FOREST INSECT AND DISEASE SURVEYS IN THE NORTHWESTERN REGION OF ONTARIO, 1974

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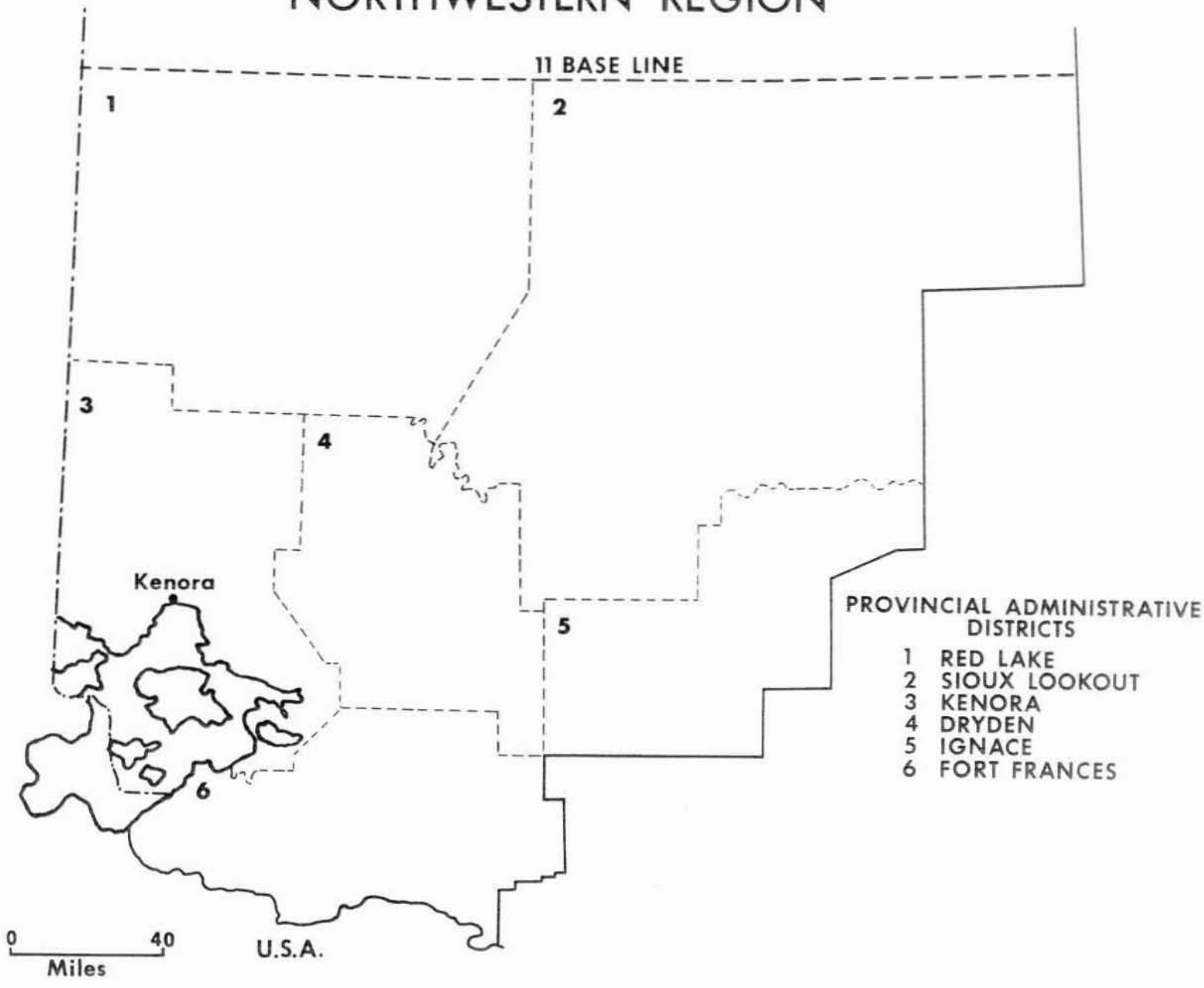
NORTHWESTERN REGION



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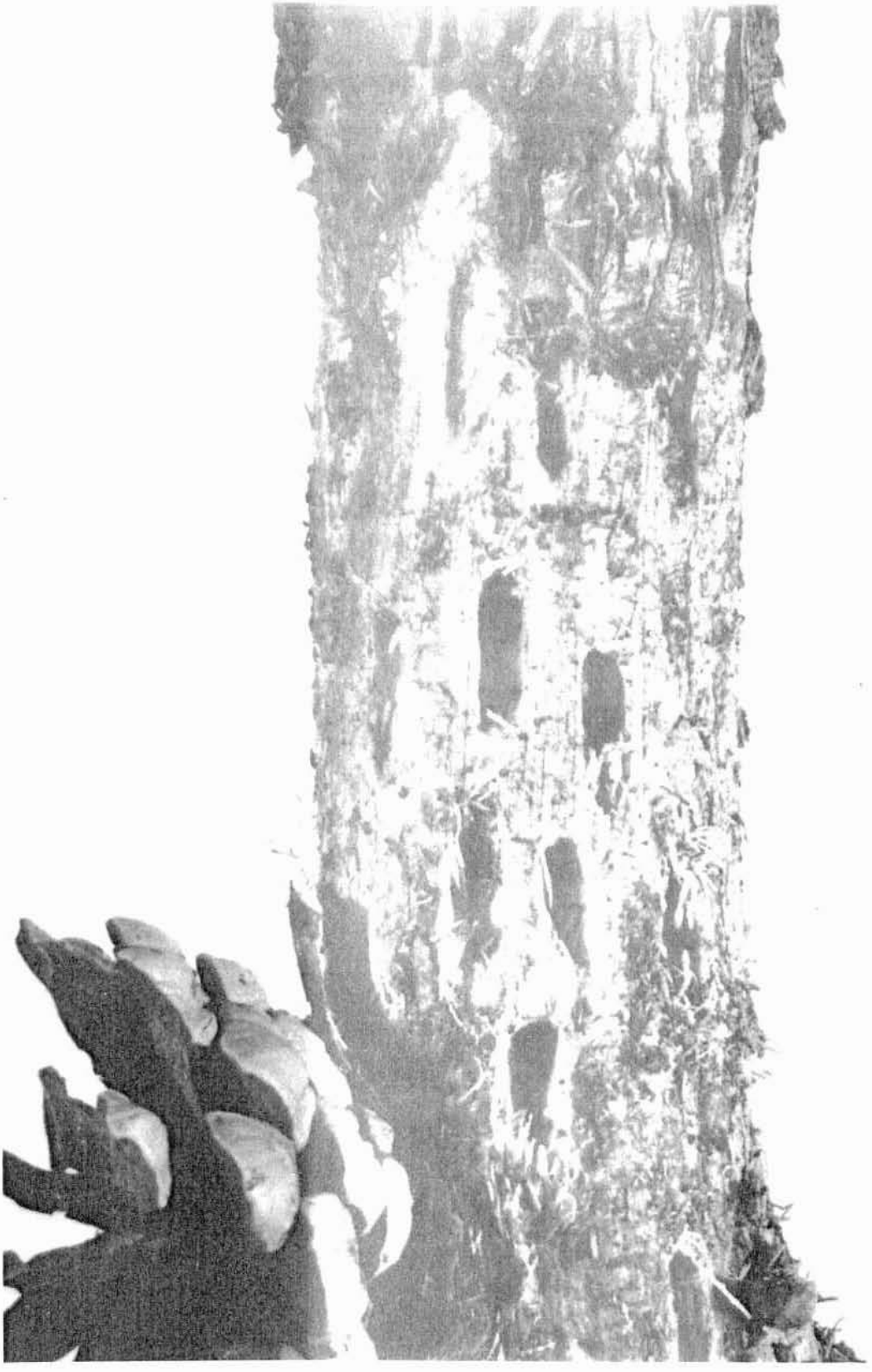

Frontispiece. Chambers from which larvae or pupae of the white pine weevil have been removed by predators, possibly birds.

SURVEY HIGHLIGHTS

The following report describes insect and disease conditions affecting the forests of the Northwestern Region in 1974. A spruce budworm infestation was found covering approximately 10,000 acres (4,050 ha) in the southeastern part of the Fort Frances District. Infestations of the forest tent caterpillar, large aspen tortrix and birch leaf skeletonizer declined markedly over 1973. The area infested by the forest tent caterpillar in the Dryden District decreased by one half, while that infested by the large aspen tortrix decreased from approximately 25,000 sq. miles (64,750 sq. km) to scattered pockets of defoliation in the Red Lake and Ignace districts. No feeding damage by the birch skeletonizer was evident at the close of the field season (September 1) even though heavy infestations were mapped through approximately 80% of the Region in 1973. Blackheaded budworm was again commonly found through a large part of the Region but no serious defoliation was detected. A marked increase was evident in numbers of balsam fir sawfly at many points.

The fungus disease Scleroderris canker of pine continued to cause severe damage in young stands of jack pine regeneration in the northwestern part of the Sioux Lookout District. Areas of damage to jack pine regeneration were found at four locations in the above district, the most notable being situated approximately 60 miles (97 km) directly north of Sioux Lookout where pockets of severe browning of foliage were mapped from the air over 100 sq. miles (259 sq. km). An extension in the range of *Sirococcus strobilinus*, a shoot blight of pine, was established in the Kenora District, and in the Red Lake District a windstorm in early July caused severe damage in a small forested area on the south side of Gullrock Lake. Low infection levels of spruce needle rusts persisted and were found more commonly through the northern two thirds of the Region.

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INSECTS

Blackheaded Budworm, *Acleris variana* Fern.

Although populations remained at a low level, an increase in numbers was recorded for the second consecutive year and the insect was more readily collected further to the north than in 1973.

Slight defoliation was observed on black spruce (*Picea mariana* [Mill.] B.S.P.), especially along the shores of lakes and rivers in the districts of Red Lake, Sioux Lookout and Ignace. In addition, small numbers of larvae were commonly found on balsam fir (*Abies balsamea* [L.] Mill.) when the spruce budworm (*Choristoneura fumiferana* [Clem.]) monitoring surveys were being carried out.

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

After four consecutive years of heavy infestations on white birch (*Betula papyrifera* Marsh.) through much of the Northwestern Region, a marked decline occurred in 1974. Aerial and ground surveys in the latter part of August through the southern two thirds of the Region failed to reveal damage. However, owing to the early termination of the field season and the later development further north, the infestation picture is unknown for the northern areas. Records on outbreaks over more than two decades show that populations of the insect are subject to spectacular and abrupt change.

Large Aspen Tortrix, *Choristoneura conflictana* Wlk.

After four consecutive years of extensive infestation, a marked decrease occurred. The area infested declined from approximately 6,000 sq. miles (15,540 sq. km) of forested land in 1973 to just over 200 sq. miles (518 sq. km) (see Appendix, Fig. A1). Aerial mapping revealed a total of 11 pockets of infestation, 10 of which were confined to the southeastern part of the Red Lake District and one east of Sowden Lake in the Ignace District. Pockets of moderate-to-heavy infestation were mapped at eight points in the vicinity of Bluffy, Whitemud, Slate and Uchi lakes and light infestations occurred near Confederation Lake, which is located directly north of the previously mentioned area. Light damage was found along shorelines and on islands in Red Lake and on the shoreline of Lac Seul near the Village of Gold Pines where infestations have been recorded each year since 1970. The reduction in numbers is thought to have been the result of inclement weather in the spring of 1974. Foliage was about 2 weeks later than normal in flushing, and consequently feeding conditions were unsuitable for young larvae.

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 the reader with a complete description and analysis of developments in the spruce budworm situation in Ontario in 1974 and gives infestation forecasts for the province for 1975.

Jack Pine Tip Beetle, *Conophthorus banksianae* McPherson

Damage by this insect to young jack pine (*Pinus banksiana* Lamb.) has been prevalent each year since 1970 at many points in the Region. In 1974 quantitative sampling showed little change in population levels, except in Lomond Township, Sioux Lookout District where the number of terminal shoots killed decreased from 12% in 1973 to 2% (Table 1). In survey evaluation work, only the damage caused to the leader is counted since damage to the tips of lateral branches is considered to have an insignificant impact on the tree.

Table 1. Summary of damage by the jack pine tip beetle on regeneration jack pine in the Northwestern Region from 1972 to 1974 (Counts were based on the examination of 100+ trees distributed through 5-10 11-ft^2 [253-m^2] plots randomly selected at 2-chain [40.24-m] intervals.)

Location	Avg ht of sample trees (ft)[a]	Trees with leader damaged		
		1972	1973 (%)	1974
Dryden District				
Webb Twp	3	3	1	2
Buller Twp	5	-	-	3
Ignace District				
Hwy 599 at Crystal R.	6	-	1	0
Martin Siding	4	-	-	1
Kenora District				
Minaki Area	5	-	-	1
Sioux Lookout District				
Lomond Twp	6	12	6	2

[a] 1 ft = 0.30 m

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

This sawfly recurred at much the same level as in 1973. White pine (*Pinus strobus* L.) was lightly infested in numerous stands along shorelines and on islands in Rainy Lake in the Fort Frances District. Larvae were most abundant in the Redgut and Swell Bays area.

Blotchminer on Poplar, *Lithocolletis ontario* Free.

Damage caused by this leafminer increased in the Sioux Lookout District. A small area of heavy infestation occurred in trembling aspen (*Populus tremuloides* Michx.) stands along Highway 599 between Werthiem and Fichie lakes, and small pockets of new light infestation were found on aspen regeneration in Lomond Township and at Knox Lake. Heavy infestations which had occurred in Ignace District for three consecutive years declined this year to light-to-moderate intensity. Pockets of light infestation were observed at numerous locations elsewhere in the Region.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Over all, the incidence of defoliation was less than in 1973. Extensive damage was confined to two areas, around Dryden and in the Pakwash–Bruce lakes area in the Red Lake District (see Appendix, Fig. A2). Three small infestations which were mapped in 1973 virtually disappeared.

The Dryden infestation decreased in extent over 1973 by approximately 50%. This was caused in part by the failure of eggs to hatch in the spring of 1974. At one location, for example, egg bands showed only 1% hatch (Table 2). Although hatch was higher than this in other areas, the overall effect was a reduction in the extent and intensity of defoliation of aspen.

Table 2. Summary of forest tent caterpillar egg hatch at two locations in the Northwestern Region (Counts were based on the examination of 10 egg bands after larval emergence had occurred at each location.)

Location	No. of eggs examined	Larval emergence (%)
Red Lake District Hwy 105 at Trout Lake River	1641	83
Dryden District Sandford Twp	2000	1

In the Pakwash–Bruce lakes area, egg hatch was much more successful (Table 2) but cold, wet weather following the hatching of eggs proved unfavorable for the survival of young larvae. This hindered the spread of the infestation and contained it within an area similar to that defoliated in 1973

Dissection of cocoon samples at both Dryden and the Pakwash–Bruce lakes area following moth emergence revealed that only half of the cocoons were parasitized, that a much smaller number were diseased and that moths successfully emerged from roughly 30%-40% of the cocoons (Table 3).

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

Location	Parasitized (%)	Diseased (%)	Showing adult emergence (%)
Dryden District			
Zealand Twp	42	26	32
Wainwright Twp	37	17	46
Van Horne Twp	55	21	24
Eton Twp	47	13	40
Red Lake District			
Hwy 105 at Troutlake River	58	2	40
Hwy 105 at Bruce Lake	53	4	43

On the basis of egg-band counts made within and adjacent to these described infestations, patches of defoliation are forecast for the Dryden area but damage is expected to be heavy and more extensive in the Pakwash–Bruce lakes area (Table 4).

Balsam Fir Sawfly, *Neodiprion abietis* complex

Populations of this insect have been insignificant for the past several years but in 1974 a marked increase in numbers caused light defoliation of balsam fir stands along Highway 105 from near Camp Robinson in Dryden District to Ear Falls in the Red Lake District (Fig. 1). Elsewhere, except in Ignace District, feeding damage was common on roadside or shoreline balsam fir and black spruce trees. This was especially so from Lash Township in the Fort Frances District to as far north as McCusker and Madden lakes near the 11th base line in the Red Lake District.

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.)

Location	Avg DBH of sample trees (in.)[a]	No. of trees examined	Avg no. of egg bands per tree	Infestation forecast for 1975
Dryden District				
Hwy 17 at Minitaki	4	3	1	light
Hwy 17 at Beaver Creek	4	3	10	heavy
Hwy 17 at Wabigoon	4	3	0	nil
Red Lake District				
Hwy 105 at Troutlake R.	5	1	19	heavy
Hwy 105 at Bruce Lake	6	1	43	heavy

[a] 1 in. = 2.54 cm

Figure 1. Damage to a balsam fir stand caused by balsam fir sawfly.

White Pine Weevil, *Pissodes strobi* (Peck)

Weevil damage may be found on young pine at least as far north as the Pickle and Red lakes areas. Survey results showed an overall decline in the incidence of weevil attack in 1974 (4% based on 11 measurements compared with 7% based on 14 measurements in 1973). The highest population level occurred at Paguchi Lake in the Ignace District where 9% of young jack pine in the area were attacked (Table 5).

In the Basket Lake area of the Ignace District, surveys revealed that an unknown predator had attacked 45% of the weevil-infested shoots in a young jack pine stand and destroyed a large proportion of larvae and pupae (see Frontispiece).

Table 5. Summary of damage by the white pine weevil in the Northwestern Region from 1972 to 1974 (Counts were based on examination of 100+ trees distributed through 5-10 11-ft^2 [2.53-m^2] plots randomly selected at 2-chain [40.24 m] intervals.)

Location	Host	Avg DBH of sample trees (in.)[a]	Trees weevilled 1972	1973	1974
			(%)		
Dryden District					
Webb Twp	jP	1	19	3	6
Langton Twp	jP	1	-	-	1
Fort Frances District					
Bowes Camp Rd	jP	1	-	-	3
New Dryden Rd	jP	1	-	-	5
Ignace District					
Basket Lake Rd	jP	1	17	7	6
Hwy 599 at Crystal R.	jP	1	11	9	2
Martin Siding	jP	1	-	-	2
Paguchi Lake	jP	1	-	-	9
Paguchi Lake	rP	1	-	-	2
Kenora District					
Access Rd. 314	jP	1	-	-	7
Sioux Lookout District					
Lomond Twp	jP	1	-	-	1

[a] 1 in. = 2.54 cm

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Defoliation of tamarack (*Larix laricina* [Du Roi] K. Koch) increased in Sioux Lookout and Ignace districts but decreased to low levels in the vicinity of Nungesser and Sambells lakes in the Red Lake District, where pockets of medium infestation were reported in 1973. Pockets of medium-to-heavy defoliation were mapped southwest of Lake St. Joseph and at four points along the Savant River near the eastern boundary of Sioux Lookout District. In the Ignace District over 50% defoliation occurred at four points in the Sowden and Goschen lakes area (see Appendix, Fig. A3). Elsewhere in the Region, although populations were generally low, larval colonies were easily found in most stands examined.

Table 6. Other forest insects

Insect	Host(s)	Remarks
Acrobasis betulella Hlst.	wB	small numbers near Hudson in Sioux Lookout District and at Centre Smirch Lake, Ignace District
Alsophila pometaria (Harr.)	mM	Defoliation declined in the town of Fort Frances.
Cecidomyia reeksi Vock.	jP	Damage decreased in the Basket Lake area, Ignace District. Populations were low near Minaki, Kenora District.
Choristoneura pinus pinus Free.	jP	trace defoliation on small trees in Redgut Bay area and along Bowes Camp road in Fort Frances District, at Centre Smirch Lake, Ignace District and in Pelican Twp, Kenora District
Diprion hercyniae (Htg.)	wS	no noticeable defoliation but wide distribution in the southern half of the Region
Eucosma gloriola Heinr.	jP	small numbers of attacks in Tustin Twp, Dryden District and in plantations near Fort Frances

(continued)

Table 6. Other forest insects (continued)

Insect	Host(s)	Remarks
Fenusa pusilla (Lep.)	wB	up to 20% foliage damage on small roadside trees northeast of Fort Frances
Gonioctena americana (Schaef.)	tA	light damage on small trees at one point in Fort Frances District; small numbers of larvae in Dryden and Red Lake districts
Hyphantria cunea Dru.	wE	light damage near Nestor Falls, Kenora District
Lambdina fiscellaria fiscellaria Gn.	wP	small numbers at Redgut Bay, Fort Frances District
Malacosoma californicum pluviale Dyar	wB, W PCh	small numbers of colonies at scattered points in Dryden, Ignace, Kenora and Sioux Lookout districts
Neodiprion nanulus nanulus Schedl	jP	light damage at numerous points in Fort Frances District; colonies widely scattered in Ignace and Sioux Lookout districts
Neodiprion virginianus complex	jP	caused 15% defoliation on shoreline trees at Sunshine Lake, Dryden District; scattered colonies on fringe trees in Kenora, Ignace and Fort Frances districts
Pikonema alaskensis (Roh.)	wS, bS	light defoliation at Stokes Bay, Fort Frances District; small numbers at many points elsewhere in the Region
Pleroneura brunneicornis Roh. (= *borealis* Felt)	bF	light shoot damage observed on large trees in Dryden, Kenora and Fort Frances districts
Profenusa thomsoni (Konow)	wB	light damage on small host trees on shorelines of Phyllis and Knox lakes in Ignace and Red Lake districts, respectively

(continued)

Table 6. Other forest insects (concluded)

Insect	Host(s)	Remarks
Pseudexentera oregonana Wlshm.	tA	heavy damage through about 400 acres (160 ha) of trembling aspen along Bowes Camp road in Fort Frances District; low populations in Dryden and Kenora districts
Toumeyella numismaticum (P. & M.)	jP	little damage at Tache Crossing, Ignace District; trace population in a small plantation in Echo Township, Sioux Lookout District
Zeiraphera destitutana (Walker)	wS	small numbers at O'Brien's Landing, Ignace District

TREE DISEASES

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

This root-rotting fungus may be associated with the death of different tree species in any age class but in the Region it is most commonly associated with mortality of young jack pine trees. Past records show that mortality rarely exceeds 5% in any one year. Evaluations made in 1974 are summarized in Table 7.

Table 7. Mortality of young jack pine by Armillaria root rot in the Northwestern Region in 1974 (Counts were based on the examination of 100+ trees in 5-10 randomly selected sample plots at each location.)

Location	Tree ht (ft)[a]	Proportion of trees killed, 1974 (%)
Ignace District		
Hwy 599 at Crystal River	11	2
Martin Siding	3	2
Red Lake District		
Aerofoil Lake	8	2
Heyson Twp	10	2
Sioux Lookout District		
Pipestone River	8	1

[a] 1 ft = 0.30 m

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

Higher incidences of this foliage disease were found in the southern half of the Region than in 1973. Damage was generally confined to the lower branches of small planted or open-grown trees. Evaluations at five points showed that damage was generally light except at Wasaw Lake in the Fort Frances District where approximately 50% of the foliage was infected on planted trees 18 in. (45.72 cm) in height (Table 8). A trace of the disease was found on jack pine seedlings in a seedbed in the Dryden Tree Nursery.

Table 8. Summary of incidence and foliar damage caused by a needle rust of pine in the Northwestern Region in 1974 (Counts were based on the examination of 100+ trees from five or more randomly selected sample plots.)

Location	Tree ht (ft)[a]	Incidence (%)	Foliage damaged (%)
Dryden District			
Buller Twp	6	73	10
Webb Twp	3	60	10
Fort Frances District			
Wasaw Lake	2	55	50
Kenora District			
Minaki Rd. at Pistol Lake	7	80	10

[a] 1 ft = 0.30 m

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

This disease is widely distributed and is affecting trees in all age classes wherever the host is growing in the Region. Damage evaluations were confined to small-diameter trees at five widely separated points. Incidence of severely infected trees ranged from 5% to 20% (Table 9) but little tree mortality occurred.

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

This gall-forming rust may be found in most jack pine stands in the Region (Fig. 2); however, the impact of the disease on mature stands has not been serious and has changed little in the past several years. Although some branch tip mortality is evident on large trees, small trees are more seriously damaged. Portions of tree crown are occasionally killed above galls appearing on the main stem. However, ten damage evaluations made at scattered points revealed no tree mortality in 1974, even though in one stand incidence was 30% (Table 10).

Table 9. Summary of damage caused by white pine blister rust in the Northwestern Region in 1974 (Counts were based on the examination of 100+ trees from five or more randomly selected sample plots at each location.)

Location	Tree ht (ft)[a]	Severely affected (%)	Total trees affected (%)	Current mortality (%)
Dryden District				
Wabigoon Twp	10	10	10	0
Fort Frances District				
Claxton Twp	12	20	22	2
Indian Reserve 23A	7	7	10	3
Kenora District				
Denmark Lake	7	5	5	0
Rough Rock Lake	4	20	20	0

[a] 1 ft = 0.30 m

Table 10. Summary of incidence and level of infection of western gall rust and current mortality of host trees in the Northwestern Region in 1974 (Counts were based on the examination of 100+ trees from five or more randomly selected sample plots at each location.)

Location	Tree ht (ft)[a]	Severely affected (%)	Total trees affected (%)
Dryden District			
Webb Twp	3	1	1
Buller Twp	7	2	5
Fort Frances District			
Mine Centre	8	30	80
Grimshow Lake	15	5	30
Ignace District			
Hwy 599 at Crystal River	11	0	2
Kenora District			
Redditt Twp	18	0	68
Devonshire Twp	15	0	60
Wingiskis Lake	30	0	15
Red Lake District			
Heyson Twp	10	6	36
Aerofoil Lake	7	2	7

[a] 1 ft = 0.30 m

Figure 2. Western gall rust of jack pine.

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

This disease of pines was recorded at four new locations in the Sioux Lookout District. The most important of these was recorded approximately 60 miles (96.54 km) directly north of Sioux Lookout in the Polzen and Buddell lakes area. During aerial surveys scattered pockets of infection were detected over approximately 100 sq. miles (259 sq. km) of 10-year-old jack pine regeneration (see Appendix, Fig. A4). Damage was generally confined to the lower third of the crowns, except in low-

lying areas where heavy infection occurred throughout the crowns. Unfortunately the area was inaccessible; hence, evaluations to determine the amount of damage could not be carried out. A high incidence of infection was also found in a small red pine (*Pinus resinosa* Ait.) plantation approximately 6 miles (9.65 km) northeast of Pickle Lake (Table 11), and the disease was present in understory jack pine regeneration east of Central Patricia and at one point near Stranger Lake, 20 miles (32.18 km) northeast of Sioux Lookout.

Infections previously reported in jack pine regeneration in the Pineimuta River area northwest of Pickle Lake continued to expand in 1974; infection levels were high and mortality was moderate.

Little change was noted in the levels of infection near the Pipestone River and Lysander Lake; however, tree mortality is occurring in low-lying sites at Lysander Lake. On better sites current growth appears to be near normal and, owing to the present stand height, it is expected that a large proportion of the trees will survive.

Table 11. Summary of incidence and level of infection of Scleroderris canker of pine and current mortality of host trees in the Northwestern Region in 1974 (Counts were based on the examination of 100+ trees from five or more randomly selected sample plots at each location.)

Location	Tree species	Tree ht (ft)[a]	Severely affected (%)	Total trees affected (%)	Current mortality (%)
Sioux Lookout District					
Access Rd north of Pickle Lake	rP	4	5	74	3
Lysander Lake[b]	jP	4	13	50	18
Pineimuta River	jP	2	53	70	21

[a] 1 ft = 0.30 m

[b] Sample made in low-lying sites.

Shoot Blight on Red Pine, *Sirococcus strobilinus* Preuss

New centers of infection were recorded at six widely scattered points from the eastern boundary of the Fort Frances District to the Manitoba border and as far north as Roughrock Lake near the northern boundary of the Kenora District (see Appendix, Fig. A5).

Past surveys and records show that the disease is most prevalent on red pine regeneration under red pine overstory and is rare on open-grown trees (Fig. 3). Quantitative sampling was carried out at nine points to determine the abundance, severity and current mortality of host trees growing under susceptible conditions (Table 12).

Impact study plots were established in two preselected infection centers where a high incidence of infection is known to occur. The impact of the disease on red pine regeneration in northwestern Ontario will be studied during the next five years.

Figure 3. A red pine tree severely damaged by a shoot blight, *Sirococcus strobilinus* Preuss.

Table 12. Summary of incidence and level of infection of shoot blight on red pine and current mortality of host trees in the Northwestern Region in 1974 (Counts were based on the examination of 100+ trees from five or more randomly selected sample plots at each location.)

Location	Tree ht (ft)[a]	Severely affected (%)	Total trees affected (%)	Current mortality (%)
Dryden District				
Langton Twp	6	64	93	4
Fort Frances District				
Bennett Twp	4	0	2	0
Redgut Bay	2	0	1	0
Sandy Beach Lake	5	0	1	0
Ignace District				
Hwy 599 at Sandbar Lake	6	7	19	2
Kenora District				
Boys Twp	3	0	2	0
Mark Lake	5	0	42	0
Salveson Lake	3	0	1	0
Sioux Lookout District				
Echo Twp	13	35	65	11

[a] 1 ft = 0.30 m

Drought Damage

Unusually dry conditions from mid-June until mid-August caused a drought condition which affected many tree species in the southern half of the Region. The most frequently affected species were white birch (*Betula papyrifera* Marsh.), jack pine and to a lesser extent trembling aspen. Effects of drought were most evident on high, rocky sites and on exposed islands in Lake of the Woods and Rainy Lake. Foliage discoloration and leaf drop were observed on deciduous hosts by the latter part of July. Jack pine stands on high sites in the Heron and Eltrut lakes area of Fort Frances District were discolored by mid-August.

Wind Damage

A severe windstorm in early July caused heavy blowdown over approximately 30 sq. miles (77.70 sq. km) of forest south of

Gullrock Lake in Red Lake District. Damage occurred in a strip averaging 2 miles (3.21 km) in width from near Stone Lake eastward to 3 miles (4.82 km) east of the Chukuni River. The majority of tree species in the area were affected; however, jack pine and black spruce were hardest hit. The former species was usually broken off near the ground whereas the latter was uprooted.

Winter Drying

Unknown conditions some time during the late winter of 1973-1974 caused some browning of foliage on small regeneration and planted pine trees. The damage was most severe on south-facing slopes, and was most common in Ignace, Kenora and Sioux Lookout districts. Evaluations carried out at seven locations showed that 4-100% of the trees examined were affected (Table 13). Tree mortality is not expected but growth was undoubtedly set back.

Table 13. Summary of incidence of foliar damage of host trees caused by winter drying in the Northwestern Region in 1974 (Counts were based on the examination of 100+ trees from five or more randomly selected sample plots at each location.)

Location	Tree species	Tree ht (ft)[a]	Total trees affected (%)	Foliar damage (%)
Ignace District				
Wintering Lake	rP	3	34	20
Paguchi Lake	rP	2	36	12
Kenora District				
Willingdon Twp	rP	8	100	30
Willingdon Twp	wP	8	100	30
Sioux Lookout District				
Echo Twp	wP	5	43	25
Echo Twp	rP	5	4	10
Drayton Twp	wP	5	75	40

[a] 1 ft = 0.30 m

Table 14. Other forest diseases

Organism	Host(s)	Remarks
Cenangium ferruginosum Fr. ex Fr.	jP	Light infection caused some shoot mortality on natural regeneration in the Gulliver River Area, Ignace District.
Chrysomyxa ledi (Alb. and Schw.) d By. *C. ledicola* Lagh.	bS	Trace infections caused light foliar rust damage at several locations in the northern part of the Region.
Cronartium coleosporioides Arth.	jP	trace infection; occasional cankered trees at one point in Ignace District
Cronartium comptoniae Arth.	jP	16% of mature trees cankered near mine center, Fort Frances District
Davisomycella ampla (Davis) Darker	jP	light foliar rust damage to small trees along Kathlyn Lake Road in Sioux Lookout District
Dothichiza populea Sacc. & Briard	Hybrid Po	caused light canker damage to stems and branches on small trees in Echo Township, Sioux Lookout District
Gymnosporangium cornutum Arth. ex Kern	aMo	Foliar rust conditions lightly affected 31% of trees near Stranger Lake, Sioux Lookout District
Melampsorella caryophylacearum Schroet	bF	light witches broom damage on 30% of the trees in a small stand in Aubrey Twp, Dryden District; occasional trees similarly affected in Claxton and Mather twp in Fort Frances District
Pollaccia radiosa (Lib.) Bald. & Cif.	tA	light shoot blight condition on 43% of small trees near Bruce Lake in Red Lake District

(continued)

Table 14. Other forest diseases (concluded)

Organism	Host(s)	Remarks
Pucciniastrum epilobii Otth.	bF	light foliar rust infections found at several points in Lake of the Woods and Lac Seul areas
Sterium chailletii (Pers. ex Fr.) Fr.	bF	root disease found in association with *A. mellea* near Crystal River, Ignace District

APPENDIX

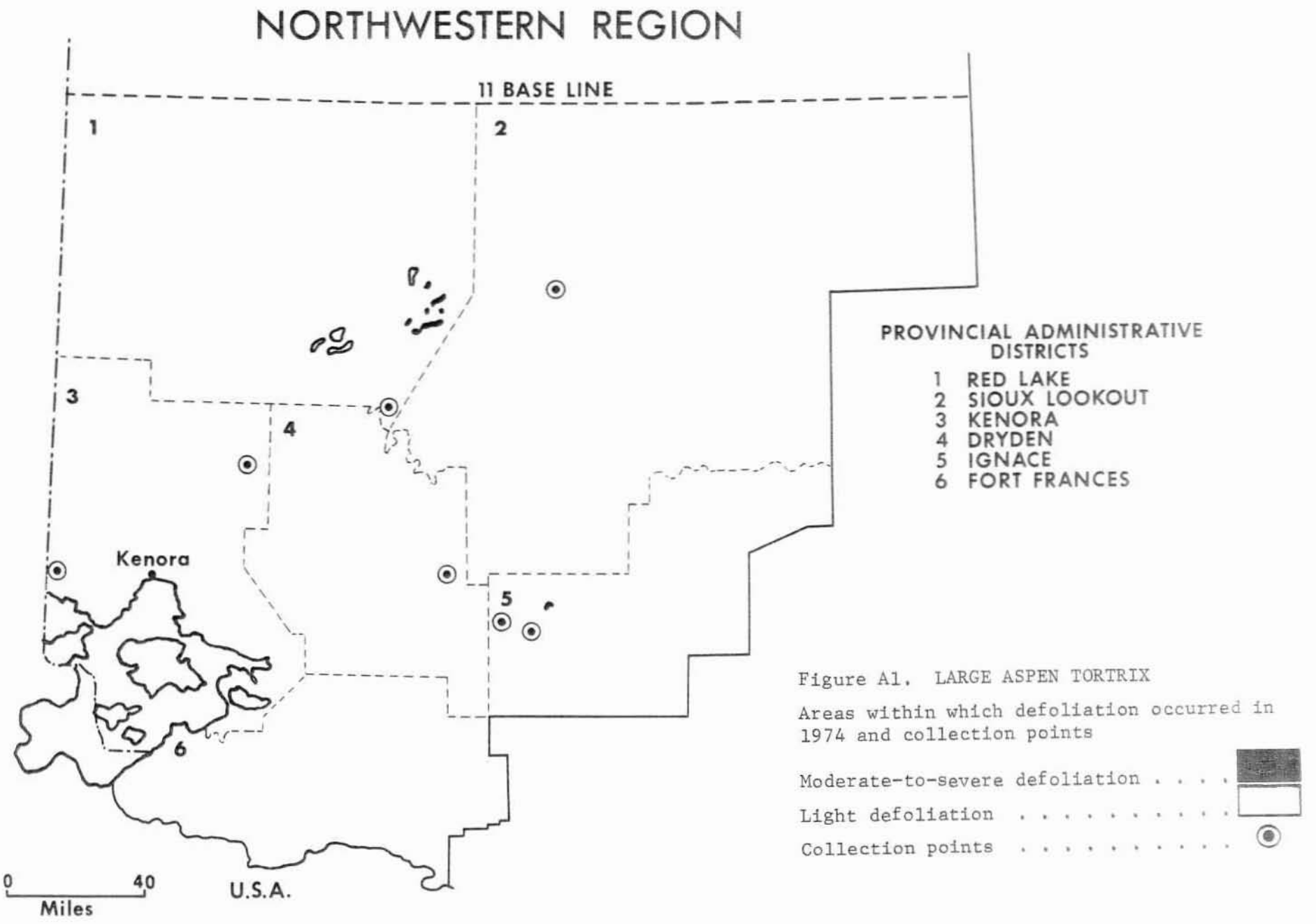


Figure A1. LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1974 and collection points

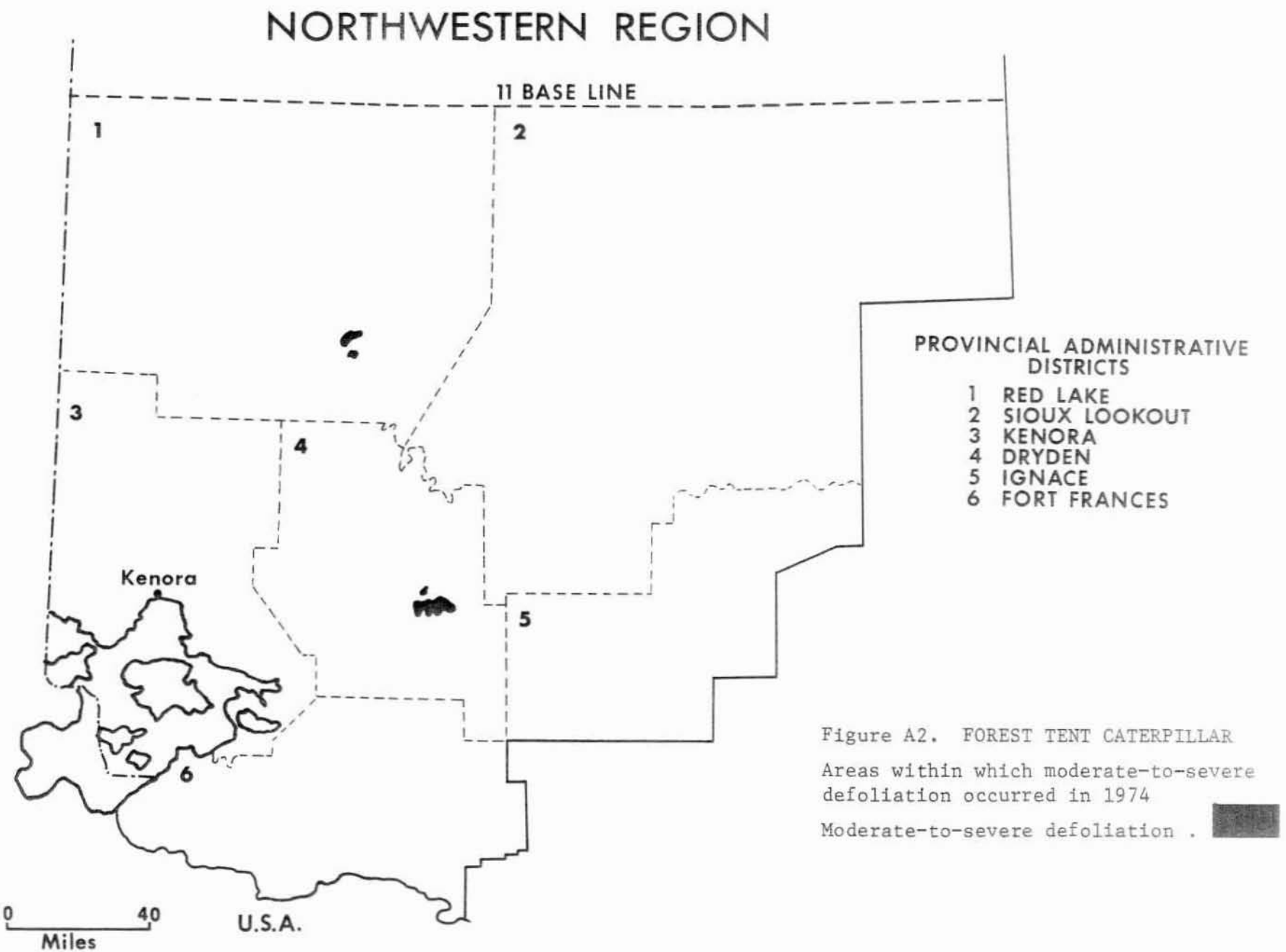


Figure A2. FOREST TENT CATERPILLAR

Areas within which moderate-to-severe defoliation occurred in 1974

Moderate-to-severe defoliation .

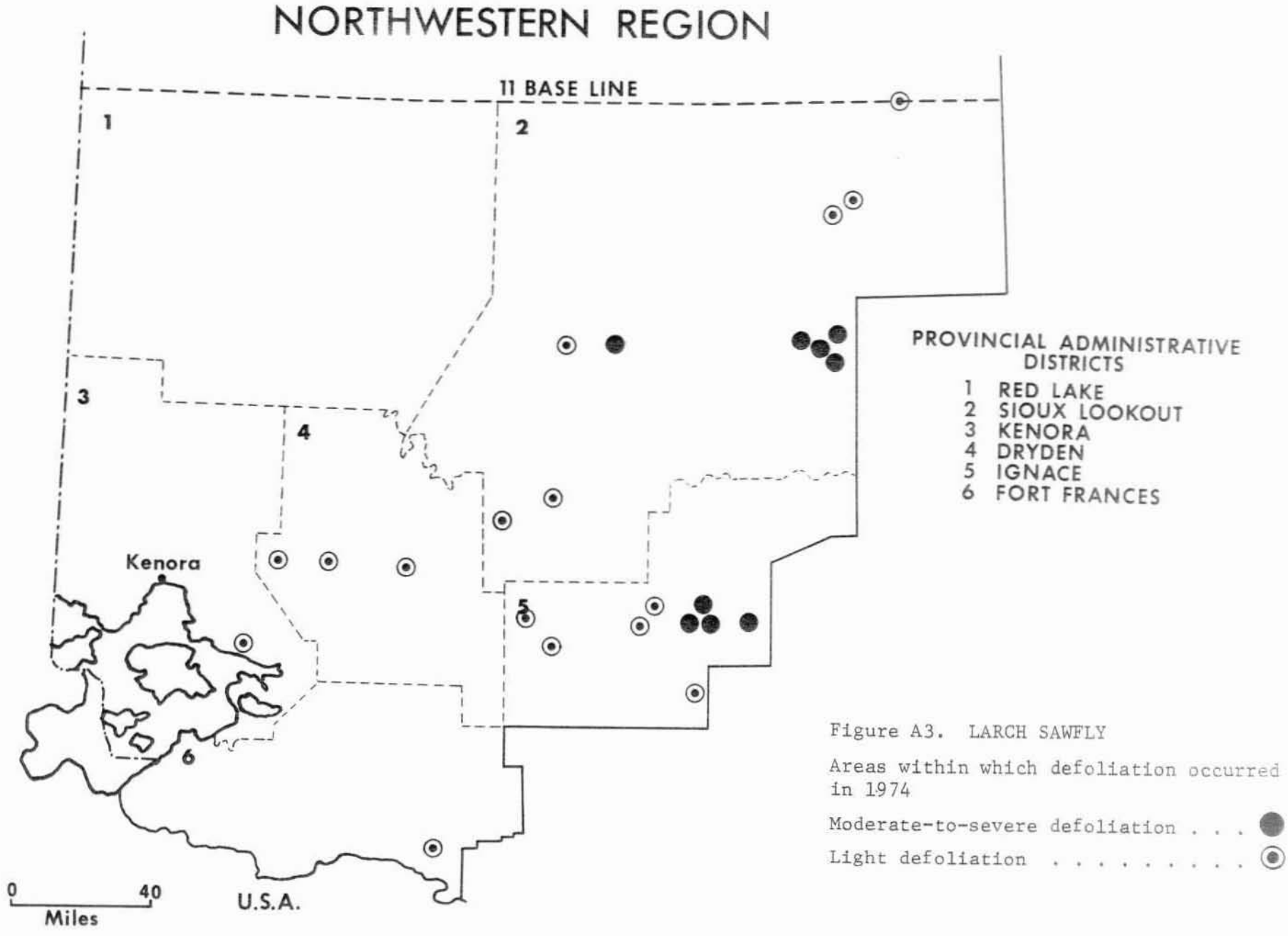


Figure A3. LARCH SAWFLY

Areas within which defoliation occurred in 1974

Moderate-to-severe defoliation . . .

Light defoliation . . . . . .

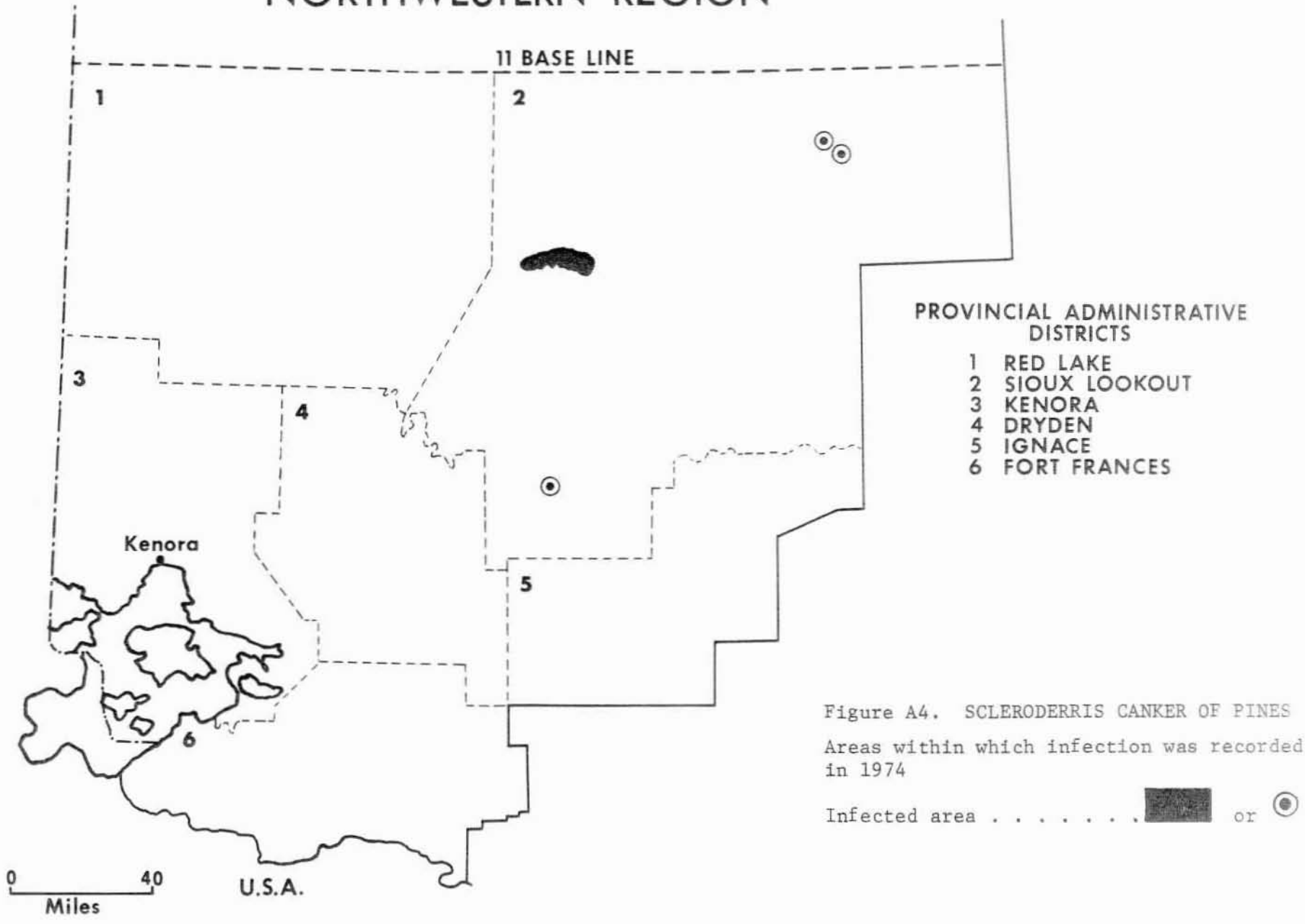
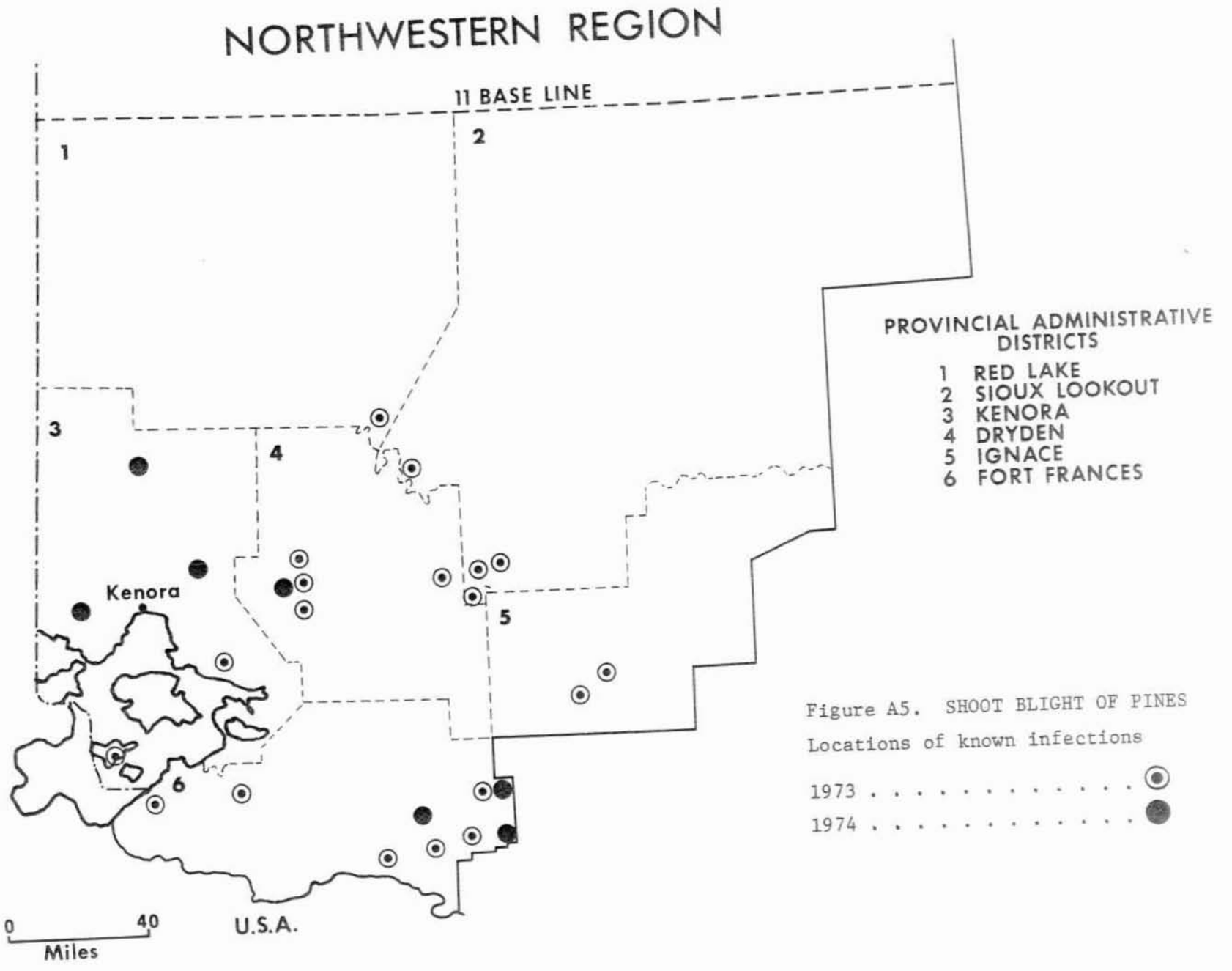


Figure A4. SCLERODERRIS CANKER OF PINES

Areas within which infection was recorded in 1974

Infected area . . . . . or


NORTHWESTERN REGION
11 BASE LINE
1
2
3
4
5
6
Kenora
U.S.A.
0
40
Miles
PROVINCIAL ADMINISTRATIVE DISTRICTS
1 RED LAKE
2 SIOUX LOOKOUT
3 KENORA
4 DRYDEN
5 IGNACE
6 FORT FRANCES
Figure A5. SHOOT BLIGHT OF PINES
Locations of known infections
1973 . . . . . .
1974 . . . . . .