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ANNUAL DISTRICT REPORTS: FOREST INSECT AND DISEASE SURVEY; PRAIRIE REGION, 1972

by

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NORTHERN FOREST RESEARCH CENTRE
EDMONTON, ALBERTA
INFORMATION REPORT NOR-X-54

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CANADIAN FORESTRY SERVICE
ENVIRONMENT CANADA
5320 - 122 STREET
EDMONTON, ALBERTA, CANADA
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INTRODUCTION

by

J.K. Robins

General survey detection activities in 1972 were concentrated on high use areas of the Prairie Region, mainly National and Provincial Parks and Recreational areas. Campgrounds were examined in selected parks, as in 1971, but on a more limited basis.

A hazard index rating of forest insects and diseases was conducted in Prince Albert National Park, following the pattern of a similar survey in Waterton National Park in 1971.

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*All personnel of the Insect and Disease Survey, Northern Forest Research Centre, Canadian Forestry Service, Department of the Environment, 5320 - 122 Street, Edmonton 70, Alberta, Canada.

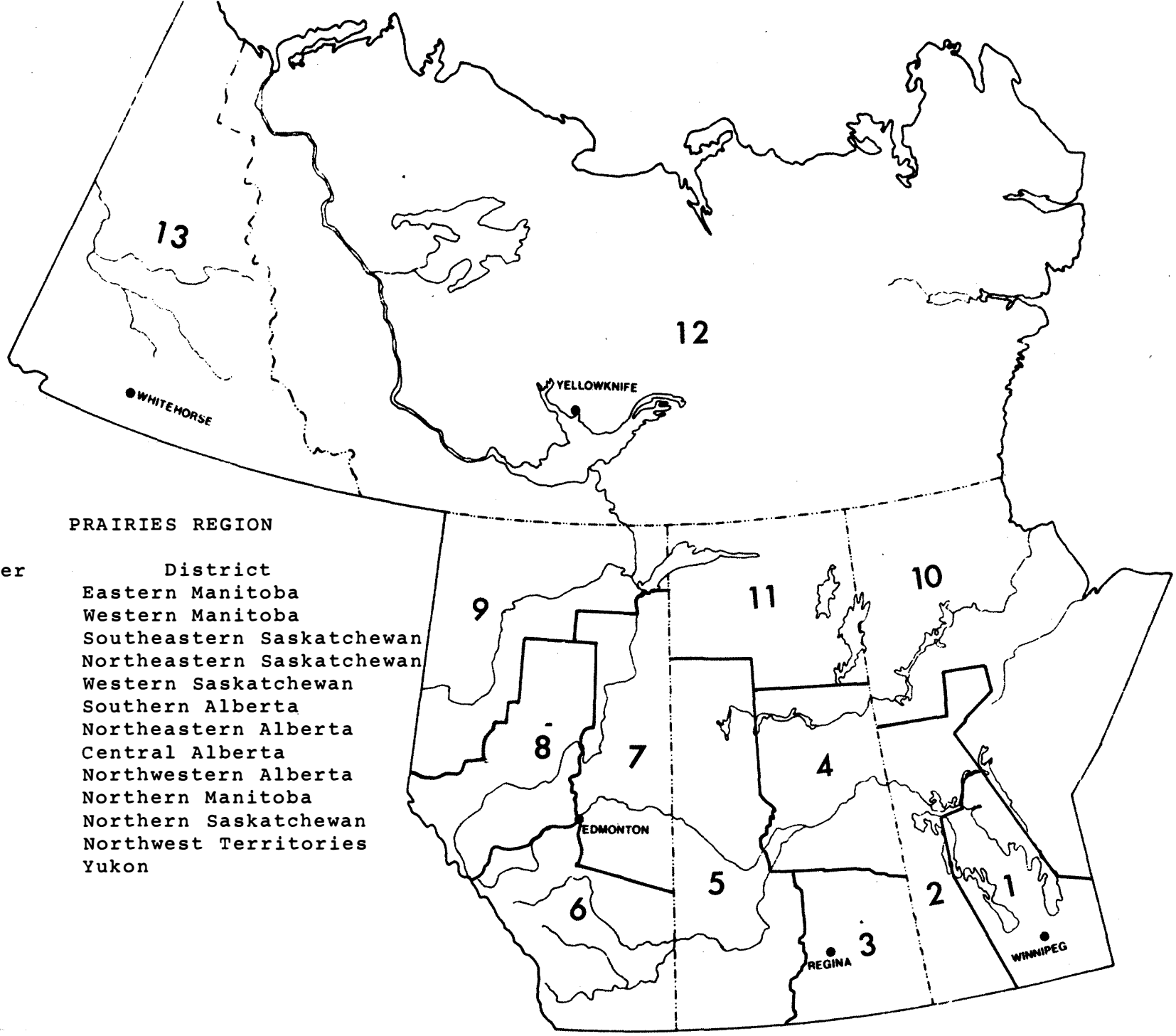
District assignments and supervisory responsibilities were as follows:

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

SUMMARY OF INSECT AND DISEASE CONDITIONS

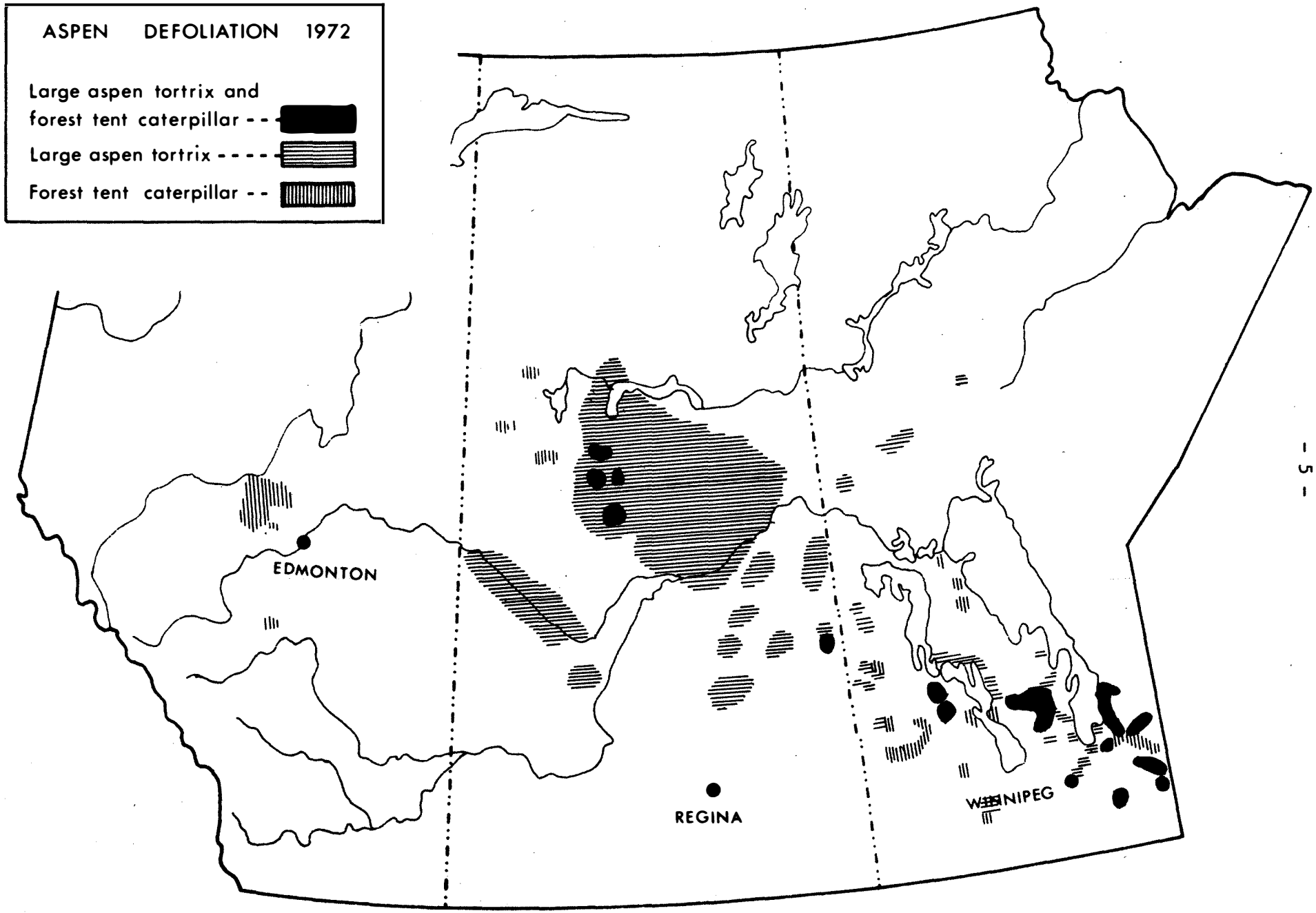
Populations of defoliators of both coniferous and broadleaf trees were higher than in 1971, resulting in widespread damage. The infestations of tent caterpillar, large aspen tortrix, fall cankerworm, and birch skeletonizer remained at about the same level in Alberta as in 1971, but increased in Saskatchewan and Manitoba. Spruce budworm populations were static with the only serious damage occurring in south-central Manitoba. The yellow-headed spruce sawfly caused considerable injury to planted spruce throughout much of the agricultural area of the Region.

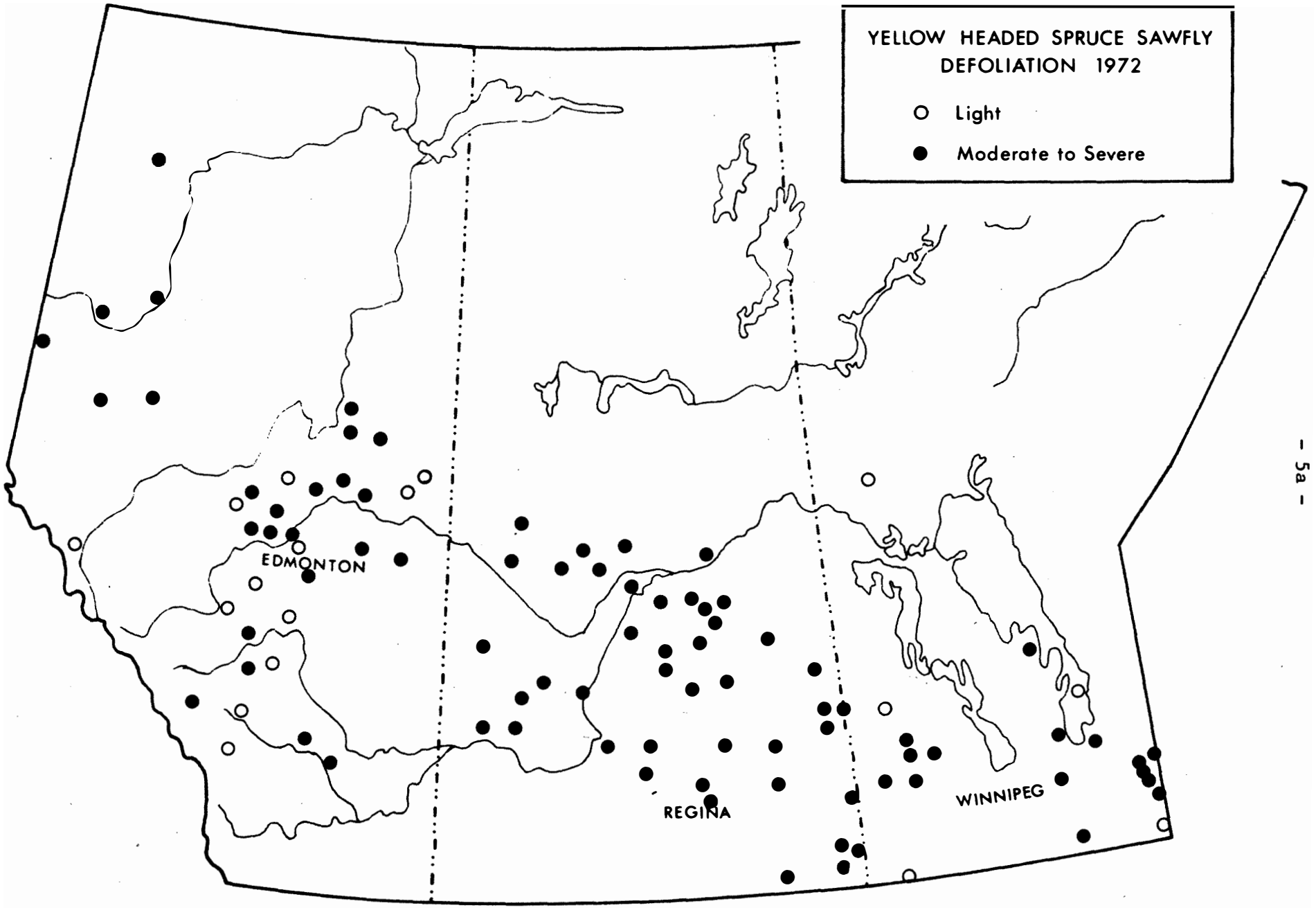
Needle rust of spruce reached epidemic levels in Alberta. Leaf spots of poplar were common in Alberta and Saskatchewan. Climatic damage occurred to pine in the Alberta Foothills, to poplars in several areas of Saskatchewan and to ornamental spruce in Winnipeg.



PRAIRIES REGION

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


ASPEN DEFOLIATION 1972
Large aspen tortrix and forest tent caterpillar
Large aspen tortrix
Forest tent caterpillar
EDMONTON
REGINA
WINNIPEG


YELLOW HEADED SPRUCE SAWFLY
DEFOLIATION 1972
Light
Moderate to Severe
EDMONTON
REGINA
WINNIPEG

ANNUAL DISTRICT REPORTS, 1972 - MANITOBA

by

V.B. Patterson and G.N. Still

INSECT CONDITIONS

Forest Tent Caterpillar, Malacosoma disstria Hbn. and Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

These two species of insects were responsible for widespread defoliation of broadleaf trees throughout large areas of Manitoba. In many areas both species were present, making it difficult to determine to what extent each was responsible for the resulting defoliation.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Populations of this species increased generally across the Province. Moderate to severe defoliation occurred throughout the west central part of Whiteshell Provincial Park, and south of the Winnipeg River system in an area bounded by White, Jessica, Lone Island, Whiteshell, Horseshoe and George lakes. The infestation extended beyond the Park, north and east of the Winnipeg River system to Lac du Bonnet, Great Falls, and Powerview. Further north, patches of similar defoliation occurred along Highway 304 south of O'Hanley River, in the Black River Indian Reserve, and north of Sandy River. Isolated patches of moderate to severe defoliation occurred northwest of Falcon Lake, southwest of Hadashville, and along the Bird River east of Poplar Bay. In these areas C. conflictana was closely associated with M. disstria and at many points caused an equal amount of defoliation.

In Agassiz Provincial Forest, defoliation was moderate to severe in Township 14 throughout Ranges 9 and 10 E.P.M.; in the northeast corner of Township 13, Range 9, E.P.M.; and in the Seddons fire tower and Julius areas. C. conflictana contributed significantly to the overall defoliation here, and in the western half of the Forest appeared to be the dominant defoliator. North of the Forest, patches of moderate to severe defoliation occurred in the Brightstone area and southwest of Great Falls.

Moderate to severe defoliation occurred intermittently throughout that portion of the Interlake area lying south of Moosehorn and Hodgson and north of Gunton. The infestation west of Lake Manitoba Narrows expanded and intensified. Moderate to severe defoliation occurred along the west side of Ebb and Flow Lake from Kinosota to the south end of Lonely Lake and extended as far west as Shergrove. Varying population levels of the large aspen tortrix were also present in these areas.

In Riding Mountain National Park and in the agricultural area to the south, populations increased considerably over 1972, resulting in moderate to severe defoliation in the following areas: along the east slope of Riding Mountain from northwest of McCreary to southwest of Kelwood; near Russel and Sugar Loaf warden stations; in the townsite of Wasagaming and south to Onanole; in a band approximately three miles wide from Onanole west to Rossburn. Moderate to severe defoliation also occurred along the southern edge of Spruce Woods Provincial Park.

Low populations were recorded in the following areas: west of Lake Winnipeg near Fish Lake, Twin Lakes and Grand Rapids; near Wanless, Childs Lake, Shortdale, Neepawa, Douglas and Carberry.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

This species caused widespread defoliation across the Province and in many areas populations were higher than in 1971.

In eastern Manitoba moderate to severe defoliation occurred in the following areas: throughout Belair Provincial Forest; in the northwestern section of Birds Hill Provincial Park; east of Selkirk; in the Lebou and Dencross areas and in the western part of Agassiz Provincial Forest. This species was also present in the eastern section of Agassiz Provincial Forest and throughout Whiteshell Provincial Park, but the forest tent caterpillar was responsible for most of the defoliation in these areas.

Patches of moderate to severe defoliation occurred throughout the Interlake area. The forest tent caterpillar was present but the large aspen tortrix was the dominant defoliator in the following areas: Fraserwood, Gimli, Hnausa, Rosenberg, Lake St. George, Spearhill, Gypsumville and along the north end of Lake Manitoba. Light defoliation occurred west of Lake Winnipeg at Williams Lake, Grand Rapids and Fish Creek.

In Porcupine Provincial Forest, moderate to severe defoliation occurred almost continuously along the east slope of Hart Mountain from south of Birch River to northwest of Mafeking. In Duck Mountain Provincial Park, defoliation was moderate to severe west of a line running northwest and southeast of Childs Lake and into Duck Mountain Provincial Forest to within three miles of the Saskatchewan border. Moderate to severe defoliation occurred in patches throughout Spruce Woods Provincial Park.

In Riding Mountain National Park, moderate to severe defoliation occurred in a large area in the west end between the Russel and Sugar Loaf warden stations.

Defoliation ranging from light to severe occurred north of The Pas in the Wanless-Atik area, along Simonhouse, Reed and Wekusko lakes and in Paint Lakes Provincial Park.

Spruce Budworm, Choristoneura fumiferana (Clem.)

In Spruce Woods Provincial Park and Forest high larval populations were evident in most areas where white spruce occurs. An aerial survey was conducted over the area in June to determine the extent of injury. Defoliation ranging from 90-100 percent of the current needle growth was common. (see map). The current outbreak has been in progress since 1967 and infested trees that have suffered three or more consecutive years of severe defoliation are beginning to show evidence of declining vigor.

The moderate to severe infestations of farm woodlots in the Vidir-Arborg-Geyser area persisted for the sixth consecutive year and many new outbreaks of similar intensity were detected elsewhere in the Interlake area. Most spruce stands east of Dog Lake between Ashern and Mulvihill received moderate to severe defoliation and similar new outbreaks occurred in farm woodlots about 12 miles east of Ashern and in the Silver Bay, Fisher Branch, Hodgson, Poplarfield, Rembrandt, Meleb, Fraserwood, Malonton and Komarno areas. Low populations and very light damage were recorded near Riverton, Chatfield, Narcisse, Hnausa, Gimli, Winnipeg Beach and Selkirk.

Populations were higher in Riding Mountain National Park than in previous years. Light to moderate injury occurred to white spruce in Clear Lake Campground and at Edwards Lake.

Light to moderate injury occurred to one row of planted white spruce near the north end of the International Peace Gardens.

Jackpine Budworm, Choristoneura pinus pinus Free.

Infestations in Sandilands Provincial Forest increased in intensity and covered a larger area. Numerous patches of moderate to severe defoliation occurred throughout that portion of the Forest lying south of the Trans-Canada Highway. Infestations also extended into adjoining areas lying outside the Forest boundaries.

Two new moderate to severe outbreaks occurred in the Belair Provincial Forest; one north of Stead and the other southeast of Belair.

Low populations were observed near Whitemouth Lake and Brokenhead, and at scattered points throughout Whiteshell Provincial Park and Agassiz Provincial Forest.

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

In Whiteshell Provincial Park, moderate to severe defoliation of spruce regeneration occurred along Highway 307 between Red Rock and Nutimik lakes, and in the campgrounds at Big Whiteshell, White and Falcon lakes.

In Riding Mountain National Park, moderate to severe defoliation occurred on planted spruce throughout Wasagaming townsite, at the junction of Highway 10 and the Audy Lake Road, and on native spruce along Highway 10 to Moon Lake.

Moderate to severe defoliation was recorded at other widely separated points: Roseau River, Stead, Frazerwood, Lake St. George, McCreary, the Onanole-Erickson-Sandy Lake area, Rossman Lake and north of Rossburn.

Light defoliation occurred in Duck Mountain Provincial Park and Forest, in Clearwater Lake Provincial Park, in the International Peace Gardens, on Hecla Island and near Moose Lake.

Fall Cankerworm, Alsophila pometaria (Harr.)

Populations of the fall cankerworm were higher in southeastern and west-central Manitoba than in 1971.

Throughout Metro-Winnipeg there was moderate to severe defoliation of maple, elm, ash and associated deciduous hosts. The areas along the Red and Assiniboine rivers were the most seriously affected. Patches of moderate to severe defoliation were also recorded along the Red River from Winnipeg to Selkirk and in the Beausejour area.

Farm shelterbelts were severely defoliated in the Morden-Jordan-Carman area and near Dauphin and McCreary. Moderate defoliation occurred in the Dauphin tourist park and in plantings and boulevards throughout the town.

Light defoliation was recorded at Emerson, Altona, Morris, Portage la Prairie and Stonewall.

Larch sawfly, Pristiphora erichsonii (Htg.)

Populations of this species throughout the Province were generally lower than in previous years.

Low populations were recorded in the following areas: Whiteshell, Birds Hill and Grass River Provincial Parks; Northwest Angle, Sandilands, Agassiz and Belair provincial forests; Riverton, Washow Bay, Hodgson, Beaver Creek, Pine Dock, Ponton-Wekusko area, Egg Lake and The Pas.

Moderate to severe defoliation occurred throughout The Bog and south to Overflowing River. Moderate defoliation occurred 10 miles north of Sprague.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Marked population increases were evident throughout most of the Province. Scattered patches of moderate to severe skeletonizing were observed

throughout Whiteshell Provincial Park; along the Winnipeg River from Great Falls to Powerview; in Belair Provincial Forest; west of Lake Winnipeg from Washow Bay north to the Pine Dock area; along the eastern slopes of the Porcupine Mountains; along the west side of Dawson Bay north to the Overflowing River area; and from The Pas to Clearwater Lake.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
INSECT		
Pineapple gall aphid, *Adelges lariciatus* (Patch)	W. spruce B. spruce	Light to moderate on a few trees in Big Whiteshell, Falcon Lake, Childs Lake and Campers Cove provincial campgrounds.
Oak petiole gall, *Andricus petiolicola* (Osten Sacken)	B. oak	Moderate to severe on a few trees on the southside of Falcon Lake.
Ugly nest caterpillar, *Archips cerasivoranus* (Fitch)	Chokecherry	Low incidence in the southeastern part of the Province and in the north near Devils and Wekusko lakes. Moderate in Rossman and Onanole areas and in Riding Mountain National Park and Spruce Woods Provincial Park.
A leaf roller on Manitoba maple, *Archips negundanus* Dyar.	M. maple	Some moderate to severe defoliation observed along the east side of the Red River at Selkirk. Low populations associated with fall cankerworm infestations in Winnipeg.
Pear slug, *Caliroa cerasi* (L.)	Cotoneaster	Severely infested shrubs common in plantings along the Trans Canada Highway from St. Anne to Portage la Prairie and on ornamentals in Winnipeg.

Solitary leaf miner, Cameraria hamadryadella (Clemens)	B. oak	Patches of moderate to severe leaf mining in Sprucewoods Provincial Park and in the Treesbank area. Light in Birds Hill Provincial Park.
Aspen leaf beetle, Chrysomela crotchi Brown	T. aspen	Scattered traces of defoliation in Agassiz Provincial Forest.
Balsam gall midge, Dasineura balsamicola (Lint.)	B. fir	Traces of needle damage on Hecla Island and near Falcon Lake.
European spruce sawfly, Diprion hercyniae (Htg.)	W. spruce B. spruce	Low populations found in the Darwin, Moose Lake, and Contour Tower areas, all within the previously known range of the species.
Elm spanworm, Ennomos subsignarius (Hübner)	W. elm G. ash	Patches of moderate to severe defoliation in Selkirk Park.
Woolly elm aphid, Eriosoma americanum (Riley)	W. elm	Light leaf infestations common at scattered points across southern and central Manitoba.
Conifer looper, Eupithecia luteata Pack.	W. spruce	Traces near Moose Lake and Contour Tower.
European alder leaf miner, Fenusa dohrnii (Tischb.)	Alder	Scattered light to moderate infestations throughout Whiteshell Provincial Park.
Green striped looper, Feralia jocosa Gn.	W. spruce	Traces near Darwin.
American aspen beetle, Gonioctena americana (Schaeff.)	T. aspen	Scattered light defoliation in Agassiz Provincial Forest.
Striped alder sawfly, Hemicroa crocea (Fourcroy)	Alder	Moderate to severe defoliation one mile west of Rennie and near the tree nursery at Hadashville.
A root collar weevil, Hylobius sp.	S. pine	Recently killed trees noted in plantations in Agassiz Provincial Park.
Fall webworm, Hyphantria cunea (Drury)	Alder Birch Willow C. elm	Widely scattered, light to moderate defoliation of individual trees throughout eastern Manitoba.

Aspen blotch miner, Lithocolletis salicifoliella Cham.	T. aspen	Small scattered patches of moderate to severe leaf mining in Whiteshell Provincial Park; in Northwest Angle, Sandilands, Agassiz and Belair provincial forests; and in the Interlake area.
A leaf miner, Lyonetia sp.	Willow	Severe along Highway 391 from Wabowden to the junction of Highway 10 and along Highway 10 in the Dawson Bay and Mafeking areas.
Prairie tent caterpillar, Malacosoma californicum lutescens (N. & D.)	Chokecherry	Widely scattered, low incidence of tents in the southern part of the Province.
Western tent caterpillar, Malacosoma californicum pluviale Dyar	W. birch Willow	Several tents noted near Otter Falls and Davidson Lake and a few in Riding Mountain National Park.
Pine sawflies, Neodiprion spp.	J. pine	Moderate defoliation of young trees near Brereton Lake. A few saplings moderately defoliated by N. pratti banksianae Roh. near Rennie and by N. virginianus complex near Toniata Beach. Scattered light defoliation common throughout the range of jackpine in eastern Manitoba.
Balsam-fir sawfly, Neodiprion abietis complex	B. fir	Small patches of light to moderate defoliation in Hecla Island Provincial Park.
Spiny elm caterpillar, Nymphalis antiopa (L.)	Willow	A few moderately to severely defoliated young trees observed in Agassiz Provincial Forest and Clearwater Provincial Park.
Pitch nodule maker, Petrova albicapitana (Busck)	J. pine	Traces observed throughout the range of jackpine in eastern Manitoba.
Poplar serpentine miner, Phyllocnistis populiella Cham.	T. aspen	Traces in the Rainbow Beach and Falcon Lake provincial campgrounds.
Green-headed spruce sawfly, Pikonema dimmockii (Cress.)	W. spruce	Traces near Darwin.

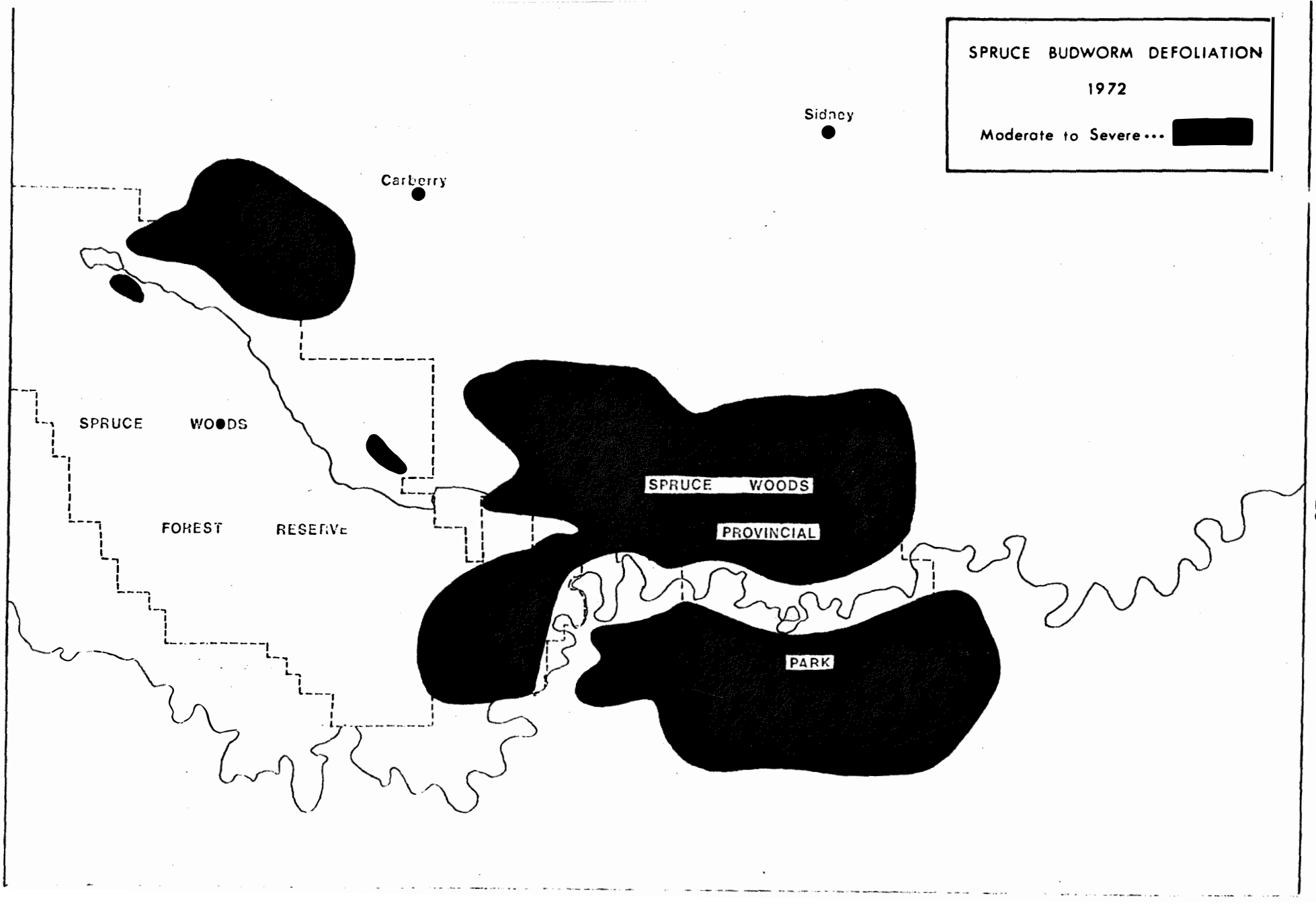
White pine weevil, *Pissodes strobi* (Peck)	J. pine W. pine	Widely scattered low incidence of infested tops observed in young pine stands throughout the eastern half of the Province.
Woolly alder aphid, *Prociphilus tessellatus* (Fitch)	Alder	Patches of moderate to severe infestation west of Rennie and between West Hawk and Falcon lakes.
Poplar borer, *Saperda calcarata* Say	T. aspen	Boring damage observed in provincial campgrounds at Birds Hill, Otter Falls, St. Malo, Big Whiteshell, Falcon Lake and Clearwater Lake, and in Riding Mountain National Park at the extreme west end and near Audy Lake.
Red-humped caterpillar, *Schizura concinna* (J.E. Smith)	Willow	Moderate defoliation of numerous willow clumps observed in Agassiz Provincial Forest.
Aspen webworm, *Tetralopha aplastella* Hist.	T. aspen	Scattered light infestations observed in Whiteshell, Birds Hill, and Clearwater provincial parks; Belair and Agassiz provincial forests; and in the Interlake area.
Colonial web-maker, *Tetralopha expandens* Walker	B. oak	Scattered light leaf infestations in Sprucewoods Provincial Park,
Pine webworm, *Tetralopha robustella* Zell.	J. pine	Young trees lightly infested in the Falcon Lake area.

DISEASE

A witches' broom, *Apiosporina collinsii* (Schw.) Hoehn.	Saskatoon	Light brooming of understory trees in St. Malo Recreation Area, Whiteshell and Birds Hill provincial parks, and Agassiz Provincial Forest.
Spruce mistletoe, *Arceuthobium pusillum* Pk.	Tamarack B. spruce W. spruce	Brooms taken from tamarack in Birds Hill Provincial Park proved to be infected with *A. pusillum*, a mistletoe which normally occurs on spruce in Manitoba. Heavy brooming on black spruce in The Pas and Mafeking areas and occasionally on white spruce in The Pas area

Poplar ink spot, *Ciborinia whetzellii* (Seaver) Seaver	T. aspen	Light leaf infections in St. Malo Recreation Area, Hecla Island Provincial Park, Northwest Angle and Agassiz provincial forests, and in the Lake St. George area.
Pine needle rust, *Coleosporium asterum* (Diet.) Syd.	J. pine	Light needle infections in Agassiz Provincial Forest.
Yellow witches' broom, *Chrysomyxa arctostaphyli* Diet.	B. spruce	Occasional brooms observed at scattered points throughout Whiteshell Provincial Park.
Globose gall of poplar, *Diplodia tumefaciens* (Shear) Zalasky	T. aspen	Light on a few trees in the Campers Cove area of Clearwater Provincial Park.
Globose gall rust, *Endocronartium harknessii* (J.P. Moore) Y. Hiratsuka	J. pine	Scattered light infections common throughout the range of jackpine in eastern Manitoba.
White trunk rot, *Fomes igniarius* (L. ex Fr.) Kickx.	T. aspen	Recorded in the following general areas: Riding Mountain National Park, Duck Mountain, Whiteshell, Birds Hill, Asessippi, and Turtle Mountain provincial parks, and near Treesbank, Sandy Lake and Shoal Lake.
Rust, *Gymnosporangium* sp.	Saskatoon	Moderate to severe leaf and fruit infections observed in Birds Hill Provincial Park.
Hypoxylon canker of aspen, *Hypoxylon mammatum* (Wahl.) Miller	T. aspen	Recorded in the following areas: Sandy Lake, Killarney, Pelican Lake, Belmont, Treesbank, Kenton, Kirkella, St. Malo, Seddons Corner, Birch Point, Riding Mountain National Park, International Peace Gardens, and in Turtle Mountain, Whiteshell, Birds Hill, Asessippi and Clearwater provincial parks.
Balsam poplar leaf blight, *Linospora tetraspora* Thompson	B. poplar	Patches of moderate to severe infection in Whiteshell and Clearwater provincial parks and Belair and Agassiz provincial forests.

Yellow witches' broom, *Melampsorella caryophyllacearum* Schroet.	B. fir	Isolated single brooms at scattered points in Whiteshell and Hecla Island provincial parks and near Caribou Tower.
Needle rust, *Pucciniastrum goeppertianum* (Kuehn) Kleb.	B. fir	Up to 10 percent of current needles infected on some trees near Otter Falls.
Aspen shoot blight, *Venturia macularis* (Fr.) E. Muell. & V. Arx.	T. aspen	Light infection of regeneration near Rosenberg Tower; in Whiteshell and Hecla Island provincial parks; and in Agassiz and Northwest Angle provincial forests.


SPRUCE BUDWORM DEFOLIATION
1972
Moderate to Severe
Sidney
Carberry
SPRUCE WOODS
FOREST RESERVE
SPRUCE WOODS
PROVINCIAL
PARK

ANNUAL DISTRICT REPORTS, 1972 - SASKATCHEWAN

by

K.L. Mortensen, E.J. Gautreau, and R.C. Tidsbury

INSECT CONDITIONS

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Infestations of the large aspen tortrix continued in 1972. A large portion of the aspen on the eastern slopes of the Pasquia Hills north of Hudson Bay were severely defoliated. A number of smaller outbreaks occurred from Nipawin Provincial Park westward to the northern part of Prince Albert National Park. Moderate to severe defoliation was also observed along Highway 102 from La Ronge north to McLennan Lake. Elsewhere in the aspen grove section larvae were commonly found in aspen samples. The infestation in the Thickwood Hills west of Prince Albert subsided completely in 1972.

Egg masses were frequently observed in general sampling, thus continued sporadic outbreaks can be expected.

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

There were further increases in the intensity and distribution of this insect species in 1972. Severe defoliation in spruce shelterbelts was common throughout the park-belt area of the Province (see map). In native stands defoliation was usually confined to the occasional open-growing regeneration white spruce in recreational areas.

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Moderate to severe infestations on white birch were recorded in Prince Albert National Park south of Waskesiu Lake between Trail 157 and The Narrows,

and north of the Second Narrows between Kingsmere and Crean lakes. Similar damage to birch stands was observed along the Saskatchewan River between Squaw Rapids and Cumberland House and along the Carrot River from near Shoal Lake to the Pasquia Hills.

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

Increased cankerworm populations, with resultant moderate to severe defoliation, were recorded in deciduous shelterbelts from the following widely separated areas; Maple Creek, Swift Current, Eastend, Shaunavon, Ponteix, Assiniboia, Estevan and Melfort. Similar defoliation was recorded in a number of shelterbelts along Highway 4 between Kyle and Elrose. Light to moderate defoliation of Manitoba maple and American elm occurred in the cities of Saskatoon and Prince Albert.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Populations increased notably in 1972 after a six year interval of very low levels. Pockets of moderate to severe aspen defoliation, covering areas of up to 200 square miles, were observed in the following areas; Peter Pond, Cummins, Macallum and Canoe lakes, and in the Dore-Smoothstone lakes area. A moderate infestation covering approximately 300 square miles, occurred west of Peter Pond Lake along the northwest slopes of the Grizzly Bear Mountains. In Prince Albert National Park light defoliation was noted in conjunction with large aspen tortrix damage.

Cursory egg band counts indicate moderate to severe defoliation could be expected in 1973 in the following areas; Buffalo Narrows, Beauval, Canoe Lake, Macallum Lake, Dori Lake and in Prince Albert National Park.

DISEASE CONDITIONS

Pine Needle Cast, Lophodermella concolor (Dearn.) Darker

The incidence of jack pine needle cast was more prevalent than in recent years, particularly in the Mixedwood Section of Saskatchewan. Large stands of young jack pine were severely infected in Prince Albert National Park along the western edge of the Waskesiu Hills. Light to moderate infections were observed at several locations near the Park boundary in the Lavallee Lake - Wabeno Lake area. In the Northern Provincial Forest most young jack pine stands along the Hanson Lake Road from Nipawin Provincial Park to Little Bear Lake were infected. Infections there were generally light with the exception of severely infected stands observed near Upper Fishing Lake and Stickley Lake.

Sweet Fern Blister Rust, Cronartium comptoniae Arth.

Sweet fern blister rust, the cause of basal cankers of jack pine, is now known to be present across northern Saskatchewan. Light infections were recorded at the following locations; Amyst Lake, Buffalo Narrows, Turnor Lake, Twin Lake, Thulabi Lake and Parish Lake.

A hyperparasite, Tuberculina maxima Rostr. was collected on a rust canker in the Lac la Ronge area. This was the first collection of this hyperparasite made in Saskatchewan and extends its known distribution.

Climatic Damage

Frost injury to trees was observed in several locations throughout the Province. The most noticeable damage occurred to aspen bluffs in Cypress Hills Provincial Park. Damage ranged from a few frost killed shoots to almost complete destruction of new shoots, with the most severe damage occurring to

exposed aspen along the eastern edge of the Hills. Severe frost damage occurred to parts of the poplar plantation in Rockglen Regional Park and to shade trees at Fife Lake, while some mortality of poplar and Manchurian elm was noted in Thompson Lake Regional Park.

Severe mortality over a large area of the plantation in Saskatchewan Landing Recreation Area is believed to have resulted from a combination of factors including severe drought conditions in 1971.

Hail damage was conspicuous on aspen over a small area three miles east of Holbein.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
INSECT		
Poplar bud-gall mite, *Aceria parapopuli* (Keifer)	Poplar spp.	A number of moderate to severe infestations were found in poplar plantations and shelterbelts throughout the southern half of the Province.
Spruce gall aphids, *Adelges* spp.	W. spruce B. spruce	Populations were generally low and widely scattered. Occasionally isolated native trees in picnic grounds were severely attacked.
Black-headed budworm, *Acleris variana* (Fern.)	W. spruce	Low populations were observed at the following locations: Cypress Hills, Big River, MacDowall, Amisko Lake, Pasquia Hills and Moose Mountain Provincial Park.
Ugly nest caterpillar, *Archips cerasivoranus* (Fitch)	Chokecherry	Small localized infestations observed near Battleford, Turtleford, Glaslyn, Big River, Prince Albert and Bankend.
Pear slug, *Caliroa cerasi* (L.)	Cotoneaster	Ornamentals severely infested in Weyburn.

Spruce budworm, Choristoneura fumiferana (Clem.)	W. spruce	Low populations in forested areas of the Cypress and Pasquia hills. Moderate populations in shelter-belts at Canwood, Codette and Rosthern.
Aspen leaf beetle, Chrysomela crotchi Brown	T. aspen	Widely scattered low populations with moderate defoliation of reproduction at Moose Mountain, Wakaw Lake and in the MacDowall-Duck Lake area.
Cottonwood leaf beetle, Chrysomela scripta Fabr.	Poplar spp.	Moderate damage to ornamental poplars in Danielson Provincial Park and Oungre Memorial Regional Park. Common with light damage along the South Saskatchewan River and in the Saskatchewan River delta along Highway 123.
Needle miner, Coleotechnites sp.	Lp. pine	Endemic populations in Cypress Hills Provincial Park.
Spruce beetle, Dendroctonus obesus (Mann.)	W. spruce	Light attacks on living trees on the periphery of a logging area near Lavallee Lake.
Spruce needleworm, Dioryctria renicullela (Grt.)	W. spruce	Low populations in the West Block of Cypress Hills Provincial Park.
Zimmerman pine moth, Dioryctria zimmermani (Grt.)	J. pine	Larvae commonly found infesting rust galls.
Ash flower gall, Eriophyhes fraxiniflora (Felt)	G. ash	High populations on occasional trees at Gravelbourg, Weyburn and Saskatoon.
Woolly elm aphid, Eriosoma americanum (Riley)	A. elm	Light infestations common throughout the Province.
Needle miners, Eucordylea canusella Free. and Argyrotaenia tabulana Free.	J. pine	A moderate to severe infestation persisted on regeneration in the West Block of Nisbet Forest from Prince Albert to Holbein.
Birch sawfly leaf miner, Fenusa pusilla (Lep.)	W. birch	Severe infestation on a number of ornamentals in the Waskesiu trailer court.

American aspen beetle, Gonioctena americana (Schaeff.)	T. aspen	Pockets of severe defoliation of regeneration occurred throughout Porcupine Provincial Forest, while light defoliation was recorded in the Big River, Meadow Lake and Cypress Hills areas.
Lilac leaf miner, Gracillaria syringella (F.)	Lilac	Common on ornamentals throughout much of the Province.
Spotted tussock moth, Halisidota maculata (Harr.)	Miscellaneous deciduous hosts	Common with populations confined to individual shrubs and trees.
Spotless fall webworm, Hyphantria cunea (Drury)	Willow Chokecherry	Low populations in the Cumberland House, Crooked Lake and Saskatchewan Landing areas.
European fruit lecanium, Lecanium corelyi L.	A. elm	Low populations in Saskatoon, Regina and Weyburn.
Willow leaf miner, Lyonetia sp.	Willow	Common in northern Saskatchewan.
Nuttall blister beetle, Lytta nuttallii Say	Caragana	Scattered, light defoliation throughout Danielson Provincial Park.
Prairie tent caterpillar, Malacosoma californicum lutescens (N. & D.)	Rose Chokecherry	Localized high populations at Prince Albert, Punnichy, Yorkton, and Pelly.
Ash mirid, Neoborus amoenus (Reut.)	G. ash	Widely distributed with moderate damage recorded at Shaunavon and in Pike Lake, Echo Valley, Moose Jaw, Jean Louis Legare and Riverside parks.
Balsam fir sawfly, Neodiprion abietis complex	W. spruce	Low populations at Canwood, Big River, Amisk Lake, MacDowall and Woody Lake.
Spiny elm caterpillar, Nymphalis antiopa (L.)	Miscellaneous deciduous hosts	Widely scattered with defoliation generally confined to a few branches.
Spruce spider mite, Oligonychus ununguis (Jac.)	W. spruce	Generally very low populations on shelterbelts and ornamentals.

Bruce's spanworm, *Operophtera bruceata* (Hulst)	T. aspen	Light to moderate defoliation west of Kenosee Lake in Moose Mountain Provincial Park.
A fruit worm, *Orthosia hibisci* (Guen.)	G. ash	Caused light defoliation in a plantation at Rockglen Regional Park.
Pine needle scale, *Phenacaspis pinifoliae* (Fitch)	W. spruce J. pine L. pine	Common, but populations generally low.
Poplar serpentine miner, *Phyllocnistis populiella* Cham.	T. aspen	Pockets of severe leaf mining in the West Block of Cypress Hills Provincial Park.
Leaf-folding sawfly, *Phyllocolpa* nr. *agama* (Roh.)	B. poplar Poplar sp.	Moderate populations in Rowans Ravine, Danielson, Duck Mountain and Greenwater Lake provincial parks.
Green-headed spruce sawfly, *Pikonema dimmockii* (Cress.)	W. spruce	Generally very low populations throughout spruce forests.
White-pine weevil, *Pissodes strobi* (Peck)	Spruce	Low populations.
Lodgepole terminal weevil, *Pissodes terminalis* Hopping	J. pine	Light damage to regeneration from Big River to Meetoos.
Larch sawfly, *Pristiphora erichsonii* (Htg.)	Tamarack	Very low populations with the exception of a moderate infestation in a woodlot near Nipawin.
Gray willow-leaf beetle, *Pyrrhalta decora* (Say)	Willow	Population remain very low.
Poplar borer, *Saperda calcarata* Say	T. aspen	Low populations in most woodlots.
Aspen webworm, *Tetralopha aplastella* Hlst.	T. aspen	Common throughout the aspen grove section. Populations generally low, but on the increase.
Cottonwood leaf mining beetle, *Zeugophora scutellaris* Suffr.	Poplar sp.	Light damage on most hybrid poplars with moderate populations in Thompson Lake Regional Park and in the North Battleford highway campgrounds.

Grasshoppers	Caragana Poplar spp.	Moderate to severe damage to small clumps or isolated trees in Rowans Ravine and Danielson provincial parks and to occasional shelterbelts in the Bulyea district.
Leaf rollers	T. aspen	Moderate to heavy defoliation occurred in numerous patches throughout the following areas; Cutknife - Battleford; Vanscoy - Dundurn; Cudworth - St. Louis, and in Pike Lake and Douglas provincial parks. The larvae most frequently found in samples taken were Pseudexentera oregonana Wlshm. and Sciaphila duplex Wlshm.

DISEASE

Yellow witche's broom, Chrysomyxa arctostaphyli Diet.	W. spruce B. spruce	Widely scattered throughout the forested area. A small broom found on an ornamental spruce in Glen Burn Regional Park south of Maymont.
Spruce needle rust, Chrysomyxa ledicola Lagh.	W. spruce B. spruce	Occasional pockets of severe infection along Highway 2 from La Ronge to McLennan Lake. Very light infections scattered throughout the forested area.
Poplar ink spot, Ciborinia whetzellii (Seaver) Seaver	T. aspen	Generally light infection scattered throughout the Duck Mountain, the Pasquia Hills, and in the vicinity of Green Lake and Amisk Lake.
Shot-hole of cherry, Coccomyces hiemalis Higgins	Chokecherry	Widely distributed with incidence and intensity high in Bow Valley Regional Park near Oxbow; light elsewhere.
Leaf spot, Drepanopeziza populorum (Desm.) Hohn.	T. aspen	Pockets of light infection throughout Moose Mountain Provincial Park.
Spruce needle cast, Ishmiella crepidiformis (Darker) Darker	W. spruce	Collected at Amisk Lake.
Leaf spot, Linospora tetraspora Thompson	B. poplar	Pockets of severe infection along the Saskatchewan River from Squaw Rapids to Cumberland House.

Larch-willow rust, *Melampsora paradoxa* Diet. et Holw.	Willow	Widely distributed throughout the Province. Pockets of moderate infection at Greenwater, Nipawin, Carrot River and Lower Fishing Lake.
Leaf spot, *Mycosphaerella populicola* G.E. Thompson	B. poplar	Severe infection on regeneration in the Trans Canada Highway campsite at Moosomin.
Leaf spot, *Mycosphaerella populorum* G.E. Thompson	B. poplar	Severe infection to approximately 50 trees in Good Spirit Provincial Park.
Needle cast, *Sarcotrochila balsameae* (Rehm.) Karf	B. fir	Severe infection in pockets of regeneration in Prince Albert National Park.
Leaf spot, *Septoria caraganae*, (Jacz.) Died.	Caragana	Common throughout the agricultural area with severe infection observed north of Regina at Imperial and southeast of Regina at Cedoux.
Leaf spot, *Septoria musiva* Pk.	B. poplar	Common throughout the Province, with severe infections in small pockets in Greenwater Lake Provincial Park and along Cumberland House Road.
Aspen shoot blight, *Venturia macularis* (Fr.) E. Muell & V. Arx.	T. aspen	Pockets of moderate infection on regeneration in the Madge Lake and Peepaw Lake areas.

ANNUAL DISTRICT REPORTS, 1972 - ALBERTA, NORTHWEST TERRITORIES, AND YUKON TERRITORY

by

J. Petty, G.J. Smith, R.M. Caltrell, and J.P. Susut

INSECT CONDITIONS

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Populations of this leaf roller were found in many areas of eastern Alberta in association with other species of leaf tiers and leaf rollers. Defoliation was negligible to low, although its frequency of occurrence was indicative of an increase in populations. Light infestations were present in aspen stands along the south side of Cypress Hills Provincial Park and south of Camrose to Big Valley. In the Northwest Territories a moderate infestation was reported at mile 27 along Highway 3.

Spruce Budworm, Choristoneura fumiferana (Clem.) Choristoneura biennis Freeman

Spruce budworm infestations in Alberta and the Northwest Territories have not changed appreciably from that reported in 1971. An area of severe defoliation of white spruce, the only one recorded in 1972, was noted at Brule Point along the Slave River in the Northwest Territories. Light to moderate defoliation occurred near Little Buffalo Falls and Fort Smith. In Wood Buffalo National Park defoliation was light to moderate at Pine and Rainbow lakes and along the Peace River between Peace Point and Carlson's Landing.

In Northern Alberta an aerial survey conducted along the Chinchaga River revealed light defoliation along the River in Townships 108 to 110. Low

populations were present in spruce stands west of High Level and at Steen River. North of Fort McMurray, between mile 2 and mile 8 along the Fort McKay Road, budworm was responsible for defoliation ranging from 5% to 20% of the current years foliage. Moderate defoliation was noted in stands of mature spruce in Township 101 along the west side of the Athabasca River. Personnel of the Alberta Forest Service reported possible budworm damage in stands of balsam fir and spruce along the Clearwater River east of Waterways.

The infestation of spruce budworm that has persisted for a number of years in the Battle Creek area of the Cypress Hills Provincial Park was again present in 1972. Spruce coneworm, Dioryctria reniculella (Grt.) and black-headed budworm, Acleris variana (Fern.) were present in the same area and contributed more significantly to the light defoliation than did spruce budworm. Within the area some of the regeneration trees had moderate defoliation of the current year's foliage.

High populations of two-year cycle spruce budworm, C. biennis, caused moderate to severe defoliation of spruce and alpine fir between Ochre Creek and Vermilion Crossing in the Vermilion River valley, Kootenay National Park. The most severe defoliation occurred in the area surrounding the mouth of Numa Creek. Low populations were present in the Saskatchewan Crossing area in Banff National Park and east to the Corona Creek area in the Clearwater-Rocky Forest.

Lodgepole Needle Miner, Coleotechnites starki Freeman

Mature larvae caused patchy severe discoloration of lodgepole pine foliage along the slopes of the Bow River Valley in Banff National Park, particularly on the southwest slopes of Norquay and Stoney Squaw mountains, the lower east slopes of Boom and Storm mountains and the northeast slope of

Copper Mountain. Elsewhere along the Bow Valley between Banff and Lake Louise damage was light.

Spruce Beetle, Dendroctonus rufipennis Kirby

Spruce beetles were present in low numbers in most of the overmature spruce stands examined in southwestern Alberta. Two areas in which new attacks had occurred each year for the past several years were noted in Tornado Pass and Lyall Creek in the Crowsnest Forest. In Tornado Pass approximately 20 trees were either currently infested or had recently died and adults had emerged from them in 1972. Near the head of Lyall Creek, seven trees in similar condition were noted.

Elsewhere in the Crowsnest Forest, two living infested trees were noted in Cardiner Creek valley and several winter damaged spruce in the Byron Creek valley were infested. In the Bow Forest in Marmot Creek Watershed, several living infested trees were noted, also a number of recently cut piled logs contained new broods. In the Clearwater Forest, one lightening killed tree along Prairie Creek was heavily infested and broods were found in windthrown spruce in the Swan Lake area.

In Banff National Park, individual infested living spruce trees were found along Upper Redearth Creek and Cuthead Creek and in windthrown spruce along the Boom Creek and Spray River valleys. In Yoho National Park, one living infested tree was observed in the Upper Otterhead River valley. No recent beetle activity was observed in Waterton or Kootenay National Parks.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

An increase in populations of forest tent caterpillar was recorded around Edmonton and northwest to Whitecourt while a decrease was noted in west central Alberta south of the North Saskatchewan River.

Patchy moderate to severe defoliation covered an approximate 400 square mile area bounded by Sangudo, Lac Ste. Anne, Sandy Lake and the north side of Lac La Nonne. Light, with small pockets of moderate and severe defoliation extended west from this area to Greencourt in a band bounded on the north by Glenester and Conner Creek and on the south by Rochfort Bridge and Balm. In the area between Greencourt, Whitecourt, Hattonford, Chip Lake and Highway patchy moderate to severe defoliation occurred. Patches of moderate defoliation were observed along the southeast side of Lake Isle and the north side of Wabamun Lake.

Larval colonies were present in the west part of Edmonton along the North Saskatchewan River, north of Edmonton to the Morinville-Bon Accord area and east of Ellerslie and Leduc to Highway 21. Defoliation in these areas was very light but significant in that it was not recorded in the areas surrounding Edmonton in 1971. Very low populations were present in aspen stands east of Vermilion.

Severe defoliation was observed in small scattered patches in the Willesden Green Oilfield - Medicine Lake area and between Pigeon and Wizard lakes. Light defoliation, also patchy, surrounded the above areas. This year was the second in which population decreases were noted in the above areas.

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

Notable increases in population levels and extent of defoliation by yellow-headed spruce sawfly was recorded this past season. The most notable defoliation, ranging from low to severe, was evident in farm shelterbelts and urban plantings in the agricultural areas of central Alberta. East and northeast of Edmonton to Vermilion, Cold Lake and Lac La Biche many shelterbelts, particularly where the spruce were less than 20 feet in height, had moderate

to severe defoliation. North and West of Edmonton severe defoliation of ornamental and shelterbelt spruce was observed in a number of locations. Moderate infestations were recorded between Edmonton and Camrose and in the Valleyview, Wembly, Grimshaw, Dixonville, Manning and Fort Smith areas. Planted spruce in Miquelon and Garner Lake provincial parks and in some areas of Edmonton had moderate to severe defoliation while natural growing spruce trees supported low populations. In the southern part of the Province moderate to severe defoliation occurred along Highway 11 west of Red Deer, in the Sundre-Westward Ho area, near the junction of Highway I and the Standard Road and near Bassano.

Regeneration white spruce along the roadside west of Exshaw and black spruce southwest of Edmonton and near Atmore received moderate damage.

Larch Sawfly, Pristiphora erichsonii (Htg.)

The presence of larch sawfly was noted in many stands of tamarack throughout northern Alberta. Populations were generally very low and defoliation was confined to one or two branches of individual trees. The number of trees on which sawfly feeding occurred was slightly higher in the Lac La Biche, Grassland, Paxson, Ronch, Fawcett and Jarvie areas. The parasite Olesicampe benefactor Hinz, was released near the following localities; Cold Lake, Jarvie, Grovedale and north of Enterprise in an attempt to establish a population in Alberta.

Poplar Leaf Roller, Pseudexentera oregonana Wlshm.

A general increase in populations of this leaf roller throughout the Province was in evidence in 1972. In many areas it was present with other aspen defoliators and in several areas medium to high populations were present. In the aspen zone between Waterton Lakes National Park and Red Deer there were

numerous patches of severe damage, in which all the aspen leaves were rolled and partially consumed. Between Ramsey and Stettler and northwest through Red Deer and Lacombe to the North Saskatchewan River high populations were reported from the Peers-Edson area and between Fox Creek and Valleyview. Populations were low in Cypress Hills Provincial Park and throughout northern Alberta except at Mile 63, McKenzie Highway where they were high.

DISEASE CONDITIONS

Dwarf mistletoe, Arceuthobium americanum Nutt. ex. Engelm.

Areas of mistletoe infection have been well documented for most of the Province of Alberta over the past years. A joint project with the Alberta Forest Service, initiated in 1971, was continued in 1972. Aerial surveys were conducted to record the presence of dwarf mistletoe in stands of jack pine in two management units of the Athabasca Forest. Flight lines, established at 1.5 mile intervals, were flown across the area and the presence of mistletoe broomed trees was recorded on a four track event recorder. This information was then incorporated into the type maps being prepared by the Alberta Forest Service.

Localities in Alberta where heavy mistletoe brooming and branch and tree mortality was noted were: south of Elkwater in Cypress Hills Provincial Park, in Moose Lake Provincial Park, 9 miles northeast of Fawcett, and in Jasper National Park north of Athabasca Falls and around the Jasper airfield.

Moderately infected white spruce were found in Yoho National Park along the west side of the Kicking Horse River between the mouth of the Amiskwi River and the mouth of the Otterhead River. The lodgepole pine mixed with the spruce in this area were severely infected.

Shoestring root rot, Armillaria mellea (Vahl ex Fr.) Kummer

This root rot was active in coniferous stands of southwestern Alberta where the trees have been predisposed by winter damage in recent years. In Waterton Lakes National Park the outbreak on the lower southeast slopes of Crandell Mountain was still active resulting in numerous dead trees along the periphery of the stands.

In the campground area of Crimson Lake Provincial Park this root rot has killed approximately 50% of the mature aspen over the past several years. Many of the remaining living trees have been infected. Moderate infections were recorded in Saskatoon Island Provincial Park and in Garner Lake Provincial Park small patches of trees have been weakened and individual trees killed.

Spruce Needle Rust, Chrysomyxa ledicola Lagh.

Severe discoloration caused by infections of spruce needle rust was spectacular in many areas of western Alberta in 1972 and resulted in a number of enquiries. In the Grande Prairie Forest light infections, with a few moderate patches, were common along the Forestry Trunk, Nose Mountain and Two Lakes roads and in Saskatoon Island, Moonshine and Williamson provincial parks. Pockets of severe infection were found throughout the Slave Lake Forest and in the Whitecourt Forest along Highway 43 between Little Smokey and Cottonwood and along the south side of the Swan Hills. In the Edson Forest severe infections were recorded along Highway 16 between Entwistle and Obed, north of Edson along the Fox Creek Road to the Emerson Creek Road then west to the Athabasca River. Southwest of Edmonton an area west of Highway 2 to the foothills, bounded on the north by Highways 39 and 57 and on the south by Highway 11, had patchy moderate to severe infections.

In Jasper National Park severe discoloration was observed between Maligne Canyon and Medicine Lake. In Banff National Park moderate to severe infections occurred along the Spray River Valley south from Banff to Mile 15. Infections of low incidence were noted along the upper part of Redearth Creek, around Shadow Lake, Smith Lake, Marvel Lake and along Bryant Creek. A light infection was present in the Marble Canyon area, Kootenay National Park.

Light infections of needle rust were observed on Midnight Dome near Dawson City and along Tatchum Creek near Carmacks in the Yukon Territory.

The hyperparasite, Darluca filum (Biv.) Cast., was present on moderate infections of needle rust in the Lawrence Lake area west of Athabasca.

White Pine Blister Rust, Cronartium ribicola J.C. Fischer

On a survey by helicopter over the Crowsnest Forest, whitebark pine stands severely damaged by blister rust were closely observed and mapped in the following locations; Upper Grizzly Creek, the head of the south Castle River, Font Creek, Jutland Creek, the head of the West Castle River, Gardiner Creek, MacDonald Creek, North and South Lost creeks and North and South York creeks.

There were also numerous other locations in which severely damaged stands were observed during ground surveys in the Crowsnest Forest and in Waterton Lakes National Park.

This rust had not previously been found in Banff National Park, hence its occurrence on the alternate host Ribes sp. in Banff Townsite represents a spread into a previously uninfected area.

Foliar Diseases of Balsam Poplar, Linospora tetraspora G.E. Thompson, Mycosphaerella populicola G.E. Thompson

Discoloration of foliage in stands of balsam poplar resulting from infections of these foliar diseases was common in Central Alberta. The leaf blight, L. tetraspora, was found primarily on regeneration along roadsides and the lower branches of larger trees. Infections were generally light and small pockets of moderate to severe infection were common. The leaf spot, M. populicola, was common on the mature trees and was responsible for the majority of stand discoloration.

Climatic Damage

Winter damage to conifers, termed "red belt", was common along the foothills and mountain areas of southwestern Alberta in varying degrees of severity from light foliage discoloration to bud killing and tree mortality. The areas of occurrence are described by Provincial Forest or National Park as follows:

- Crowsnest Forest; along the slopes of the South and West Castle river valleys, Grizzly, Byron and Gold creeks, the Crowsnest River and its headwaters, Allison, McGillvary and Vicary creeks and along the west slopes of the Livingstone Range near the Gap.
- Bow River Forest; along the slopes of the headwaters valleys of the Highwood, Sheep and Elbow rivers, the west slopes of the Highwood, Opal, Fisher and Kananaskis ranges, the headwaters of the Ghost River and Waiparous Creek.
- Clearwater-Rocky Forest; the Corkscrew Mountain-Marble Mountain area, on Thunder Mountain, the Baseline Look-

out area, south of Ram Lookout and on the slopes of the headwaters valleys of the Blackstone River.

- Edson Forest; Cadomin and Luscar areas.
- Waterton Lakes National Park; on the slopes of Cameron and Pass creek valleys, tributaries of the Upper Belly River, north and east slopes of Sofa Mountain, west slope of Vimy Peak and the east slope of Lakeview Ridge.
- Banff National Park; on the southwest slopes of Rundle, Sulphur and Cone mountains, south end of the Goat Range, north end of the Palliser Range, on Eisenhower, Protection, Whitehorn, Redoubt and Richardson mountains, south slope of Copper Mountain, and along the southwest slopes of the Upper Mistaya River Valley.
- Kootenay National Park; southwest slopes of Mt. Haffner.
- Yoho National Park ; east slope of Vanguard Mountain.
- Jasper National Park; along the Snake Indian Valley and in patches along the Athabasca Valley from Jasper townsite to the east park gate.

Severe mortality of merchantable timber occurred in the Trapper and Eunice Creek drainages of the Cadomin-Luscar area,on Thunder Mountain and in Byron Creek Valley. In many of the other areas mortality was confined mainly to trees in marginal scattered stands near timberline.

Winter damage to aspen for two successive years had caused considerable tree mortality in southwestern Alberta, particularly in the

Pass Creek Valley in Waterton Lakes National Park, Beauvais Lake Provincial Park and along the slopes of the hills and banks of the Bow River on the west side of Calgary.

OTHER NOTEWORTHY INSECTS & DISEASES

Causal Agent	Host	Remarks
INSECT		
Black-headed budworm, *Acleris variana* (Fern.)	W. spruce	Low populations in Cypress Hills, along the foothills and northwestern Alberta, Wood Buffalo National Park and Northwest Territories.
Spruce gall aphids, *Adelges* spp.	W. spruce	Very low populations in 1972.
A flea beetle, *Altica populi* Brown	B. poplar	Low populations 6 miles south of Goodwin and low to medium in Wabamun Lake Provincial Park.
Fall cankerworm, *Alsophila pometaria* (Harr.)	M. maple	Present in shelterbelts between Medicine Hat and Lethbridge and north to Nobleford in low numbers.
A poplar leaf roller, *Anacampsis innocuella* Zell.	T. aspen	Common in Cypress Hills Provincial Park; some areas had medium populations.
Aphids	T. aspen B. poplar	Infestations of open feeding aphids declined in all areas of Yukon Territory except near Haines Junction and Beaver Creek where they were high.
Ugly-nest caterpillar, *Archips cerasivoranus* (Fitch)	Chokecherry	Colonies and tents numerous along the Pass Creek Road, Waterton Lakes National Park.
Birch skeletonizer, *Bucculatrix canadensisella* Cham.	W. birch	Light infestations common in birch stands in northeastern Alberta.
White-triangle moth, *Clepsis persicana* Fitch	Caragana M. maple	Common in shelterbelts between Medicine Hat and Lethbridge. Moderate defoliation of caragana in the Whitlaw area.

A leaf tier, Compsolechia niveopulvella Chamb.	T. aspen	Low populations common in northwestern Alberta and Northwest Territories; high 20 miles south of Valleyview.
Spruce coneworm, Dioryctria renicullella (Grt.)	W. spruce	In association with spruce budworm and black-headed budworm along the east side of Cypress Hills Provincial Park it caused light defoliation.
A leaf tier, Enargia decolor Wlk.	T. aspen	Moderate to high population in the High Level area.
Linden looper, Erannis tiliaria Harr.	M. maple	Medium populations in shelterbelts in the Whitlaw area.
European alder leaf miner, Fenusa dohrnii (Tischb.)	Alder	Moderate infestation 6 miles south of Goodwin.
Birch leaf miner, Fenusa pusilla (Lep.)	Paper birch Water birch Weeping birch	Larval mining severely discolored most of the planted and natural growing birch in north Calgary.
American aspen beetle, Gonioctina americana (Schaeff.)	T. aspen	Low populations were present in aspen stands throughout the agricultural area of Central Alberta and in Cypress Hills Provincial Park. Moderate defoliation occurred in Wabamun Lake Provincial Park and 7 miles northwest of Whitecourt.
Root collar weevil, Hylobius warreni Wood	Lp. pine	Caused low mortality to regeneration along Two Lakes, Nose Mountain and Forestry Trunk roads and in Entrance Provincial Park.
Fall webworm, Hyphantria cunea (Drury)	Chokecherry	Light infestation in Writing-on-Stone Provincial Park.
Aspen blotch miner, Lithocolletis tremuloidiella Braun	T. aspen	High populations in the Slave Lake, Swan Hills and Bellis-Ashmont areas. Low in many areas of central Alberta.
Prairie tent caterpillar, Malacosoma californicum lutescens (N. & D.)	Rose Gooseberry Siberian elm	Populations high in Little Fish Provincial Park, and common in area between Drumheller and Hanna.
Western tent caterpillar, Malacosoma californicum pluviale Dyar	Willow	High populations in a small area 10 miles south of Whitecourt.

Bruce spanworm, *Operophtera bruceata* (Hulst)	T. aspen	Common southeast of Edmonton, between Ferintosh and Bashaw, south of Stettler, and in the Grande Prairie-Peace River area. High population at mile 71, Mackenzie Highway.
Pine needle scale, *Phenacaspis pinifoliae* (Fitch)	Lp. pine W. spruce	Light infestation on lodgepole pine along Settlers Road, Kootenay National Park and on white spruce and lodgepole pine in Cypress Hills Provincial Park.
Poplar serpentine miner, *Phyllocnistis populiella* Cham.	T. aspen	In the Yukon and Northwest Territories and northern Alberta populations were low while in areas of Wood Buffalo National Park they were high and in Cypress Hills Provincial Park they were medium.
Grey willow leaf beetle, *Pyrrhalta decora* (Say)	T. aspen Willow	Caused light defoliation of regeneration and fringe trees in several provincial parks in northeastern Alberta.

DISEASE

Spruce needle rust, *Chrysomyxa woroninii* Tranz.	B. spruce	Light infection on spruce in Dawson City area, Yukon Territory.
Stalactiforme rust, *Cronartium coleosporioides* Arth.	Lp.pine	Active in dense stands of sapling pine in Marmot Creek Watershed. Caused notable mortality of sapling pine along the Sunchild Road south of Brewster Creek. A high incidence of infection in young trees along the ridges near Luscar.
Comandra blister rust, *Cronartium comandrae* Pk.	J. pine Lp pine Mugo pine	Light to moderate infections in the Northwest Territories at miles 170 and 196 Highway 1 and mile 110 Highway 3. Severe infections on regeneration lodgepole pine between Watson Lake and Whitehorse, Y.T. Collection on Mugo pine near Vermilion, Alta. constituted a first in the province.

Sweetfern blister rust, *Cronartium comptoniae* Arth.	J. pine	Light to moderate infections in the Rae and Yellowknife areas and at mile 196 Highway 1, N.W.T.
Pine needle cast, *Elytroderma deformans* (Weir) Darker	Lp. pine	Pockets of severe infection in Entrance Provincial Park. Present but low along east slopes of Rocky Mountains. Moderate to severe infection 5 miles southwest of Water Valley. Moderate along Forestry Trunk Road 52 miles south of Goodwin.
Globose gall rust, *Endocronartium harknessii* (J.P. Moore) Y. Hiratsuka	Lp. pine J. pine	Severe infection along Whirlpool River fire access road, Jasper National Park, and along Huckleberry Tower road north of Entrance. Moderate infection at mile 170 Highway 1, N.W.T.
White trunk rot, *Fomes igniarius* (L. ex Fr.) Kickx.	T. aspen	Severe infections on the Sunchild and O'Chiese Indian reserves and in Crimson Lake Provincial Park. Low incidence common in northern Alberta and notable in many provincial parks.
Red heart rot, *Fomes pini* (Thore) ex Pers. Lloyd	E. spruce	High incidence of infection in over mature spruce in Marmot Creek Watershed.
Hypoxylon canker, *Hypoxylon mammatum* (Wahl.) Miller	T. aspen	Present in most areas of northwest Alberta and agricultural areas of eastern Alberta. Mortality most notable in stands that have been predisposed by other factors.
Pine needle cast, *Lophodermella concolor* (Dearn.) Darker	Lp. pine	Moderate foliage discoloration along the north Ram River. Light along the Bow River Valley in Banff National Park.
Needle rust on fir, *Pucciniastrum epilobii* Otth.	A. fir	Severe infections at Camp 22 south of Hinton and mile 40 along the Emerson Creek Road east of Hinton. Light patches in Entrance Provincial Park. Light at Quiet Lake in the Yukon Territory.

Douglas fir needle cast, Rhabdocline pseudotsugae Syd.	D. fir	Severe on young trees in Redstreak Campground area in Kootenay National Park. Light in Tunnel Mountain area, Banff National Park.
Aspen shoot blight, Venturia macularis (Fr.) E. Muell & V. Arx.	T. aspen	Common on regeneration aspen in Alberta and Yukon Territory, but generally light.

Non Infectious Disease

Hail	Lp. pine	A reported possible effluent damage to pine in the Whitecourt area turned out to be the result of a severe hail storm in August 1971. Severe branch and some tree mortality was observed in the area.
Petroleum	All vegetation	As a result of an operational accident on a pipeline across Prairie Creek 3 miles west of Strachan, all vegetation in an approximate 20 acre area was killed and was surrounded by a similar sized area of trees with partially affected foliage.
Rabbits	Lp. pine T. aspen	Patches of severe injury to lodgepole pine between Watson Lake and Whitehorse, Yukon Territory. Moderate damage in Lac Cardinal and Hommy provincial parks.

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