

FOREST INSECT AND DISEASE CONDITIONS IN ALBERTA PROVINCIAL PARKS, 1971

by

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

**NORTHERN FOREST RESEARCH CENTRE
EDMONTON, ALBERTA
INFORMATION REPORT NOR-X-26**

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J. Petty^{*}, G.J. Smith^{**}, J. Susut^{**}, and R. Caltrell^{**}

INTRODUCTION

Inspections conducted in Provincial Parks for the presence of insects and diseases in the forest cover were somewhat curtailed in 1971 as compared to previous years. Instead, emphasis was placed on the condition of trees in camping areas within selected parks; results of these investigations will be forthcoming in a separate report.

A number of insect species and disease organisms were common to several parks although the degree of injury varied. Those which were thought to be more important from the standpoint of aesthetics, permanent injury to the tree or hazards to persons using the Park are noted below. All organisms which were reported in 1971 are listed with the host and remarks as to their current status, in tabular form for each park visited.

^{*} Supervisor, Insect and Disease Survey; and

^{**} Ranger, Insect and Disease Survey.

Defoliating organisms of deciduous trees are most important from aesthetic and nuisance standpoint. Of several insect species present on trembling aspen in a number of parks none caused widespread damage this past season. The forest tent caterpillar (Malacosoma disstria) has been prominent although its status in 1971 was lower than in previous years. Low populations were present in Pembina River, Thunder Lake and Wabamun. The large aspen tortrix (Choristoneura conflictana) caused moderate defoliation in Red Lodge. Several northern Parks, (Hommy, Lac Cardinal, Moonshine, Saskatoon Island and Winagami) had a complex of defoliators and leaf tiers that caused very light to moderate defoliation. There were: American aspen beetle (Gonioctena americana), Bruce spanworm (Operophtera bruceata) and a leaf tier (Pseudexentera sp.). Foliar diseases of balsam poplar (Linospora tetraspora, Septoria musiva) were noted in several parks but were moderate to severe in only a few small, isolated areas. Poplar shoot blight (Venturia macularis) was common on regeneration trembling aspen in many of the parks.

The yellow-headed spruce sawfly (Pikonema alaskensis) is a potentially serious defoliator of young, open grown spruce. Medium to high populations were reported from Aspen Beach, Long Lake, Williamson and Winagami and low populations at Garner Lake, Lac Cardinal and Pembina River.

Organisms that become established in or on a tree and cause mortality or result in the tree becoming a hazard to park users are important. Hypoxylon caker (Hypoxylon mammatum) is one that has become established in aspen stands in many parks of Central Alberta and in the Cypress Hills and some mortality of infected trees has been recorded. The number of infected trees has been low in most parks except Rochon Sands where the incidence of

infection was moderate. Trunk rot results in the loss of strength of a tree and subjects it to breakage. Most prevalent is white trunk rot (Fomes igniarius) on trembling aspen and balsam poplar. It was recorded in several of the parks in which these tree species predominate.

Many types of aphids have been reported from the parks inspected. The spruce gall aphid (Adelges sp.) was the most widely spread. Galls formed on the new shoots of spruce as a result of feeding by these aphids give the tree an unsightly appearance. High populations on small trees cause deformities and occasionally mortality. Free feeding aphids (those that feed openly on the stems or leaves of a tree) at times become so numerous that they cause an annoyance to patrons of a park. High populations can cause premature leaf drop. Aphids of this type were present on various hosts in nearly all parks.

ASPEN BEACH PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Leaf Beetles (<u>Chrysomella</u> sp.)	B. poplar	High populations
Aphids	B. poplar	High populations
Yellow-headed spruce sawfly (<u>Pikonema</u> <u>alaskensis</u>)	Spruce	High populations on planted trees
Disease		
Heart rot	B. poplar	Infections in most large trees

BOW VALLEY PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Gall aphids (<u>Adelges</u> sp.)	W. spruce	Moderate populations
Dusky birch sawfly (<u>Croesus latitarsus</u>)	Birch	Low populations
Spruce beetle (<u>Dendroctonus rufipennis</u>)	W. spruce	Adults present in old fallen spruce
Disease		
Spruce cone rust (<u>Chrysomyxa pirolata</u>)	W. spruce	Numerous cones rusted
Cytospora canker (<u>Cytospora chrysosperma</u>)	T. aspen	Noted on a few saplings
Hypoxylon canker (<u>Hypoxylon mammatum</u>)	T. aspen	A few cankers noted

CYPRESS HILLS PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Spruce gall aphid (<u>Adelges</u> sp.)	Spruce	Numerous galls
Disease		
Hypoxylon canker (<u>Hypoxylon mammatum</u>)	T. aspen	A few cankers observed on young trees

DINOSAUR PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect Aphids	Cottonwood	
Disease Rust	Saskatoon Hawthorn	Light infections on foliage

ENTRANCE PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Black headed budworm (<u>Accleris variana</u>)	W. spruce	Low population common
Spruce gall aphid (<u>Adelges</u> sp)	Spruce	Light damage common
Root collar weevil (<u>Hylobius</u> sp)	Lp. pine	Damage noted on a few regeneration pine
Pitch nodule maker (<u>Petrova albicapitana</u>)	Lp. pine	Light damage on regeneration pine
Poplar leaf miner (<u>Phyllocnistis populiella</u>)	T. aspen	Light infestation
Alpine twig beetle (<u>Pityophtorus</u> sp)	Lp. pine	Light damage on a few open grown trees
Disease		
Shoestring root rot (<u>Armillaria mellea</u>)	Lp. pine	Low incidence of mortality of regeneration trees noted throughout the Park
Spruce needle rust	W. spruce	
Spruce needle rust (<u>Chrysomyxa</u> sp)	W. spruce	Light infection common in the Park
Comandrae blister rust (<u>Cronartium comandrae</u>)	Lp. pine	Some mortality to pine regeneration
Pine needle cast (<u>Elytroderma deformans</u>)	Lp. pine	Low infection general
Western gall rust (<u>Endocronartium harknessii</u>)	Lp. pine	Infections scattered; very little damage
Balsam poplar leaf blight (<u>Linospera tetraspora</u>)	B. poplar	Scattered pockets of severe infection caused some premature leaf drop
Aspen shoot blight (<u>Venturia macularis</u>)	T. aspen	Common throughout the Park

GARNER LAKE PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Low populations general
Stripped alder sawfly (<u>Hemicroa croechi</u>)	Alder	Light defoliation of alder along lakeshore
Yellow-headed spruce sawfly (<u>Pikonema alaskensis</u>)	W. spruce C. spruce	Light defoliation, mainly near picnic area and beach area
Poplar borer (<u>Saperda calcarata</u>)	T. aspen	Light damage
Disease		
Armillaria root rot (<u>Armillaria mellea</u>)	W. spruce	Some mortality of regen- eration in camping area
White trunk rot (<u>Fomes igniarius</u>)	T. aspen	Common in larger trees throughout the Park
Hypoxylon canker (<u>Hypoxylon mammatum</u>)	T. aspen	Cankers common within the stands
Septoria leaf spot (<u>Septoria musiva</u>)	B. poplar	Low incidence of infection
Aspen shoot blight (<u>Venturia macularis</u>)	T. aspen	Light damage to regenera- tion

HOMMY PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
American aspen beetle (<u>Gonioctena americanum</u>)	T. aspen	Medium populations were present throughout the Park
Leaf rollers	T. aspen	Light damage evident

KINBROOK ISLAND PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Aphids	M. maple Poplars G. Ash	Open feeding aphids common on all species of broadleaf trees
Spruce spider mite (<u>Oligonychus ununguis</u>)	W. spruce	Light infestation

LAC CARDINAL PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Black headed budworm (<u>Accleris variana</u>)	W. spruce	Low populations; defoliation negligible
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Light infestation
Spiny elm caterpillar (<u>Nymphalis antiopa</u>)	Willow	Low population
Yellow-headed spruce sawfly (<u>Pikonema alaskensis</u>)	W. spruce	Low population
Leaf tiers (prob. <u>Pseudexentera</u> sp)	T. aspen	Low population
Poplar borer (<u>Saperda calcarata</u>)	T. aspen B. poplar	Present in a few trees

LESSER SLAVE LAKE PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Spruce gall aphid (<u>Adelges</u> sp; <u>Pineus</u> sp)	W. spruce	<u>Pineus</u> sp caused moderate damage to a few trees. <u>Adelges</u> sp caused light damage.
Cherry leaf beetle (<u>Pyrrahalta cavicollis</u>)	Pincherry	Light defoliation
Disease		
Dwarf mistletoe (<u>Arceuthobium americanum</u>)	J. pine	Moderate damage to in- fected trees at Marten River Campsite
Armilaria root rot	W. spruce	Few trees infected
Armilaria root rot (<u>Armilaria mellea</u>)	W. spruce J. pine	
Heart rot	J. pine	Heart rot noted in blow- down outside Marten River campground
Balsam poplar leaf blight (<u>Linospora tetraspora</u>)	B. poplar	Light infection general; few pockets of severe infection
Pow		
Powdery mildew (<u>Ulcinula salicis</u>)	T. aspen	Medium infection near Marten River Campground
Aspen shoot blight (<u>Venturia macularis</u>)	T. aspen	Low incidence of infection common throughout Park

LITTLE BOW PARK

<u>Organism</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Aphids	Ash Poplar Willow	High populations of open feeding aphids Some gallmaking species also present
Spiny elm caterpillar (<u>Nymphalis antiopa</u>)	Poplar	Moderate defoliation of single tree
Disease		
Cytospora canker (<u>Cytospora chrysosperma</u>)	Poplar	Cankers present on main stems of pruned or injured trees

LONG LAKE PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Low populations present
Yellow-headed spruce sawfly (<u>Pikonema alaskensis</u>)	W. spruce	Moderate defoliation on open trees along beach area
Disease		
Aspen leaf spot (<u>Ciborinia whetzellii</u>)	T. aspen	Low incidence of infection present throughout Park
Hypoxylon canker (<u>Hypoxylon mammatum</u>)	T. aspen	Cankers present through- out the Park
Aspen shoot blight (<u>Venturia macularis</u>)	T. aspen	Generally present on regeneration in all areas

MIQUELON LAKE PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Aphids	B. poplar T. aspen	Light infestation of open feeding aphids present
Spiny elm caterpillar (<u>Nymphalis antiopa</u>)	Willow	Light defoliation on a few individual bushes
Poplar gall aphid (<u>Pemphigus</u> sp)	B. poplar	Present in low numbers

MIQUELON LAKE PARK (cont'd)

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Disease		
Apiosporina witches broom (<u>Apiosporina collinsii</u>)	Saskatoon	Patches of high incidence of infection
White trunk rot (<u>Fomes igniarius</u>)	T. aspen	Common in stands; conks noticeable
Hypoxylon canker (<u>Hypoxylon mammatum</u>)	T. aspen	Cankers common on aspen throughout the Park
Septoria leaf spot (<u>Septoria musiva</u>)	B. poplar	Low incidence of infection
Aspen shoot blight (<u>Venturia macularis</u>)	T. aspen	Light damage to regeneration within the Park

MOONSHINE PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Black-headed budworm (<u>Acleris variana</u>)	W. spruce	Low population
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Moderate infestations
American aspen beetle (<u>Gonioctena americana</u>)	T. aspen	Light defoliation
Bruce spanworm (<u>Operophtera bruceata</u>)	T. aspen	Combined with leaf rollers and leaf tiers caused light defoliation
Poplar serpentine miner (<u>Phyllocnistis populiella</u>)	T. aspen	Low population
Disease		
Apiosporina witches broom (<u>Apiosporina collinsii</u>)	Saskatoon	Low incidence of brooming evident
Yellow witches broom of spruce (<u>Chrysomyxa arctostaphyli</u>)	W. spruce	Low incidence of infection

PEMBINA RIVER PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Light infestation
Aphids	T. aspen B. poplar W. spruce	Low populations of open feeding aphids on these tree species
Forest tent caterpillar (<u>Malacosoma disstria</u>)	T. aspen	Present in low numbers; very little defoliation

PEMBINA RIVER PARK (cont'd)

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Yellow-headed spruce sawfly (<u>Pikonema alaskensis</u>)	W. spruce	Low population present
Disease		
White trunk rot (<u>Fomes igniarius</u>)	T. aspen	High incidence of infected trees Numerous conks in evidence
Balsam poplar leaf blight (<u>Linospora tetraspora</u>)	B. poplar	Small area of severe infection
Septoria leaf spot (<u>Septoria musiva</u>)	B. poplar	Light infection on regeneration
Aspen shoot blight (<u>Venturia macularis</u>)	T. aspen	Light discoloration of aspen foliage in early spring

RED LODGE PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Large aspen tortrix (<u>Choristoneura conflictana</u>)	T. aspen	Moderate to severe defoliation in and around the Park

ROCHON SANDS PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Aphids	B. poplar T. aspen Willow	Populations of open feeding and gall aphids high; damage light
Poplar borer (<u>Saperda calcarata</u>)	T. aspen	Some severely infested trees
Disease		
Cytospora canker (<u>Cytospora chrysosperma</u>)	B. poplar	Low incidence of infection
White trunk rot (<u>Fomes igniarius</u>)	T. aspen	Many older trees infected; causing weakness and breakage
Hypoxylon canker (<u>Hypoxylon mammatum</u>)	T. aspen	High incidence of infection; some tree mortality noted

ROCHON SANDS PARK (cont'd)

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Black canker of aspen	T. aspen	Cankers numerous on trees of all ages. Cause as yet unknown.

SASKATOON ISLAND PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Light infestation
Bruce spanworm (<u>Operophtera bruceata</u>)	T. aspen	Combined with leaf rollers; caused light defoliation
Disease		
Apiosporina witches broom (<u>Apiosporina collinsii</u>)	Saskatoon	Brooms evident generally throughout the Park

THE VERMILION PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Larch Sawfly (<u>Pristiphora ericksonii</u>)	E. larch	Low populations caused light defoliation on individual branches

THUNDER LAKE PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Black-headed budworm (<u>Acleris variana</u>)	W. spruce	Low population on planted spruce
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Light infestation in the Park
Aphids	T. aspen B. poplar W. spruce	Low populations general
Forest tent caterpillar (<u>Malacosoma disstria</u>)	T. aspen	Low populations; defoliation negligible
Engleman spruce weevil (<u>Pissodes englemanni</u>)	W. spruce	Terminal shoot on few trees damaged
Poplar borer (<u>Saperda calcarata</u>)	T. aspen	Borers present in a few trees

THUNDER LAKE PARK (cont'd)

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Disease		
Balsam poplar leaf blight (<u>Linospora tetraspora</u>)	B. poplar	Caused light foliage discoloration in early fall
Hypoxylon canker (<u>Hypoxylon mammatum</u>)	T. aspen	Light damage at present
Aspen shoot blight (<u>Venturia macularis</u>)	T. aspen	Light tip damage to regeneration in fringe areas

WABAMUN PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Black-headed budworm (<u>Acleris variana</u>)	W. spruce	Very low population
Spruce gall aphid (<u>Adelges lariciatis</u>) (<u>Pineus pinifoliae</u>)	W. spruce	Two species present very light damage by either one or collectively
Aphids	T. aspen B. poplar	Low population general
Forest tent caterpillar (<u>Malacosoma disstria</u>)	T. aspen	Population low; much reduced from 1970
Spruce spider mite (<u>Oligonychus ununguis</u>)	W. spruce	Light infestation present
Poplar borer (<u>Saperda calcarata</u>)	T. aspen	A few infested trees in the Park
Disease		
Spruce needle rust (<u>Chrysomyxa</u> sp)	W. spruce	Light infection on planted trees, moderate to severe on native trees at the west end of the Park
White trunk rot (<u>Fomes igniarius</u>)	T. aspen	Moderate number of trees infected. Some conks noted
Hypoxylon canker	T. aspen	
Hypoxylon canker (<u>Hypoxylon mammatum</u>)	T. aspen	Low number of infected trees present
Septoria leaf spot (<u>Septoria musiva</u>)	B. poplar	Low incidence of infection in tent area
Shoot blight of balsam poplar (<u>Venturia populina</u>)	B. poplar	Low incidence on regeneration
Aspen shoot blight (<u>Venturia macularis</u>)	T. aspen	Low incidence on regeneration

WILLIAMSON PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Black-headed budworm (<u>Acleris variana</u>)	W. spruce	Low populations
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Galls present in low numbers
Poplar gall aphid (<u>Pemphigus</u> sp)	B. poplar	Light infestation
Poplar serpentine miner (<u>Phyllocnistis populiella</u>)	T. aspen	Light infestation
Yellow-headed spruce sawfly (<u>Pikonema alaskensis</u>)	W. spruce	Moderate defoliation on some trees
Disease		
Apiosporina witches broom (<u>Apiosporina collinsii</u>)	Saskatoon	Low incidence of infection
White trunk rot (<u>Fomes igniarius</u>)	T. aspen	Present throughout the Park; low incidence

WINAGAMI PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Spruce gall aphid (<u>Adelges</u> sp)	W. spruce	Present in low number
Aphids	A. elm B. poplar	Moderate infestation of open feeding aphids on elm. Gall forming aphids on B. poplar were light
Bruce spanworm (<u>Operophtera bruceata</u>)	T. aspen	Combined with leaf rollers to cause light defoliation
Yellow-headed spruce sawfly (<u>Pikonema alaskensis</u>)	W. spruce	High population
Poplar borer (<u>Saperda calcarata</u>)	T. aspen	Light infestation

WRITING ON STONE PARK

<u>Organisms</u>	<u>Host</u>	<u>Remarks</u>
Insect		
Aphids	Cottonwood Willow W. birch	Light infestations of gall and open feeding aphids on all tree species

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