Cronartium coleosporioides</u>	40, 67, 76
<u>Cronartium comandrae</u>	31, 40, 44, 67, 80, 83
<u>Cronartium comptoniae</u>	80
<u>Cronartium ribicola</u>	61, 67
<u>Cryptochaete rufa</u>	49
<u>Cylindrosporium fraxini</u>	35
<u>Cytospora chrysosperma</u>	49
<u>Davisomycella ampla</u>	57, 83
<u>Dibotryon morbosum</u>	21, 49
<u>Diplodia tumefaciens</u>	50
<u>Dothiorella ulmi</u>	12
<u>Drepanopeziza populorum</u>	35, 40, 44
<u>Echinodontium tinctorium</u>	61
<u>Elytroderma deformans</u>	50, 68
<u>Endocronartium harknessii</u>	22, 27, 40, 44, 77, 85
<u>Erwinia amylovora</u>	61
<u>Euryachora betulina</u>	31
<u>Fomes applanatus</u>	50
<u>Fomes ellisianus</u>	50
<u>Fomes igniarius</u>	21, 35, 61, 73

<u>Fomes pinicola</u>	50
<u>Gloeocoryneum cinereum</u>	83
<u>Gnomonia ulmea</u>	21, 35
<u>Gymnosporangium clavariiforme</u>	44
<u>Gymnosporangium clavipes</u>	21
<u>Gymnosporangium connersii</u>	44
<u>Gymnosporangium corniculans</u>	44
<u>Gymnosporangium cornutum</u>	21
<u>Hendersonia pinicola</u>	57, 68
<u>Hirschioporus abietinus</u>	50
<u>Hypodermella concolor</u>	80
<u>Hypodermella</u> sp.	83
<u>Hypoxylon mammatum</u>	21, 33, 35, 50, 71, 80
<u>Isthmiella crepidiformis</u>	50
<u>Isthmiella quadrispora</u>	68
<u>Lachnellula arida</u>	68
<u>Laxitextum crassum</u>	50
<u>Linospora tetraspora</u>	25, 27, 40, 50, 61, 71
<u>Lipula macrospora</u>	50
<u>Lophodermella concolor</u>	50, 57, 68
<u>Lophodermella montivaga</u>	57, 83
<u>Lophodermium nitens</u>	51
<u>Lophodermium piceae</u>	51
<u>Lophodermium pinastri</u>	51
<u>Lophodermium</u> sp.	83
<u>Marssonina tremuloidis</u>	61, 72
<u>Melampsora bigelowii</u>	21
<u>Melampsora medusae</u>	21, 35, 51, 61
<u>Melampsora occidentalis</u>	61, 68
<u>Melampsora paradoxa</u>	31, 51, 61
<u>Melampsora</u> sp.	51
<u>Melampsorella caryophyllacearum</u>	22, 51
<u>Melanconium</u> sp.	51
<u>Peniophora polygonia</u>	51
<u>Peridermium stalactiforme</u>	61
<u>Phaeophlebia strigosozonata</u>	51
<u>Phaeoramularia maculicola</u>	22, 31, 41, 51
<u>Phaeoseptoria contortae</u>	57, 83
<u>Phragmidium andersonii</u>	51
<u>Phragmidium rubi-idaei</u>	52
<u>Podospaera oxyacanthae</u>	52
<u>Polyporus adustus</u>	52
<u>Polyporus tulipiferae</u>	52
Porcupine Damage	44
<u>Poria</u> sp.	52
<u>Puccinia caricis</u> var. <u>urticata</u>	52
<u>Puccinia comandrae</u>	52

<u>Puccinia coronata</u>	52
<u>Puccinia crandalii</u>	52
<u>Pucciniastrum epilobii</u>	22, 32, 52
<u>Pucciniastrum geoppertianum</u>	80
<u>Pucciniastrum sparsum</u>	85
<u>Pucciniastrum</u> spp.	31, 52
Rabbit Damage	45, 72
<u>Rhizinia undulata</u>	45
<u>Rhytisma salicinum</u>	22, 32, 52, 85
<u>Schizophyllum commune</u>	52
<u>Septogloeum gillii</u>	43
<u>Septoria caraganae</u>	22, 34, 41, 45
<u>Septoria musiva</u>	22, 32, 34
<u>Stigmina negundinis</u>	53
<u>Thelephora terrestris</u>	53
<u>Thyriopsis halepensis</u>	53, 57
<u>Trametes</u> sp.	53
<u>Tryblidiopsis pinastri</u>	53
<u>Tubercularia ulmea</u>	53
<u>Tuberculina maxima</u>	44, 80
<u>Tympanis</u> sp.	44
<u>Uncinula salicis</u>	53
<u>Valsa sordida</u>	53
<u>Venturia macularis</u>	11, 27, 37, 45, 68, 71, 77, 83
<u>Venturia populina</u>	22, 41, 53, 85
<u>Verticillium albo-atrum</u>	12
<u>Verticillium dahliae</u>	12
<u>Wallrothiella arceuthobii</u>	32, 38, 43, 74