SURVEY HIGHLIGHTS

The decision to have areas of responsibility for insect and disease surveys conform to the regional geographic structure adopted by the Ontario Ministry of Natural Resources in April, 1973 required major changes in work locations and resulted in the assignment of three survey technicians to the Northern Region in 1974. This report contains the results of field surveys carried out between May 15 and August 29, 1974. Budgetary constraints were responsible for the abbreviated field season and resulted in incomplete surveys and assessment of damage caused by several important insects and diseases in the Region.

The results of spruce budworm surveys which are combined with those of other regions in a provincial report (O-X-228) reveal noteworthy extensions of the boundaries of infestation, particularly in the Timmins, Hearst and Kirkland Lake districts. Two poplar defoliators, the large aspen tortrix and the forest tent caterpillar, caused extensive defoliation in several districts. Preliminary surveys indicated that severe defoliation by the birch skeletonizer would recur in those areas infested in 1973 but damage could not be mapped before the termination of the field season.

Forest disease projects included surveys of coniferous stands and plantations for root rots, the assessment of impact by the Scleroderris canker of pine and the monitoring of other important forest diseases in the Region. Cultures of samples showed that *Armillaria mellea* was the principal cause of root rot and the resultant mortality of appreciable numbers of trees in all districts.

L. S. MacLeod
Supervisor
Northern Region

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INSECTS

Large Aspen Tortrix, *Choristoneura conflictana* Wlk.

Huge areas of poplar (*Populus* spp.) forest were again severely defoliated by this insect in several districts (Fig. 1). The largest infestation, approximately 45 miles (72 km) wide, extended over four districts, from the Quebec border in the vicinity of Lake Abitibi west through parts of Cochrane, Kirkland Lake and Timmins districts to the town of Kapuskasing. Severe defoliation also occurred in the Kipling Dam area and along the Chain of Lakes Road in the Kapuskasing District; in Kendall and Devitt townships in the Hearst District and in the Larder Lake–Englehart area of the Kirkland Lake District (see Appendix, Fig. A1). Pockets of lighter defoliation occurred at many locations in these districts but no infestations were observed in the Chapleau or Gogama districts.

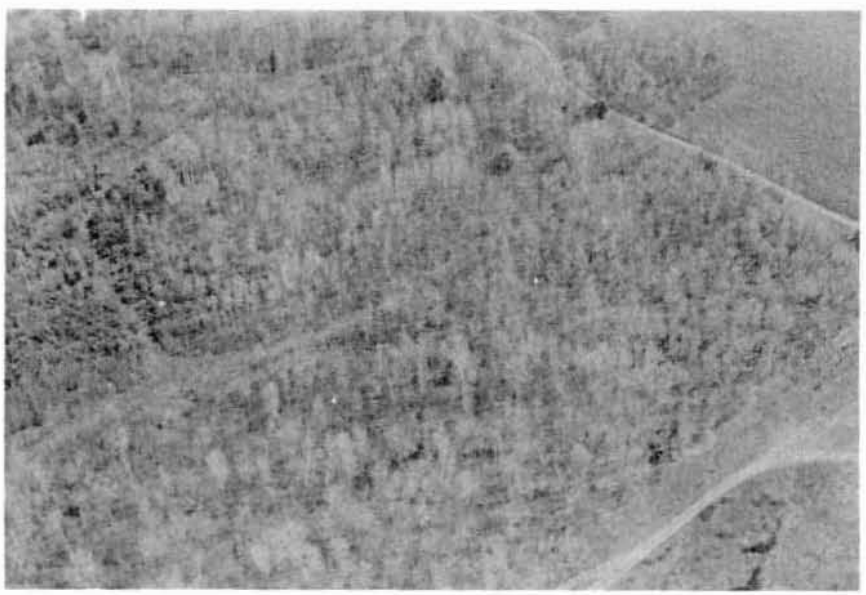

Figure 1. Aerial view showing severe defoliation of trembling aspen caused by the large aspen tortrix.

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 information report by G.M. Howse et al. (O-X-228). This report provides a complete description and analysis of developments in the spruce budworm situation in Ontario in 1974 and gives infestation forecasts for the province in 1975.

Larch Casebearer, *Coleophora laricella* Hbn.

Records show that the larch casebearer was first found in the Kapuskasing District in 1961 and since that time there has been a steady increase in population levels at the monitor plot in Fauquier Township near Remi Lake. This trend continued in 1974 when 73 casebearers were found and light defoliation of the upper crowns of tamarack (*Larix laricina* [Du Roi] K. Koch) occurred. Quantitative sampling at other locations throughout the Region indicated that populations were generally low (Table 1).

Table 1. Summary of larval counts of the larch casebearer in four districts in 1974 (Counts were based on the examination of sixteen 18-in.[a] branch tips at each location.)

Location	Avg DBH of trees (in.)[a]	Total no. of larvae
Kapuskasing District		
Fauquier Twp	6	73
Cochrane District		
Haggart Twp	6	7
Clute Twp	6	23
Timmins District		
McKeown Twp	5	3
Keefer Twp	5	5
Kirkland Lake		
Benoit Twp	4	2
Grenfell Twp	4	0
Hilliard Twp	5	6

[a] 1 in. = 2.54 cm

Jack-pine Tip Beetle, *Conophthorus banksianae* McPherson

For the second consecutive year this insect caused conspicuous killing of jack pine (*Pinus banksiana* Lamb.) shoots in plantations in several districts (see Frontispiece). Damage was particularly striking in Beauchamp, Cairo and Davidson townships in the Kirkland Lake District and Jamieson Township in the Timmins District.

Birch Leafminer, *Fenusa pusilla* (Lep.)

As in recent years this leaf miner was common in all districts. Heavy mining of the foliage of small, open-grown trees was general and ornamental birches in urban areas sustained heavy damage (Fig. 2).

An extensive infestation was observed in the northwestern corner of the Gogama District where leaves of white birch (*Betula papyrifera* Marsh.) in eight townships were heavily mined. Other heavy infestations occurred in Dublin, Ogilvie, Asquith, McMurchy and Chester townships, all in the Gogama District. In the Chapleau District small, heavy infestations were present in Peters, Hoey, Barclay and 9D townships.

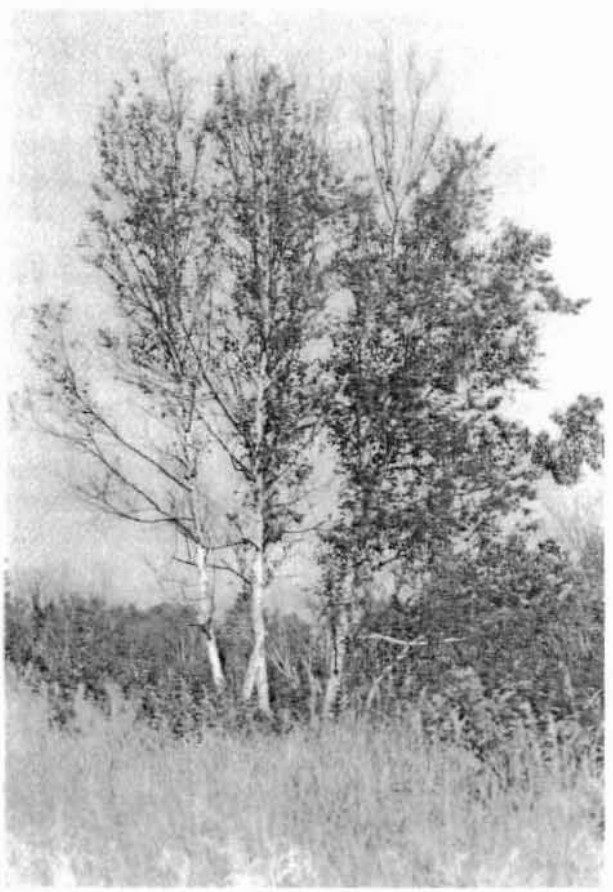

Figure 2. White birch trees showing partial defoliation by the birch leafminer, *Fenusa pusilla* (Lep.)

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

High populations of this leaf beetle caused defoliation of trembling aspen (*Populus tremuloides* Michx.) reproduction at numerous points in most districts. Light infestations were common in Foleyet, Borden, Oates and Wakami townships in the Chapleau District and in Buchan Township in the Kapuskasing District. Pockets of severely defoliated trees were observed in Ossian, Lawson, Farr and Otto townships in the Kirkland Lake District and in German Township in the Timmins District.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

A review of the history of past forest tent caterpillar infestations in the Region disclosed that the last outbreak occurred between 1948 and 1954. First indications of a new buildup in populations appeared in 1971 when a number of colonies were found in Sheul and Way townships in the Hearst District and in Harley and Dymond townships in the Kirkland Lake District. Over the last three years these infestations have increased substantially in size and intensity.

In 1974 the Hearst infestation extended from the Geraldton District border east to Devitt Township, severely defoliating poplar stands over an area of approximately 170 sq. miles (440 sq. km). In addition, three small pockets of light infestation were detected in Fauquier, Kipling and Rapley townships in the Kapuskasing District.

In the Thorneloe—New Liskeard infestation, Kirkland Lake District, severe defoliation of aspen recurred in those townships defoliated in 1973 and the infestation expanded northward over most of Hilliard and Brethour townships (see Appendix, Fig. A2). A small infestation which occurred near Matheson in 1973 did not expand significantly and no infestations were detected in any of the other districts in the Region.

In the Thorneloe—New Liskeard infestation, larval hatch began on May 17 and was completed by May 20. Cold weather followed and leaves did not flush until about May 27. Thus weather conditions obviously exerted a controlling influence on population levels, limiting the buildup of infestations in this area and dampening down an incipient infestation near Matheson.

Egg-band counts made at 14 locations inside and on the perimeter of the larger infestations show that no major boundary extensions are expected in 1975 (Table 2). Moderate and light infestations are forecast for Harmon and Fauquier townships, Kapuskasing District.

Table 2. Summary of forest tent caterpillar egg-band counts in 1974 and infestation forecasts for 1975

Location	Avg DBH of trees (in.)[a]	No. of trees sampled	Total no. of egg bands	Infestation forecast for 1975
Hearst District				
McMillan Twp	12	3	46	heavy
Stoddart Twp	8	3	51	heavy
Lowther Twp	8	3	20	moderate
Way Twp	6	3	12	light
Kendall Twp	6	3	8	light
Kapuskasing District				
Fauquier Twp	6	6	3	light
Harmon Twp	5	3	8	light
Kirkland Lake District				
Casey Twp	3	1	49	heavy
Brethour Twp	3	1	43	heavy
Pense Twp	4	3	3	light
Henwood Twp	4	3	0	nil
Kerns Twp	3	1	52	heavy
Playfair Twp	4	3	0	nil
Bowman Twp	4	3	3	light
Carr Twp	5	3	0	nil
Taylor Twp	5	3	1	trace

[a] 1 in. = 2.54 cm

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

A general increase in the damage caused to open-grown spruce (*Picea* spp.) by this insect was evident in the Hearst, Kapuskasing, Cochrane, Timmins and Kirkland Lake districts. Ornamental white spruce (*Picea glauca* [Moench] Voss) in the towns of Hearst, Kapuskasing, Smooth Rock Falls, Cochrane, Iroquois Falls and Timmins were severely defoliated. Spruce windbreaks along Highway 11 and Highway 65 in the southern part of the Kirkland Lake District sustained heavy damage.

White Pine Weevil, *Pissodes strobi* (Peck)

This perennial pest of pine (*Pinus* spp.) and spruce plantations and regeneration was present in varying numbers in all districts. An increasing number of jack pine plantations established to reforest

clear-cut areas are now reaching the stage that is susceptible to damage by weevils. Table 3 shows weevil damage incidence ranging from 1 to 9%.

Table 3. Summary of tree damage caused by the white pine weevil in six districts in 1974 (Counts were based on the examination of 100 trees at each location.)

Location	Host	Avg height (ft)[a]	Trees weeviled (%)
Cochrane District			
Potter Twp	wS	6	4
Calder Twp	bS	6	2
Kapuskasing District			
Fauquier Twp	bS	6	6
Casselman Twp	bS	5	4
Gurney Twp	bS	6	4
Chapleau District			
Edith Twp	jP	6	2
11B Twp	jP	5	6
11C Twp	jP	5	6
Gogama District			
Vrooman Twp	jP	6	2
Kirkland Lake District			
Bowman Twp	jP	4	1
McEvay Twp	jP	5	4
Nordica Twp	jP	7	9
Dunmore Twp	jP	6	5
Beauchamp Twp	wP	6	2
Davidson Twp	jP	7	3
Timmins District			
Thorneloe Twp	jP	6	4

[a] 1 ft = 0.3 m

Larch Sawfly, *Pristiphora erichsonii* Htg.

In recent years populations of the larch sawfly have remained at low levels in the Region. In 1974 moderate defoliation occurred along the Chain of Lakes and Gurney roads in the Kapuskasing District. Light-to-moderate defoliation was observed along the Wade Lake Road in

the Cochrane District and at numerous locations in the Kirkland Lake District. Light infestations also occurred in the Westree-Shiningtree area in the Gogama District.

Mountain-ash Sawfly, *Pristiphora geniculata* Htg.

High numbers of this sawfly were present in all districts and severely defoliated trees were common, especially along the Chain of Lakes Road in the Kapuskasing District; from Smooth Rock Falls to Kipling Dam and along the Wade Lake Road to the Quebec border in the Cochrane District; and in Asquith, Garibaldi, Noble and Roblin townships in the Gogama District. Ornamentals in urban areas were heavily attacked from Hearst to New Liskeard.

Table 4. Other forest insects

Insect	Host(s)	Remarks
Acrobasis betulella Hlst.	wB	Tube makers caused light defoliation of open-grown trees at many points in the Region.
Adelges abietis Linn.	wS	moderate numbers in Spruce Falls Nursery, Kapuskasing District
Anacampsis innocuella Zell.	tA	widely distributed, but generally in low numbers
Anomogyna elimata Gn.	wS	trace populations at several points in Kirkland Lake District
Archippus packardianus Fern.	wS	unusually common on highway windbreaks in Cane Twp, Kirkland Lake District
Archips cerasivoranus (Fitch)	cCh	numerous pockets of webbing along CNR tracks, Kapuskasing District
Arge pectoralis (Leach)	wB	occasional colonies of this defoliator in Truax Twp, Kirkland Lake District

(continued)

Table 4. Other forest insects (continued)

Insect	Host(s)	Remarks
Cecidomyia reeksi Vock.	jP	appreciable twig mortality in Munro, McCool and Michaud twp, Kirkland Lake District; light twig damage at numerous other points
Cenopis pettitana Rob.	rM	conspicuous leaf damage in Baynes Twp, Gogama District
Choristoneura pinus pinus Free.	jP	trace levels in Godfrey and Jamieson twp, Timmins District, and in Beauchamp Twp, Kirkland Lake District
Choristoneura rosaceana Harr.	tA	appreciable numbers at one point in Borden Twp, Chapleau District
Compsolechia niveopulvella Cham.	tA	General increase in several species of rollers and tiers caused varying degrees of defoliation in the Region.
Dasineura balsamicola (Lintn.)	bF	widely distributed in the Region, more common in the Kirkland Lake and Timmins districts
Dioryctria reniculelloides M. & M.	wS	low numbers at many points in Timmins and Kirkland Lake districts
Epinotia nisella criddleana Kft.	tA	light population in Robb Twp, Timmins District
Epinotia solandriana Linn.	wB	light infestations in white birch stands at several points in Kirkland Lake District and in MacKlem and Bond twp, Timmins District
Eucosma gloriola Heinr.	jP	5% of leaders infested at one point in Vrooman Twp, Gogama District
Filatima demissae Keif.	Se	high numbers in McGarry Twp, Kirkland Lake District

(continued)

Table 5. Other forest insects (continued)

Insect	Host(s)	Remarks
Hemichroa crocea (Four.)	Al	severe defoliation for the last three years along creeks and rivers from Remi Lake, Kapuskasing District, east to Smooth Rock Falls in Cochrane District
Heterarthrus nemoratus	wB	low numbers throughout Region; more common in Ogilvy Twp, Gogama District
Lithocolletis betulivora Wlshm.	wB	common at one point in Mickle Twp, Kirkland Lake District
Lithocolletis ontario Free.	tA	pockets of heavy infestation in Margaret Twp, Chapleau District and at many points in Cochrane District; light and medium investations in all districts of the Region
Malacosoma californicum pluviale Dyar	pCh	high numbers of tents present along roads and cut-over areas in most districts; high parasitism noted in the Cochrane District
Meroptera pravella Grt.	tA	moderate-to-high numbers in most stands examined in the Timmins and Kirkland Lake districts
Neodiprion abietis complex	bF	low numbers in beating tray samples from Cochrane, Kapuskasing and Kirkland Lake districts
Neodiprion maurus Roh.	jP	single colonies in Hong Kong Twp, Chapleau District
Neodiprion virginianus complex	jP	few colonies in Spruce Falls Nursery, Kapuskasing District

(continued)

Table 5. Other forest insects (continued)

Insect	Host(s)	Remarks
Neurotoma inconspicua (Nort.)	pCh	occasionally observed, particularly in Chester and Baynes twp, Gogama District
Petrova albicapitana (Busck.)	jP	present in varying numbers in most stands examined in the Region
Phratora purpurea purpurea Brown	tA	widespread in aspen stands but mostly in low numbers
Pineus similis Gill.	wS	observed at many points; heavy on trees at Fauquier, Kapuskasing District
Pleroneura brunneicornis Roh.	bF	heavy bud damage in Whitney Twp, Timmins District and in Harker, Pacaud and Gauthier twp in the Kirkland Lake District
Profenusa thomsoni (Konow)	wB	light mining at Remi Lake, Kapuskasing District; in Twp 80, Chapleau District; in Paudash and Ogilvie twp, Gogama District
Pseudexentera oregonana Wlshm.	tA	Increased population levels caused light defoliation of aspen stands at several points in Robb and Hassard twp, Timmins District and in Teck and Lebell twp, Kirkland Lake District.
Psilocorsis fletcherella Gibs.	tA	leaf tiers common throughout central and southern parts of Kirkland Lake District
Pulicalvaria piceaella (Kft.)	wS	numerous at one point in Denton Twp, Timmins District
Rhabdophaga swainei Felt.	wS bS	present in most spruce stands in the Region
Sciaphila duplex Wlshm.	tA	leaf rollers common in Chapleau and Margaret twp, Chapleau District

(continued)

Table 5. Other forest insects (concluded)

Insect	Host(s)	Remarks
Tetralopha aplastella Hlst.	tA	moderate populations at many locations, particularly in the central and southern parts of the Kirkland Lake District
Toumeyella numismaticum (P. & M.)	jP	single and small groups of trees heavily infested at many points in most districts of the Region
Xylomyges dolosa Grt.	tA	low numbers, usually found with other insects
Zeiraphera canadensis Mut. & Free.	wS	high numbers on windbreaks in Cane and Harley twp, Kirkland Lake District
Zeiraphera destitutana Walker	bF wS	few larvae in beating tray samples
Zelleria haimbachi Busck.	jP	general decline in population levels; moderate numbers at one point in Beauchamp Twp, Kirkland Lake District

TREE DISEASES

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

A survey was made of root rot diseases of young conifers, and root samples of representative trees showing typical symptoms were submitted. *Armillaria mellea* was the principal organism cultured from 85 samples from a variety of host trees and from widely dispersed locations in the Region. Host species included red pine (*Pinus resinosa* Ait.), jack pine, white pine (*Pinus strobus* L.), black spruce (*Picea mariana* [Mill.] B.S.P.), white spruce, and balsam fir (*Abies balsamea* [L.] Mill.). Typical root rot mortality was present in most jack pine plantations examined, particularly in the Kirkland Lake District.

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

Black spruce stands were infected with this needle rust at numerous locations throughout the Region and infection levels ranged from trace to high. Foliar damage was most noticeable in Mowbray, Scholfield and Ingram townships in the Kapuskasing, Hearst and Kirkland Lake districts, respectively. Moderate infection levels recurred in Potter and Marathon townships, Cochrane District and in Hislop Township, Kirkland Lake District. Evaluations in 18 other stands showed that generally light rust conditions prevailed.

Ink Spot of Aspen, *Ciborinia whetzelii* (Seaver) Seaver

Pockets of this foliage disease were common throughout aspen stands in all districts. High infections were recorded in Fauquier, O'Brien, Buchan and Gargill townships in the Kapuskasing District. Numerous areas of moderate defoliation occurred in Hearst, Chapleau, Gogama, Timmins and Kirkland Lake districts where defoliation ranged from 25% to 60%.

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

This foliage rust recurred at high levels for the third consecutive year in a 5-acre (2.02-ha) jack pine plantation in Avon Township, Cochrane District and at moderate levels in a 20-acre (8.10-ha) jack pine plantation in Studholme Township, Hearst District. Light infection was observed in Kipling Township, Kapuskasing District and in Beauchamp Township, Kirkland Lake District.

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

Detection surveys for this organism were continued in 1974 and plots were established in several stands to assess future impact of the disease.

No new pockets of infection were noted in Avon Township, Cochrane District, where the organism was first recorded in 1970. Fruiting of the disease was sparse in several plantations in the Kapuskasing and Hearst districts where infection levels were high in 1973.

Incidence was generally high in plantations examined in the Chapleau District, ranging from 7% to 93% at 11 locations evaluated. In Kirkland Lake District incidence was lower, averaging 25% at eight sample points with an average of 8% mortality.

Table 6. Other forest diseases

Organism	Host(s)	Remarks
Endocronartium harknessii (J.P. Moore) Y. Hiratsuka	jP	branch galls common in Region; moderate infection levels in Avon, Marathon and Steele twp, Cochrane District
Lenzites saepiaria (Wulf.) Fr.	wS	fruiting on numerous trees in stand deteriorating from spruce budworm attack in Borden Twp, Chapleau District
Pucciniastrum epilobii Otth.	bF	recurred in Seaton and Fenton twp, Kapuskasing District
Sirococcus strobilinus Preuss.	rP	small stand of understory trees moderately damaged at Weshago Lake, Twp 10E, Chapleau District

APPENDIX

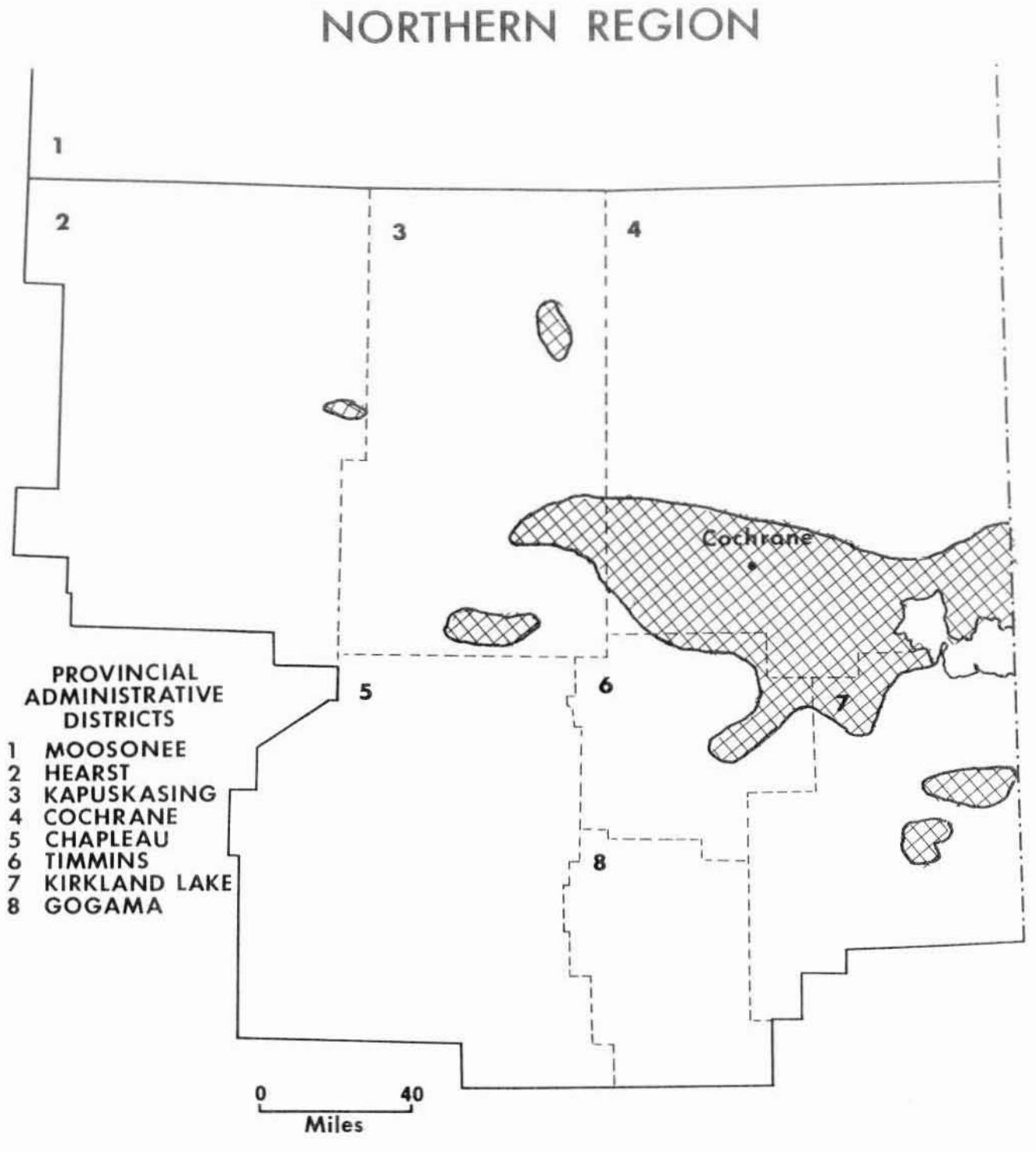

Figure A1. LARGE ASPEN TORTRIX

Areas within which moderate-to-severe defoliation of trembling aspen occurred in 1974

Moderate-to-severe defoliation . . . . . 

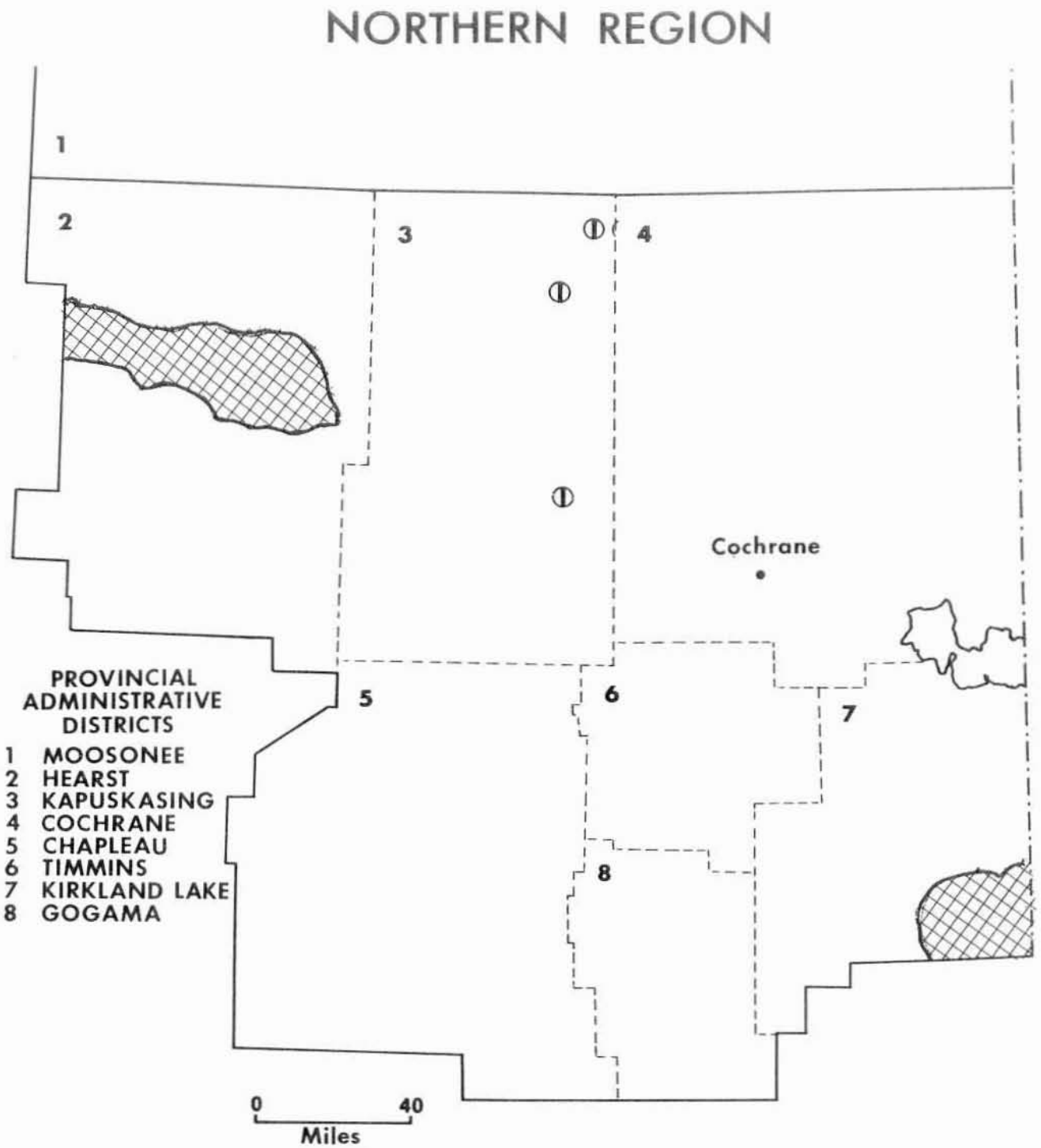

Figure A2. FOREST TENT CATERPILLAR

Areas within which light and severe defoliation occurred in 1974

Light defoliation . . . . . ◐

Severe defoliation . . . . . ▨

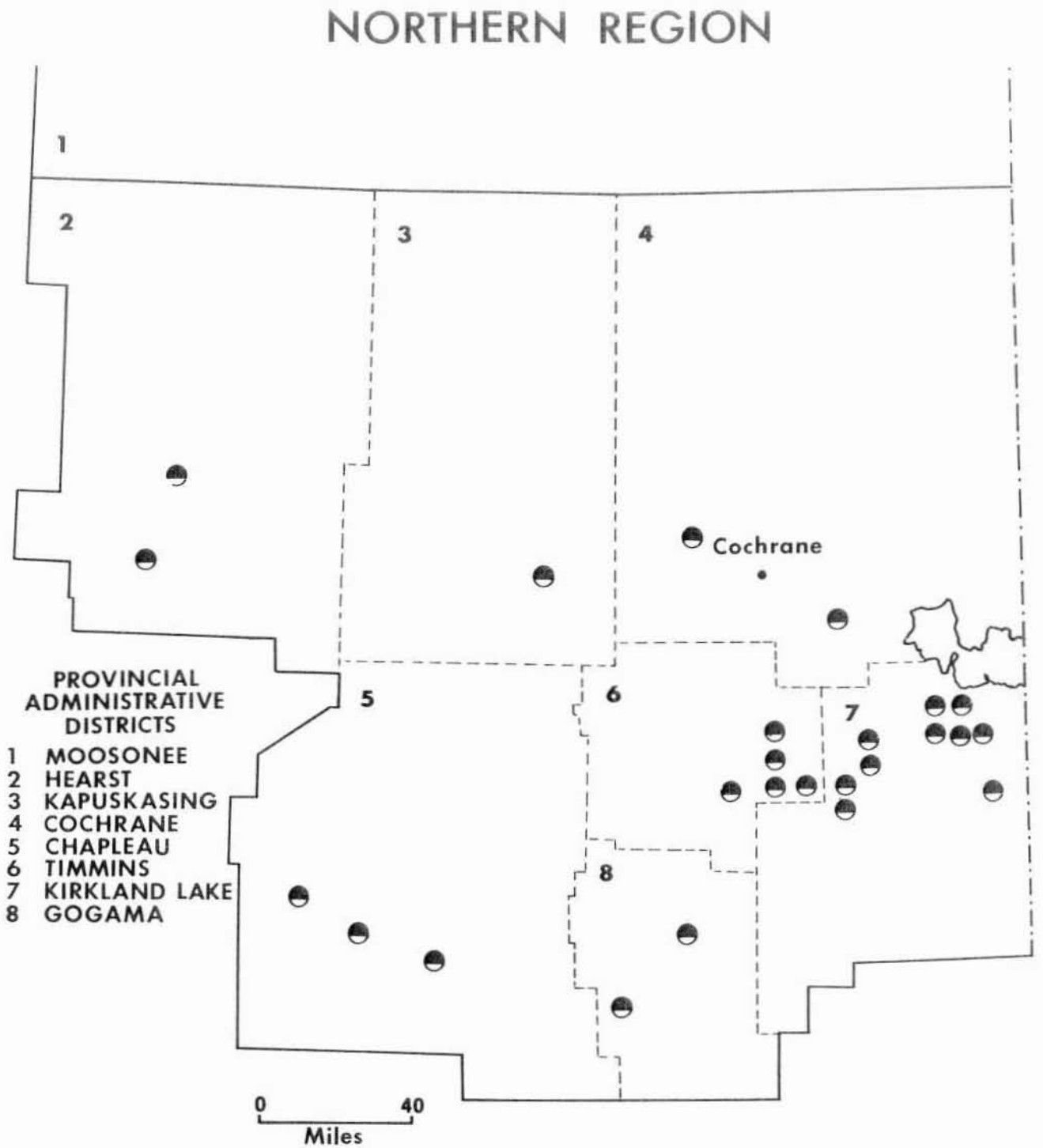

Figure A3. SCLERODERRIS CANKER OF PINE

Locations where this disease has been recorded up to and including 1974 . . . . . ◓