ANNUAL REPORT
FOREST INSECT AND DISEASE SURVEY ALBERTA-NORTHWEST TERRITORIES-YUKON REGION, 1969

FOREST RESEARCH LABORATORY
CALGARY, ALBERTA
INFORMATION REPORT A-X-30

CANADIAN FORESTRY SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY
JANUARY, 1970

ANNUAL DISTRICT REPORTS

FOREST INSECT AND DISEASE SURVEY

ALBERTA-NORTHWEST TERRITORIES-YUKON REGION

1969

by

J. Petty, F. J. Emond,
E. J. Gautreau, G. J. Smith, C. R. Layton,
J. P. Susut, G. C. Bigalow, R. M. Caltrell.

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INTRODUCTION

Field assignments of the Detection Group of the Forest Insect and Disease Survey were unchanged from 1968. District responsibilities were as follows:

District	I	Southeast District	G.C. Bigalow
District	II	Southwest District	G.J. Smith
District	III	West Central District	F.J. Emond
District	IV	Northeast District	C.R.Layton
District	V	Grande Prairie-Peace River District	R.M. Caltrell
District	VI	Mackenzie District	E.J. Gautreau
District	VII	Yukon District	J.P. Susut

The field season was, of necessity, shorter than normal and some parts of the proposed field program were not completed. Field activities began on June 1 and were terminated by the latter part of August. Aerial surveys were conducted to determine areas involved and degree of defoliation caused by spruce budworm, forest tent caterpillar, large aspen tortrix and the spruce bark beetle. (see table II). Members of the Detection survey co-operated with persons not associated with the Insect and Disease Survey and other agencies by fulfilling requests for specific collections and carrying out special investigations.

Significant changes were noted in 1969 in populations of some of the major insect species of the Region. Spruce budworm populations in northern Alberta and the Northwest Territories declined. The degree of defoliation and extent of the infested areas were notably less than in 1968. The outbreak of forest tent caterpillar in west-central Alberta increased in size and defoliation within the area was predominantly moderate to severe. Large aspen tortrix infestations in the Yukon Territory and southwestern Alberta were much reduced although they increased along the foothills northwest of Calgary. Extreme low temperatures, light snowfall and predation by woodpeckers in the winter of 1968-69 caused high mortality of larval populations of the spruce bark beetle in the Crowsnest Forest. The most important insects of shelterbelts in the agricultural areas were the yellow-headed spruce sawfly and the fall cankerworm.

The occurrence of annual disease organisms was generally low throughout the Region. Infections of poplar ink spot were reported from several areas of Alberta. Needle cast infections on Pinus spp. were common in many areas. Record low temperatures June 11 - 14 caused notable injury to many tree species, particularly spruce, in much of central Alberta and along the foothills of western Alberta.

Members of the Insect and Disease Survey extend our thanks to personnel of the Alberta Forest Service, the Provincial Agricultural Services, the Department of Indian Affairs and Northern Development and a number of other co-operating agencies, for assistance rendered this past season.

TABLE I

SUMMARY OF INSECT AND DISEASE COLLECTIONS BY HOSTS

Host Coniferous	Collections Insect	Disease	Host Deciduous	Collections Insect	Disease
White spruce	303	108	Trembling aspen	297	79
Black spruce	15	25	Balsam poplar	33	27
Engelmann spruce	6	4	Misc. poplar	18	8
Colorado spruce	13	4	Willow	39	13
Lodgepole pine	47	93	Birch	6	9
Jack pine	13	44	Alder	13	3
Limber pine	1	3	Manitoba Maple	11	0
Balsam fir	10	22	Green ash	9	1
Alpine fir	8	34	American elm	6	0
Douglas fir	0	5			
Tamarack	29	4			
Misc. larch	3	3			
	448	349		433	140

Insect collections from miscellaneous hosts	93
Disease collections from miscellaneous hosts	100
GRAND TOTAL	1563

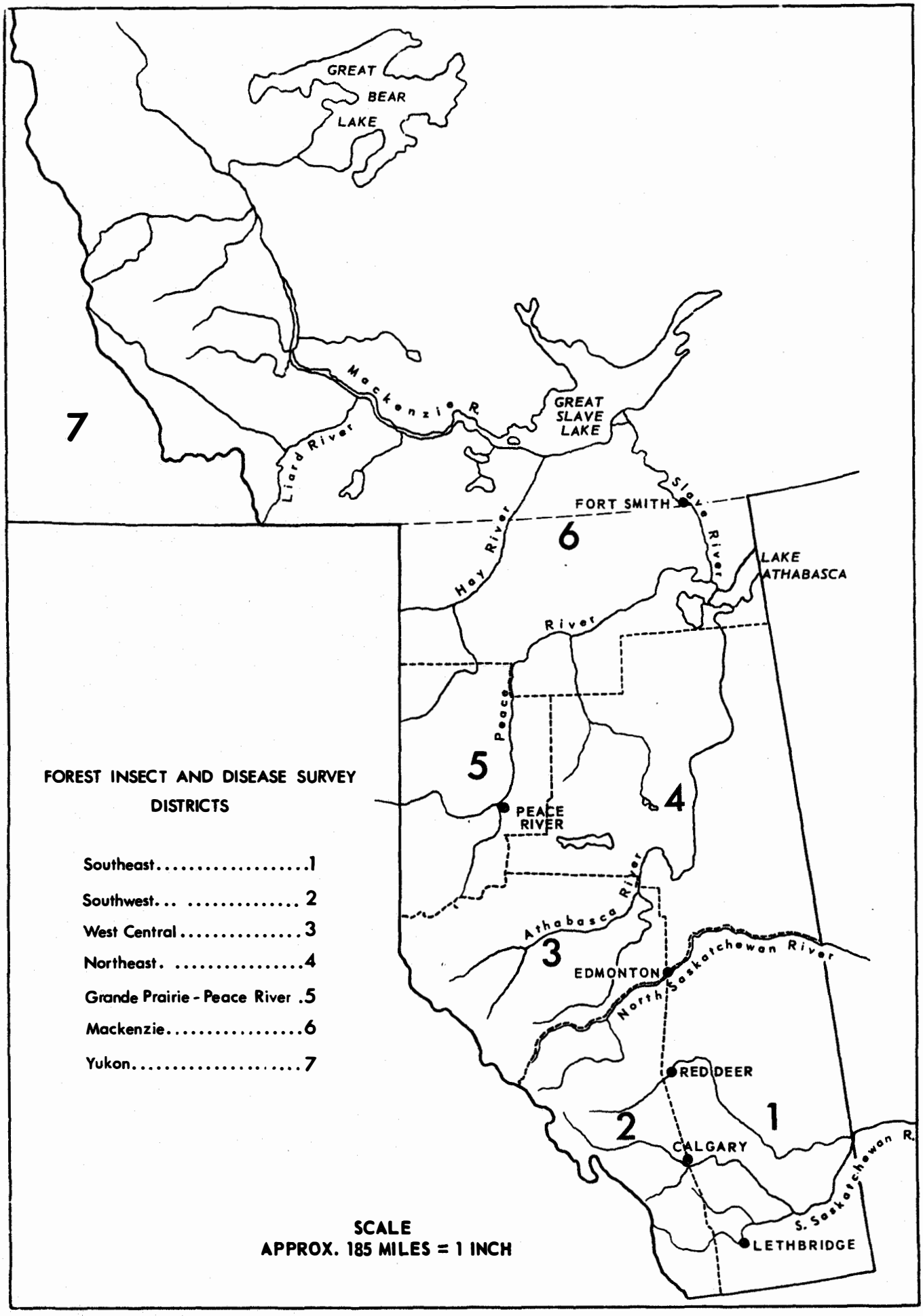
TABLE II

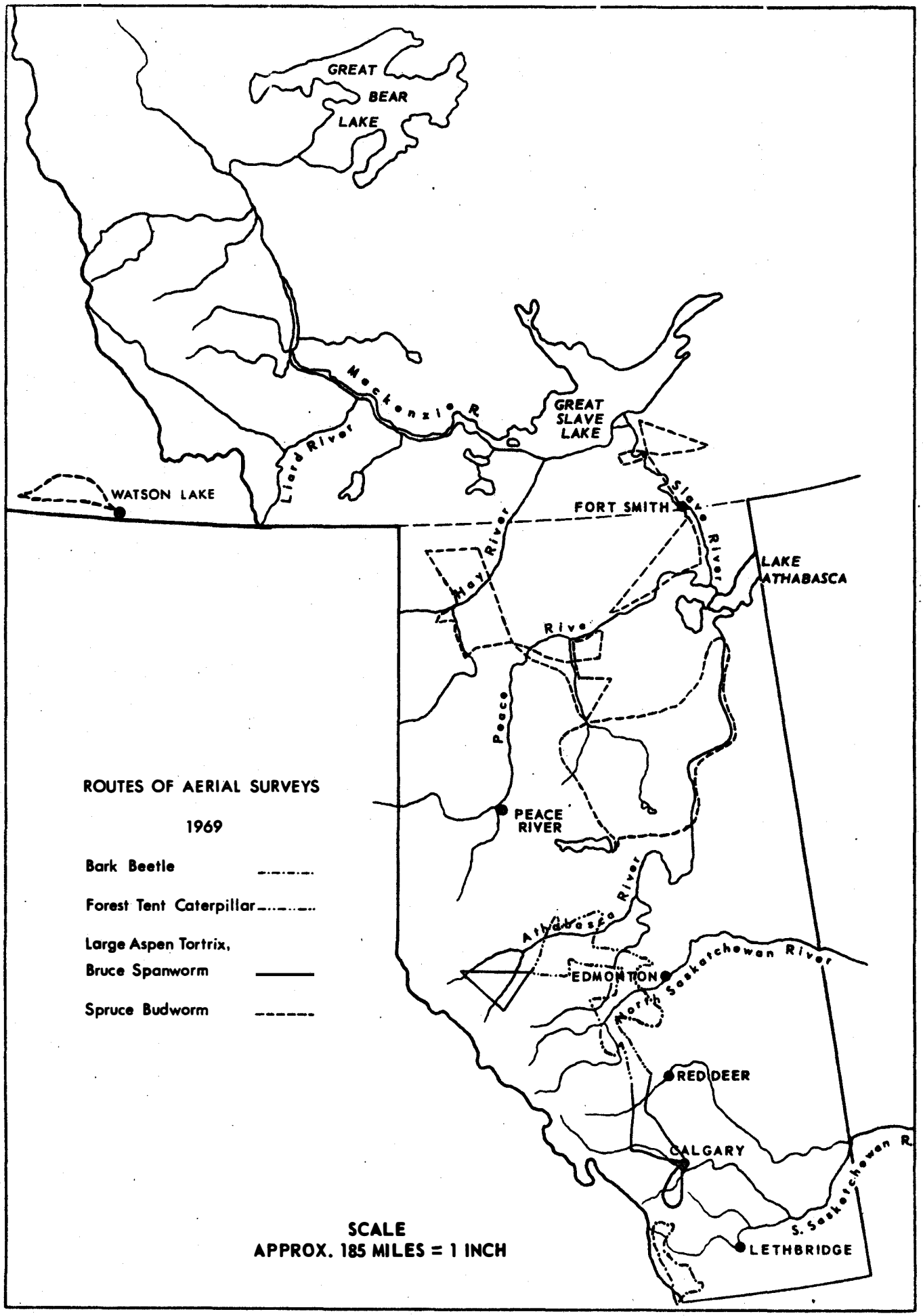
SUMMARY OF AERIAL SURVEYS, 1969

DATE	PURPOSE	AREAS	AIRCRAFT	COST PER HOUR	TOTAL HOURS	TOTAL COST
June 14	Spruce bark beetle	Wood Buffalo National Park	Cessna 185 (F)		**5:00	
June 17, 18	Forest tent caterpillar Bruce spanworm Large aspen tortrix	West-central Alberta	Cessna 172 (W)	36.00	10:00	360.00
June 25	Budworm	North & west of Watson Lake	Cessna 180 (F)		**4:00	
July 8	Spruce budworm	Northeast Alta.	Beaver (W)		*6:15	
July 9	Spruce budworm	Wabasca River	Cessna 150 (W)		*4:55	
July 10	Spruce budworm	Chinchaga River	Cessna 185 (W)	48.00	2:15	110.40
August 5	Spruce budworm	Slave River	Cessna 185 (F)		**3:00	
August 8	Large aspen tortrix	Dawson City Yukon	Jet Ranger Helicopter		**1:00	
August 19, 20, 26	Spruce bark beetle	Crowsnest	Bell 47 AJ 2 Helicopter		*6:10	
September 10,11	Spruce bark beetle	Crowsnest	Bell 47 AJ 2 Helicopter		*2:25	
			TOTALS		45:00	470.40

* Alberta Forest Service

** Dept. of Indian Affairs and Northern Development


GREAT BEAR LAKE
Mackenzie R.
GREAT SLAVE LAKE
Liard River
7
FORT SMITH
Slave River
Hay River
6
LAKE ATHABASCA
River
Peace
5
4
PEACE RIVER
Athabasca River
3
EDMONTON
North Saskatchewan River
RED DEER
2
1
CALGARY
S. Saskatchewan R.
LETHBRIDGE
FOREST INSECT AND DISEASE SURVEY DISTRICTS
Southeast.....1
Southwest.....2
West Central.....3
Northeast.....4
Grande Prairie - Peace River .5
Mackenzie.....6
Yukon.....7
SCALE
APPROX. 185 MILES = 1 INCH


GREAT
BEAR
LAKE
Mackenzie R
Liard River
GREAT
SLAVE
LAKE
WATSON LAKE
FORT SMITH
Slave River
Hay River
LAKE
ATHABASCA
River
Peace
PEACE
RIVER
Athabasca River
EDMONTON
North Saskatchewan River
RED DEER
CALGARY
S. Saskatchewan R.
LETHBRIDGE
ROUTES OF AERIAL SURVEYS
1969
Bark Beetle
Forest Tent Caterpillar
Large Aspen Tortrix,
Bruce Spanworm
Spruce Budworm
SCALE
APPROX. 185 MILES = 1 INCH

ANNUAL DISTRICT REPORT

SOUTHEAST DISTRICT

ALBERTA 1969

by

G. C. Bigalow

FOREST RESEARCH LABORATORY

CALGARY, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1970

INTRODUCTION

Populations of the forest tent caterpillar continued to increase in the west-central area of the District. A general decline in numbers of the fall cankerworm was evident, except for a small area east of Coutts. Increased populations of leaf beetles were observed in the south. Yellow-headed spruce sawfly continued to be the major pest of planted spruce in the central and northern areas of the District.

Frost and hail caused considerable damage to shelterbelts and ornamentals in many areas. Fire blight was of increasing concern, particularly in urban areas of southern Alberta.

INSECT CONDITIONS

Fall Cankerworm, Alsophila pometaria (Harr.)

Larvae of this insect again caused severe defoliation in some shelterbelts east of Coutts. Populations were lower than last year from Warner west to Magrath. In the Pashley outbreak damage was generally light with moderate defoliation occurring only to a few scattered trees.

Although Manitoba maple was the preferred host, ash, elm and poplar were also attacked in areas of severe infestations.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

The outbreak of this insect in Cypress Hills Provincial Park has apparently collapsed. Defoliation appeared generally light although extensive hail damage to aspen made accurate assessment of defoliation by tortrix difficult.

Leaf beetles, Chrysomela spp.

Low populations of Chrysomela scripta Fab. were common around Lethbridge. Light damage to hybrid poplar and plains cottonwood was observed west of the city along the Oldman River and at Iron Springs. Light defoliation of balsam poplar was evident in Woolford and Cypress Hills provincial parks.

A Chrysomela sp. caused moderate to severe defoliation of willow along Ross Creek in the Irvine area.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

Populations of this tent caterpillar increased from Calgary north to Wetaskiwin. Defoliation was generally light, with moderate to severe patches in the Bowden-Red Deer area. Scattered moderate defoliation was evident in several areas around Camrose.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
Insect		
Black-headed budworm, *Acleris variana* (Fern.)	W. spruce	Light damage east side of Cypress Hills P.P.
Fruit tree leaf roller, *Archips argyrospilus* (Wlkr.)	G. ash Honeysuckle	Moderate leaf damage in shelterbelt near Granum.
Ugly-nest caterpillar, *Archips cerasivoranus* (Fitch)	Chokecherry	High population in Indian Battle Park at Lethbridge. General decrease in other areas.
Rose chafer, *Dichelonyx backi* Kby.	T. aspen	High population on young growth 3 miles south of Elkwater.
Spruce cone worm, *Dioryctria reniculella* (Grote)	W. spruce	Light damage to new growth in Cypress Hills P.P.
A looper, *Itame loricaria julia* Evers.	T. aspen Willow	Common in aspen bluffs.
Nuttall blister beetle, *Lytta nuttalli* Say	Caragana	Severe damage to a few shrubs near Irvine.
Blister beetle, *Lytta sphaericollis* Say	Honeysuckle G. ash Caragana	Common in southern Alberta.
Prairie tent caterpillar, *Malacosoma californicum lutescens* (N. & D.)	Gooseberry Rose	High populations on rose near Walsh and on gooseberry north of Stettler.
Spruce gall midge, *Mayetiola piceae* Felt	W. spruce	Present in low numbers in Cypress Hills P.P.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Oregon fir sawyer, *Monochamus oregonensis*(Le Conte)	Lp. pine	Numerous in recently dead pine in Cypress Hills P.P.
Bruce spanworm, *Operophtera bruceata* (Hulst)	T. aspen Willow	Low populations in aspen grove area of District, and Cypress Hills P.P.
Larch sawfly, *Pristiphora erichsonii* (Htg.)	Larch sp.	Severe damage to shelterbelt at Blackfalds. Light on tamarack near Lacombe.
Budworm, *Zeiraphera fortunana* Kft.	W. spruce	Low numbers in Cypress Hills P.P.
Disease		
Atropellis canker, *Atropellis piniphila* (Weir) Lohman & Cash	Lp. pine	A small patch of severe infection near Graburn Spring in Cypress Hills P.P.
Black knot of cherry, *Dibotryon morbosum* (Schw.)	Chokecherry Mayday	Common on street plantings of Mayday in Stettler. High incidence on chokecherry north of Spring Coulee.
Spruce needle cast, *Isth ella crepidiformis* (Darker) Darker	W. spruce	Moderate infection near Morningside.
Pine needle cast, *Lophodermella montivaga* Petr.	Lp. pine	Common south of Elkwater.
Leaf rust on willow, *Melampsora epitea* Thuem.	Willow	Moderate in Hand Hills.
Leaf rust, *Melampsora occidentalis* Jacks.	B. poplar Hybrid poplar	Common in shelterbelts in agricultural area. Moderate incidence on balsam poplar near Carseland.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Leaf rust, *Phragmidium potentillae* (Pers.) Karst.	Strawberry	Collected in a small area south of Elkwater.
Leaf rust, *Puccinia caricis-shepherdiae* J. J. Davis	Thorny buffaloberry	Low incidence near Carseland. New regional host record.
Leaf rust, *Puccinia crandallii* Pam.& Hume	Snowberry	Collected near Elkwater. New herbarium host record.
Leaf rust, *Puccinia recondita* Rob. ex Desm.	Meadow rue	Common in Cypress Hills P.P. New herbarium host record.

ANNUAL DISTRICT REPORT

SOUTHWEST DISTRICT

ALBERTA 1969

by

G. J. Smith

FOREST RESEARCH LABORATORY

CALGARY, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1970

INTRODUCTION

Forest insect damage in 1969 was widespread but less severe than in 1968. Populations of the spruce bark beetle in the southwest part of the District decreased considerably. Since this was a non-flight year for spruce budworm and lodgepole needle miner, little damage was discernable. Aspen defoliators again caused considerable defoliation in the aspen belt from the Porcupine Hills to the North Saskatchewan River.

Conifer foliage diseases, namely needle casts and needle rusts were not widespread. Foliage diseases of aspen caused considerable stand discoloration in the southwest. Systemic diseases, namely root and butt rots, canker diseases, blister rusts, gall rusts and dwarf mistletoe remained approximately the same as in 1968. Late spring frosts caused severe damage to new shoots of conifers.

INSECT CONDITIONS

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

In 1969, aspen defoliation caused by this species increased north of the Bow River. South of the Bow River defoliation decreased.

From the south end of the Porcupine Hills to the United States Border, where an outbreak had persisted since 1966, no defoliation was observed. Patches of moderate to severe defoliation were observed on the north end of the Porcupine Hills, on the hills around Royalties, Turner Valley, Black Diamond, Millarville, Priddis, Jumping Pound, Radnor and on the western outskirts of Calgary.

North of the Bow River, continuous patches of moderate to severe defoliation were observed from Bottrel northward through Cremona, Elkton, Westward Ho, Garrington and Dickson. Isolated patches were observed along Trail and Olds creeks, around Red Lodge Provincial Park, north and west of Innisfail, near Raven, Stauffer, Butte, Cow Lake, Codner and Carlos.

West of an approximate north-south line between Water Valley and Butte, populations of this species were intermixed with those of the Bruce spanworm, hence the ensuing defoliation was attributed to both species and mapped as such (see map, page 21).

Spruce Bark Beetle, Dendroctonus obesus (Mann.)

The severe infestation of Engelmann spruce by these beetles, reported in 1968 in southwestern Alberta, was re-examined and appraised in 1969. The results of the appraisal are shown in table III, page 12 .

TABLE III

Station	Unattacked	Unsuccessful Attack			Successful Attack				
		1968 only	1969 only	Total	Prior to 1968	1968 only	1969 following unsuccessful prior attack	1969 only	Total
	1	2	3	4	5	6	7	8	9
8	96.2	Nil	3.8	3.8	Nil	Nil	Nil	Nil	Nil
9	53.4	3.6	13.1	16.7	Nil	7.2	22.7	Nil	29.9
14	79.7	1.9	1.9	3.8	6.2	Nil	10.3	Nil	16.5
19	70.0	1.8	1.4	3.2	2.9	8.7	15.2	Nil	26.8
23	100	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
30	62.4	22.0	Nil	22.0	3.1	8.4	4.1	Nil	15.6
31	80.5	Nil	5.7	5.7	Nil	Nil	13.8	Nil	13.8
32	28.8	15.1	Nil	15.1	25.3	21.5	5.9	3.4	56.1
33	100	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
34	78.6	Nil	7.4	7.4	14.0	Nil	Nil	Nil	14.0
35	91.2	2.6	1.3	3.9	1.2	Nil	3.7	Nil	4.9
36	92.8	2.3	Nil	2.3	Nil	2.45	Nil	2.45	4.90
37	47.9	2.3	12.5	14.8	Nil	20.5	10.0	6.8	37.3
38	14.7	21.7	3.4	25.1	16.9	30.5	12.8	Nil	60.3
Averages	68.9	6.0	3.7	9.7	5.6	7.5	7.2	1.0	21.3

Additional infestations not reported in 1968 in the Crowsnest Forest were noted in the following locations: near the headwaters of Spionkop and Mill creeks, at Beaver Mines Lake, near Southfork Lakes, in the upper Grizzly Creek Valley, on the east slope of Rainy Ridge, along Vicary, lower Racehorse, Todd, Hunter, Owl, upper Dutch, North Hidden, Cache and Oyster creeks.

In Waterton Lakes National Park, additional infestations were observed near the headwaters of Blakiston Brook and along West Boundary Creek on the Canada-United States Border.

Elsewhere in the District, low populations were found in living trees along Boom, Tokkum and Ochre creeks in Banff National Park and in windthrown trees along Deer Creek in the Bow River Forest and within the Kananaskis Forest Experiment Station.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

In 1969, the main area of defoliation occurred within the following boundaries: along Highway 11 between Sylvan Lake and Rocky Mountain House, along the North Saskatchewan River to Devon and south to Sylvan Lake.

Continuous moderate to severe defoliation occurred on the hills from the Pigeon Lake area south to Sylvan Lake and from Buck Lake south to Leslieville. Patches of moderate to severe defoliation were noted on the hills between Rose Creek and the North Saskatchewan River, on the O'Chiese Indian Reserve, in the Rocky Mountain House area, west of Red Deer and northwest of Lacombe. Defoliation was light with scattered patches of moderate to severe in the area north of a line from Pigeon Lake to Buck Lake.

Elsewhere in the District small, severely defoliated patches were noted northwest of Butte and east of James River Bridge. Individual larval colonies were scattered throughout the area west of Highway 2 between Highway 11 and the Bow River. Larval colonies were numerous on ornamentals and hedges in Calgary but most were destroyed by property owners before defoliation became evident (see map, page 20).

Bruce Spanworm, Operophtera bruceata (Hulst)

Populations of this aspen defoliating insect decreased in the Bow River drainage area and increased along the foothills from the head of Dogpound Creek northward to the Willesden Green area. Along the east side of the infestation these larvae were intermixed with those of large aspen tortrix, hence the ensuing defoliation was attributed to both species and mapped as such (see map, page 21).

Extensive moderate to severe defoliation was observed in the Water Valley, Bergen, Highland Ridge, Sundre, Bearberry, Burnstick Lake and Crammond areas. Isolated patches of moderate to severe defoliation were observed in the Jumping Pound-Morley area, around Caroline, Cow Lake, Carlos, Faraway Pasture, Willesden Green, west of Red Deer and along the Red Deer River north and west of Innisfail.

Populations of a predator, Calosoma fridgidum Kirby, were high in the spanworm outbreak in the drainage basin of the Little Red Deer River. These beetles were feeding on spanworm larvae and pupae and were considered the most effective natural control agent in the area.

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

In 1969, larvae of this sawfly severely defoliated spruce shelterbelts in the following agricultural areas: on the west and north edges of Calgary, near Olds, Bowden, Sylvan Lake, Gull Lake, Pigeon Lake and along Highway 11 between Sylvan Lake and Rocky Mountain House.

DISEASE CONDITIONS

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

The severe outbreak of this root rot reported in 1965 in conifers between Parker Creek and Walton Creek was re-examined in 1969. It was found that the disease was still active throughout the reported area and additional mortality had occurred.

Elsewhere in the District, recent mortality of conifers was observed along the foothills and in Waterton Lakes, Kootenay and Banff national parks. In Crimson Lake Provincial Park it was noted that the percentage of infected aspen was increasing annually.

Poplar Ink Spot, Ciborinia whetzelii (Seaver) Seaver

This disease caused patchy discoloration to aspen stands in Waterton Lakes National Park, near Twin Butte, Beauvais Lake and along Whitney, Willow, Cataract, Cat and Teepee Pole creeks in the Bow River Forest.

Climatic Damage

Unseasonal severe frost during the nights of June 11 and 12, caused severe damage and mortality to recently opened buds and young shoots of spruce, alpine fir and Douglas fir. Most deciduous species sustained light damage to new leaves but the new shoots were not affected. Damage was prevalent along the foothills and in the mountain valleys from the United States Border north to Nordegg. Damage was most noticeable in the West Castle River Valley and the Porcupine Hills.

Winter climatic damage, commonly called "red belt", was observed in two locations in 1969. In one area, along the east side of the Kananaskis Valley between Rocky and King creeks, small patches of lodgepole pine sustained severe foliage damage. In the other area, along the headwaters of Allstones and Tershishner creeks in the Clearwater-Rocky Forest, alpine fir and lodgepole pine were similarly affected.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
Insect		
Spruce gall aphids, *Adelges* spp.	W. spruce E. spruce	Caused severe shoot deformity to individual trees throughout the foothills.
Spruce budworm, *Choristoneura biennis* Freeman	E. spruce	High populations in the Numa Creek area K.N.P., low elsewhere.
Spruce budworm, *Choristoneura fumiferana* (Clem.)	W. spruce	Low populations in the Beauvais Lake-Whitney Creek area.
Budworm, *Choristoneura lambertiana* Bsk.	Limber pine	Light damage in southwestern Alberta.
Lodgepole needle miner, *Coleotechnites starki* Freeman	Lp. pine	Larvae in first year of a 2-year life cycle, consequently, there was no visible damage in the Bow Valley, B.N.P.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Leaf beetle, *Chrysomela aeneicollis* Schffr.	Willow	Patches of moderate to severe defoliation along the Vermilion River in K.N.P., the Banff-Jasper Highway between Waterfowl Lakes and Sunwapta Pass, in Snow Pass, along the Cascade River, Marmot Creek and in Highwood Pass.
Leaf tier, *Compsolechia niveopulvella* Cham.	T. aspen	Population increase along the southwestern foothills.
Lodgepole pine beetle, *Dendroctonus murrayanae* Hopk.	Lp. pine	Light infestations in the bases of living trees at Eisenhower Field Station and along Redearth Creek in B.N.P., and the Vermilion and Kootenay Rivers in K.N.P.
American aspen beetle, *Gonioctena americana* (Schaeff.)	T. aspen	Defoliated patches of regeneration along the foothills from Willesden Green south to Beauvais Lake.
Balsam-fir sawfly, *Neodiprion abietis* (Harr.)	W. spruce	Severe defoliation of spruce shelterbelts 4 miles west of Sylvan Lake and 4 miles north of Gull Lake. Light defoliation along the Red Deer River west of Innisfail.
Sawfly, *Neodiprion* sp.	Limber pine	Larval colonies found west of Lundbreck. Rare on this host in the Region.
Spruce spider mite, *Oligonychus ununguis* (Jac.)	W. spruce	Caused severe damage in dense spruce shelterbelts and ornamentals.
Poplar serpentine miner, *Phyllocnistis populiella* Cham.	T. aspen	Severe foliage discoloration in the National Parks and along the east slopes of the mountains.

Other Noteworthy Insects and Diseases - Cont'd.

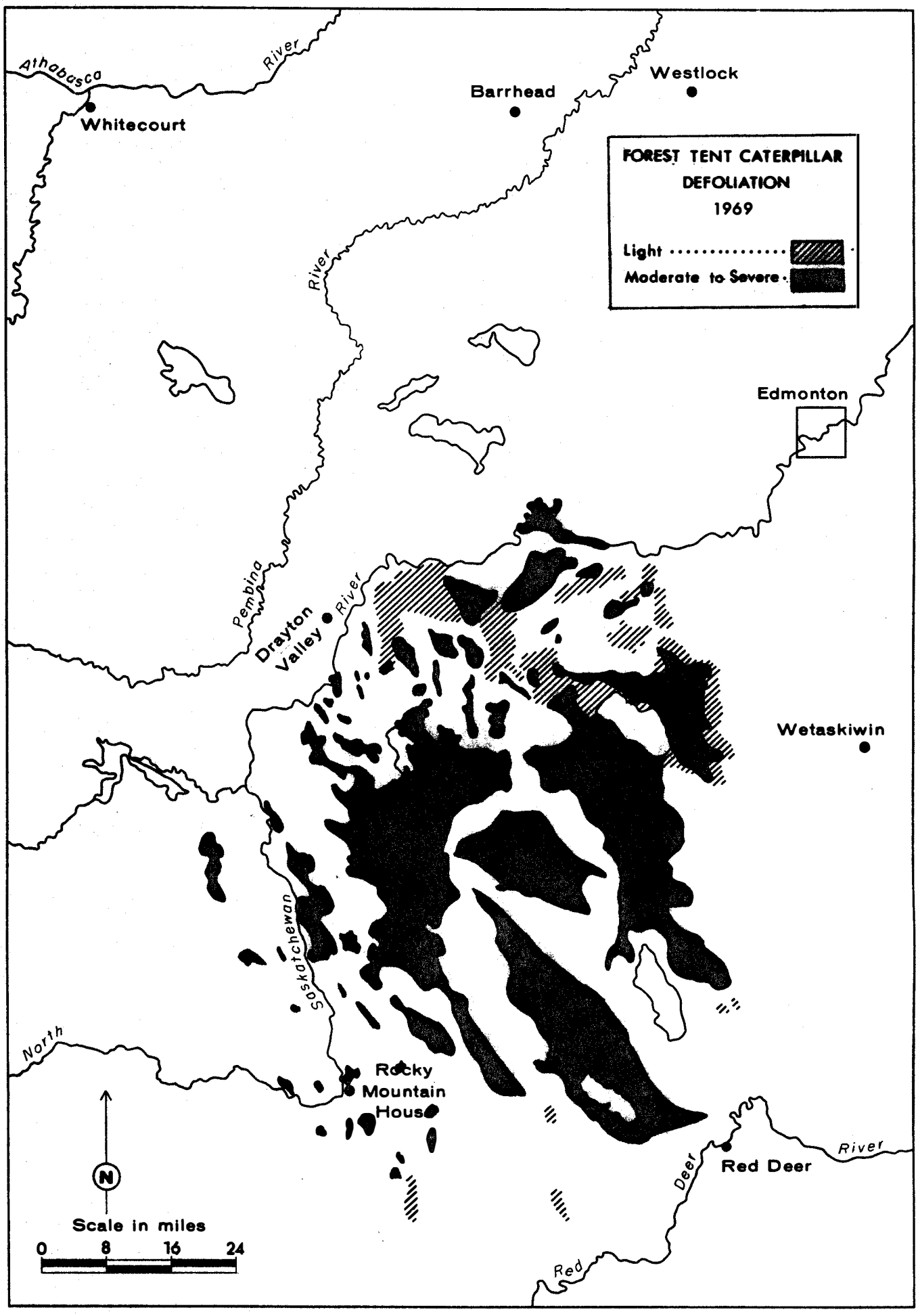
Causal Agent	Host	Remarks
Engelmann spruce weevil, Pissodes engelmanni Hopk.	W. spruce	Population increase along the Kootenay River, K.N.P.
Larch sawfly, Pristiphora erichsonii (Htg.)	Tamarack	Only a few larval colonies observed. No discernable defoliation.
Poplar and willow borer, Sternochetus lapathi (L.)	Willow	Population increase south of the Waterton River in W.L.N.P.
Ambrosia beetle, Trypodendron lineatum (Oliv.)	E. spruce	High populations in stumps and beetle killed spruce in the Crowsnest Forest.
Disease		
Apiosporina witches' broom, Apiosporina collinsii (Schw.) Hoehn.	Saskatoon	Severe deformity of this host in Red Lodge and Jarvis Bay provincial parks.
Spruce needle rust, Chrysomyxa ledicola Lagerh.	E. spruce W. spruce	Severe discoloration and needle loss along the Cascade River Valley 2 miles north of Minnewanka Warden Station. Light damage was noted in Marmot Creek watershed.
Spruce needle rust, Chrysomyxa weirii Jacks.	E. spruce W. spruce	Light along the foothills and in mountain valleys.
Pine needle rust, Coleosporium asterum (Diet.) Syd.	Lp. pine Aster sp.	Light damage to pine in the Kananaskis Valley. Aster severely infected along the west side of the District.
White pine blister rust, Cronartium ribicola J. C. Fischer	Limber pine Whitebark pine	The incidence of new branch infections and mortality caused by this organism remained unchanged in mature whitebark pine in the Crowsnest Forest.

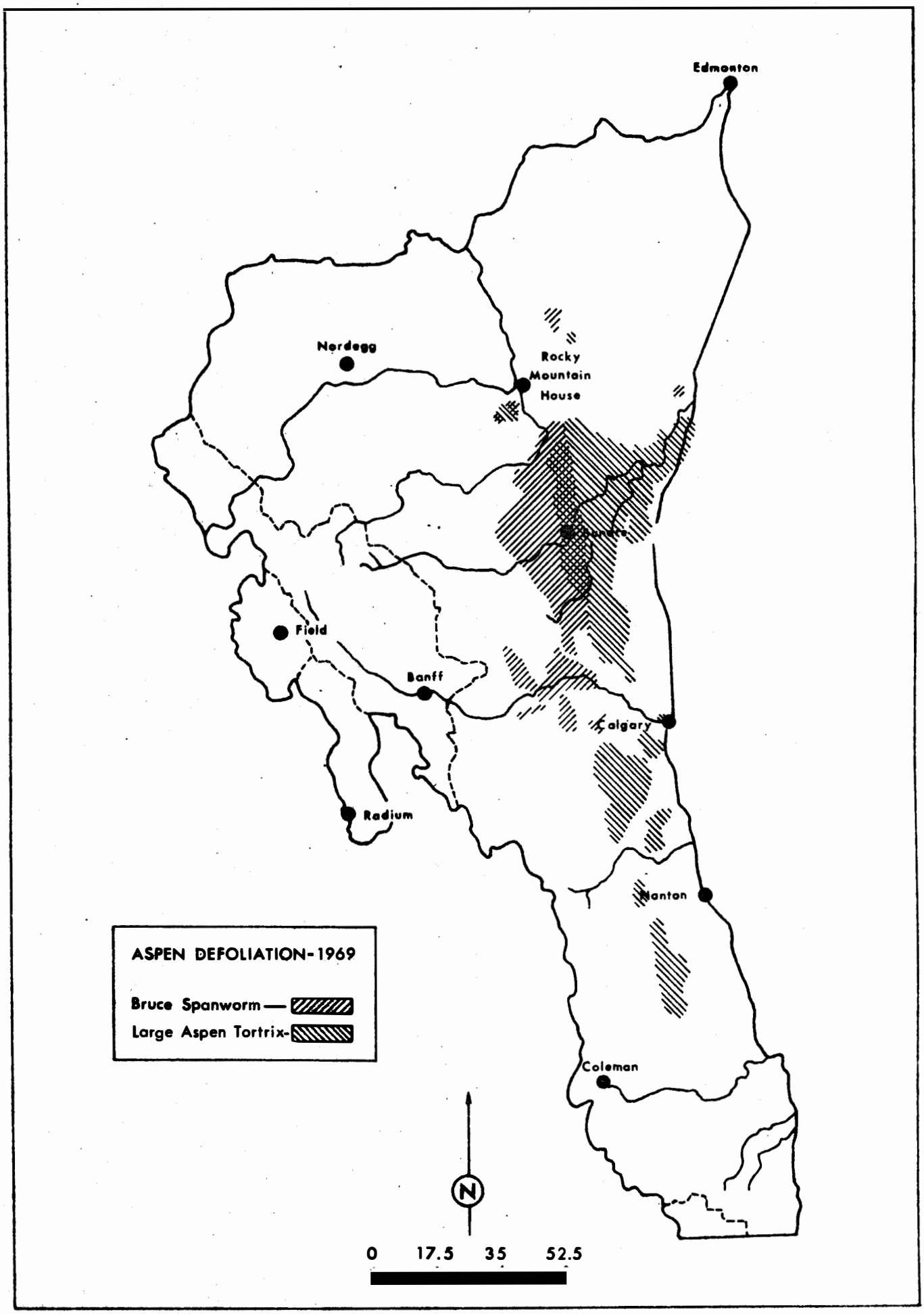
Other Noteworthy Insects and Diseases - Cont'd

Causal Agent	Host	Remarks
Pine needle cast, *Davisomycella ampla* (J.J. Davis) Darker	Lp. pine	Severely infected patches along Elk Creek in the Clearwater-Rocky Forest.
White trunk rot, *Fomes igniarius* (L. ex Fr.)Kickx.	T. aspen	Infected stems were numerous in mature aspen in Crimson Lake and Jarvis Bay provincial parks.
Red ring rot, *Fomes pini* (Thore ex Pers.) Lloyd	E. spruce A. fir	Fruiting bodies and decayed boles were common in the Boom Creek valley, B.N.P.
Needle cast, *Lirula macrospora* (Hartig) Darker	E. spruce	Common in the mountain valleys on old needles.
Pine needle cast, *Lophodermella concolor* (Dearn.)	Lp. pine	Severe stand discoloration in the Bow River Valley, B.N.P. and along Burnt Timber Creek in the Bow Forest.
Pine needle cast, *Lophodermella montivaga* Petr.	Lp. pine	Severe discoloration and needle loss in the Mistaya River valley, B.N.P. Light along Teepee Pole Creek in the Bow Forest.
Pine needle cast, *Lophodermella* sp.	Limber pine	Apparently a new species in our Region. Found along the south end of Whaleback Ridge.
Poplar leaf spot, *Marssonina tremuloidis* (Ell.& Ev.) Kleb.	T. aspen	Severe stand discoloration along Happy Valley, on the Porcupine Hills, along Willow and Dutch creeks and throughout the Crowsnest Pass.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Larch needle rust, *Melampsora paradoxa* Diet. & Holw.	A. larch	This rust was severe on both species above 7000 feet altitude. Caused early larch discoloration along upper Marmot Creek, on Snow Ridge and in the Highwood Pass area. New herbarium record.
Stalactiforme rust, *Peridermium stalactiforme* Arth. & Kern	Lp. pine	Severe damage in regeneration near Saskatchewan Crossing B.N.P.
Rust, *Puccinia mutabilis* Ell. et Gall.	Wild onion	Found in the Bob Creek area. New regional record.
Rust, *Puccinia recondita* Rob. ex Desm.	Meadow rue	Found along North Racehorse Creek. New herbarium host record.
Fir needle rust, *Pucciniastrum goeppertianum* (Kuehn) Kleb.	A. fir	Light to moderate infection in the Crowsnest Forest along the east slope of the High Rock Range. Light along the southwest slope of Mt. Wilson, B.N.P.
Leaf spot, *Septogloeum rhopaloideum* Dearn. & Bisby	T. aspen	Severe stand discoloration along lower Dutch Creek and along the Happy Valley road south of Willow Creek.
Cork-bark disease	A. fir	High incidence on tree stems near Lake O'Hara, Y.N.P. Presently under investigation.


Athabasca River
Whitecourt
Barrhead
Westlock
FOREST TENT CATERPILLAR
DEFOLIATION
1969
Light
Moderate to Severe
River
Edmonton
Pembina River
Drayton Valley
Wetaskiwin
Saskatchewan
North
Rocky Mountain House
Red Deer River
Deer
Red
N
Scale in miles
0 8 16 24


Edmonton
Nordegg
Rocky
Mountain
House
Field
Banff
Calgary
Radium
Canmore
Canmore
Coleman
ASPEN DEFOLIATION-1969
Bruce Spanworm —
Large Aspen Tortrix-
N
0
17.5
35
52.5

ANNUAL DISTRICT REPORT

WEST CENTRAL DISTRICT

ALBERTA 1969

by

F. J. Emond

FOREST RESEARCH LABORATORY

CALGARY, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1970

INTRODUCTION

The most noteworthy insect pests in the District in 1969 were the forest tent caterpillar and Bruce spanworm. Infestations of tent caterpillar continued to be of major concern west and north of Edmonton. The Bruce spanworm was responsible for considerable aspen defoliation between Edson and Hinton. The yellow-headed spruce sawfly and spruce spider mite continued to cause problems in spruce shelterbelts and ornamentals. A slight upward trend in populations of spruce gall aphids was reported in the western half of the District. A significant decline in black-headed budworm damage occurred and leaf beetle populations remained more or less static.

Late frost damage to conifers was common throughout most of the District. Needle cast infections remained at approximately the same level as in 1968 and needle rusts continued to decline.

INSECT CONDITIONS

Spruce Gall Aphids, *Adelges* spp.

Damage by gall aphids was common in all areas of the District and a slight increase in population levels over that reported in 1968 was evident.

Moderate to severe damage was reported in Jasper National Park from the Park Gate through to Jasper and along the Banff-Jasper Highway from Jasper south to Mile 15. Moderate damage occurred south of Edson in Willmore Park, near Obed and Hinton, south of Hinton through to the Park Gate, near Westlock and in Thunder Lake Provincial Park. Light damage was prevalent in the remainder of the District.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

The forest tent caterpillar infestation that has persisted for the past several years in the Lake Wabamun, Chip Lake and Whitecourt areas continued unabated in 1969. The outbreak boundary remained much the same as in 1968 although a considerable increase was evident along the east side. The approximate boundary lines for the infestation within the District were as follows: from Stony Plain southwest to Drayton Valley, west to Cynthia, north through Leaman to Whitecourt, west along Highway 43 to Chickadee Creek, northeast through Baseline Lake to Carson Lake, east to Topland and Fort Assiniboine, south to Roydale, east to George Lake and south of this point back to Stony Plain (see map, page 29). Aspen defoliation, although extensive throughout the general outbreak, was fairly erratic and did not follow the pattern that has prevailed in previous years. This defoliation trend was attributed to the numerous unhatched egg bands that were present in many areas where defoliation was expected and never materialized. The prolonged period of cold weather experienced during the preceding winter months was believed responsible for the unhatched bands. This condition was particularly noted in the Whitecourt, Entwistle and Lake Wabamun areas.

Within the general outbreak area moderate to severe defoliation was evident south of Highway 16 between Wildwood and Stony Plain, from Stony Plain southwest to Brightbank and through to the North Saskatchewan River, from this point west to Drayton Valley and Cynthia and from Cynthia north to Wildwood. Extensive areas of light damage were noted north and south of Tomahawk, northwest of Drayton Valley and Boggy Hall and south of Duffield. Scattered patches of light defoliation were evident along the North Saskatchewan River valley from Woodbend northeast to Edmonton. North of Highway 16 extensive areas of moderate to severe defoliation were evident from Chip Lake north to Baseline Lake, northeast to Carson Lake, east to Topland and Fort Assiniboine, south to Sangudo, east to George Lake, south to Sandy Lake and Stony Plain and from this point west to Chip Lake. The most notable light defoliation was evident south of Fort Assiniboine between Holmes Crossing and Thunder Lake, between Thunder Lake and Barrhead, northwest of Majeau Lake and Pembridge, southwest of Sangudo and along both sides of the McLeod River from a point 7 miles south of Whitecourt through to Haddock.

Outside the general infestation area, small patches of light and moderate defoliation were reported in Edmonton, between St. Albert and Westlock, in the Spruce Grove area and near Carrot Creek. Individual colonies of larvae were noted at several locations between Chickadee Creek and Little Smoky and between Carrot Creek and Edson.

Bruce Spanworm, Operophtera bruceata (Hulst.)

A marked increase in the population level of this aspen defoliator was evident in 1969 and outbreak proportions were reached in many parts of the Edson-Hinton area of the District. Defoliation was present north and south of Highway 16 from Pinedale west to Entrance. Damage was predominately patchy although some extensive areas were noted north of Edson and Marlboro and between Obed and Hinton.

Moderate to severe defoliation was common north and south of Obed and Pedley, near Medicine Lodge and Galloway, between Marlboro and Sundance Lake, north and east of Edson and near Pinedale. Moderate defoliation occurred along the northwest side of the Athabasca River between Dalehurst and Pedley, along the west side of the Athabasca River between Apetowun and Oldman creeks and at several widely scattered locations north of Highway 16 between Hargwen and Hornbeck. Light defoliation was present between Hinton and Entrance , around Dalehurst and Hargwen, near Bickerdike and Carrot Creek and northwest of Edson.

Low populations persisted in aspen stands throughout the eastern agricultural area of the District.

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

Populations of this sawfly remained at approximately the same level as that reported in 1968. Most planted spruce used in shelterbelts and as ornamentals throughout the agricultural area sustained some degree of damage. In the forested area of the District damage remained at a low level.

Moderate to severe defoliation was reported in the following areas: Drayton Valley, Westlock, Jarvie, Morinville, Winterburn, Vimy, Duffield, Edmonton, Spruce Grove and 13 miles south of Jasper. Light defoliation was evident near Entwistle, Duffield, Stony Plain, Barrhead, Tomahawk, and south of Jasper along the Banff-Jasper Highway at Mile 2 and Mile 10.

DISEASE CONDITIONS

Climatic Damage

Two widely separated areas of moderate to severe damage to lodgepole pine were reported in the District in 1969. One was located approximately 23 miles north of Bickerdike in Twp. 55, Rge. 19, W. 5; the other 3 miles southeast of Fickle Lake in Twp. 51, Rge. 30, W. 5. Light damage was again evident along the Ashlar Ridge in Jasper National Park.

In the Obed area, where severe damage was reported to lodgepole pine in 1968, investigations made during the summer of 1969 revealed that very little new growth had taken place on 50 percent of trees checked. This area was again checked during the latter part of September and no change was evident. It was noted at this time that bark beetles, Ips and Dendroctonus species and shoestring root rot, A. mellea (Vahl. ex Fr.) Quel., had infiltrated into the stand.

Late frost damage to new growth was evident throughout much of the District. Conifers were the most seriously affected although some damage was also reported on deciduous species. Moderate to severe damage was common on ornamental and native spruce in the following areas: Whitecourt, Granada, Niton Junction, Nojack, Winterburn, Spruce Grove, Morinville, Westlock and Barrhead. Light damage was noted in Edmonton, Pembina River and Wabamun provincial parks, between Little Smoky and Fox Creek, Mayerthorpe and Gunn, and Edson and Robb. Moderate to severe damage was reported on balsam fir and lodgepole pine between Little Smoky and Fox Creek, 12 miles south of Whitecourt along the Peers Road and 8 miles southeast of Swan Hills.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
Insect		
Poplar bud-gall mite, *Aceria parapopuli* (Kiefer)	T. aspen	Common in the eastern agricultural area.
Black-headed budworm, *Acleris variana* (Fern.)	W. spruce	Population decline in the forested area.
Ugly-nest caterpillar, *Archips cerasivoranus* (Fitch)	Chokecherry	Moderate infestations in Edmonton. Light infestations near Barrhead.
Leaf beetle, *Calligrapha verrucosa* Suffr.	Willow	High population south of Drayton Valley, medium population in Edmonton.
Leaf beetle, *Chrysomela semota* Brown	T. aspen B. poplar	Common on regeneration in the western part of the District.
Leaf tier, *Compsolechia niveopulvella* Cham.	T. aspen	Low populations in all areas.
Linden gall midge, *Contarinia negundifolia* Felt	M. Maple	Low and medium populations, in eastern part of District.
Green rose chafer, *Dichelonyx backi* Kby.	W. spruce	Medium population 8 miles north of Jasper.
American aspen beetle, *Gonioctena americana* (Schaeff.)	T. aspen	Medium population in the Edson-Hinton area. Low populations in remainder of District.
Pine engraver beetle, *Ips pini* (Say)	Lp. pine	Low populations common in blowdown in forested area.

Other Noteworthy Insects and Diseases - Cont'd.

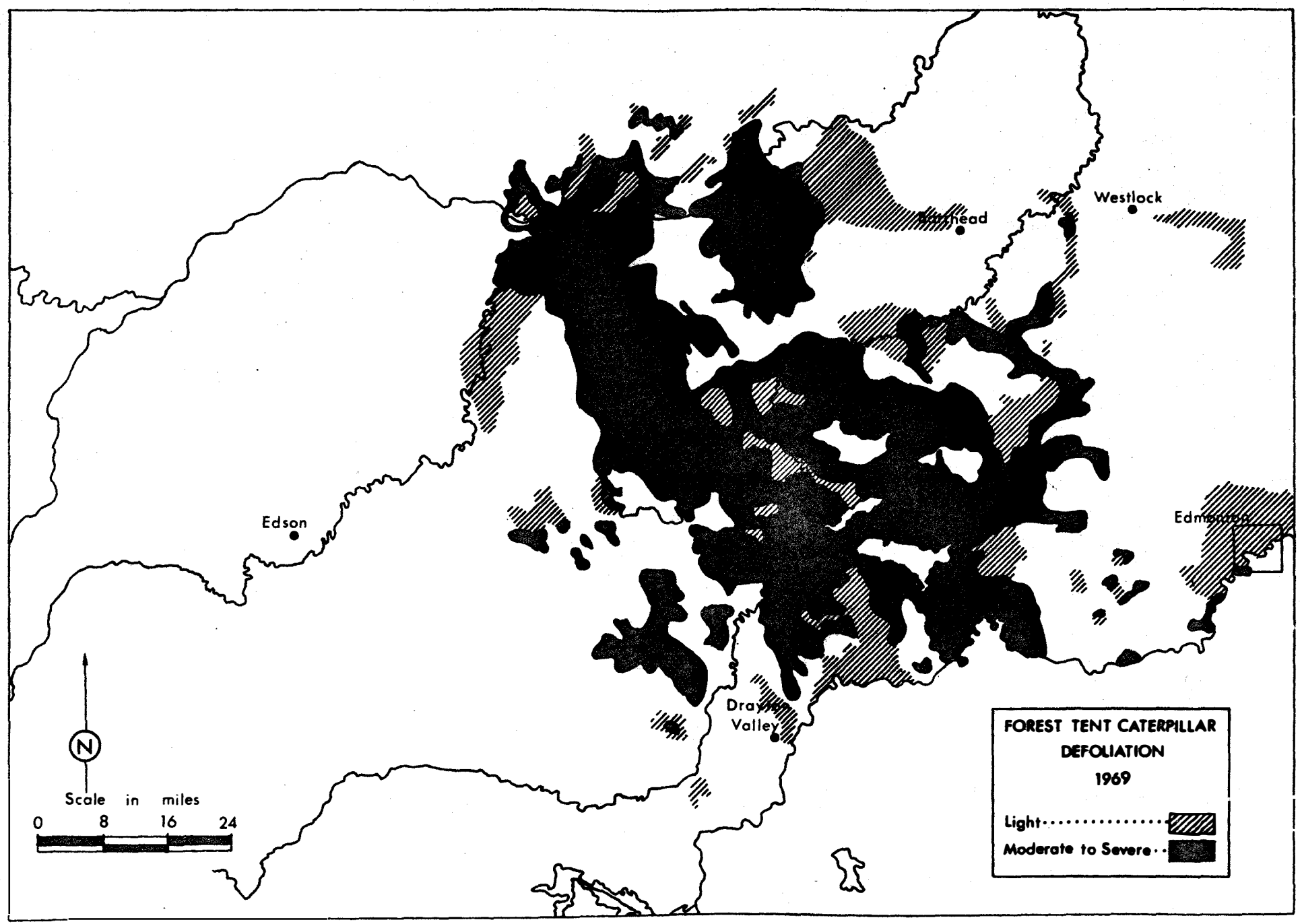
Causal Agent	Host	Remarks
Western tent caterpillar, *Malacosoma californicum pluviale* (Dyar)	Willow B. poplar	Medium and high populations present between Seba Beach and Edson.
A sawfly, *Neodiprion* sp.	Lp. pine J. pine	Severe damage in Pembina River Provincial Park and 9 miles south of Duffield. Light damage southwest of Tomahawk.
A sawfly, *Neodiprion* sp.	W. spruce C. spruce	Moderate damage near Spruce Grove and Winterburn. Light damage near Westlock and at Fiddle River Crossing, J.N.P.
Poplar serpentine miner, *Phyllocnistis populiella* Cham.	T. aspen B. poplar	Low populations common in the District.
Root collar weevil, *Pissodes* sp.	Lp. pine	Light damage in the Nojack and Robb areas.
Bark beetle, *Pityokteines minutus* Sw.	B. fir A. fir	Medium population near Whitecourt. Low population near Fox Creek and north of Entrance.
A sawfly, *Pleroneura borealis* Felt	B. fir	Moderate damage near Fox Creek and Robb. Light damage in the Swan Hills and near Little Smoky.
Leaf tier, *Pseudexentera improbana oregonana* Wlshm.	T. aspen	Low populations in all aspen areas.
Poplar borer, *Saperda calcarata* Say	T. aspen	Moderate infestation in Thunder Lake P.P. and near Wabamun Lake.
A noctuiidae, *Zenobia pleonoctusa* Grt.	T. aspen	Low to medium populations in all aspen areas.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Disease		
Dwarf mistletoe, *Arceuthobium americanum* Nutt. ex. Engelm.	Lp. pine	Severe infections in J.N.P. some mortality noted.
Shoestring root rot, *Armillaria mellea* (Vahl. ex. Fr.) Quel.	Lp. pine W. spruce B. fir	Light and moderate infections common in the forested area.
Spruce needle rust, *Chrysomyxa ledicola* Lagerh.	W. spruce	Pockets of moderate to severe infections along the Trunk Road.
Poplar ink spot, *Ciborinia whetzelii* (Seaver) Seaver	T. aspen	Pockets of severe infections 7 miles south of Hinton. Light between Little Smoky and Fox Creek.
Pine needle cast, *Davisomycella ampla* (J.J. Davis) Darker	J. pine	Light infections south of Duffield and near Seba Beach.
Pine needle cast, *Elytroderma deformans* (Weir) Darker	Lp. pine	Moderate infections in J.N.P. and between Edson and Hinton. Light in the Whitecourt area.
Pine needle cast, *Hendersonia pinicola* Wehm.	Lp. pine	Moderate infection 47 miles south of Jasper.
Spruce needle cast, *Isthmiella crepidiformis* (Darker) Darker	B. spruce W. spruce	Light and moderate needle loss evident in J.N.P., near Edson, Nojack, Drayton Valley, Obed and Coalspur.
Needle cast, *Lirula macrospora* (Hartig)	W. spruce	Light to moderate needle damage in the Hinton and Robb areas.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Needle cast, *Lirula nervata* (Darker) Darker	B. fir	Moderate infection 5 miles southeast of Fox Creek.
Pine needle cast, *Lophodermella concolor* (Dearn.) Darker	Lp. pine	Some needle loss near Robb and in the Gregg River burn area. Moderate infections found in J.N.P. and the Swan Hills.
Western gall rust, *Peridermium harknessii* J.P. Moore	Lp. pine	Common in the District.
Stalactiforme rust, *Peridermium stalactiforme* Arth. & Kern.	Lp. pine	Numerous cankers noted south of Edson and Nojack.
Spruce needle rust, *Pucciniastrum americanum* (Farl.) Arth.	Raspberry	Moderate infection near Jarvis Lake.
Fir needle rust, *Pucciniastrum epilobii* Otth.	B. fir A. fir	Light needle damage common in all fir areas.
Fir needle rust, *Pucciniastrum goeppertianum* (Kuehn) Kleb.	B. fir A. fir	Light infections common along the Trunk Road.
Shoot blight of balsam poplar, *Venturia populina* (Vuill.) Fabric.	B. poplar	Common in all areas.
Aspen shoot blight, *Venturia tremulae* Aderh.	T. aspen	Common on regeneration in all areas.


Westlock
Edson
Edmonton
Drayton Valley
N
Scale in miles
0 8 16 24
FOREST TENT CATERPILLAR
DEFOLIATION
1969
Light
Moderate to Severe

ANNUAL DISTRICT REPORT

NORTHEAST DISTRICT

ALBERTA 1969

by

C. R. Layton

FOREST RESEARCH LABORATORY

CALGARY, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1970

INTRODUCTION

The spruce budworm outbreak in northeastern Alberta decreased in extent and severity in 1969. Adults and larvae of the American aspen beetle caused significant defoliation in many aspen stands. Forest tent caterpillar was present in the southeastern part of the District but no population increase was evident. Yellow-headed spruce sawfly caused considerable damage to white spruce shelterbelts and ornamentals. Larch sawfly was present in tamarack stands but little defoliation was observed.

An increase in poplar ink spot on aspen foliage was evident throughout the District. Needle rusts and needle casts of conifers were present in some areas. Dwarf mistletoe was active in many jack pine stands. Late spring frosts caused noticeable damage to many species of trees throughout the District.

INSECT CONDITIONS

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

The infestations of spruce budworm in northeastern Alberta showed a sharp decline in 1969. In many of the previously defoliated areas a complete collapse was evident. Light defoliation of white spruce was observed in all forest divisions in the District.

In the Athabasca Forest light defoliation was evident along the east slopes of the Birch Mountains between the Tar and Pierre rivers. A small pocket of light defoliation was observed along the Athabasca River east of Sled Island. Patchy, light defoliation was observed along the Tar Island Road north of Ft. McMurray and along the McKay River through Twps. 92 and 93, Rges. 12 and 13. In other areas of the Athabasca Forest where damage occurred in previous years, no defoliation was evident.

In the Lac La Biche Forest light defoliation occurred along the east side of the Athabasca River from Boivin Creek to the House River.

In the Slave Lake Forest a small pocket of light defoliation was observed 8 miles southeast of Talbot Lake Tower. No defoliation was observed along the Wabasca River or in the Loon Lake outbreak.

American Aspen Beetle, *Gonioctena americana* (Schaeff.)

The american aspen beetle was the most notable aspen defoliator in the District during 1969. High populations caused moderate defoliation 5 miles north of Goodridge. Medium populations were evident 1 mile north of Owl River Crossing, 13.5 miles south of Beaverdam, 1 mile north of Big Coulee, 2 miles north of Perryvale and along the Hart Lake Tower Road. Low populations persisted in the remainder of the District.

Forest Tent Caterpillar, Malacosoma disstria Hbn.

The expected increase of forest tent caterpillar did not materialize during 1969. Low populations were present in many aspen stands in the southwestern part of the District. Colonies were observed in the following areas: Clyde, Rochester, Newbrook, Gibbons, Fawcett, Atmore, Vilna and Kinuso.

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

The yellow-headed spruce sawfly was a major defoliator of ornamental and shelterbelt spruce throughout the agricultural area of northeastern Alberta. Moderate to severe defoliation occurred near Bonnyville, St. Paul, Duvernay, Boyne Lake, Goodridge, Lac La Biche, Meanook, Clyde, Bon Accord, Redwater, Gibbons, Bellis, High Prairie and Triangle.

Due to the repeated defoliation of shelterbelts in these areas over the past number of years, some mortality was evident.

Larch Sawfly, Pristiphora erichsonii (Htg.)

Population levels of the larch sawfly remained low throughout northeastern Alberta. Light defoliation of tamarack was detected in the Slave Lake, Wandering River, Ft. McMurray and Cold Lake areas. Open-grown regeneration 6 miles west of Smith was moderately defoliated.

DISEASE CONDITIONS

Dwarf Mistletoe, Arceuthobium americanum Nutt. ex Engelm.

Dwarf mistletoe was present in many jack pine stands throughout the District. Four new outbreaks of this parasitic plant were detected during 1969. Heavy brooming was observed east of the Athabasca River 3 miles south of Sled Island, 6 miles southwest of Long Lake Provincial Park and 4 miles southeast of Redwater. Moderate brooming was observed along the Medely River north of Cold Lake.

Spruce Needle Rusts, Chrysomyxa spp. and Pucciniastrum sp.

The incidence of spruce needle rusts was low in northeastern Alberta. Chrysomyxa ledicola Lagerh. caused light damage in the Ft. McMurray area and in Cross Lake Provincial Park. Chrysomyxa ledi de Bary was present in a white spruce shelterbelt near Goodridge. Chrysomyxa weirii Jacks. was observed in the Slave Lake, House River and May Tower areas. Light needle damage caused by a Pucciniastrum sp. was detected in the Martin River Campsite, 4 miles west of Slave Lake and one-half mile west of Le Goff.

Poplar Ink Spot, Ciborinia whetzelii (Seaver) Seaver

An increase of this annual aspen foliage disease was evident in the District. Scattered patches of severe damage were observed along the east slopes of the Birch Mountains and along the west side of the Athabasca River near the Grand Rapids. Light damage was present near Whitefish and Long lakes.

Climatic Damage

Severe unseasonal frosts caused foliage and shoot damage to most species of trees in the District. Severe damage was evident on aspen, birch, balsam fir, black spruce and white spruce growing in low lying sites near Ft. McMurray, Slave Lake and Wandering River. New foliage on Colorado and white spruce shelterbelts north of Edmonton was moderately damaged.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
Insect		
Black-headed budworm, Acleris variana (Fern.)	W. spruce	Low populations in the Ft. McMurray and Loon Lake areas.
Cooley spruce gall, Adelges cooleyi (Gill.)	W. spruce	Severely infested trees in Long Lake and Cross Lake provincial parks.
Gall aphid on conifers, Adelges lariciatus (Patch)	W. spruce	High number of galls in the Ft. McMurray, Loon Lake, Smith, Calling Lake and Cold Lake areas.
Larch twig borer, Argyresthia laricella Kft.	Tamarack	Moderate twig damage on regeneration 6 miles west of Smith.
Leaf beetle, Chalcoides sp.	T. aspen	Moderate damage near Kinuso.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Large aspen tortrix, Choristoneura conflictana (Wlk.)	T. aspen	Low population in the St. Paul-Heinsberg area.
Leaf tier, Compsolechia niveopulvella Cham.	T. aspen	A trace population throughout the District.
Spruce bark beetle, Dendroctonus obesus (Mann.)	W. spruce	An endemic population in stumps near Ft. McMurray and Lac La Biche.
Eastern larch beetle, Dendroctonus simplex Lec.	Tamarack	Low population 10 miles northwest of Plamondon.
Leaf beetle, Disonycha alternata Ill.	Willow	Severe defoliation 4 miles north of Slave Lake.
Grey willow leaf beetle, Galerucella decora Say.	T. aspen Willow	Trace population throughout the District.
Striped alder sawfly, Hemichroa crocea (Fourc.)	Alder	Moderate damage in Long Lake P.P.
Willow leaf miner, Lyonetia sp.	Willow	Patches of moderate damage in the Ft. McMurray area.
Spruce gall midge, Mayetiola piceae Felt.	W. spruce	Medium population 2 miles south of Ft. McMurray.
Poplar twig borer, Oberea schaumi Lec.	T. aspen	Present in young trees throughout the southern part of the District.
Spruce spider mite, Oligonychus ununguis (Jac.)	W. spruce	Low populations throughout the District. Some severe damage in Long Lake P.P.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Engelmann spruce weevil, *Pissodes engelmanni* Hopk.	Col. spruce W. spruce	Severe top damage to a shelterbelt 6 miles north of Duvernay.
A sawfly, *Pleroneura borealis* Felt.	B. fir	Light tip damage in the Lesser Slave Lake and Wandering River areas.
Boxelder twig borer, *Proteoteras willingana* (Keaxfott)	M. maple	Low populations common in shelterbelts.
Spruce bud midge, *Rhabdophaga swainei* Felt.	B. spruce	Some severe terminal shoot damage in the Nipisi Lake area.
Disease		
Pine needle rust, *Coleosporium asterum* (Diet.) Syd.	J. pine	Light damage 10 miles south of Calling Lake.
Comandra blister rust, *Cronartium comandrae* Pk.	J. pine	Light branch damage 31.5 miles north of Ft. McMurray
Galls on balsam poplar, *Cryptosphaeria populina* (Pers.) Sacc.	B. poplar	Collected in Rochester Campground. New regional record.
Pine needle cast, *Davisomycella ampla* (J.J. Davis) Darker	J. pine	Observed near Calling Lake and 10 miles south of Beaverdam.
Fruit & stem rust, *Gymnosporangium clavipes* (Cke. & Pk.) Cke. & Pk.	Saskatoon	Severe fruit damage along the east shore of Lesser Slave Lake.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Fir needle cast, *Lirula nervata* (Darker) Darker	B. fir	Observed throughout the Ft. McMurray area.
Fir needle cast, *Lophodermium lacerum* Darker	B. fir	Foliage on lower branches moderately infected 2.5 miles south of Primrose Lake.
Spruce needle cast, *Lophodermium piceae* (Fckl.) Hoehm.	W. spruce	Light damage 34.5 miles north of Ft. McMurray.
Leaf rust on willow, *Melampsora epitea* Thuem.	Willow Tamarack	Moderate damage in the Lesser Slave Lake area.
Stalactiforme rust, *Peridermium stalactiforme* Arth. & Kern.	J. pine	Severe stem damage observed 38 miles south of Ft. McMurray.
Fir needle rust, *Pucciniastrum epilobii* Otth.	B. fir	Light infections throughout the District.
Needle fungus, *Thyriopsis halepensis* (Cke.) Th. Syd.	J. pine	Caused moderate foliage discoloration at Mile 14 Round Hill Tower Road.

ANNUAL DISTRICT REPORT

GRANDE PRAIRIE-PEACE RIVER DISTRICT

ALBERTA 1969

by

R. M. Caltrell

FOREST RESEARCH LABORATORY

CALGARY, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1970

INTRODUCTION

Low populations of black-headed budworm were present throughout the District. The American aspen beetle was on the increase and severe defoliation occurred in one area. Populations of Bruce spanworm showed a marked decrease from the 1968 season. As in previous years farm shelterbelts and urban ornamentals continued to support high populations of yellow-headed spruce sawfly. Woodborer damage in living trembling aspen, balsam poplar and in recently fallen conifers was common throughout the District.

A continuation of the examination of lodgepole and jack pine stands was carried out to determine the northern distribution of Atropellis canker. Western gall rust was located in most pine stands of the District. Stalactiforme rust caused some mortality in regeneration lodgepole pine stands. Aspen shoot blight was found throughout the aspen belt in various degrees of infection. Winter drying of conifers was confined to one area this year. Late frosts damaged much of the current year's foliage of many tree species in the District.

INSECT CONDITIONS

Black-headed Budworm, Acleris variana (Fern.)

This budworm feeds mainly on the new growth of white spruce in our area. The populations have remained stable as compared to the 1968 season. Light damage was observed at the following locations: 6 miles west of Grande Prairie, Mile 22 Can-For. Road, 3 miles east of Three Creeks, 4 miles northwest of Little Smoky, Mile 22 Trunk Road, 7 miles east of Clear Prairie, and in Moonshine, O'Brien, Williamson and Winagami Lake provincial parks.

American Aspen Beetle, Gonioctena americana (Schaeff.)

The American aspen beetle caused several square miles of severe defoliation of regeneration aspen east of Sulphur Lake. Low population levels were detected in the following areas: 9 miles southeast of Wembley, 4 miles southwest of Huallen, 5 miles northeast of Elmworth, one mile south of Rio Grande, 5 miles southeast of Grovedale, Mile 47 Can-For. Road, 30 miles southwest of Wapiti, Mile 50 Imperial Lumber Road and at Mile 28 Simonette-Shell Road.

Bruce Spanworm, Operophtera bruceata (Hulst)

The three areas; 11 miles northeast of Grande Prairie, 12 miles north of Dixonville and on the north slopes of Saskatoon Mountain that had moderate defoliation by Bruce spanworm during 1968 had no noticeable defoliation this year. Bruce spanworm larvae were generally taken in trace to low numbers in most aspen beating samples throughout the District.

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

The yellow-headed spruce sawfly remained a major pest of spruce in farm shelterbelts and urban ornamentals during 1969. Low populations were recorded 3 miles east of Sexsmith, one mile west of Keg River Post, 3 miles southwest of La Glace, one mile south of Three Creeks and in Moonshine, Winagami Lake and Lac Cardinal provincial parks. Moderate populations were noted at the Valleyview Ranger Station, 2 miles north of Fairview and 7 miles south of Rycroft. Defoliation by this insect was kept to a minimum in many shelterbelts and ornamentals by the use of insecticides. Light to moderate defoliation was evident in many shelterbelts where no control was exercised.

Poplar Borer, Saperda calcarata Say

This poplar borer attacks living trembling aspen and balsam poplar. Medium populations in aspen were located one mile north of Beaverlodge and 8 miles southwest of Grande Prairie. A medium population was noted in balsam poplar at Lac Cardinal Provincial Park. Low populations could generally be found in most mature poplar stands of the District.

Wood Borer, Tetropium cinnamopterum parvulum Casey

This round-headed wood borer usually confines its attacks to white spruce. Damage is generally restricted to the outer surface of the log to a maximum depth of 1.5 inches. A medium population was located in decked logs at Mile 67 of the Imperial Lumber Road. Low populations were found at Mile 4 of the Two Lakes Road, at Fishers Mill near Hotchkiss, at Norton Bros. Sawmill at Mile 56 of the Trunk Road, 4 miles southeast of Bald Mountain Tower, one mile north of Grovedale, Mile 30 Imperial Lumber Road, and at Mile 60 Two Lakes Road.

DISEASE CONDITIONS

Atropellis Canker, Atropellis piniphila (Weir) Lohman & Cash

This canker disease of lodgepole pine is present in most of the lodgepole pine stands south of Grande Prairie. Continuation of the program to check for northern distribution of this disease was carried out in 1969. The following areas were checked for Atropellis canker; Mile 41 Chinchaga Road, Mile 5 Hawk Hills Tower Road and at the Town of Peace River. No evidence of Atropellis canker was found.

Western Gall Rust, Peridermium harknessii, J. P. Moore

Low levels of incidence of this gall forming rust of lodgepole and jack pine were noted in most pine stands in 1969. Areas of high

incidence were located 3 miles west of Demmitt, Mile 43 Kakwa Tower Road, Mile 80 Trunk Road and southwest of Clear Prairie.

Stalactiforme Rust, Peridermium stalactiforme Arth. & Kern.

This stem rust of pine is characterized by a slight spindle-shaped swelling on the branches or stems of young pine and an elongated canker on older trees. Areas of light incidence were located 5 miles north of Copton Tower, Mile 48 of the Two Lakes Road and at Mile 43 Kakwa Tower Road. An area of moderate infection was located 13 miles south of Nose Lake. In all areas of infection this stem rust caused some mortality with the Nose Lake area exhibiting the greatest ratio.

Aspen Shoot Blight, Venturia tremulae Aderh.

This shoot blight of aspen, which causes a characteristic "shepherds crook" to new shoots of regeneration trembling aspen, was common in 1969. Moderate damage occurred in the following areas: Mile 47 and 74 Can-For. Road, Mile 61 Trunk Road and 30 miles south of Grande Prairie. Light infections were general in most other areas of the District where regeneration aspen occurred.

Climatic Damage

Winter drying of conifers and deciduous trees was not as severe in 1969 as it was in 1968. Only one area was affected by winter drying during the past winter. This was a stand of lodgepole pine located 5 miles east of Nose Mountain Tower where moderate damage occurred. All areas that were affected by severe red belting in 1968 showed good recovery and little mortality was evident.

Late frosts caused severe damage to the new growth of spruce and fir in low lying areas. Very few deciduous trees were affected.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agents	Host	Remarks
Insect		
Cooley spruce gall, Adelges cooleyi (Gill.)	W. spruce B. spruce	Low populations present throughout the District.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agents	Host	Remarks
Gall aphid on conifers, *Adelges lariciatus* (Patch)	W. spruce B. spruce	Moderate damage at Mile 22 Can-For. Road. Light damage at Mile 22 Trunk Road.
Ugly nest caterpillar, *Archips cerasivoranus* (Fitch)	Chokecherry Pincherry	Low populations along the Wapiti River south of Grande Prairie, near Little Smoky Campsite, Dunvegan Crossing and 3 miles north of Bad Heart.
Flatheaded borer, *Buprestidae* sp.	W. spruce	Low populations common in the District.
Leaf beetle, *Chalcoides* sp.	T. aspen B. poplar	Present in low populations at O'Brien P.P., one mile south of Dimsdale, 12 miles north of Hythe, 8 miles northwest of Grande Prairie and 9 miles southwest of La Glace.
Large aspen tortrix, *Choristoneura conflictana* (Wlk.)	T. aspen	Low populations one mile east of Demmitt and 5 miles northeast of Elmworth.
Leaf tier, *Compsolechia niveopulvella* Cham.	T. aspen	Low populations at Saskatoon P.P., 10 miles northeast of Beaverlodge, 5 miles west of Hazelmere and 36 miles southwest of Wapiti.
Spruce bark beetle, *Dendroctonus obesus* (Mann.)	W. spruce	Low populations located 4 miles southeast of Bald Mountain Tower and at Mile 4 Two Lakes Road.
Eastern larch beetle, *Dendroctonus simplex* Lec.	Tamarack	Low population at Mile 9 Two Lakes Road.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Wooly elm aphid, Eriosoma americanum (Riley)	A. elm	High population 6 miles west of Grande Prairie. Low population at Winagami Lake P.P.
Pine root collar weevil, Hylobius sp.	Lp. pine	Common throughout the District.
Engraver beetle, Ips borealis Sw.	W. spruce	Low populations located at Mile 30 Imperial Lumber Road, Mile 60 Two Lakes Road and at Hotchkiss. Medium population at Mile 56 Trunk Road.
Engraver beetle, Ips perturbatus Eich.	W. spruce	Common in the southern portion of the District. Low numbers of Hotchkiss and 12 miles south of Keg River.
Oregon fir sawyer, Monochamus oregonensis (Le Conte)	W. spruce	Low populations at Mile 30 Imperial Lumber Road, Mile 54 Can-For. Road and at Mile 23 Simonette-Shell Road.
Poplar twig borer, Oberea schaumi Lec.	T. aspen	Low populations one mile west of McLennan, 3 miles east of Bezanson and near Watino.
Pitch nodule maker, Petrova albicapitana (Busck)	Lp. pine	Common throughout the District in regeneration pine.
Engelmann spruce weevil, Pissodes engelmanni Hopk.	W. spruce	Low populations 12 miles south of Gordondale and 10 miles northwest of Valhalla. Medium population at Mile 48 Imperial Lumber Road.
Four-eyed spruce bark beetle, Polygraphus rufipennis Kby.	W. spruce	Low population located at Mile 16 Simonette-Shell Road, Mile 30 Imperial Lumber Road, 4 miles southeast of Bald Mountain Tower, Mile 72 Can-For. Road, 8 miles north of Teepee Creek and 13 miles south of Keg River.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Larch sawfly, *Pristiphora erichsonii* (Htg.)	Tamarack	Trace to low levels throughout the District.
Disease		
Apiosporina witches' broom, *Apiosporina collinsii* (Schw.) Hoehn.	Saskatoon	Common throughout the District.
Dwarf mistletoe, *Arceuthobium americanum* Nutt. ex Engelm.	Lp. pine	A moderate infection south of Grande Prairie.
Spruce needle rust, *Chrysomyxa ledicola* Lagerh.	W. spruce B. spruce	Moderate levels of infection on white spruce at Mile 48 and Mile 60 Two Lakes Road. Low infection on black spruce at Running Lake and at Mile 31 Two Lakes Road.
Poplar ink spot, *Ciborinia whetzelii* (Seaver) Seaver	T. aspen	Light infections 5 miles north of Copton Tower and at Moonshine P.P.
Cucurbitaria staphula Dearn. ex R. H. Arnold & R. C. Russell	B. poplar	High occurrence on mature and sapling trees near Dunvegan Crossing.
Pine needle cast, *Elytroderma deformans* (Weir) Darker	Lp. pine	Moderate incidence located at Mile 52 Trunk Road.
Pine needle cast, *Gloeocoryneum cinereum* (Dearn.) Weindlmayr	Lp. pine	A trace located at Running Lake.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Hypoxylon canker, Hypoxylon mammatum (Wahl.) J. H. Miller	T. aspen	Light infection common in the District.
Fir needle rust, Pucciniastrum goeppertianum (Kuehn) Kleb.	B. fir	Light infection at Mile 41 Chinchaga Road, and at Mile 5 Hawk Hills Tower Road.
Needle fungus, Thyriopsis halepensis (Cke.) Th. Syd.	Lp. pine	Light infection Mile 9 Trunk Road.
Shoot blight of balsam poplar, Venturia populina (Vuill.)	B. poplar	Common in regeneration in all areas of the District.

ANNUAL DISTRICT REPORT

MACKENZIE DISTRICT

ALBERTA 1969

by

E. J. Gautreau

FOREST RESEARCH LABORATORY

CALGARY, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1970

INTRODUCTION

The spruce budworm continued to be the most important forest pest in the Mackenzie District. Significant changes in population levels were recorded throughout much of the infested area. Endemic populations of spruce beetles were found in all areas examined but no outbreaks were located. In the Northwest Territories population levels of the eastern larch beetle have increased, causing some mortality to larch trees. Larch sawfly larvae were found in many parts of the District but numbers were low. Populations of the willow leaf miner declined.

During aerial and ground surveys several new infection areas of dwarf mistletoe were recorded. A needle cast of pine caused severe foliage damage to jack pine in Wood Buffalo National Park. The incidence of needle rust and foliage diseases was low in all areas.

INSECT CONDITIONS

Black-headed Budworm, Acleris variana (Fern.)

Defoliation caused by this insect was of little consequence in 1969. In the Footner Lake Forest light foliage damage occurred to spruce stands bordering the Chinchaga, Hay and Peace rivers. Farther north low populations were observed along the Slave and Mackenzie rivers and along the Little Buffalo River in Wood Buffalo National Park.

Spruce Budworm, Choristoneura fumiferana (Clem.)

Infestations of spruce budworm in the Mackenzie District were greatly reduced from those reported in 1968. The accompanying maps based on aerial and boat surveys show the areas where defoliation occurred.

This insect was again widely distributed throughout the Footner Lake Forest. Along the Chinchaga River in the lower half of Twp. 109, Rge. 3, severe defoliation was evident on regeneration spruce while on mature trees only moderate damage was observed. North of this area light defoliation was continuous along the River for approximately 6 miles. Small pockets of light defoliation were noted in Twp. III, Rge. 3, W. 5. Along the south slopes of the Cameron Hills in Twp. 118, Rge. 5, approximately 6 square miles of spruce received light defoliation. West of this area in Twp. 119, Rge. 9, moderate defoliation occurred. Low populations were present in the Melito River Timber Berth southwest of High Level.

Along the Wabasca and Muddy rivers budworm populations were low. No defoliation was discernable from the air although ground surveys revealed light to moderate defoliation of regeneration and intermediate trees. Mature spruce along the Muddy River showed evidence of previous budworm damage and some mortality was noted.

In Wood Buffalo National Park low populations of spruce budworm occurred in the following areas: along the Peace River from Carlson's Landing to the 5th meridian, at Pine Lake, along the east slopes of Salt Mountain and along the Little Buffalo River. A ground survey along the west bank of the Little Buffalo River near the Falls revealed low mortality to regeneration and intermediate spruce from previous budworm outbreaks.

Along the Slave River pockets of light defoliation were apparent between Mountain Rapids and Grande Detour. Moderate defoliation occurred along the west bank of the River between Grande Detour and Brule Point. North of this area larvae were common but populations were too low to cause any noticeable defoliation. Defoliation along the Slave River was generally more severe on regeneration and intermediate trees than to mature spruce. In all areas sampled it was noticed that spruce stands seriously defoliated in previous years continued to show good recovery.

Unlike previous years an extensive aerial survey along the Mackenzie River was not conducted. A canoe survey from Ft. Simpson to Wrigley revealed that only low populations of spruce budworm were present in the area in 1969. No defoliation occurred along the Liard River from Ft. Simpson south to the Poplar River. Pockets of light defoliation occurred along the Rabbitskin River for several miles.

Re-examination of permanent sampling plots at Grande Detour along the Slave River and McGern Island in the Mackenzie River revealed no increase in tree mortality since the plots were established in 1964.

Spruce Bark Beetle, Dendroctonus obesus (Mann.)

Special ground surveys were conducted in 1969 to determine the presence or absence of spruce beetle outbreaks in the District. Sequential sampling was conducted in spruce stands damaged by budworm in the Footner Lake Forest, the Mackenzie Forest and Wood Buffalo National Park. Data obtained revealed only endemic populations were present and no mortality had occurred.

Allegheny Spruce Beetle, Dendroctonus punctatus Lec.

These beetles were encountered in only a few localities in the District. Low mortality, as a result of persistent beetle attacks, was evident in white spruce bordering the Chinchaga River west of High Level and in black spruce near Mile 22 along Highway 58.

Eastern Larch Beetle, Dendroctonus simplex Lec.

Ground surveys carried out in August revealed that in some tamarack stands from Fort Providence south to Tathlina Lake and east to the Taltson River, approximately 5 percent of the standing trees were recently attacked. Some mortality is expected in this area. In Wood Buffalo National Park low mortality was evident. No damage was noted in the Footner Lake Forest.

Poplar Serpentine Miner, Phyllocnistis populiella Cham.

Infestations of poplar serpentine miner persisted throughout much of the Mackenzie District. Extensive areas of moderate to severe leaf mining occurred in trembling aspen and balsam poplar stands bordering the Liard and Mackenzie rivers. In all other areas of the District injury was light.

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

Low populations of this sawfly recurred on ornamental spruce in many parts of the District. Light defoliation was recorded at La Crete, Fort Vermilion, Fort Smith, Hay River and Fort Simpson.

Larch Sawfly, Pristiphora erichsonii (Htg.)

In 1969, populations of the larch sawfly increased slightly from that reported in 1968. Pockets of moderate and severe defoliation of tamarack occurred in the area south of the Mackenzie River between Jean Marie and Fort Simpson. Low infestations were common between Enterprise and Yellowknife. In the Footner Lake Forest and Wood Buffalo National Park larvae were commonly found but damage was light.

Leaf Tiers, Pseudexentra improbana oregonana Wlshm., Compsolechia niveopulvella Cham.

These leaf tiers caused pockets of light defoliation in aspen stands in the Footner Lake Forest from High Level east to Fox Lake and south to the Buffalo Head Hills. West of High Level and in the Northwest Territories populations were low.

Bruce Spanworm, Operophtera bruceata (Hulst.)

This species was responsible for scattered pockets of moderate defoliation in aspen stands near High Level and in the Bushe River Indian Reserve. Larvae were commonly taken in beating samples in Wood Buffalo National Park and the Northwest Territories but no defoliation was observed.

DISEASE CONDITIONS

Dwarf Mistletoe, Arceuthobium americanum Nutt. ex. Engelm.

Several new infection centers of dwarf mistletoe on jack pine were recorded in 1969 in the Footner Lake Forest. Scattered pockets of light to moderate infection occurred in the sand hills west of La Crete near Linton and Mustus lakes and west of the Peace River in Twp. 106, Rge. 17.

A hyperparasite of mistletoe plants, Wallrothiella arceuthobii (Pk.) Sacc. was found in the areas. No other hyperparasites of mistletoe were found.

Pine Needle Cast, Lophodermella montivaga Petr.

This needle cast was common on jack pine foliage throughout the southern area of Wood Buffalo National Park. Severe foliage damage occurred to pine regeneration bordering the Peace Point Road from Salt River Bridge south to Cherry Mountain. Pockets of light to moderate foliage damage occurred west of this area to Merryweather Lake. No infections were found outside of Wood Buffalo National Park.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
Insect		
Leaf beetle, Chalcoides sp.	T. aspen Dogwood Willow	Widely distributed, caused light foliage damage.
Leaf beetle, Chrysomela semota Brown	B. poplar	Light infestation in the Hay River area.

Other Noteworthy Insects and Diseases - Cont'd.

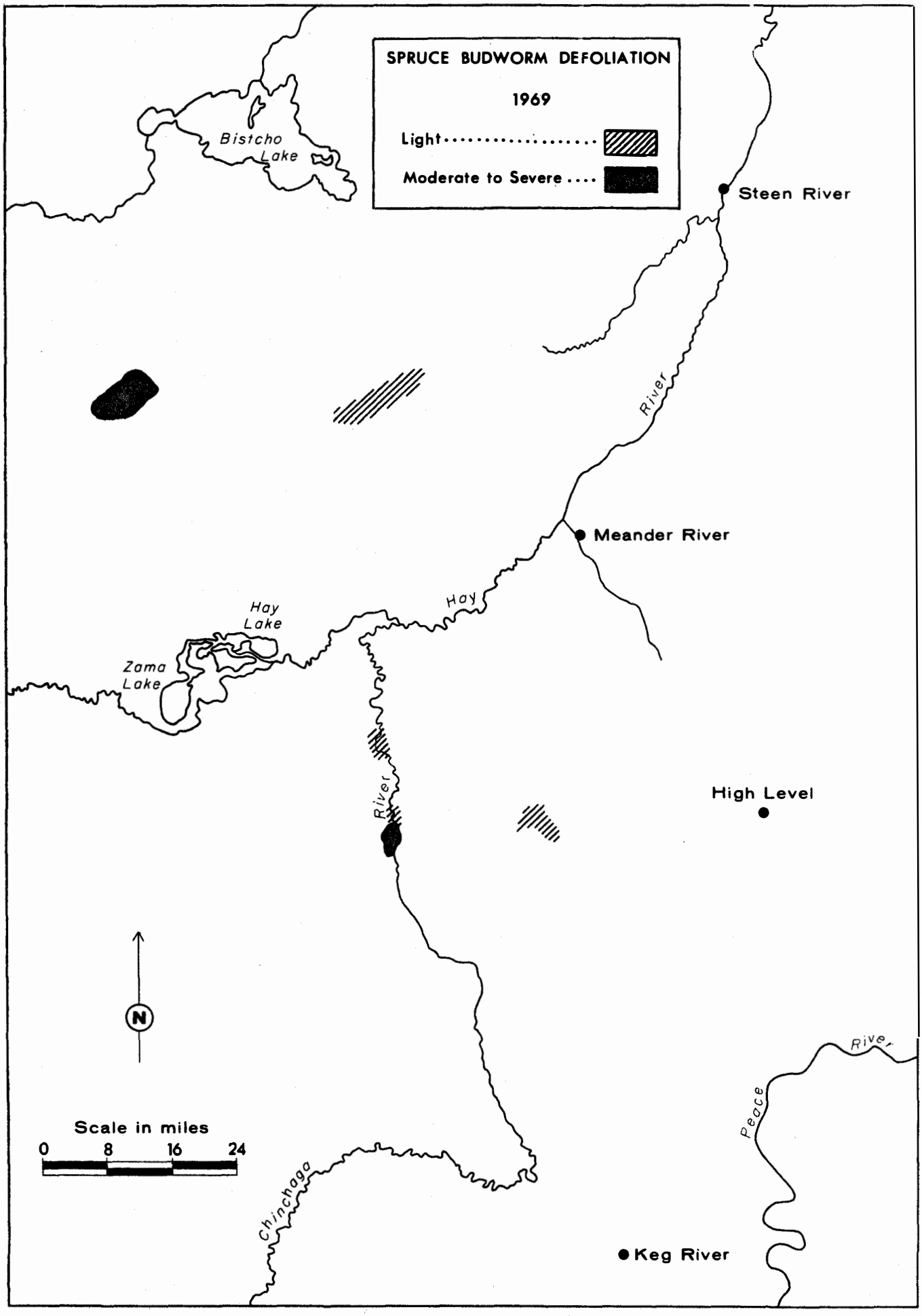
Causal Agent	Host	Remarks
Spruce cone worm, *Dioryctria reniculella* (Grote)	W. spruce	Low populations along the Slave River.
A leaf roller, *Epinotia solandriana* Linn.	Willow Alder	Light damage.
American aspen beetle, *Gonioctena americana* (Schaeff.)	T. aspen	Pockets of light to moderate defoliation on small trees in the Ft. Vermilion and La Crete areas.
Blotch miner, *Gracillaria* spp.	T. aspen Alder	Light browning of aspen foliage along Mackenzie River and of alder at Hay River.
A looper, *Itame loricaria julia* Evers.	T. aspen B. poplar	Low populations.
Willow leaf miner, *Lyonetia* sp.	Willow	Infestations common but lighter than that reported in previous years.
Western tent caterpillar, *Malacosoma californicum pluviale* (Dyar.)	Willow	A few tents noted along the Yellowknife Highway.
Balsam fir sawfly, *Neodiprion abietis* (Harr.)	W. spruce	Low populations.
A leaf beetle, *Orsodacne atra* (Ahr.)	Saskatoon Pincherry	Light infestations, no visible damage.
Spruce bud midge, *Rhabdophaga swainei* Felt.	W. spruce B. spruce	Generally low populations. Light damage to open-grown regeneration at Hay River.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Spruce bud moth, *Zeiraphera fortunana* Kft.	W. spruce	Common in the District.
Disease		
Spruce needle rust, *Chrysomyxa ledicola* Lagerh.	W. spruce B. spruce	Rust infections generally light throughout District.
Spruce needle rust, *Chrysomyxa weirii* Jacks.	W. spruce	Light infection on a few trees near Bell Rock.
Comandra blister rust, *Cronartium comandrae* Pk.	J. pine	Common in the District, infections light.
Sweet fern blister rust, *Cronartium comptoniae* Arth.	J. pine	Light to moderate infections in the Rae and Yellowknife areas.
Red heart rot, *Fomes pini* (Thore)	Alder	Collected near High Level. New host record.
Needle cast, *Ithmiella crepidiformis* (Darker) Darker	W. spruce B. spruce	Common, infections very light.
Pine needle cast, *Lophodermella concolor* (Dearn.) Darker	J. pine	Light in the Ft. Smith area.
Needle cast, *Lophodermium piceae* (Fckl.) Hohn.	B. spruce	Light infection at Tsu Lake.
Pine needle cast, *Lophodermium pinastri* (Schrad. ex. Hook.) Chev.	Lp. pine	Common in the District.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Western gall rust, *Peridermium harknessii* J.P. Moore	J. pine	Found throughout District. Infections light.
Hyperparasite of rust fungi, *Tuberculina maxima* Rostr.	J. pine	Collected near Mile 120 Yellowknife Highway.


SPRUCE BUDWORM DEFOLIATION
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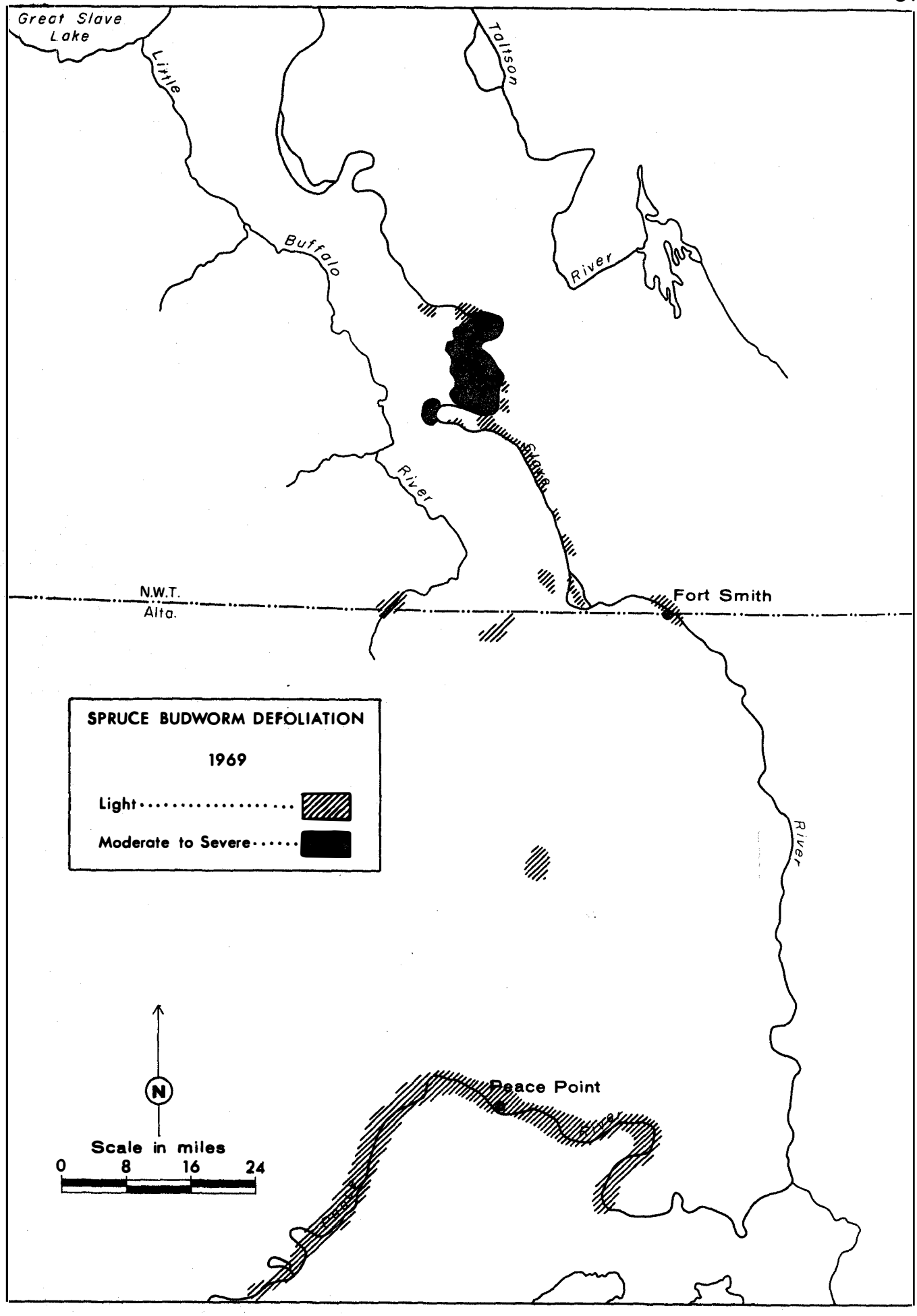
Great Slave Lake
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SPRUCE BUDWORM DEFOLIATION
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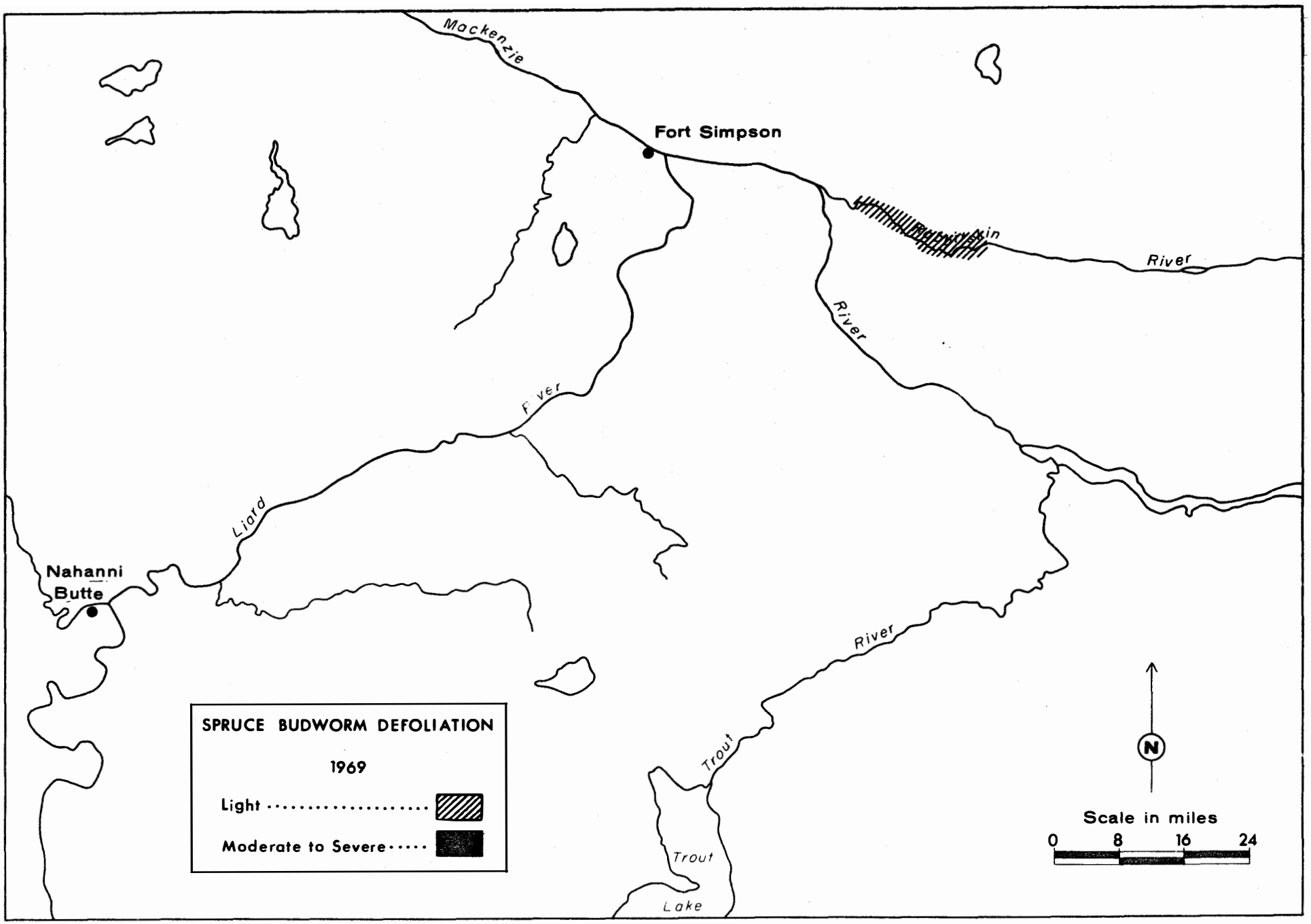
Mackenzie
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SPRUCE BUDWORM DEFOLIATION
1969
Light
Moderate to Severe
N
Scale in miles
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ANNUAL DISTRICT REPORT

YUKON DISTRICT

YUKON TERRITORY 1969

by

J. P. Susut

FOREST RESEARCH LABORATORY

CALGARY, ALBERTA

CANADIAN FORESTRY SERVICE

DEPARTMENT OF FISHERIES AND FORESTRY

JANUARY, 1970

INTRODUCTION

A reduction in large aspen tortrix populations was evident throughout the Yukon. High populations of the woodborer (Oregon fir sawyer) were recorded in the Watson Lake area. Lodgepole pine regeneration along the Cantung Road supported high populations of the pitch nodule maker. Poplar serpentine miner caused foliage discoloration of aspen in southeastern and southwestern Yukon.

Needle rust infections of spruce and fir were generally light throughout the District. Pine needle casts caused severe needle drop in several areas. Comandra blister rust continued to cause mortality of regeneration pine. An increase in the occurrence of aspen shoot blight was noted in the District.

INSECT CONDITIONS

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

Population levels of this insect declined throughout the Yukon in 1969. Defoliation was notably lighter and the general areas of infestation, although similar to those reported in 1968, were smaller. Parasitism and disease were high in all infestations.

In the Dezadeash Valley, small pockets of severe defoliation were observed around Champagne and from 1.5 to 2.5 miles east of Champagne. Moderate defoliation was noted in an area 9.5 to 12 miles west of Champagne.

Light defoliation was observed in aspen stands along the Aishihik Road from Mile 5 to Otter Falls. Severe defoliation occurred at Haines Junction with light defoliation extending east for 19 miles.

Along the Klondike Highway between Whitehorse and Stewart Crossing populations of tortrix decreased to almost nil. The Fox Lake, Carmacks, and Pelly Crossing outbreaks collapsed completely. Near Stewart Crossing a small area of light defoliation was observed along Crooked Creek.

In the Dawson City area a general reduction of defoliation was observed. Two small patches of defoliation were present west of McQuesten along the Mayo-Dawson Highway and one small stand of aspen along Hunker Road southwest of Dawson City was moderately defoliated.

Along the Watson Lake-Ross River Road patches of light and moderate defoliation occurred south of Ross River from Mile 38.5 to Mile 41. Severe defoliation was evident from Mile 55 to Mile 58. Light to moderate defoliation was observed northeast of Ross River.

A new outbreak of large aspen tortrix covering 10 to 15 acres occurred 1.5 miles west of Beaver Creek. Defoliation was moderate.

Spruce Gall Midge, Mayetiola piceae Felt

High populations of this gall midge were observed on the lower branches of white spruce around Jackson Lakes near Whitehorse. In the Dawson City area high populations were observed 13.8 miles south of Clinton Creek and medium populations at Mile 102.6 Dempster Highway. Low populations were observed at Kluane Lake Campground and 56 miles north of Johnson's Crossing on the Canol Road.

Pitch Nodule Maker, Petrova albicapitana (Busck)

High populations of this nodule maker were observed in a stand of regeneration lodgepole pine at Mile 55 of the Cantung Road. This infestation has persisted for several years and has caused many deformed saplings and broken tops.

Poplar Serpentine Miner, Phyllocnistis populiella Cham.

Populations of this serpentine miner increased in the Watson Lake and Ross River areas during the 1969 season. Severe mining of aspen foliage was observed from Watson Lake to Cantung and Ross River. Between Watson Lake and Teslin damage ranged from severe at Watson Lake to light at Teslin. In the Beaver Creek area damage remained relatively the same as in 1968.

Wood Borers

High larval populations of the Oregon fir sawyer, Monochsmus oregonensis (Lec.), were observed in logs decked at a mill site in the Watson Lake area. These logs had been felled in the summer of 1968 and decked late that fall for milling the following year. Damage was of such extent that immediate milling was necessary to prevent serious loss. Large numbers of adult beetles were observed laying eggs in trees felled early in 1969 and left laying in the cutting areas.

Aspen in several widely separated areas of the Yukon were infested by a root collar borer, Saperda adspersa Lec. Medium populations caused scattered mortality at Lake Laberge. Low populations caused some mortality to fringe trees near Whitehorse, Carcross and Haines Junction.

Low populations of another wood borer, Saperda sp., were found infesting regeneration willow at Sixtymile and Dawson City. High populations of the same species were found infesting balsam poplar near Dawson City and Carmacks.

DISEASE CONDITIONS

Comandra Blister Rust, Cronartium comandrae Pk.

Infection of lodgepole pine by this rust was common throughout the range of pine in the Yukon. Damage in regeneration pine varied from light to severe in many areas. The hyperparasites, Tuberculina sp. and Cladosporium sp., were recorded on the rust fungi at Mile 1 of the Canol Road.

Fir Needle Rusts

Pucciniastrum goeppertianum (Kuehn) Kleb. on alpine fir was reported from several locations in the Yukon in 1969. Light infections were evident near Teslin, Mile 29.7 of the Cantung Road, 31 miles northeast of Ross River, Keno Hill and Gravel Lake. The hyperparasite, Tuberculina maxima Rostr., was collected on the rust fungi at Gravel Lake and Keno Hill. Tuberculina persicina (Ditm.) Sacc. was collected 26.9 miles east of Teslin.

Pucciniastrum epilobii Otth. caused light damage to alpine fir regeneration 48 miles west of Watson Lake.

Pine Needle Casts

Pine needle casts caused discoloration and needle drop in large areas of lodgepole pine in the southern Yukon. The most prevalent needle cast, Lophodermella concolor (Dearn.) Darker, caused extensive needle drop along the Canol Road, 44 miles north of Watson Lake and from Mile 670 to Mile 680 of the Alaska Highway. Light damage was recorded from several other areas. Light damage by Lophodermella montivaga Petr. was recorded 31.5 miles north of Watson Lake. Lophodermium pinastri (Schrad. ex Hook.) Chev. caused light needle drop near Kusawa Lake and 34.9 miles northeast of Ross River.

Black band disease (as yet undescribed) was severe on one tree 44.1 miles north of Watson Lake.

Spruce Needle Casts

Spruce needle casts were common in the Yukon during the 1969 season. Isthmiella crepidiformis (Darker) Darker caused light damage 32 miles northeast of Ross River, Mile 110 of the Canol Road, Mile 22 Atlin Road, 131.5 miles north of Watson Lake, near Granville and Sixtymile. Severe damage was recorded near Mayo and moderate damage at Finlayson Lake.

Immature stages of other needle casts caused light discoloration and needle drop 94.6 miles east of Carmacks, 35 miles northeast of Ross River and at Mile 90.5 of the Canol Road.

Spruce Needle Rusts

An increase in the occurrence of Chrysomyxa woroninii Tranz. was observed throughout the southeastern Yukon. An area of severe infection on both spruce and labrador tea was noted at Mile 29.7 of the Cantung Road. In the Dawson City area damage was light, although more widespread than in 1968. White spruce 13.8 miles south of Clinton Creek was severely infected. Cladosporium sp., a hyperparasite of rust fungi was collected on C. woroninii near Teslin and Little Salmon Lake.

Chrysomyxa weirii Jacks. caused light defoliation of white spruce at Frances Lake and scattered severe damage near Mile 30 of the Cantung Road.

Aspen Shoot Blight, Venturia tremulae Aderh.

Aspen shoot blight was common on regeneration aspen in the Yukon in 1969. Damage increased from that found in 1968 and, in a few areas, reached moderate proportions.

OTHER NOTEWORTHY INSECTS AND DISEASES

Causal Agent	Host	Remarks
Insect		
Black-headed budworm, Acleris variana (Fern.)	W. spruce	Low populations near Whitehorse and Kluane Lake.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Spruce budworm, *Choristoneura fumiferana* (Clem.)	W. spruce	Low populations near Kluane Lake and Whitehorse.
Lodgepole pine beetle, *Dendroctonus murrayanae* Hopk.	Lp. pine	Low populations in weakened trees 72.2 miles north of Johnson's Crossing.
Fir defoliator, *Gelechiidae*	A. fir	Moderate defoliation observed at Quiet Lake along the Canol Road.
Striped alder sawfly, *Hemichroa crocea* (Fourc.)	Alder	Low populations near Twin Lakes.
Willow tent maker, *Ichthyura apicalis* Wlk.	Willow	Low populations near Ross River.
Bark beetle, *Ips perturbatus* Eich.	W. Spruce	Present in weakened trees 41 miles east of Carmacks.
Pine engraver beetle, *Ips pini* (Say)	Lp. pine	Low populations 72.2 miles north of Johnson's Crossing.
Bark moth, *Laspeyresia populana* Busck.	B. poplar	Low populations 125.6 miles north of Johnson's Crossing.
A twig borer, *Laspeyresia* sp.	T. aspen	Moderate twig damage at Moose Creek Campground. Light damage on Midnight Dome near Dawson City.
Bark beetle, *Orthotomicus latidens* Lec.	Lp. pine	Low populations 92.2 miles north of Johnson's Crossing.
Spruce gall aphid, *Pineus pinifoliae* (Fitch)	W. spruce	Common throughout the Yukon.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Lodgepole terminal weevil, *Pissodes terminalis* Hopping	Lp. pine	Low populations near Kusawa Lake and Whitehorse.
Four-eyed spruce bark beetle, *Polygraphus rufipennis* Kby.	W. spruce B. spruce	Low populations at Sixtymile and Clinton Creek.
Spruce bud midge, *Rhabdophaga swainei* Felt.	W. spruce B. spruce	Light damage common on regeneration throughout the Yukon.
Leaf miner, *Zeugophora* sp.	T. aspen	Low populations on aspen near Whitehorse.
Disease		
Leaf spot, *Atopospora betulina* (Fr.) Petr.	Birch	High incidence on Keno Hill. Low incidence 81.4 miles east of Teslin.
Spruce cone rust, *Chrysomyxa pirolata* Wint.	W. spruce Wintergreen	Light infections common on wintergreen at Dawson City and Whitehorse and on spruce at Teslin.
Cytospora canker, *Cytospora chrysosperma* Pers. ex Fr.	T. aspen	Some mortality of ornamental aspen in Whitehorse.
Needle cast, *Lophodermium autumnale* Darker	A. fir	Light damage at Mile 87.3 of the Cantung Road.
Yellow witches' broom of fir, *Melampsorella caryophyllacearum* Schroet.	A. fir	Collections from Keno Hill, Gravel Lake and Mile 90.5 of the Canol Road.
Birch leaf rust, *Melampsoridium betulinum* (Fr.) Kleb.	Birch	Light infection 53.3 miles south of Haines Junction.

Other Noteworthy Insects and Diseases - Cont'd.

Causal Agent	Host	Remarks
Western gall rust, *Peridermium harknessii* J.P. Moore	Lp. pine	Rust galls were collected at Mile 29.7 of the Cantung Road, 35 miles west of Watson Lake, 44.1 miles north of Watson Lake and 11.5 miles east of Whitehorse. A hyperparasite of the rust fungi, *Cladosporium* sp. was collected 35 miles west of Watson Lake.
Leaf rust, *Pucciniastrum sparsum* (Wint.) Fisch.	Alpine bearberry	Collected 32.4 miles south of Haines Junction.
Shoot blight of balsam poplar, *Venturia populina* (Vuill.) Fabric.	B. poplar	Damage increased to moderate in some areas.

INDEX TO INSECTS AND DISEASES

DISEASE PAGE

MISCELLANEOUS