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# FOREST INSECTS AND DISEASES IN NINE OF THE WESTERN CANADIAN NATIONAL PARKS, 1972

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

NORTHERN FOREST RESEARCH CENTRE  
EDMONTON, ALBERTA  
INFORMATION REPORT NOR-X-62

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CANADIAN FORESTRY SERVICE  
DEPARTMENT OF THE ENVIRONMENT  
5320 - 122 STREET  
EDMONTON, ALBERTA, CANADA  
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V. B. Patterson, E. J. Gautreau, G. J. Smith,  
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INTRODUCTION

by

V. B. Patterson

Populations of the forest tent caterpillar were higher in Riding Mountain and Prince Albert National parks than in 1971. The large aspen tortrix was responsible for moderate to severe defoliation in some areas of both parks. Yellow-headed spruce sawfly caused severe injury to young spruce in Riding Mountain and Elk Island National parks. The one-year-cycle spruce budworm was again recorded in Wood Buffalo and Riding Mountain National parks and the two-year-cycle budworm in Banff and Kootenay National parks.

Climatic damage, commonly known as "red belt" was recorded in Waterton, Kootenay, Yoho, and Jasper National parks.

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RIDING MOUNTAIN NATIONAL PARK

by V. B. Patterson

An aerial survey was conducted over Riding Mountain National Park on June 23 and 24, 1972. Defoliation of broadleaf trees was recorded along the east slopes, in the west end of the Park between Russel and Sugarloaf warden stations and around Wasagaming townsite. Ground checks indicated that this defoliation resulted from the feeding of either the large aspen tortrix or the forest tent caterpillar and in some areas a combination of the two species.

Forest Tent Caterpillar, Malacosoma disstria (Hbn.)

This species was responsible for moderate to severe defoliation of aspen poplar, balsam poplar and willow in Wasagaming townsite, particularly in Wasagaming Campground and in the area around the south entry gate. Moderate to severe defoliation was also recorded in irregular patches in a line along the east slopes of Riding Mountain from northwest of McCreary to southwest of Kelwood. In this area, Manitoba maple, green ash, American elm and bur oak were also affected.

In the northwest end of the Park, moderate defoliation of aspen poplar, balsam poplar and willow occurred in the immediate vicinities of the Russel and Sugarloaf warden stations.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

This species was responsible for moderate to severe defoliation of aspen poplar in the west end of the Park. The infestation was

concentrated between Russel and Sugarloaf warden stations and east to Gunn and Tamarisk Lakes.

The infestation that was present in the south end of the Park in 1971, almost disappeared. Residual populations were recorded in Wasagaming Campground, along Highway 19 at the top of the escarpment, and near the ski run on Mt. Aggasiz.

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

This insect was present in the Park on a high percentage of planted spruce and on open growing regeneration spruce along roadways. Moderate to severe defoliation occurred on young trees 3-15 feet high in the Clear Lake and Wasagaming campgrounds, in the public parking lot area, and on boulevards and private plantings throughout the townsite. Light defoliation occurred on mature spruce in the same general area and on young spruce growing along Highways 10 and 19, along the Audy Lake Road and on transplanted spruce at Manito Group Camp. Severe defoliation occurred on a few 12-15 foot white spruce planted at the junction of Highway 10 and the Audy Lake Road.

OTHER NOTEWORTHY INSECTS AND DISEASES

<u>Causal Agent</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Ugly nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry	Numerous tents near Russel Warden Station and in the Deep Lake area.

Spruce budworm, <u>Choristoneura fumiferana</u> (Clem.)	W. spruce	Light to moderate injury to mature trees in the Clear Lake Campground and along the lakeshore in the area of the marina parking lot. Light injury recorded along Highway 10.
Prairie tent caterpillar, <u>Malacosoma californicum</u> <u>lutescens</u> (N. & D.)	W. birch	Few tents generally in tower area northeast of Bob Hill.
Poplar borer, <u>Saperda calcarata</u> Say	T. aspen	Infested trees recorded in the Audy Lake area and at the west end of the Park.
<u>DISEASE</u>		
Black knot of cherry, <u>Dibotryon morbosum</u> (Schw.) T.S.	Chokecherry	Common in several areas of the Park and particularly around Spruce Island Lake.
White mottled rot, <u>Fomes fomentarius</u> (L. ex Fr.) Kickx	W. birch	Found at a number of locations in the Park.
White trunk rot, <u>Fomesigniarius</u> (L. ex Fr.) Kickx	T. aspen	Low incidence in west end of Park.
Hypoxyton canker, <u>Hypoxyton mammatum</u> (Wahl.) Miller	T. aspen	Numerous infected and recently dead trees along Lake Audy Road and in Wasagaming Campground. Infected trees also in Clear Lake Campground with some dead tops.
Windfall	W. spruce	Sample of wood from a 16 inch DBH white spruce submitted to laboratory for culturing. This tree broke about 18 inches above ground and the wood showed evidence of decay but species could not be determined.

PRINCE ALBERT NATIONAL PARK

by E. J. Gautreau

Birch Skeletonizer, Bucculatrix canadensisella Cham.

A moderate to severe infestation of this insect was recorded in Prince Albert National Park south of Waskesiu Lake between the First Narrows and Trail 57. Similar damage was observed to birch stands north of the Second Narrows between Kingsmere and Crean lakes. Pockets of light to moderate leaf mining occurred at several other locations in the Park.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.) and a Noctuid, Enargia decolor Wlk.

The large aspen tortrix periodically defoliates forests of trembling aspen over thousands of acres in Saskatchewan. This year pockets of moderate to severe defoliation occurred to trembling aspen stands north of Waskesiu Lake and extended to the Parks northern boundary. Defoliation on hillsides surrounding some of the Parks largest lakes such as Crean, Kingsmere, Lavallee, Wassegam and Tibiska could be seen from considerable distances. An abundance of large aspen tortrix eggs indicated that this pest may cause defoliation of these stands again in 1973.

A leaf tying defoliator, E. decolor, was often associated with the large aspen tortrix.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

As indicated in 1971, populations of the forest tent caterpillar have been increasing across Central Saskatchewan. In Prince



Albert National Park high populations of caterpillars were observed in the vicinities of Kingsmere, Crean, Wasa, and Wabeno Lake. Egg band counts at the following locations indicate increased numbers of tent caterpillars for 1973: Sanctuary Lake, Wabeno Lake, Purvis Lake, Wassegam Lake, Crean Lake, and in aspen stands along the Moose Trail.

Pine Needle Cast, Lophodermella concolor (Dearn.) Darker

The incidence of needle cast on jack pine was more severe than in recent years. Large stands of 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 Lavalee Lake - Wabeno Lake area.

Rabbit Damage

Severe rabbit damage occurred to balsam fir regeneration at several locations. The most severe damage probably resulted during the winters of 1970 and 1971 with light damage in 1972.

OTHER NOTEWORTHY INSECTS AND DISEASES

<u>Causal Agent</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Black-headed budworm, <u>Acleris variana</u> (Fern.)	W. spruce B. spruce	Found in low numbers.
A gall aphid, <u>Adelges lariciatus</u> (Patch)	W. spruce B. spruce	Light damage.
Ugly nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry Saskatoon	Generally low populations.

A leaf beetle, <u>Chalcoides</u> sp.	T. aspen	Common, caused a trace of foliage damage.
Aspen leaf beetle, <u>Chrysomela crotchi</u> Brown	T. aspen	Populations low; damage negligible.
Willow leaf beetle, <u>Chrysomela interrupta</u> F.	Alder	Found causing light foliage damage to lake-shore alder.
Cottonwood leaf beetle, <u>Chrysomela scripta</u> (Fabr.)	Poplar	Common.
Red turpentine beetle, <u>Dendroctonus valens</u> Lec.	J. pine	Commonly found on weakened trees.
A noctuid, <u>Enargia decolor</u> Wlk.	T. aspen	Most aspen stands showed light feeding damage by this insect.
Alder leaf miner, <u>Fenusa dohrnii</u> (Tischb.)	Alder	Light infestations on lakeshore alders.
American aspen beetle, <u>Gonioctena americana</u> (Schaeff.)	T. aspen	Common on regeneration.
Spotted tussock moth, <u>Halisidota maculata</u> (Harr.)	Willow Chokecherry	Larvae found in low numbers.
Aspen blotch miner, <u>Lithocolletis salicifoliella</u> Cham.	T. aspen	Light infestations throughout the Park.
Willow leaf miner, <u>Lyonetia</u> sp.	Willow	Caused pockets of light leaf mining.
Balsam fir sawfly, <u>Neodiprion abietis</u> complex	W. spruce	Numbers generally low.
Pine sawflies, <u>Neodiprion</u> spp.	J. pine	Numbers low.
Spiny elm caterpillar, <u>Nymphalis antiopa</u> (L.)	T. aspen Willow	Larvae common in Waskesiu.
Poplar twig borer, <u>Oberea shaumi</u> Lec.	T. aspen	Very light damage.

Poplar leaf petiole gall aphid, <u>Pemphigus populi-caulis</u> Fitch	B. poplar	Abundant on open grown trees.
Poplar petiole gall aphid, <u>Pemphigus populi transversus</u> Riley	B. poplar	Light foliage damage.
Pitch nodule maker, <u>Petrova albicapitana</u> (Busck)	J. pine	Present in low numbers.
Yellow-headed spruce sawfly, <u>Pikonema alaskensis</u> (Roh.)	W. spruce	Very common in 1972 causing moderate to severe defoliation to open grown spruce.
Green-headed spruce sawfly, <u>Pikonema dimmockii</u> (Cress.)	W. spruce	Generally occurring in low numbers.
A spruce weevil, <u>Pissodes strobi</u> (Peck)	W. spruce	Causing light damage to leaders of spruce in immature stands.
Lodgepole terminal weevil, <u>Pissodes terminalis</u> Hopping	J. pine	Causing very light damage to leaders of pine regeneration.
Larch sawfly, <u>Pristiphora erichsonii</u> (Htg.)	Tamarack	Numbers of larch sawfly remained low in 1972.
A poplar leaf roller, <u>Pseudexentera oregonana</u> Wlshm.	T. aspen	Populations low.
Spruce bud midge, <u>Rhabdophaga swainei</u> Felt.	W. spruce B. spruce	Common on buds of regeneration.
Poplar borer, <u>Saperda calcarata</u> Say	T. aspen	Causing damage in most mature stands.
A looper, <u>Semiothisa</u> spp.	W. spruce B. spruce Tamarack J. pine	Very common, sometimes causing light damage.
Spruce tip moth, <u>Zeiraphera</u> sp.	W. spruce B. spruce B. fir	Low populations.

DISEASE

Dwarf mistletoe, <u>Arceuthobium americanum</u> Nutt. ex Engelm.	J. pine	Small area of moderately infected trees in vicinity of Buffalo Paddock. No infections were observed elsewhere in the Park.
Shoe-string root rot, <u>Armillaria mellea</u> (Vahl ex Fr.) Kummer	Spruce Pine Fir Poplar	Very common in all areas of P.A.N.P.
Target canker, <u>Ceratocystis fimbriata</u> Ell. & Halst.	T. aspen	Light.
Yellow witches' broom, <u>Chrysomyxa arctostaphyli</u> Diet.	W. spruce B. spruce	Very common throughout; infections generally light.
Spruce needle rust, <u>Chrysomyxa ledicola</u> Lagh.	W. spruce	Periodically causing pockets of severe foliage damage. Very light in 1972.
Spruce needle rust, <u>Chrysomyxa weirii</u> Jacks.	W. spruce	Trace.
Black rib of willow, <u>Ciborinia foliicola</u> (Cash & Davidson) Whet.	Willow	Common at scattered locations throughout the southern half of the Park.
Leaf spot, <u>Coccomyces hiemalis</u> Higgins	Chokecherry Pin cherry	Common.
Comandra rust, <u>Cronartium comandrae</u> Pk.	J. pine	Trace infection.
Sweetfern blister rust, <u>Cronartium comptoniae</u> Arth.	J. pine	Trace stem infection.
Globose gall of poplars, <u>Diplodia tumefaciens</u> (Shear) Zalasky	T. aspen	This disease was commonly found on branches of trembling aspen.
Leaf spot of trembling aspen, <u>Drepanopeziza populorum</u> (Desm.) Hoehn.	T. aspen	Several aspen clones showed light symptoms of this disease.

Globose gall rust, <u>Endocronartium harknessii</u> (J. P. Moore) Y. Hiratsuka	J. pine	Light infections.
White trunk rot, <u>Fomes igniarius</u> (L. ex Fr.) Kickx	T. aspen	Found throughout P.A.N.P. causing severe trunk rot in some aspen clones.
Red ring rot, <u>Fomes pini</u> (Thore ex Pers.) Lloyd	W. spruce J. pine	Causing decay to mature and overmature trees.
Red belt fungus, <u>Fomes pinicola</u> (Sw. ex Fr.) Cke.	W. spruce B. spruce B. fir	Widespread causing brown cubical rot of dead trees.
Hypoxylon canker, <u>Hypoxylon mammatum</u> (Wahl.) Miller	T. aspen	Light infections common.
Balsam poplar leaf blight, <u>Linospora tetraspora</u> Thompson	B. poplar	Periodically causing pockets of severe in- fection. Low incidence in 1972.
Needle cast, <u>Lirula mirabilis</u> (Darker) Darker	B. fir	Common.
Needle cast, <u>Lophodermium picea</u> (Fckl.) Hoehn.	W. spruce	Trace infection.
Needle cast, <u>Lophodermium pinastri</u> (Schrad, ex Fr.) Chev.	J. pine	Common
Yellow witches' broom, <u>Melampsorella caryophyllacearum</u> Schroet.	B. fir	Trace infection only.
Snow blight, <u>Phacidium abietis</u> (Dearn.) Reid & Cain	B. fir	Light infections of this disease were observed on balsam fir regeneration.
Butt rot of conifers, <u>Polyporus tomentosus</u> Fr.	W. spruce	Fruiting bodies common throughout P.A.N.P.

Needle cast,  
Sarcotrochilia balsameae  
(Rehm.) Karf.

B. fir

Severe foliage infection  
on regeneration.

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

T. aspen

Light damage to aspen  
regeneration.

WATERTON LAKES NATIONAL PARK

by G. J. Smith

Spruce Beetle, Dendroctonus rufipennis (Kirby)

All previously reported infestations of spruce beetle within the Park were re-examined in 1972. Although beetle populations were still present, they have caused no additional tree mortality since 1970. Annual inspections will continue in the highly susceptible over mature spruce stands in the Upper Pass Creek and Cameron Lake areas.

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

An outbreak of this root rot in winter damaged conifers on the lower southeast slopes of Crandell Mountain has persisted for the past 10 years. Thorough re-examination of stands in this area in 1972 revealed numerous living trees along stand fringes infected, and a number of trees that had died during the past several years had been infected. The fringes of stands on this slope are subjected to varying degrees of winter damage almost every year, hence the affected trees are weakened and very susceptible to attack by this root rot.

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

This is considered the most damaging fungal organism in the Park forests because of the preponderance of almost pure whitebark pine stands and the fact that it affects all age classes. Surveys in recent years have revealed an increase in the incidence of infection and subsequent damage in the form of tree and branch mortality and crown deformity.

### Climatic Damage

For the third consecutive year, winter damage to conifers, termed "red belt", occurred at high elevations throughout the Park. Areas which suffered the most obvious repetition occurred along the tributaries of the Belly River, on the north and east slopes of Sofa Mountain, the west slope of Vimy Peak, the east slope of Lakeview Ridge and on both slopes of Cameron and Pass creek valleys. It is expected that considerable tree mortality will be evident along stand fringes in the most severely affected areas in 1973.

Winter damage to trembling aspen for 2 successive years caused considerable tree mortality in the Lower Pass Creek Valley and in open growing bluffs farther east.

Winter killed chokecherry and saskatoon bushes were quite obvious along the Pass Creek Road until new basal shoots developed in July. In this instance, the tops of all shrubbery above the winter snow pack were killed but the portion beneath the snow survived and produced new shoots and foliage during the summer of 1972.

### OTHER NOTEWORTHY INSECTS & DISEASES

<u>Causal Agent</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Ugly-nest caterpillar, <u>Archips cerasivoranus</u> (Fitch)	Chokecherry	Larval colonies and tents were numerous again this year along Pass Creek Road.
Poplar leaf roller, <u>Pseudexentera oregonana</u> Wlshm.	T. aspen	Populations increasing. Expect patches of severe foliage damage in 1973.



DISEASE

Black knot of cherry,  
Apiosporina morbosa  
(Schw.) Arx

Chokecherry

This organism is causing considerable mortality in the Golf Course area and along Pass Creek Road.

BANFF NATIONAL PARK

by G. J. **Smith**

Spruce Budworm, Choristoneura biennis Free.

Populations of this 2-year cycle budworm were low on Engelmann spruce and alpine fir along the lower slopes of Mt. Murchison near Saskatchewan Crossing. Foliage damage was light and mostly confined to sapling sized trees.

Lodgepole Needle Miner, Coleotechnites starki Free.

Larvae which matured in 1972 caused patchy severe discoloration of lodgepole pine foliage along the slopes of the Bow River Valley within the Park. The most severely affected patches occurred 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. Patches of light damage occurred elsewhere along the Bow Valley between Banff Townsite and Lake Louise.

Spruce Beetle, Dendroctonus rufipennis (Kirby)

Individual living mature spruce trees were beetle infested along Upper Redearth Creek and Cuthead Creek and in windthrown and avalanche felled spruce in the Spray River valley. The previously reported light infestation in the Boom Creek valley remained static and fresh attacks were confined to recent windfallen trees.

Dwarf Mistletoe, Arceuthobium americanum Nutt. ex. Engelm.

Of the many stands of mistletoe infected lodgepole pine scattered throughout the Park, the most severe infection found to date was approximately 1.7 miles up the Redearth Creek Fire Road. This is

a young dense stand nearly 100% infected which will likely all be killed or severely deformed before reaching pole size.

Spruce Needle Rust, Chrysomyxa ledicola Lagh.

This rust severely discolored the spruce foliage along the Spray River Valley between Banff Townsite and Mile 15 of the Spray Road. Elsewhere, light infections occurred along Redearth and Bryant creeks and around Shadow, Smith and Marvel lakes.

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

This stem and branch rust had not previously been found anywhere in the Park. Hence, its occurrence this year on the alternate host Ribes sp. in Banff Townsite represented a spread into a previously uninfected area.

Red Belt

This type of winter damage to conifer foliage was severe in a patchy pattern 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 facing slopes of the Upper Mistaya River Valley.

Seedling Damage

The mortality of spruce seedlings along the highway right-of-way on Mt. Murchison reported last year was again severe in 1972. The same phenomena that causes red belt is believed responsible for

this damage but the effect in this locality is more severe because the snow pack is transformed to ice in late winter. The resultant airless environment under the ice enhances the development of mold fungi which also attack and kill spruce needles.

KOOTENAY NATIONAL PARK

by G. J. Smith

Spruce Budworm, Choristoneura biennis Free.

High larval populations of this budworm caused moderate to severe defoliation of spruce and alpine fir along the Vermilion River Valley between Ochre Creek and Vermilion Crossing. The most severe defoliation occurred on understory trees surrounding the foot bridge south of the mouth of Numa Creek. Although severe defoliation has occurred in this area for many years, the only evidence of permanent tree injury is in the form of top killing on sapling sized understory alpine fir and spruce.

Mountain Pine Beetle, Dendroctonus ponderosae Hopk.

The annual thorough search for these beetles in the Park and surrounding area revealed no attacks within the Park and a subsidence in populations in adjacent infestations along Luxor and Pinnacle creeks on the west and the Palliser River on the south.

Douglas Fir Beetle, Dendroctonus pseudotsugae Hopk.

In the localized infestation of these beetles near the south end of the Cross River Fire Road, only one infested tree was found in 1972. Attack in this area has been confined to declining overmature trees that have been predisposed by root and butt decay fungi.

Pine Needle Scale, Phenacaspis pinifoliae (Fitch)

Light discoloration of lodgepole pine foliage, caused by this sucking insect was evident on saplings along Settlers Road and near Redstreak Campground.

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

Throughout the Park a considerable number of immature and mature Douglas fir trees have shown infection by this root rot. When examined after death, however, it was suspected that agents other than root rot were the primary cause but further investigation will be necessary.

OTHER NOTEWORTHY DISEASES

<u>Causal Agent</u>	<u>Host</u>	<u>Remarks</u>
<u>DISEASE</u>		
Globose gall rust, <u>Endocronartium harknessii</u> (J. P. Moore) Y. Hiratsuka	Lp. pine	Causing severe deformity of sapling pines along Settlers Road.
Douglas fir needle cast, <u>Rhabdocline pseudotsugae</u> Syd.	D. fir	Caused severe discoloration of new growth on young trees in Redstreak Campground area.
Red belt	Lp. pine A. fir	Affected a narrow strip of conifers along the southwest slope of Mt. Haffner.

YOHO NATIONAL PARK

by G. J. Smith

Dwarf Mistletoe, Arceuthobium americanum Nutt. ex. Engelm.

A moderate infection of this organism was found on white spruce along the Otterhead Fire Road between the mouth of the Amiskwi River and the mouth of the Otterhead River. Although there are numerous mistletoe outbreaks on lodgepole pine throughout the Park, this is the first known instance of its occurrence on white spruce.

Spruce Needle Rust, Chrysomyxa weirii Jacks.

Numerous patches of young white spruce in the Wapta Falls area were severely infected with this rust. Damage to the trees was minimal because only the one year old foliage was destroyed. Elsewhere in the Park, this rust was light and scattered.

Indian Paint Fungus, Echinodontium tinctorium Ell. & Ev.

This fungus was quite common in western hemlock in the Emerald Lake area. It is of concern because it attacks living immature trees and causes decay of the entire heartwood, thus subjecting the trees to wind and snow breakage.

OTHER NOTEWORTHY INSECTS & DISEASES

<u>Causal Agent</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Spruce beetle, <u>Dendroctonus rufipennis</u> (Kirby)	W. spruce	No new activity observed in 1972. A few old beetle killed spruce noted in Otterhead Valley.
Gall mite <u>Eriophyes</u> sp.	Mountain ash	Severe infestation in Emerald Lake area caused leaf deformity.

DISEASE

Pine needle rust,  
Coleosporium asterum  
(Diet.) Syd.

Lp. pine

Moderate to severe infection on saplings along the Emerald Lake road.

White pine blister rust,  
Cronartium ribicola  
J. C. Fischer

Whitebark pine

Blisters were common at high elevations in the Emerald Lake area.

Red belt

Lp. pine  
A. fir

Patches of this type of winter damage were noted on the east slope of Vanguard Mountain.



JASPER NATIONAL PARK

by J. P. Susut

Black-headed Budworm, Acleris variana (Fern.)

Low populations of this budworm were observed throughout the Park, with noticeable light defoliation occurring along Celestine Lake Road.

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

Light defoliation of open grown white spruce was observed near the junction of Celestine Lake Road and Highway 16.

Dwarf Mistletoe, Arceuthobium americanum Nutt. ex Engelm.

Dwarf mistletoe caused scattered mortality of lodgepole pine north of Athabasca Falls and near Jasper airstrip.

Pine Needle Cast, Elytroderma deformans (Weir) Darker

A high rate of infection persists in stands of lodgepole pine between Jasper and Athabasca Falls.

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

Heavy infection of regeneration pine by globose gall rust was recorded along the Whirlpool River. Scattered branch and tree mortality was observed.

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

Scattered branch and stem infections on whitebark pine were observed near Geraldine Tower and along Mt. Edith Cavell Road. Mortality of a few regeneration trees was observed in both locations. Collections of this rust were made on the alternate host, Ribes sp. in both areas.

Climatic Damage

Red belt damage was observed in several locations along the Athabasca River Valley and the Snake Indian River Valley. Damage was generally light and the trees appeared to recover by mid summer.

Red trees observed in areas damaged during the 1970-71 winter were found to have residual dead needles from that years damage and was not new red belt damage.

OTHER NOTEWORTHY INSECTS AND DISEASES

<u>Causal Agent</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Leaf beetle, <u>Chrysomela aeneicollis</u> Schffr.	Willow	Light defoliation of willow near the south end of Maligne Lake.
A pyralid, <u>Griselda radicana</u> Wlshm.	W. spruce	Low populations at mile 7.5 Celestine Lake Road.
<u>DISEASE</u>		
Canker, <u>Dasyscyphus pini</u> (Brunchorst) Hahna & Ayers	W. pine	Caused mortality of a few regeneration white-bark pine along the Geraldine Tower Road and Edith Cavell Road.
Needle cast, <u>Hypodermataceae</u>	A. fir	Light needle damage along the Edith Cavell Road.
Needle cast, <u>Lophodermella arcuata</u> (Darker) Darker	W. pine	Light infection of needles of whitebark pine along Edith Cavell Road.
Needle cast, <u>Lophodermium autumnala</u> Darker	A. fir	Light damage to fir along Edith Cavell Road.
Leaf rust, <u>Melampsora epitea</u> Thuem.	Willow	Light damage along Geraldine Lake Road and Edith Cavell Road.

Fir needle rust,  
Pucciniastrum goeppertianum  
(Kuehn.) Kleb.

Spruce needle rust,  
Chrysomyxa ledicola Lagh.

Vaccinium  
vitisidea  
A. fir

W. spruce

Light infection of fir  
common in the Park.

Pockets of heavy infec-  
tion occurred along the  
Maligne Lake Road.  
Light infection was  
noted throughout the  
Park.

ELK ISLAND NATIONAL PARK

by R. M. Caltrell

Yellow Headed Spruce Sawfly, Pikonema alaskensis (Roh.)

Moderate to severe damage on open grown white spruce by this sawfly was observed in the recreation area. Many of these trees have been repeatedly attacked and are in poor condition. Some top killing is expected.

OTHER NOTEWORTHY INSECTS AND DISEASES

<u>Causal Agent</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Black-headed budworm, <u>Acleris variana</u> (Fern.)	W. spruce	Low populations on spruce throughout the Park.
Gall aphid on conifer, <u>Adelges lariciatus</u> (Patch)	W. spruce	Low populations common.
Leaf tier, <u>Compsolechia niveopulvella</u> Cham.	T. aspen	Low populations in the Park.
A noctuid, <u>Enargia decolor</u> Wlk.	T. aspen	Low populations present.
Balsam fir sawfly, <u>Neodiprion abietis</u> complex	W. spruce	Low populations present.
A sawfly, <u>Phyllocolpa</u> var. <u>robusta</u> Marlett	T. aspen	Low populations present.
Green-headed spruce sawfly, <u>Pikonema dimmockii</u> (Cress.)	W. spruce	Low populations present.
Grey willow leaf beetle, <u>Pyrrhalta decora</u> Say	B. poplar	Low populations present.

DISEASE

Canker and die back,  
Nectria cinnabarina  
(Tode ex Fr.) Fr.

T. aspen

Observed near the south  
end of Astotin Lake.

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

T. aspen

Light damage near  
Mud Lake.

WOOD BUFFALO NATIONAL PARK

by R. M. Caltrell

Spruce Budworm, Choristoneura fumiferana (Clem.)

Defoliation by spruce budworm was light to moderate at Pine and Rainbow lakes and along the Peace River between Peace Point and Carlsons Landing.

Poplar Serpentine Miner, Phyllocnistis populiella Cham.

Populations by this leaf miner remained high and discoloration of aspen was noted throughout the surveyed area of the Park.

OTHER NOTEWORTHY INSECTS

<u>Causal Agent</u>	<u>Host</u>	<u>Remarks</u>
<u>INSECT</u>		
Larch sawfly, <u>Pristiphora erichsonii</u> (Htg.)	Tamarack	Larvae common, no notable damage.
A leaf tier, <u>Pseudexentera oregonana</u> Wlshm.	T. aspen	Population low in the Park.
A leaf tier, <u>Compsolechia niveopulvella</u> Cham.	T. aspen	Low populations present.
Bruce spanworm, <u>Operophtera bruceata</u> (Hulst.)	T. aspen	Populations very low.

Patterson, V.B. (et al.)

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