

ANNUAL DISTRICT REPORTS: FOREST INSECT AND
DISEASE SURVEY, PRAIRIES REGION, 1974

BY

V.B. PATTERSON, G.N. STILL, F.J. EMOND,
E.J. GAUTREAU, R.C. TIDSBURY, J. PETTY,
G.J. SMITH, R.M. CALTRELL, AND J.P. SUSUT

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NORTHERN FOREST RESEARCH CENTRE
CANADIAN FORESTRY SERVICE
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5320 - 122 STREET
EDMONTON, ALBERTA, CANADA
T6H 3S5

ABSTRACT

This report presents the results of the 1974 annual survey of forest insects and diseases in Manitoba, Saskatchewan and Alberta. Estimates of defoliation by the forest tent caterpillar (Malacosoma disstria Hbn.) in 1975 are given for Manitoba and Saskatchewan.

RESUME

Ce rapport présente les résultats du lever de plan des insectes et maladies forestières en 1974 dans le Manitoba, la Saskatchewan et l'Alberta. A ceci s'ajoutent la prédiction du défeuillage en 1975 par la Liuvrée des forêts (Malacosoma disstria Hbn.) dans le Manitoba et la Saskatchewan.

CONTENTS

Introduction	1
Field Staff Assignments	2
Summary of Insect and Disease Conditions	3
Manitoba	5
Saskatchewan	22
Alberta	41

TABLES

Sequential Sampling Tables, Forest Tent Caterpillar	
Manitoba	17
Saskatchewan	26

FIGURES

Forest Tent Caterpillar Infestations	4
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and J.P. Susut *

INTRODUCTION

by

V.B. Patterson

The trend toward a more problem-oriented survey was continued in 1974 with emphasis on surveying high use areas such as intensively managed forests, parks and recreation areas and urban and rural plantings. The training and liaison program in support of federal, provincial and municipal agencies, and in the investigation of air and landspill pollution problems was continued.

* All personnel of the Insect and Disease Survey, Northern Forest Research Centre, Canadian Forestry Service, Department of the Environment, 5320 - 122 Street, Edmonton, Alberta, Canada.

Field Staff AssignmentsManitoba

District 1.	Eastern Manitoba	G. N. Still
District 2.	Western Manitoba	F. J. Emond (Supervisor)

Saskatchewan

District 3.	Southern Saskatchewan	R. C. Tidsbury
District 4.	Northeastern Saskatchewan	E. J. Gautreau
District 5.	Western Saskatchewan	J. Petty (Supervisor)

Alberta

District 6.	Southern Alberta	G. J. Smith
District 7.	Northeastern Alberta	V. B. Patterson (Supervisor)
District 8.	Central Alberta	J. P. Susut
District 9.	Northwestern Alberta and N.W.T.	R. M. Caltrell



SUMMARY OF INSECT AND DISEASE CONDITIONS

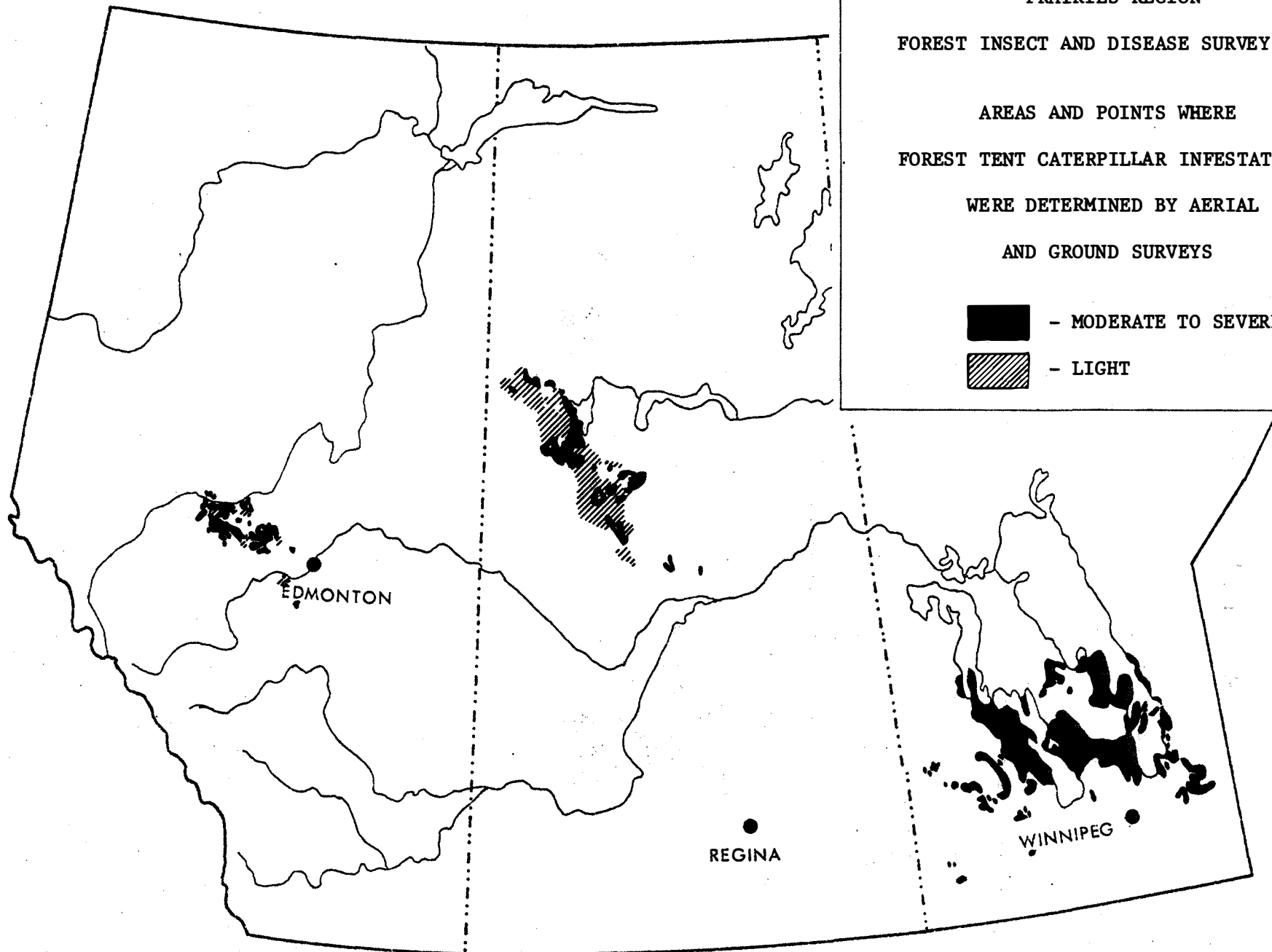
Population levels of defoliators of both broadleaf and coniferous trees were high, resulting in widespread damage in some areas. Forest tent caterpillar populations were generally higher across the region with some new outbreaks occurring in Manitoba and Alberta. Large aspen tortrix populations declined in Manitoba and Saskatchewan but increased in Northwestern Alberta. Fall cankerworm population levels remained high in Manitoba but were lower in Saskatchewan. Spruce budworm populations remained high in Manitoba with some new outbreaks recorded, in Saskatchewan population levels were static, and in Alberta they were lower. Needle rusts of spruce and foliage diseases of poplars were at a much lower level than in 1973.

PRAIRIES REGION

FOREST INSECT AND DISEASE SURVEY 1974

AREAS AND POINTS WHERE
FOREST TENT CATERPILLAR INFESTATIONS
WERE DETERMINED BY AERIAL
AND GROUND SURVEYS

-  - MODERATE TO SEVERE
-  - LIGHT



ANNUAL DISTRICT REPORT, 1974 - MANITOBA

by

F. J. Emond and G. N. Still

INSECT CONDITIONSSpruce Budworm, Choristoneura fumiferana (Clem.)

Moderate to severe defoliation recurred in most stands which were heavily infested in 1973, and a number of new outbreaks were detected.

High larval populations were again present throughout the Spruce Woods Provincial Forest. Moderate to severe damage to current foliage was evident in most areas examined with the exception of the forested area lying south of the Assiniboine River and in the "Fisheries Plot" east of Carberry where damage was light. In both of these areas the decline in populations could probably be attributed to chemical spraying operations carried out in 1973. In all areas examined, deformed and dead tops were quite noticeable and damage to regeneration was severe. Damage was considered light in spruce shelter-belts examined on farmsteads adjoining the Spruce Woods area.

Severe defoliation of white spruce in farm woodlots recurred for the eighth consecutive year in the Sylvan-Arborg-Riverton area and for the third consecutive year in the Hodgson-Fisher Branch-Poplar-field area and west of Husavick and Sandy Hook.

Most white spruce stands were moderately to severely defoliated for the third consecutive year in an area bounded on the west by Lake

Manitoba, on the north by Grahamdale, on the south by Mulvihill, and on the east by the Spearhill, Moosehorn, Ashern and Mulvihill areas.

Two new severe outbreaks were reported, one on the east side of Birds Hill Provincial Park and the other in the Brokenhead Tourist Park east of Beausejour.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Populations continued at high levels in areas which were heavily attacked in 1973 (See map, Page 4). Infestations received much attention in the press and other media with growing concern being shown by the public in areas where large migrations of caterpillars encroached upon farmsteads, settlements, and recreation areas. Control measures carried out by provincial authorities in Manipogo Recreational Area were quite successful in reducing populations. Malathion was applied aeri-ally.

Severe defoliation again extended along Natalie, Eleanor, Dorothy, and Nutimik Lakes in Whiteshell Provincial Park and in patches through that part of Agassiz Provincial Forest lying north of Highway 44.

Patches of severe defoliation occurred around Lac du Bonnet and along the north and east side of the Winnipeg River from Pinawa through to Traverse Bay on Lake Winnipeg.

Moderate to severe defoliation occurred along the east and west sides of Lake Winnipeg from the Matlock and Beaconia areas north to Dauphin River and Bradbury River, frequently extending about 15 miles inland. Hecla, Black, Deer, Black Bear, Matheson, Moose and other smaller

islands were also affected.

In the Interlake area moderate to severe infestations occurred in most sizeable stands of aspen in a broad band extending between Lake Manitoba and Lake Winnipeg, bounded on the south by Melnice, Fraserwood, Narcisse, and Lundar, and on the north by Arborg, Broad Valley, Sleeve Lake, and the north end of Lake Manitoba. Similar infestations occurred near Lake Francis, north and west of Lake St. Martin, and along the Dauphin River.

Another extensive broad band of severe defoliation occurred on the west side of Lake Manitoba from Amaranth north to Meadow Portage, extending inland to Alonsa, Makinak, Dauphin Lake, Fork River and Winnipegosis.

In the agricultural area south of Riding Mountain National Park a noticeable decrease in defoliation since 1973 was evident. Large pockets of severe defoliation were evident north of Elphinstone, Oakburn, Menzie and Rockham. Widely scattered small pockets of severe defoliation were noted along the Minnedosa River Valley, near Proven and Sandy Lakes, near Onanole, Erickson, Rossburn, Neepawa, Laurier, Makinak, Tenby, Oak Lake, Kirkella and Hartney.

Within the boundaries of Riding Mountain National Park, moderate to severe defoliation was again present along the east and northeast slopes from the general area of Riding Mountain north to where the Park Boundary intersects Highway 10. As recorded in 1973, damage again appeared to be restricted to the slopes area and did not infringe to any degree on the aspen areas along the summit. In the west end of the Park a slight increase in populations and damage was especially

evident in Townships 22 and 23, Range 25, and also in a small area located in the extreme southwest corner of the Park. Scattered light to moderate damage was evident in the Wasagaming Campground area.

Tables 1 and 2 give predicted defoliation by the forest tent caterpillar in 1975.

Fall Cankerworm, Alsophila pometaria (Harr.)

Patches of severe defoliation again occurred along the Red River from Letellier north to Selkirk and along the Assiniboine River from Winnipeg west to Portage La Prairie. Moderate to severe damage was also widespread in the Greater Winnipeg area and through the town of Selkirk although insecticide spray operations met with some success in controlling populations in both areas.

Farm shelterbelts received moderate to severe defoliation in the Morden-Winkler and Elm Creek areas, near Arborg and Fisher Branch, and in the Brokenhead Tourist Park east of Beausejour.

Moderate damage to ornamental and boulevard trees was noted in Dauphin, and on several shelterbelts in the vicinity of Dauphin, Swan River and Ochre River. Light damage was evident in Deloraine, Hartney, Boissevain, Killarney, Cartwright, Crystal City, Darlingford, Brandon, in the Peace Gardens and at Max Lake in Turtle Mountain Provincial Park.

Jack Pine Budworm, Choristoneura pinus pinus Free.

The moderate to severe infestation present in the Sandilands Provincial Forest in 1973 covered a larger area in 1974. Severe defoliation recurred in the Menisino-Piney Tower and Wampum-Vassar areas

and new outbreaks occurred in the Badger, Carrick and Woodridge areas.

Only low populations were detected in the Northwest Angle, Agassiz and Belair Provincial Forests, in Whiteshell and Grand Beach Provincial Parks, and in the Manigotagan, Red Rose, and Rosenberg areas.

A significant increase in population levels of this species was evident throughout the northern part of the Shilo Plantation in the Spruce Woods Provincial Forest. Light and moderate defoliation was noted in the following plantation sites; 3-38, 4-38, 5-38, 6-38, 10-43, 11-43, 12-43, 15-43, 1-44 and 2-44. A small, isolated pocket of light to moderate damage was located in the plantation area north of the Trans-Canada Highway in Sec. 7, Twp. 10, Rge. 16, WPM. This small infestation was considered as a possible extension of the Shilo outbreak.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Population declines were evidenced generally across the Province. Patchy moderate to severe defoliation occurred in the north end of Agassiz Provincial Forest, at scattered locations in Whiteshell, Birds Hill, Clearwater, Duck Mountain and Gross River Provincial Parks, in the northern portion of Spruce Woods Provincial Forest and at widely separated points north of the Trans-Canada Highway between Sidney and Douglas.

Light damage was evident in the following areas: Winnipegosis, Cowan, Oak Lake, Virden, Elkhorn and along Highway 10 from The Pas to Flin Flon.

Balsam Fir Sawfly, Neodiprion abietis complex

Patches of moderate to severe defoliation of balsam fir occurred in Hecla Provincial Park, through Grindstone Provincial Recreation Area,

and north of Powerview along Highway 304. Scattered light defoliation was observed in balsam fir stands throughout eastern Manitoba.

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

Some moderate to severe defoliation of young trees occurred in the Northwest Angle Provincial Forest and in Whiteshell Provincial Park. Shelterbelt and ornamental trees were similarly damaged in the Fisher Branch and Fraserwood areas.

In western Manitoba a slight decline in damage and population levels was evident in 1974. Moderate to severe damage to ornamental and hedge spruce was reported at Virden, Oak Lake, Brandon, Cartwright, Max Lake in Turtle Mountain Provincial Park and in Wasagaming Townsite in Riding Mountain National Park.

Light damage was reported at Carberry, Neepawa, Minnedosa, Swan River, the Peace Gardens and on mature native spruce in the Clear Lake Campground in Riding Mountain National Park.

Larch Casebearer, Coleophora laricella (Hbn.)

Tamarack stands were closely examined for larch casebearer at three locations in southeastern Manitoba where the insect had been recorded in the past.

One larva was found at the location four miles east of Sprague but none were found in the Marchand and Sandilands locations, indicating that populations remain at low levels.

OTHER NOTEWORTHY INSECTS AND DISEASES

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Poplar bud-gall mite, <u>Aceria parapopuli</u> (Keifer)	Hybrid poplar Cottonwood T. aspen	Scattered infestations noted in the Morden, Portage, Winnipeg and Spruce Woods Provincial Forest areas. Light infestations common in remainder of Province.
Spruce gall aphid, <u>Adelges cooleyi</u> Gill.	W. spruce C. spruce	Light damage by this species on shelterbelt, ornamental and native trees in most areas.
Ugly nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry	Widely scattered throughout the Province.
Oak webworm, <u>Archips fervidanus</u> (Clem.)	B. oak	Low incidence of nests in oak stands in the Province. Fairly numerous in Birds Hill Provincial Park and Belair Provincial Forest.
Pear slug, <u>Caliroa cerasi</u> (L.)	Cotoneaster M. ash	Skeletonizing common on plantings along Trans-Canada Highway.
Solitary leaf miner, <u>Cameraria hamadryadella</u> (Clemens)	B. oak	Common in oak stands in western Manitoba.
Scurfy scale, <u>Chionaspis furfura</u> (Fitch)	M. ash Apple	High populations reported in Winnipeg area.
Oak lace bug, <u>Corythucha arcuata</u> (Say)	B. oak	Medium to high populations in Birds Hill and Grand Beach Provincial Parks and in the Selkirk area.
Poplar and willow borer, <u>Cryptorhynchus lapathi</u> (L.)	Willow	Ornamental willow in Dugald severely infested. Widely scattered damage in Sandilands and Agassiz Provincial Forests and in Birds Hill Provincial Park.

Yellow-necked caterpillar, <u>Datana ministra</u> (Drury)	M. ash Willow T. aspen	Light to moderate defoliation to individual trees planted along Trans-Canada Highway east of Winnipeg.
Ash flower gall, <u>Eriophyes fraxinflora</u> (Felt)	G. ash	Widely scattered light to severe damage.
Woolly elm aphid, <u>Eriosoma americanum</u> (Riley)	W. elm	Light to moderate damage across southern Manitoba.
White pine shoot-borer, <u>Eucosma gloriola</u> Heinrich	J. pine	Light damage in Sandilands and Agassiz Provincial Forests.
European alder leaf miner, <u>Fenusa dohrnii</u> (Tischb.)	Alder	Widely scattered light to severe damage throughout eastern Manitoba.
American aspen beetle, <u>Gonioctena americana</u> (Schaeff.)	T. aspen	Scattered light damage throughout Province.
Lilac leaf miner, <u>Gracillaria syringella</u> (F.)	Lilac	Some damage in southern Manitoba.
A root collar weevil, <u>Hylobius</u> sp.	S. pine	Some mortality in young plantations in Whiteshell Provincial Park and in Sandilands and Agassiz Provincial Forests.
Fall webworm, <u>Hyphantria cunea</u> (Drury)	Deciduous	Widely scattered, light and moderate infestations on individual trees throughout the Province.
Willow leaf miner, <u>Lyonetia</u> sp.	Willow	Light, moderate and severe foliage damage gradually increased from Swan River north to Flin Flon and Snow Lake.
Prairie tent caterpillar, <u>Malacosoma californicum lutescens</u> (N. & D.)	Chokecherry Rose	Widely scattered throughout the Province.
White spotted sawyer, <u>Monochamus scutellatus</u> Say	W. spruce	Considerable damage reported in sawlogs at Roblin Mill.

Jackpine sawfly, <u>Neodiprion</u> spp.	J. pine	Scattered light defoliation throughout range of jackpine in eastern Manitoba.
Mourning cloak butterfly, <u>Nymphalis antiopa</u> (L.)	T. aspen Willow	Low populations noted in several areas in the Province.
Spruce spider mite, <u>Oligonychus ununquis</u> (Jac.)	W. spruce C. spruce	Notable damage recorded in Winnipeg, Portage la Prairie and Brandon. Light damage common in most other areas.
Spring cankerworm, <u>Paleacrita vernata</u> (Peck)	M. maple W. elm Basswood	Low populations. Often associated with fall cankerworm.
Poplar petiole gall aphid, <u>Pemphigus populi-transversus</u> Riley	Poplar	Widely scattered light to severe infestations in southern Manitoba.
Pine needle scale, <u>Phenacaspis pinifoliae</u> (Fitch)	W. spruce Pine spp.	Occasional light to moderate infestation on ornamental and shelterbelt trees.
White pine weevil, <u>Pissodes strobi</u> (Peck)	J. pine W. spruce	Infested tops common in pine stands in eastern Manitoba.
Larch sawfly, <u>Pristiphora erichsonii</u> Htg.	Tamarack	Severe defoliation again in The Bog area. Scattered light, moderate and severe damage from the The Pas to Flin Flon and east to Snow Lake. Very low populations in Duck Mountain Provincial Park and in eastern Manitoba.
Poplar leaf roller, <u>Pseudexentera oregonana</u> Wlshm.	T. aspen	High populations recorded in Spruce Woods Forest and adjacent areas. Low to medium populations common in the Oak Lake-Virden-Elkhorn area.
Poplar borer, <u>Saperda calcarata</u> Say	T. aspen	Attacked trees frequently observed across the Province, particularly in recreational areas.

Red-humped caterpillar, <u>Schizura concinna</u> (J.E. Smith)	T. aspen	Scattered light to severe defoliation on regeneration in eastern Manitoba.
Aspen webworm, <u>Tetralopha aplastella</u> Hlst.	T. aspen	Light infestations common in eastern Manitoba
Pine tortoise scale, <u>Toumeyella numismaticum</u> P. & M.	J. pine	Occasional young trees lightly to moderately infested in the Northwest Angle and Sandilands Provincial Forests in Grand Beach Provincial Park, and in the Whitemouth Lake area.
Cottonwood leaf-mining beetle, <u>Zeugophora scutellaris</u> Suffr.	Cottonwood	Light to severe leaf mining in Birds Hill Provincial Park, Winnipeg and at scattered points throughout the agricultural zone.

DISEASE

Eastern dwarf mistletoe, <u>Arceuthobium pusillum</u> Pk.	W. spruce B. spruce	Considerable brooming in the Grindstone Provincial Recreation Area.
Spruce needle rust, <u>Chrysomyxa ledicola</u> Lagh.	W. spruce	Scattered light to moderate infections in The Pas, Flin Flon and Reed Lake areas.
Black-rib of willow, <u>Ciborinia foliicola</u> (Cash & Davidson) Whet.	Willow	Widely scattered light leaf infections in eastern Manitoba.
Poplar ink spot, <u>Ciborinia whetzellii</u> (Seaver) Seaver	T. aspen	Small patches of light to moderate infection in Sandilands Provincial Forest and Whiteshell Provincial Park. Scattered light infections common in remainder of Province.

Pine needle rust, <u>Coleosporium asterum</u> (Diet.) Syd.	J. pine	Small patches of light to severe infections on regeneration in Whiteshell Provincial Park. Scattered, light infections fairly common in remainder of the Province.
White pine blister rust, <u>Cronartium ribicola</u> J. C. Fisher	W. pine	Branch flagging observed in the Moose and Falcon Lakes areas.
Black knot of cherry, <u>Dibotryon morbosum</u> (Schw.) T. S.	Chokecherry Mayday	Infections reported on mayday in Winnipeg. Common on chokecherry in remainder of Province.
Western gall rust, <u>Endocronartium harknessii</u> (J.P. Moore) Y. Hiratsuka	J. pine S. pine	Light damage common in most jack pine stands in the Province. Some infections noted on shelterbelt Scots pine.
Fire blight, <u>Erwinia amylovora</u> (Burr.) Winsl.	Apple	Some injury observed in agricultural areas of Province.
Rust, <u>Gymnosporangium</u> sp.	Saskatoon	Light to severe infections of both fruit and leaves across the Province.
Hypoxylon canker of aspen, <u>Hypoxylon mammatum</u> (Wahl.) Miller	T. aspen	Some mortality noted at several locations in eastern and western Manitoba.
Fir needle rust, <u>Pucciniastrum epilobii</u> Otth.	B. fir	Light to moderate infections scattered throughout Northwest Angle Provincial Forest, Whiteshell Provincial Park, near Middlebro, The Pas, Reed Lake and Cranberry Portage.
Spruce needle rust, <u>Pucciniastrum</u> sp.	W. spruce	Light to moderate infections on regeneration in Riding Mountain National Park.

Aspen shoot blight,
Venturia macularis
 (Fr.) E. Muell. & V. Arx.

T. aspen

Common on regeneration and sapling size trees throughout western Manitoba.

NONINFECTIOUS DISEASES

Flood damage

All tree species

Many areas of tree mortality noted in low lying areas; especially noted around Lake Winnipeg and in Whiteshell Provincial Park.

Winter injury

All tree species

Moderate to severe injury frequently observed across southern Manitoba and as far north as Mafeking. Scots pine appeared to be most severely affected and recovery was reasonably good in most areas. Some conspicuous flagging of fir noted in Riding Mountain National Park.

HERBICIDE DAMAGE

Moderate to severe injury to farm shelterbelts and hedgerows was frequently observed across the agricultural zone of the province. Indiscriminate use of herbicides appears to have been the cause of much of this damage.

Accidental aerial application of a herbicide caused extensive damage, particularly to Manitoba maple and weeping birch, along the Red River and along Eveline Street in the town of Selkirk.

TABLE 1
 RESULTS OF SEQUENTIAL SAMPLING AND
 DEFOLIATION ESTIMATES FOREST TENT CATERPILLAR *

LOCATION	DEFOLIATION 1974	PREDICTED DEFOLIATION 1975
Hartney	Severe	Severe
Oak Lake - Virden	Light	Light
Kirkella	Light	Light
Shellmouth Dam (West side)	Light	Moderate
Asessippi Provincial Park (Pavilion)	Light	Light
Roblin	Light	Light
Riding Mountain National Park:		
Spruce Island Lake	Severe	Severe
East slopes (Norgate Rd.)	Severe	Moderate-severe
Onanole	Moderate-severe	Moderate
Menisino	Nil	Nil
Sprague	Nil	Nil
Milner Ridge	Severe	Severe
Lac du Bonnet	Severe	Severe
Pinawa (8 miles west)	Severe	Severe
Pinawa (one mile west)	Severe	Moderate
Whitemouth (7 miles east)	Light	Light
Elma	Nil	Light
St. Rita	Nil	Nil

LOCATION	DEFOLIATION 1974	PREDICTED DEFOLIATION 1975
Anola	Nil	Light
Lundar (3 miles south)	Severe	Severe
Eriksdale	Severe	Severe
Dog Lake (Vogar)	Severe	Severe
Rorketon (4 miles south)	Severe	Severe
Shergrove	Severe	Moderate
Alonsa	Severe	Severe
Minnedosa River (Jct. #10 Hwy.)	Severe	Moderate

* Survey conducted by Environment Canada Personnel, Edmonton.
Using R. Shepherd Sequential Sample Method.

TABLE II
 RESULTS OF EGG BAND SAMPLING FOR PREDICTING
 SEVERITY OF FOREST TENT CATERPILLAR OUTBREAKS **

LOCATION	DEFOLIATION 1974	PREDICTED DEFOLIATION 1975
Birds Hill Provincial Park (6 areas sampled)	Trace	Light
Seven Sisters Falls (Park)	Moderate	Severe
Lee River	Severe	Severe
Poplar Bay	Light	Light
Great Falls	Severe	Severe
Black River(Hwy. #304)	Light	Light
Curries Ldg. (E. of Manigotagan)	Light	Light
Wanipigow Lake	--	Severe
Wallace Lake	--	Severe
Whiteshell Provincial Park:		
Falcon Lake (Toniata Beach)	Trace	Nil
Telford	Trace	Nil
Brereton Lake (West side)	Light	Nil
Big Whiteshell Lake	Light-moderate	Moderate
Rennie River (3 miles S. of Nutimik)	Light	Light
Nutimik Lake (Park office area)	Severe	Severe
Barrier Bay	Severe	Severe
Otter Falls	Severe	Severe
North Park entrance	Light	Light

LOCATION	DEFOLIATION 1974	PREDICTED DEFOLIATION 1975
Grand Beach Provincial Park:		
East Beach	Severe	Severe
Townsite	--	Severe
Shop area	Severe	Severe
South Gate	Severe	Severe
Gunton	--	Light
Winnipeg Beach (West of town)	Severe	Severe
Hnausa	Severe	Severe
Inwood	--	Severe
Fraserwood	Severe	Severe
Shorncliffe	--	Severe
Washow Bay	Severe	Severe
Hecla Provincial Park	Severe	Severe
Chatfield	Severe	Severe
Lundar Beach	Severe	Severe
Camper	Severe	Severe
Moosehorn	Severe	Severe
Lake Manitoba Narrows	Severe	Severe
Turtle Mountain Provincial Park	Nil	Nil
Shilo	Nil	Nil
Camp Hughes	Nil	Nil
Grand Valley (West of Brandon)	Trace	Light
Rivers Park	--	Light

LOCATION	DEFOLIATION 1974	PREDICTED DEFOLIATION 1975
Langruth	Trace	Severe
Amaranth (1/2 mile west of park)	Severe	Severe
Amaranth	Severe	Severe
Alonsa (Margaret Bruce Park)	Severe	Severe
McCreary	Severe	Severe
St. Rose du Lac	Severe	Severe
Shergrove	Severe	Moderate-Severe
Eddystone	Severe	Severe
Methley Park	Severe	Severe
Rainbow Beach	--	Severe
Manipogo Park	Severe	Severe

** Survey conducted by Environment Canada Personnel, Winnipeg Sub-Office in Association with Manitoba Provincial Government Personnel using the Hodson-Winnipeg Method.

ANNUAL DISTRICT REPORTS, 1974 - SASKATCHEWAN

by

J. Petty, E.J. Gautreau, R.C. Tidsbury

INSECT CONDITIONSPoplar Bud Gall Mite, Aceria parapopuli (Keifer)

The poplar bud gall mite was present on hybrid poplar in many shelterbelts in the southern part of the Province. Numerous reports of moderate to severe infestations were received from concerned owners in the Swift Current, Moose Jaw, Assiniboia and Regina areas. Many of the infestations have been active for a number of years and in some instances the trees have shown a marked decline in vigor. More recent light to moderate infestations were recorded at Besant, Moose Jaw, Radville, Oungre, Echo Valley Provincial Park and in Eston-Riverside and Clearwater Lake Regional Parks.

Although present on trembling aspen in most areas of north-western Saskatchewan, infestations were mainly very light except near Hillmond where some aspen bluffs had moderate to severe infestations.

Fall Cankerworm, Alsophila pometaria (Harr.), Spring Cankerworm, Paleacrita vernata (Peck)

Throughout the southern part of the Province infestations of fall cankerworm were notably lighter than in 1973. Moderate defoliation occurred in shelterbelts between Dollard and Eastend and light defoliation was recorded in the following areas: Maple Creek, Gull Lake, Estevan,

Kerrobert, Coleville, Lacadena, and in Saskatchewan Landing Provincial Park.

Light defoliation was reported from the Melfort area, while in Prince Albert many Manitoba maple were severely defoliated.

High populations of the spring cankerworm caused moderate defoliation to Manitoba maple in the vicinity of Foam Lake.

Aphids

Higher than usual populations of aphids were present on a variety of deciduous tree species throughout Saskatchewan. In the northwestern part of the Province, medium to high populations of free-feeding aphids on aspen caused foliage discoloration and premature leaf drop. This was notable in Pike Lake and Battlefords Provincial Parks and in many of the Regional Parks.

The incidence of wooly elm aphid, Eriosoma americanum (Riley), was greater this past season than in 1973. Infestations were light to moderate on American elm in shelterbelts and in ornamental or urban plantings throughout central and southern parts of the Province.

Aphids on caragana, Macrosiphum carraganae (Chol.), caused early leaf drop in caragana hedges in the Lloydminster area.

Populations of the box elder aphid Periphyllis negundinis Thos. were high in the Prince Albert area and medium to high throughout southern Saskatchewan.

High populations of spruce gall aphids, Adelges spp. were present in ornamental spruce in the following areas: St. Louis, Prince Albert, Melfort, Tisdale, Nipawin, Candle Lake, Christopher Lake, Emma Lake,

Waskesiu and Duck Mountain Provincial Park, and on native spruce in the west block of Cypress Hills Provincial Park. Severe infestations of the monomorphic form of Adelges sp. were present in a number of areas of central Saskatchewan.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

In 1974 severe defoliation occurred in birch stands growing along the Churchill River drainage from Pinehouse Lake east to approximately the Reindeer River. Although surveys were not conducted north of this area reports from personnel of the Department of Northern Saskatchewan indicated that severe defoliation was general to the northern limits of white birch. South of the Churchill River pockets of light to moderate defoliation were observed in the following areas: Wood Lake, Pelican Narrows, Miron Lake, Jan Lake, Amisk Lake and Hanson Lake. Light defoliation was recorded near Egg Lake, Emmeline Lake, Lac La Plonge and Ile-à-la-Crosse.

Spruce Budworm, Choristoneura fumiferana (Clem.)

Spruce budworm has not been a problem in recent years but annual surveys have been maintained. Very low populations were present in the area of Cumberland-Namew-Amisk Lakes.

Light defoliation occurred in a white spruce - balsam fir stand along Highway 55 approximately 30 miles south of Green Lake. Populations were very low on white spruce along Battle Creek in the west block of the Cypress Hills and on Colorado spruce in the Indian Head area.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

A continued decline in infestations of large aspen tortrix was evident throughout the Province in 1974. On aerial surveys throughout northern Saskatchewan no defoliation was noted although ground checks revealed that low populations were present along Highway 2 north from Prince Albert to McLellan Lake and along Highway 55 between Green Lake and Beauval. In the aspen belt of central Saskatchewan populations were very low except in the Touchwood Hills west of Lestock where fringe regeneration of many bluffs sustained moderate defoliation.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

The forest tent caterpillar infestations in northern Saskatchewan were present in approximately the same area as in 1973, with some extensions noted. The defoliated area around Peter Pond increased in size to the west and southwest to Dillon Lake and into the Grizzly Bear Hills. The western boundary of visible defoliation was along a line from Dillon Lake through Vermette, Cummins, Arsenault, and Keeley Lakes, east to Doré Lake and south to Sled Lake, Lac Voisin and the south end of Delaronde Lake. The eastern boundary of defoliation extends from this point northeasterly into Prince Albert National Park around Purvis Lake, northwest to near Lawrence Lake, through Clarke Lake to Mahigan Lake, northwest past Smoothstone Lake to Doré Lake, through Beauval and along the Aubichon Arm of the Churchill River to Buffalo Narrows. Within this area defoliation was predominantly light with some extensive moderate to severe patches, particularly in the Canoe-Arsenault - Keeley Lakes area and around Sled, Beaupre, Smoothstone and Delaronde Lakes.

Smaller areas of moderate to severe defoliation occurred north of Big River, around Emma and Christopher Lakes and in the Beaver Hills south of Sheho and Tuffnell.

Low populations were recorded in the following areas: Meadow Lake Provincial Park at Mustus and Flotten Lakes, north of Meadow Lake Provincial Park along Highway 104 to Keeley Lake, Sandy Lake Regional Park, between Meadow Lake and Green Lake and south of Green Lake along Highway 55 to Big River, southeast of Big River, Halkett Lake in Prince Albert National Park, near Birchbark Lake north of Foxford, Kamsack, Moosomin, and in Cypress Hills Provincial Park.

The late spring in 1974, which delayed aspen leafing, could have been a factor in reducing tent caterpillar populations in some areas. This was notable in the Thunder Hills north of Prince Albert National Park.

Egg band sampling was done in several areas to get some indication of the degree of defoliation expected in 1975. Table 3 shows defoliation in 1973 and 1974 as well as the predicted defoliation for 1975.

TABLE 3: RESULTS OF EGG BAND SURVEY AND DEFOLIATION ESTIMATES

FOREST TENT CATERPILLAR, 1974

LOCATION	DEFOLIATION 1973	DEFOLIATION 1974	PREDICTED DEFOLIATION 1975
Meadow Lake Provincial Park:			
Kimball Lake	Nil	Nil	Trace
Mustus Lake	Nil	Nil	Trace
Greig Lake	Nil	Nil	Nil
Flotten Lake (north end)	Nil	Nil	Trace

LOCATION	DEFOLIATION 1973	DEFOLIATION 1974	PREDICTED DEFOLIATION 1975
2 Miles north Keeley Lake Road along Highway 104	--	Light	Light
Junction Highways 55 & 124	--	Nil	Light
27 miles South Green Lake	--	Low	Moderate
2 miles North of Big River	Severe	Moderate	Severe
16 miles S.E. Big River (P.A.N.P.)	--	Trace	Light
Prince Albert National Park:			
West side Waskewiu Town	Trace	Nil	Light
5 miles south Namekus Lake	Nil	Nil	Light
Shady Lake	Light	Nil	Light
Sandy Lake	--	Trace	Light
Christopher Lake	--	Moderate	Severe
Greenwater Provincial Park	Nil	Nil	Nil
Goodspirit Provincial Park	Nil	Nil	Light
8 miles south Sheho	Severe	Moderate	Severe
8 miles northwest Parkerview	Severe	Moderate	Severe
Duck Mountain Provincial Park	Nil	Nil	Nil
1 mile north Wroxton	Nil	Nil	Light
Trans Canada Highway Campsite, Moosomin	--	Nil	Nil

Additional checks at a number of locations in the Northern Provincial Forest were made during a late aerial survey. The areas checked and predicted degree of defoliation were as follows:

Doré Lake	Severe
Beauval Fire Tower	Light to Moderate

Ile A La Crosse (Sandy Bay)	Severe
Ile A La Crosse (Fort Black)	Severe
East Trout Lake	Trace
Big Sandy Lake	Trace

Spruce Spider Mite, Oligonychus ununguis (Jac.)

Populations of the spruce spider mite were higher in many areas of Saskatchewan than those observed or reported in 1973. Moderate to severe damage of ornamental spruce occurred at Outlook, Moose Jaw, Good Spirit Provincial Park, McLean, Davidson, Assiniboia, Regina, Wynyard and Eston Riverside Regional Park. Light infestations occurred at Rabbit Lake and in Silver Lake Regional Park.

Bruce Spanworm, Operophtera bruceata (Hulst)

The outbreak of Bruce spanworm recorded in Moose Mountain Provincial Park in 1973 has decreased to small pockets of moderately defoliated trembling aspen in the eastern part of the Park. Low populations were observed feeding in conjunction with large aspen tortrix, Choristoneura conflictana (Wlk.) and aspen leaf rollers at White Bear Lake adjoining the Park and northeast to Moosomin and Fleming.

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

Although yellow-headed spruce sawfly has been and continues to be a serious defoliator of spruce grown as ornamentals or in farm shelter-belts, it has become more prominent on native, open-growing spruce throughout northwestern Saskatchewan. This was most notable north of Meadow Lake Provincial Park, along the highway between Big River and Buffalo

Narrows and along roadsides in Prince Albert National Park where light to moderate and, occasionally, severe defoliation was noted. In the agricultural areas low populations were general with moderate to severe defoliation recorded in the following localities: Christopher Lake, Northside, St. Louis, Crystal Springs, Rosthern, Melfort, Nipawin, Big River, Shellbrook, North Battleford, Biggar, Wilkie, Landis, Kamsack, Melville, Canora, Yorkton, Davidson, Wynyard, Regina, Indian Head, and Moosomin. Many planted trees within the Provincial Parks in southeast Saskatchewan had moderate to severe defoliation.

White Pine Weevil, Pissodes strobi (Peck)

Damage to spruce by the white pine weevil was fairly extensive in a nursery near Parkside, in a plantation along Highway 2 near Prince Albert and to ornamentals in the Hudson Bay area. Light infestations were common throughout the northern part of the Province including Prince Albert National Park.

DISEASE CONDITIONS

Dwarf Mistletoe, Arceuthobium americanum Nutt. ex Engelm.

Dwarf mistletoe is the principal agent damaging jack pine stands in Saskatchewan. Its distribution is scattered throughout pine stands of the Northern Provincial Forest from the south shore of Lake Athabasca to Pelican Narrows.

During aerial surveys conducted in 1974 pockets of severely infected jack pine were noted in the following areas: La Ronge, Egg Lake, Emmaline Lake, Swan Lake, Charbonneau Lake, Amyot Lake, South Bay and

Fort Black. From Fort Black east to La Ronge pockets of severe infection were general. East of La Ronge dwarf mistletoe damage was noted in some pine stands growing on islands in Lac La Ronge and along the Churchill River.

Other areas of the northwestern part of the Province in which infections occurred were: in Meadow Lake Provincial Park between Matheson and Kimball Lakes and along Highway 104 north of Waterhen Lake Road and near Flotten Lake, Perch Lake, from Canoe Lake to Beauval and north of Beauval to Buffalo Narrows, Canwood Regional Park, 33 miles south of Meadow Lake and north of Chitek Lake. In some areas there was heavy brooming with some dead tops and dead branches.

Mistletoe plants in several areas, including A. pusillum on black spruce north of Hudson Bay, were examined for the presence of hyperparasites. Wallrothiella arceuthobii (Pk.) Sacc. was present at low levels on A. americanum in the areas examined.

Spruce Needle Rust, Chrysomyxa spp.

Spruce needle rust caused by C. ledicola Lagh. was responsible for light discoloration of spruce foliage throughout most areas of the Northern Provincial Forest. Pockets of moderate infection on open-growing black spruce were observed along Highway 2 near the junction of the Bernard Lake Road. Along Highway 4 from 16 miles south of Meadow Lake to Turtle Lake Road, infections were moderate to severe on individual trees or small groups of trees. Low incidence of infection was present in Brightsand Regional Park and in the Prince Albert area.

In Cypress Hills Provincial Park a low incidence of needle rust caused by C. weirii Jacks. was reported.

Poplar Ink Spot, Ciborinia whetzellii (Seaver) Seaver

Discoloration of aspen foliage resulting from infections of poplar ink spot was reported from a number of areas. Light to moderate infections were present along Highway 55 from 13 miles south of Green Lake to about 16 miles south of Cowan River Campsite. Infections of moderate intensity were present at Pickerel Point in Duck Mountain Provincial Park and in scattered pockets throughout Moose Mountain Provincial Park. Light infections were recorded in Brightsand Regional Park, west of Neeb and in Prince Albert National Park at Halkett Lake and along the north side of Waskesiu Lake.

Leaf Spot, Drepanopeziza populorum (Desm.) Hohn.

This leaf spot was common throughout an area of northwestern Saskatchewan bounded on the north by Highway 3 from the Saskatchewan-Alberta boundary to Prince Albert, south along Highway 11 to Saskatoon, northwest along Highway 5 to North Battleford and along Highway 40 to the Saskatchewan-Alberta boundary. Pockets of light to moderate infection in aspen bluffs within this area were most notable in the Lloydminster-North Battleford area and became less frequent eastward to Highway 11. Pockets of moderate infection were reported from the Harris area.

NONINFECTIOUS DISEASES

Herbicide Damage

The Manitoba maple shelterbelts and ornamentals at Moosomin and

near Outlook that were severely affected with 2,4-D fume damage in 1973 were very sparsely leafed this past season. On a few trees nearly all the leaf buds were dead.

A number of calls relating to herbicide damage were received at the Prince Albert office from various parts of the Province.

Climatic Damage

The winter of 1973-74 caused severe winter drying of Scots pine foliage throughout much of Saskatchewan. Other conifer species were also affected but the most serious injury was to Scots pine.

In many areas of central Saskatchewan, Nanking cherry, Siberian elm, Russian olive and caragana suffered from winter injury resulting in dead branches and very poor leafing. Many species of deciduous trees were late leafing out. Clumping of aspen was common in the Meadow Lake area.

In the southwestern part of the Province, where leafing was early, new shoots of many deciduous trees were damaged by late spring frost.

Water Damage

A high water table in many areas of the Northern Provincial Forest caused notable damage to stands of trees growing around the periphery of lakes and muskegs and along rivers.

A flash flood occurred in early July in the Big Sandy Lake area. The subsequent runoff down the Ballantyne River caused severe damage to timber stands bordering the river.

Animal Damage

Rabbits and porcupines stripped the bark from many Manchurian elm in Rowan's Ravine Provincial Park and Nickle Lake Regional Park.

OTHER NOTEWORTHY INSECTS AND DISEASES

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Leaf gall, <u>Aceria</u> sp.	M. maple	Light to moderate infestations common in southern Saskatchewan
Leaf gall, <u>Aceria neoessigi</u> (Keifer)	T. aspen	Low around Meadow Lake.
Black headed budworm, <u>Acleris variana</u> (Fern.)	W. spruce B. fir	Low populations at Flotten Lake in Meadow Lake Provincial Park and south of Green Lake.
Ugly nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry	Numerous nests in Besant Trans Canada Campground and northeast of Cutknife. Low in Cutbank area, in Pile Lake Provincial Park and Sandy Beach and Atton's Lake Regional Parks.
Jack pine budworm, <u>Choristoneura pinus pinus</u> Free.	J. pine	Very low populations in Nesbit Provincial Forest near Prince Albert.
Leaf beetle, <u>Chrysomela</u> sp.	W. birch	Moderate leaf skeletonizing on individual branches throughout Duck Mountain Provincial Park.
Aspen leaf beetle, <u>Chrysomela crotchii</u> Brown	T. aspen	Present in most aspen bluffs of northwestern part of the Province. Defoliation light and usually confined to regeneration.

Cottonwood leaf beetle, <u>Chrysomela scripta</u> Fabr.	Poplar spp.	Light damage to ornamental and shelterbelt trees at Indian Head and in Rowan's Ravine, Buffalo Pound and Echo Valley Provincial Parks.
Box-elder leaf gall midge, <u>Contarinia negundifolia</u> Felt.	M. maple	Light infestations in agricultural areas.
Cone borer, <u>Contarinia</u> sp.	W. spruce	Light to moderate infestation in spruce cones along Battle Creek in west block of Cypress Hills.
A midge, <u>Contarinia</u> sp.	G. ash	Light damage north of Kerrobert
Chokecherry midge, <u>Contarinia virginianiae</u> (Felt.)	Chokecherry	Common in central Saskatchewan. Moderate to severe in Meota Regional Park.
A leaf tier, <u>Enargia decolor</u> Wlk.	T. aspen	Very low populations in Northern Provincial Forest.
Ash flower gall, <u>Eriophyes fraxiniflora</u> (Felt.)	G. ash	High populations in Moose Jaw and Assiniboia areas; moderate in Buffalo Pound and Katepwa Provincial Parks; low in Kisbey and Beechy areas and Pile Lake Provincial Park.
Birch leaf miner, <u>Fenusa pusilla</u> (Lep.)	W. birch	Severe foliage damage, particularly of ornamentals in Prince Albert, and in several areas of central Saskatchewan
American aspen beetle, <u>Gonioctena americana</u> (Schaeff.)	T. aspen	Moderate to severe pockets in Cypress Hills Provincial Park; light between Prince Albert and La Ronge, in Meadow Lake Provincial Park and north along Highway 104.
Lilac leaf miner, <u>Gracillaria syringella</u> (F.)	Lilac	Common throughout central Saskatchewan.

Root collar weevil, <u>Hylobius warreni</u> Wood	J. pine	Low infestations in pine stands along Highway 155 between Beauval and Buffalo Narrows.
Fall webworm, <u>Hyphantria cunea</u> (Drury)	Chokecherry	Many colonies in south part of Douglas Provincial Park.
Willow leaf miner, <u>Lyonetia</u> sp.	Willow	Infestation common in northern Saskatchewan. Severe foliage discoloration north of Meadow Lake Provincial Park to Canoe Lake, from Big River north to Buffalo Narrows and east along the Churchill River system to McLennan Lake, and in the Pelican Narrows - Deschambault-Amisk Lake and Cumberland House area.
Nuttall blister beetle, <u>Lytta nuttalli</u> Say	Caragana G. ash	Light defoliation of caragana near Estevan and Maple Creek and of green ash near Assiniboia.
Prairie tent caterpillar, <u>Malacosoma californicum lutescens</u> (N. & D.)	Chokecherry Rose	Populations in southern Saskatchewan lower than in 1973 but much the same in the Prince Albert area. Numerous tents recorded in Nesbit Provincial Forest.
Western tent caterpillar, <u>Malacosoma californicum pluviale</u> Dyar	Willow	Very low populations near Keely Lake turnoff along Highway 104.
A poplar twig gall, <u>Melanagromyza poss. schinera</u>	T. aspen	Swellings common on regeneration aspen at Flotten Lake in Meadow Lake Provincial Park and between Canoe Lake and Beauval.
Leaf miner, <u>Messa populifoliella</u> (Townsend)	Poplar spp.	Light damage in Rowan's Ravine Provincial Park.
Ash mirid, <u>Neoborus amoenus</u> (Reut.)	G. ash	Widely distributed throughout agricultural areas; light to moderate infestations.

Balsam-fir sawfly, <u>Neodiprion abietis</u> (Harr.)	W. spruce	Low populations in campground area at Flotten Lake in Meadow Lake Provincial Park.
Spiny elm caterpillar, <u>Nymphalis antiopa</u> (L.)	Poplar spp. Elm	Low populations in the Prince Albert and Hazlet-Leader areas and Danielson Provincial Park.
A fruit worm, <u>Orthosia hibisci</u> (Guen.)	G. ash	Low populations in Saskatchewan Landing Provincial Park.
Poplar petiole gall aphid, <u>Pemphigus</u> sp.	B. poplar	Light infestations in Meota, Silver Lake and Brightsand Regional Parks and in Pike Lake Provincial Park.
Pitch nodule maker, <u>Petrova albicapitana</u> (Busck.)	L. pine J. pine S. pine	Light infestation on Scots pine in Indian Head Tree Nursery. Light in Cypress Hills and Meadow Lake Provincial Parks, Canwood Regional Park and in reforestation areas near Candle Lake. High populations were present on regeneration in many areas of Nesbit Provincial Forest.
Pine needle scale, <u>Phenacaspis pinifoliae</u> (Fitch)	W. spruce S. pine	Moderate to severe infestation on ornamentals and in shelter-belts in Prince Albert, Outlook, Assiniboia, Moose Jaw and Regina areas.
Poplar serpentine miner, <u>Phyllocnistis populiella</u> Cham.	T. aspen B. poplar	Very high populations on regeneration and young aspen trees along Battle Creek in the west block of Cypress Hills. Light infestation in Sandy Beach Regional Park.
Leaf folding sawfly, <u>Phyllocolpa nr. agama</u> (Roh.)	Poplar spp.	Low populations in Pike Lake Provincial Park, Meota and Bright sand Regional Parks and throughout southern Saskatchewan.
Pine terminal weevil, <u>Pissodes terminalis</u> Hopping	J. pine	Light damage to regeneration pine near Macdowell and Prince Albert, in Nesbit Provincial Forest, along the Highway between Green Lake and Beauval and in Meadow Lake Provincial Park.

Balsam shoot-boring sawfly, <u>Pleuroneura borealis</u> Felt.	B. fir	Light damage near Flotten Lake in Meadow Lake Provincial Park and south of Green Lake.
Carpenter worm, <u>Prionoxystus robiniae</u> Peck	T. aspen	Severe infestation on some aspen in the vicinity of the Duval potash operation.
Larch sawfly, <u>Pristiphora ericksonii</u> (Htg.)	Tamarack	Populations are at a very low level.
A sawfly, <u>Profenusa</u> sp.	Hawthorn	Moderate to severe leaf mining on a few trees at Indian Head Tree Nursery.
Box elder twig borer, <u>Proteoteras willingana</u> (Kft.)	M. maple	Moderate to severe damage in Rowan's Ravine Provincial Park; light throughout southern Saskatchewan and in the St. Louis-Crystal Springs area.
Poplar leaf roller, <u>Pseudexentera oregonana</u> Wlshn.	T. aspen	Low populations present in most of the aspen grove area of the Province. Moderate on regeneration in a few areas of southeast Saskatchewan.
Leaf beetle, <u>Pyrrhalta cavicollis</u> (Le Conte)	Pincherry	Light damage to pincherry bushes in the Canoe Lake area.
Grey willow leaf beetle, <u>Pyrrhalta decora</u> (Say)	T. aspen	Moderate defoliation of regeneration throughout eastern part of Moose Mountain Provincial Park and adjoining White Bear Lake area. Low populations in many aspen stands in northwestern Saskatchewan.
Spruce bud midge, <u>Rhabdophaga swainei</u> Felt.	W. spruce B. spruce	Low populations in Meadow Lake Provincial Park, south of Meadow Lake and in Prince Albert National Park.
Poplar borer, <u>Saperda calcarata</u> Say	T. aspen	Reported from many areas of northwestern Saskatchewan; most notable damage was in Regional Parks.

Black-headed ash sawfly, <u>Tetheda cordigera</u> Beauv.	G. ash	Low populations in shelterbelts of west-central part of the agricultural areas.
Pine tortoise scale, <u>Toumeyella numismaticum</u> P. & M.	J. pine	Severe infestation on a few trees in Nesbit Provincial Forest.
Cottonwood leaf mining beetle, <u>Zeugophora scutellaris</u> Suffr.	Poplar spp.	Moderate damage in Echo Valley Provincial Park. Light damage common in shelterbelts and on ornamentals throughout southern Saskatchewan and in the Prince Albert area.
 <u>DISEASE</u>		
Witches' broom, <u>Apiosporina collinsii</u> (Schw.) Hoehn.	Saskatoon	Low in Kisbey area and in Sandy Beach, Meeting Lake, Little Loon and Brightsand Regional Parks.
Spruce cone rust, <u>Chrysomyxa pirolata</u> Wint.	W. spruce	Light infections at Jan, Trade, Emmeline, Doré and Besnard Lakes and in Brightsand Regional Park.
Shothole of cherry, <u>Coccomyces hiemalis</u> Higgins	Chokecherry Pincherry	Light infections at Moosomin and Besant Trans Canada Highway Camp grounds and moderate to severe in the Prince Albert area.
Comandra blister rust, <u>Cronartium comandrae</u> Pk.	J. pine Toad flax	Very low on pine, moderate on toad flax in Meadow Lake Provincial Park.
Sweet fern blister rust, <u>Cronartium comptoniae</u> Arth.	Myrica gale	Found 40 miles north of Hudson Bay. New range distribution.
Cytospora canker, <u>Cytospora ambiens</u> Sacc.	Cotoneaster	Several collections from northern agricultural areas submitted to Prince Albert. Primary cause of mortality unknown.
Cytospora canker, <u>Cytospora chrysosperma</u> Pers. ex Fr.	Hybrid poplar	Notable on winter-killed poplars at Eston-Riverside and Kindersley Regional Parks, and in Saskatchewan Landing Provincial Park.

Needle cast, <u>Davisomycella ampla</u> (J.J. Davis) Darker	Lp. pine	Low incidence in Cypress Hills Provincial Park.
Black knot of cherry, <u>Dibotryon morbosum</u> (Schw.) T.S.	Chokecherry	Low to medium incidence in Attons Lake and Tramping Lake Regional Parks and Pike Lake Provincial Park.
Western gall rust, <u>Endocronartium harknessii</u> (J.P. Moore) Y. Hiratsuka	Lp. pine	Low in pine stands between Buffalo Narrows and Green Lake, in Meadow Lake and Cypress Hills Provincial Park, and east of Nessel Lake.
Fire blight, <u>Erwinia amylovora</u> (Burr.) Winsl.	Apple Mt. ash	Infections reported from many urban centres throughout the Province.
White trunk rot, <u>Fomes ignarius</u> (L. ex Fr.) Kickx	T. aspen	Low incidence in Carwood and Atton's Lake Regional Parks and Pike Lake Provincial Park.
Leaf rust, <u>Gymnosporangium</u> sp.	Saskatoon	Foliage of saskatoon in the Prince Albert area lightly infected with leaf rust.
Hypoxylon canker, <u>Hypoxylon mammatum</u> (Wahl.) Miller	T. aspen	Present and causing mortality in many Regional Parks of north-western part of the Province.
Balsam poplar leaf blight, <u>Linospora tetraspora</u> Thompson	B. poplar	Low infections on regeneration poplar in the Meadow Lake - Glaslyn area.
A needle cast, <u>Lophodermella concolor</u> (Dearn.) Darker	J. pine	Pockets of moderate foliage discoloration in stands of regeneration in the following areas: Swan Lake, Smoothstone Lake, Charbonneau Lake, Beauval Lookout Tower and on the hills along the Massinahigan River west of Pine House Lake.
Larch-willow rust, <u>Melampsora paradoxa</u> Diet. et Holw.	Willow	Severe infection at Katepawa Provincial Park; low in Bright-sand Regional Park.

Yellow witches' broom of fir, B. fir <u>Melampsorella caryophyllacearum</u> Schroet.		Few rust brooms present 26 miles south of Green Lake.
A rust, <u>Puccinia bollyana</u> Sacc.	Red elder- berry	Caused severe twig damage to bushes growing along the Carrot River north of the Pasqua Hills. New regional record.
Needle cast, <u>Sarcotrichila balsameae</u> (Rehm.) Korf.	B. fir	Low incidence on a few small trees near Flotten Lake in Meadow Lake Provincial Park.
Needle cast, <u>Scarcotrichila piniperda</u> (Rehm.) Korf.	W. spruce	Low incidence in a farm shelter-belt near Pleasantdale.
Leaf spot, <u>Septoria caraganae</u> (Jacz.) Died.	Caragana	Common in the Kindersley-Rosetown area, moderate intensity near Indian Head.
Leaf spot, <u>Septoria musiva</u> Pk.	B. poplar	Much lighter and less widespread than in 1973. Low incidence between Meadow Lake and Turtle Lake and in Little Loon and Brightsand Regional Parks.
Plum pocket rot, <u>Taphrina pruni</u> Tulasne	Plum	Severe infection on a few trees in Oxbow.
Aspen shoot blight, <u>Venturia macularis</u> (Fr.) E. Muell & V. Arx.	T. aspen	Common on regeneration where aspen occurs throughout the Province. Generally light infections except between Prince Albert and La Ronge where some moderate infections were reported.
Shoot blight of balsam poplar, <u>Venturia populina</u> (Vuill) Fabric.	B. poplar Hybrid poplar	Severe infection on hybrid poplar near Alsask. Low incidence in some areas of the eastern part of the Province.

ANNUAL DISTRICT REPORTS, 1974
ALBERTA AND NORTHWEST TERRITORIES

by

V. B. Patterson, R. M. Caltrell, J. P. Susut and G. J. Smith

INSECT CONDITIONS

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Populations of the forest tent caterpillar were higher than in 1973 in the Lake Wabamun, Lac Ste. Anne and Whitecourt areas. Moderate to severe defoliation was recorded in a 25-30 mile wide band from Lake Wabamun and Lac Ste. Anne northwest to Shining Bank and Baseline Lake. Continuous severe defoliation occurred in an area bounded by Lake Wabamun, Lac Ste. Anne, Old Man Lake, Sangudo and Entwistle and also between Chip Lake and Whitecourt.

Patches of severe defoliation were observed in the Willesden Green oilfield over approximately the same area as that reported in 1973. Defoliation was much lighter in the Medicine Lake area than in 1973. Defoliation was severe in a two-square mile area on the east side of Pigeon Lake.

On the east side of the Province, in the Metiskow-Provost-Edgerton-Dilbury Lake area, patches of light to moderate defoliation occurred. There was no evidence of tent caterpillar damage in this area in 1973. Light to moderate defoliation also occurred along Strawberry Creek near Telfordville.

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

Population levels and the degree of defoliation to spruce by this insect species were lower than in 1973 although they were present throughout the same general area. The high populations that were present in a number of black spruce muskegs last year were almost nonexistent in 1974.

In the south, defoliation of planted spruce was common in varying degrees of severity from the foothills east to Highway 36, and from Highway 23 north to Highway 53. Defoliation within this area was light to moderate with the exception of one severely defoliated shelterbelt at Bowden and one at Chestermere Lake.

Moderate to severe defoliation of young native white spruce occurred in scattered locations. In Thunder Lake and Wabamun Lake Provincial Parks defoliation was moderate and in Long Lake and Garner Lake Provincial Parks it was light.

In the north light defoliation was recorded at Moonshine, Lac Cardinal, Winagami and Williamson Lake Provincial Parks.

In Jasper National Park, moderate defoliation of a few white spruce was recorded near Cavell Warden Station, at Pocahontas, and near the junction of Highway 16 and the Celestine Lake Road.

Spruce Budworm, Choristoneura fumiferana (Clem.)

An aerial survey was conducted in the Fort McMurray area to observe the outbreak of spruce budworm that was recorded in the area in 1972 and 1973.

Along the east slopes of the Birch Mountains in the Pierre River area in Townships 97 and 98, Ranges 11 and 12, where moderate to severe defoliation was observed in 1973, the infestation collapsed and only a trace of defoliation was observed.

East of Ft. McMurray along the Clearwater River in Townships 89 and 90, Ranges 4 and 5, defoliation was moderate on both sides of the River and extended south from the River in Township 89, Range 5 for approximately 2 miles.

Near Ft. McMurray Townsite, light to moderate defoliation extended up the Horse River for 4 miles. From the Horse River north along the Highway defoliation was patchy for approximately 4 miles.

Defoliation was much lighter in 1974 in the stand of spruce 5 miles northwest of Lacombe where moderate to severe defoliation had occurred in 1973. Most of the defoliation was light to moderate and confined to a narrow fringe along the east side of the stand. Moderate to severe defoliation occurred to 20 open-growing trees within this fringe area.

Low populations were recorded in the Footner Lake Forest and in Wood Buffalo National Park. Moderate damage occurred in the Little Buffalo Falls area. A few larvae were observed at Red Knife River Crossing on the Ft. Simpson Highway and damage was light.

Lodgepole Needle Miner, Coleotechnites starki Freeman

In Banff National Park, there was light overall lodgepole pine foliage discoloration along the slopes of the Bow River Valley between Banff and Lake Louise. There were small patches of moderate to severe discoloration in Johnson's Canyon and on Mt. Norquay and Mt. Eisenhower.

In Yoho National Park, light to moderate discoloration was observed on the lower north slope of Cathedral Mountain in the Spiral Tunnel area.

Poplar Borer, Saperda calcarata Say

Populations of the poplar borer were high throughout the agricultural area of Central Alberta. Damage was recorded in several Provincial Parks: severe to individual trees in Wabamun Lake and Pigeon Lake, extensive in Sir Winston Churchill, Garner Lake, Vermilion, Thunder Lake, Crimson Lake and Jarvis Lake Provincial Parks.

Populations were recorded in varying degrees throughout the Grande Prairie-Peace River area.

Spruce Beetle, Dendroctonus rufipennis Kirby

Thorough ground and aerial surveys revealed that spruce beetle populations remained low and static from 1973 through this year. In the Bow-Crow Forest, an occasional living overmature spruce was infested and it was noted that a few such trees had died each year. In several locations, windfallen spruce, logging cull and decked logs contained beetle broods; this was considered normal and not an indication of population increase.

In the Boom Creek Valley in Banff National Park several living overmature trees had fresh "strip attacks" and several windfallen trees contained new beetle broods. As similar observations have been made here for the past several years, populations are also considered low and static.

DISEASE CONDITIONS

Spruce Needle Rust, Chrysomyxa ledicola Lagh.

Neither the intensity or extent of the severe outbreak of spruce needle rust in 1973 was repeated in 1974. This year the rust was observed in small pockets throughout the Edson and Whitecourt Forests. Infection was light generally interspersed with pockets of moderate damage. Moderate damage occurred in William A. Switzer Provincial Park.

NON INFECTIOUS DISEASES

Snow-break of Lodgepole Pine

Stem break of living pole-sized lodgepole pine, caused by a heavy wet snow fall in late May, was common along the eastern slopes. The most severe damage occurred on mountain and hill sides in the following drainage basins: Fallentimber Creek, Little Red Deer River, Lower Kananaskis River, Jumping Pound-Sibbald Creeks, Elbow River and Upper Highwood River. Small patches in which 80 per cent of the stems were broken were observed in the above basins.

On the southeast slope of Mt. Bourgeau in Banff National Park small patches of 100 per cent stem break of pine were observed.

Climatic Damage

Climatic damage occurred in the Luscar area, in the Obed Hills and over a large area of Jasper National Park along both sides of the Athabasca River Valley.

Scattered pockets of damage occurred south along the mountains and foothills east of the Continental Divide from the headwaters of

the Upper North Saskatchewan River southeasterly to the United States border. Light discoloration was observed along the western rim of the Grayburn Creek in Cypress Hills Provincial Park.

The affected conifers were severely discolored but permanent damage in the form of bud and tree mortality was minimal.

Trembling aspen poplar was damaged to the extent that most overwintering young shoots and new buds were killed in the area from the James River southward into Waterton Lakes National Park and in the Obed Hills. In the Sundre and Carstairs areas almost 100 per cent of the overwintering buds were killed. However, adventitious buds were produced and the trees re-leafed by the end of July. In the Obed Hills re-leafing also took place by the end of July.

Drowning

An abnormally high water table caused death by drowning of trembling aspen and willow surrounding sloughs and lakes in the Battle River drainage from Highway 21 east to Highway 41.

Frost

Late spring frost caused moderate damage to new shoots of white spruce in William A. Switzer Provincial Park and in regeneration blocks near Hinton.

OTHER NOTEWORTHY INSECTS AND DISEASES

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Spruce gall aphids, <u>Adelges</u> spp.	W. spruce	Severely infested trees observed in Thunder Lake, Ma-Me-O Beach and Long Lake Provincial Parks and in Jasper National Park; moderate in Wabamun Lake, Williamson, Saskatoon, Moonshine, Lac Cardinal and Winagami Provincial Parks; light in William A. Switzer Provincial Park.
Black-headed budworm, <u>Acleris variana</u> (Fern.)	W. spruce	Low populations along the Bow River Valley in Banff National Park.
Aphids	T. aspen B. poplar W. birch All deciduous ornamentals and shrubs	Populations of open-feeding aphids were extremely high throughout the southern half of the Province.
Ugly nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry	Low populations present in Moose Lake Provincial Park.
Pear slug, <u>Caliroa cerasi</u> (L.)	Cotoneaster G. ash Hawthorn	Several severely damaged hedges observed in Medicine Hat, Calgary, Edmonton and Aspen Beach Provincial Park.
Large aspen tortrix, <u>Choristoneura conflictana</u> (Wlk.)	T. aspen	High populations south of High Level for 30 miles covering about 300 square miles.
A budworm, <u>Choristoneura lambertiana</u> Bsk.	Limber pine	Populations low in the Pincher Creek-Beaver Mines-Burmis triangle.
Spruce budworm, <u>Choristoneura biennis</u> Freeman	Spruce spp. A. fir	Populations generally low in Kootenay National Park. Light to moderate defoliation on the west slope of Mt. Shanks.

Leaf beetle, <u>Chrysomella</u> sp.	B. Poplar	Low populations at Simmonette Campsite, 6 miles south of Goodwin.
Leaf beetle, <u>Chrysomella aenicollis</u> Schffr.	Willow	High populations caused patchy severe defoliation on the southwest slope of Mt. Coleman in Banff National Park.
Leaf beetle, <u>Chrysomella falsa</u> Brown	Cottonwood	Caused moderate defoliation of lanceleaf cottonwood in the Red Rock Canyon area of Waterton Lakes National Park.
Leaf tier, <u>Compsolechia niveopulvella</u> Cham.	T. aspen	High populations 20 miles northwest of Grimshaw; low at Lac Cardinal, Winagami, Lesser Slave Lake Provincial Parks and in Manning, High Level and Sulphur Lake areas.
Leaf mite, <u>Eriophyidae</u>	T. aspen	Moderate at Lac Cardinal Provincial Park; low at Winagami Provincial Park.
Birch leaf miner, <u>Fenusa pusilla</u> (Lep.)	W. birch	Caused light to moderate damage in Calgary and Edmonton.
American aspen beetle, <u>Gonioctena americana</u> (Schaeff.)	T. aspen	Low in Sulphur Lake area, Running Lake Road, Hommy, and Moonshine Lake Provincial Parks.
Root collar weevil, <u>Hylobius</u> sp.	Lp. pine	Common throughout the Grande Prairie and Peace River Forests. Scattered mortality of regeneration pine in William A. Switzer Provincial Park and throughout the Edson, Hinton and Robb areas.
Bark beetle, <u>Ips</u> sp.	W. spruce Lp. pine	Common in log decks and blow-down in the Grande Prairie and Peace River Forests.
Spruce needle moth, <u>Laspeyrasia youngana</u> (Kft.)	W. spruce	Medium to high populations in many of the white spruce stands in the Grande Prairie, Peace River and Footner Lake Forests.

Caragana aphid, <u>Macrosiphum caraganae</u> (Chol.)	Caragana	Defoliation of ornamental and shelterbelt caragana by this aphid was severe throughout the Edmonton area and east to the Saskatchewan border.
Wood borers, <u>Monochamus</u> sp.	Lp. pine	Common in low to moderate numbers throughout Grande Prairie, Peace River and Footner Lake Forests.
Bruce spanworm, <u>Operophtera bruceata</u> (Hulst)	T. aspen	Light infestations found generally in most aspen stands.
Poplar serpentine miner, <u>Phyllocnistis populiella</u> Cham.	T. aspen	Caused spectacular foliage discoloration in Kootenay and Yoho National Parks. Very light at Moonshine Lake Park and in the Footner Lake Forest; moderate to severe in the Pine Point, Ft. Resolution, Ft. Smith areas and in Wood Buffalo National Park.
White pine weevil, <u>Pissodes strobi</u> (Peck)	W. spruce	Several infested tree tops along the creek in Big Knife Provincial Park. High incidence in Edson and Chip Lake areas.
Leaf tier, <u>Pseudexentera oregonana</u> Wlsh. m.	T. aspen	Caused light to moderate defoliation in the Pine Lake, Delburne, Forestburg and Hardisty areas. In the Peace River-Grande Prairie areas, populations were low.
Cherry leaf beetle, <u>Pyrrhalta cavicollis</u> (LeConte)	Chokecherry	Low populations in Moose Lake Provincial Park and surrounding area.
Grey willow leaf beetle, <u>Pyrrhalta decora</u> (Say)	T. aspen	Moderate defoliation of roadside regeneration aspen in Thunder Lake Provincial Park. Low populations at Williamson Lake, Saskatoon Island, Hommy, Moonshine Lake, and Lac Cardinal Provincial Parks.

Spruce bud midge,
Rhabdophaga swainei Felt.

W. spruce

Low populations in Winagami Lake, Williamson Lake, Saskatoon Island and Moonshine Lake Provincial Parks.

Cottonwood leaf mining beetle, Cottonwood
Zeugophora scutellaris Suffr. Hybrid poplar

Caused severe discoloration of lance leaf cottonwood leaves in Willow Creek Provincial Park and on hybrid poplars in the Medicine Hat area.

DISEASE

Dwarf mistletoe,
Arceuthobium americanum
Nutt. ex Engelm.

Lp. pine

Severe infection and some dead trees along the Athabasca and Whirlpool Rivers in Jasper National Park. Moderate south of Grande Prairie on north banks of the Wapiti River.

Atropellis canker,
Atropellis piniphila
(Weir) Lohman & Cash

Lp. pine

Moderate in pine stands south of Grande Prairie.

Yellow witches' broom,
Chrysomyxa arctostaphyli
Diet.

W. spruce
B. spruce

Common throughout spruce stands in the Grande Prairie, Peace River and Footner Lake Forests.

Spruce cone rust,
Chrysomyxa pirolata Wint.

W. spruce

Heavy cone crop along the foothills this year but infection low.

Poplar ink spot,
Ciborinia whetzellii
(Seaver) Seaver

T. aspen

Caused small severely discolored patches of aspen throughout the Willesden Green oilfield area. Light infection throughout Grande Prairie Forest.

Pine stem rust,
Cronartium coleosporioides
Arth.

Lp. pine

Light infections at Sherman Meadows and in Nose Mountain Tower area.

Pine needle cast,
Davisomycella ampla
(J.J. Davis) Darker

Lp. pine

Light to moderate infections common in the mountain valleys south of the Bow River.

Leaf spot, <u>Drepanopeziza populorum</u> (Desm.) Hohn.	T. aspen	Caused patches of severe foliage discoloration in the Delburne and Gooseberry Lake areas and from Hardisty-Provost-Wainwright east to the Saskatchewan border.
Pine needle cast, <u>Elytroderma deformans</u> (Weir) Darker	Lp. pine	Incidence increasing in the Crimson Lake area.
Western gall rust, <u>Endocronartium harknessii</u> (J.P. Moore) Y. Hiratsuka	Lp. pine	Common in pine stands with areas of severe infection at Mile 80 Goodwin Trunk Road, Sherman Meadows and down the Nose Mountain cutoff road.
White trunk rot, <u>Fomes igniarius</u> (L. ex Fr.) Kickx	T. aspen	Severe infection in over-mature aspen in Police Outpost Provincial Park.
Hypoxylon canker, <u>Hypoxylon mammatum</u> (Wahl.) Miller	T. aspen	Numerous infections and some dead aspen in Sir Winston Churchill, Vermilion, Garner Lake, Long Lake, Pigeon Lake, Thunder Lake, Pembina River, Dillberry Lake and Wabamun Lake Provincial Parks.
Pine needle cast, <u>Lophodermella concolor</u> (Dearn.) Darker	Lp. pine	Light to moderate foliage discoloration in Kootenay Crossing and Settlers Road areas of Kootenay National Park.
Needle cast, <u>Lophodermium nitens</u> Darker	White bark pine	Moderate infection on Bow Summit and Parker Ridge in Banff National Park.
Needle rust of fir, <u>Pucciniastrum epilobii</u> Oth.	A. fir	Light infection in scattered locations in the Hinton area.
Leaf spot, <u>Septoria musiva</u> Pk.	B. poplar	Low incidence in Thunder Lake and Garner Lake Provincial Parks and near Stony Plain.
Aspen shoot blight, <u>Venturia macularis</u> (Fr.) E. Muell & V. Arx.	T. aspen	Moderate tip damage in Long Lake and Garner Lake Provincial Parks. Light in Sir Winston Churchill and Vermilion Provincial Parks.

INDEX TO INSECTS AND DISEASESINSECTS

<u>Aceria</u> sp.	33
<u>Aceria</u> <u>neoessigi</u> Keifer	33
<u>Aceria</u> <u>parapopuli</u> (Keifer)	11, 22
<u>Acleris</u> <u>variana</u> (Fern.)	33, 47
<u>Adelges</u> spp.	23, 24, 47
<u>Adelges</u> <u>cooleyi</u> Gill.	11
<u>Alsophila</u> <u>pometaria</u> (Harr.)	8, 22
American aspen beetle	12, 34, 48
<u>Archips</u> <u>cerasivoranus</u> (Fitch)	11, 33, 47
<u>Archips</u> <u>fervidanus</u> (Clem)	11
Ash flower gall	12, 34
Ash mirid	35
Aspen leaf beetle	33
Aspen leaf rollers	28
Aspen webworm	14
Balsam fir sawfly	9, 36
Balsam shoot boring sawfly	37
Bark beetle	48
Birch leaf miner	34, 48
Birch skeletonizer	24
Black-headed ash sawfly	38
Black-headed budworm	33, 47
Boxelder aphid	23
Boxelder leaf gall midge	34
Boxelder twig borer	37
Bruce spanworm	28, 49
<u>Bucculatrix</u> <u>canadensisella</u> Cham.	24
Budworm	47
<u>Caliroa</u> <u>cerasi</u> (L.)	11, 47
<u>Cameraria</u> <u>hamadryadella</u> (Clemens)	11
Caragana aphid	23, 49
Carpenter worm	37
Cherry leaf beetle	49
<u>Chionaspis</u> <u>furfura</u> Fitch	11
Chokecherry midge	34
<u>Choristoneura</u> <u>biennis</u> Freeman	47
<u>Choristoneura</u> <u>conflictana</u> (Wlk.)	9, 25, 28, 47
<u>Choristoneura</u> <u>fumiferana</u> (Clem.)	5, 24, 42
<u>Choristoneura</u> <u>lambertiana</u> Bsk.	47
<u>Choristoneura</u> <u>pinus pinus</u> Free.	8, 33

<u>Chrysomella</u> sp.	33, 48
<u>Chrysomella aenicollis</u> Schffr.	48
<u>Chrysomella crotchi</u> Brown	33
<u>Chrysomella falsa</u> Brown	48
<u>Chrysomella scripta</u> Fabr.	34
<u>Coleophora laricella</u> (Hbn.)	10
<u>Coleotechnites starki</u> Freeman	43
<u>Compsolechia niveopulvella</u> Cham.	48
Cone borer	34
<u>Contarinia</u> sp.	34
<u>Contarinia negundefolia</u> Felt.	34
<u>Contarinia virginiana</u> Felt.	34
<u>Corythucha arcuata</u> (Say)	11
Cottonwood leaf beetle	34
Cottonwood leaf mining beetle	14, 38, 50
<u>Cryptorhynchus lapathi</u> (L.)	11
<u>Datana ministra</u> (Drury)	12
<u>Dendroctonus rufipennis</u> Kirby	44
<u>Enargia decolor</u> Wlk.	34
Engelmann spruce weevil	49
Eriophyidae	48
<u>Eriophyes fraxinflora</u> (Felt.)	12, 34
<u>Eriosoma americanum</u> (Riley)	12, 23
<u>Eucosma gloriola</u> Heinrick	12
European alder leaf miner	12
Fall cankerworm	8, 22
Fall webworm	12, 35
<u>Fenusa dohrnii</u> (Tischb.)	12
<u>Fenusa pusilla</u> (Lep.)	34, 48
Folding leaf sawfly	36
Forest tent caterpillar	6, 17, 19, 25, 26, 41
Fruit worm	36
<u>Gonioctena americana</u> (Schaeff.)	12, 34, 48
<u>Gracillaria syringella</u> (F.)	12, 34
Grey willow leaf beetle	37, 49
<u>Hylobius</u> sp.	12, 48
<u>Hylobius warreni</u> Wood	12, 35
<u>Hyphantria cunea</u> (Drury)	35
<u>Ips</u> sp.	48
Jack pine sawfly	13
Jack pine budworm	8, 33
Larch casebearer	10
Larch sawfly	13, 37
Large aspen tortrix	9, 25, 28, 47
<u>Laspeyrasia youngana</u> (Kft.)	48
Leaf beetle	33, 37, 48

Leaf gall	33
Leaf Miner	35
Leaf mite	48
Leaf tier	34, 48, 49
Lilac leaf miner	12, 34
Lodgepole needle miner	43
<u>Lyonetia</u> sp.	12, 35
<u>Lytta nuttalli</u> Say	35
<u>Macrosiphum caraganae</u> (Chol.)	23, 49
<u>Malacosoma californicum lutescens</u> (N. & D.)	12, 35
<u>Malacosoma californicum pluviale</u> Dyar	35
<u>Malacosoma disstria</u> Hbn.	6, 25, 41
<u>Melanagromyza</u> poss. <u>schinera</u>	35
<u>Messa populifoliella</u> (Townsend)	35
Midge	34
<u>Monochamus</u> sp.	49
<u>Monochamus scutellatus</u> Say	12
Mourning cloak butterfly	13
<u>Neoborus amoenus</u> (Reut.)	35
<u>Neodiprion</u> spp.	13
<u>Neodiprion abietis</u> (Harr.)	36
<u>Neodiprion abietis</u> complex	9
Nuttall blister beetle	35
<u>Nymphalis antiopa</u> (L.)	13, 36
Oak lace bug	11
Oak webworm	11
<u>Oligonychus ununguis</u> (Jac.)	13, 28
<u>Operophtera bruceata</u> (Hulst)	28, 49
<u>Orthosia hibisci</u> (Guen.)	36
<u>Paleacrita vernata</u> (Peck)	13, 22
Pear slug	11, 47
<u>Periphyllus negundinis</u> Thos.	23
<u>Pemphigus</u> sp.	36
<u>Petrova albicapitana</u> (Busck.)	36
<u>Phenacaspis pinifoliae</u> (Fitch)	13, 36
<u>Phyllocnistis populiella</u> Cham.	36, 49
<u>Phyllocolpa</u> nr. <u>agoma</u> (Roh.)	36
<u>Pikonema alaskensis</u> (Roh.)	10, 28, 42
Pine needle scale	13, 36
Pine terminal weevil	36
Pine tortoise scale	14, 38
<u>Pissodes strobi</u> (Peck)	13, 29, 49
<u>Pissodes terminalis</u> Hopping	36
Pitch nodule maker	36
<u>Pleuroneura borealis</u> Felt.	37

Poplar borer	13, 37, 44
Poplar and willow borer	11
Poplar bud-gall mite	11, 22
Poplar leaf roller	13, 37
Poplar twig gall	35
Poplar petiole gall aphid	36
Poplar serpentine miner	36, 49
Prairie tent caterpillar	12, 35
<u>Prionoxystus robiniae</u> Peck	37
<u>Pristiphora erichsonii</u> (Htg.)	13, 37
<u>Profenusa</u> sp.	37
<u>Proteoteras willingana</u> (Kft.)	37
<u>Pseudexentera oregonana</u> Wlsh. m.	13, 37, 49
<u>Pyrrhalta cavicollis</u> (Le Conte)	37, 49
<u>Pyrrhalta decora</u> (Say)	37, 49
Red-humped caterpillar	14
<u>Rhobdophaga swainei</u> Felt.	37, 50
Root collar weevil	12, 35, 48
<u>Saperda calcarata</u> Say	13, 37, 44
Sawfly	37
<u>Schizura concinna</u> (J.E. Smith)	14
Scurfy scale	11
Solitary leaf miner	11
Spiny elm caterpillar	36
Spring cankerworm	13, 22
Spruce beetle	44
Spruce bud midge	37, 50
Spruce budworm	5, 24, 42, 47
Spruce gall aphids	11, 23, 47
Spruce seed moth	48
Spruce spider mite	13, 28
Spruce terminal weevil	29
<u>Tethida cordigera</u> Beauv.	38
<u>Tetralopha aplastella</u> Hlst.	14
<u>Toumeyella numismaticum</u> P. & M.	14, 38
Ugly nest caterpillar	11, 33, 47
Western tent caterpillar	35
White pine shoot borer	12
White spotted sawyer	12
White pine weevil	13, 29, 49
Willow leaf miner	12, 35
Wood borer	49
Woolly elm aphid	12, 23
Yellow-headed spruce sawfly	10, 28, 42
Yellow-necked caterpillar	12
<u>Zeugophora scutellaris</u> Suffr.	14, 38, 50

DISEASES

<u>Apiosporina collinsii</u> (Schw.) Hoehn.	38
<u>Arceuthobium americanum</u> Nutt. ex Engelm.	29, 30, 50
<u>Arceuthobium pusillum</u> Pk.	14, 30
Aspen shoot blight	16, 40
Atropellis	50
<u>Atropellis piniphila</u> (Weir) Lohman & Cash)	50
Balsam poplar leaf blight	39
Black knot of cherry	15, 39
Black rib of willow	14
<u>Chrysomyxa</u> spp.	30
<u>Chrysomyxa arctostaphyli</u> Diet.	50
<u>Chrysomyxa ledicola</u> Lagh.	14, 30, 45
<u>Chrysomyxa pirolata</u> Wint.	38, 50
<u>Chrysomyxa weirii</u> Jacks.	31
<u>Ciborinia foliicola</u> (Cash & Davidson) Whet.	14
<u>Ciborinia whetzellii</u> (Seaver) Seaver	31, 50
<u>Coccomyces hiemalis</u> Higgins	38
<u>Coleosporium asterum</u> (Diet.) Syd.	15
Comandra blister rust	38
<u>Cronartium coleosporioides</u> Arth.	50
<u>Cronartium comandrae</u> Pk.	38
<u>Cronartium comptoniae</u> Arth.	38
<u>Cronartium ribicola</u> J.C. Fischer	15
Cytospora canker	38
<u>Cytospora ambiens</u> Sacc.	38
<u>Cytospora chrysosperma</u> (Pers.) ex. Fr.	38
<u>Davisomycella ampla</u> (J.J. Davis) Darker	39, 50
<u>Dibotryon morbosum</u> (Schw.) T.S.	15, 39
<u>Diplodia tumefaciens</u> (Shear) Zalasky	
<u>Drepanopeziza populorum</u> (Desm.) Hohn.	31, 51
Dwarf mistletoe	29, 30, 50
Eastern dwarf mistletoe	14
<u>Elythroderma deformans</u> (Weir) Darker	51
<u>Endocronartium harknessii</u> (J.P. Moore)	
Y. Hiratsuka	15, 39, 51
<u>Erwinia amylovora</u> (Burr. Winsl.)	15, 39
Fire blight	15, 39
Fir needle rust	15
<u>Fomes igniarius</u> (L. ex Fr.) Kickx	39, 51
<u>Gymnosporangium</u> sp.	15, 39
Hyperparasite of dwarf mistletoe	30

Hypoxylon canker	15, 39, 51
<u>Hypoxylon mammatum</u> (Wahl.) Miller	15, 39, 51
Larch-willow rust	39
Leaf rust	39
Leaf spot	31, 40, 51
<u>Linospora tetraspora</u> Thompson	39
<u>Lophodermella concolor</u> (Dearn.) Darker	39, 51
<u>Lophodermium nitens</u> Darker	51
<u>Melampsora paradoxa</u> Diet et Holw.	39
<u>Melampsorella caryophyllaciarum</u> Schroet.	40
Needle cast	39, 40, 51
Needle rust of fir	51
Pine needle cast	50, 51
Pine needle rust	15
Pine stem rust	50
Plum pocket rot	40
Poplar ink spot	31, 50
<u>Puccinia bollyana</u> Sacc.	40
<u>Pucciniastrum</u> sp.	15
<u>Pucciniastrum epilobii</u> Otth.	15, 51
Rust	15, 40
<u>Sarcotrochila balsameae</u> (Rehm.) Korf.	40
<u>Sarcotrochila piniperda</u> (Rehm.) Korf.	40
<u>Septoria caraganae</u> (Jacz.) Died.	40
<u>Septoria musiva</u> Pk.	40, 51
Shot-hole of cherry	38
Shoot blight of balsam poplar	40
Spruce cone rust	38, 50
Spruce needle rust	14, 15, 30, 45
Sweet fern blister rust	38
<u>Taphrina pruni</u> Tulasne	40
<u>Venturia macularis</u> (Fr.) E. Muell & V. Arx.	16, 40
<u>Venturia populina</u> (Vuill) Fabric.	40
<u>Wallrothiella arceuthobii</u> (Pk.) Sacc.	30
White trunk rot	39, 51
Western gall rust	15, 39, 51
White pine blister rust	15
Witches' broom	38
Yellow witches' broom	50
Yellow witches' broom of fir	40

NONINFECTIOUS DISEASES

Animal Damage	33
Climatic Damage	32, 45
Drowning	46
Flood Damage	16
Frost	46
Herbicide Damage	16, 31, 32
Snow break of Lodgepole Pine	45
Water Damage	32
Winter Injury	16