

FOREST INSECT AND DISEASE SURVEYS
IN THE NORTHWESTERN REGION
OF ONTARIO, 1975

M. J. THOMSON AND E. L. HOUSER

GREAT LAKES FOREST RESEARCH CENTRE
SAULT STE. MARIE, ONTARIO
CANADIAN FORESTRY SERVICE
DEPARTMENT OF THE ENVIRONMENT

MARCH 1976

*Copies of this report may be obtained
from*

*Information Office,
Great Lakes Forest Research Centre,
Canadian Forestry Service,
Department of the Environment,
Box 490, Sault Ste. Marie, Ontario.
P6A 5M7*

ACKNOWLEDGMENTS

The valuable assistance and cooperation extended to the authors by the Ontario Ministry of Natural Resources, wood-using companies and private individuals during the 1975 field season are gratefully acknowledged.



Frontispiece. Butt ends of jack pine logs showing deformation caused by sweetfern blister rust, *Cronartium comptoniae* Arth.

SURVEY HIGHLIGHTS

The following report describes insect and disease conditions affecting the forests of the Northwestern Region in 1975. Weather conditions favored the survival of spruce budworm. Besides the enlargement of infestations near Bennett Lake in the Fort Frances District, a small number of larvae could be found over a large part of the Region, as far north as Kenora and Sioux Lookout. A ninefold increase in the extent of forest tent caterpillar infestations, 2,000 sq. miles (5,200 km²), was evident in the northwestern part of the Region. Infestations of the balsam-fir sawfly built up for the second consecutive year. The area infested by the large aspen tortrix further decreased and numbers declined to a low level in the Red Lake District.

A condition which has caused varying degrees of damage and mortality of spruce seedlings in the Dryden Nursery since 1970 worsened considerably in 1975 and destroyed a large part of the rising 2-0 spruce production. Extensive damage by Scleroderris canker of pine continued in regeneration jack pine in the northwestern part of the Sioux Lookout District but at lower rates than in 1974. Considerable crown damage and some mortality of jack pine and red pine occurred in patches on high rocky sites in the southern half of the Region. This damage was attributed to a combination of drought and attack by bark beetles. A search was made for evidence of Dutch elm disease in the southern part of the Region but none was found.

M. J. Thomson
Supervisor
Northwestern Region

TABLE OF CONTENTS

	<i>Page</i>
INSECTS	1
Large Aspen Tortrix, <i>Choristoneura conflictana</i>	1
Spruce Budworm, <i>Choristoneura fumiferana</i>	1
Jack Pine Tip Beetle, <i>Conophthorus banksianae</i>	1
Introduced Pine Sawfly, <i>Diprion similis</i>	1
Bark Beetles, <i>Ips pini</i> and <i>Ips grandicollis</i>	1
Aspen Leafblotch Miner, <i>Lithocolletis ontario</i>	2
Forest Tent Caterpillar, <i>Malacosoma disstria</i>	3
Balsam Fir Sawfly, <i>Neodiprion abietis</i>	4
Jack Pine Sawflies, <i>Neodiprion swaini</i> and <i>N. virginianus</i>	6
White Pine Weevil, <i>Pissodes strobi</i>	6
Larch Sawfly, <i>Pristiphora erichsonii</i>	6
Other Forest Insects	7
TREE DISEASES	11
Armillaria Root Rot, <i>Armillaria mellea</i>	11
Needle Rusts of Spruce, <i>Chrysomyxa ledi</i> and <i>C. ledicola</i>	11
A Needle Rust of Pine, <i>Coleosporium asterum</i>	12
Sweetfern Blister Rust, <i>Cronartium comptoniae</i>	12
White Pine Blister Rust, <i>Cronartium ribicola</i>	13
Western Gall Rust of Hard Pines, <i>Endocronartium harknessii</i>	14
Scleroderris Canker of Pine, <i>Gremmeniella abietina</i>	15
Hypoxyton Canker of Aspen, <i>Hypoxyton mammatum</i>	15
Shoot Blight of Red Pine, <i>Sirococcus strobilinus</i>	15
Nursery Problem	15
Abiotic Damage	16
<u>Drought Damage</u>	16
<u>Winterburn</u>	16
<u>Wind Damage</u>	17
Other Forest Diseases	17

APPENDIX

INSECTS

Large Aspen Tortrix, *Choristoneura conflictana* Wlk.

Damage by this poplar (*Populus* spp.) defoliator in the Red Lake District was reduced from eight pockets of moderate-to-severe defoliation in 1974 to five small pockets of light infestation. An infestation which had persisted along shorelines and on islands in Red Lake since 1970 also decreased to a small pocket of light infestation. Elsewhere defoliation was insignificant.

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

The results of damage surveys, population sampling, and egg-mass counts have been included with those of other regions in a special report by G. M. Howse et al. (Report O-X-250). This report provides the reader with a complete description and analysis of developments in the spruce budworm situation in Ontario in 1975 and gives infestation forecasts for the province for 1976.

Jack Pine Tip Beetle, *Conophthorus banksianae* McPherson

Damage levels remained low at all locations examined. All terminal shoot clusters of jack pine (*Pinus banksiana* Lamb.) are subject to attack but only when damage occurs on the leading shoot is it considered to be important. Despite some rather conspicuous damage in regeneration jack pine, surveys showed that leader damage generally was 3% or less (Table 1). Tip beetle damage gradually declines as stands close in.

Introduced Pine Sawfly, *Diprion similis* (Htg.)

Populations of this sawfly remained low in the Rainy Lake area of the Fort Frances District with very little defoliation evident. However, an extension in the known range occurred when low larval populations were found on white pine (*Pinus strobus* L.) and Scots pine (*Pinus sylvestris* L.) trees 30 miles (48 km) west of Fort Frances in Morley and Woodyatt townships.

Bark Beetles, *Ips pini* Say and *Ips grandicollis* (Eich.)

These two species of bark beetle were found in dead red pine (*Pinus resinosa* Ait.) and jack pine trees. Bark beetle infestations occur where there is a large amount of breeding material in the form of dead trees caused by drought, windthrow, cutting operations, etc. The beetles usually breed first in dead material and then spread to

living hosts. They feed in the cambial region, leaving a deep engraving pattern on the sapwood, and eventually girdle the tree. Dead red pine and jack pine trees were found at several locations in the Fort Frances District, generally on high rocky sites which had been subject to drought during the summer of 1974. The stands most affected were located in the vicinity of Little Turtle Lake and near Reef Point and Rocky Inlet on Rainy Lake (see Appendix, Fig. A6). The boles of recently dead trees were examined from the top down until evidence of bark beetle activity was found. Collections were then submitted to the Great Lakes Forest Research Centre to determine the beetle species involved (Table 2).

Table 1. Summary of damage by the jack pine tip beetle on regeneration jack pine in the Northwestern Region from 1973 to 1975. (Counts were based on the examination of 100+ randomly selected trees per location.)

Location	Avg ht of sample trees (ft) ^a	Proportion of trees with leader damage (%)		
		1973	1974	1975
Sioux Lookout District				
Lomond Twp	6	6	2	3
Hudson Hwy	5	-	-	3
Kenora District				
Hwy 596 at Minaki	5	-	1	1
Dryden District				
Webb Twp	3	1	2	1
Buller Twp	5	-	3	2
Tustin Twp	5	-	-	2
Ignace District				
Martin Siding	5	-	1	2
Molzan Lake	6	-	-	2

^a 1 ft = 30.48 cm

Aspen Leafblotch Miner, *Lithocolletis ontario* Free.

An increase in damage to the foliage of aspen regeneration was evident. Small pockets of severe defoliation recurred near Martin Siding in the Ignace District, on the Uchi Lake access road northeast of Ear Falls

in the Red Lake District, and near Little Turtle Lake in the Fort Frances District. Defoliation was approximately 80% in these areas. Light damage occurred near Gundy Lake in Kenora District and near the Dryden Airport (see Appendix, Fig. A1). Small numbers of mined leaves were observed at numerous points elsewhere in the Region.

Table 2. Summary of bark beetles collected at various crown levels from recently dead mature red pine and jack pine trees in the Fort Frances District in 1975.

Location	Host	Avg DBH (in.) ^a	Species collected and crown level
Little Turtle Lake Area	jP	10	<i>Pityogenes plagiatus</i> - DBH level
Little Turtle Lake Area	jP	12	<i>Ips grandicollis</i> - DBH level
Rocky Inlet Bay (Rainy Lake)	rP	12	<i>Ips pini</i> - top and mid-bole
Rocky Inlet Bay (Rainy Lake)	rP	12	<i>Ips grandicollis</i> - DBH level

^a 1 in. = 2.54 cm

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

A marked increase in the extent of infestation was recorded in 1975. Aerial mapping revealed moderate-to-severe defoliation of host trees throughout a total of approximately 2,000 sq. miles (5,200 km²) in the Red Lake, Kenora and Dryden districts. New infestations were mapped from the Ontario-Manitoba provincial boundary between Snowshoe Lake in the northwestern part of the Kenora District and Broadburn Lake in the northwestern part of the Red Lake District eastward to the Red Lake area (see Appendix, Fig. A2).

Infestations in the Pakwash-Bruce lakes area remained much the same in size and intensity as in 1974; however, aerial mapping in Dryden District revealed a fourfold increase in the area infected and trees were severely defoliated in the town of Dryden. Moderate-to-severe defoliation of host trees also occurred within the town of Kenora despite negligible damage in the surrounding forest.

Dissection of cocoons at four points revealed that moths emerged successfully from 47% of all cocoons examined, a marked increase over 1974. This suggests that the outbreak probably will expand in 1976 (Table 3).

Table 3. Results of forest tent caterpillar cocoon dissections in two districts in 1974 and 1975 (100 cocoons dissected at each location)

Location	Parasitized (%)		Diseased (%)		Showing adult emergence (%)	
	1974	1975	1974	1975	1974	1975
Dryden District						
Zealand Twp	42	30	26	18	32	52
Wainwright Twp	37	32	17	9	46	59
Van Horne Twp	55	32	21	17	24	41
Eton Twp	47	27	13	6	40	67
Red Lake District						
Hwy 105 at Trout Lake River	58	77	2	0	40	23
Hwy 105 at Bruce Lake	53	61	4	2	43	37

On the basis of egg-band counts made within or adjacent to described infestations, moderate-to-severe defoliation of trembling aspen (*Populus tremuloides* Michx.) will likely occur over a much larger area in 1976 (Table 4).

Balsam Fir Sawfly, *Neodiprion abietis* complex

Damage levels were light as in 1974 except in Mitchell Township in the Red Lake District and near Stranger Lake northeast of Sioux Lookout where moderate defoliation was observed in roadside stands of balsam fir (*Abies balsamea* [L.] Mill.) (see Appendix, Fig. A3). Elsewhere scattered colonies were common along roadsides and lakeshores at numerous points in the northern half of the Region.

Table 4. Summary of forest tent caterpillar egg-band counts and infestation forecasts in the Northwestern Region. (Counts were based on the examination of one to three trees at each location.)

Numbered locations (see Appendix, Fig. A2)	Avg DBH of sample trees (in.) ^a	No. of trees examined	Avg no. of egg bands per tree	Infestation forecast for 1976
Red Lake District				
*Peisk Lake (1)	8	1	48	heavy
*Vermilion Lake (2)	6	3	6	heavy
*Whitemud Lake (3)	6	3	3	light
Trout Lake River (4)	4	3	9	heavy
Bruce Lake (5)	4	3	2	light
Sydney Lake (6)	9	1	162	heavy
Sioux Lookout District				
*Echo Twp (1)	4	3	2	light
Kenora District				
Snowshoe Lake (1)	6	1	93	heavy
Rex Lake (2)	6	1	19	heavy
*Hwy 17 at West Boundary (3)	5	3	9	heavy
Town of Kenora (4)	5	1	68	heavy
*Rushing River Prov. Pk. (5)	5	3	0	negative
*Sioux Narrows Prov. Pk. (6)	4	3	1	light
Dryden District				
*Blue Lake Prov. Pk. (1)	4	3	2	light
Hwy 17 at Beaver Cr. (2)	5	3	2	light
Hwy 17 at Minitaki (3)	5	3	7	heavy
Hwy 17 at Wabigoon (4)	5	3	1	light
*Bluett Lake (5)	6	3	2	light
Fort Frances District				
*Lake of the Woods Prov. Pk. (1)	6	3	0	negative
*Caliper Lake Prov. Pk. (2)	5	3	1	light

^a 1 in. = 2.54 cm

* Locations where egg bands were found outside the damaged area recorded in 1975.

Jack Pine Sawflies, *Neodiprion swainei* Midd. and *N. virginianus* complex

Populations of pine sawflies increased generally in the Region, particularly in the Rainy Lake and Lake of the Woods areas in the Fort Frances and Kenora districts, respectively. Severe defoliation by *N. swainei* occurred on small islands and along shorelines at several locations in the above mentioned areas (Fig. 1 and 2). Light damage by *N. virginianus* has become increasingly apparent along lakeshores in the southern part of the Region. Light defoliation was observed at numerous points on Rainy Lake and Lake of the Woods and in a young jack pine plantation in Gundy Township west of Kenora.

White Pine Weevil, *Pissodes strobi* (Peck)

Leader damage declined over 1974 at all points examined except near Crystal River in the Ignace District where 4% of the jack pine trees were attacked (Table 5). The highest count was again recorded near Paguchi Lake where 6% of the trees were weeviled. This count was lower than that of 1974.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Heavy concentrations of damage were mapped in the eastern part of the Region (see Appendix, Fig. A4). The most heavily damaged stands of larch (*Larix* spp.) were located near Goschen and Sawden lakes in the Ignace District where defoliation averaged 80% compared with 50% in 1974. In the Sioux Lookout District defoliation increased to high levels in an area northwest of Pickle Lake but declined in the Lake St. Joseph area. Elsewhere in the Region sawfly numbers were low.

Table 5. Summary of damage by the white pine weevil in the Northwestern Region from 1973 to 1975. (Counts were based on the examination of 100+ randomly selected trees 1 in.^a DBH.)

Location	Host	Trees weeviled (%)		
		1973	1974	1975
Sioux Lookout District				
Drayton Twp	jP	-	-	5
Kenora District				
Access Rd 314	jP	-	7	4

(continued)

Table 5. Summary of damage by the white pine weevil in the Northwestern Region from 1973 to 1975. (Counts were based on the examination of 100+ randomly selected trees 1 in.^a DBH.) (concluded)

Location	Host	Trees weeviled (%)		
		1973	1974	1975
Dryden District				
Webb Twp	jP	3	6	3
Langton Twp	jP	-	1	2
Buller Twp	jP.	-	-	3
Ignace District				
Basket Lake Rd	jP	7	6	1
Hwy 599 at Crystal R.	jP	9	2	4
Martin Siding	jP	-	2	2
Paguchi Lake	jP	-	9	6
Paguchi Lake	rP	-	2	3
Fort Frances District				
Bowes Camp Rd	jP	-	3	3
New Dryden Rd	jP	-	5	3

^a 1 in. = 2.54 cm

Table 6. Other forest insects

Insect	Host(s)	Remarks
<i>Acleris variana</i> Fern.	wS	low numbers collected near Sioux Lookout and at Manitou Falls in the Red Lake District
<i>Adelges lariciatus</i> (Patch)	bS	gall damage evident on small shoreline trees at McInnes Lake in the Red Lake District
<i>Fenusa pusilla</i> (Lep.)	wB.	50% of foliage destroyed on small regeneration trees at Bear Pass, Fort Frances District; light damage near Raven Lake, Ignace District

(continued)

Table 6. Other forest insects (continued)

Insect	Host(s)	Remarks
<i>Gonioctena americana</i> (Schaeef.)	tA	The only populations observed were in Rowe Twp, Fort Frances District.
<i>Hyphantria cunea</i> Dru.	A1, wE	scattered colonies at numerous points in Fort Frances District
<i>Malacosoma californicum pluviale</i> Dyar	pCh	occasional colonies observed at Crystal River, Ignace District and near Hudson, Sioux Lookout District
<i>Nematus populi</i> Marl.	tA	small numbers in Gundy Twp, Kenora District
<i>Neodiprion nanulus nanulus</i> Schedl	jP	occasional colonies on fringe trees in Red Lake and Sioux Lookout districts
<i>Neodiprion pratti banksianae</i> Roh.	jP	low numbers at numerous points in the Region; light defoliation recorded at one point on Rainy Lake shoreline, Fort Frances District
<i>Petrova albicapitana</i> (Busck.)	jP	found in small numbers but more widely distributed throughout Region than in 1974
<i>Pikonema alaskensis</i> (Roh.)	wS	a few trees moderately defoliated in Sutherland Twp and Lake of the Woods Provincial Park in Fort Frances District; low numbers at Whitemud Lake, Red Lake District
<i>Pineus similis</i> Gill.	wS	a few individual trees moderately damaged by galls in Lake of the Woods Provincial Park
<i>Pleuroneura brunneicornis</i> Roh.	bF	light bud damage common in the northern half of the Region

(continued)

Table 6. Other forest insects (concluded)

Insect	Host(s)	Remarks
<i>Profenusa thomsoni</i> (Konow)	wB	low populations on fringe trees at Greenbush Lake and along the Umfreville Road, Sioux Lookout District
<i>Pseudexentera oregonana</i> Wlshm.	tA	30% defoliation in a 3-acre (7.41-ha) stand in Rowe Twp, Fort Frances District
<i>Toumeyella numismaticum</i> (P. & McD.)	jP	light damage observed on scattered trees in Revell Twp, Ignace District

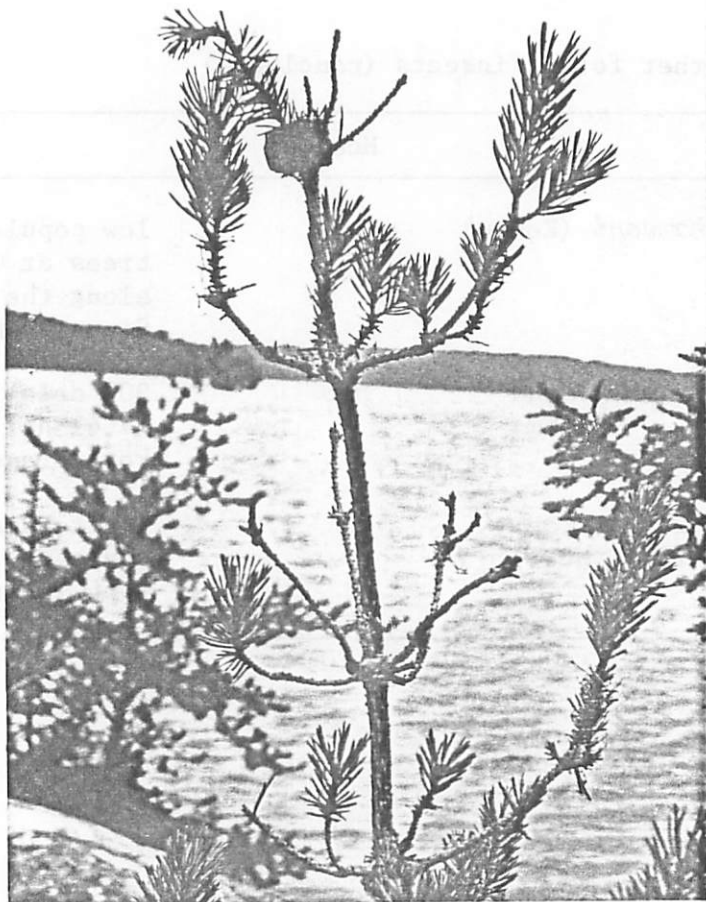


Fig. 1. Defoliation of jack pine by *Neodiprion swainei* sawfly.



Fig. 2. Jack pine trees growing on an island in Lake of the Woods defoliated by *Neodiprion swainei* sawfly.

TREE DISEASES

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

This root-rotting fungus continued to cause occasional tree mortality in young jack pine stands and plantations throughout the Region. As in the past several years, tree mortality was in the order of 1-2% at two locations in the Ignace District and in a young spruce (*Picea* spp.) windbreak in Dryden Nursery (Table 7). Light mortality also occurred in a 6-year-old red pine plantation near Paguchi Lake, Ignace District.

Table 7. Mortality of young jack pine and white spruce (*Picea glauca* [Moench] Voss) by *Armillaria* root rot in two districts of the Northwestern Region in 1975. (Counts were based on the examination of 100+ trees in 5-10 randomly selected sample plots at each location.)

Location	Tree species	Tree ht (ft) ^a	Current mortality (%)
Ignace District			
Revell Twp	jP	9	1
Martin Siding	jP	5	2
Dryden District			
Dryden Nursery	wS	5	1

^a 1 ft = 30.48 cm

Needle Rusts of Spruce, *Chrysomyxa ledi* (Alb. and Schw.) d By.,
C. ledicola Lagh.

Although these foliage diseases were widely distributed through the Region in 1975, damage remained generally at trace or low levels in numerous stands examined. Rusted foliage was most common on fringe or open-grown trees, except in one stand near Mine Centre, Fort Frances District where 95% of the trees examined in disease evaluation plots suffered an average of 66% foliar damage (Table 8).

Table 8. Number of trees affected and foliar damage levels caused by needle rusts of spruce in the Northwestern Region in 1975. (Counts were based on the examination of 100+ black spruce (*Picea mariana* [Mill.] B.S.P.) trees in 5-10 randomly selected sample plots at each location.)

Location	No. of trees affected (%)	Foliar damage levels (%)
Sioux Lookout District		
McCrea Lake	9	1
Kenora District		
Lemay Twp	60	15
Ignace District		
Quest Lake	81	1
Fort Frances District		
Mine Centre	95	66
Bennett Twp	70	10

A Needle Rust of Pine, *Coleosporium asterum* (Diet.) Syd.

This foliage disease was less prevalent than in 1974. When found, damage was usually at trace levels with the exception of a 30-acre (12.1-ha) plantation of young jack pine located southeast of Nestor Falls in Menary Township, where 90% of the trees examined sustained severe rust damage to 40% of their foliage.

Sweetfern Blister Rust, *Cronartium comptoniae* Arth.

A survey was carried out to establish the occurrence of this disease in jack pine stands (see Appendix, Fig. A5). The disease usually kills only seedlings and suppressed trees. It also causes considerable loss of volume as a result of stem cankers on the butt logs (see Frontispiece).

One jack pine stand was selected randomly in each area of about 1735 sq. miles (4500 km²) in that part of the Region where the alternate host, sweetfern (*Comptonia peregrina* [L.] Coult.), grows. Beyond this, one stand was selected in areas four times as large. The survey showed the disease to be present generally through the Region at levels ranging from 1% to 7% except at one location near Mine Centre in the Fort Frances District where 49% of the trees were cankered (Table 9).

Table 9. Summary of incidence and stand damage levels caused by sweetfern blister rust on jack pine in the Northwestern Region in 1975. (Counts were based on the examination of 100+ trees from 5-10 randomly selected sample plots.)

Location	Tree ht (ft) ^a	Incidence (%)	Stand damage level
Red Lake District			
Wenesaga Lake	41	3	light
Stormer Lake	30	2	light
Sioux Lookout District			
Conant Twp	53	3	light
Connell Twp	48	0	nil
Stranger Lake Rd	55	0	nil
Pashkokogan Lake	40	7	moderate
Benedikson Twp	45	1	light
Vermilion Twp	45	3	light
Lomond Twp	60	2	light
Menako Lakes	30	3	light
Kenora District			
Phillips Twp	45	0	nil
Minaki Area	50	0	nil
Dryden District			
Mutrie Twp	50	1	light
Ignace District			
Dewan Twp	57	3	light
Fort Frances District			
Mine Centre	60	49	heavy

^a 1 ft = 30.48 cm

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

This disease showed little change in distribution. However, aerial reconnaissance detected increases in damage levels to some mature white pine stands, particularly in the Rainy Lake and Lake of the Woods areas. The damage was typified by distinctive new red flagging in the upper crowns, with some trees having the entire upper crown dead. Estimates made by aerial and ground observation were recorded and are shown in Table 10.

Table 10. Summary of damage caused by white pine blister rust in three white pine stands in the Northwestern Region in 1975.

Location	Tree ht (ft) ^a	No. of trees affected (%)	No. of trees severely affected (%)
Fort Frances District			
Last Island (Rainy Lake)	50	40	35
Kenora District			
Sabaskong Bay (Lake of the Woods)	68	30	30
Dryden District			
Langton Township	15	30	20

^a 1 ft = 30.48 cm

Western Gall Rust of Hard Pines, *Endocronartium harknessii* (J. P. Moore)
Y: Hiratsuka

There was little change in the status of this disease, but an increase in branch-tip breakage due to gall attack was recorded. This damage was most evident in the northern part of the Region on mature open-grown and fringe trees and was probably caused by high winds in the fall and winter. Surveys in three jack pine regenerated areas in the Ignace District indicated an infection rate of 0%-8% with no tree mortality evident (Table 11).

Table 11. Number of trees affected and damage levels of western gall rust in jack pine regeneration in the Northwestern Region in 1975. (Counts were based on the examination of 100+ trees in 5-10 randomly selected sample plots at each location.)

Location	Tree ht (ft) ^a	No. of trees severely affected* (%)	Total no. of trees affected (%)
Ignace District			
Encamp Lake	6	1	1
Molzan Lake	5	0	3
Basket Lake Rd	9	2	8

^a 1 ft = 30.48 cm

* stem gall

Scleroderris Canker of Pine, *Gremmeniella abietina* (Lagerb.) Morelet
(= *Scleroderris lagerbergii* Gremmen)

Damage and mortality of regeneration jack pine as determined by aerial and ground surveys continued in the areas previously reported, i.e., Polzen and Buddell lakes area 60 miles (96 km) north of Sioux Lookout, and north of Pickle Lake in the Pipestone and Pineimuta rivers area and near Lysander Lake.

In the Polzen and Buddell lakes area where pockets of infection were reported in 1974 no change in the status of the disease could be determined by aerial survey; however, examination of one stand along a lakeshore revealed that heavy infection and some tree mortality occurred in 1975. Ground surveys north of Pickle Lake showed light mortality among smaller trees growing on low sites in stands 6-8 ft (1.8-2.4 m) in height. High infection levels and moderate tree mortality continued in numerous pockets of affected young trees in the Pineimuta River area.

Hypoxylon Canker of Aspen, *Hypoxylon mammatum* (Wahl.) Miller

This disease continued to be common and to have a considerable impact on aspen stands in the Region. Diseased trees are subject to breakage by wind at or near the site of a canker. In a study plot in an immature stand in Drayton Township, Sioux Lookout District, studies showed that over a 5-year period 6% mortality occurred and in 1975 6.5% of the living trees had stem cankers.

Shoot Blight of Red Pine, *Strococcus strobilinus* Preuss.

Surveys at numerous points through the known range of this disease showed a marked decrease in current damage over the previous year. This was further demonstrated in data obtained from two impact study plots established in 1974. These records show only a slight increase in the number of trees affected and in the overall percentage of shoots damaged, and light tree mortality (Table 12). No new infection centers were found elsewhere in the Region.

Nursery Problem

Severe damage to and mortality of rising 2-0 black spruce nursery stock occurred in the Ontario Ministry of Natural Resources tree nursery in Dryden District in 1975. Approximately 70% of the seedlings growing in seedbeds covering 6 acres (2.4 ha) were either

killed or damaged to such an extent that recovery is unlikely. Similar damage was observed on the lower portion of tree crowns to a height of 1 ft (30.48 cm) in nearby spruce windbreaks. Damage resembled that reported in 1970-1972, i.e., severe browning of foliage, needle drop and mortality by late May. The causal agent could not be determined; however, the symptoms resembled those attributed to snow mold. Sampling will be continued in an attempt to resolve this serious problem.

Table 12. Summary of shoot blight on red pine and current mortality at two points in the Northwestern Region in 1974 and 1975. (Counts were based on the examination of 100 marked trees at each location.)

Location	Avg tree ht (ft) ^a	Total trees affected (%)		Proportion of shoots damaged (%)		Tree mortality (%)	
		1974	1975	1974	1975	1974	1975
Sioux Lookout District							
Echo Twp	15	44	45	6.7	0.3	0	0
Dryden District							
Langton Twp	10	92	95	39.5	4.7	0	3

^a 1 ft = 30.48 cm

Abiotic Damage

Drought Damage - There was a further deterioration of jack pine and red pine owing to the severe drought conditions of 1974. Damage was evident in most stands growing on high rocky sites within an area of 75 sq. miles (194 km²) in the Little Turtle Lake area of the Fort Frances District (see Appendix, Fig. A6), and bark beetles appeared to have contributed to the problem. In some stands, an estimated 90% of the trees were severely affected, and up to 20% of these were dead. Other similarly affected areas were at Windy Point and Rocky Inlet on Rainy Lake, along Highway 71 south of Nestor Falls and in the Vermilion Bay area. Examination of recently dead trees also revealed the presence of several species of bark beetles (see account under *Ips pini*) and several undetermined fungi.

Winterburn - Surveys throughout the Region in 1975 did not reveal any damage caused by winterburn as in the two previous years.

Wind Damage - Surveys throughout the Region in 1975 revealed only traces of wind damage. In the Sioux Lookout District open-grown jack pine trees affected by the western gall rust of hard pines suffered breakage of gall-infected branches when high winds caused excessive branch whipping in the fall of 1974.

Table 13. Other forest diseases

Organism	Host(s)	Remarks
<i>Ciborinia whetzellii</i> (Seaver) Seaver Ink spot of aspen	tA	light to trace levels of defoliation; no appreciable damage anywhere in the Region
<i>Fomes pini</i> (Brot. ex Fr.) Karst Red ring rot	jP	collected with a sample of sweetfern blister rust at Sumach Lake, Red Lake District
<i>Hypodermella laricus</i> Tub. Larch needle cast	tL	trace defoliation on roadside larch north of Tache Crossing, Ignace District
<i>Pollaccia radiosa</i> (Lib.) Bald. & Cif. Leaf and twig blight	tA	common at low levels of defoliation on roadside regeneration and small fringe trees throughout the Region

APPENDIX

NORTHWESTERN REGION

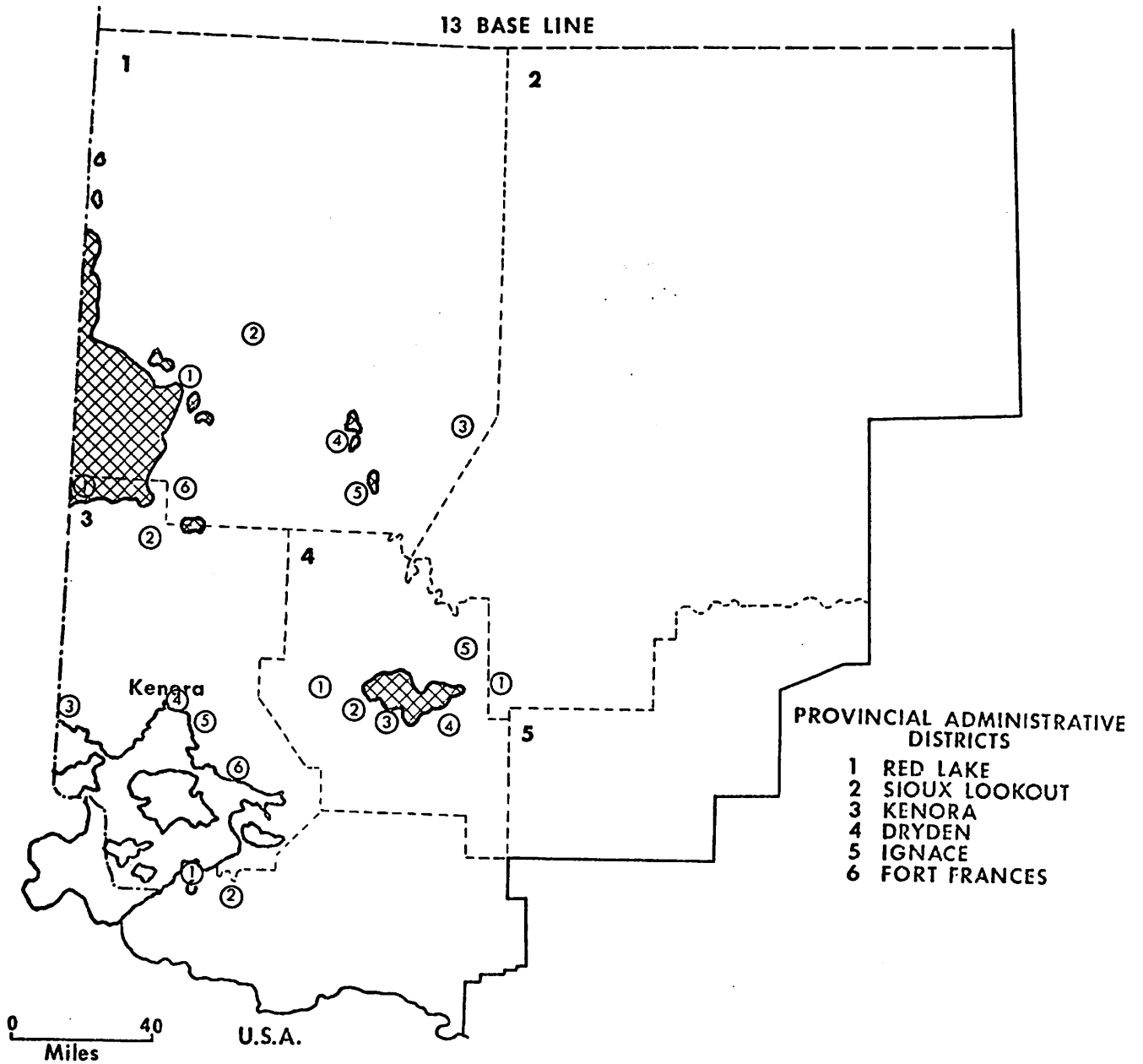


Figure A2. FOREST TENT CATERPILLAR

Areas within which moderate-to-severe defoliation of aspen occurred in 1975

Numbered circles by district show location of egg-band counts

NORTHWESTERN REGION

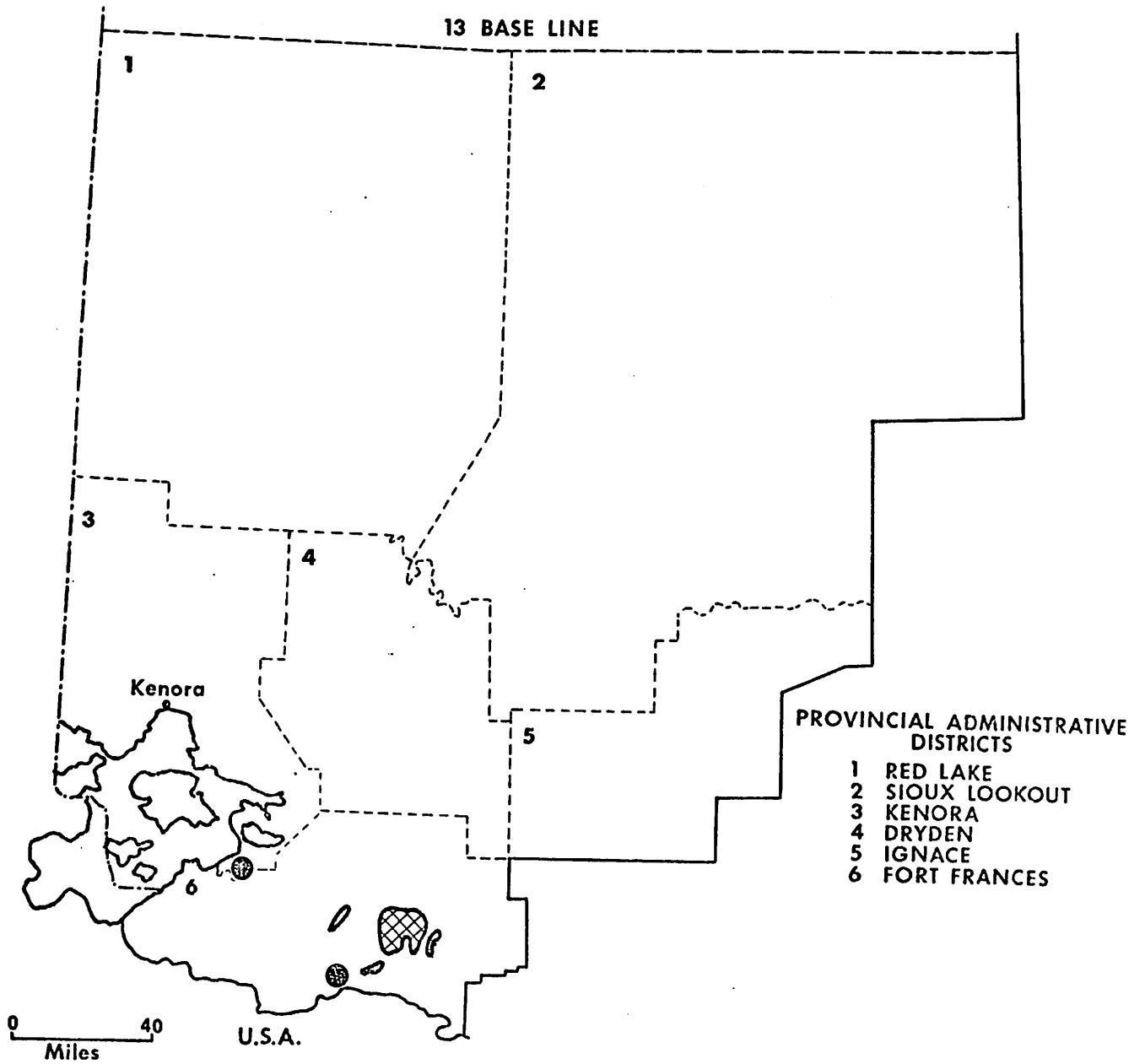


Figure A6. DROUGHT AND BARK BEETLE DAMAGE

Areas and locations of red pine and jack pine mortality ● or 