SUMMARY OF FOREST INSECT AND DISEASE CONDITIONS IN ALBERTA, 1976

BY

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ABSTRACT

This report summarizes forest insect and disease conditions in Alberta in 1976 as determined from extension calls received and specific surveys conducted on request. Estimates of defoliation by the forest tent caterpillar (*Malacosoma disstria* Hbn.) in 1977 are given.

RESUME

Ce rapport résume la situation des fôrets de l'Alberta en 1976, en ce qui concerne les maladies et l'infestation par les insectes; il s'appuie sur des renseignments donnés au téléphone par des gens de l'extérieur et sur certaines enquêtes spéciales qui avaient été demandées. On y fait des prévisions sur l'importance de la défeuillaison qui, en 1977, sera causée par la livrée des fôrets (*Malacosoma disstria* Hbn.).

CONTENTS

INTRODUCTION

The general status of tree pest problems within Alberta remained much the same as reported in 1975. The large aspen tortrix continued to cause considerable defoliation throughout some areas of the northwestern part of the province. Spruce budworm populations and damage increased along the North Saskatchewan River valley in Edmonton and remained fairly static in the previously reported outbreak area near Fort McMurray. Forest tent caterpillar, birch leaf miner, and spruce gall aphid damage increased and caused some concern in several urban and some forested areas. The yellow-headed spruce sawfly and spruce spider mite continued to be perennial problems, but very little change was noted in damage levels.

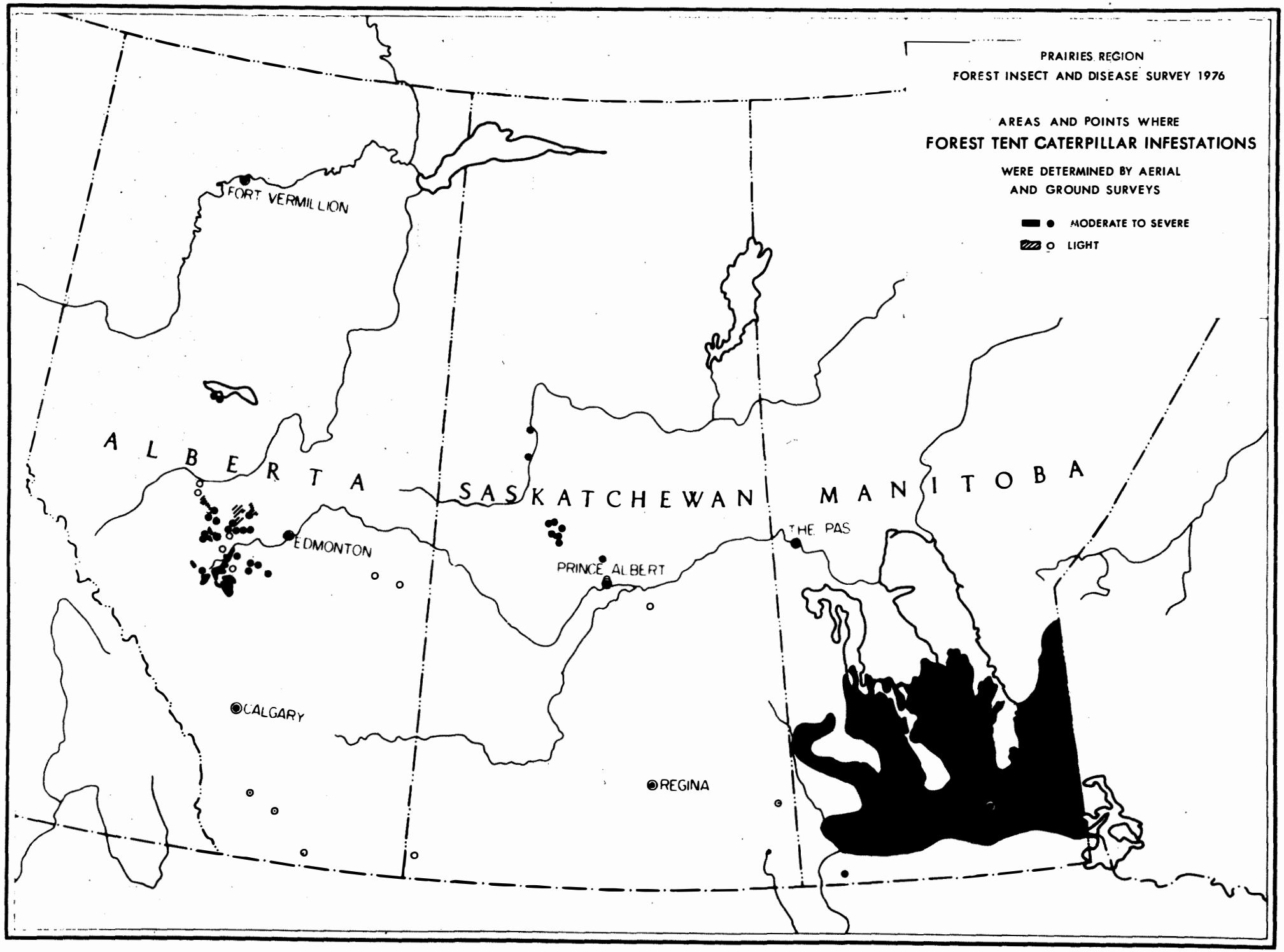
With the exception of a somewhat significant increase in the incidence of fire blight infections on apple and other hosts and of frost injury to hybrid poplar, disease conditions in ornamental plantings, shelterbelts, and forested areas remained relatively unchanged. Light infections of the various perennial leaf spots, conifer rusts, needle casts, and winter drying and dieback continued to be reported in many areas.

Reports of injury to ornamental plantings resulting from the misuse of herbicides and soil sterilants increased during 1976.

INSECT CONDITIONS

Forst Tent Caterpillar, *Malacosoma disstria* Hbn.

Population levels and damage caused by the forest tent caterpillar declined in some areas and slightly increased in others (see map).


PRAIRIES REGION
FOREST INSECT AND DISEASE SURVEY 1976
AREAS AND POINTS WHERE
FOREST TENT CATERPILLAR INFESTATIONS
WERE DETERMINED BY AERIAL
AND GROUND SURVEYS
MODERATE TO SEVERE
LIGHT
FORT VERMILLION
ALBERTA
SASKATCHEWAN
MANITOBA
EDMONTON
PRINCE ALBERT
THE PAS
CALGARY
REGINA

Light defoliation with scattered pockets of moderate to severe defoliation was evident in an area bounded by Wabamun Lake, Lac Ste. Anne, Shining Bank, and Chip Lake. South of Wabamun and Chip lakes, population and defoliation levels increased over those reported in 1975. In this area, severe defoliation was noted around Sinkhole Lake, along the east side of the North Saskatchwan River from Drayton Valley south for approximately 50 km, at several locations within the O'Chiese Indian Reserve, in a large area surrounding Medicine Lake, and at scattered intervals on the east and west sides of Pigeon Lake.

Patchy, light to moderate defoliation was noted along the south side of Lesser Slave Lake between Faust and Driftpile.

In the southern part of the province light defoliation was reported in the Lethbridge, Claresholm, and Calgary areas.

A sequential sampling program for predicting 1977 defoliation by the forest tent caterpillar was conducted in Wabamun Lake, Pembina River, and Pigeon Lake provincial parks (Table 1).

Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.)

Large aspen tortrix infestations remained approximately the same in size and intensity as reported in 1975. Extensive moderate and severe defoliation were reported in the following general areas: between Grimshaw and Dunvegan, between Three Creeks and Nampa, north and south of Blueberry Mountain, and at several scattered locations around Hines Creek and Guy.

Light to moderate defoliation was reported in aspen stands along the North Saskatchewan River valley in Edmonton and along the Bow River valley in southwest Calgary.

TABLE I

Results of Egg Band Sampling and Predicted Defoliation by the Forest Tent Caterpillar in 3 Provincial Parks: Wabamun Lake, Pigeon Lake, and Pembina River.

Location	No. of Egg Bands Per Sample Area	Predicted Defoliation 1977
Wabamun Lake:		
Site 1.	16	Moderate-Severe
2.	9	Moderate-Severe
3.	4	Light
4.	8	Moderate-Severe
5.	10	Moderate-Severe
6.	21	Severe
7.	5	Light-Moderate
8.	8	Moderate
9.	2	Light
Pembina River:		
Site 1.	8	Light-Moderate
2.	2	Light
3.	7	Light-Moderate
4.	19	Severe
5.	22	Severe
6.	33	Severe
7.	19	Severe
Pigeon Lake:		
Site 1.	28	Severe
2.	12	Moderate
3.	6	Light-Moderate
4.	13	Moderate-Severe
5.	18	Severe
6.	16	Severe

The method used for predicting defoliation by egg band counts was based on studies by Hodson (Minnesota) and field sampling by the Forest Biology Laboratory, Winnipeg, Manitoba (1951-52).

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
INSECT		
Poplar bud-gall mite, *Aceria parapopuli* (Keifer)	Poplar	Common throughout the south part of the province.
Spruce gall aphids, *Adelges* spp.	W. spruce	Numerous reports received from all areas of the province. Medium to high populations noted in the Edmonton area. Low to medium in the remainder.
Aphids	Broadleaf spp.	Open-feeding aphids were common in most areas.
Ugly-nest caterpillar, *Archips cerasivoranus* (Fitch)	Chokecherry Pin cherry	Common along the river valley in Edmonton.
Pear slug, *Caliroa cerasi* (L.)	Cotoneaster Hawthorne Malus spp.	Light to moderate damage in urban areas.
Spruce budworm, *Choristoneura fumiferana* (Clem.)	W. spruce Col. spruce	The infestation in the Fort McMurray area remained fairly static. A significant increase of populations and damage in the Edmonton area. Some damage reported in Lethbridge and Milk River areas.
Leaf mite, *Eriophyidae*	Poplar spp.	Common in most areas.
Wooly elm aphid, *Eriosoma americanum* (Riley)	A. elm	Considerable injury to ornamentals in Edmonton, Calgary, and Lethbridge.
Pine needle miner, *Eucordylea starki* Freeman	Lp. pine	Low to medium populations on Mt. Norquay, Banff National Park.

Causal Agent	Host	Remarks
Birch leaf miner, *Fenusa pusilla* (Lep.)	W. birch E. birch Cutleaf birch	Severe damage to all species in the north half of the province. Light to moderate injury throughout the remainder.
Lilac leaf miner, *Gracillaria syringella* (F.)	Lilac	Damage noted in many areas of Alberta.
European fruit lecanuim *Lecanium corni* (Bouché)	A. elm Dogwood Hazelnut Saskatoon Chokecherry Pin cherry	Low, medium, and high populations common in many areas in Edmonton.
Oystershell scale, *Lepidosaphes ulmi* (L.)	Cotoneaster	Some mortality on hedges in Lethbridge.
Spruce spider mite, *Oligonychus ununguis* (Jac.)	W. spruce Col. spruce	Varying degrees of infestation in all trees examined.
Rusty tussock moth, *Orgyia antiqua* (Linn.)	Misc. hosts	Noticeable decrease in the incidence of this pest in 1976.
Pitch nodule makers, *Petrova* spp.	Pine	Light damage reported in Edmonton, Red Deer, Calgary, and in many regeneration forested areas.
Pine needle scale, *Phenacaspis pinifoliae* (Fitch)	Pine spp.	Low to medium populations reported in several areas of southern Alberta.
Yellow-headed spruce sawfly, *Pikonema alaskensis* (Roh.)	W. spruce Col. spruce	Low to medium populations reported from many areas.
Adelges on pine, *Pineus pinifoliae* (Fitch.)	Pine	Some damage reported in Edmonton, Calgary, and High River areas.

Causal Agent	Host	Remarks
Larch sawfly, *Pristiphora erichsonii* (Htg.)	S. larch Tamarack	Noticeable damage reported in Edmonton and Red Deer areas on Siberian larch and in several forested areas on tamarack.
Poplar leaf roller, *Pseuderentera oregonana* Wlshm.	T. aspen	Low populations noted throughout the province.
Poplar borer, *Saperda calcarata* Say	T. aspen	Light-medium damage reported in Edmonton, Whitecourt, Mayerthorpe, Bonnyville, and Rimbey areas.
DISEASE		
Dwarf mistletoe, *Arceuthobium americanum* Nutt. ex Engelm.	Lp. pine	Causing some problems in some areas in Banff National Park, Cypress Hills Provincial Park, the new Provincial Nursery near Smoky Lake and north of Hinton.
Spruce needle rust, *Chrsomyxa* spp.	Spruce D. fir	Several reports from the forested areas of the province.
Cytospora canker, *Cytospora chrysosperma* (Pers.) ex. Fr.	Broadleaf spp.	Common secondary problem on frost- or winter-injured trees.
Pine needle cast, *Elytroderma deformans* (Weir) Darker	Lp. pine	Fairly high incidence reported in the Kananaskis area.
Western gall rust, *Endocronartium harknessii* (J.P. Moore) Y. Hiratsuka	Lp. pine J. pine	Several infections reported affecting pine in Edmonton, Red Deer, Calgary, near Smoky Lake, the Kananaskis Station area, and in Cypress Hills Provincial Park.

Causal Agent	Host	Remarks
Fire blight, *Erwinia amylovora* (Burrill) Winslow	Malus spp.	Numerous reports received from all areas of the province.
Hypoxylon canker of aspen, *Hypoxylon mammatum* (Wahl.) Miller	T. aspen	Common in mature stands throughout the province.
Silver leaf, *Stereum purpureum* (Pers.) Fr.	M. Ash Cotoneaster Malus spp.	Several infections reported in Edmonton and surrounding area.
NONINFECTIOUS DISEASES		
Climatic injury (Red belt)	Lp. pine	Some mortality reported to be continuing in the Cadomin area where severe red-belt damage occurred in previous years. Contributing factors to this condition are bark beetles, *D. murrayanae*, and *A. mellea*, a disease.
Frost	Poplar spp. Spruce Pine Malus spp.	Considerable injury reported from Red Deer south to Lethbridge on poplars. Several reports on conifers in Edmonton, Red Deer, Calgary, and adjacent areas.
Winter drying	Juniper Cedar Pine Spruce	Numerous reports in Edmonton, Red Deer, Calgary, and other urban areas.
Chemical injury	All species	Increasing frequency of reports of this type of injury to all tree species. Damage results from improper use of insecticide sprays, soil sterilants, and herbicide sprays.