

A REVIEW OF IMPORTANT FOREST
INSECT AND DISEASE PROBLEMS
IN THE ATIKOKAN DISTRICT
OF ONTARIO, 1950-1980

Compiled by

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FOREWORD

The first forest insect surveys in Ontario were carried out in 1936 from the Dominion Entomological Laboratory in Ottawa and continued from this location until 1944, when the province of Ontario was divided, for the purpose of these surveys, into northern and southern Ontario. In 1945, personnel from Ottawa continued to conduct and report on surveys in the area south of the Algonquin Park and Parry Sound forest districts, while personnel from the Forest Insect Laboratory in Sault Ste. Marie carried out surveys in the area to the north. In 1950 responsibility for reporting insects for all of Ontario fell to the Sault Ste. Marie laboratory. In 1952 the Forest Disease Survey was initiated with headquarters in Maple, Ontario, then was moved to Sault Ste. Marie in 1967. The results of these surveys of insects and diseases are reported in the Annual Report of the Forest Insect and Disease Survey (FIDS) published by Canadian Forestry Service headquarters in Ottawa. In addition, annual district and regional reports, begun in 1948, are prepared by FIDS technicians (Rangers) in Sault Ste. Marie. In 1980 a new provincial report was released in Ontario. The contents of the following review have been abstracted from these reports and compiled in alphabetical order by the scientific names of species in each of the following categories:

Major Insects or Diseases

Capable of causing serious injury to or death of living trees or shrubs.

Minor Insects or Diseases

Capable of causing sporadic or localized injury but not usually a serious threat to living trees or shrubs.

Abiotic Damage

Damage caused by non-living factors.

All measurements in this review are in metric form and conversions from Imperial measurements given in the earliest reports are taken to the second decimal point [i.e., sq. mi. to km² = area (sq. mi.) x 2.59 = area km²]. Infestation maps in this review were copied from the original maps in the FIDS technicians' reports. Abbreviations for the common names of the host tree species, along with the scientific names, are shown in Appendices A and B. To facilitate the location of hosts, deciduous and coniferous species have been separated and listed alphabetically under the common names.

Appendix C is a series of maps for northwestern Ontario grouped alphabetically by insect species or disease pathogen and showing the location of infestations within a region or infestation boundaries that extend beyond regions.

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INTRODUCTION

This report is a review of significant forest insects and diseases that have occurred in the Atikokan District during the period 1950 to 1980, with a brief summary of outbreaks prior to 1950. The Atikokan District was formed in 1973 from parts of the former Fort Frances and Sioux Lookout districts. In the selection of pests for this report, particular attention was paid to the major working groups of host species in the District, mainly jack pine, red pine, white pine, white spruce, black spruce, balsam fir, and the tolerant hardwoods (white birch and poplar), as well as some ornamental and shade trees. The insects and diseases included are capable of causing, or have caused, tree mortality or a reduction in growth. Also included are abiotic problems that cause damage, i.e., salt, frost, wind and snow damage, etc.

SUMMARY

FOREST INSECTS

Eastern Blackheaded Budworm, *Acleris variana* (Fern.) [Major]
page 7

There is no record of tree mortality caused by this defoliator of spruce and balsam fir. In 1962 light defoliation of black spruce stands was reported in the eastern part of the District.

Birch Skeletonizer, *Bucculatrix canadensisella* Cham. [Major]
pages 8 - 11

This late-season insect defoliates both white birch and yellow birch and widespread outbreaks usually last 3-4 years, then virtually disappear, as was evidenced from 1970 to 1973. Defoliation seldom causes mortality but weakened trees are hosts for secondary insects and diseases.

Spruce Budworm, *Choristoneura fumiferana* (Clem.) [Major]
pages 12 - 36

This insect is considered the most destructive insect pest of several coniferous hosts in eastern Canada, the main hosts being white spruce and balsam fir. Though not major hosts, black spruce, eastern hemlock, and tamarack are attacked and considerable tree mortality can occur. Low populations were recorded from 1950 to 1953, and severe defoliation occurred in 1954, continued through to 1962, and from 1970 to 1980. Balsam fir tree mortality was first recorded at Sturgeon Lake in 1960, and surveys in the area in 1961 revealed 48% mortality.

Jack Pine Budworm, *Choristoneura pinus pinus* Free.
pages 37 - 40

[Major]

Severe continuous defoliation by this insect can cause top killing and tree mortality. Light and heavy infestations were recorded in the District in 1959 and 1960.

Eastern Pine Shoot Borer, *Eucosma gloriola* (Heinr.)
page 41

[Major]

As a rule, this borer infests the lateral shoots of host trees and eventually attacks the leaders, deforming the trees. Heavy infestations were recorded in regeneration jack pine stands from 1976 to 1980.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.
pages 42 - 54

[Major]

Trembling aspen, the preferred host, seldom is killed by an outbreak, but sugar maple and red oak are severely weakened and may suffer mortality if an infestation persists or as a result of secondary factors. Outbreaks of this insect occurred from 1950 to 1953, from 1963 to 1967 and from 1977 to 1979.

Sawyer Beetles, *Monochamus* spp.
page 55

[Major]

Although sawyer beetles are common and widespread in North America, damage seldom occurs except on decadent trees. However, adults migrating from dead timber and slash have caused varying degrees of damage to healthy stands adjacent to recently harvested areas.

Pine Sawflies, *Neodiprion pratti banksianae* Roh.,
N. nanulus nanulus Schedl., *N. swainei* Midd.,
and *N. virginianus* complex
pages 56 - 60

[Major]

Populations of these pine sawflies have fluctuated considerably since the 1940s, but mortality has not been extensive in the District.

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.)
pages 61 - 62

[Major]

Although this insect has not been known to cause tree mortality, severe browning of foliage over a period of years can cause a reduction in growth. This insect was first reported in the District in 1946.

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.)
page 63

[Major]

This destructive insect has been categorized as a serious pest of young spruce plantations and open-growing ornamentals. Severe mortality can occur after a few years of heavy defoliation. From 1950 to 1980 varying degrees of defoliation have occurred.

White Pine Weevil, *Pissodes strobi* (Peck)
page 64

[Major]

This insect is considered the most destructive pest of white pine in North America. Successive weeviling over a period of years results in multiple-stemmed trees. Populations in the District were generally low from 1950 to 1980.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)
pages 65 - 76

[Major]

The larch sawfly is the primary defoliating insect of native and most exotic species of larch. On good sites, larch trees can withstand six to nine years of severe defoliation before mortality occurs; on less favorable sites, mortality may follow three or more years of complete defoliation. The insect has been reported since 1941.

Other Noteworthy Insects
pages 77 - 84

[Major and Minor]

Insects with potential for causing damage to stands, regeneration and plantations.

FOREST DISEASES

Armillaria Root Rot, *Armillaria mellea* (Vahl : Fr.) Kummer
page 87

[Major]

This root rot is capable of killing both weakened and healthy trees. The fungus was reported at low levels from 1958 to 1980. One exception occurred in 1960 when heavy mortality was reported.

Spruce Needle Rusts, *Chrysomyxa ledi* (Alb. & Schwein.) de Bary
var. *ledi* and *C. ledicola* (Peck) Lagerh.
page 87

[Major]

Severe infections of spruce foliage can cause a loss of increment in trees when prolonged infection occurs. Varying degrees of infection have been recorded in the District since 1965.

Ink Spot of Aspen, *Ciborinia whetzelii* (Seaver) Seaver [Major]
page 88

As a rule, severe defoliation by this disease results only in the loss of increment; no tree mortality has been reported. Pockets of moderate-to-severe defoliation have occurred periodically since 1967.

Orange Stalactiform Blister Rust, *Cronartium coleosporioides* Arthur,
Sweet Fern Blister Rust, *C. comptoniae* Arthur, Eastern
Gall Rust, *C. quercuum* (Berk.) Miyabe ex Shirai, White
Pine Blister Rust, *C. ribicola* J.C. Fischer, Western Gall
Rust, *Endocronartium harknessii* (J.P. Moore) Y.
Hirats. [Major]
pages 88 - 90

These various gall and stem rusts can cause tree mortality in young trees when infections are high. Various levels of infection have been prevalent since the diseases were first reported.

Shoot Blight, *Sirococcus coningenus* (DC.) P. Cannon & Minter [Major]
pages 90 - 91

This blight is capable of causing mortality in trees up to 7 m in height when the incidence is high. The pathogen was first reported in 1973.

Shoot Blight, *Venturia macularis* (Fr.) Müller & v. Arx [Major]
page 92

Reduced stocking of regeneration aspen occurs when the incidence of this disease is high. Varying degrees of shoot mortality have been recorded since this disease was first reported in 1957.

Other Noteworthy Diseases [Major and Minor]
pages 93 - 94

These are diseases with the potential for causing damage to stands, regeneration and plantations.

ABIOTIC DAMAGE

pages 97 - 100

Abiotic damage is caused by a variety of factors such as frost, winter drying, etc. Weakened trees are then susceptible to disease and insect attack. Abiotic damage has been reported periodically since 1951.

INSECTS

Eastern Blackheaded Budworm, *Acleris variana* (Fern.)

Host(s): S, bF, He

[Major]

<u>Year</u>	<u>Remarks</u>
1950	trace populations through the District
1951	increased numbers of collections through the District
1952	light defoliation of black spruce stands at several points near Mack and McKenzie lakes
1953	Populations declined and light defoliation was confined to a few trees near Russell Lake.
1954-1955	trace populations only reported
1956-1957	not reported
1958	trace populations
1959	not reported
1960-1961	trace populations
1962	not reported
1963-1964	trace populations at scattered locations
1965-1966	trace populations at scattered locations
1967-1970	not reported
1970	not reported
1971-1972	trace populations
1973	Populations increased over those of 1972.
1974-1977	small numbers at several locations
1978-1980	not reported

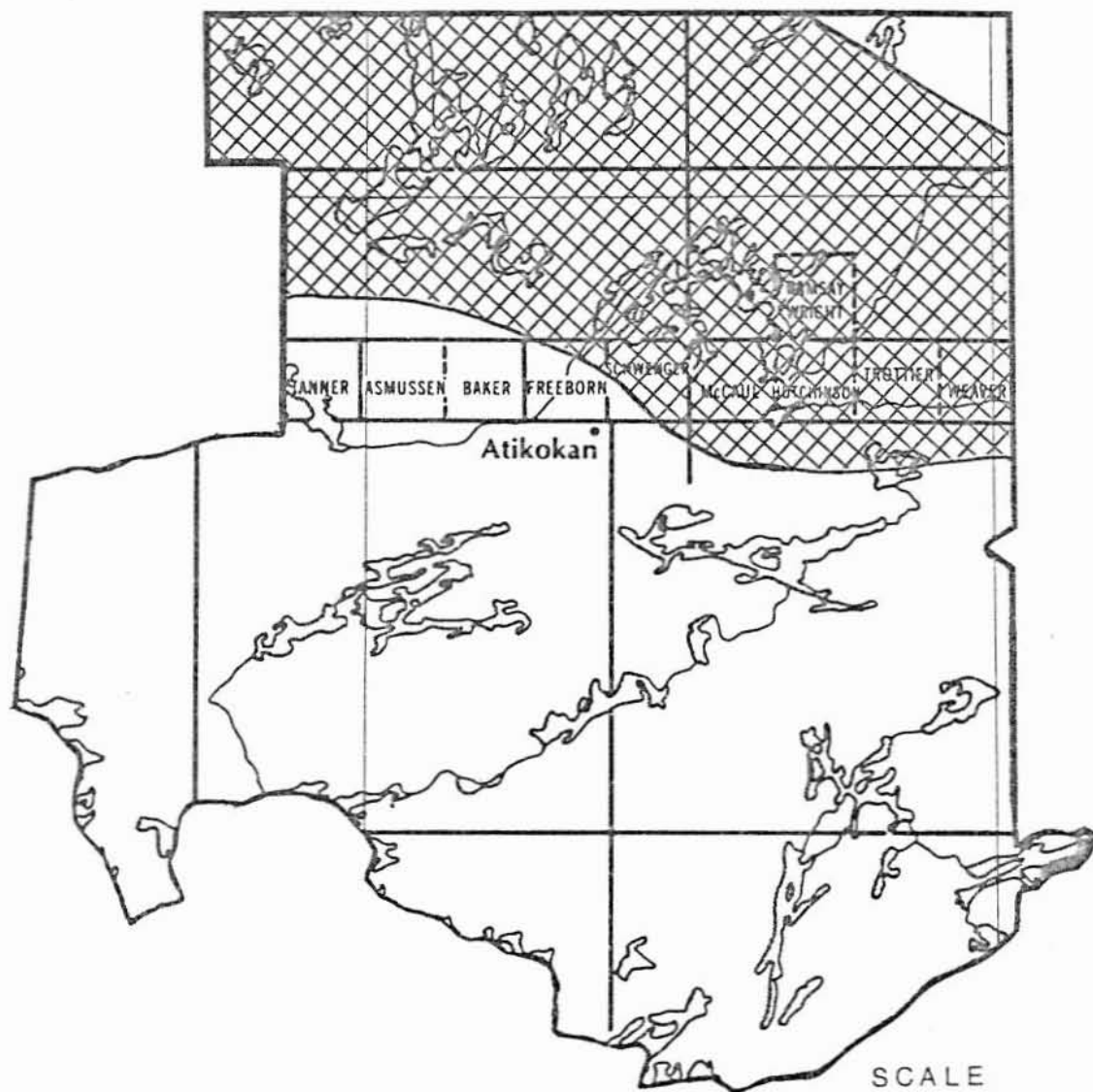
Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

Host(s): wB

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1969	not reported
1970	moderate-to-severe defoliation over most of the northern part of the District (see map, page 9)
1971	not reported
1972-1973	moderate-to-severe defoliation over the entire District (see maps, pages 10 and 11)
1974-1980	not reported

ATIKOKAN DISTRICT



Birch skeletonizer

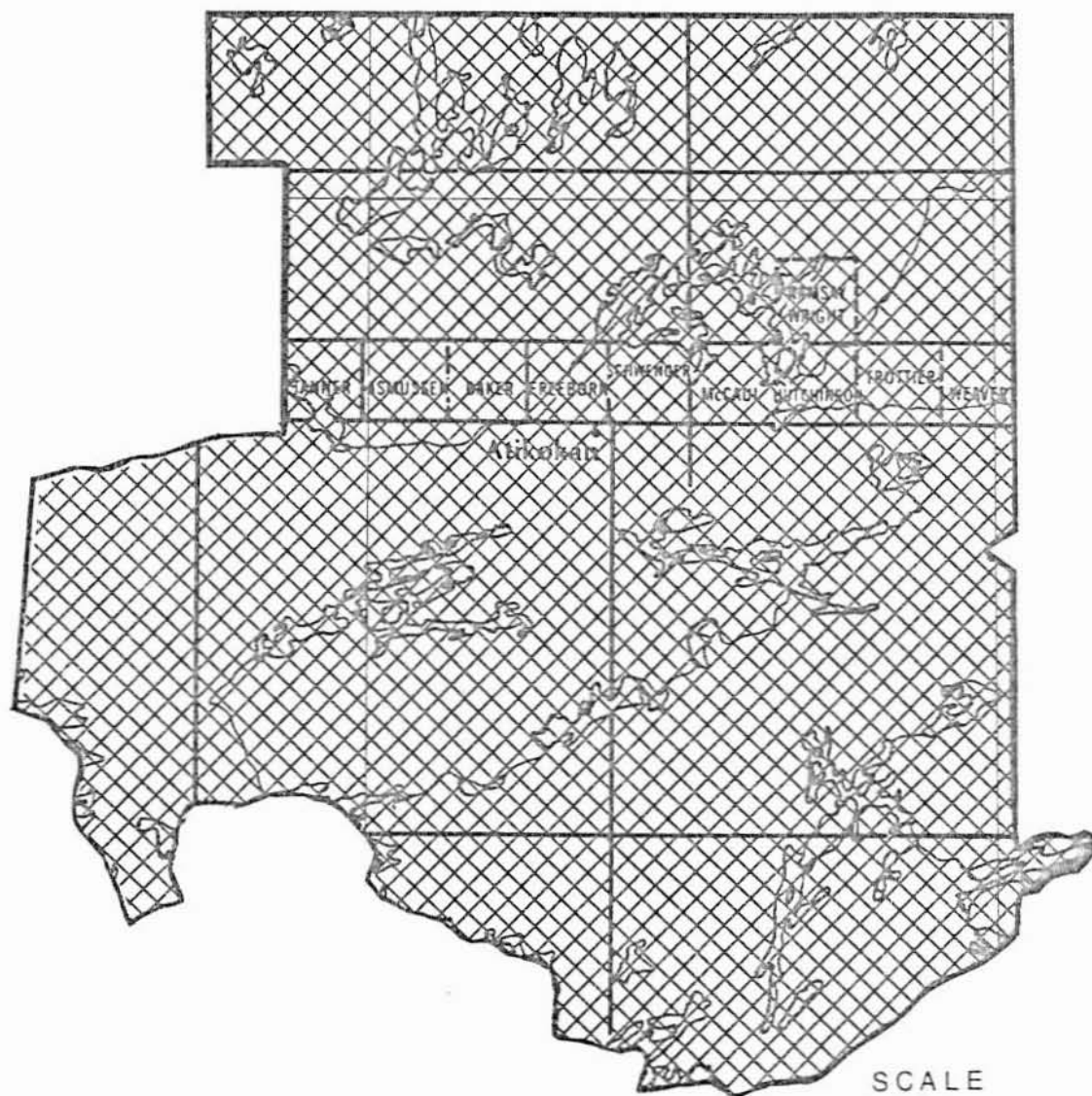
Areas within which defoliation.
occurred in 1970

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



SCALE

0 20

Kilometres

Birch skeletonizer

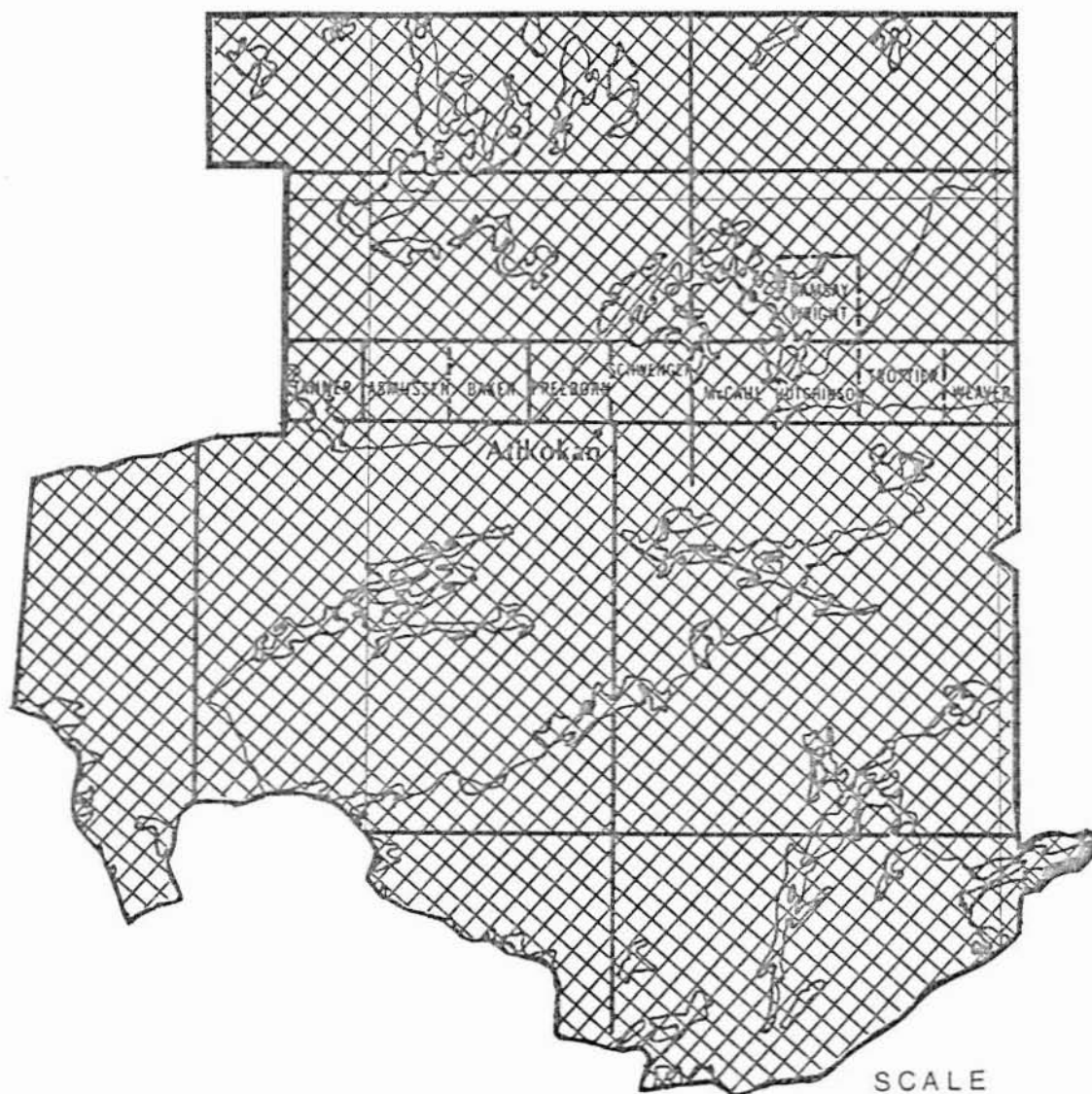
Areas within which defoliation
occurred in 1972

LEGEND

Moderate-to-severe defoliation




ATIKOKAN DISTRICT



Birch skeletonizer

Areas within which defoliation
occurred in 1973

LEGEND

Moderate-to-severe defoliation 

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

Host(s): spruce, balsam fir

[Major]

<u>Year</u>	<u>Remarks</u>
1950	trace populations
1951-1953	slightly increased populations
1954	new heavy infestations at Sandford, White Otter, and Elsie lakes (see map, page 14)
1955	A medium-to-heavy infestation extended over most of the northern and southwestern section of the District (see map, page 15).
1956	Medium-to-heavy infestations recurred over those areas infested in 1955 (see map, page 16).
1957	A heavy infestation extended over most of the District (see map, page 17).
1958	A heavy infestation recurred over most of the District (see map, page 18).
1959	Heavy infestation persisted over most of the District (see map, page 19).
1960	Again, moderate-to-severe defoliation recurred over most of the District (see map, page 20).
1961	Moderate-to-severe defoliation recurred over all but a small area in the extreme northern end of the District (see map, page 21).
1962	Defoliation was moderate to severe over 4,644 km ² from the international border in the south to the central part of the District. Light defoliation was general over most of the northern part of the District (see map, page 22).
1963	Infestations declined in extent and intensity to 3,612 km ² of light defoliation. One relatively small pocket of moderate-to-severe defoliation recurred in the southwestern part of the District (see map, page 23).
1964-1966	trace populations
1967	pockets of light infestation (see map, page 24)
1968	pockets of light infestation (see map, page 25)
1969	trace populations

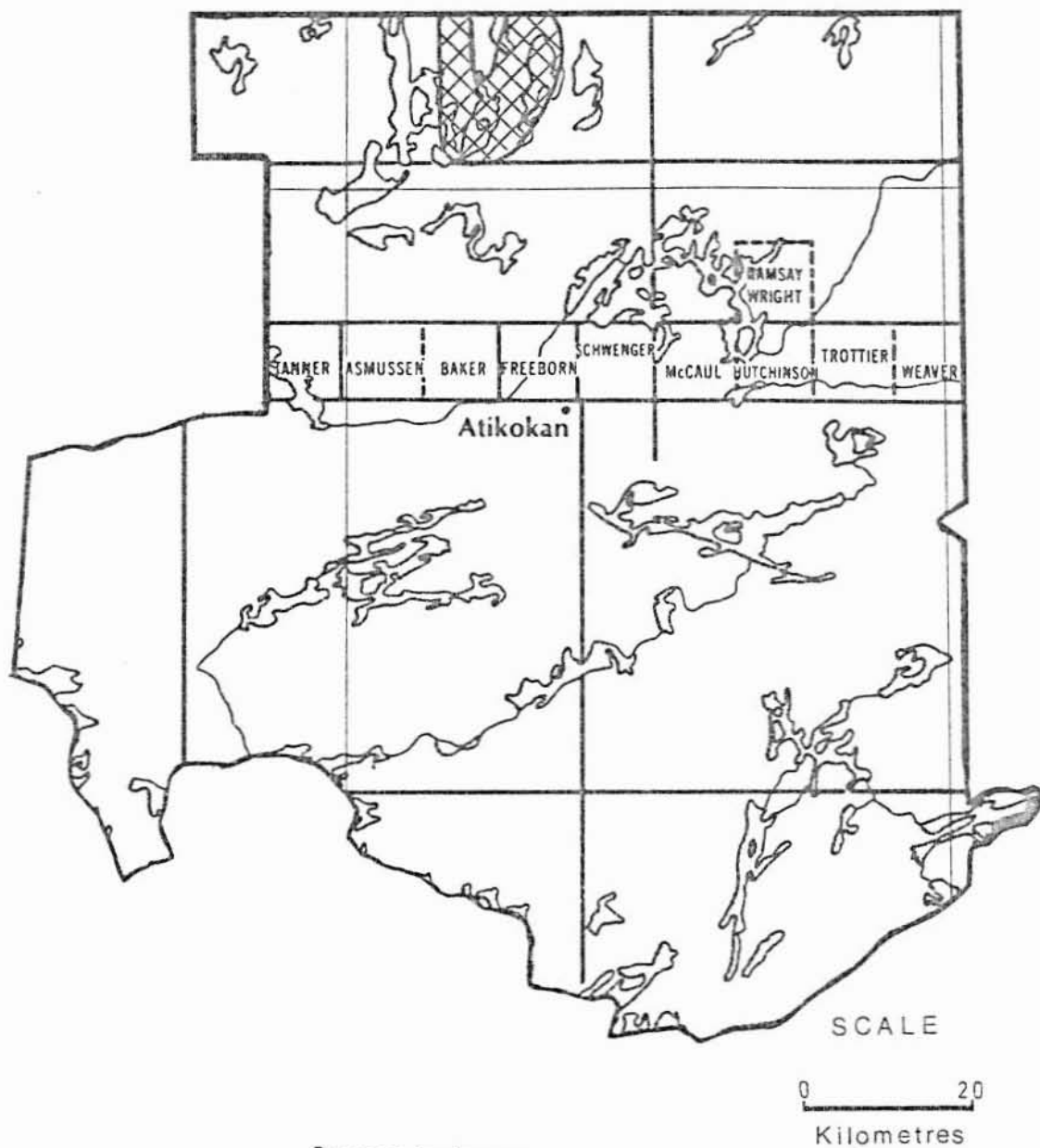
Spruce Budworm, *Choristoneura fumiferana* (Clem.) (concl.)

Host(s): spruce, balsam fir

[Major]

<u>Year</u>	<u>Remarks</u>
1970	A new infestation of 324 ha was located at the western end of Poobah Lake (see map, page 26). An additional 6,500 ha of moderate-to-severe defoliation were mapped in the Poobah-Wink-Tanner Lake area and at Martin Bay on Lac LaCroix.
1971	moderate-to-severe defoliation of approximately 52,630 ha along the international border (see map, page 27)
1972	moderate-to-severe defoliation of approximately 22,260 ha in Lac LaCroix-Poobah Lake area; several small pockets mapped south of Kawa Bay on Kawnipi Lake (see map, page 28)
1973	considerable reduction in extent of moderate-to-severe defoliation (see map, page 29)
1974	moderate-to-severe defoliation of 400 ha in the western part of the District and several small pockets totalling 280 ha along the international border (see map, page 30)
1975	moderate-to-severe defoliation totalled 200 ha at Little Eva Lake, 400 ha at Eluker Lake and small pockets at Basswood Lake (see map, page 31)
1976	Moderate-to-severe defoliation occurred southwest of Calm Lake, in the Basswood Lake area and south and east of McKenzie Lake in the east-central part of the District (see map, page 32).
1977	Moderate-to-severe defoliation recurred in the area around Calm Lake and in the southeastern part of the District (see map, page 33).
1978	Moderate-to-severe defoliation recurred west of Calm Lake and east of Kawnipi Lake (see map, page 34).
1979	Two large areas of moderate-to-severe defoliation were located in the west-central and southeastern parts of the District (see map, page 35).
1980	A new area of moderate-to-severe defoliation encompassing 20,200 ha was found between Beaverhouse and Wolsely lakes (see map, page 36).

ATIKOKAN DISTRICT



Spruce budworm

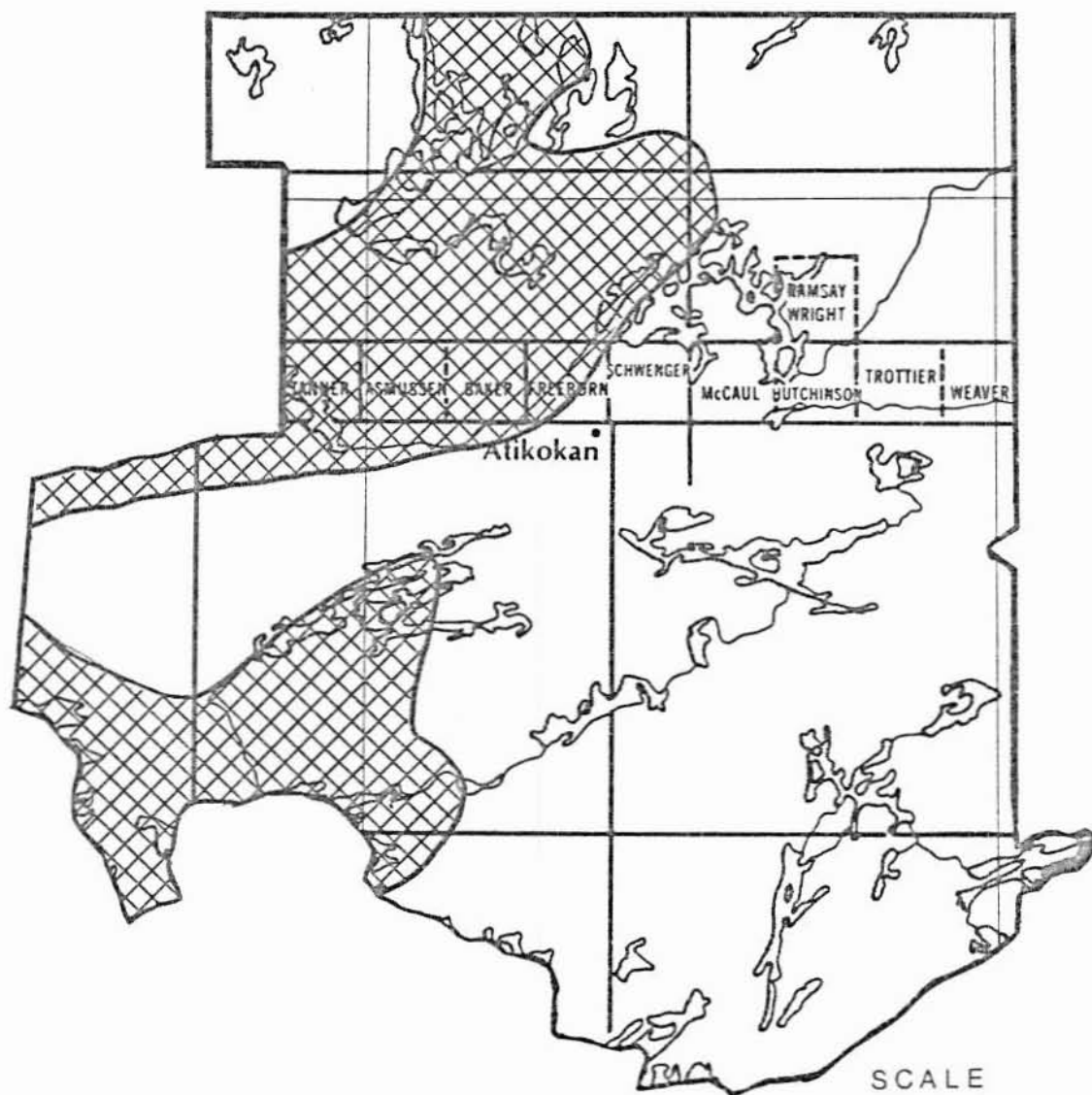
Areas within which defoliation
occurred during 1954

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



SCALE

0 20

Kilometres

Spruce budworm

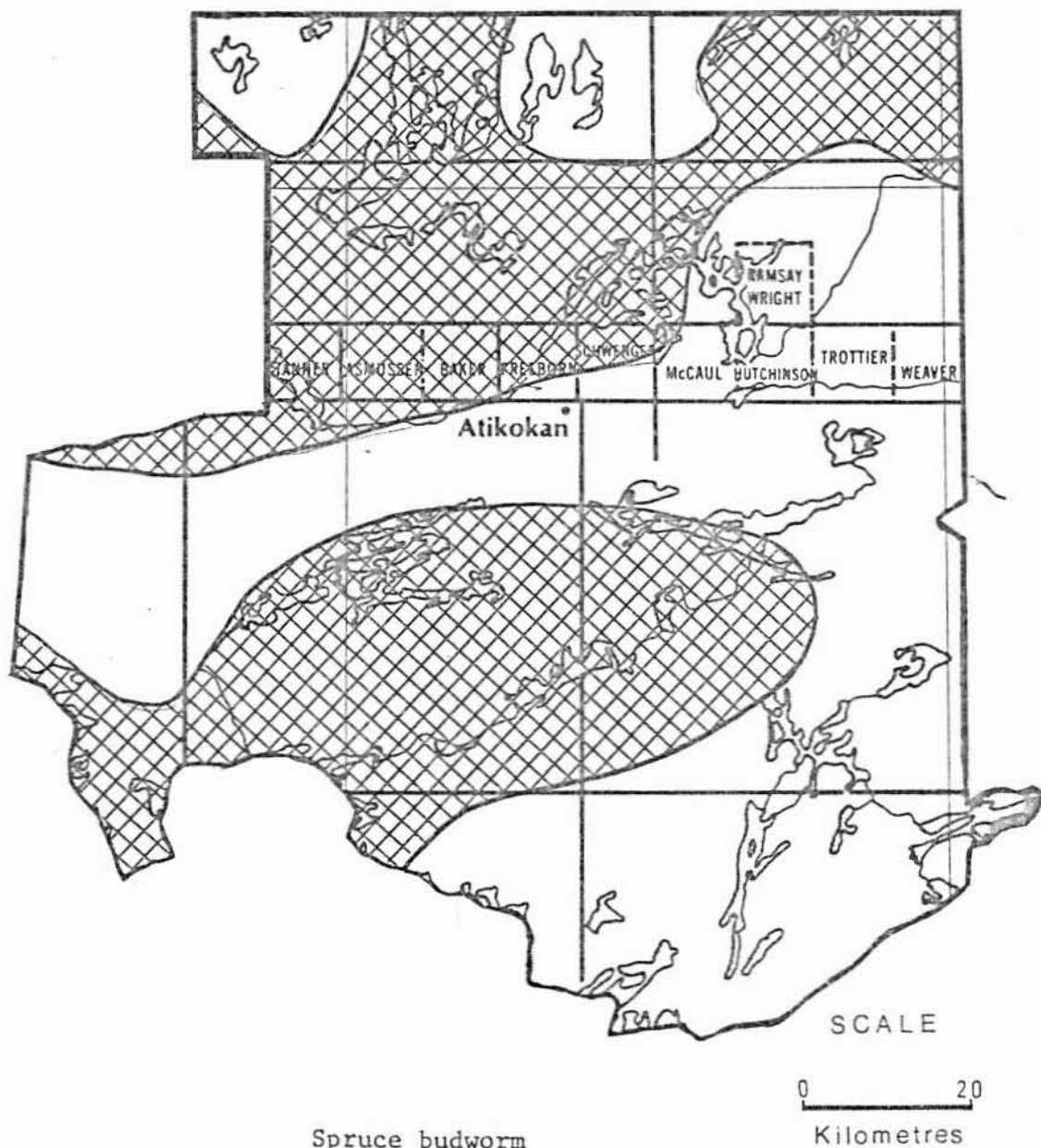
Areas within which defoliation
occurred during 1955

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



Spruce budworm

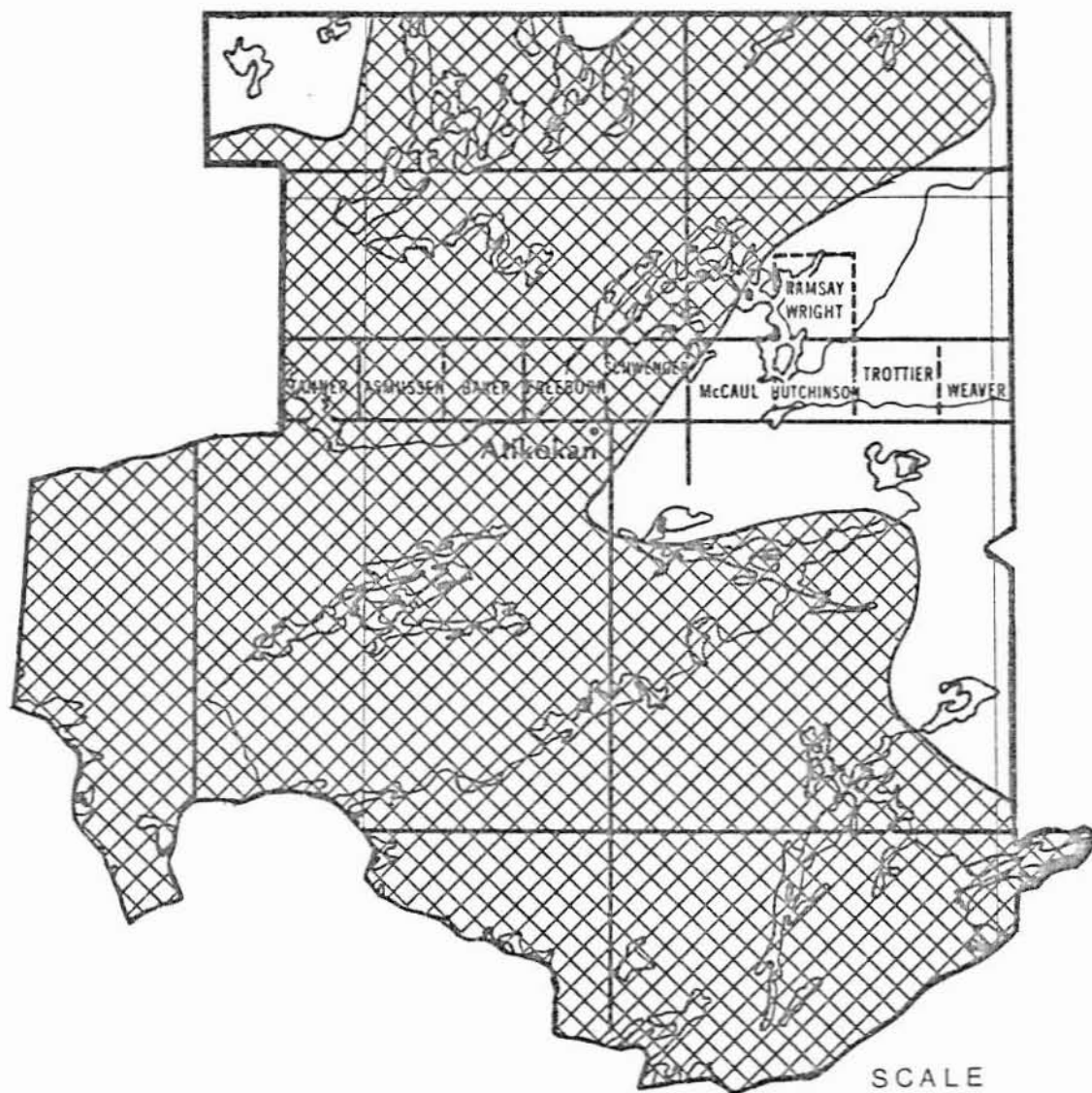
Areas within which defoliation
occurred during 1956

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



Spruce budworm

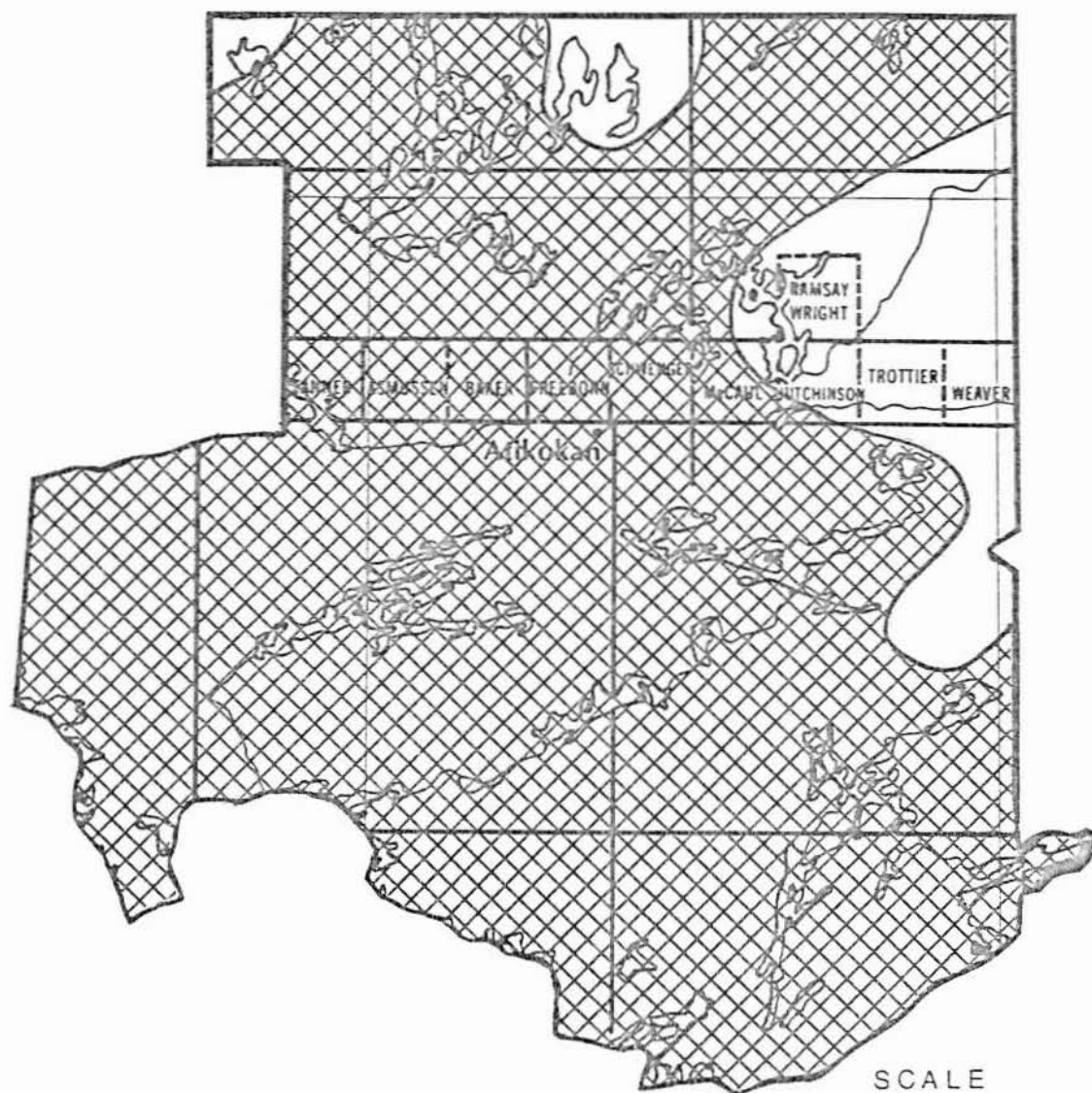
Areas within which defoliation
occurred during 1957

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



SCALE

0 20
Kilometres

Spruce budworm

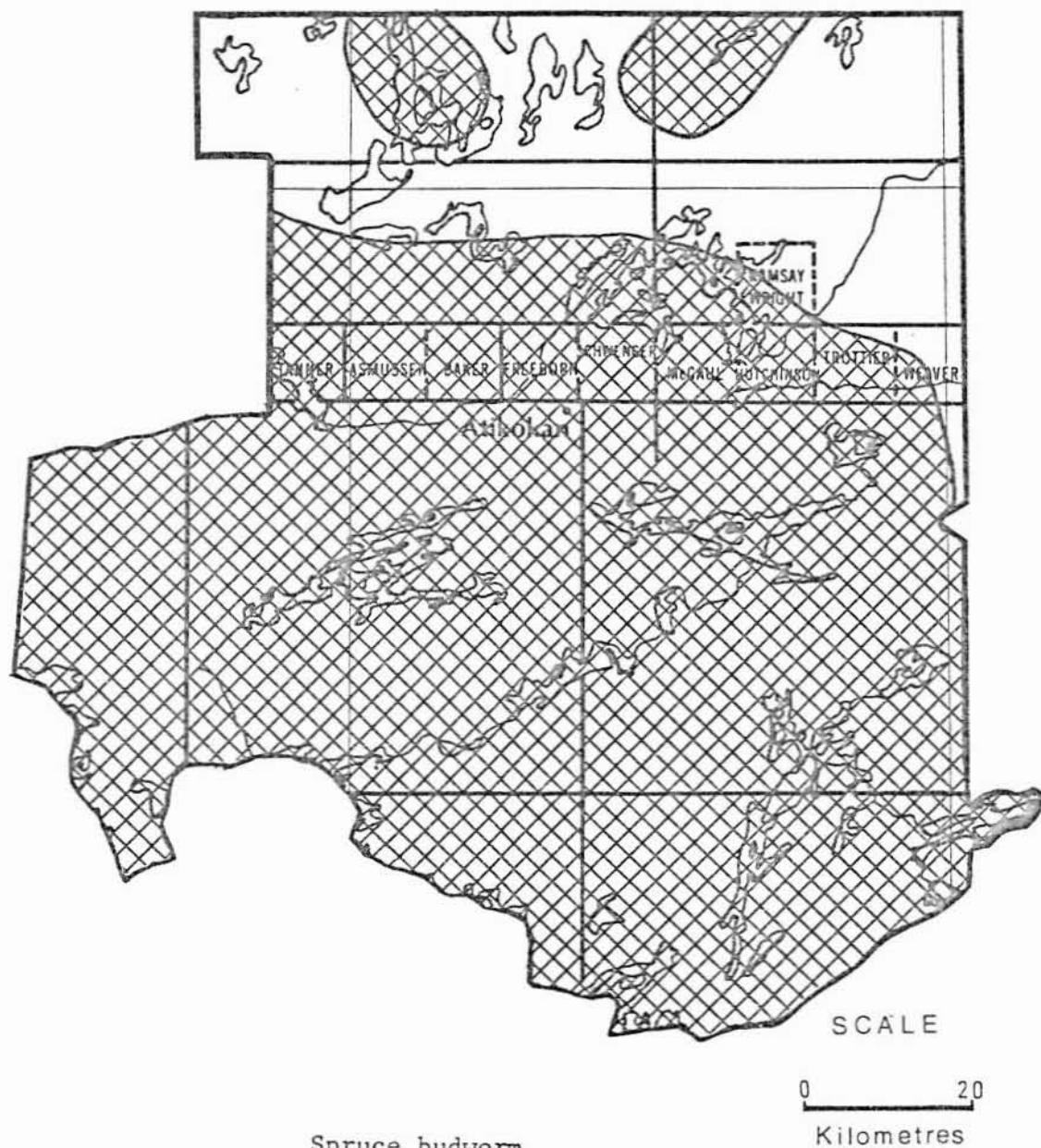
Areas within which defoliation
occurred during 1958

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



Spruce budworm

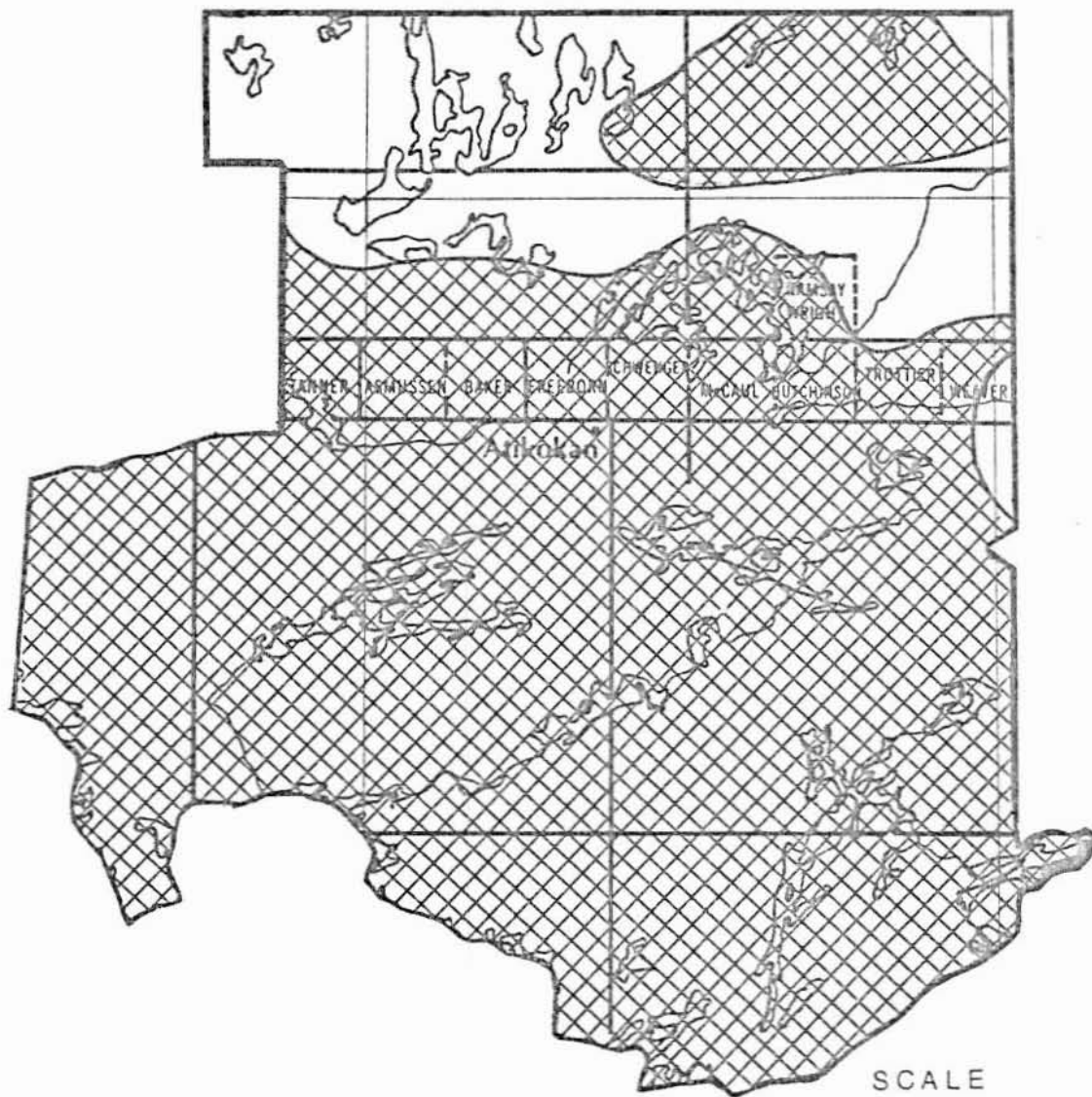
Areas within which defoliation
occurred during 1959

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



Spruce budworm

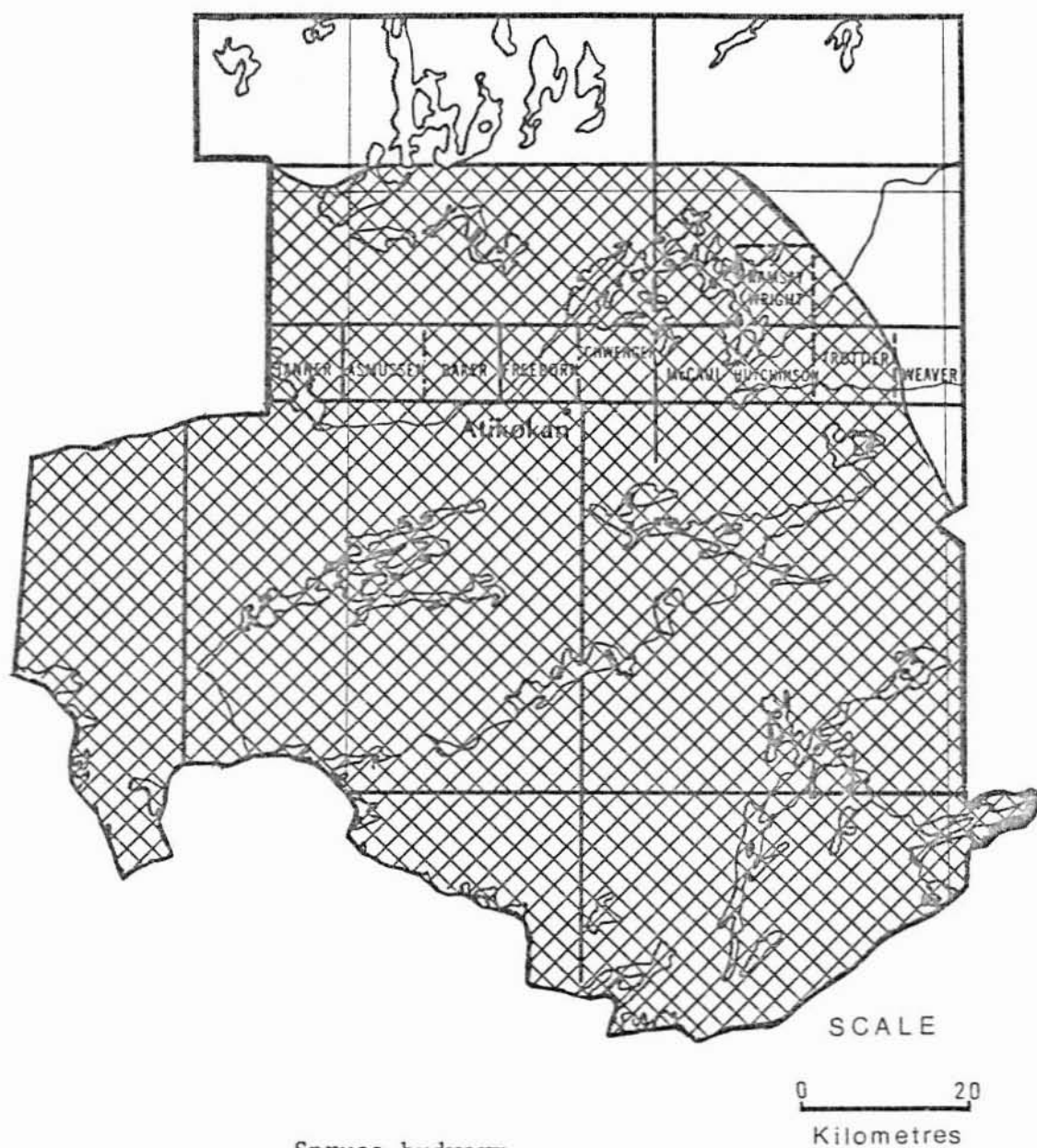
Areas within which defoliation
occurred during 1960

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



Spruce budworm

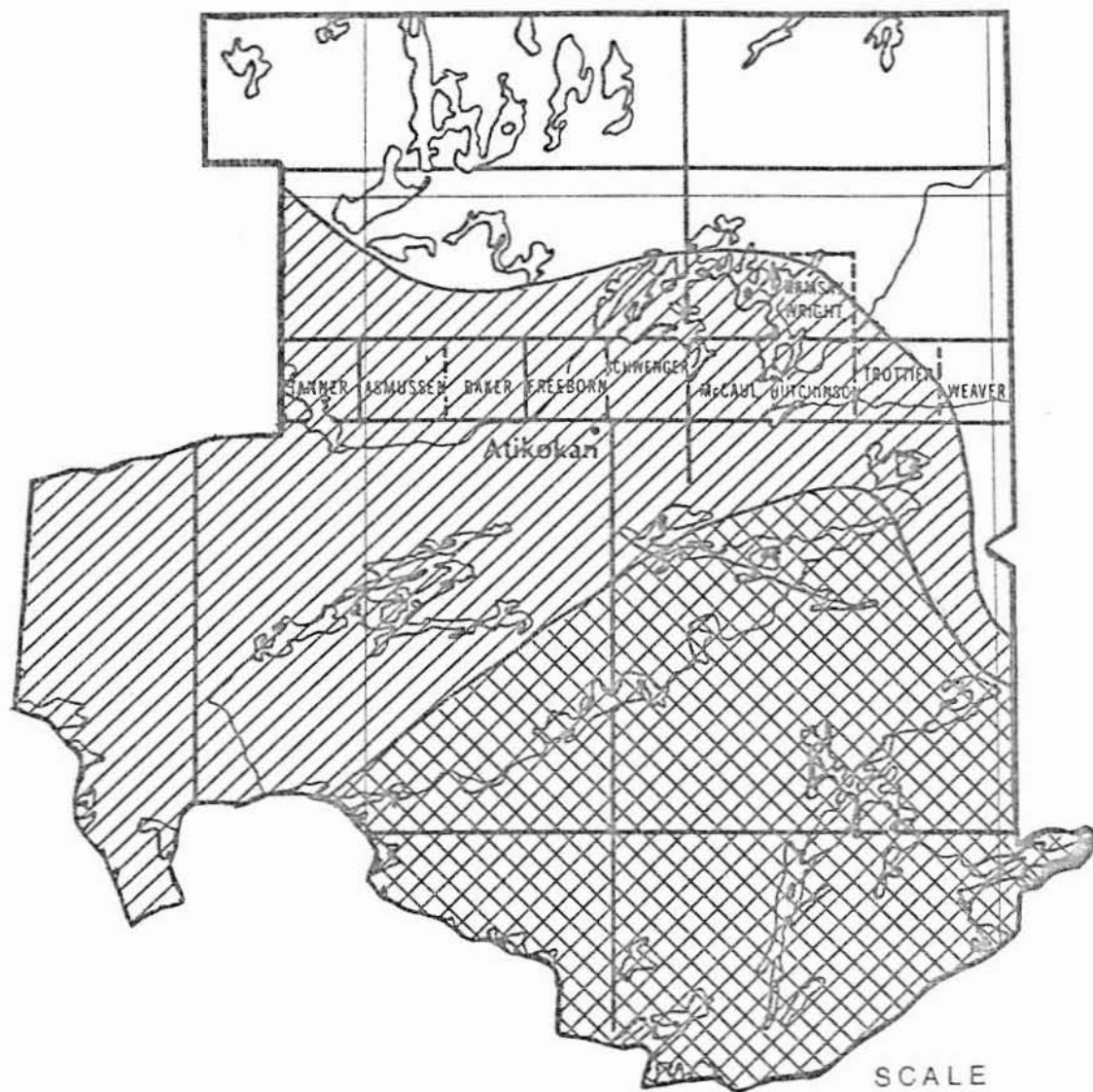
Areas within which defoliation
occurred during 1961

LEGEND

Moderate-to-severe defoliation




ATIKOKAN DISTRICT




Spruce budworm

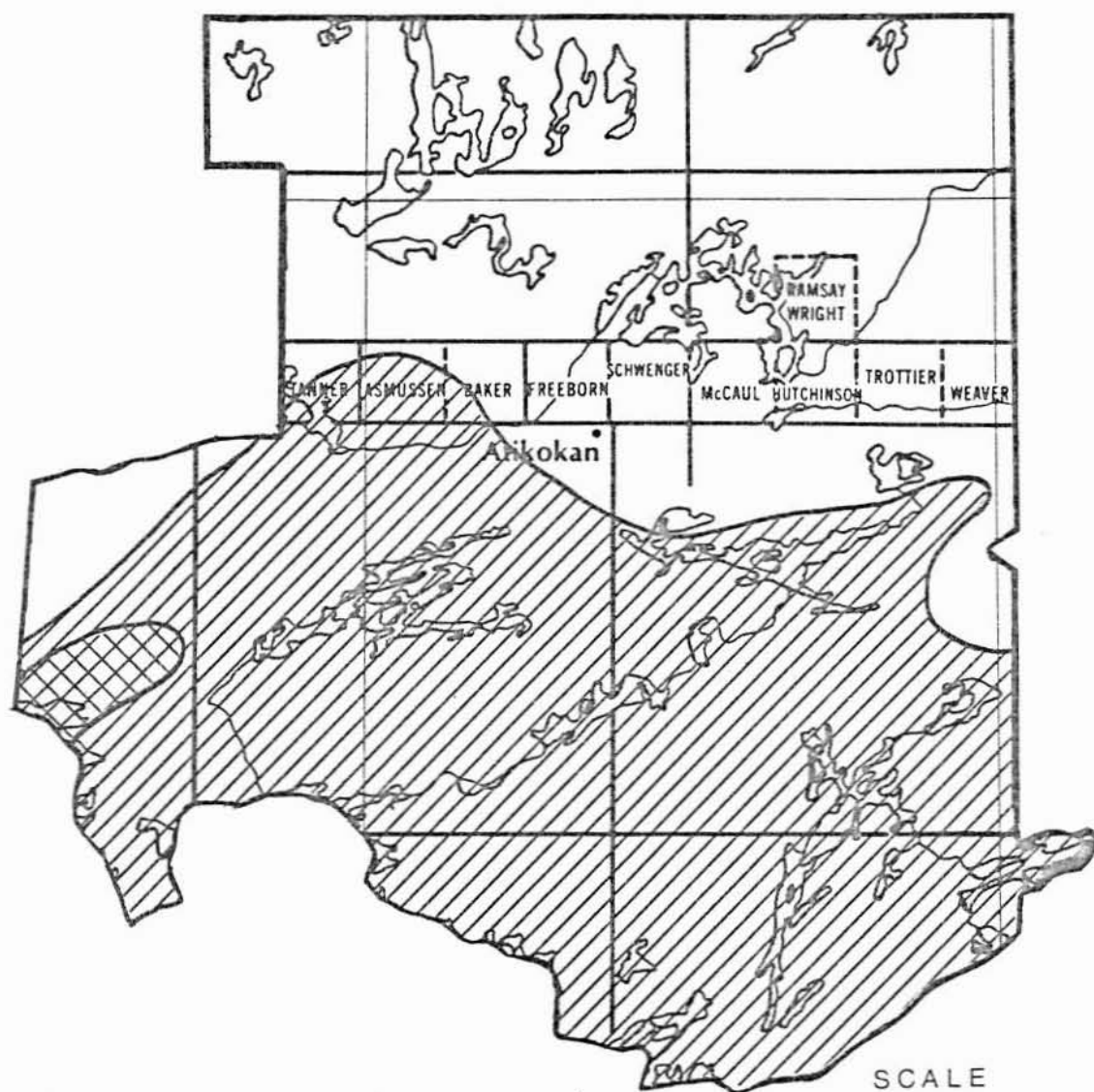
Areas within which defoliation
occurred during 1962

LEGEND

Light defoliation 

Moderate-to-severe defoliation 


ATIKOKAN DISTRICT



Spruce budworm

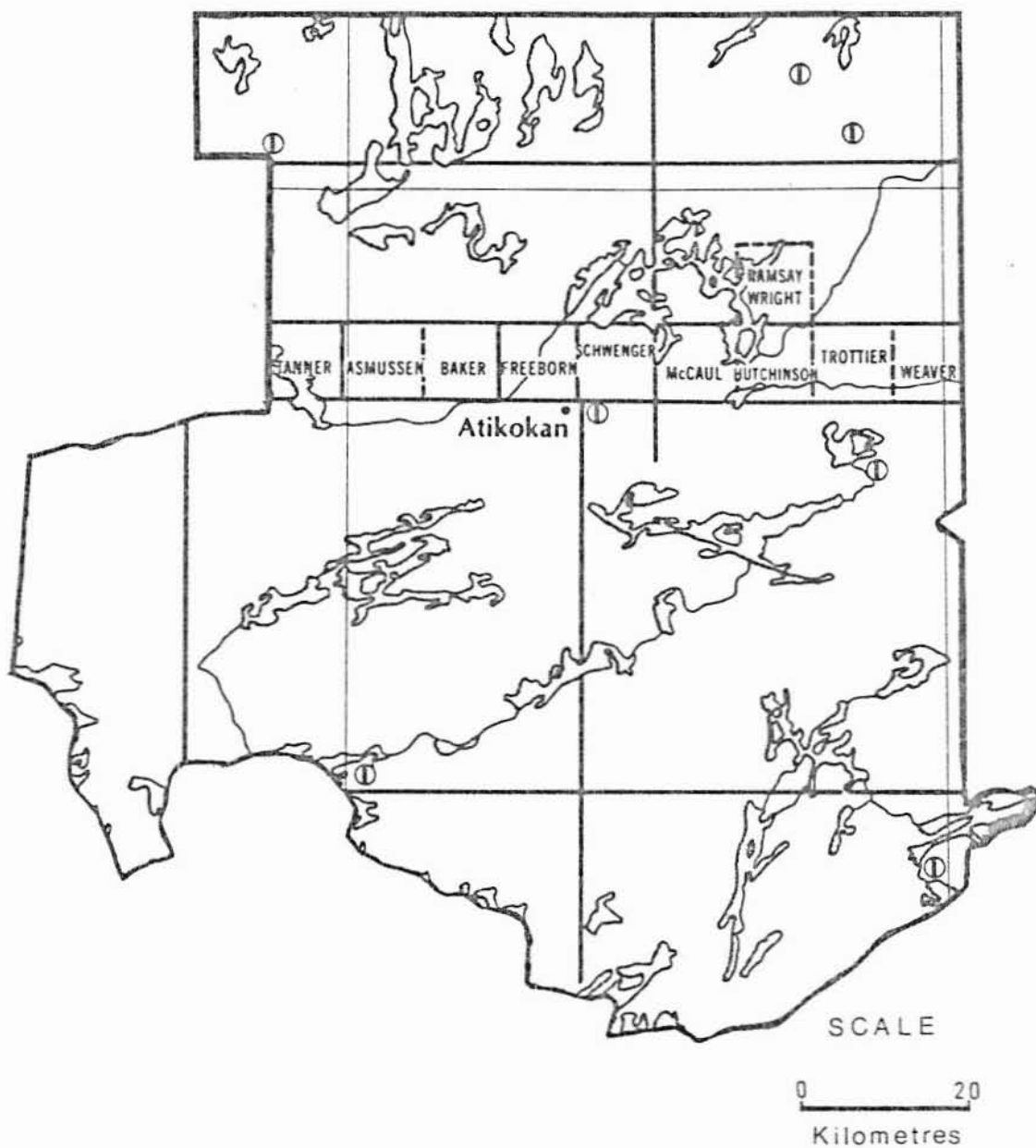
Areas within which defoliation
occurred during 1963

LEGEND

Light defoliation 

Moderate-to-severe defoliation 

ATIKOKAN DISTRICT



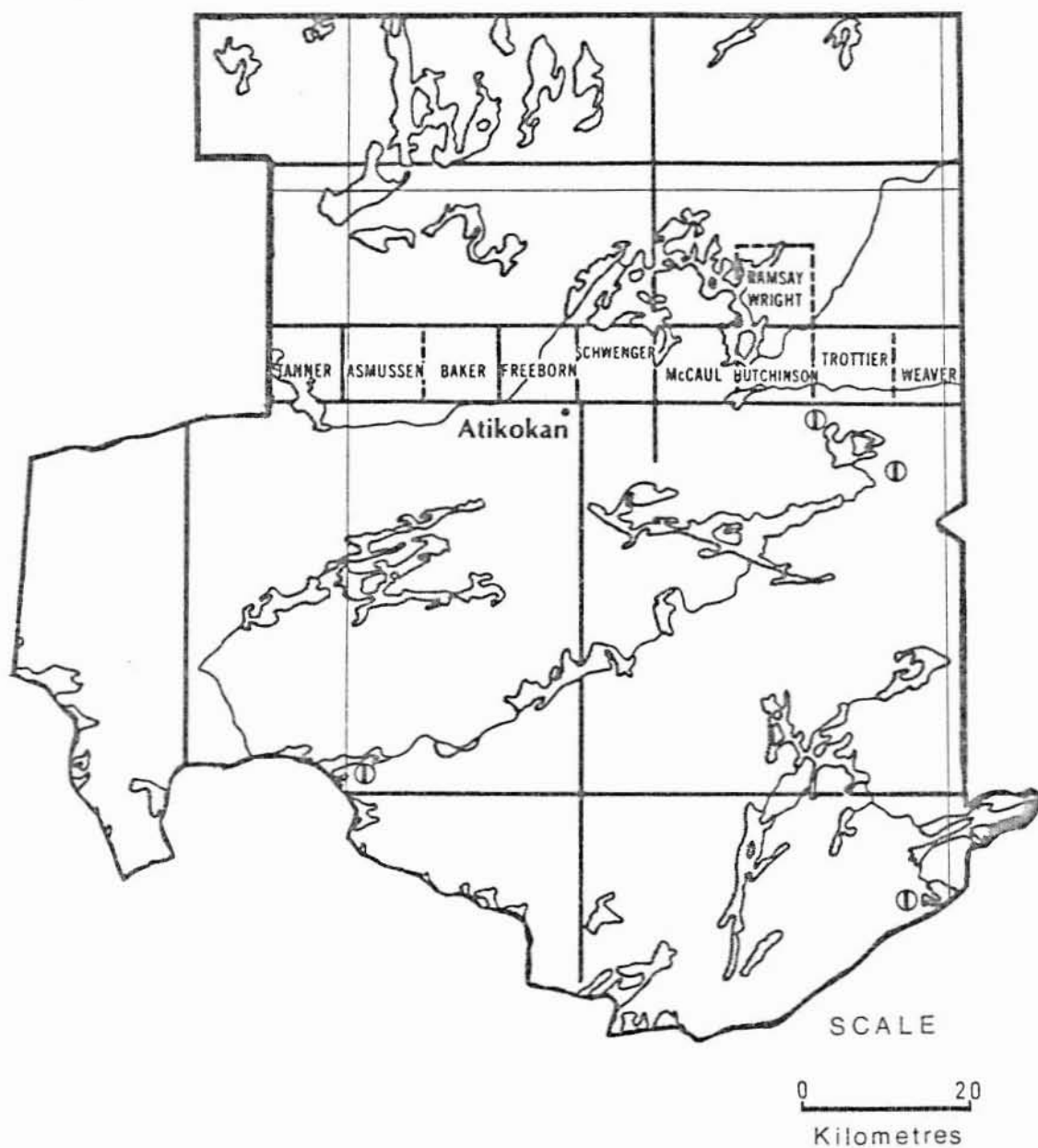
Spruce budworm

Areas within which defoliation
occurred during 1967

LEGEND

Light defoliation ①

ATIKOKAN DISTRICT



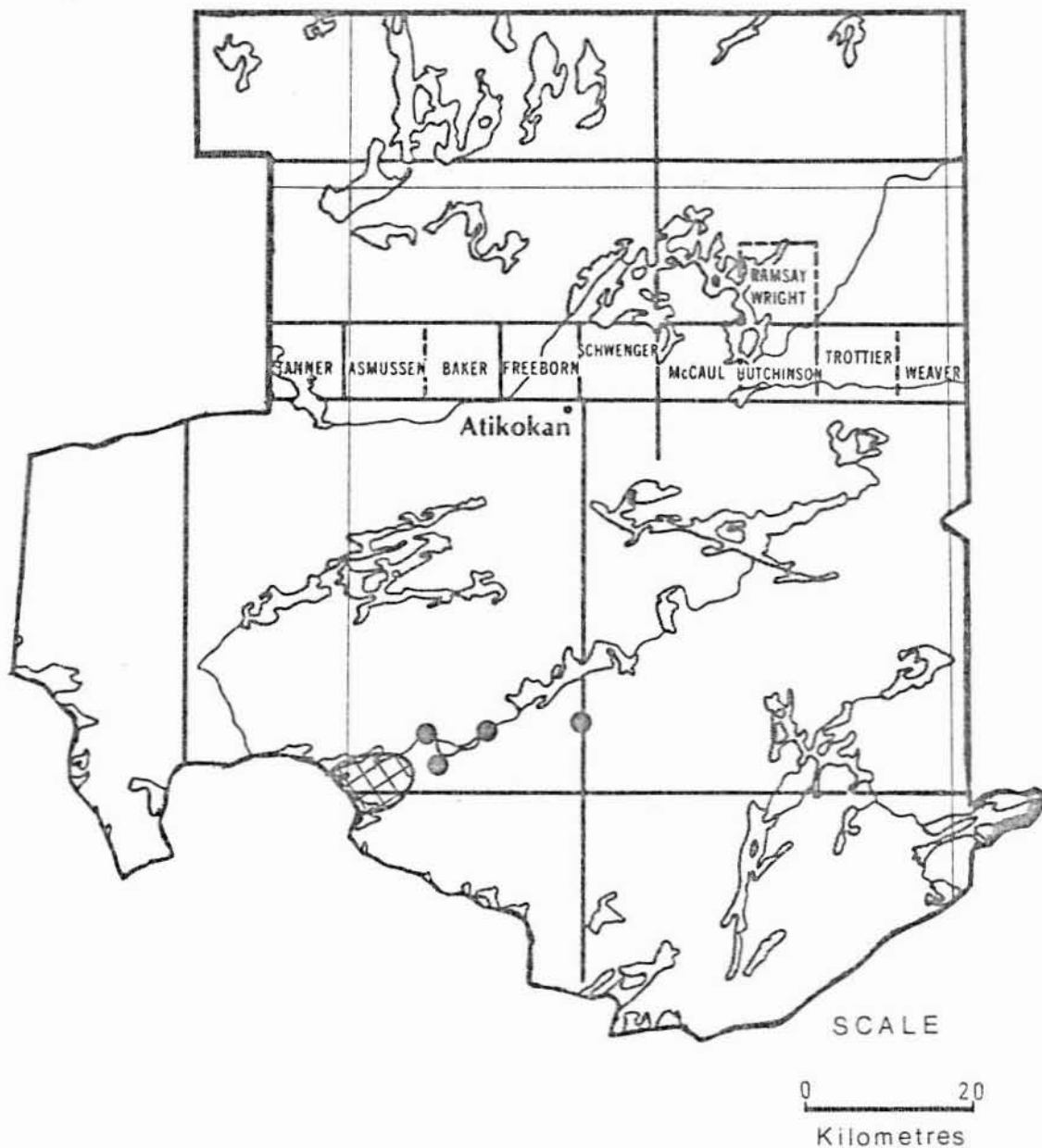
Spruce budworm

Areas within which defoliation
occurred during 1968

LEGEND

Light defoliation ①


ATIKOKAN DISTRICT



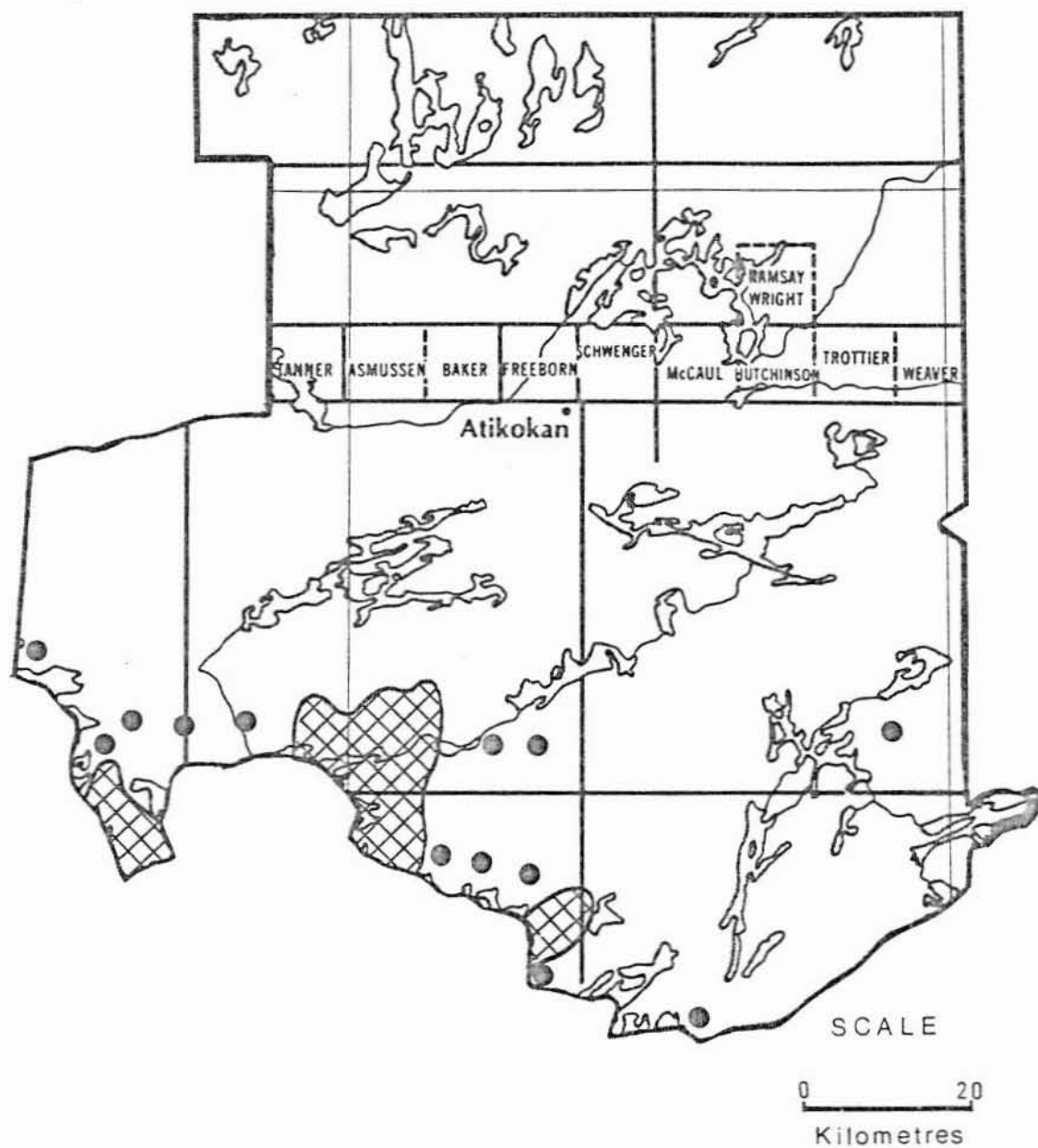
Spruce budworm

Areas within which defoliation
occurred during 1970

LEGEND

Moderate-to-severe defoliation ● or 

ATIKOKAN DISTRICT



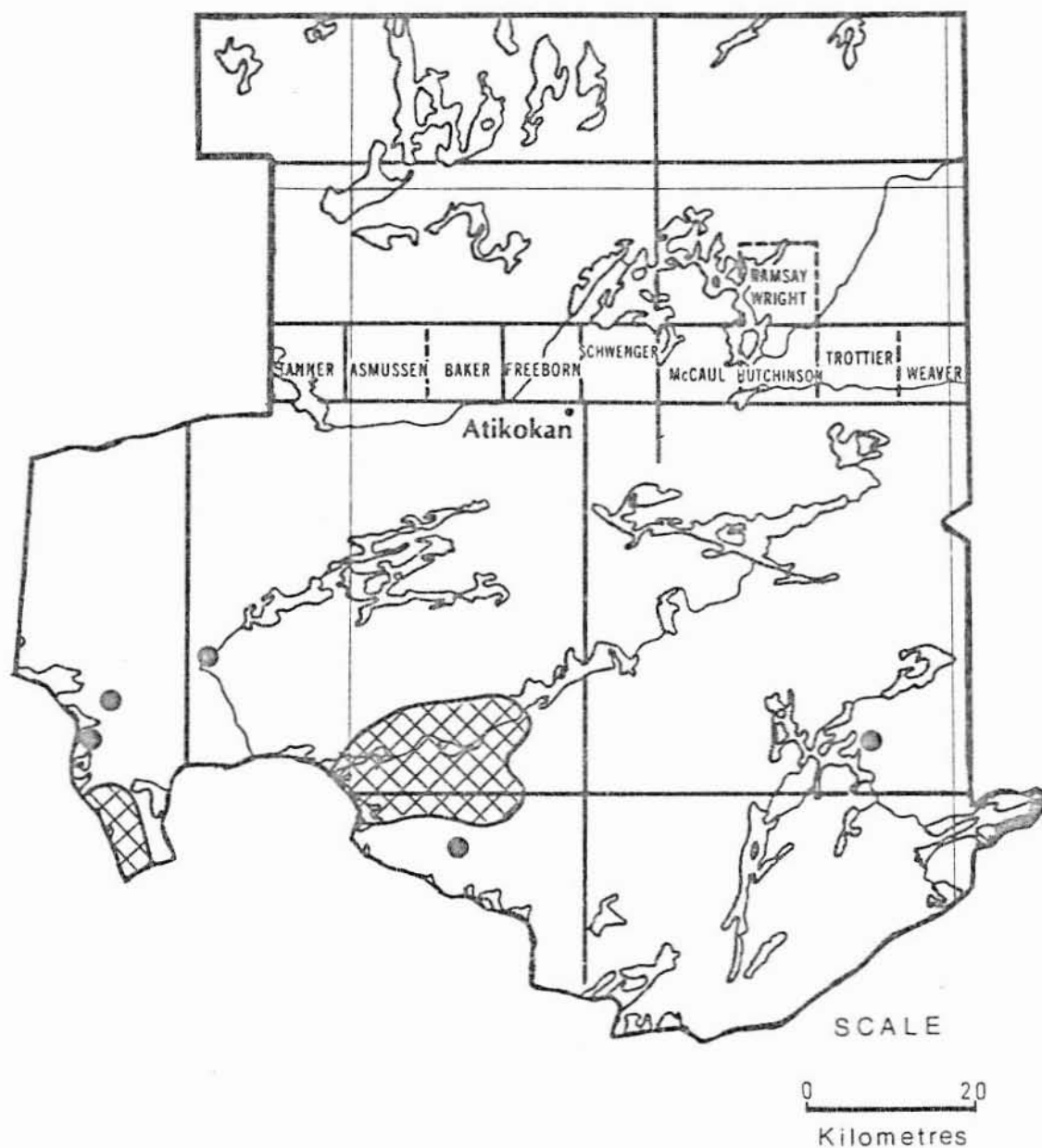
Spruce budworm

Areas within which defoliation
occurred during 1971

LEGEND

Moderate-to-severe defoliation ● or 


ATIKOKAN DISTRICT



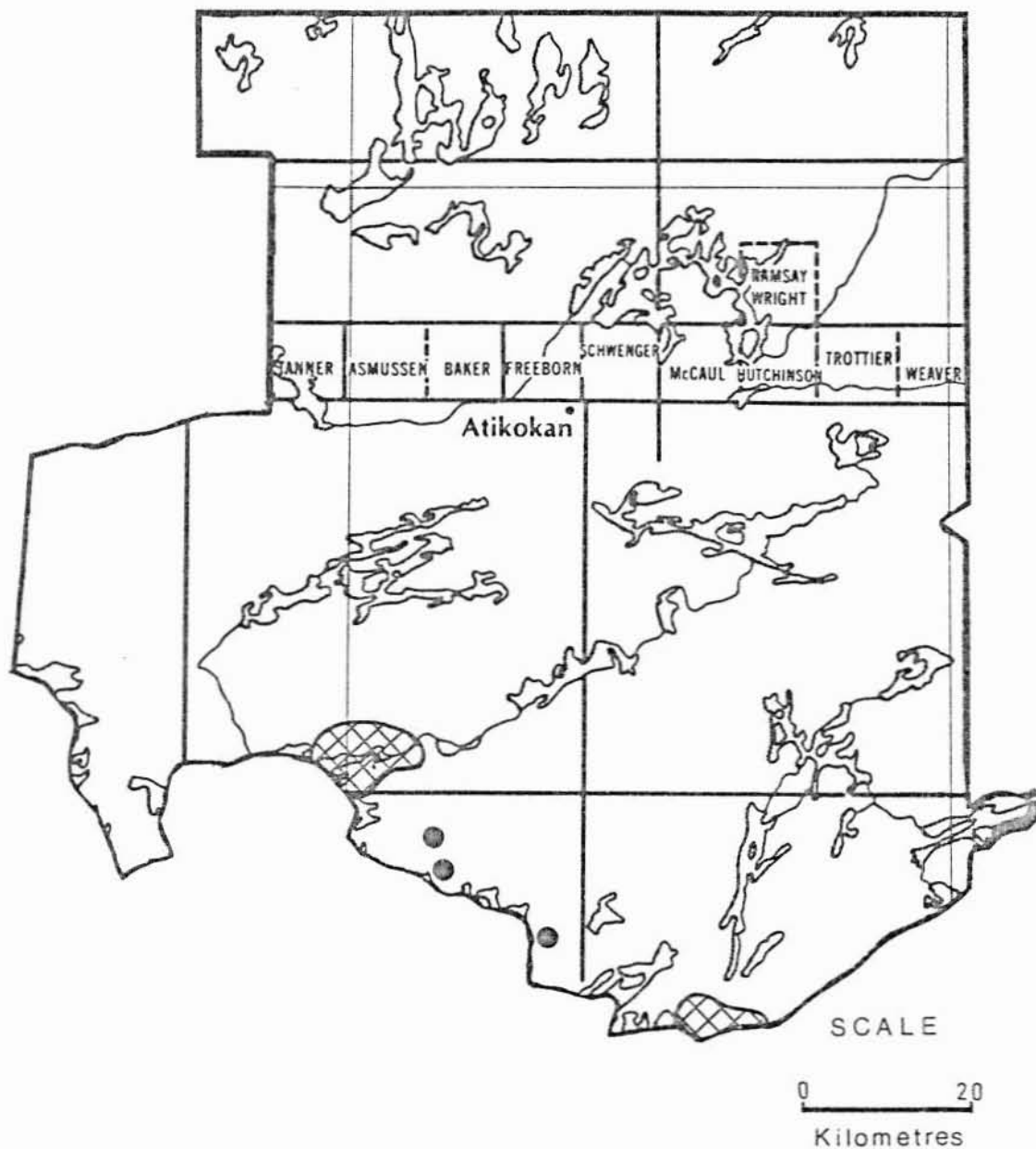
Spruce budworm

Areas within which defoliation
occurred during 1972

LEGEND

Moderate-to-severe defoliation ● or 


ATIKOKAN DISTRICT



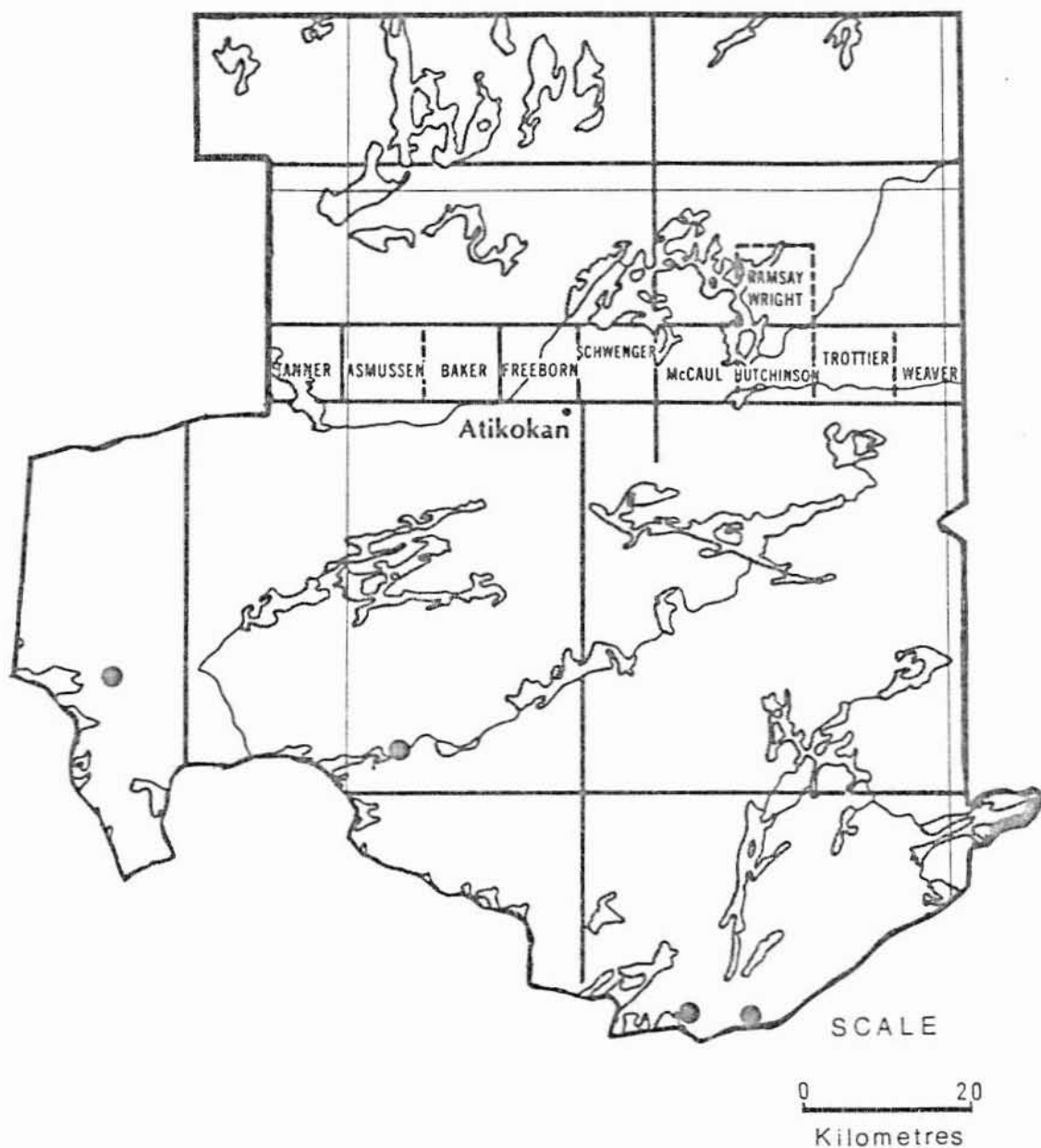
Spruce budworm

Areas within which defoliation
Occurred during 1973.

LEGEND

Moderate-to-severe defoliation ● or 

ATIKOKAN DISTRICT



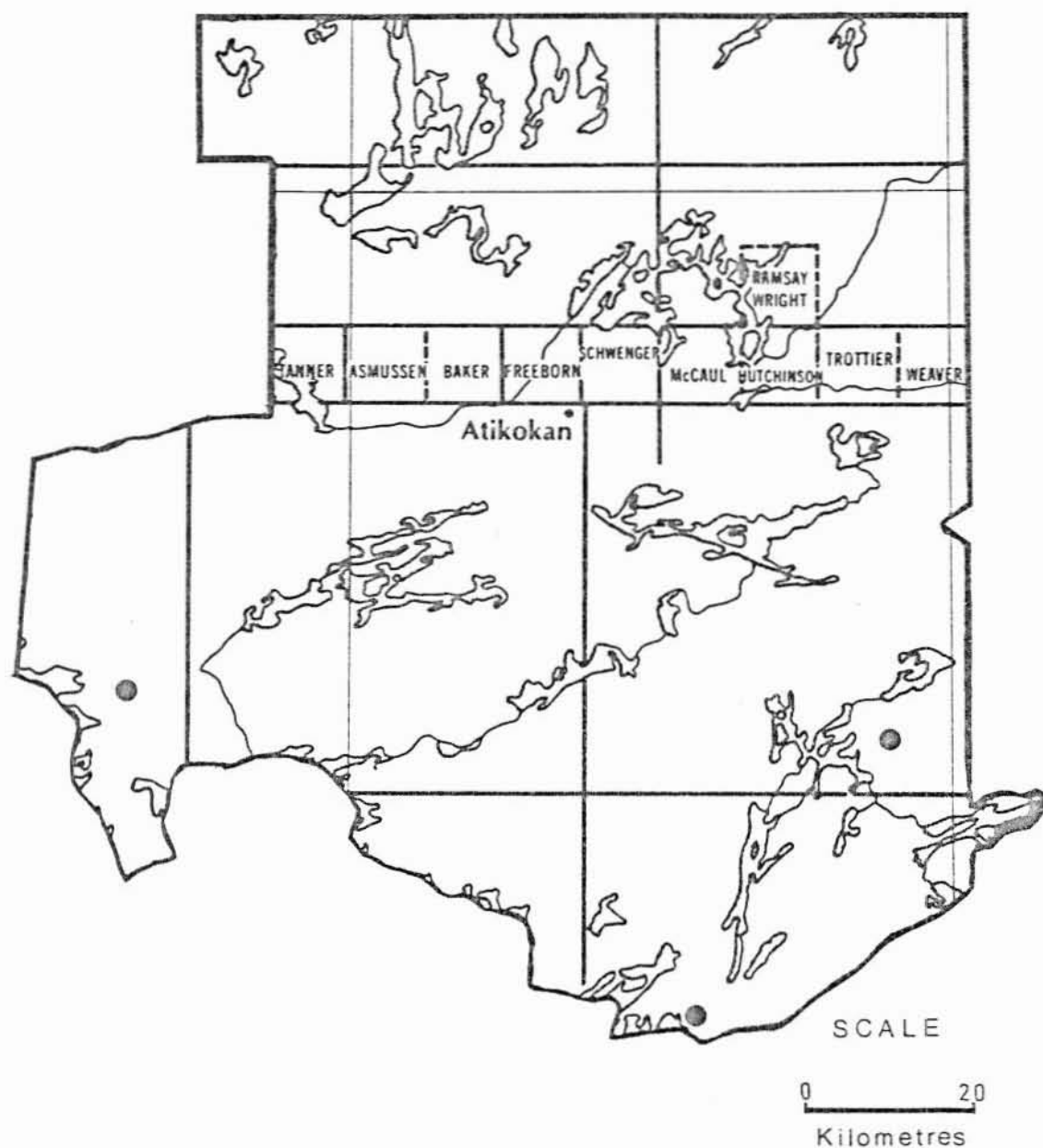
Spruce budworm

Areas within which defoliation
occurred during 1974

LEGEND

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



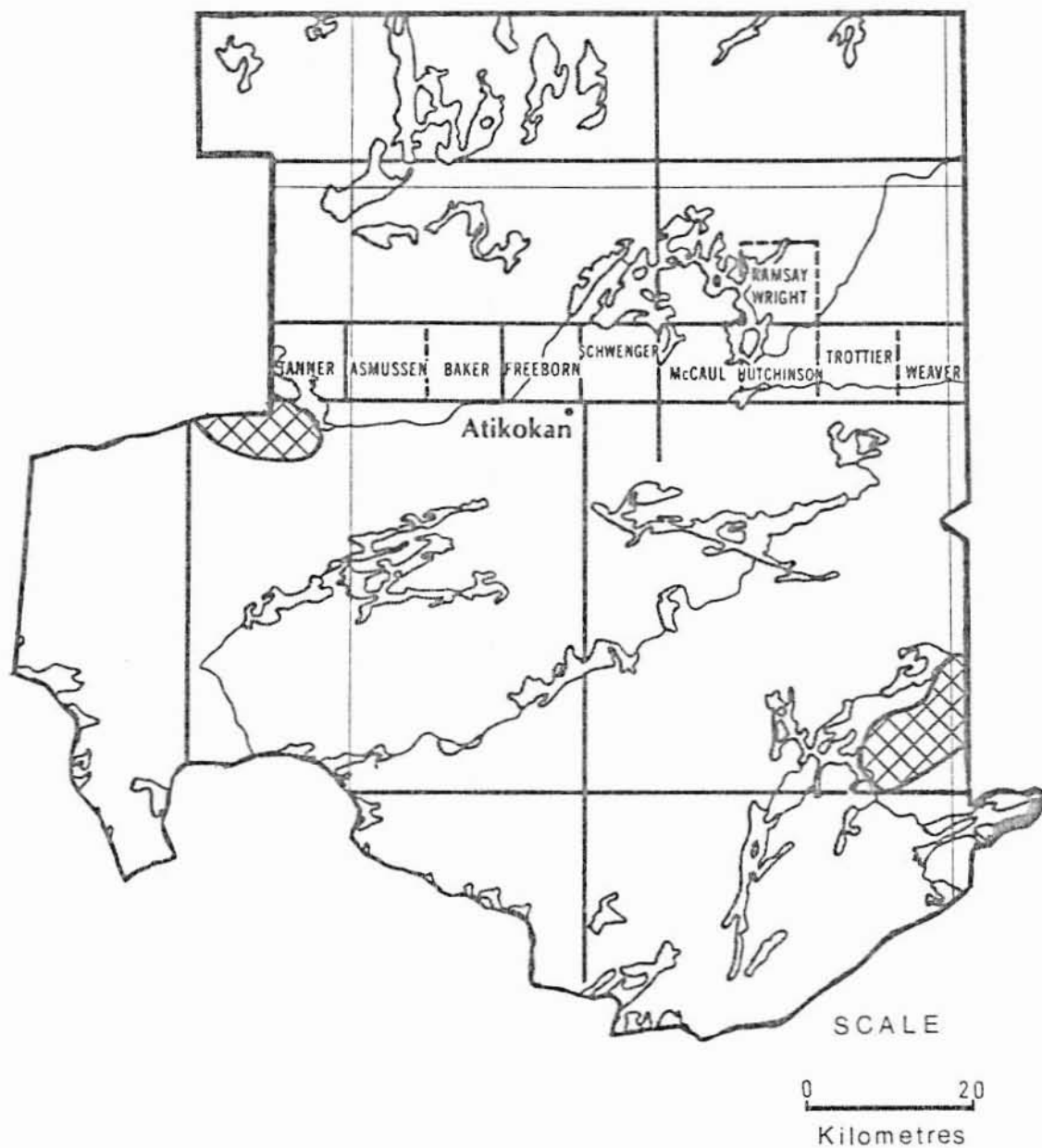
Spruce budworm

Areas within which defoliation
occurred during 1975

LEGEND

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



Spruce budworm

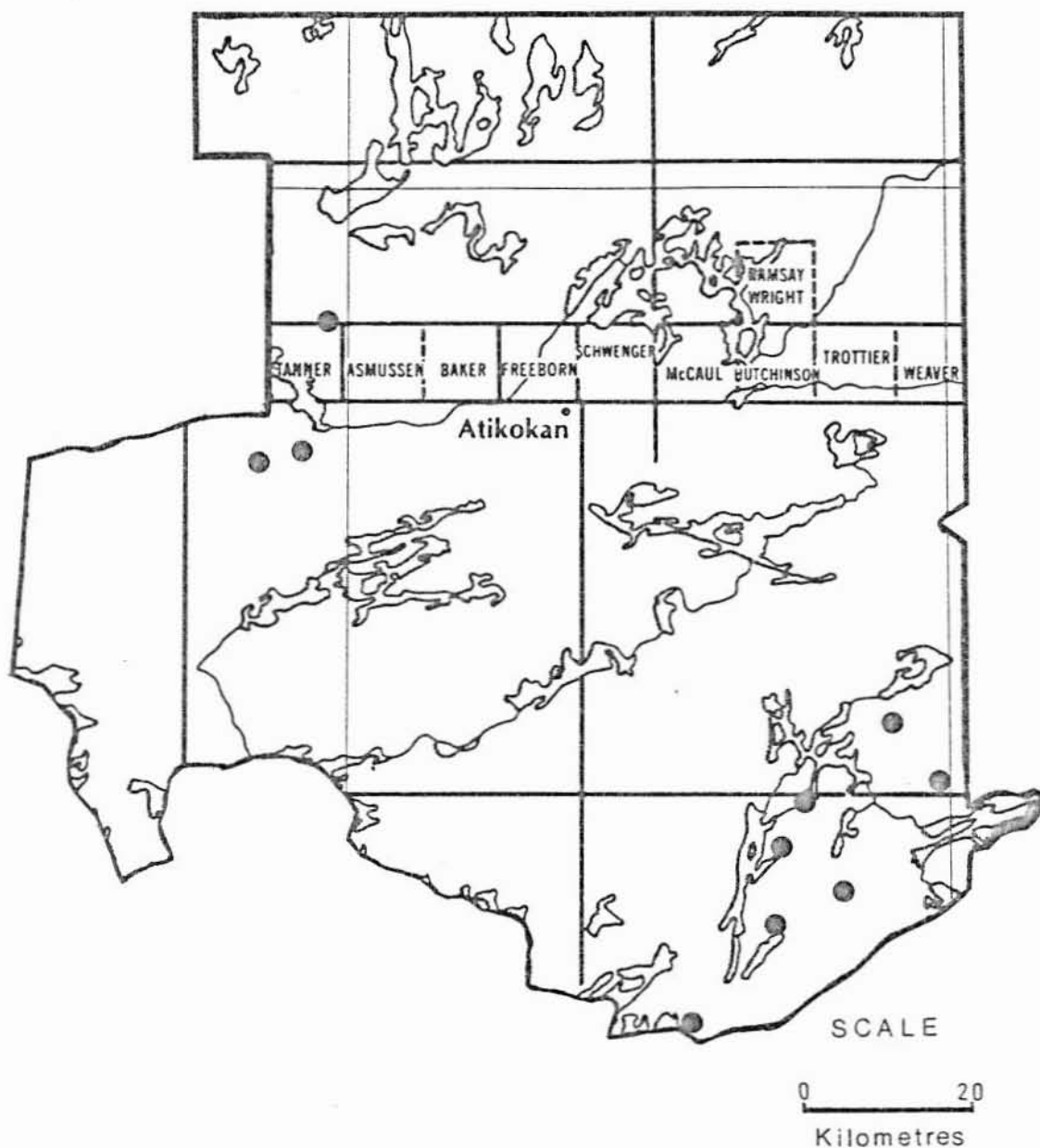
Areas within which defoliation
occurred during 1976

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



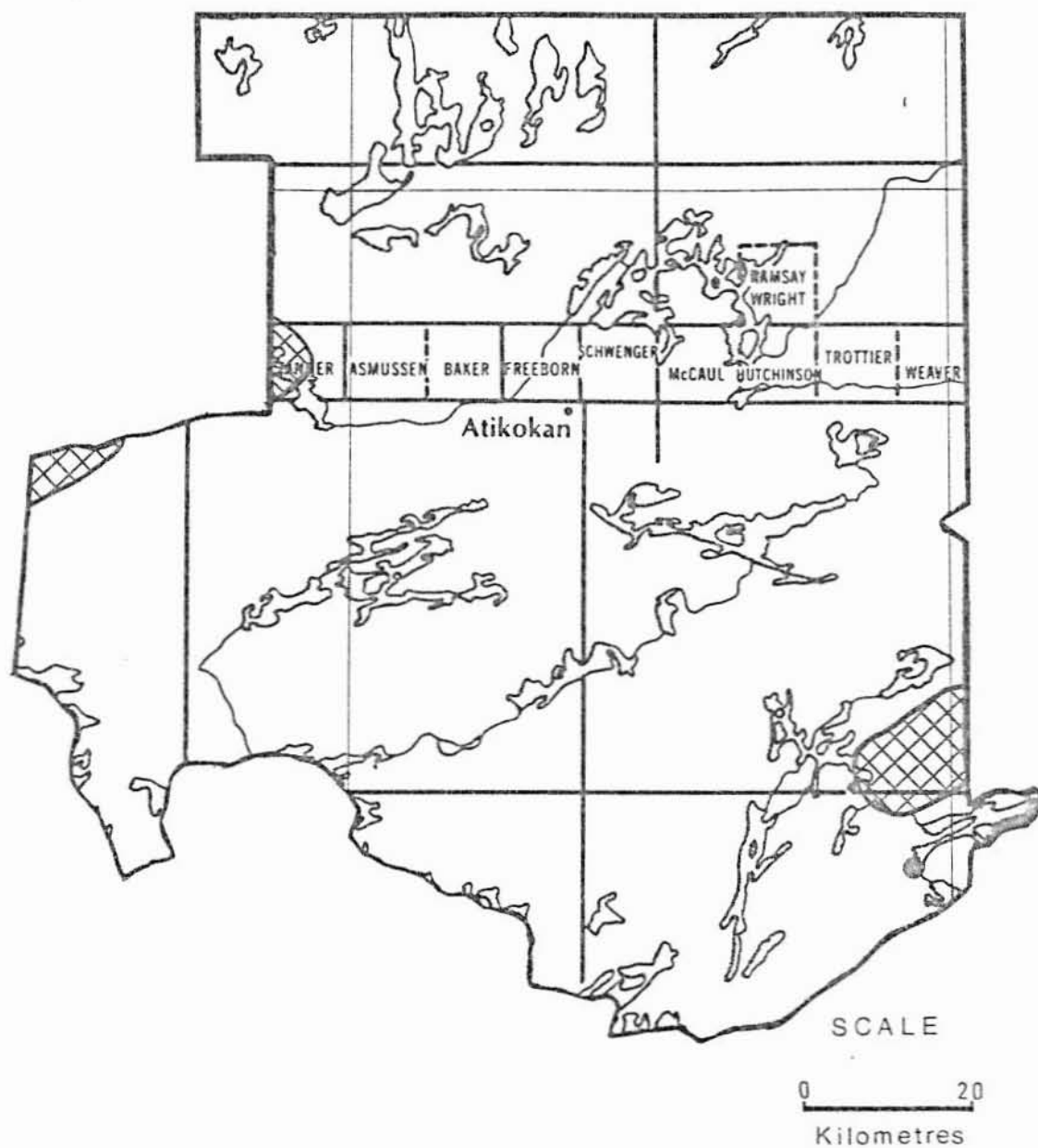
Spruce budworm

Areas within which defoliation
occurred during 1977

LEGEND

Moderate-to-severe defoliation ●


ATIKOKAN DISTRICT



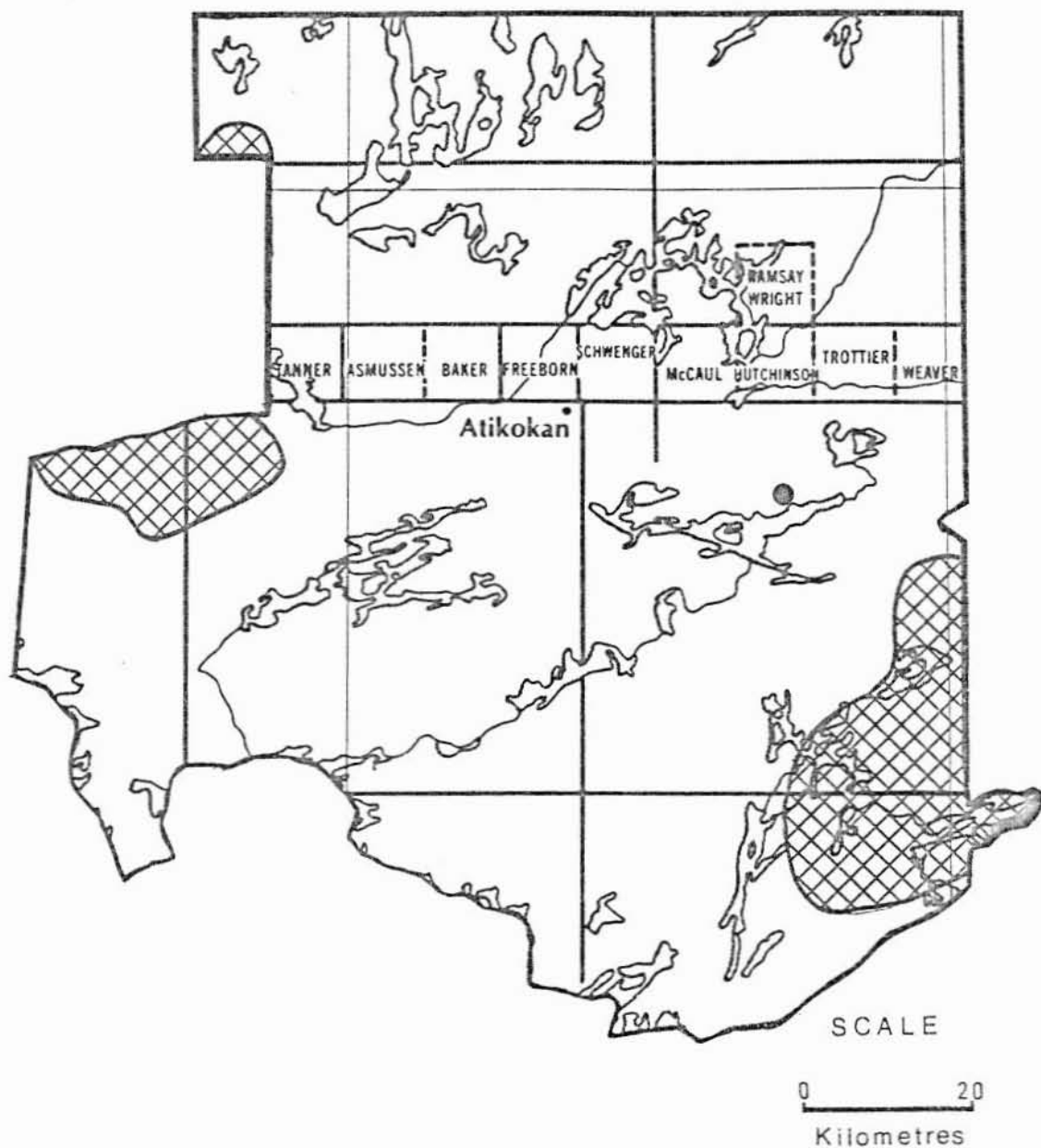
Spruce budworm

Areas within which defoliation
occurred in 1978

LEGEND

Moderate-to-severe defoliation ● or 


ATIKOKAN DISTRICT



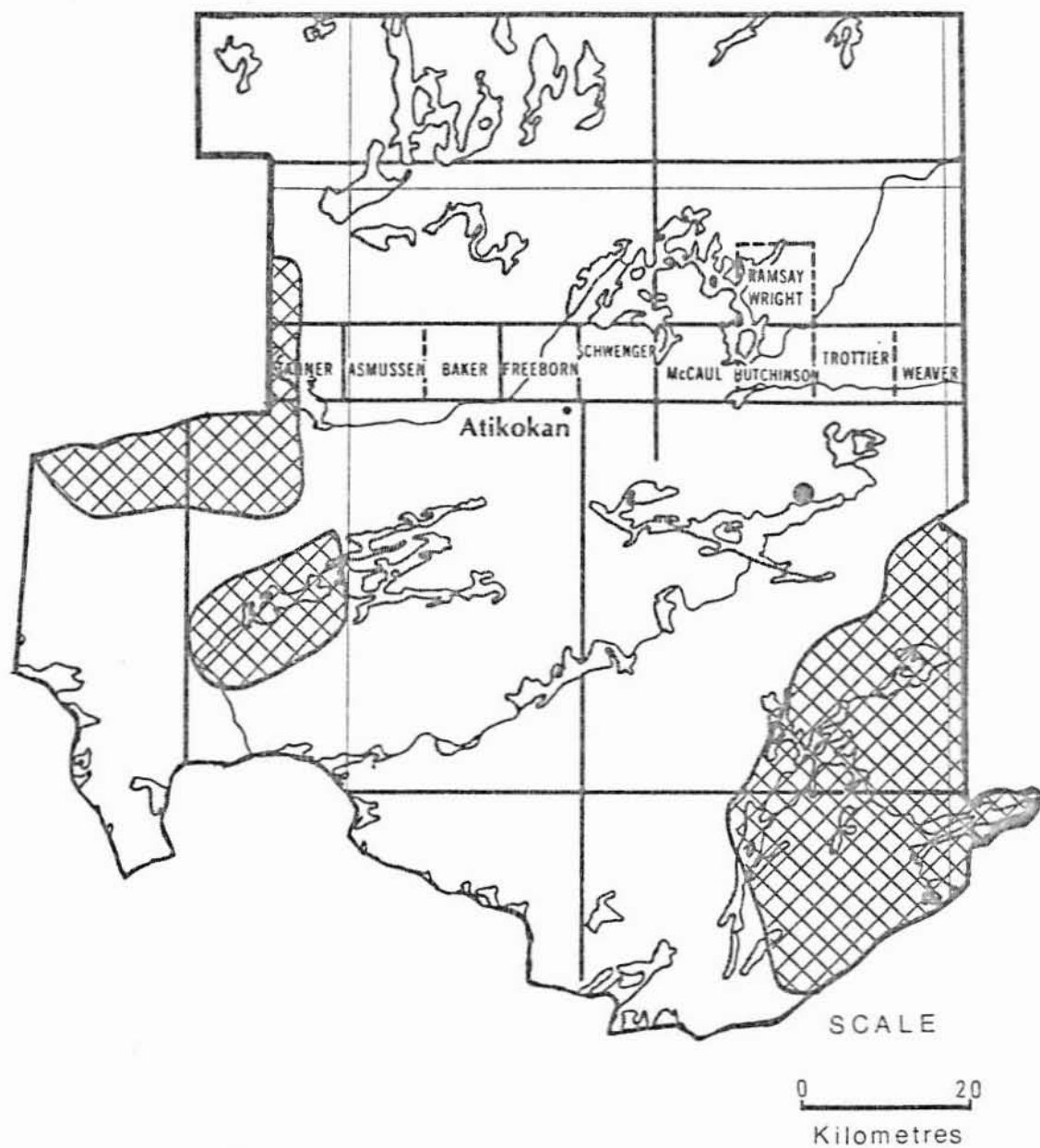
Spruce budworm

Areas within which defoliation
occurred in 1979

LEGEND

Moderate-to-severe defoliation ● or 


ATIKOKAN DISTRICT



Spruce budworm

Areas within which defoliation
occurred in 1980

LEGEND

Moderate-to-severe defoliation ● or 

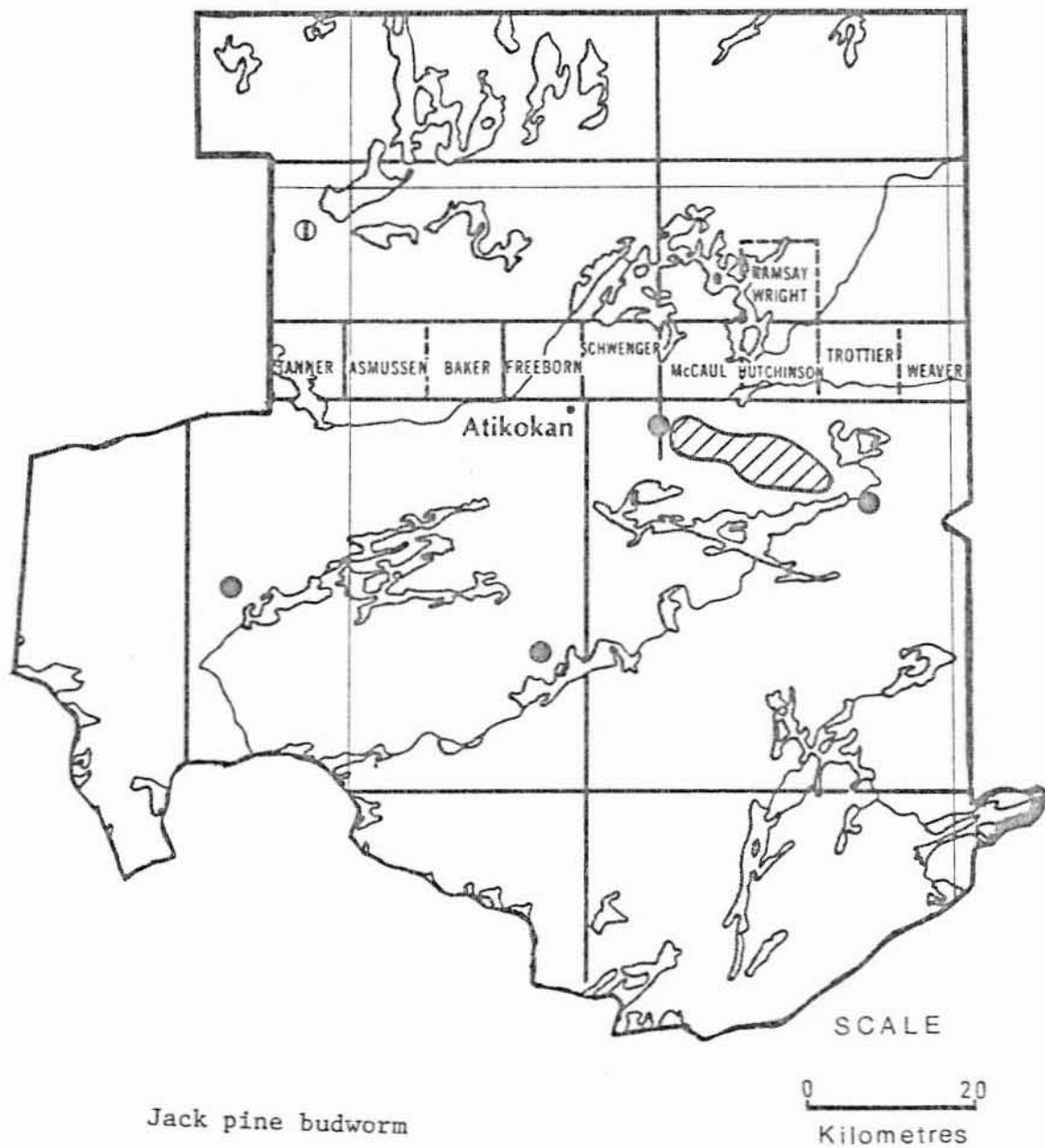
Jack Pine Budworm, *Choristoneura pinus pinus* Free.

Host(s): jack pine

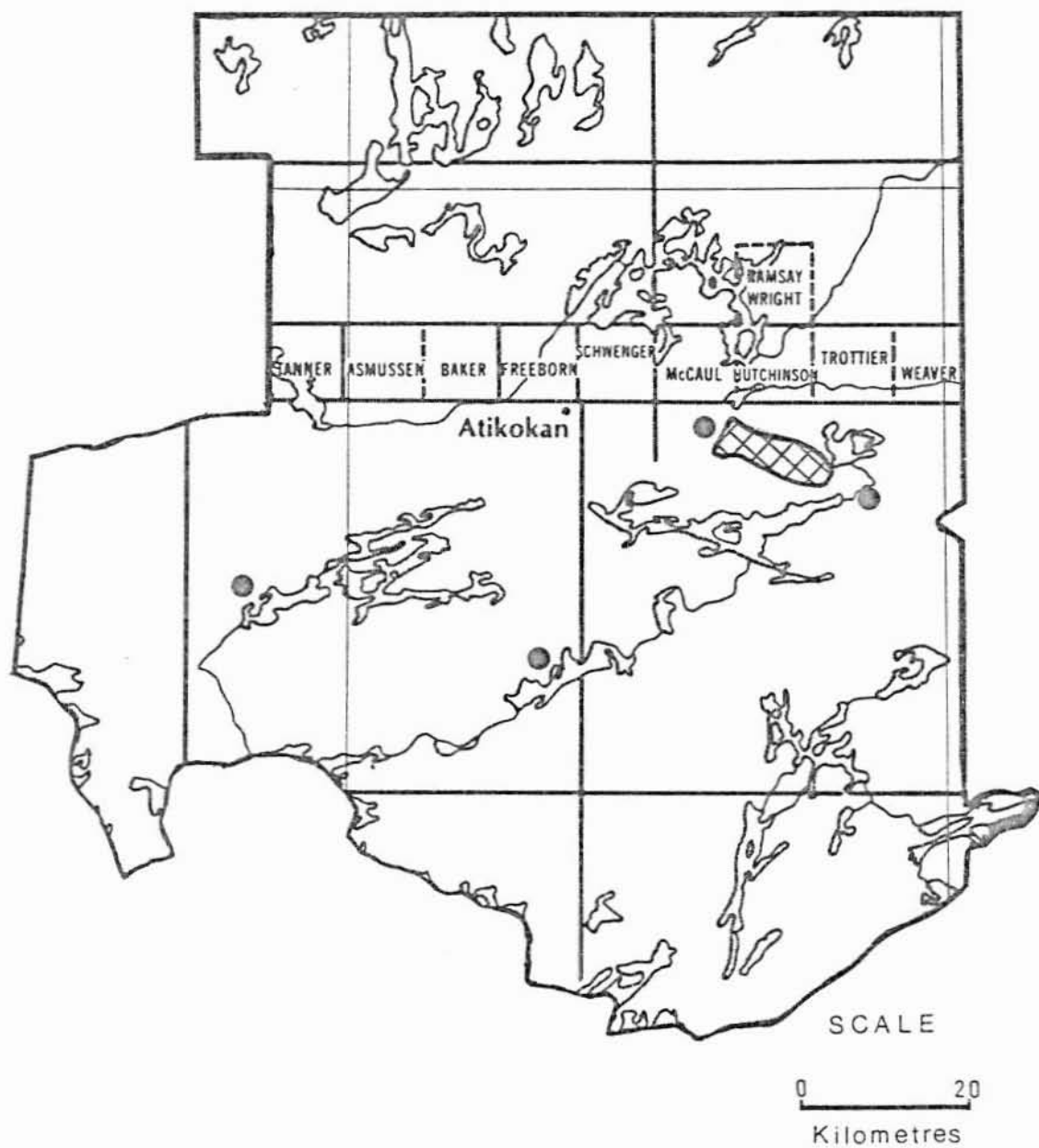
[Major]

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	trace population at Lac LaCroix
1956-1958	trace population at several locations
1959-1960	light and heavy infestations at several widely separated locations (see maps, pages 38 and 39)
1961	Populations subsided to trace levels.
1962-1970	not reported
1971	small pockets of moderate-to-severe defoliation in the extreme northwestern part of the District (see map, page 40)
1972	trace populations only
1973-1980	not reported

ATIKOKAN DISTRICT




ATIKOKAN DISTRICT



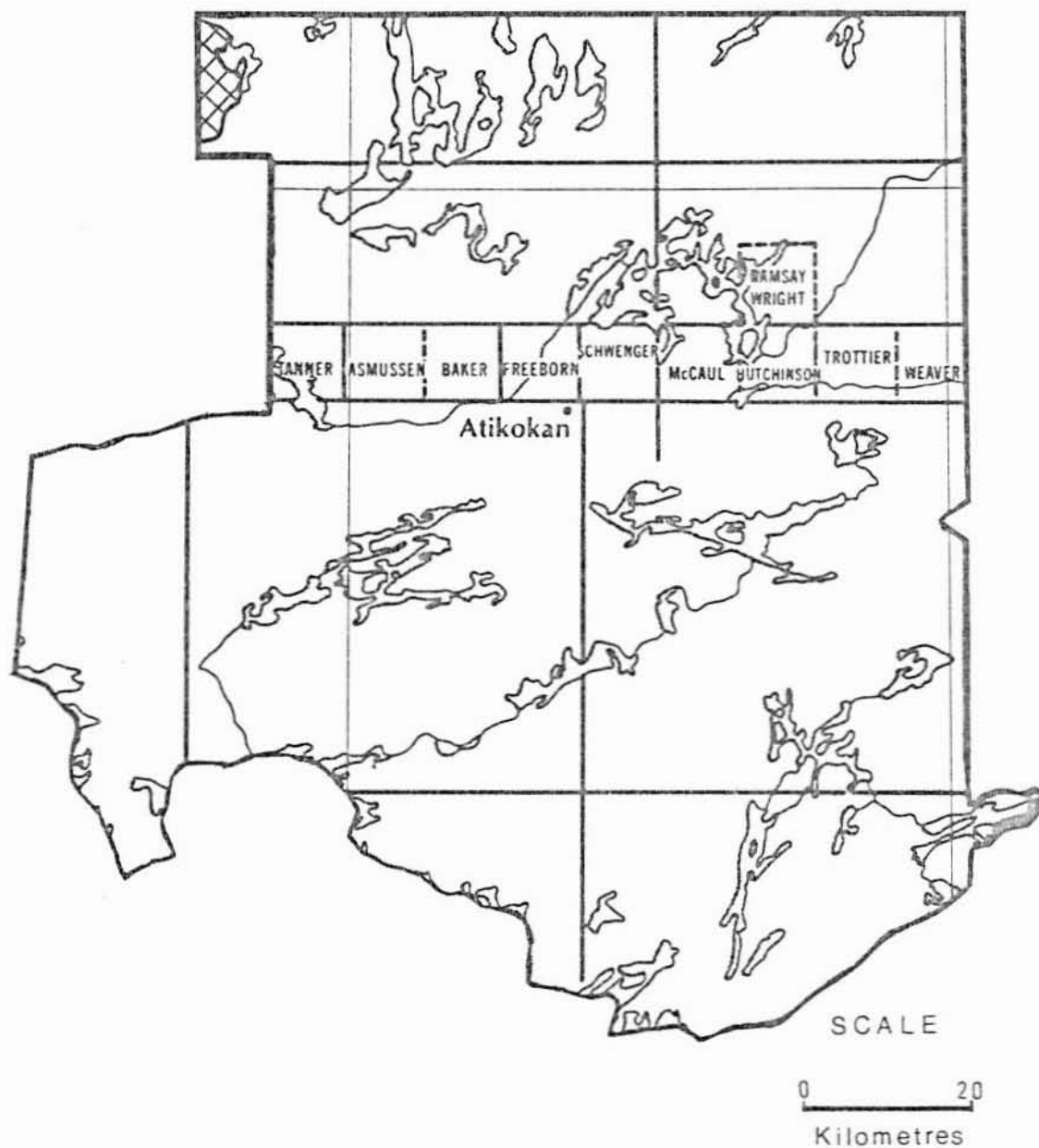
Jack pine budworm

Areas within which defoliation
occurred during 1960

LEGEND

Moderate-to-severe defoliation ● or 

ATIKOKAN DISTRICT



Jack pine budworm

Areas within which defoliation
occurred during 1971

LEGEND

Moderate-to-severe defoliation



Eastern Pine Shoot Borer, *Eucosma gloriola* Heinr.

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1963	not reported
1964	light infestation near Williamson Lake
1965	trace population at Williamson Lake
1976-1974	not reported
1975	light infestation in one location
1976-1978	heavy infestations in regeneration jack pine north of Eva Lake and Sepawe
1979-1980	Heavy infestations continued in regeneration north of Atikokan and Eva Lake.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Host(s): aspen, deciduous species

[Major]

<u>Year</u>	<u>Remarks</u>
1950	moderate-to-severe defoliation in Basswood-Sunday-Emerald Lakes area and in Calm-Perch-Kasakokwog Lakes area (see map, page 44)
1951	Infestations merged so that almost the entire District suffered moderate-to-severe defoliation except for stands within a relatively narrow strip along the southwestern border (see map, page 45).
1952	moderate-to-severe defoliation of aspen stands throughout the entire District (see map, page 46)
1953	Populations declined sharply from 1952 and medium-to-heavy infestations were general.
1954	The infestation disappeared.
1955-1956	trace populations
1957-1958	not reported
1959	trace populations
1960-1961	trace populations
1962	pockets of moderate-to-severe defoliation ranging from a few ha to 130 km ²
1963	a decrease in moderate-to-severe defoliation through the northern and central parts of the District (see map, page 47)
1964	moderate-to-severe defoliation general through the northern and central parts of the District (see map, page 48)
1965	moderate-to-severe defoliation over all but the extreme southeastern corner of the District (see map, page 49)
1966	Moderate-to-severe defoliation persisted over most of the District (see map, page 50).
1967	Moderate-to-severe defoliation was general over the west-central and southwestern sections of the District (see map, page 51).
1968-1969	not reported

(cont'd)

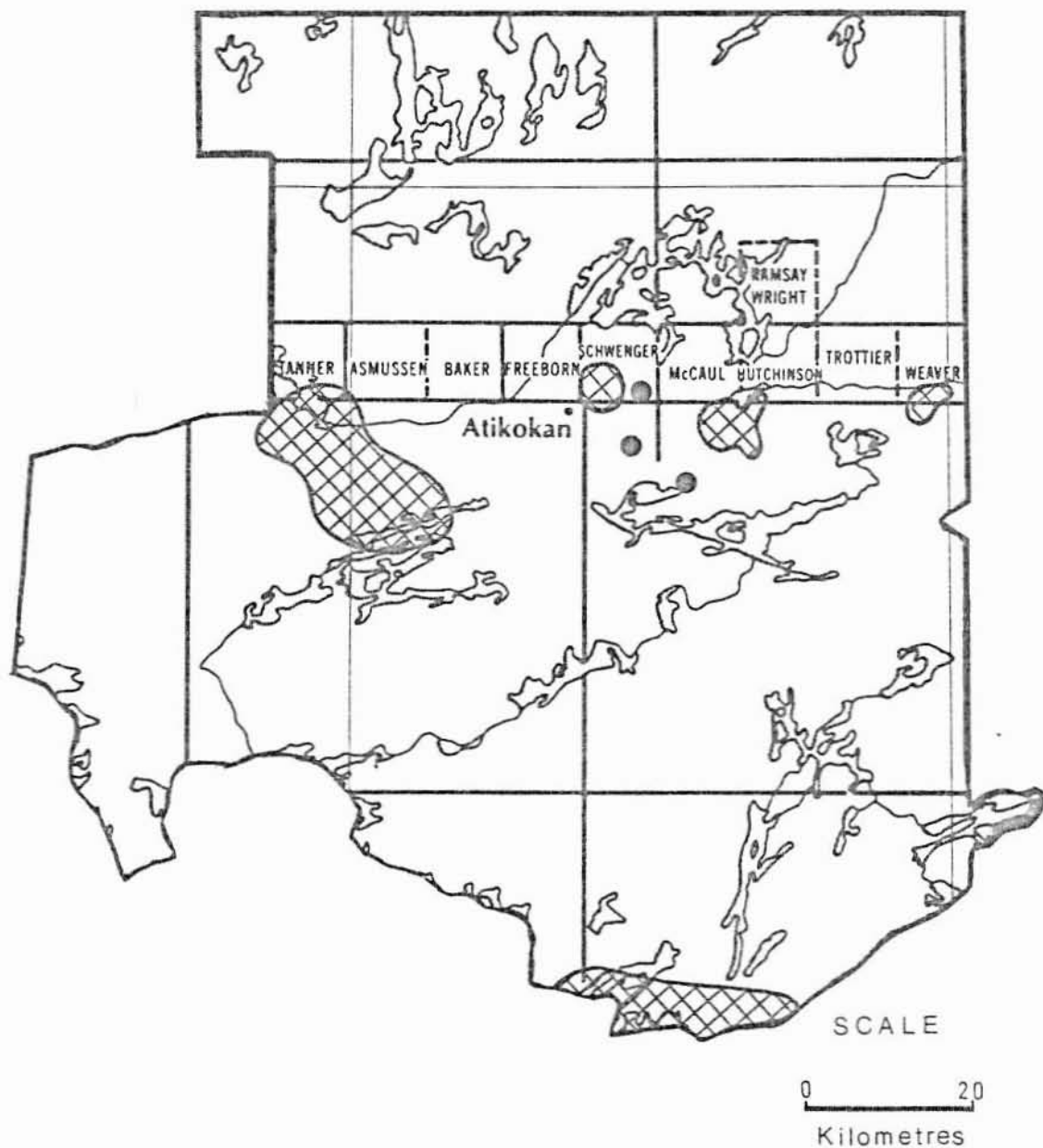
Forest Tent Caterpillar, *Malacosoma disstria* Hbn. (concl.)

Host(s): aspen, deciduous species

[Major]

<u>Year</u>	<u>Remarks</u>
1970	trace populations
1971	trace populations
1972-1974	trace populations
1975	Various ornamental and park trees were stripped in the town of Atikokan. The insect was not reported elsewhere in the District.
1976	There was little change. Moderate-to-severe defoliation persisted in the town of Atikokan.
1977	moderate-to-severe defoliation along Highway 11 from Atikokan west 32 km to McAuley Lake (see map, page 52)
1978	scattered pockets of moderate-to-severe defoliation throughout the western half of District (see map, page 53)
1979	approximately 2,590 km ² of moderate-to-severe defoliation (see map, page 54)
1980	The infestation collapsed as a result of weather conditions.


ATIKOKAN DISTRICT



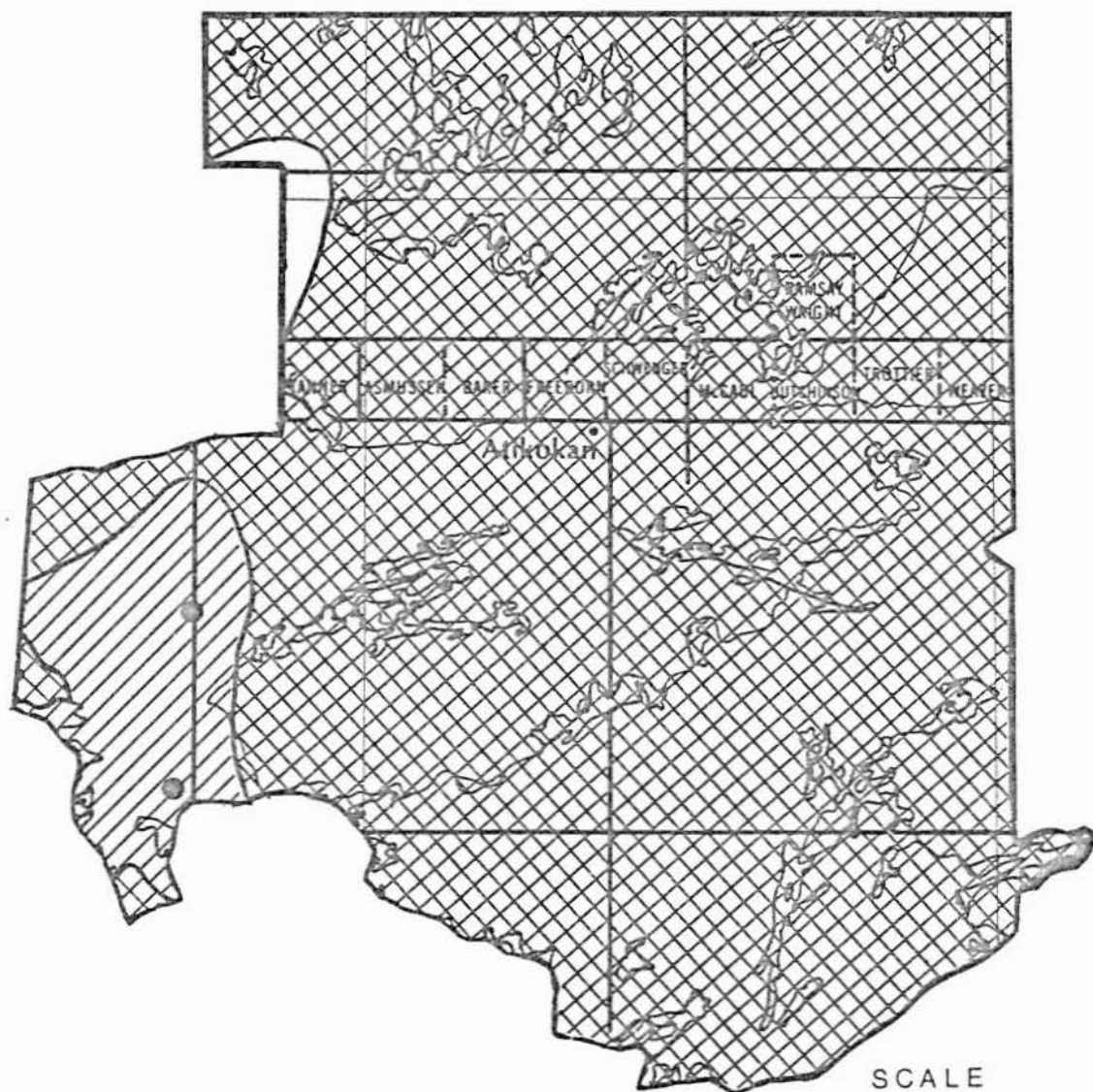
Forest tent caterpillar

Areas within which defoliation
occurred during 1950

LEGEND

Moderate-to-severe defoliation ● or 

ATIKOKAN DISTRICT



Forest tent caterpillar

Areas within which defoliation
occurred during 1951

LEGEND

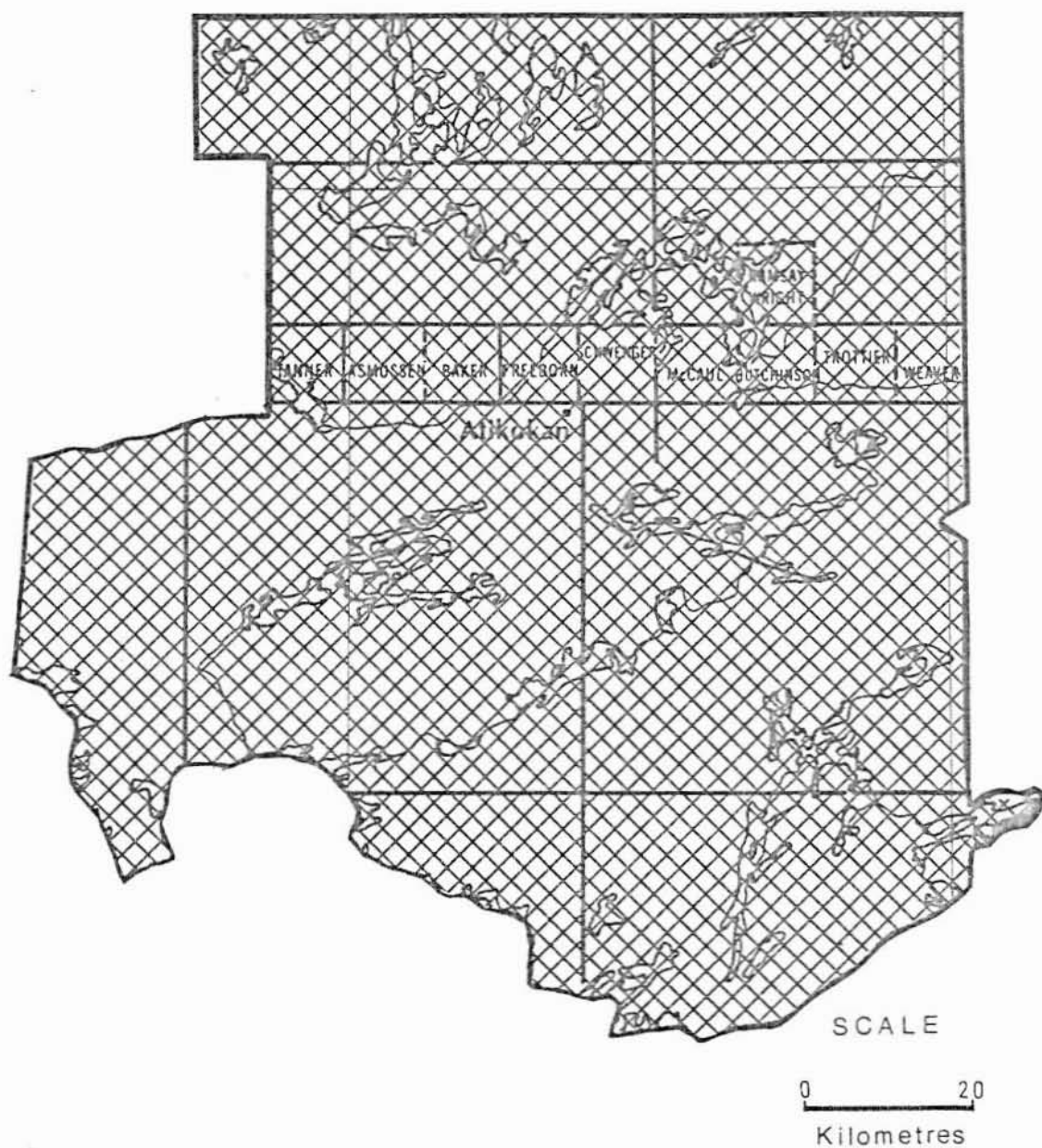
Light defoliation



Moderate-to-severe defoliation ● or



ATIKOKAN DISTRICT



Forest tent caterpillar

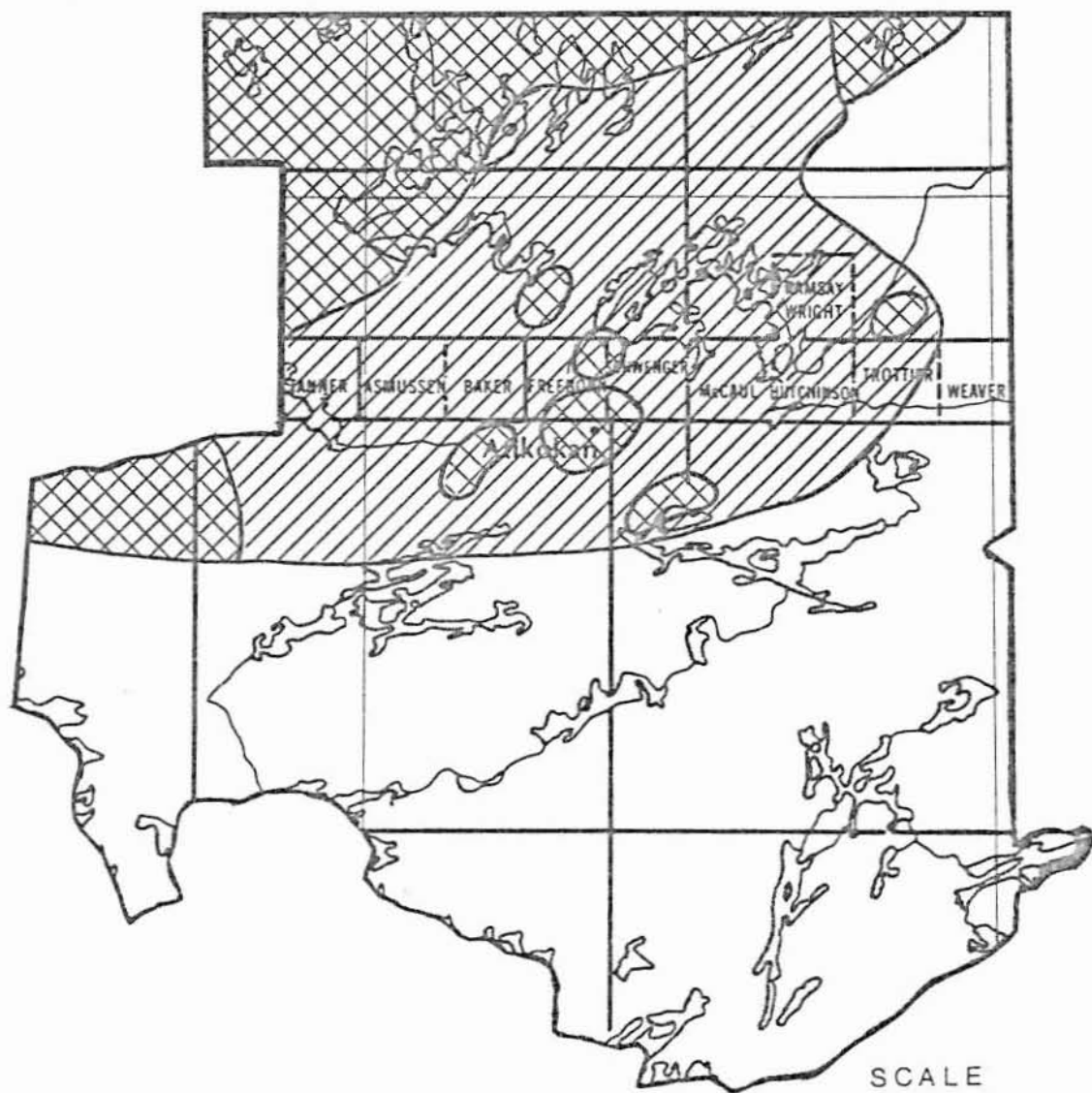
Areas within which defoliation
occurred during 1952

LEGEND

Moderate-to-severe defoliation




ATIKOKAN DISTRICT




Forest tent caterpillar

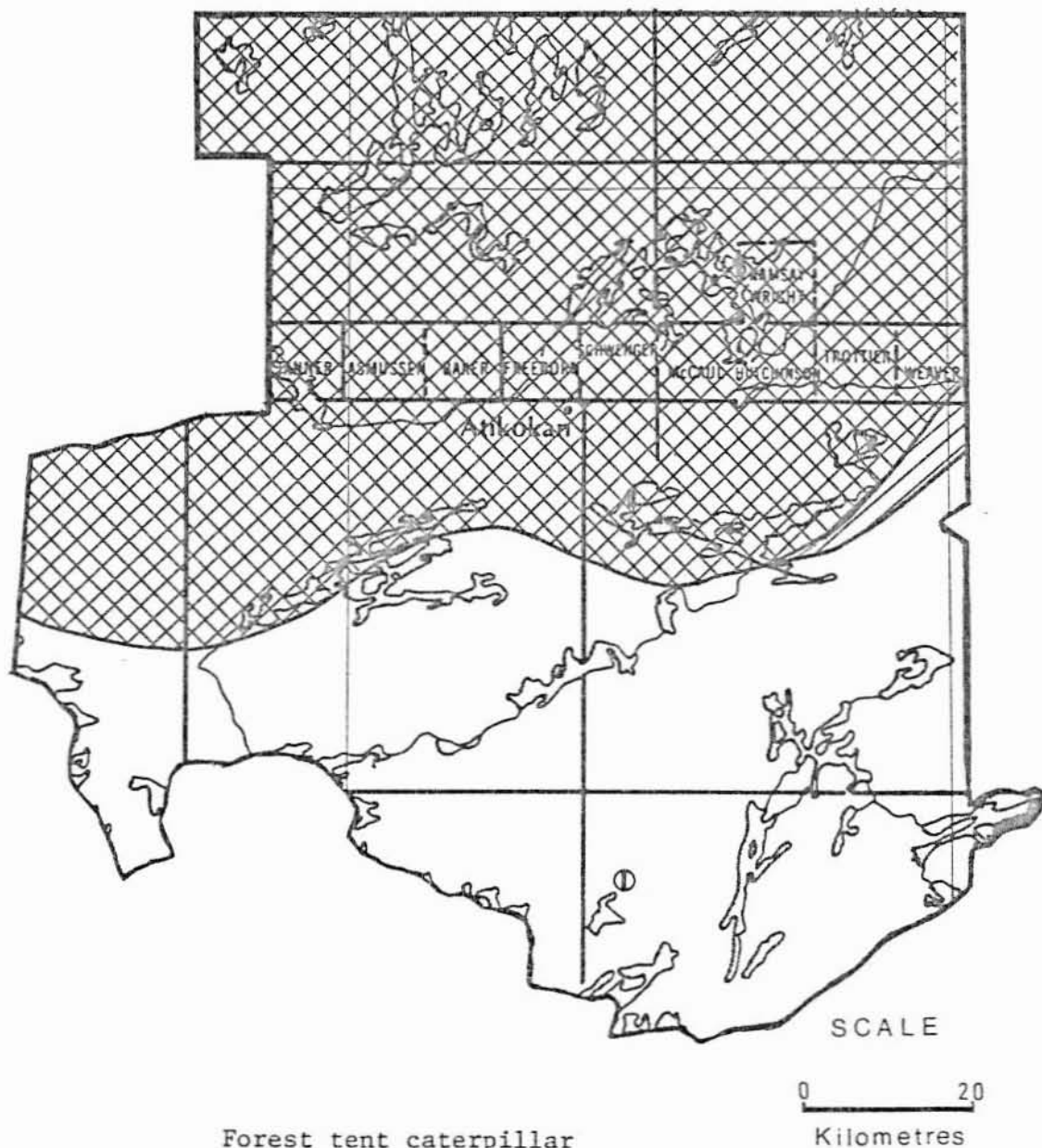
Areas within which defoliation
occurred during 1963

LEGEND

Light defoliation 

Moderate-to-severe defoliation 


ATIKOKAN DISTRICT




Forest tent caterpillar

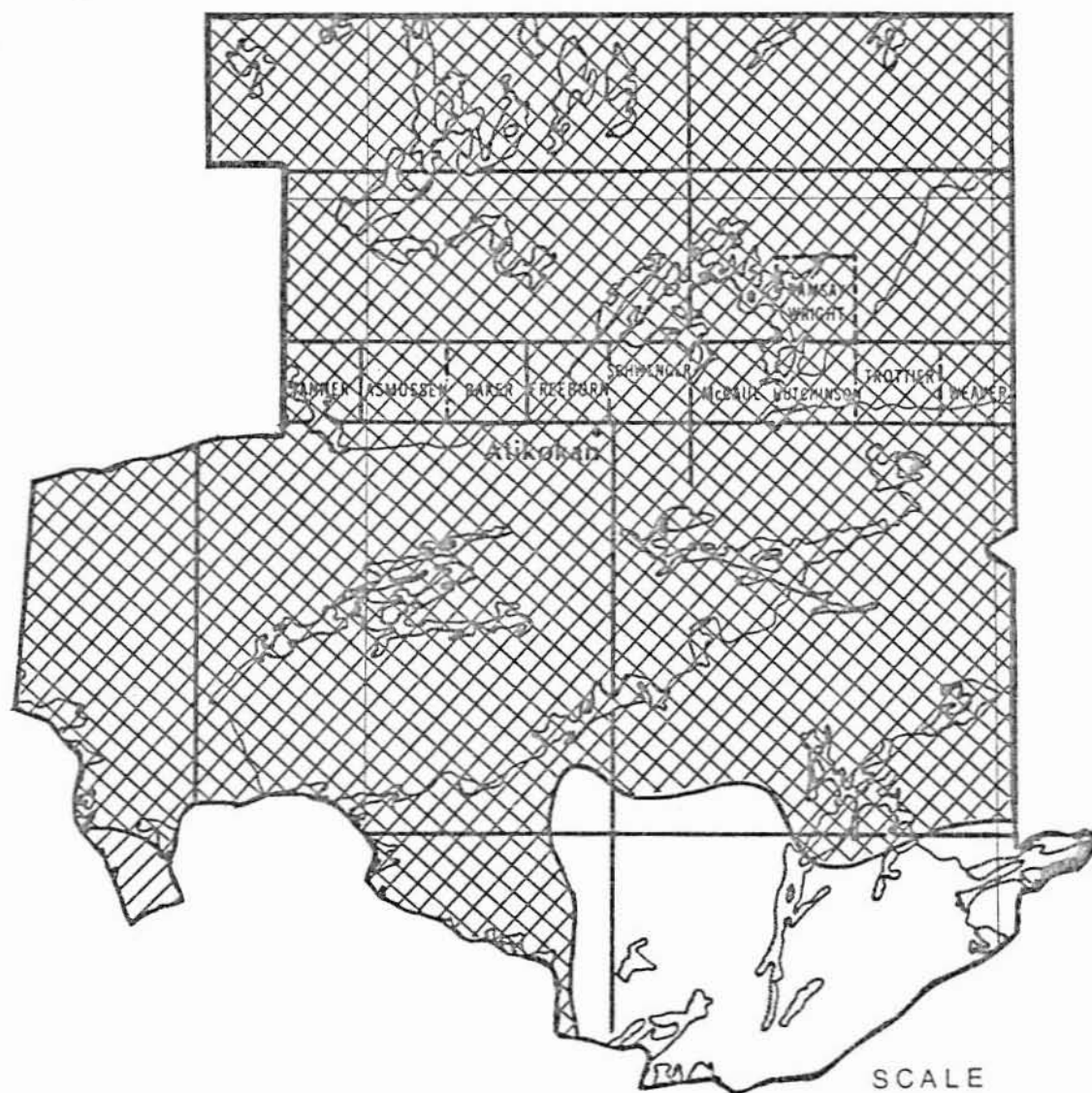
Areas within which defoliation
occurred during 1964

LEGEND

Light defoliation ① or 

Moderate-to-severe defoliation 

ATIKOKAN DISTRICT



SCALE


0 20

Kilometres

Forest tent caterpillar

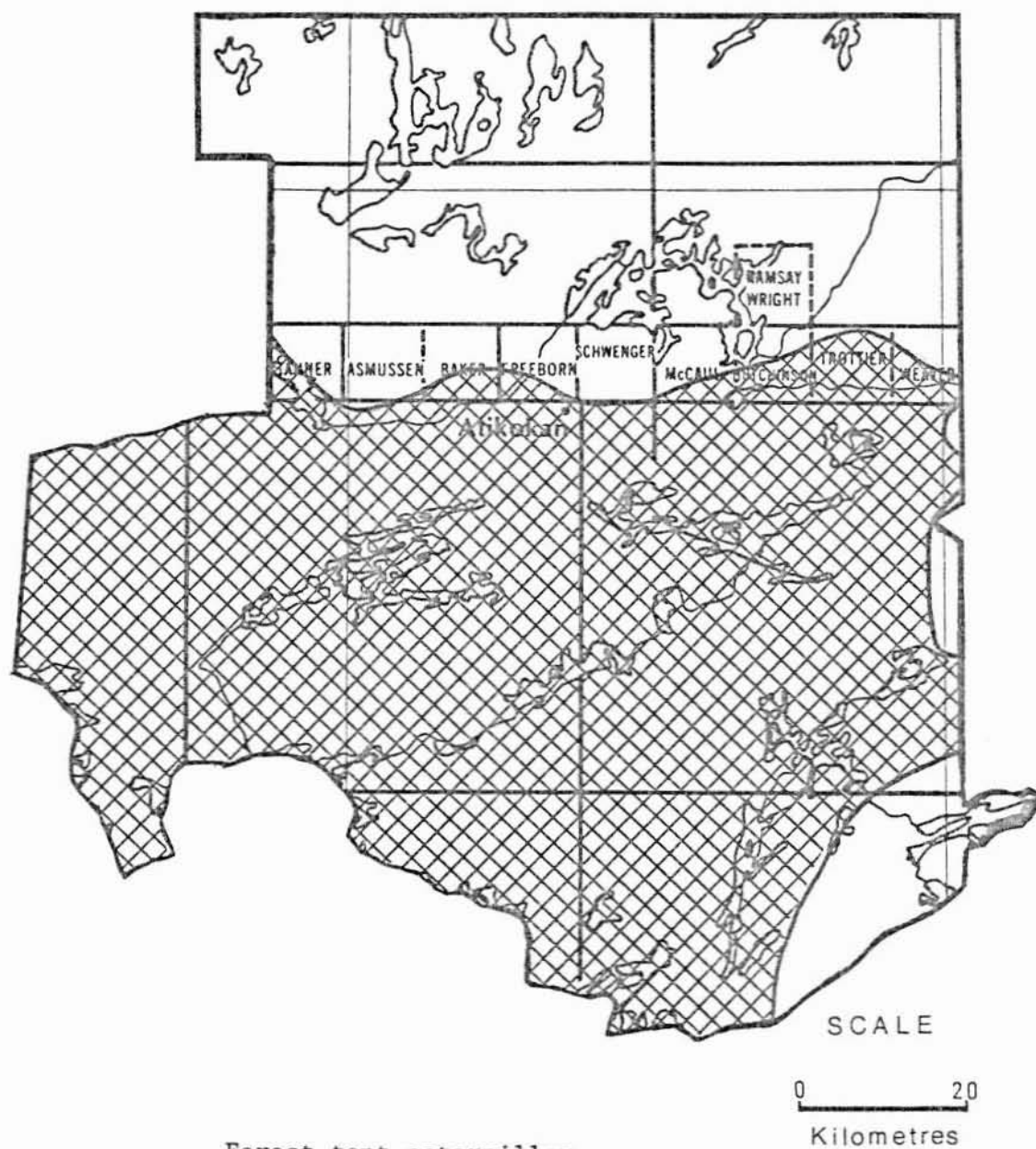
Areas within which defoliation
occurred during 1965

LEGEND

Light defoliation 

Moderate-to-severe defoliation 

ATIKOKAN DISTRICT



Forest tent caterpillar

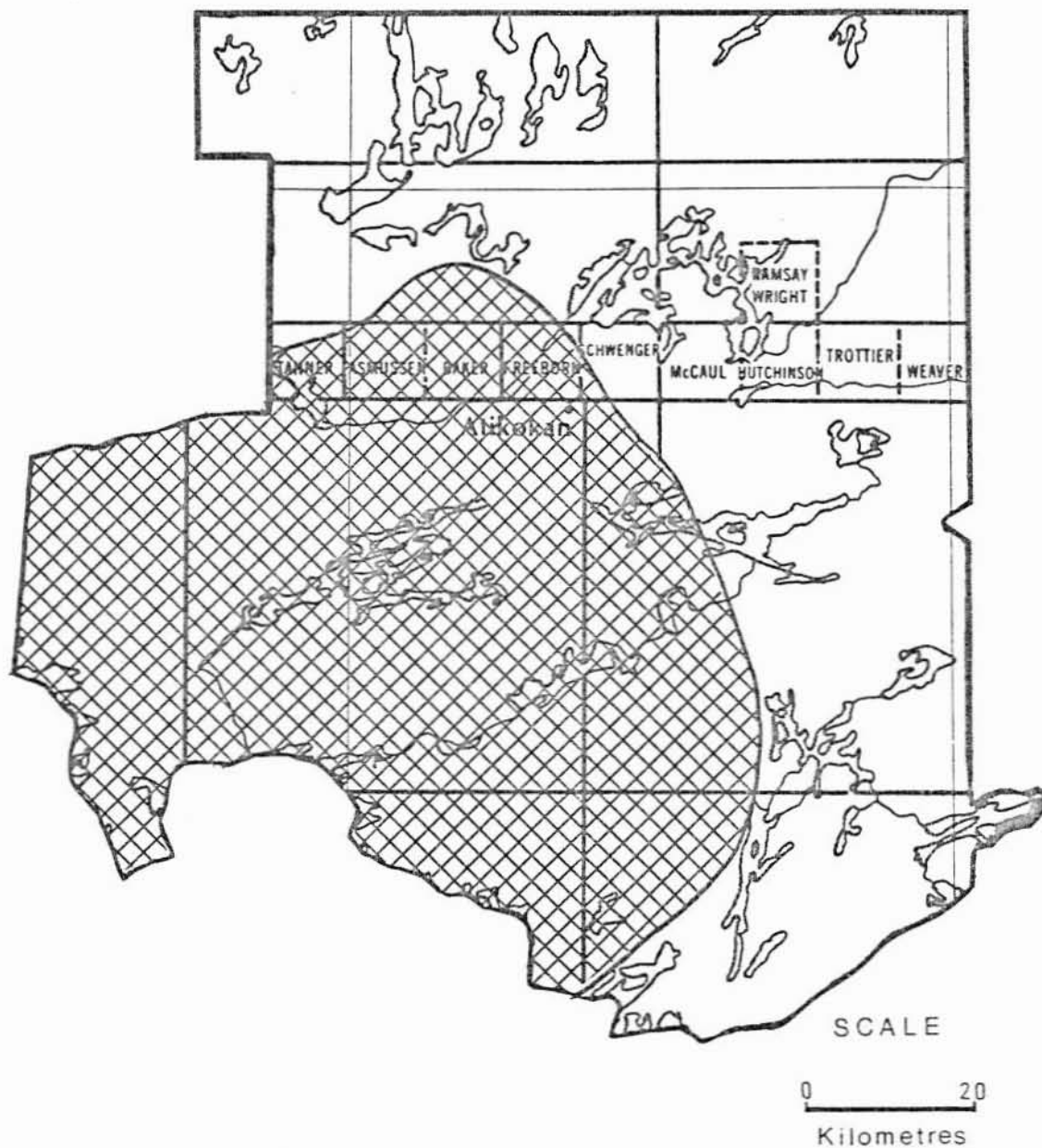
Areas within which defoliation
occurred during 1966

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



Forest tent caterpillar

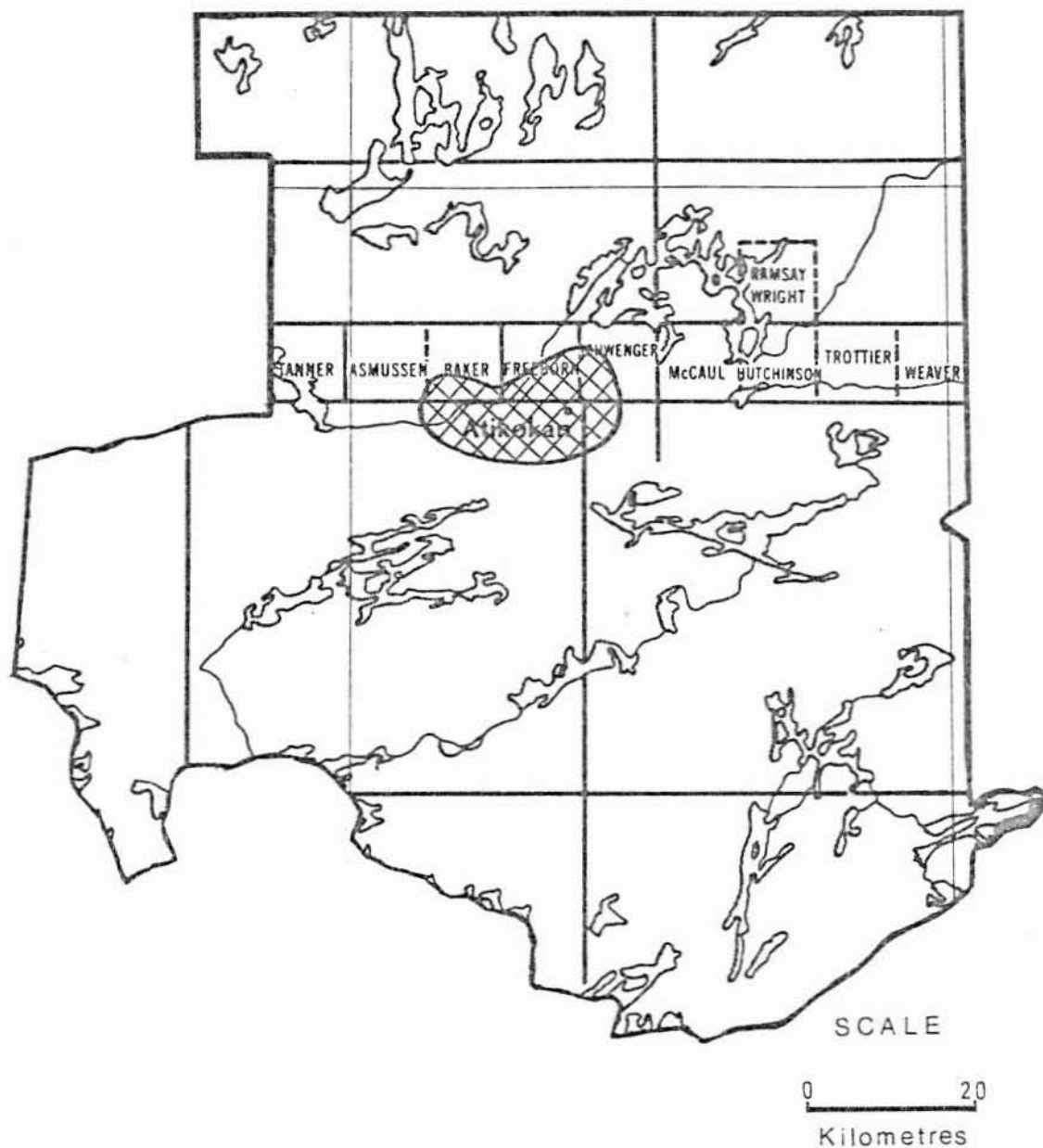
Areas within which defoliation
occurred during 1967

LEGEND

Moderate-to-severe defoliation



ATIKOKAN DISTRICT



Forest tent caterpillar

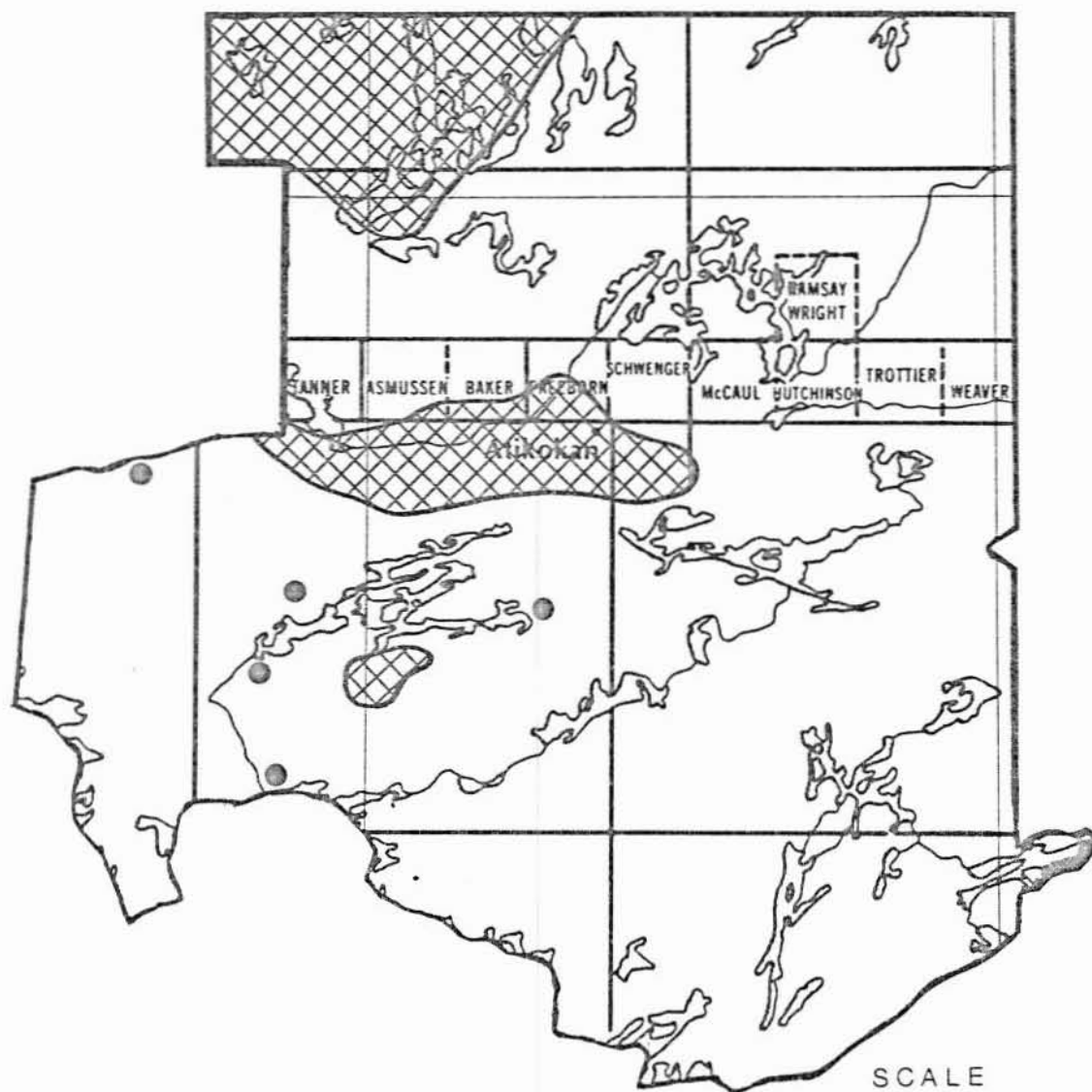
Areas within which defoliation
occurred during 1977

LEGEND

Moderate-to-severe defoliation




ATIKOKAN DISTRICT



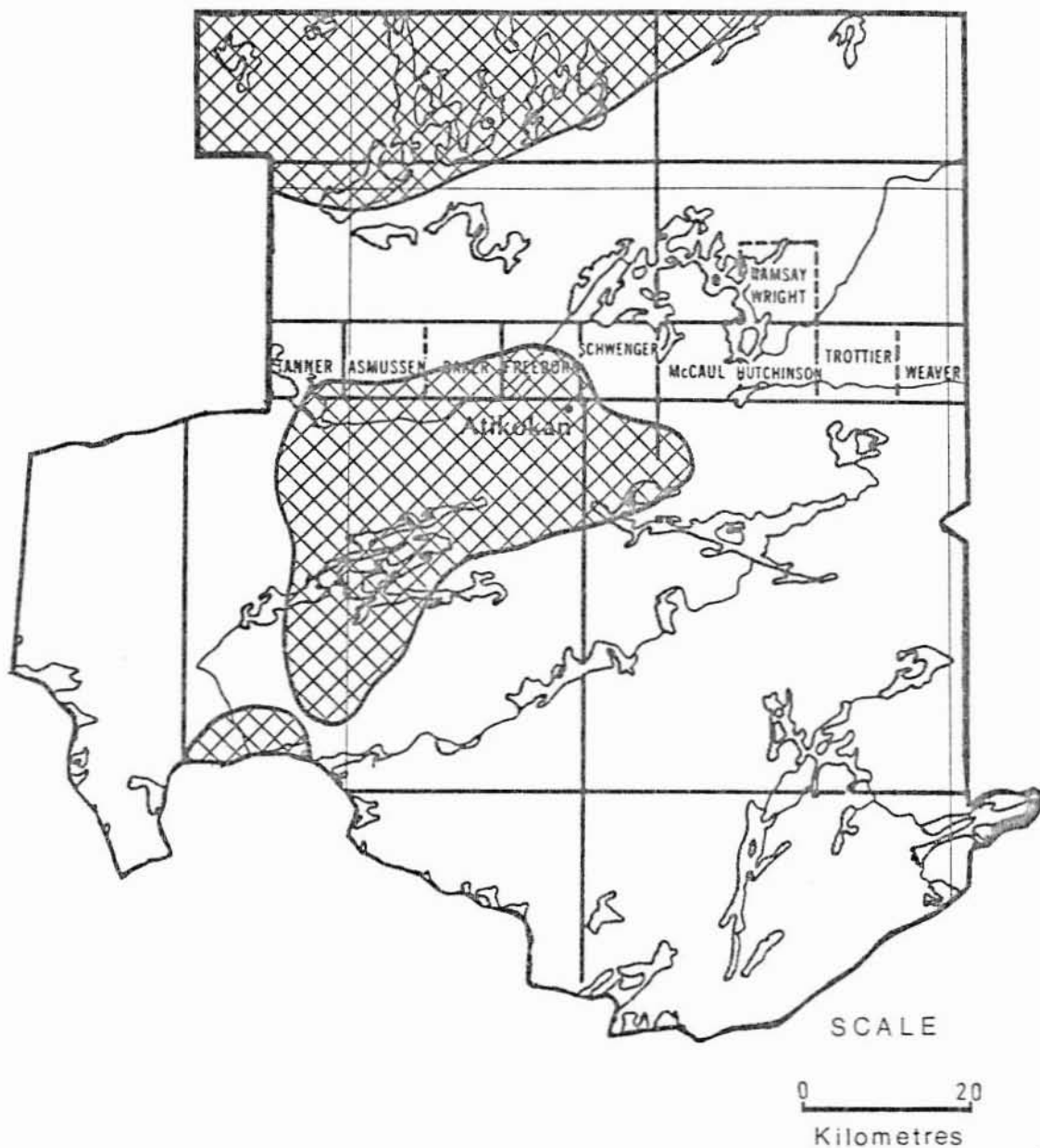
Forest tent caterpillar

Areas within which defoliation
occurred during 1978

LEGEND

Moderate-to-severe defoliation ● or 


ATIKOKAN DISTRICT



Forest tent caterpillar

Areas within which defoliation
occurred during 1979

LEGEND

Moderate-to-severe defoliation 

Sawyer Beetles, *Monochamus* spp.

Host(s): coniferous species

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1975	not reported
1976-1979	High numbers of adults were observed but little feeding damage was noted.
1980	moderate-to-severe mortality within or adjacent to cut-over stands of black spruce and jack pine in the Stanton, Fredrickson, Lindgren and Windigoostigwan lakes areas

Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl.

Host(s): red pine, jack pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950	low numbers at Sturgeon Lake
1951	trace level at French Lake
1952	not reported
1953	high numbers at Lac LaCroix and scattered colonies at McAree, William, Iron, Basswood and Pickerel lakes
1954	A heavy infestation persisted at Lac LaCroix and pockets of light infestation occurred at Eva, Pickerel and McKenzie lakes.
1955	Light infestations occurred along the shores of Sandpoint, Quetico and Eva Lakes.
1956	heavy infestations at Eye and Mercutio Lakes; small numbers at Chatterton Lake
1957	Populations declined to light at Eye Lake.
1958	not reported
1959-1960	trace populations
1961	pockets of heavy infestation in Ramsay-Wright Township and at Cache Bay on Saganagons Lake
1962	not reported

(cont'd)

Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl. (concl.)

Host(s): red pine, jack pine [Major]

<u>Year</u>	<u>Remarks</u>
1963	light infestation at Russell Lake
1964-1966	trace populations at Basswood, Lac LaCroix and Russell lakes
1967	very low population at Calm Lake; not found at other locations
1968-1971	not reported
1972	scattered colonies at Nym Lake
1973-1980	not reported

Jack Pine Sawfly, *Neodiprion pratti banksianae* Roh.

Host(s): jack pine, red pine [Major]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	light infestation at Lac LaCroix
1954	moderate-to-severe defoliation on shorelines and on islands in Lac LaCroix
1955	light defoliation at Lac LaCroix and at Beaverhouse and Sturgeon lakes
1956	light defoliation at Eva Lake
1957	light defoliation at Basswood, Crooked Pine and Sturgeon lakes
1958	not reported
1959-1960	light defoliation of shoreline trees at Mack Lake
1961	light defoliation at Mack Lake and along Highway 11 from Atikokan to the eastern District boundary
1962	trace population at French Lake
1963	trace populations

(cont'd)

Jack Pine Sawfly, *Neodiprion pratti banksianae* Roh. (concl.)

Host(s): jack pine, red pine

[Major]

<u>Year</u>	<u>Remarks</u>
1964	not reported
1965-1966	trace populations
1967-1971	not reported
1972	trace populations
1973-1975	not reported
1976	high numbers at Saganagons Lake
1977	trace populations
1978-1980	not reported

Swaine Jack Pine Sawfly, *Neodiprion swainei* Midd.

Host(s): jP

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	not reported
1952	light populations at Sturgeon Narrows, Calm Lake and Basswood Lake
1953	light infestations at Sturgeon, Russel, McKenize, Calm, Lac LaCroix and Basswood lakes
1954	trace populations at several locations
1955-1978	not reported
1979	none found during special survey
1980	not reported

Redheaded Jack Pine Sawfly, *Neodiprion virginianus* complex

Host(s): jack pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	not reported
1952	light defoliation at Beaverhouse and Sturgeon lakes
1953	light defoliation at Beaverhouse, Sturgeon and Clearwater West lakes
1954	moderate-to-severe defoliation of small groups of trees at Quetico, Beaverhouse and French lakes
1955	moderate-to-severe defoliation at Beaverhouse and French lakes and light defoliation at Lac LaCroix and Quetico lakes
1956	light defoliation at Beaverhouse Lake
1957-1959	not reported
1960	medium-to-heavy infestations on roadside understory trees from Atikokan east to the District boundary
1961	The infestation along Highway 11 east of Atikokan declined to light intensity.
1962	not reported
1963	not reported
1964	trace populations at Niobe Lake
1965	medium-to-heavy infestations at French Lake Road and Highway 11 and along Highway 11 from Nym Lake east to the District boundary
1966	Infestations declined to trace levels.
1967	single colony near Flanders
1968	not reported
1969	trace levels in Hutchinson Twp.
1970	not reported
1971	colonies common along Highway 11 near French Lake
1972	trace populations

(cont'd)

Redheaded Jack Pine Sawfly, *Neodiprion virginianus* complex (concl.)

<u>Year</u>	<u>Remarks</u>
1973	medium-to-heavy infestation at French Lake and trace levels at Nym Lake
1974	medium-to-heavy infestation at French Lake Park
1975	medium-to-heavy infestation at French Lake Park
1976	moderate-to-severe defoliation at French Lake Park
1977	trace populations
1978-1980	not reported

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.)

Host(s): trembling aspen

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	up to 100% foliar damage in some stands; generally medium-to-heavy infestation through the District
1952	medium-to-heavy infestations in young aspen stands at Basswood Lake and Sturgeon Narrows
1953	not reported
1954	medium-to-heavy infestations at Calm, Eva and Basswood lakes and in a small area southeast of French Lake; up to 95% foliar damage in these areas
1955	pockets of medium-to-heavy infestation at Eva, Eye and French lakes
1956	Medium-to-heavy infestations continued in the Eva and French lakes area and at Sturgeon, Russell, LaCroix and Namakan lakes.
1957	moderate-to-severe foliar damage along Highway 11 from Windigoostigwan Lake west to Atikokan and along the shorelines of Cirrus, Crooked Pine, Beaverhouse and Sturgeon lakes
1958-1961	Medium-to-heavy infestations persisted through the eastern portion of the District.
1962	There was a sharp decline in population levels; light infestations caused little foliar damage.
1963	medium-to-heavy infestations at Eva and Wilson lakes
1964	light infestation at Eva Lake
1965-1967	very low numbers
1968	not reported
1969	high population at Nydia Lake
1970-1971	medium-to-heavy infestation near Nym and French lakes
1972	medium-to-heavy infestation at many points throughout the District
1973	medium-to-heavy infestation near Atikokan

(cont'd)

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.) (concl.)

<u>Year</u>	<u>Remarks</u>
1974	light infestations at several locations
1975	moderate-to-severe discoloration of foliage along Beaverhouse Lake Road and between Nydia and Eva lakes
1976	moderate-to-severe mining in the French and Nym lakes areas and east of Pipe Creek
1977	Moderate-to-severe mining occurred generally across the entire District.
1978	not reported
1979	moderate-to-severe foliar damage from Chase Lake south to the Namakan River
1980	general decline in population levels across the District

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.)

Host(s): spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950	light defoliation near Burt and Pickerel lakes
1951	light defoliation at several locations; a few small black spruce trees severely defoliated along the northern end of Sturgeon Lake
1952	small numbers along lakeshores
1953	moderate-to-severe defoliation of small trees at Lac LaCroix
1954	light infestation at several locations
1955	light defoliation at Sand Point Lake
1956-1961	light defoliation at a few locations
1962	not reported
1963-1964	a few small trees about 50% defoliated at Basswood Lake
1965	light defoliation observed at Finlayson Lake, and at French Lake Park Headquarters
1966	small groups of trees moderate to severely defoliated at French Lake Park, at Quetico Park entrance and on ornamentals in Atikokan
1967	moderate-to-severe defoliation in cutover areas southeast of French Lake
1968	low numbers through the District
1969	not reported
1970-1974	light defoliation at a few locations
1975-1977	small groups of severely defoliated trees at Nym Lake Airbase and at French Lake Provincial Park
1978	moderate-to-severe defoliation of open-grown and planted trees at Eva, Nym, and French lakes and at scattered points west of Atikokan
1979	moderate-to-severe defoliation observed along the road from Flanders to Dinner Lake
1980	light defoliation at scattered locations

White Pine Weevil, *Pissodes strobi* (Peck)

Host(s): pine, spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1955	not reported
1956-1969	trace levels reported
1970	medium infestations north of Atikokan
1971	16% leader mortality at Williamson Lake
1972	11% and 7% leader mortality at Williamson Lake and Manion Lake Road, respectively
1973	Leader mortality averaged 3.3% at three locations.
1974	light infestations along Highway 11 near Elm Lake
1975	not reported
1976	light infestations at scattered locations
1977	not reported
1978	Leader mortality at seven locations averaged 1.4%.
1979	Leader mortality at seven locations averaged 1.3%.
1980	Leader mortality at four locations averaged 2.2%.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Host(s): tL

[Major]

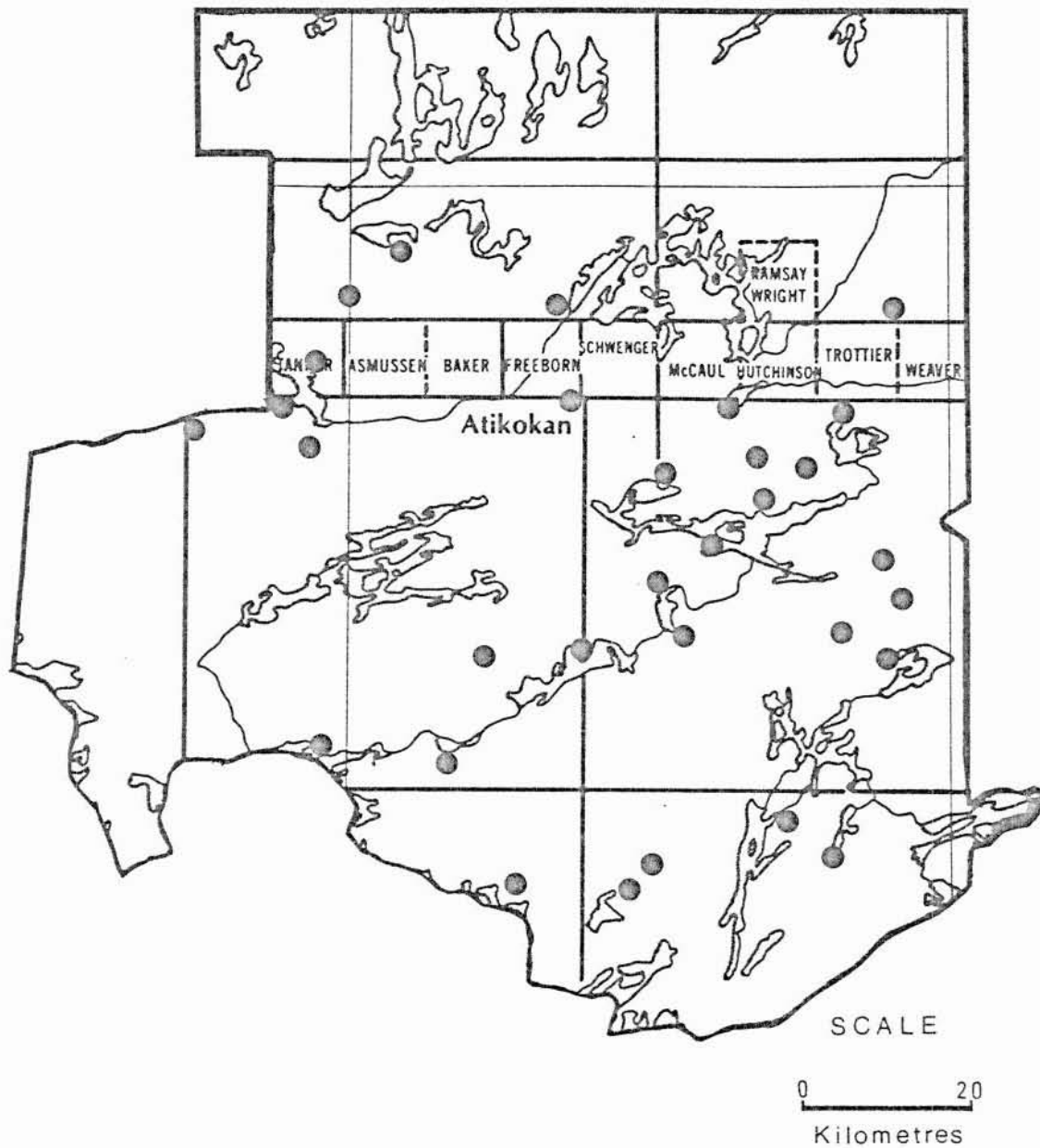
<u>Year</u>	<u>Remarks</u>
1950-1954	moderate-to-severe defoliation of tamarack stands throughout the entire District where host stands occur (see maps, pages 67-71)
1955	defoliation less severe than in the past, but still common in most tamarack stands (see map, page 72)
1956	Populations continued to decline and were light over most of the District.
1957	increased numbers throughout the District, with pockets of moderate-to-severe defoliation (see map, page 73)
1958	An overall decline in populations resulted in generally light defoliation.
1959	approximately the same as in 1958
1960	Increased population levels caused severe defoliation at many locations from the CNR track to the United States border (see map, page 74).
1961	Infestations declined, and only one area of severe defoliation was reported near Olifaunt Lake.
1962	Infestations subsided to scattered colonies.
1963	The population reached a low ebb.
1964	There was a slight increase in distribution, but defoliation did not exceed 10%.
1965	sharp increase in numbers at Foresburg, Crystal, Niobe and Crystal lakes
1966	moderate-to-severe defoliation along Highway 11 from Perch Lake east to the District boundary (see map, page 75)
1967	Pockets of heavy infestations recurred along Highway 11 in the French Lake area.
1968-1970	Slight increases in population levels were reported each year in this period.
1971	A large stand of tamarack was denuded near Joyce Lake, Quetico Park.

(cont'd)

Larch Sawfly, *Pristiphora erichsonii* (Htg.) (concl.)

<u>Year</u>	<u>Remarks</u>
1972-1973	a general decline in the District
1974	Increased populations caused moderate-to-severe defoliation in the vicinity of Rawn, Buckingham and Kawnipi lakes (see map, page 76).
1975	Aerial surveys showed moderate-to-severe defoliation south of Zephira Lake.
1976	defoliation generally light
1977-1979	trace-to-light defoliation general
1980	increased populations general; severe defoliation of young roadside trees at several locations

ATIKOKAN DISTRICT



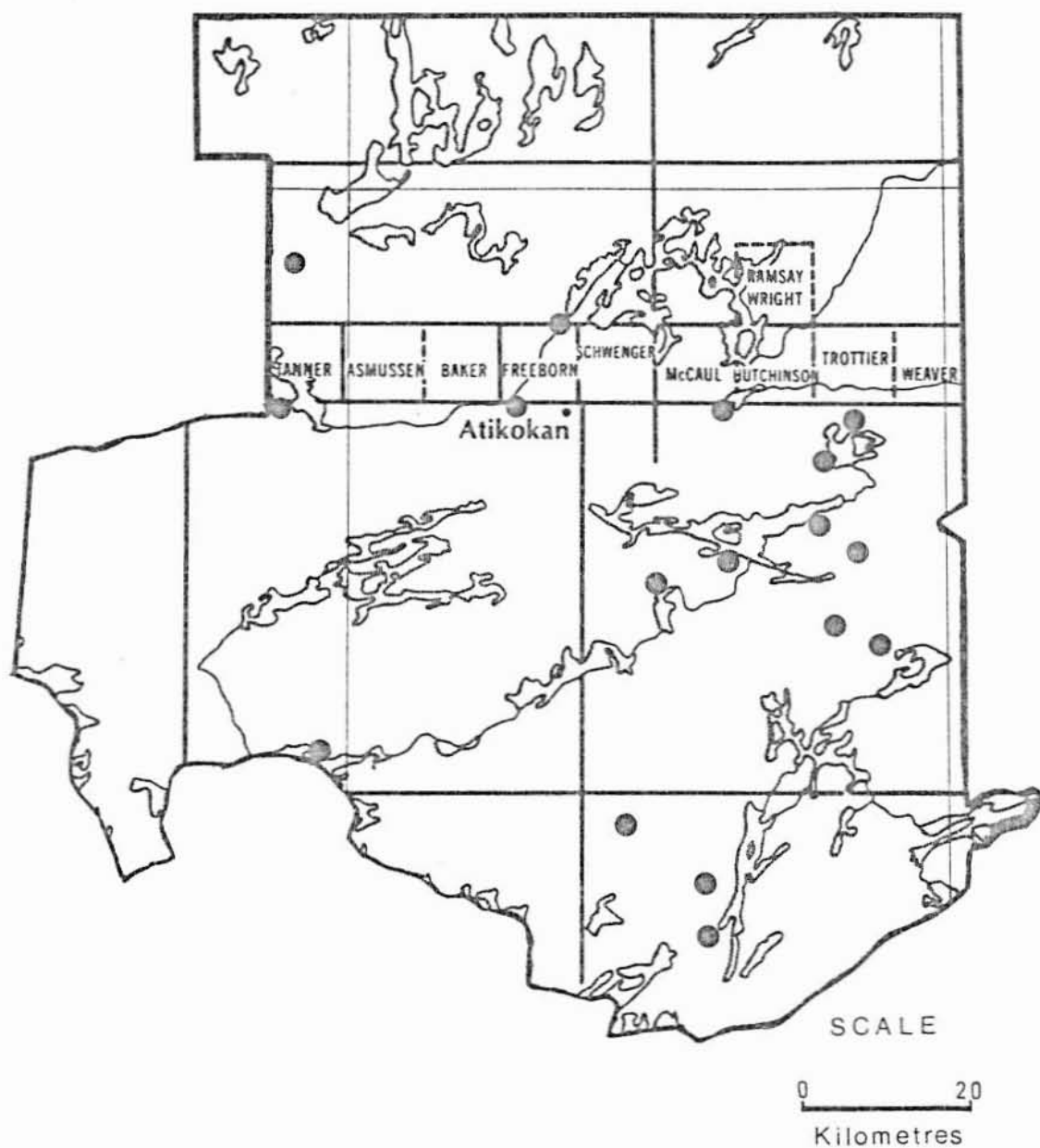
Larch sawfly

Areas within which defoliation
occurred during 1950

LEGEND

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



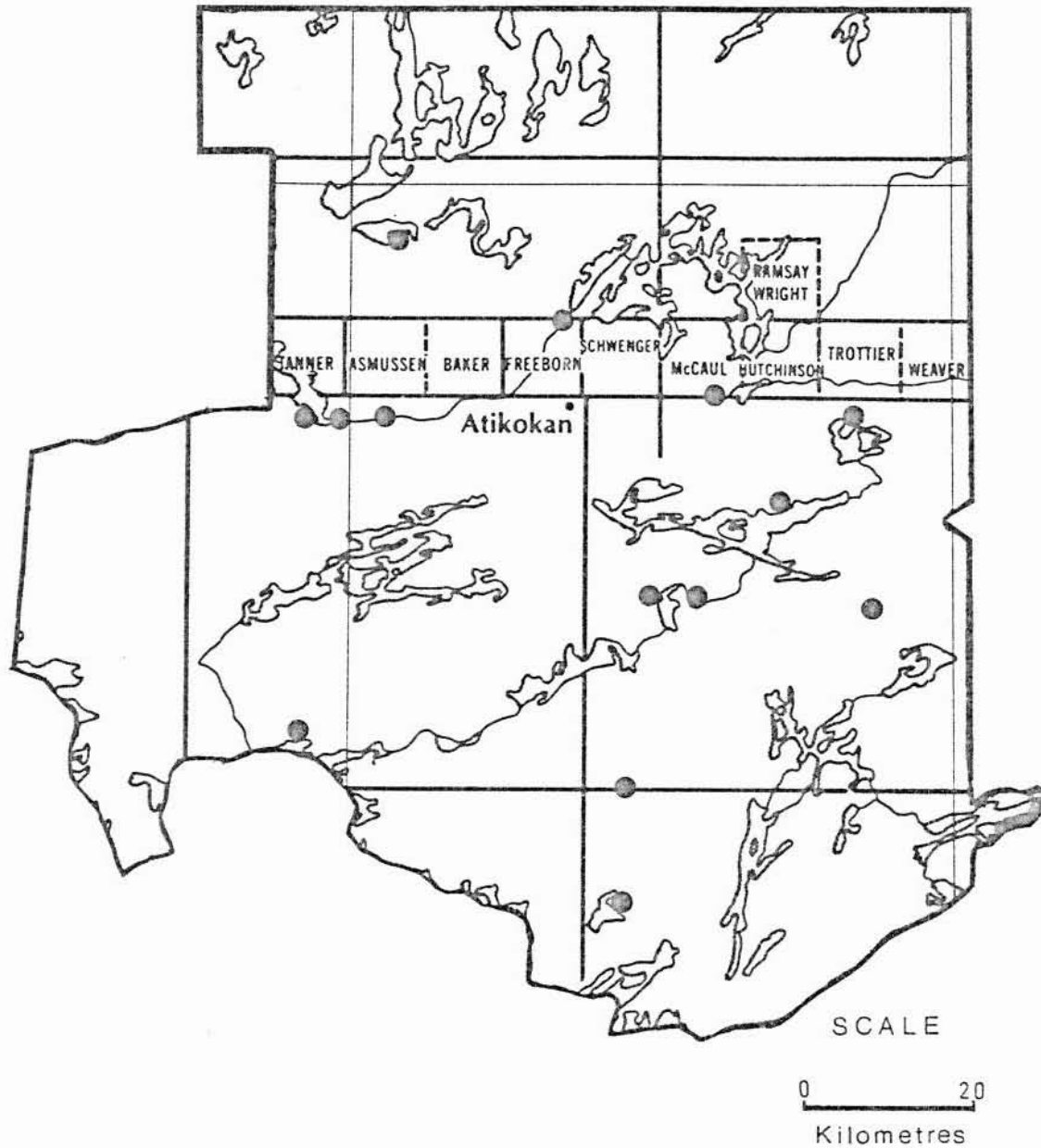
Larch sawfly

Areas within which defoliation
occurred during 1951

LEGEND

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



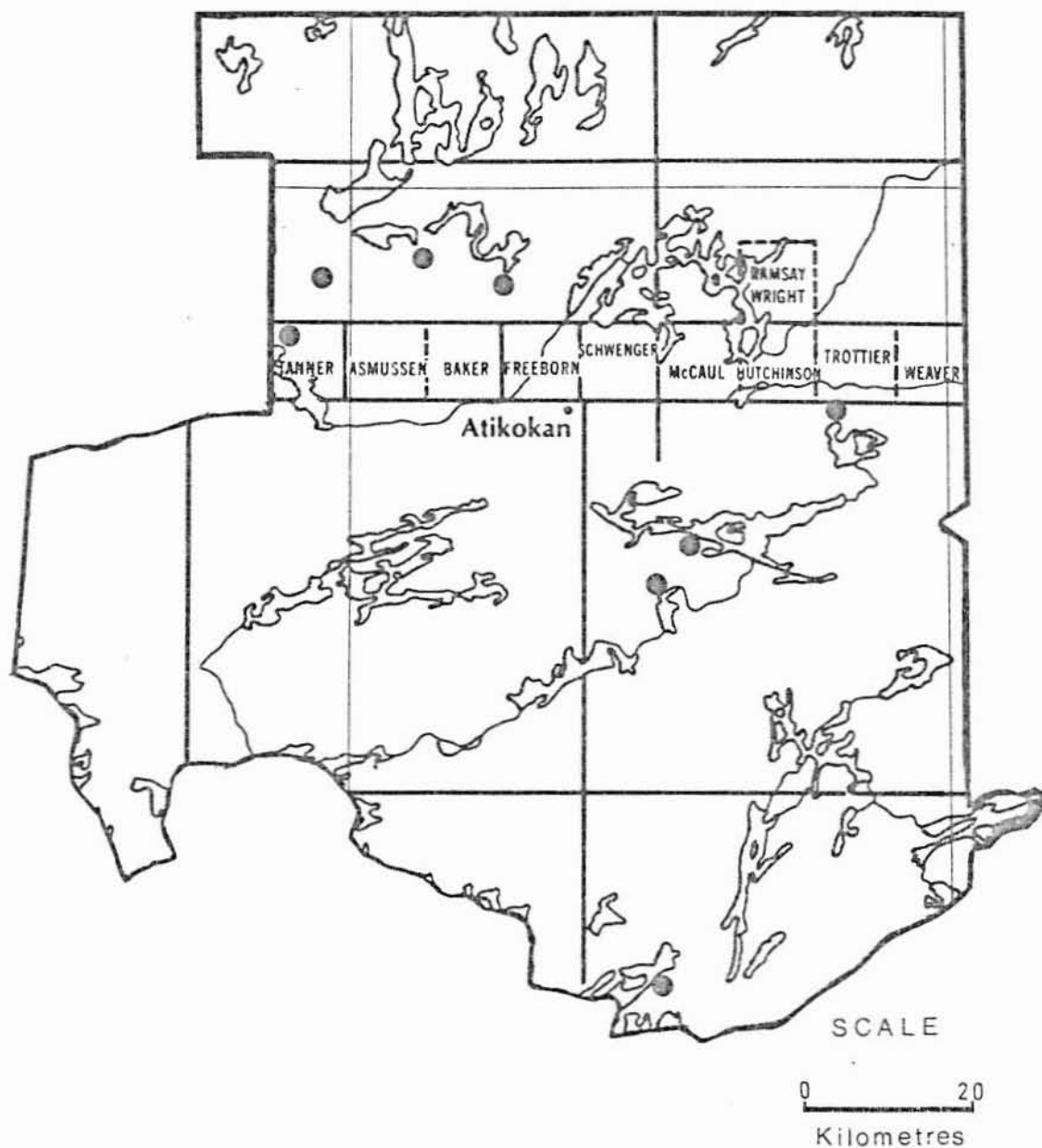
Larch sawfly

Areas within which defoliation
occurred during 1952

LEGEND

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



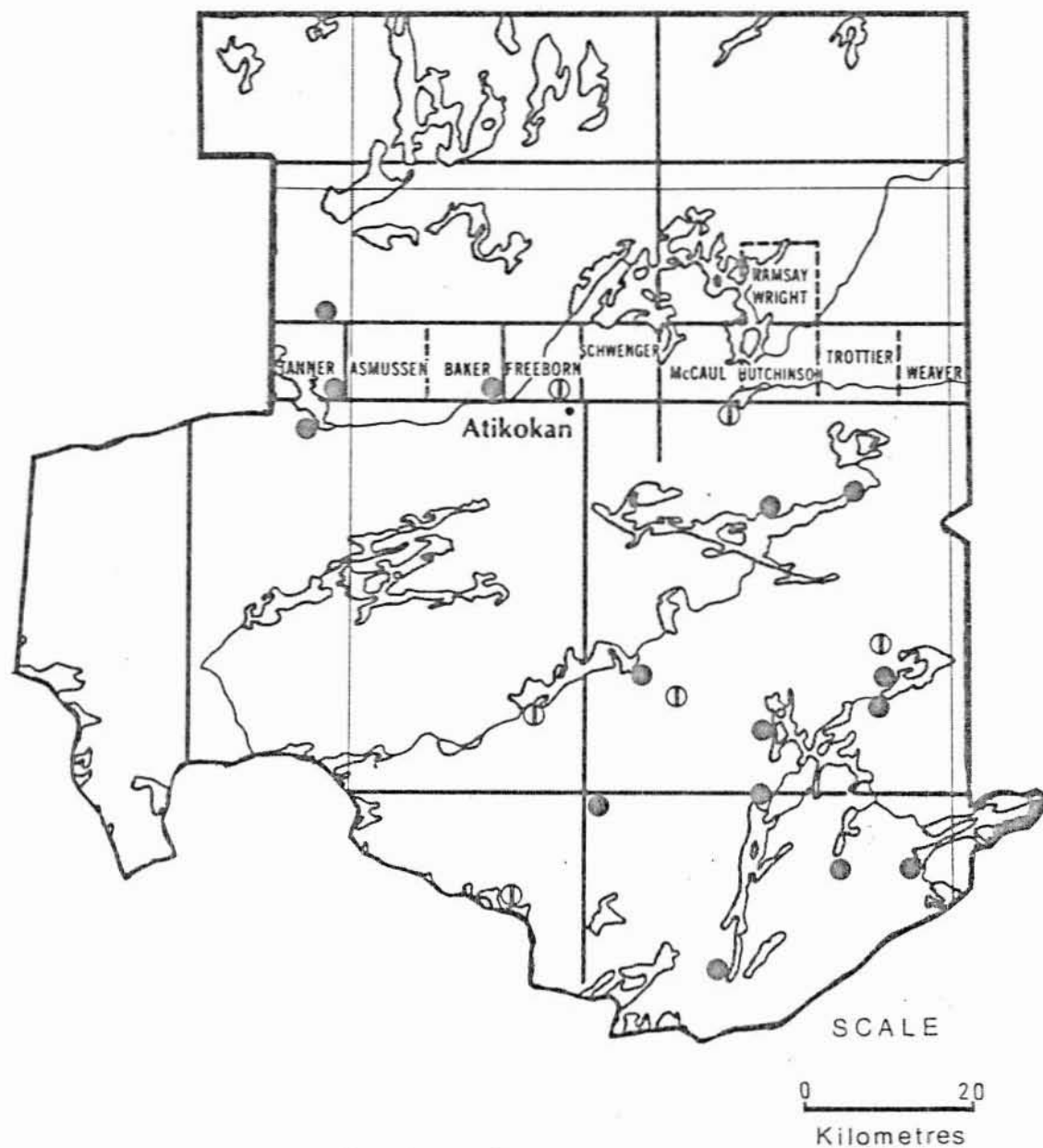
Larch sawfly

Areas within which defoliation
occurred during 1953

LEGEND

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



Larch sawfly

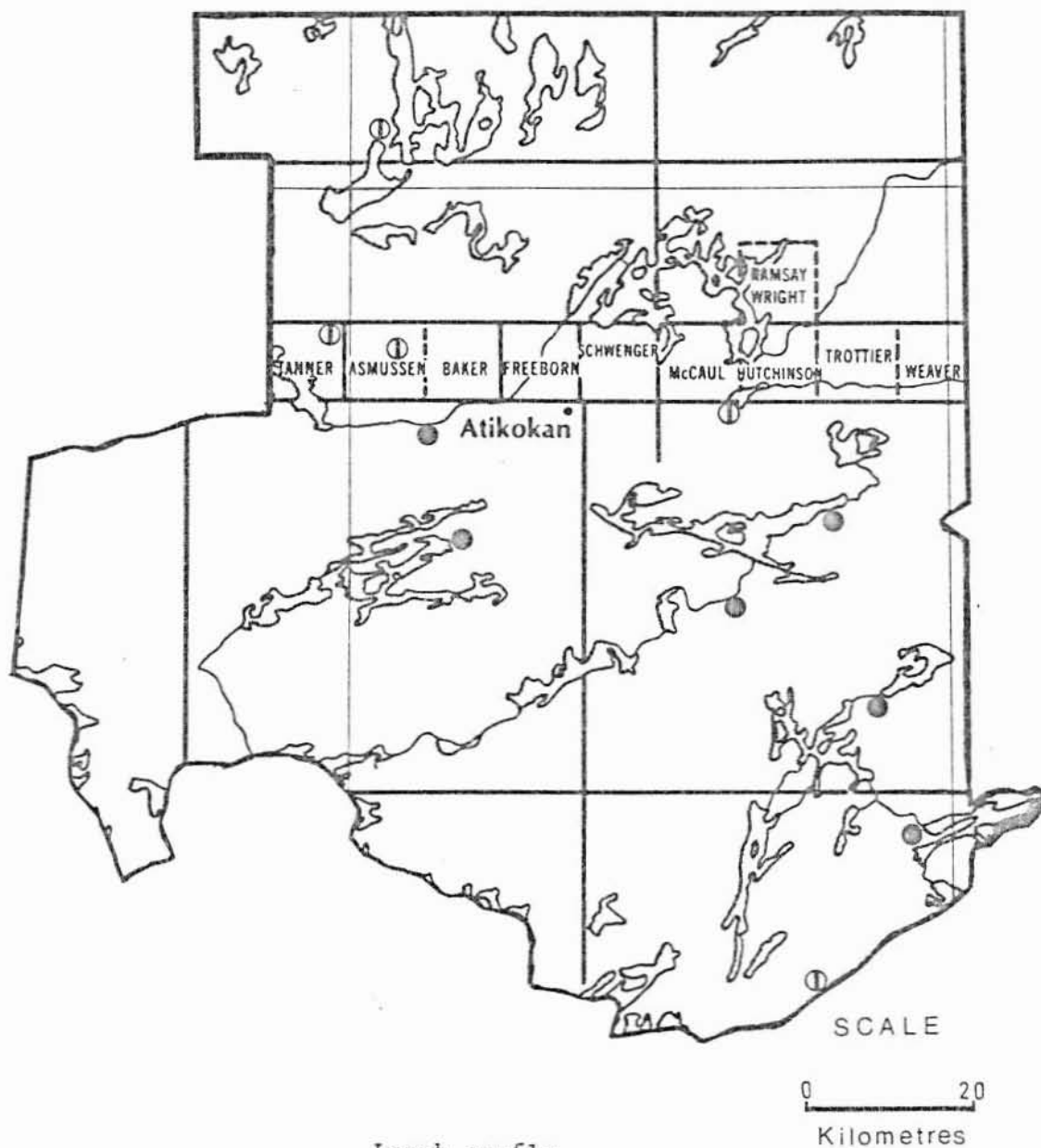
Areas within which defoliation
occurred during 1954

LEGEND

Light defoliation ①

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



Larch sawfly

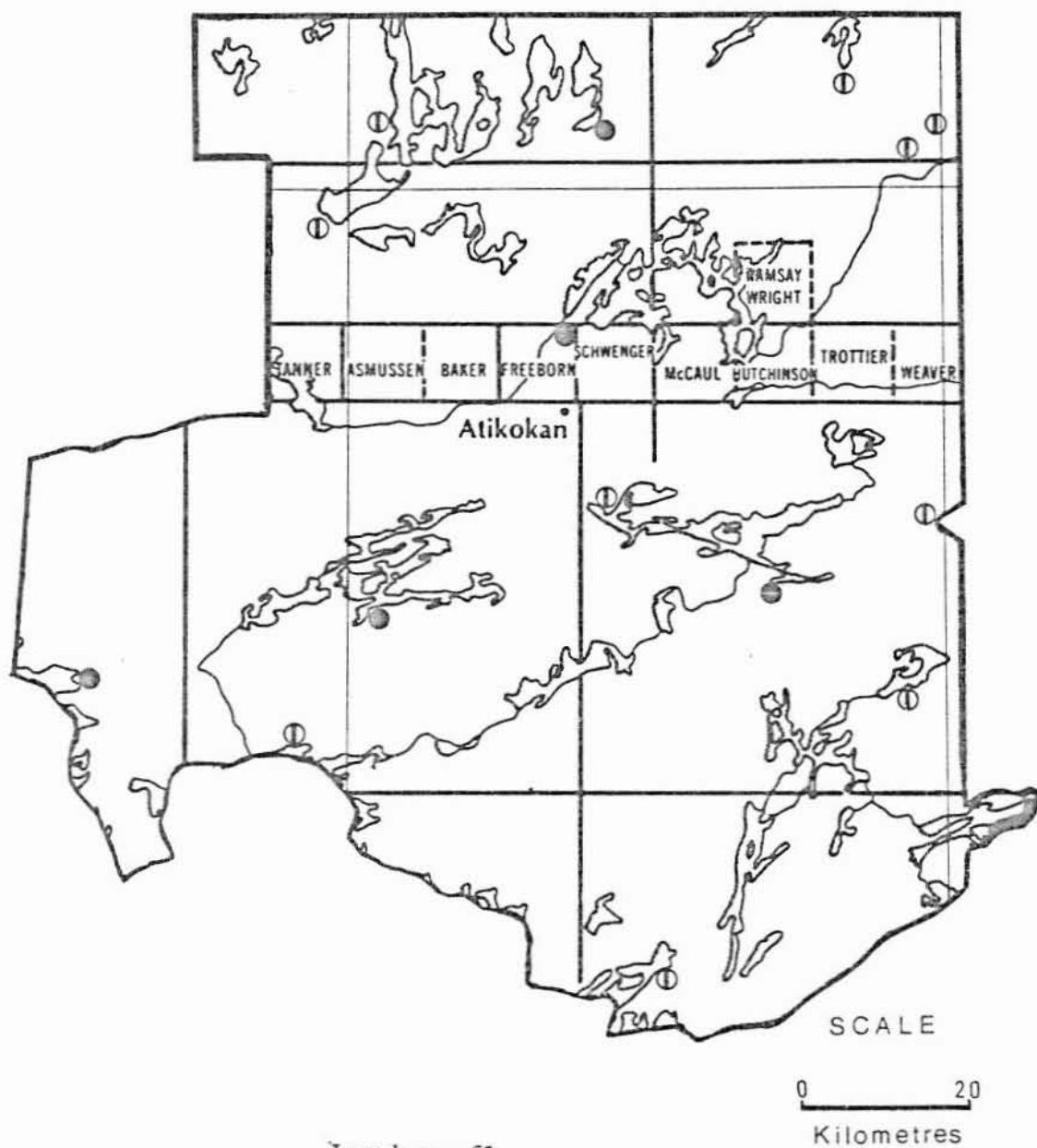
Areas within which defoliation
occurred during 1955

LEGEND

Light defoliation ○

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



Larch sawfly

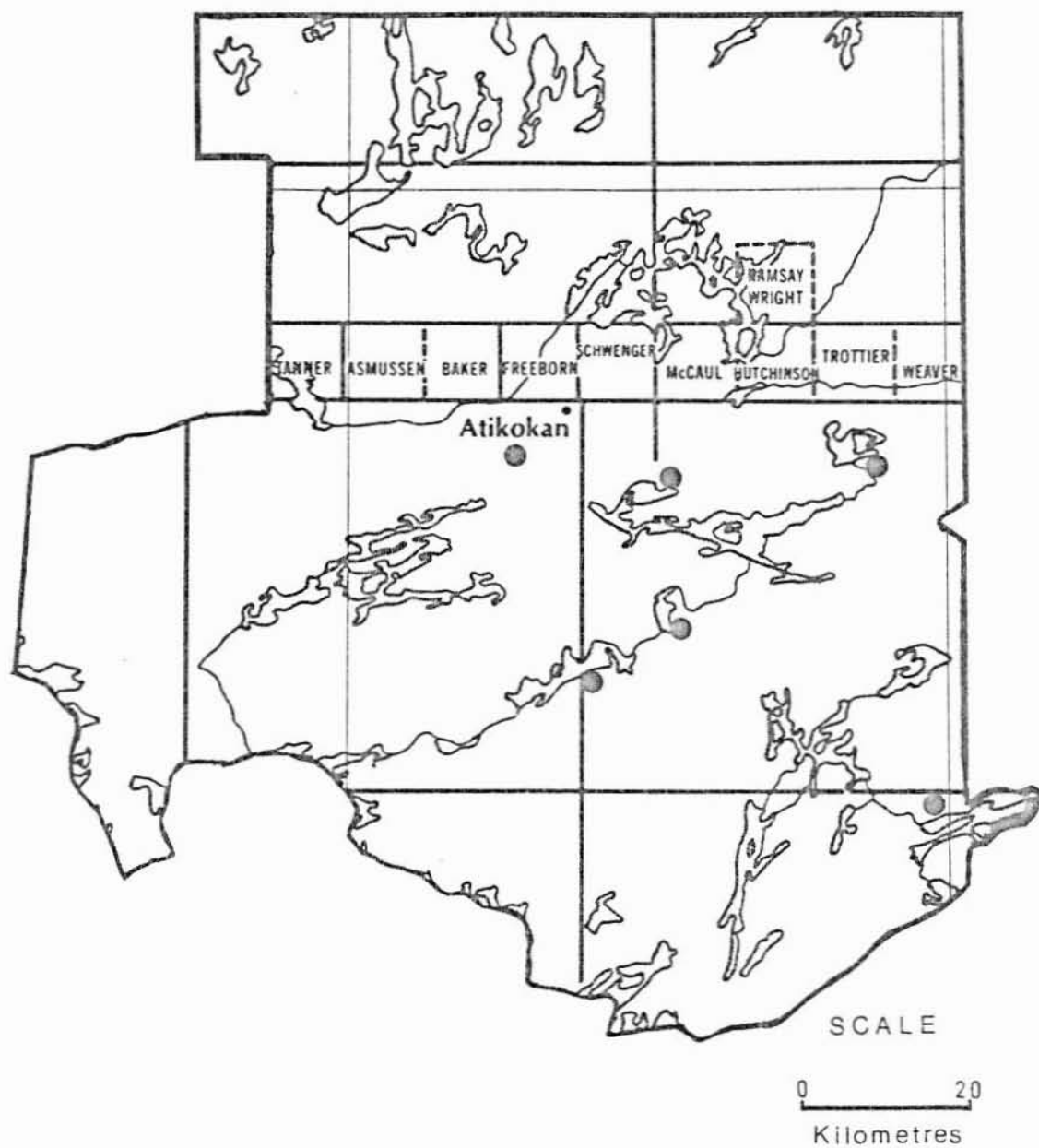
Areas within which defoliation
occurred during 1957

LEGEND

Light defoliation ○

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



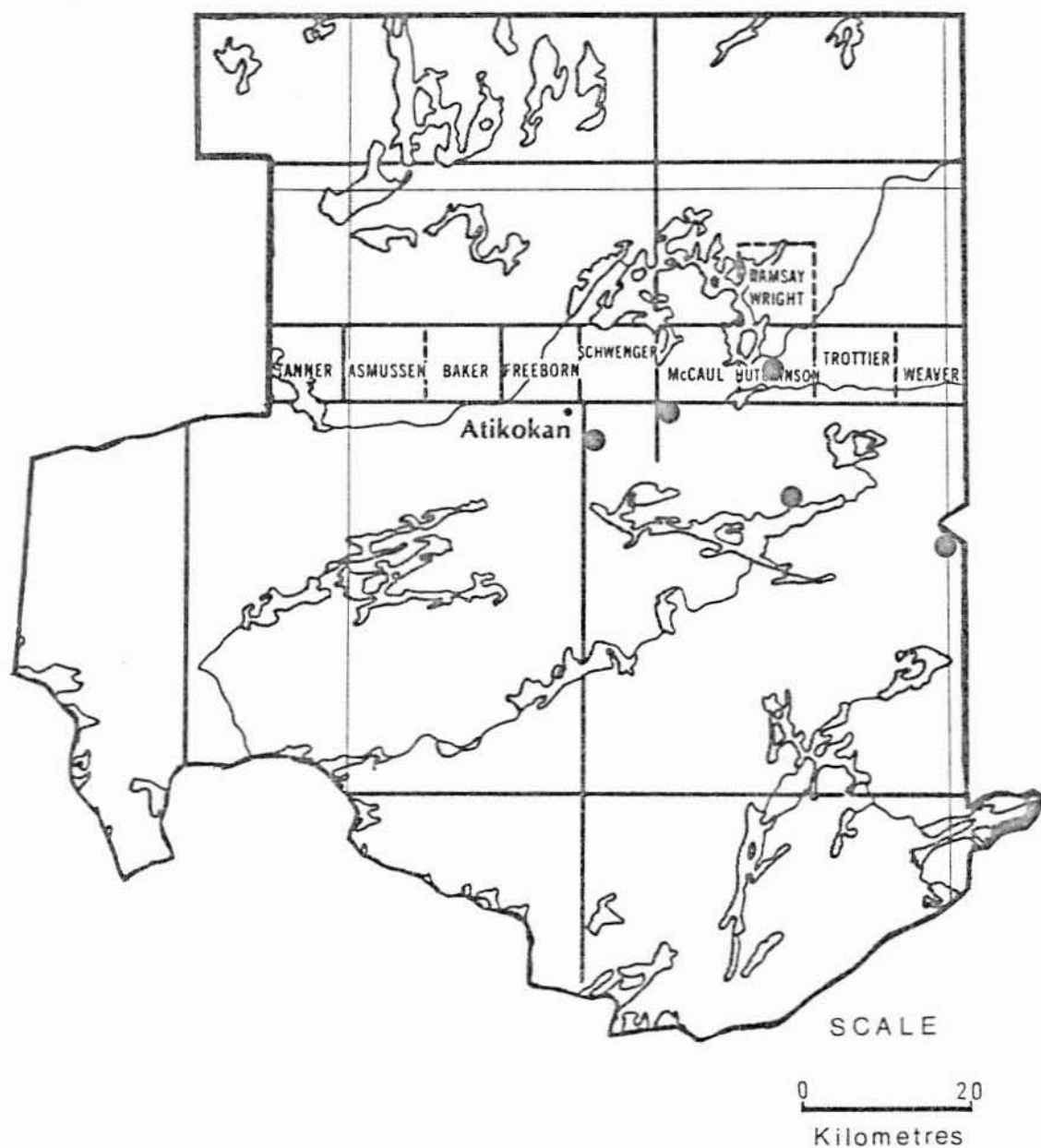
Larch sawfly

Areas within which defoliation
occurred during 1960

LEGEND

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



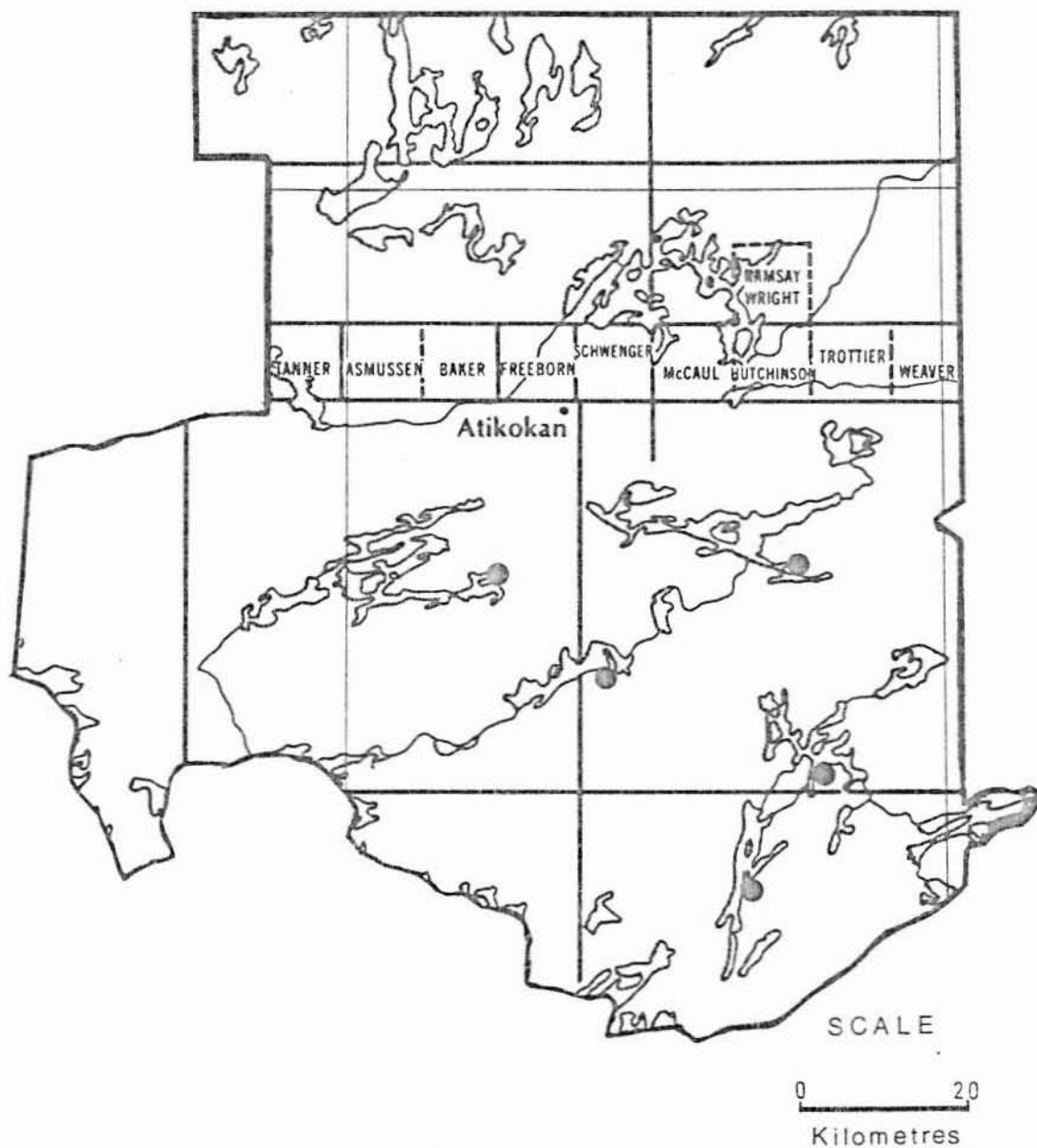
Larch sawfly

Areas within which defoliation
occurred during 1966

LEGEND

Moderate-to-severe defoliation ●

ATIKOKAN DISTRICT



Larch sawfly

Areas within which defoliation
occurred during 1974

LEGEND

Moderate-to-severe defoliation ●

Other Noteworthy Insects

Pine Spittlebug, *Aphrophora cribrata* (Wlk.)

Host(s): pine, spruce

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1956	not reported
1957	trace levels at several points
1958-1959	not reported
1960	light infestation at Mack Lake
1961-1962	not reported
1963-1966	trace levels at several locations
1967-1980	not reported

Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.)

Host(s):

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1957	not reported
1958-1959	trace populations
1960-1975	not reported
1976-1977	trace populations at several locations
1978-1980	not reported

Spruce Coneworm, *Dioryctria reniculelloides* Mut. & Mun.

Host(s): spruce, bF

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1959	not reported
1960	trace populations
1961	low numbers at French and Dovetail lakes
1962-1963	not reported

(cont'd)

Spruce Coneworm, *Dioryctria reniculelloides* Mut. & Mun. (concl.)

1964	low numbers at Clearwater West Lake
1965-1966	not reported
1967	small numbers at Lac LaCroix
1968	low numbers along Highway 11 east of Atikokan
1969-1973	not reported
1974-1977	low numbers at several locations
1978	not reported
1979-1980	light defoliation at several locations

Greenstriped Mapleworm, *Dryocampa rubicunda rubicunda* (Fabr.)

Host(s): maple [Major]

<u>Year</u>	<u>Remarks</u>
1950-1955	not reported
1956-1957	small, heavy infestation at Lac LaCroix
1958-1960	light infestations at Calm Lake and Lac LaCroix
1961-1975	not reported
1976	light infestations on the western side of the District
1977-1978	trace populations in the western part of the District
1979-1980	not reported

Aspen Twoleaf Tier, *Enargia decolor* (Wlk.)

Host(s): poplar [Major]

<u>Year</u>	<u>Remarks</u>
1950-1976	not reported
1978	light defoliation at scattered locations
1979	low numbers throughout the District
1980	not reported

Birch-Aspen Leafroller, *Epinotia solandriana* Linn.

Host(s):

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1955	not reported
1956	trace populations
1957-1959	not reported
1960	light infestation at French Lake and along Highway 11 east of Atikokan
1961-1962	not reported
1963	low numbers at several locations
1964	trace levels at several locations
1965-1967	not reported
1968	low numbers at French Lake
1969-1975	not reported
1976	trace populations at several locations
1977-1980	not reported

European Spruce Sawfly, *Gilpinia hercyniae* (Htg.)

Host(s): spruce

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1951	Trace populations were observed at Basswood and McAree lakes on the Canada-United States border
1952-1953	none found
1954	trace populations at Lac LaCroix
1955-1962	none found in the District
1963	a few larvae at Kahshahpiwi Lake
1964	trace populations at several locations
1965-1966	not reported

(cont'd)

European Spruce Sawfly, *Gilpinia hercyniae* (Htg.) (concl.)

1967-1969	not reported
1970	not reported
1971-1973	trace populations
1974-1980	not reported

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

Host(s): aspen [Major]

<u>Year</u>	<u>Remarks</u>
1950-1958	not reported
1959	light defoliation of small trees at Beaverhouse Lake
1960	light populations at French Lake
1961	light infestations in Atikokan area
1962	low numbers at Calm Lake
1963-1972	not reported
1973	medium-to-heavy infestation at Basswood Lake
1974-1975	not reported
1976	trace levels at several locations
1977	not reported
1978-1980	low numbers through the District

Fall Webworm, *Hyphantria cunea* (Dru.)

Host(s): deciduous species [Major]

<u>Year</u>	<u>Remarks</u>
1950-1953	not reported
1954	light infestation through the District
1955	not reported
1956-1957	light infestations along highway near Atikokan

cont'd)

Fall Webworm, *Hyphantria cunea* (Dru.) (concl.)

1958	not reported
1959-1961	trace populations
1962-1963	not reported
1964-1967	trace populations
1968-1969	not reported
1970-1972	trace populations
1973-1980	not reported

Hemlock Looper, *Lambdina fiscellaria fiscellaria* (Gn.)

Host(s): coniferous and deciduous species [Major]

Year	Remarks
1950-1951	trace populations
1952-1955	not reported
1956	trace populations
1957-1959	not reported
1960	trace populations
1961-1964	not reported
1965	light defoliation of fringe trees east of French River
1966-1976	not reported
1977	trace population at Tanner Lake Dam
1978-1980	not reported

Northern Tent Caterpillar, *Malacosoma californicum pluviale* Dyar

Host(s): deciduous species [Major]

<u>Year</u>	<u>Remarks</u>
1950-1962	not reported

(cont'd)

Northern Tent Caterpillar, *Malacosoma californicum pluviale* Dyar (concl.)

1963	low numbers north of Atikokan
1964	trace population on Nym Lake Road
1965-1973	not reported
1974	trace populations at several locations
1975-1980	not reported

Balsam Fir Sawfly, *Neodiprion abietis* complex

Host(s): bF, spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	trace levels at Lac LaCroix and McAree Lake
1954-1955	not reported
1956	one colony at Mercutio Lake
1957-1963	not reported
1964-1968	trace populations
1969-1970	not reported
1971-1973	trace populations
1974	not reported
1975	trace populations
1976	light defoliation at many locations; moderate-to-severe defoliation between Cache Bay and Basswood Lake
1977	trace levels
1978-1980	not reported

Greenheaded Spruce Sawfly, *Pikonema dimmockii* (Cress.)

Host(s): spruce

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1953	not reported
1954	trace populations at Lac LaCroix
1955-1960	not reported
1961	low numbers at French Lake
1962-1974	not reported
1975	low numbers at several locations
1976-1980	not reported

Balsam Shootboring Sawfly, *Pleroneura brunneicornis* Roh.

Host(s): bF

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-	50% of new shoots killed on exposed trees at Sturgeon and Calm lakes
1951-1956	not reported
1957	trace populations
1958-1972	not reported
1973	heavily infested trees along hydro line near Eva Lake
1974-1975	light-to-moderate infestations at several locations
1976-1977	trace populations at several locations
1978-1980	not reported

Mountain-ash Sawfly, *Pristiphora geniculata* (Htg.)

Host(s): mountain-ash

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1979	not reported
1980	first record in the District; a few colonies at French Lake

Spruce Bud Midge, *Rhabdophaga swainei* Felt

Host(s): spruce

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1960	not reported
1961-1966	trace levels at one location
1967	slight increase in population levels
1968-1973	not reported
1974	light infestations at many points
1975-1976	trace levels at several points
1977-1980	not reported

DISEASES

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

Host(s): coniferous, deciduous species

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1957	not reported
1958	trace infection at several points
1959	not reported
1960	heavy mortality of small understory trees at Zephira Lake
1961-1970	not reported
1971	low infestation level in jack pine at Williamson Lake and light mortality of red pine at Lindsay Lake
1978	8% mortality in a jack pine stand east of Pipe Lake
1979-1980	trace incidence at several locations

Spruce Needle Rusts, *Chrysomyxa ledi* (Alb. & Schwein.) de Bary var. *ledi* and *C. ledicola* (Peck) Lagerh.

Host(s): spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1964	not reported
1965	moderate-to-severe discoloration of black spruce foliage near Williamson Lake
1966	moderate-to-severe discoloration at Williamson Lake and along the Sepawe Road
1967	moderate-to-severe foliar discoloration at several locations
1968-1975	not reported
1976	light defoliation at Clearwater West Lake, Eva Lake and Flanders
1977	not reported
1978	trace levels at Williamson Lake
1979	not reported
1980	several small white spruce trees lightly infected at Crystal Lake

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

Host(s): trembling aspen

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1956	not reported
1957-1959	light infection at several locations
1960-1966	not reported
1967	moderate-to-severe foliage discoloration in regeneration north of Atikokan
1968-1970	not reported
1971	light discoloration at several locations
1972-1976	not reported
1977	moderate-to-severe defoliation west of Gehl Lake
1968-1980	not recorded

Orange Stalactiform Blister Rust, *Cronartium coleosporioides* Arthur

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1980	not reported

Sweet Fern Blister Rust, *Cronartium comptoniae* Arthur

Host(s): jP

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1970	not reported
1971	moderate infection level at Tanner Lake
1972-1980	not reported

Eastern Gall Rust, *Cronartium quercuum* (Berk.) Miyabe ex
Shirai f. sp. *banksianae*

Host(s): red oak

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1978	not reported
1979	present near Lindgren Lake--a new distribution record
1980	not reported

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

Host(s): wP

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953-1955	moderate-to-severe infection levels at Basswood Lake; scattered trees affected at Calm Lake
1956-1964	not reported
1965-1967	widely distributed through the District
1968-1977	not reported
1978	50% damage level in a mature stand south of Sepawe Lake
1979-1980	not reported

Western Gall Rust, *Endocronartium harknessii* (J.P. Moore) Y. Hirats.

Host(s): jack pine, scots pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1967	not reported
1968-1969	moderate-to-heavy level of infection at Finlayson Lake
1970	light-to-medium level of infection at Lindsay Lake
1971-1972	not reported
1973	light infection level at Lindsay Lake
1974-1975	not reported

(cont'd)

Western Gall Rust, *Endocronartium harknessii* (J.P. Moore) Y. Hirat.
(concl.)

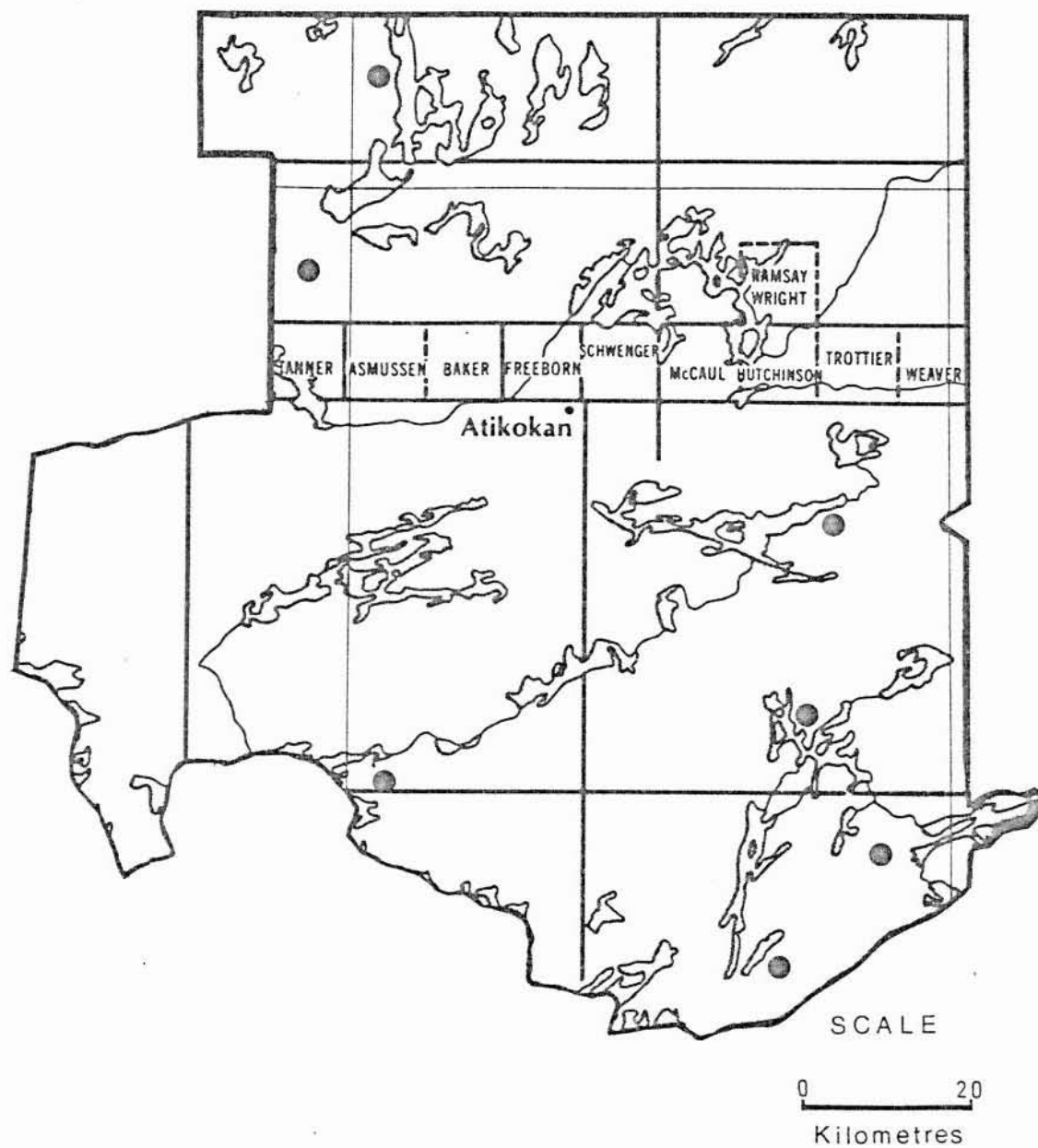
<u>Year</u>	<u>Remarks</u>
1976	branch galls observed commonly through the District
1977	not reported
1978	low mortality in a 10-year-old jack pine stand at Eva Lake
1979-1980	not reported

Shoot Blight, *Sirococcus conigenus* (DC.) P. Cannon & Minter

Host(s): jP, rP, wP, blue spruce [Major]

<u>Year</u>	<u>Remarks</u>
1950-1956	not reported
1973	moderate-to-high infection levels at French Lake and at several other locations in the District (see map, page 91)
1974	varying levels of infection at many locations through the District
1979-1980	not reported
1975	little change in distribution or infection level of this organism
1976	In French Lake Park, 60% of the red pine were infected and 10% of the trees were severely damaged.
1977-1980	not reported

ATIKOKAN DISTRICT



Shoot blight

Locations of infection centres
recorded in 1973

Infection centres ●

Shoot Blight, *Venturia macularis* (Fr.) E. Müller & v. Arx

Host(s): tA

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1956	not reported
1957	light infection levels at Calm Lake, Lac Lacroix and French Lake
1958-1959	trace infection levels through the District
1960	light damage through the District
1961	not reported
1962	light damage throughout the District
1963-1965	common on regeneration through the District
1966	trace infection levels at several locations
1967-1968	light damage at several locations
1969	light damage near Flanders
1970	trace-to-light damage through the District
1971	not reported
1972	common throughout the District
1973	not reported
1974	trace infection levels through the District
1975	moderate-to-severe damage east of Nydia Lake
1976-1977	not reported
1978	trace levels in Hutchinson Township and at Crystal Lake
1979	trace levels at Crystal Lake
1980	light defoliation at Bickford Lake

Other Noteworthy Diseases

Dwarf Mistletoe, *Arceuthobium americanum* Nutt. ex Engel.

Host(s): bS, jP

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	found at White Otter Lake--the first Ontario record
1956-1980	not reported

Eastern Dwarf Mistletoe, *Arceuthobium pusillum* Peck

Host(s): wS, bS

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1966	not reported
1967	light tree mortality at White Otter Lake
1968-1980	not reported

Pine Needle Rust, *Coleosporium asterum* (Dietel) Sydow

Host(s): pines

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1964	not reported
1965	light infections common throughout the District
1966-1969	not reported
1970	trace-to-light infection through the District
1971	moderate-to-severe infection levels at Lindsay Lake
1972	trace levels at several locations
1973-1978	not reported
1979	trace levels at Elliott, Sawmill, and Crystal lakes
1980	light levels at Bickford Lake and at several other locations through the District

Tar Spot Needle Cast, *Davisomyces cella ampla* (J. Davis) Darker

Host(s): jp

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1957	not reported
1958-1959	trace level at one location
1960-1971	not reported
1972	common at many locations in the District
1973	light levels at many points in the District
1974-1980	not reported

Hypoxylon Canker, *Hypoxylon mammatum* (Wahlenb) J. Miller

Host(s): tA

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	light infections at Calm and Basswood lakes
1956-1980	not reported

ABIOTIC DAMAGE

Drought

<u>Year</u>	<u>Remarks</u>
1950-1973	not reported
1974	White birch trees on dry sites suffered moderate-to-severe damage at many locations in the District. Jack pine on dry sites with southern exposures showed conspicuous yellowing of foliage.
1975	There was moderate-to-severe browning of eastern white cedar foliage in the Van Nostrand-Riverview lakes area. Small pockets of jack pine and red pine mortality occurred at Clearwater and Portage Bays, Sand Point, David and Thomson lakes and at Wilkins Bay on Lac LaCroix.
1976	Scattered pockets of red and jack pine mortality continued to increase in area in the southwestern part of Quetico Park.
1977	moderate-to-severe mortality of red and jack pine in four areas north of Basswood Lake and in semimature jack pine at the Horn west of Lac LaCroix.
1978-1980	not reported

Frost

<u>Year</u>	<u>Remarks</u>
1950-1963	not reported
1964	28% frost damage to black spruce at Niobe Lake
1965	not reported
1966-1968	not reported
1969	25-50% foliar damage to white spruce and balsam fir at Williams and White Otter lakes
1970-1977	not reported
1978	scattered pockets of moderate-to-severe foliar damage to balsam fir and black ash stands
1979-1980	not reported

Hail

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951	Heavy damage in the Darky, William and Conmee lakes area resulted in moderate-to-severe mortality of red, white and jack pine
1952-1980	not reported

Wind

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	moderate-to-severe damage to black spruce, aspen, red pine and white pine in the area from Finlayson Lake west to Turtle Lake
1956-1961	not reported
1962	all species windthrown in a small area near Beaverhouse Lake
1963-1972	not reported
1973	small areas of damage at widely scattered points in the District.
1974-1980	not reported.

Winter Drying

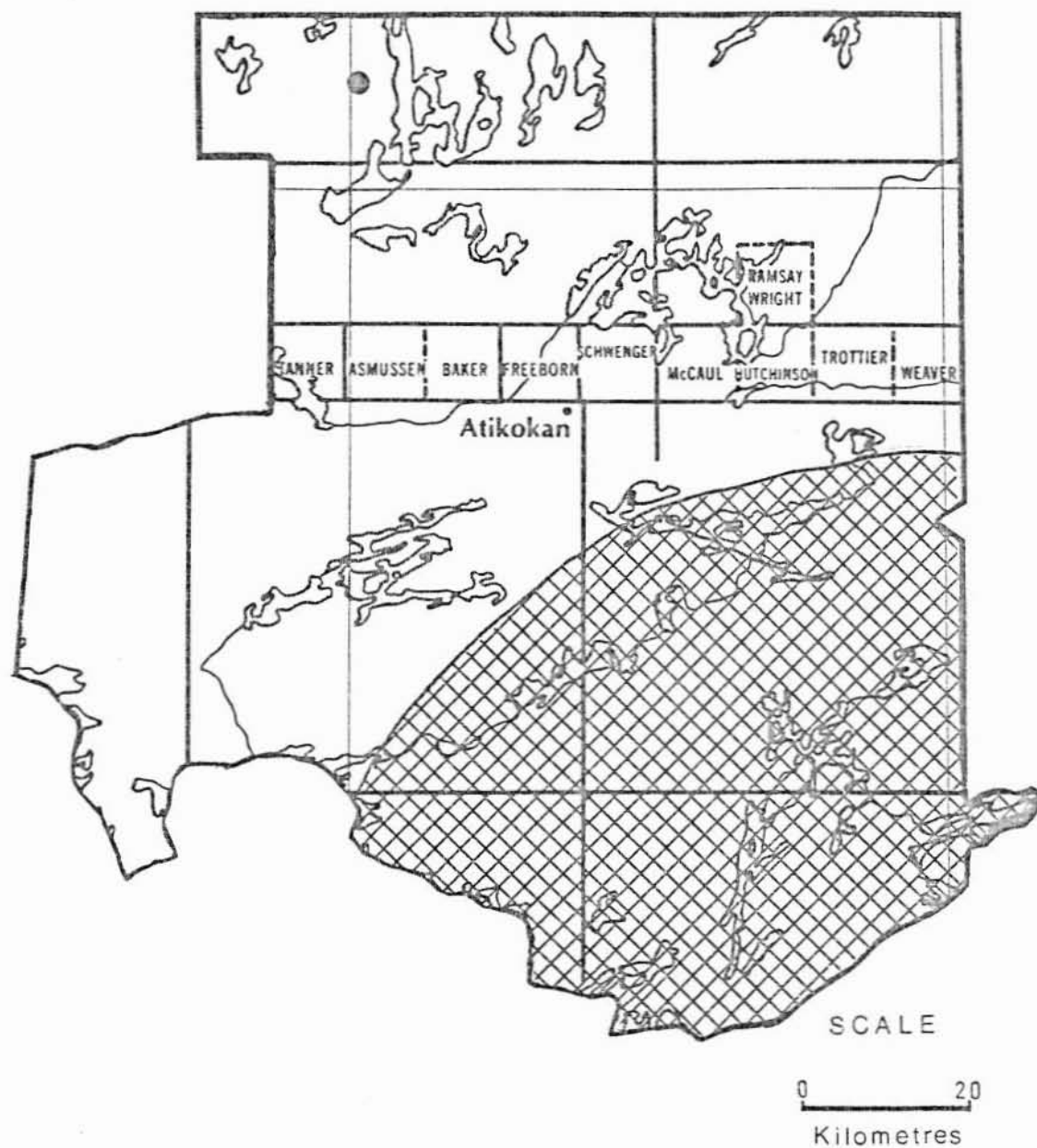
<u>Year</u>	<u>Remarks</u>
1950-1966	not reported
1967	Moderate-to-severe damage in red pine plantations east of Atikokan.
1968-1969	Not reported.
1970	moderate-to-severe damage in red pine plantations near Atikokan
1971-1972	not reported

(cont'd)

Winter Drying (concl.)

<u>Year</u>	<u>Remarks</u>
1973	moderate-to-severe browning of jack pine foliage along Highway 11 to a point north of Poobah Lake and south to the international border (see map, page 100)
1974	A thinning of jack pine foliage, probably related to the severe winter drying damage of 1973, was observed over 12,950 km ² in the eastern part of Quetico Park.
1975-1980	not reported


ATIKOKAN DISTRICT



Winter drying

Areas within which winter drying
occurred in 1973

LEGEND

Moderate-to-severe drying ● or 

APPENDICES

APPENDIX A

DECIDUOUS HOST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Abbreviations</u>
Alder	<i>Alnus</i> spp.	Al
Apple	<i>Malus</i> spp.	Ap
Ash, black	<i>Fraxinus nigra</i> Marsh.	As
Aspen, largetooth	<i>Populus grandidentata</i> Michx.	lA
trembling	<i>tremuloides</i> Michx.	tA
Basswood	<i>Tilia</i> spp.	Ba
Beech	<i>Fagus grandifolia</i> Ehrh.	Be
Birch, white	<i>Betula papyrifera</i> Marsh.	wB
yellow	<i>alleghaniensis</i> Britt.	yB
Butternut	<i>Juglans cinerea</i> L.	Bu
Cherry, eastern choke	<i>Prunus virginiana</i> L.	eaCh
pin	<i>pensylvanica</i> L.f.	pCh
Elm, white	<i>Ulmus americana</i> L.	wE
Horse-chestnut	<i>Aesculus hippocastanum</i> L.	hChe
Ironwood	<i>Ostrya</i> spp.	I
Maple, Manitoba	<i>Acer negundo</i> L.	mM
red	<i>rubrum</i> L.	rM
sugar	<i>saccharum</i> Marsh.	sM
Mountain-ash, American	<i>Sorbus americana</i> Marsh.	aMo
Oak, bur	<i>Quercus macrocarpa</i> Michx.	bO
red	<i>rubra</i> L.	rO
Poplar, balsam	<i>Populus balsamifera</i> L.	bPo
Carolina	<i>eugenei</i> Simon-Louis	cPo
Lombardy	<i>nigra</i> L.	lPo
silver	<i>alba</i> L.	sPo
Willow	<i>Salix</i> spp.	W

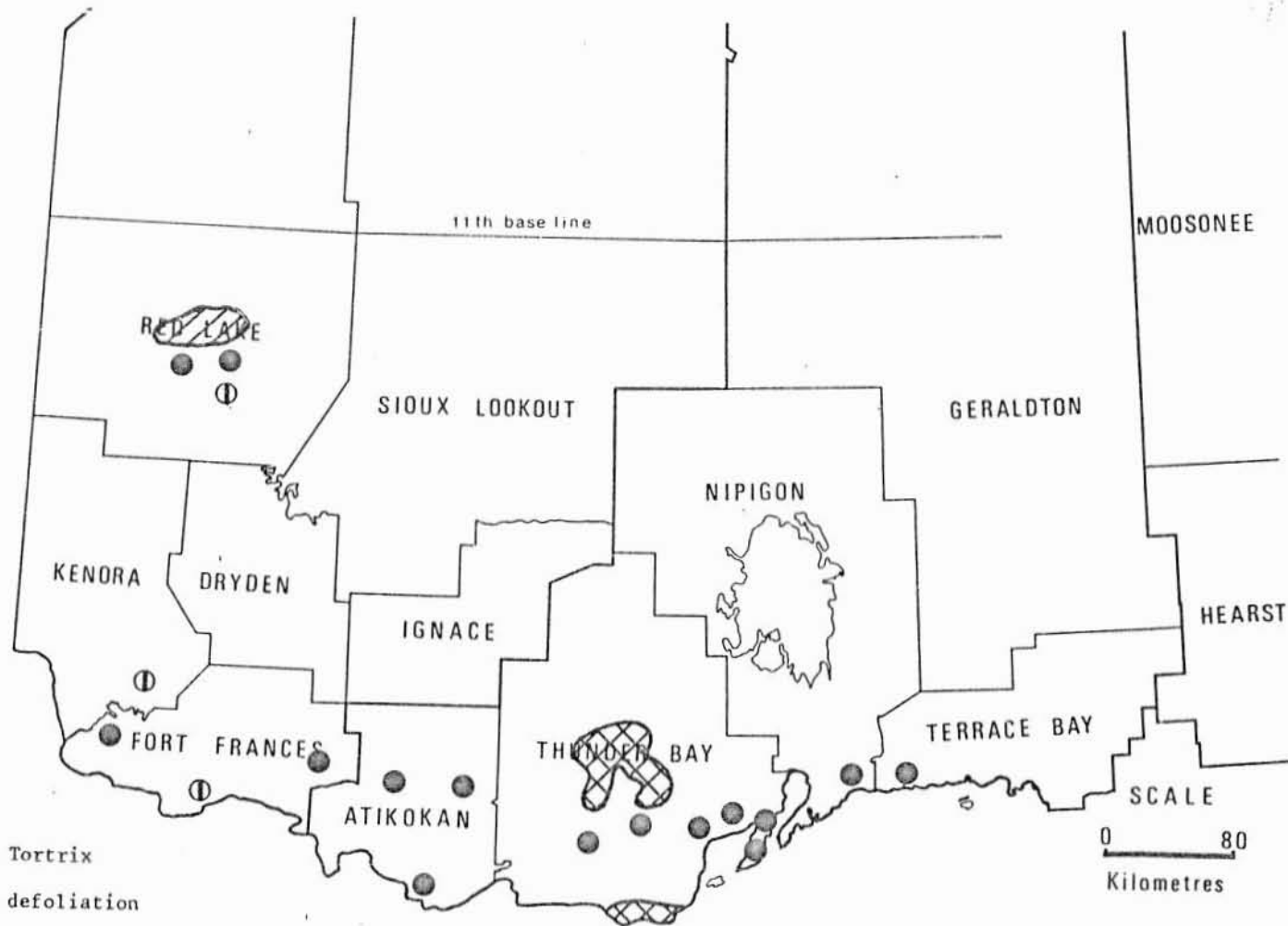
APPENDIX B
CONIFEROUS HOST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Abbreviations</u>
Cedar, eastern white	<i>Thuja occidentalis</i> L.	eC
Fir, balsam	<i>Abies balsamea</i> (L.) Mill.	bF
Larch	<i>Larix laricina</i> (Du Roi) K. Koch	tL
Pine, Austrian	<i>Pinus nigra</i> Arn.	aP
eastern white	<i>strobilus</i> L.	wP
jack	<i>banksiana</i> Lamb.	jP
mugho	<i>mugho</i> Turra	mP
red	<i>resinosa</i> Ait.	rP
Scots	<i>sylvestris</i> L.	scP
Spruce, black	<i>Picea mariana</i> (Mill.) B.S.P.	bS
Colorado	<i>pungens</i> Engelm.	colS
Norway	<i>abies</i> (L.) Karst.	nS
red	<i>rubens</i> Sarg.	rS
white	<i>glauca</i> (Moench) Voss	wS

APPENDIX C

MAPS - NORTHWESTERN ONTARIO

NORTHWESTERN ONTARIO




Large Aspen Tortrix

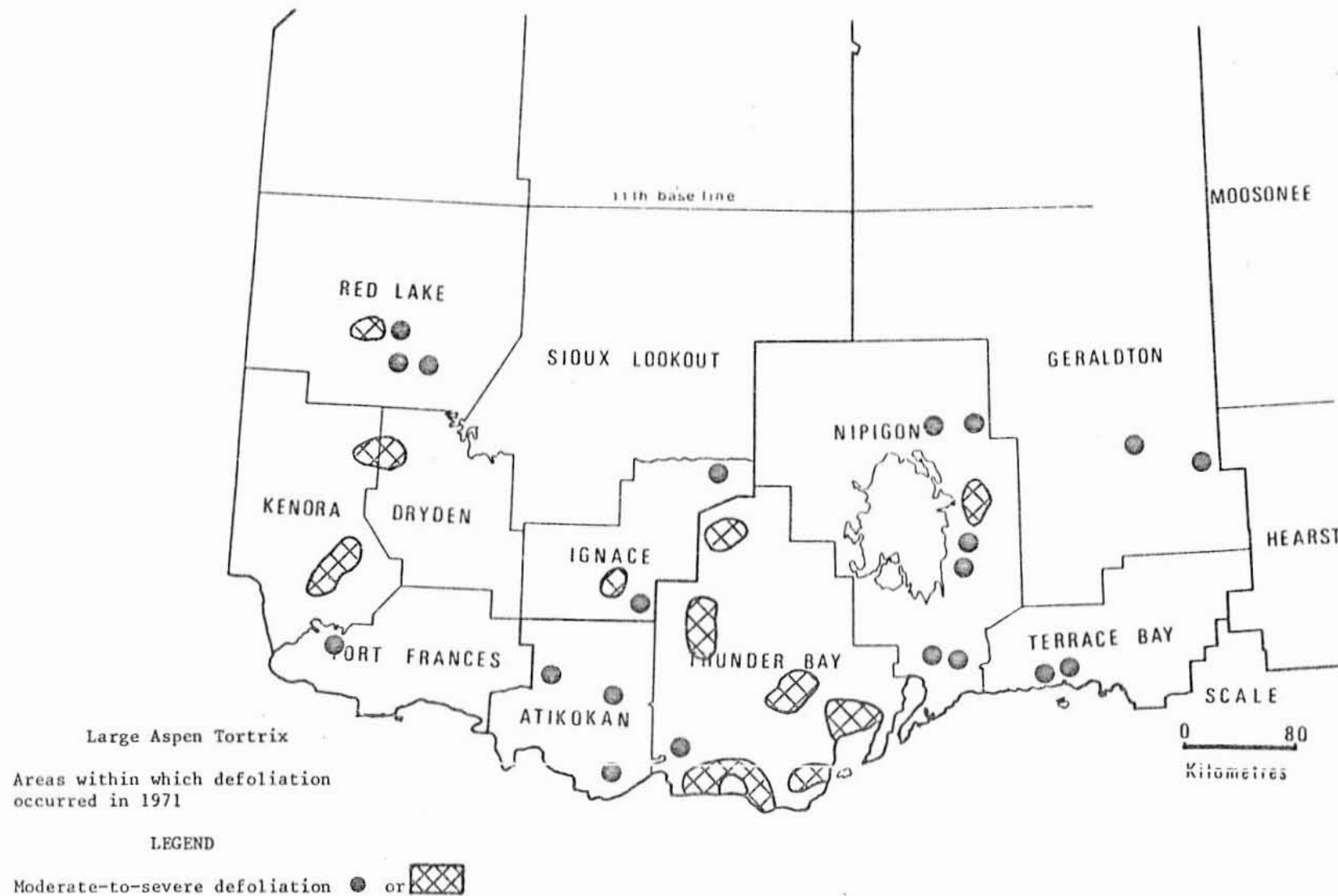
Areas within which defoliation
occurred in 1970

LEGEND

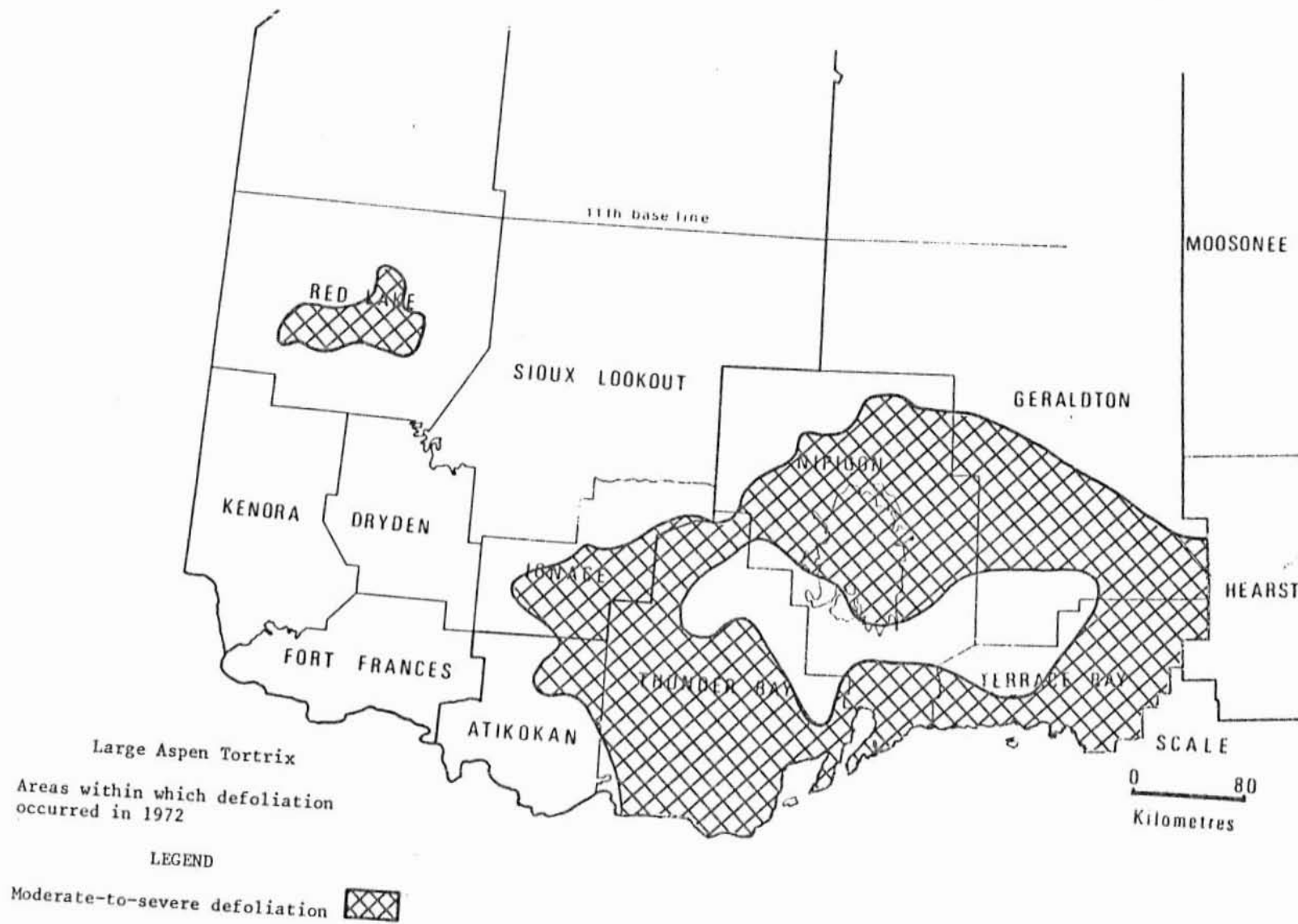
Light defoliation ○ or 

Moderate-to-severe defoliation ● or 

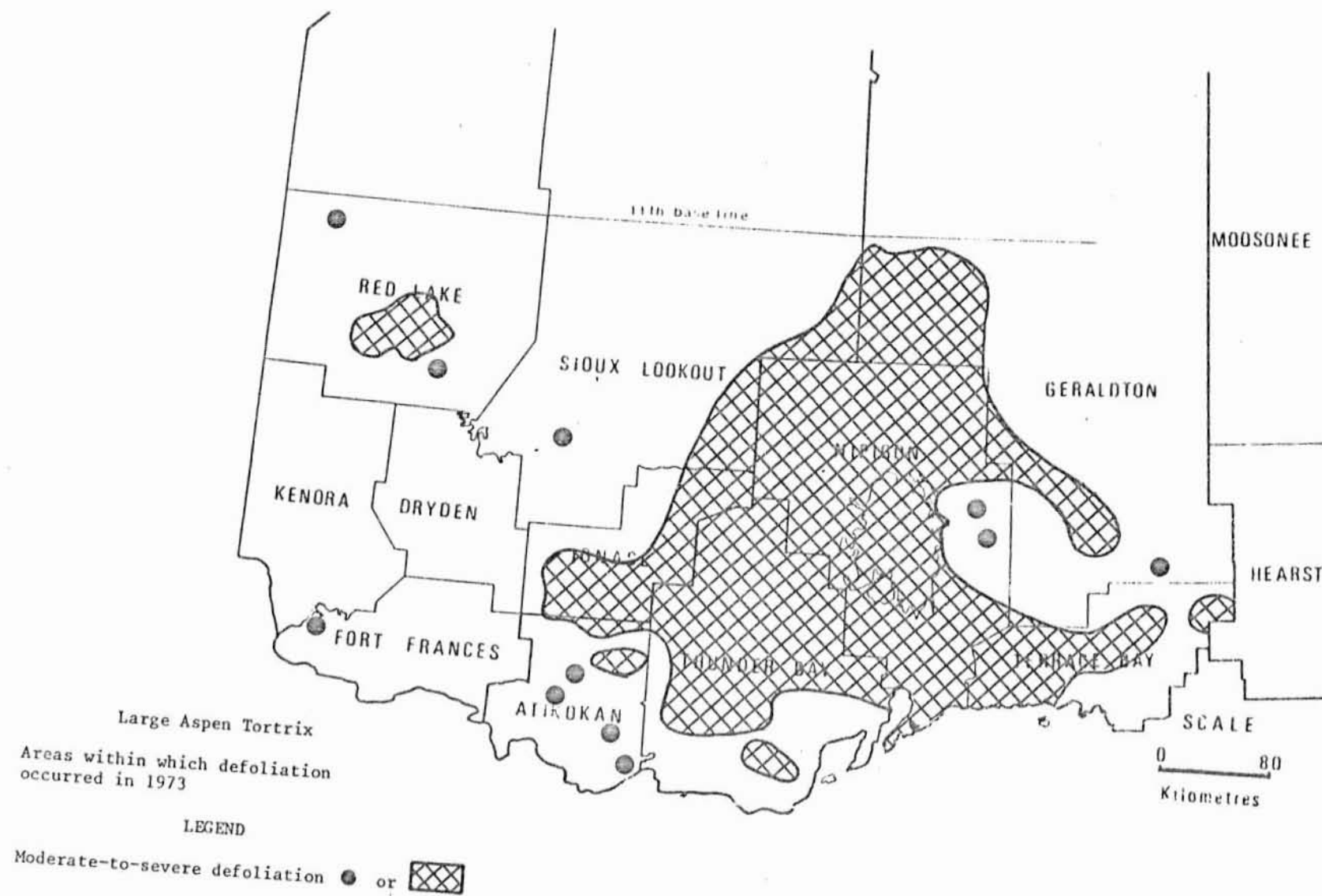
NORTHWESTERN ONTARIO



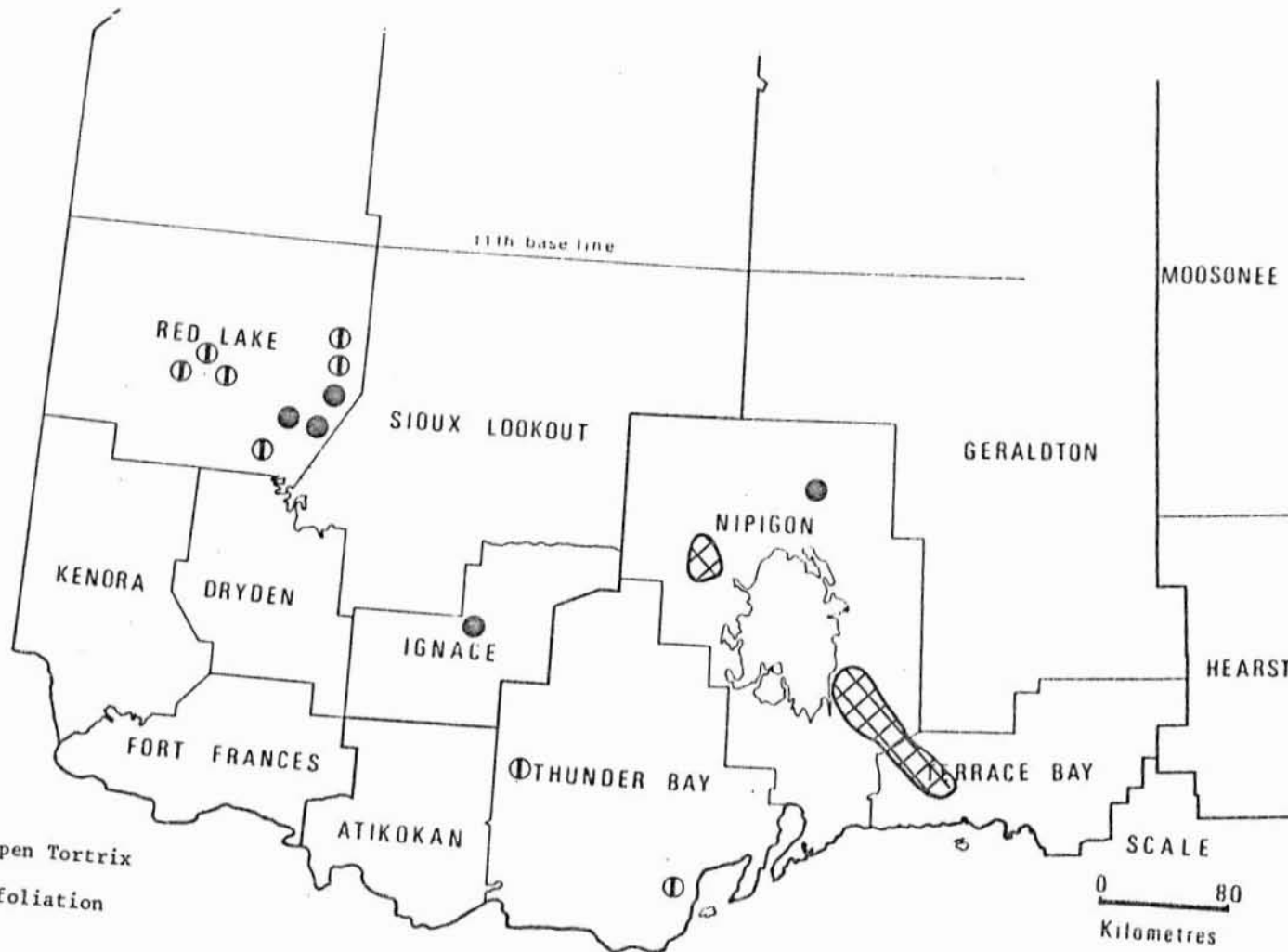
NORTHWESTERN ONTARIO



NORTHWESTERN ONTARIO



NORTHWESTERN ONTARIO




Large Aspen Tortrix

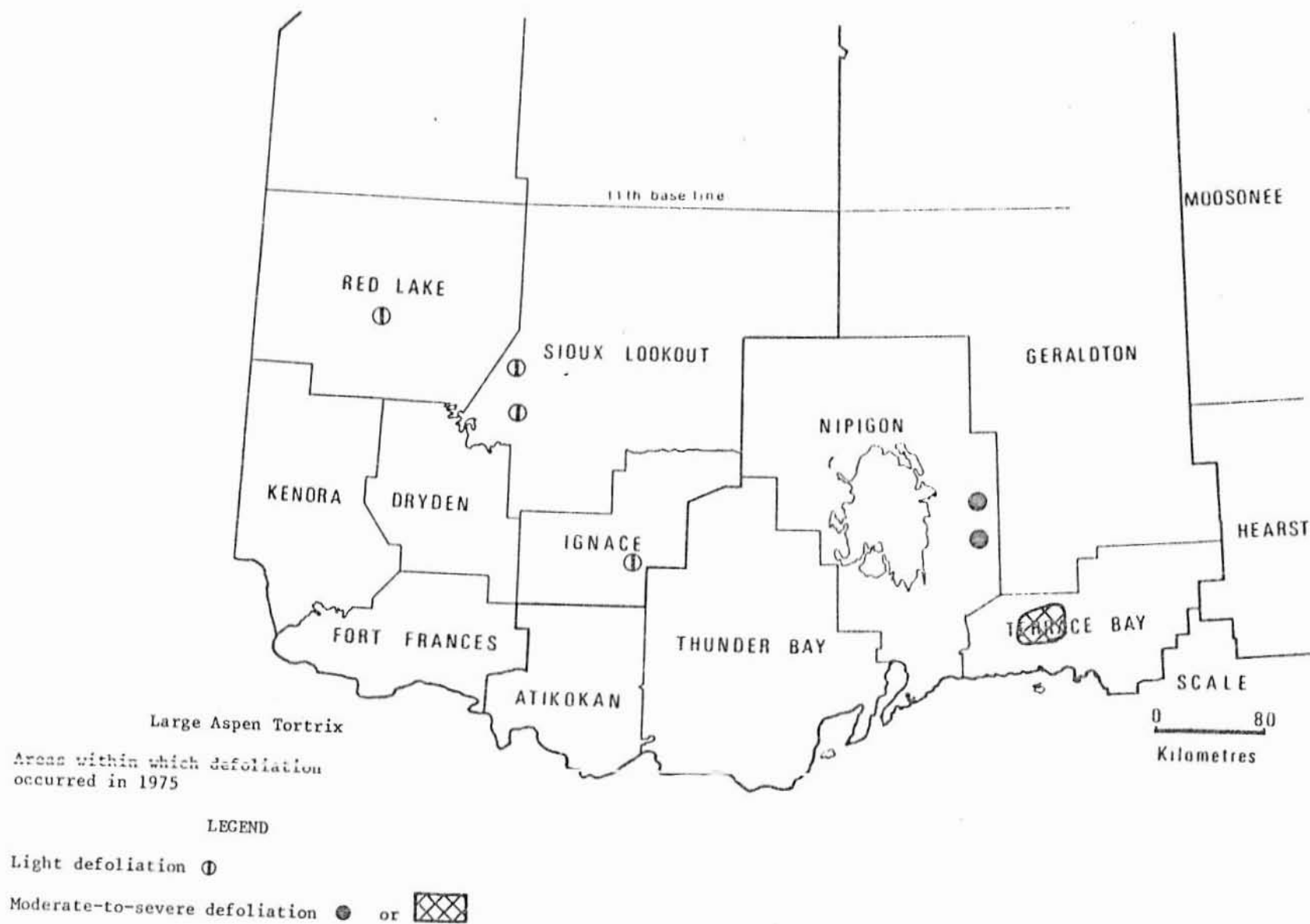
Areas within which defoliation
occurred in 1974

LEGEND

Light defoliation ①

Moderate-to-severe defoliation ● or 

NORTHWESTERN ONTARIO



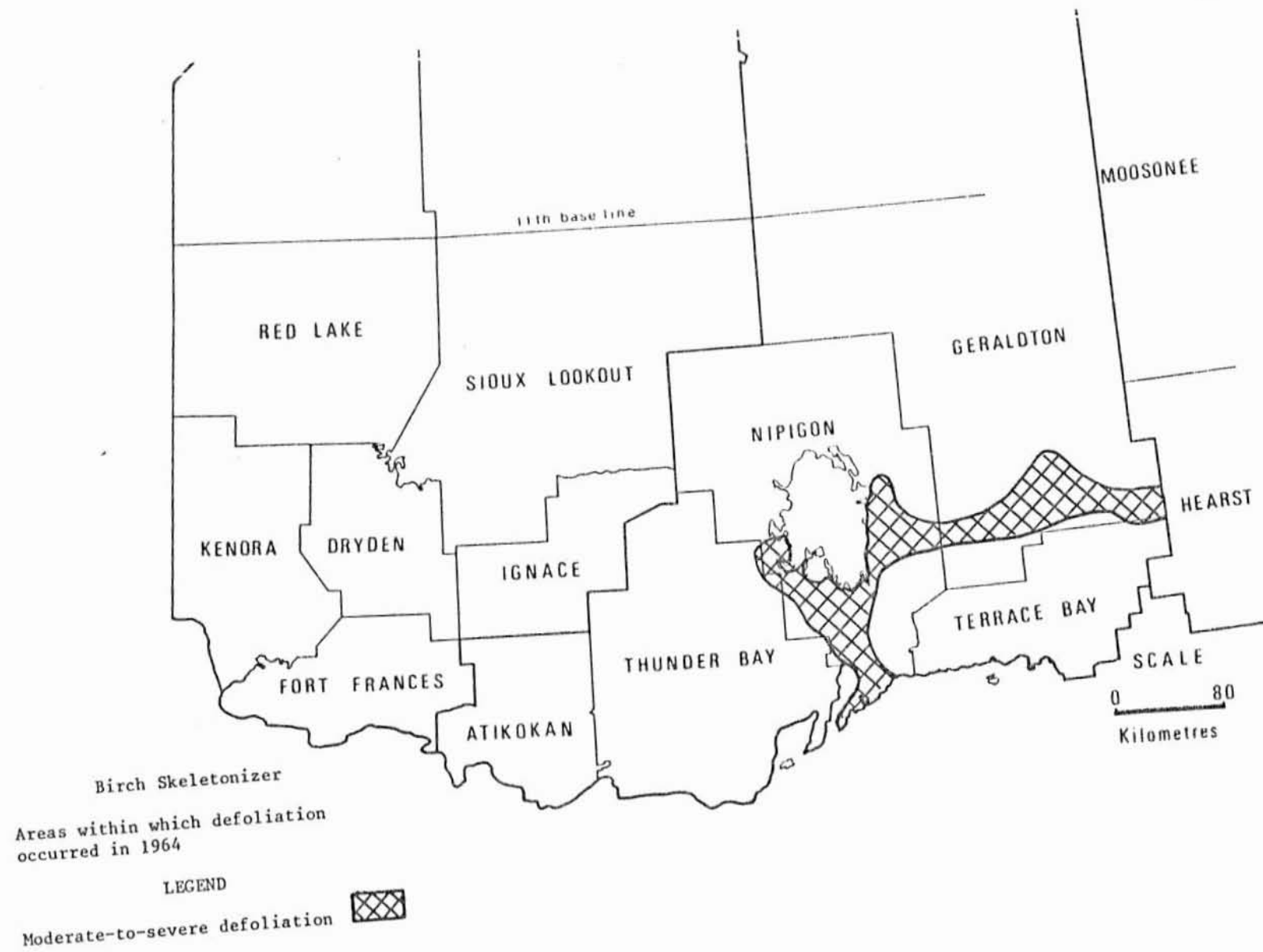
NORTHWESTERN ONTARIO



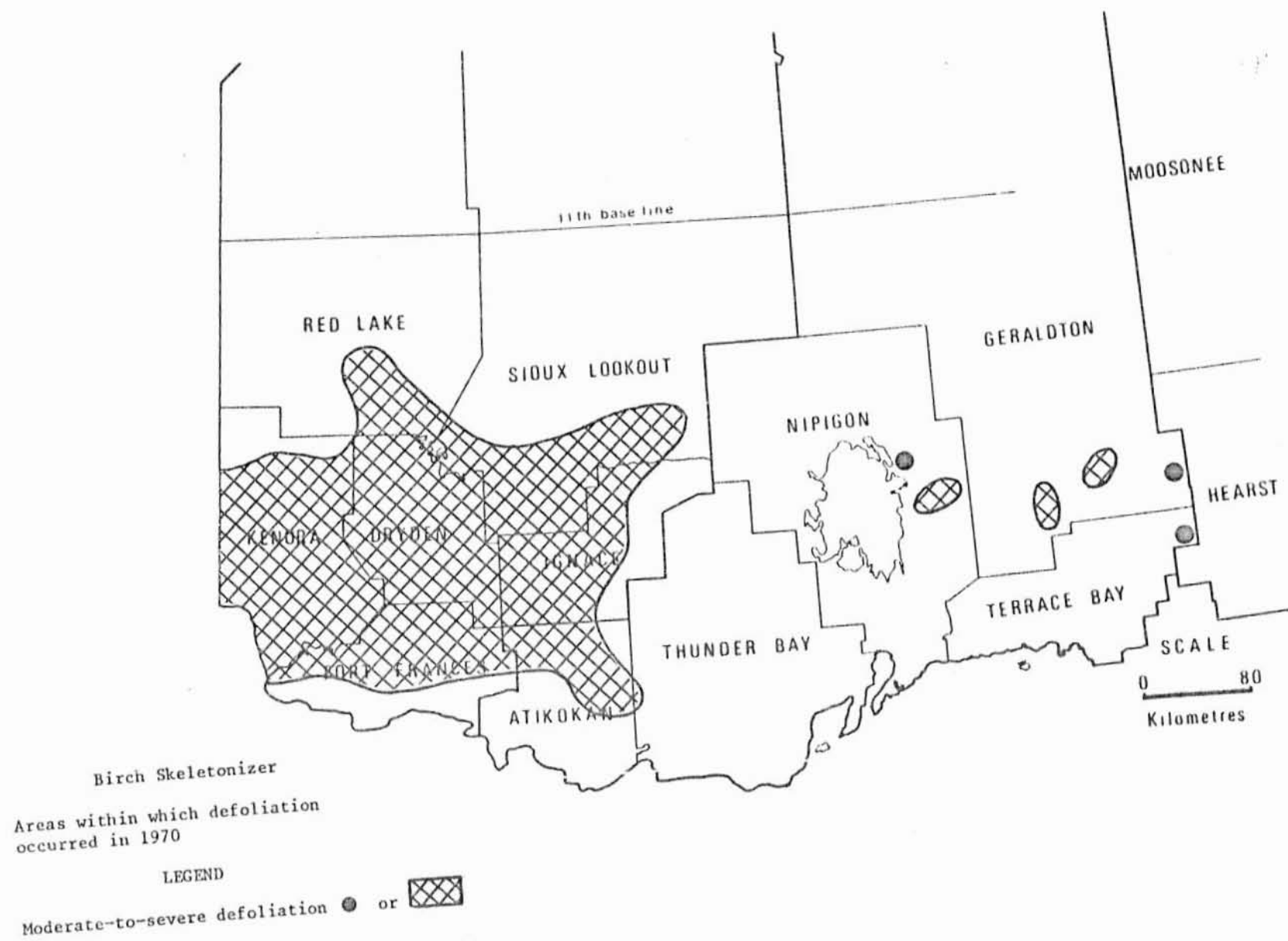
NORTHWESTERN ONTARIO



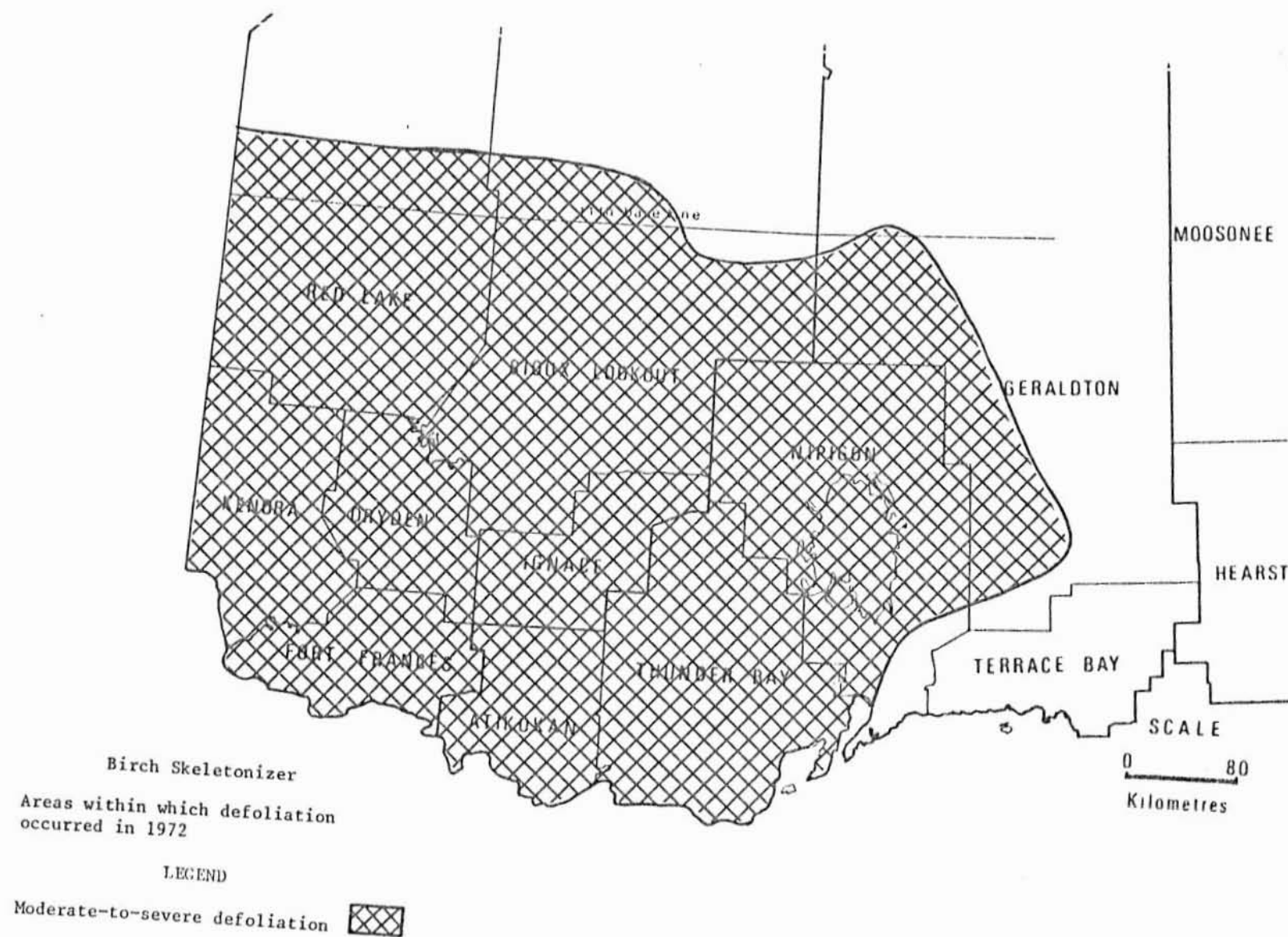
NORTHWESTERN ONTARIO



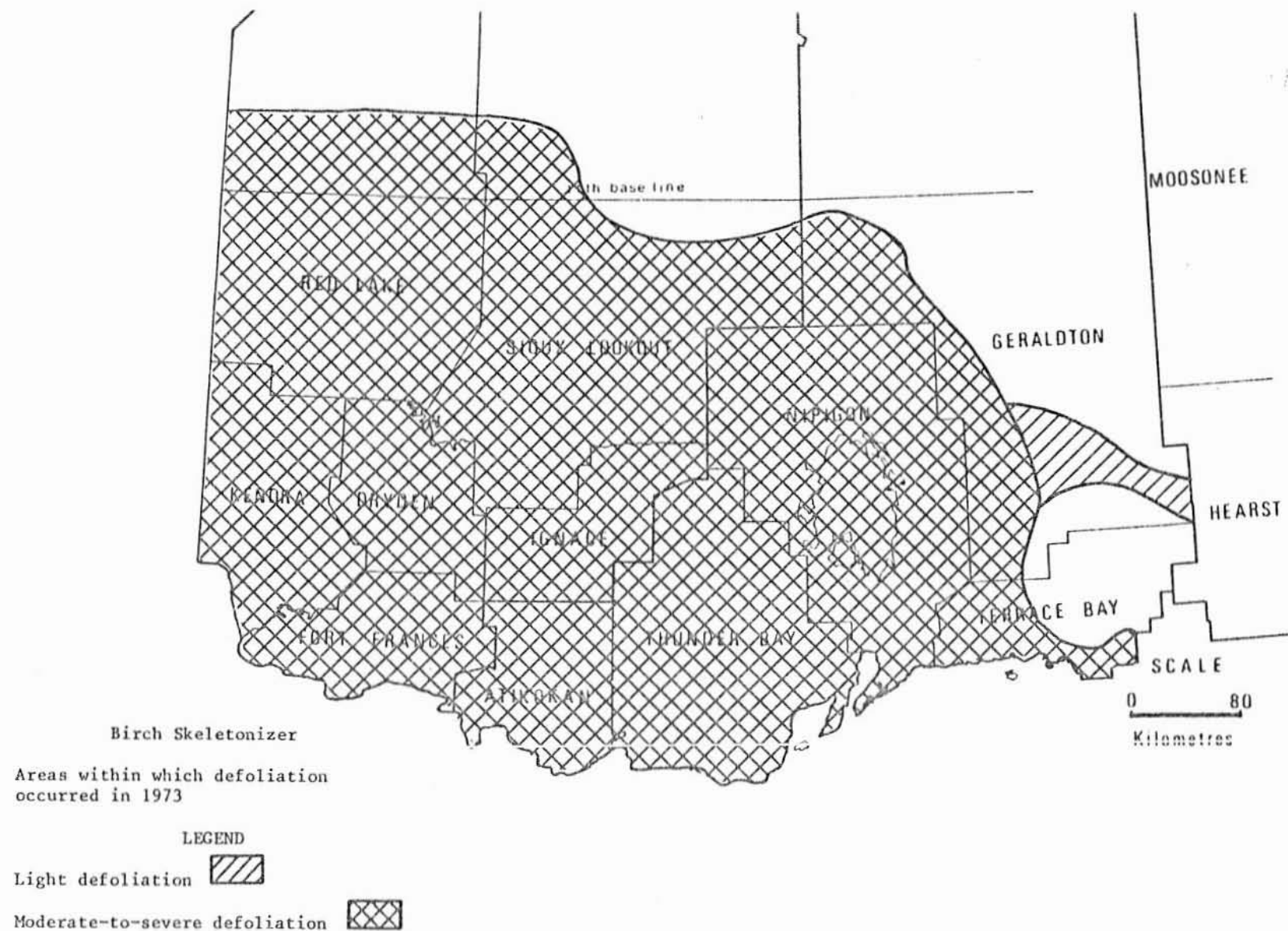
NORTHWESTERN ONTARIO



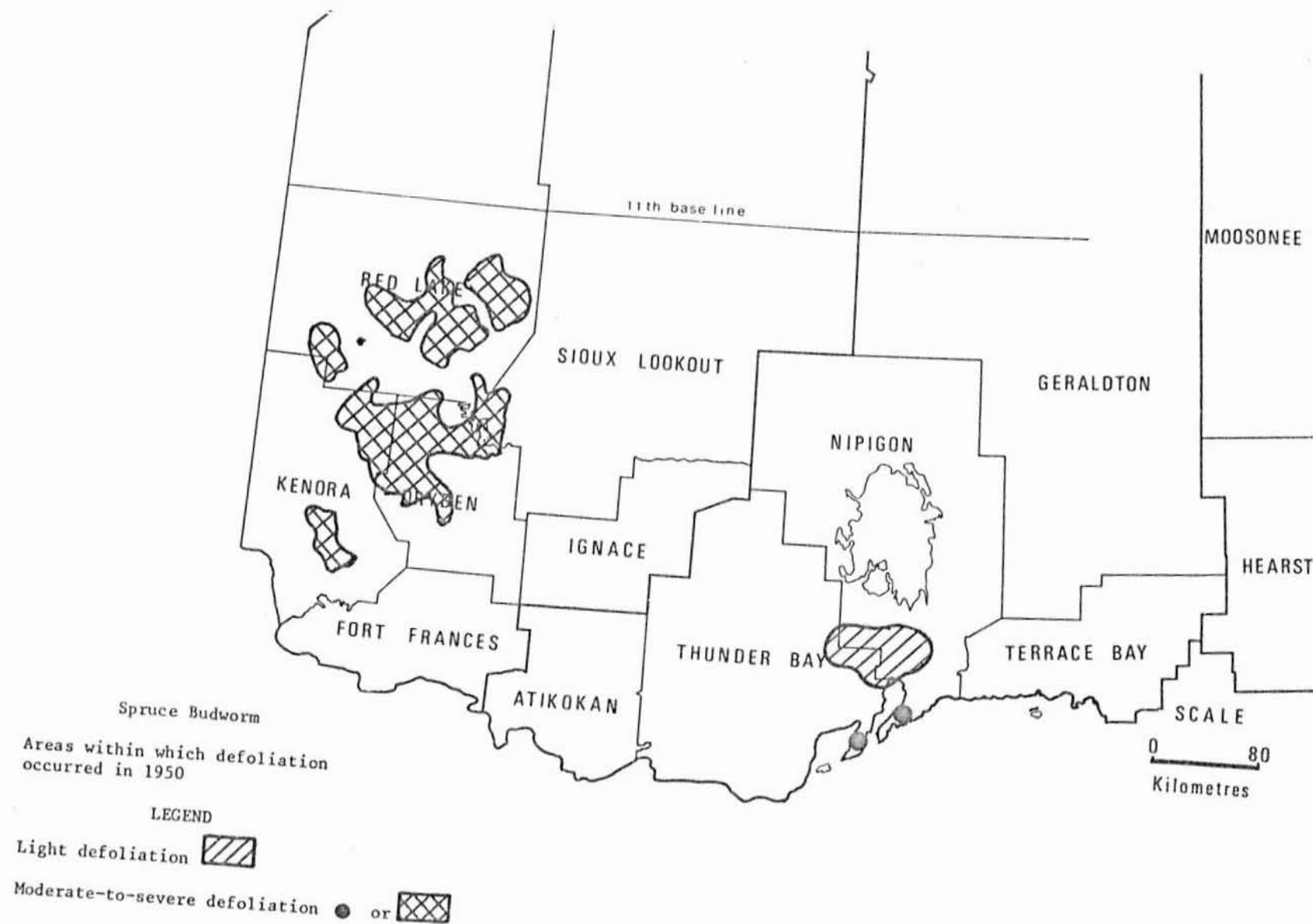
NORTHWESTERN ONTARIO



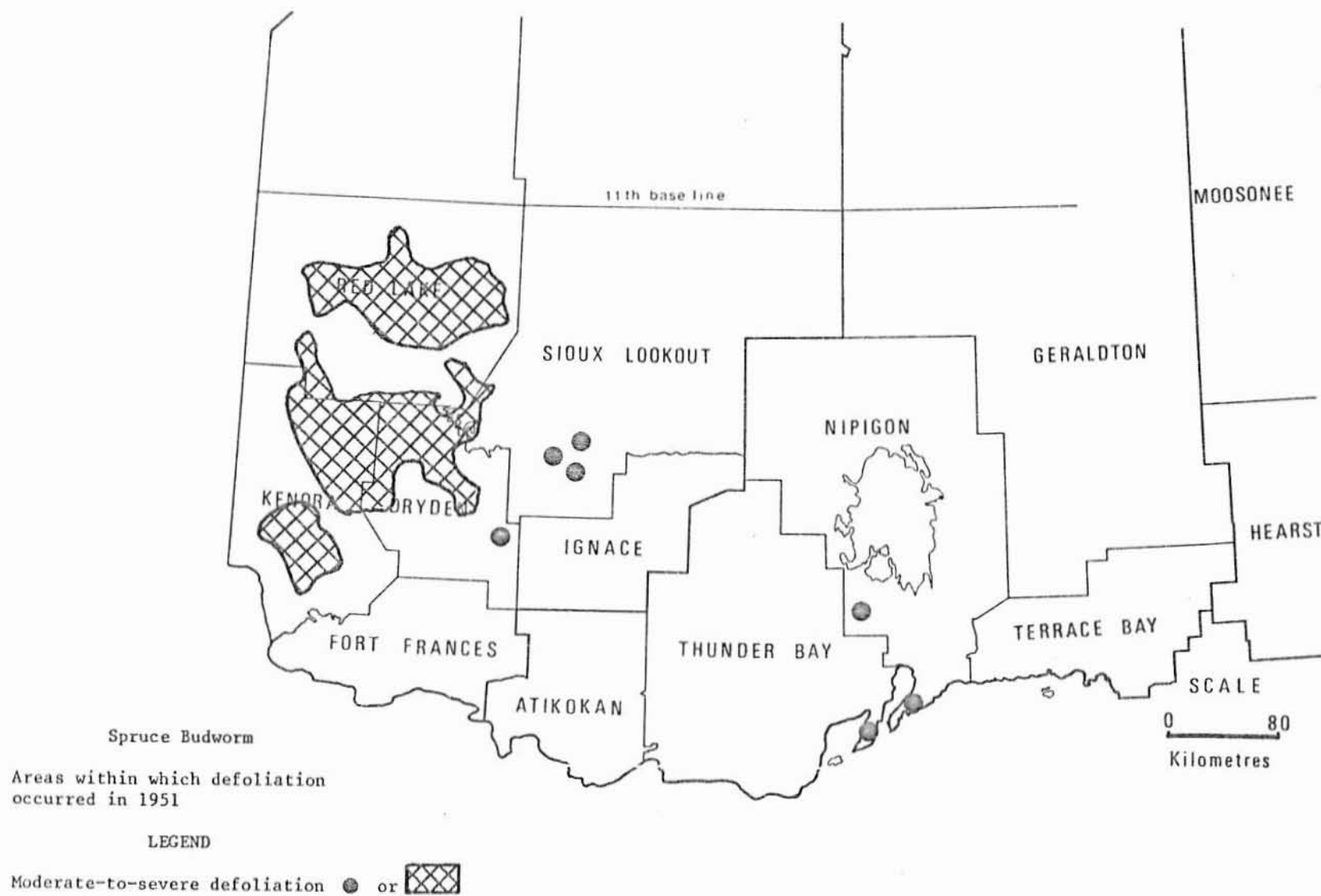
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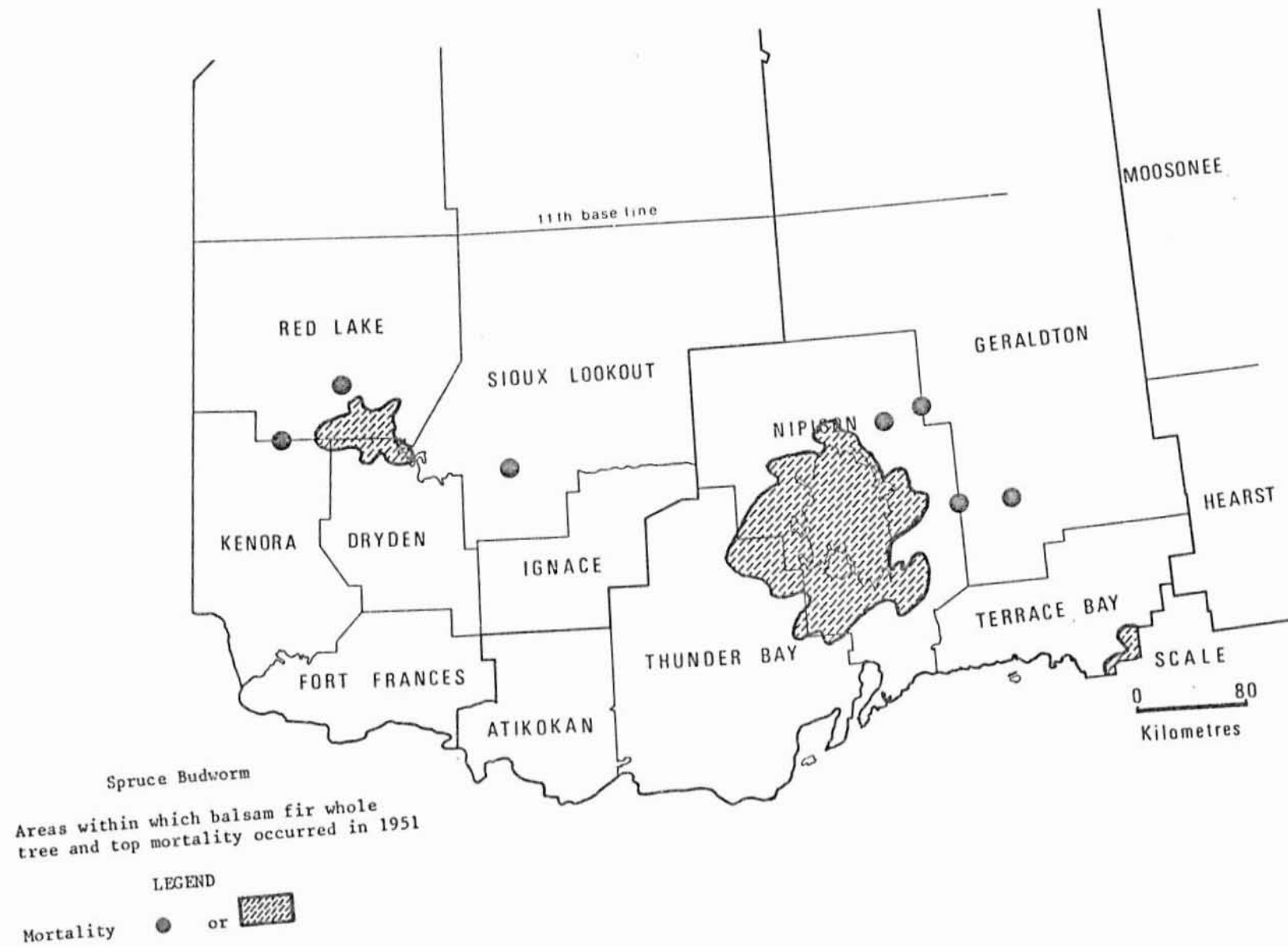
NORTHWESTERN ONTARIO



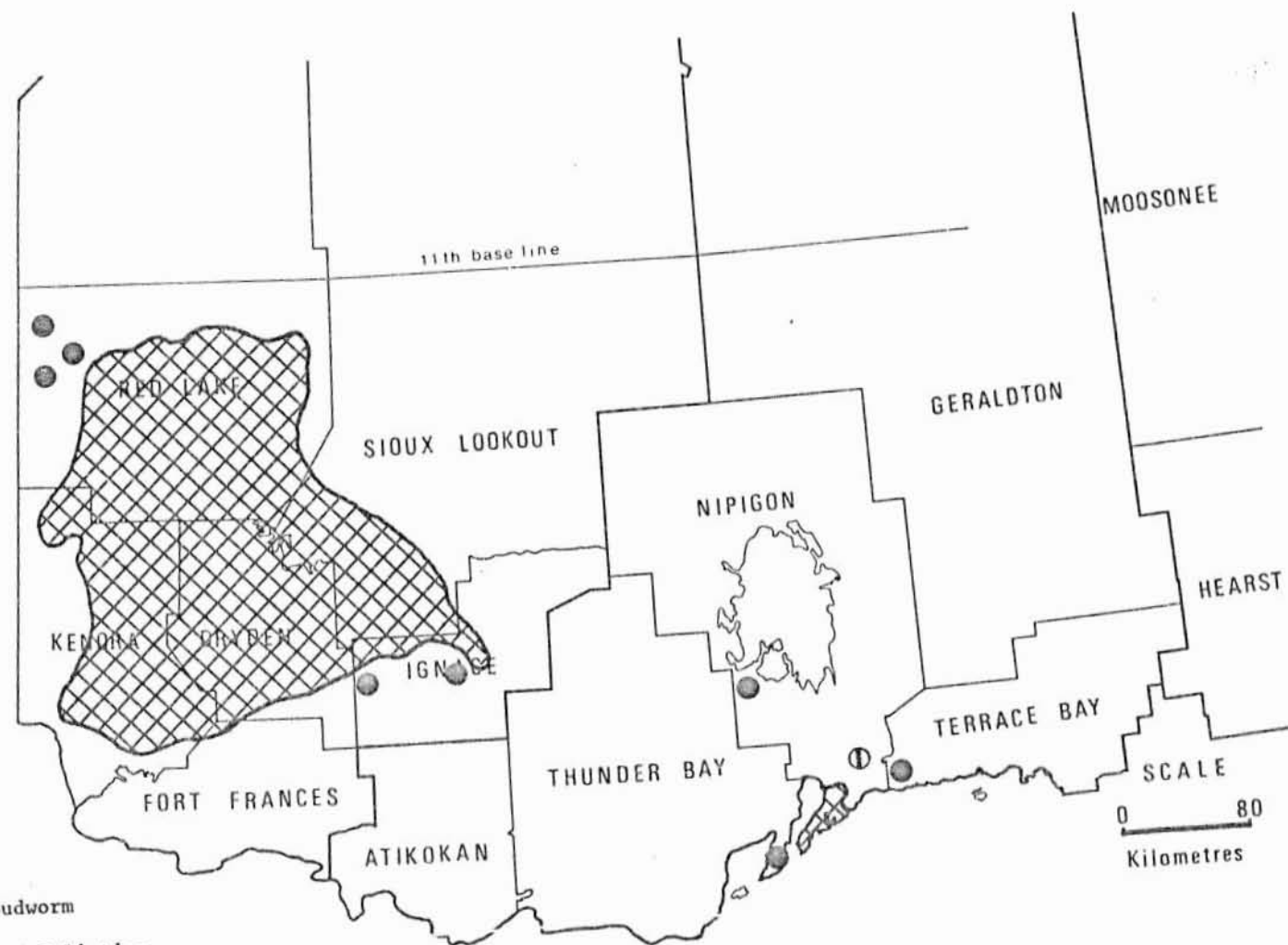
NORTHWESTERN ONTARIO



NORTHWESTERN ONTARIO



NORTHWESTERN ONTARIO




Spruce Budworm

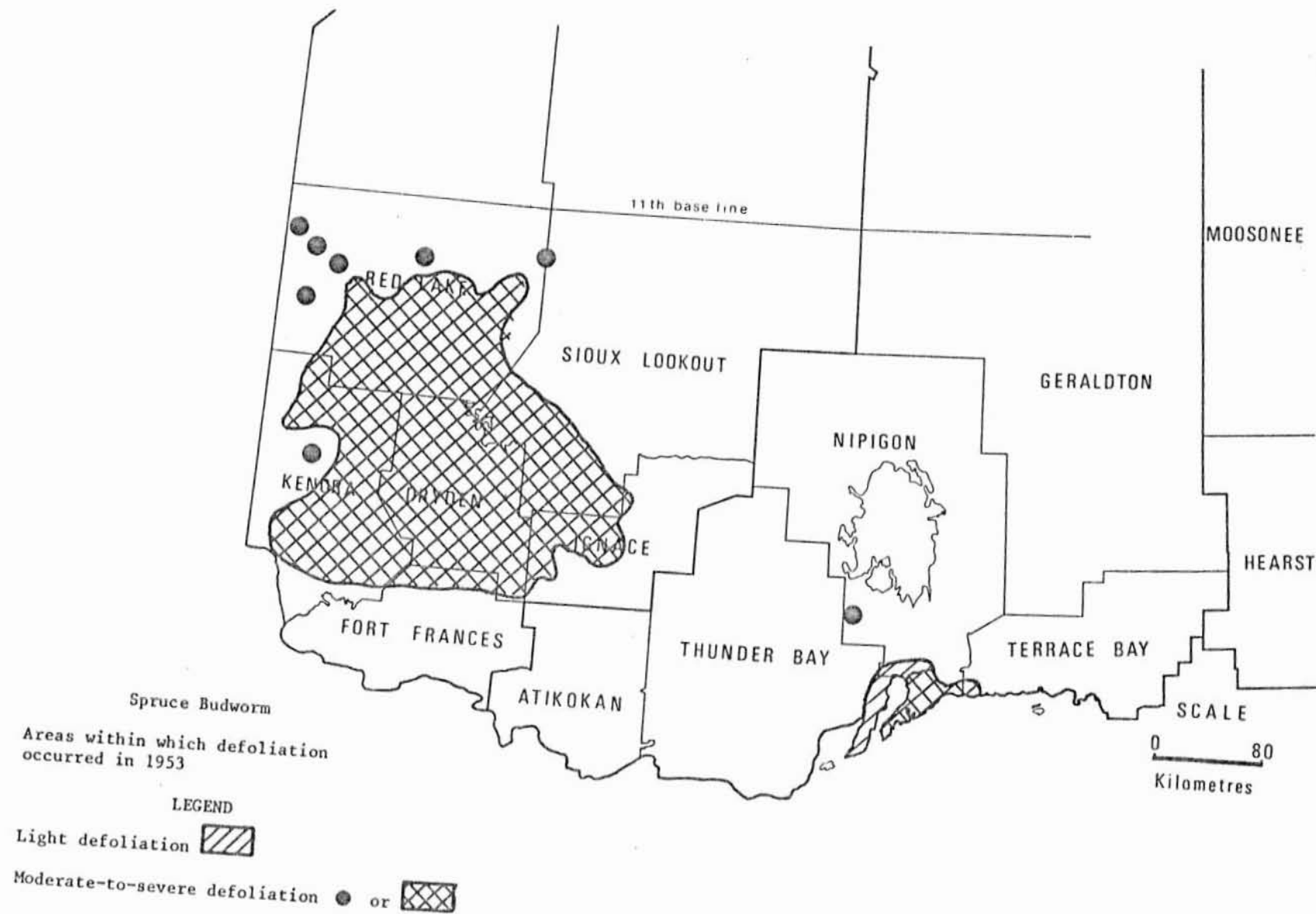
Areas within which defoliation
occurred in 1952

LEGEND

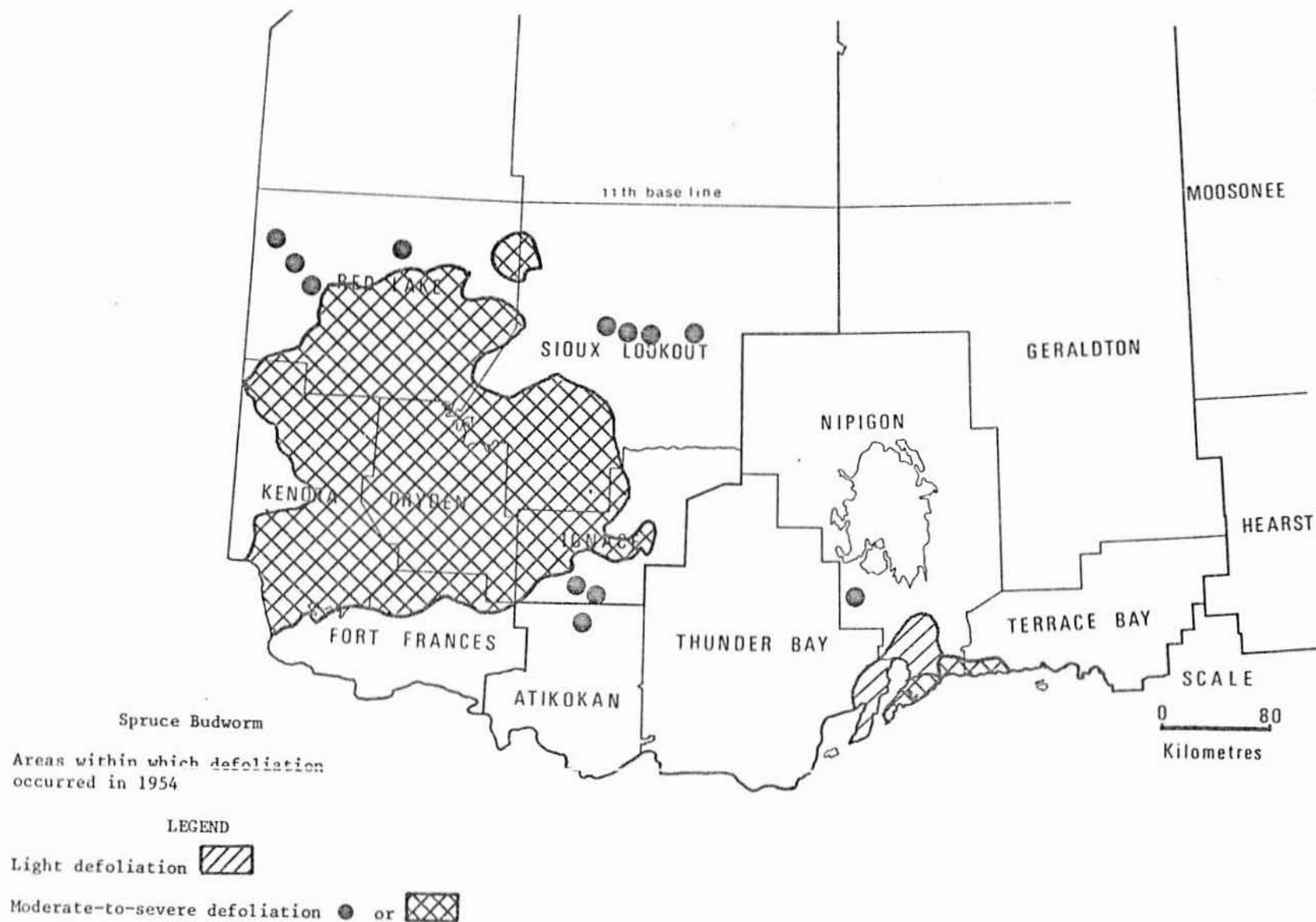
Light defoliation ①

Moderate-to-severe defoliation ● or 

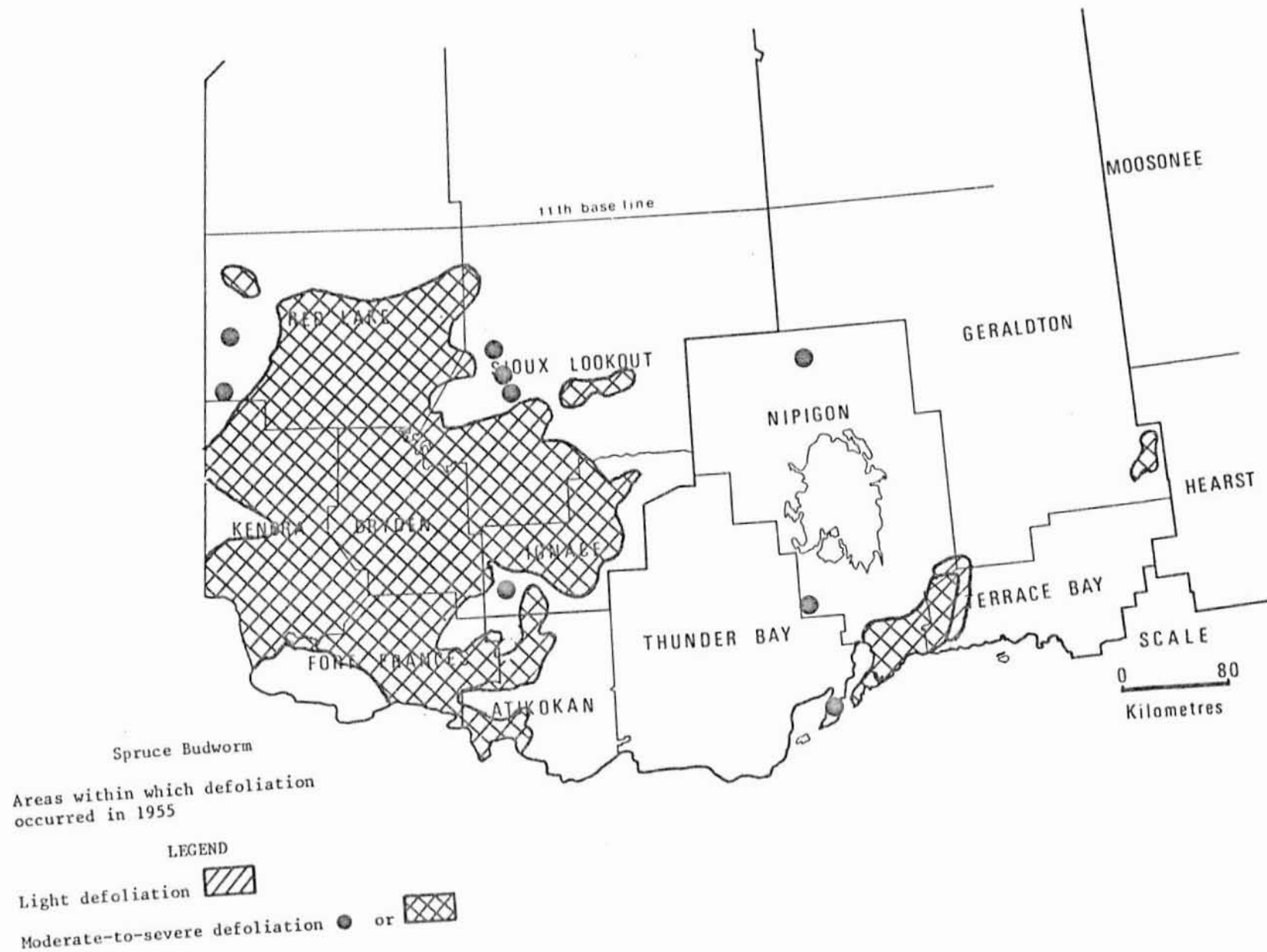
NORTHWESTERN ONTARIO



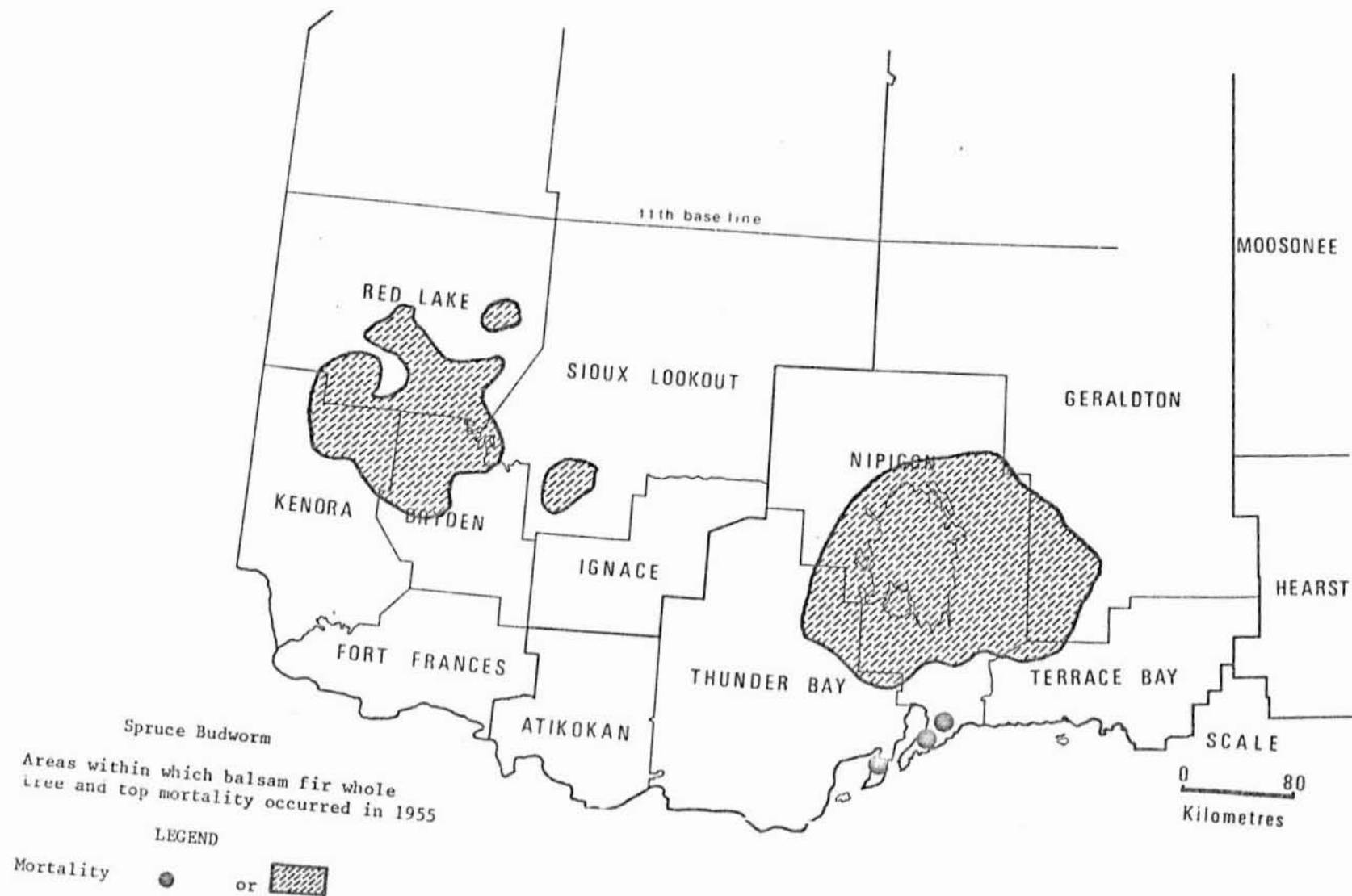
NORTHWESTERN ONTARIO



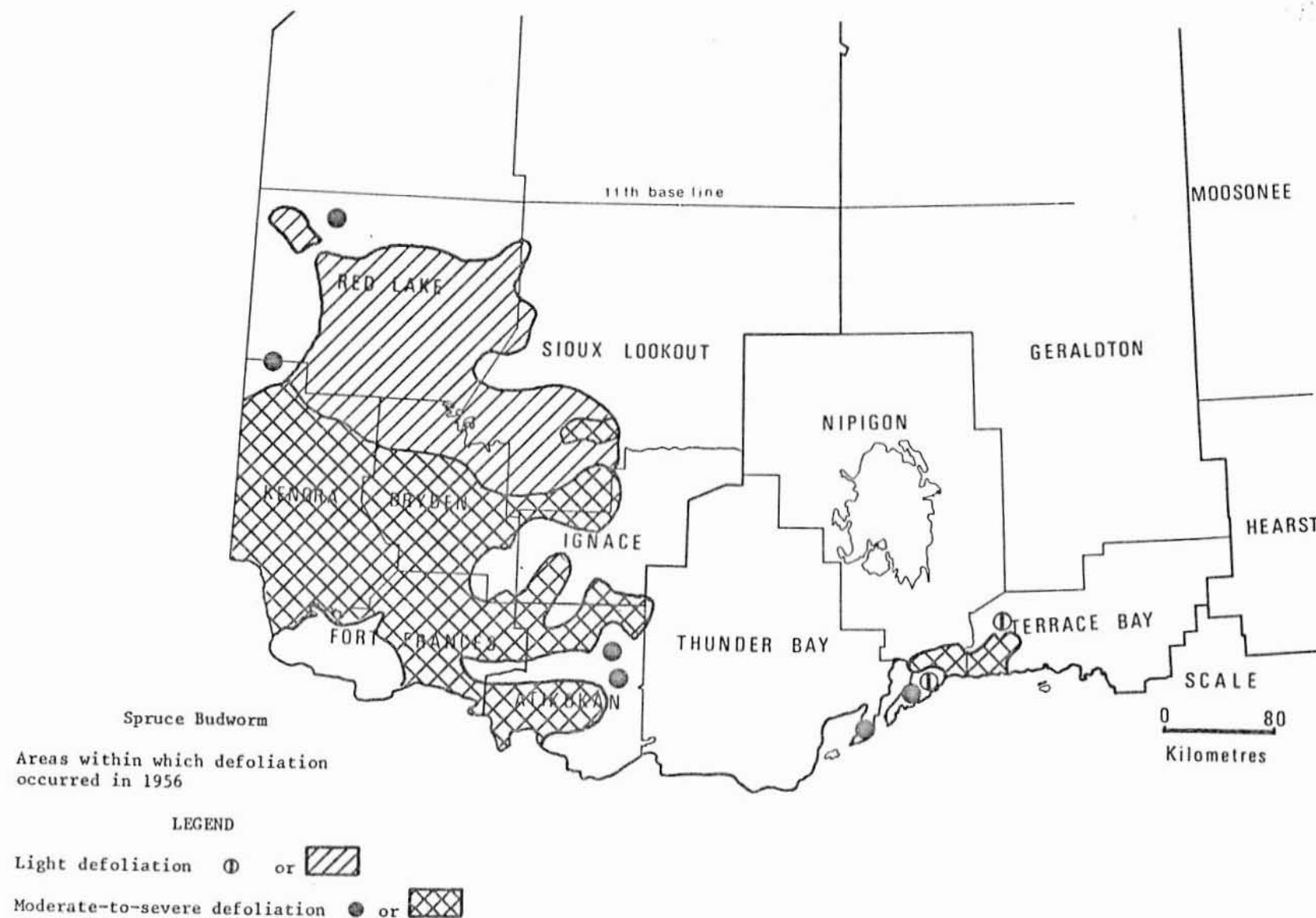
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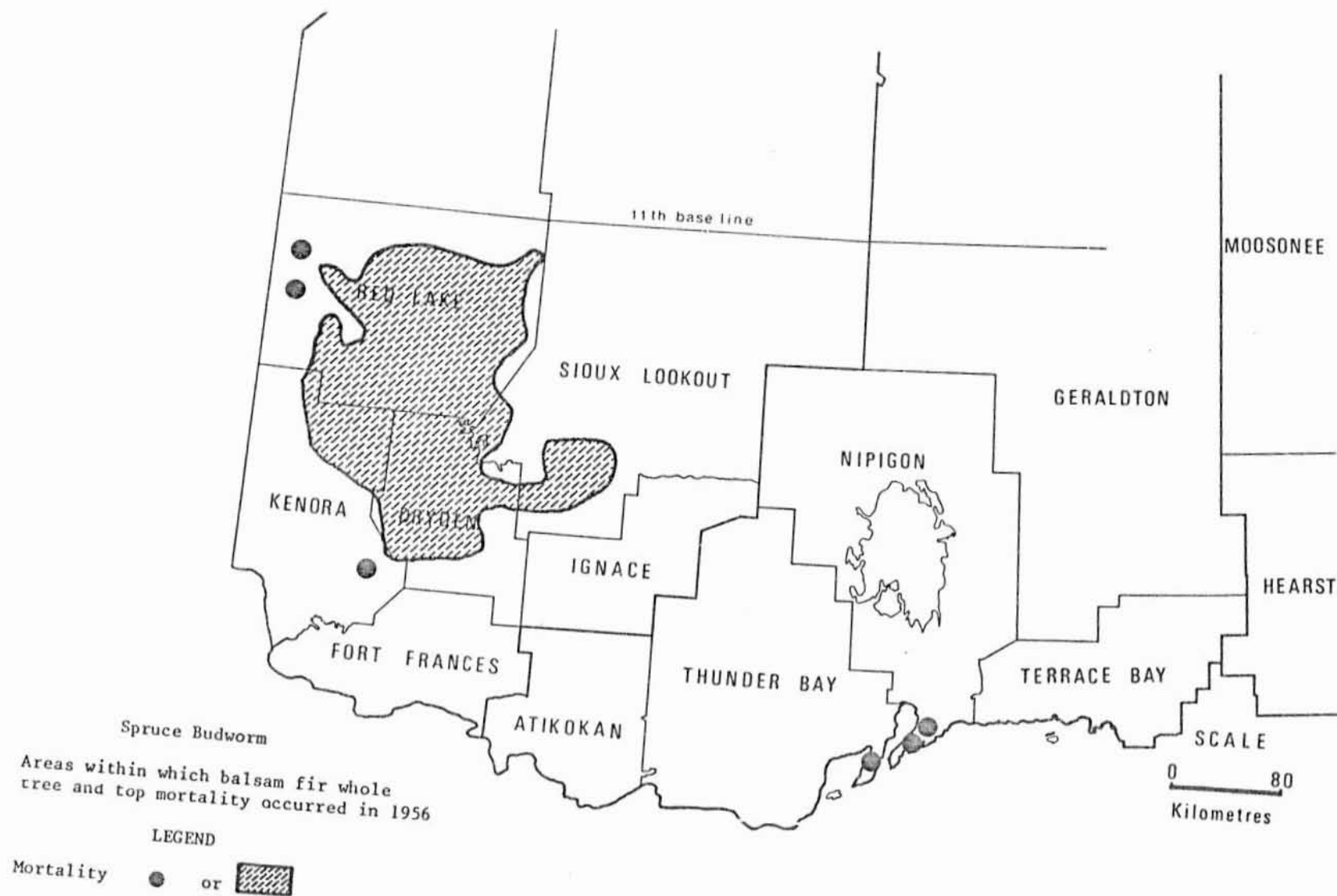
NORTHWESTERN ONTARIO



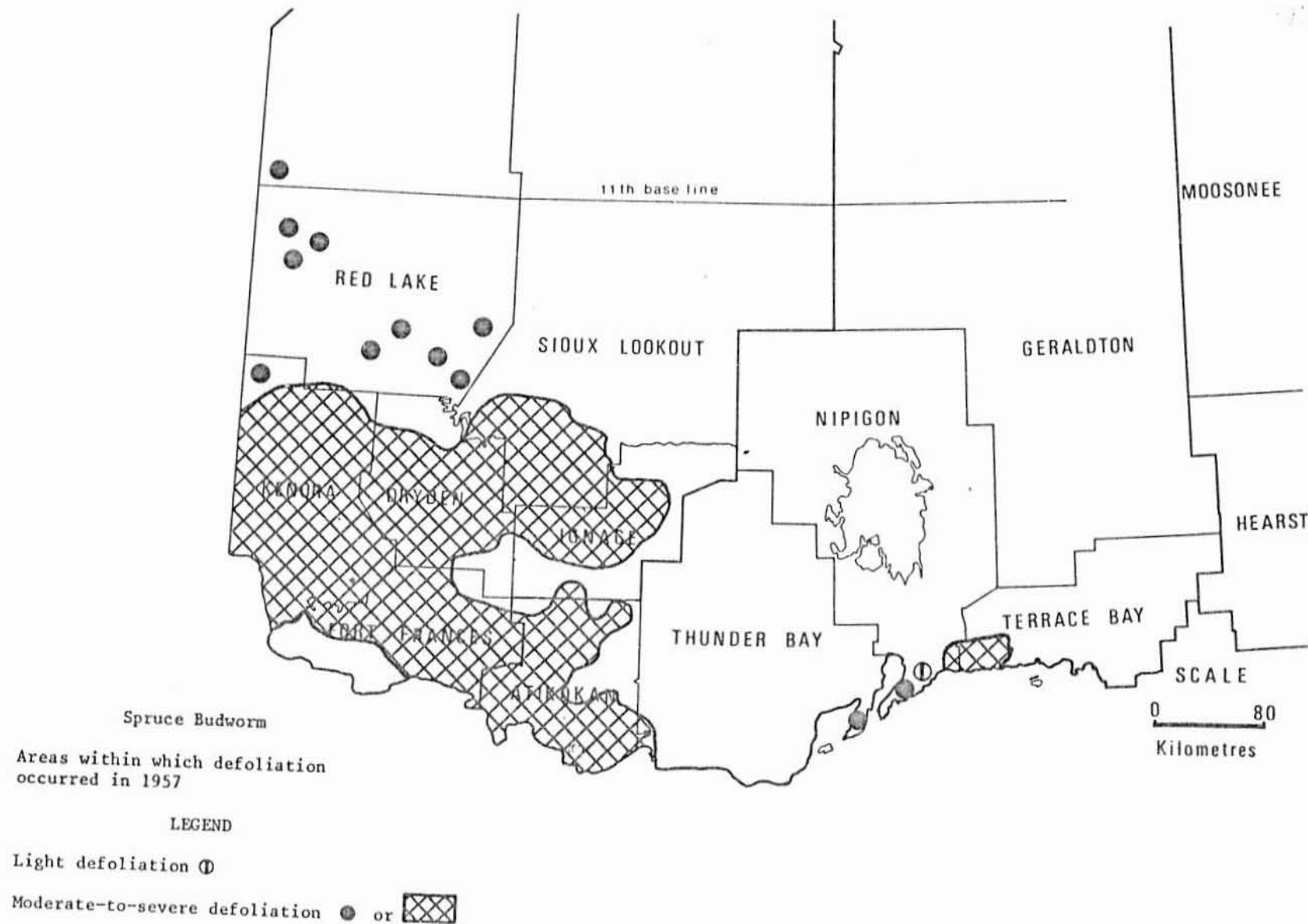
NORTHWESTERN ONTARIO



NORTHWESTERN ONTARIO



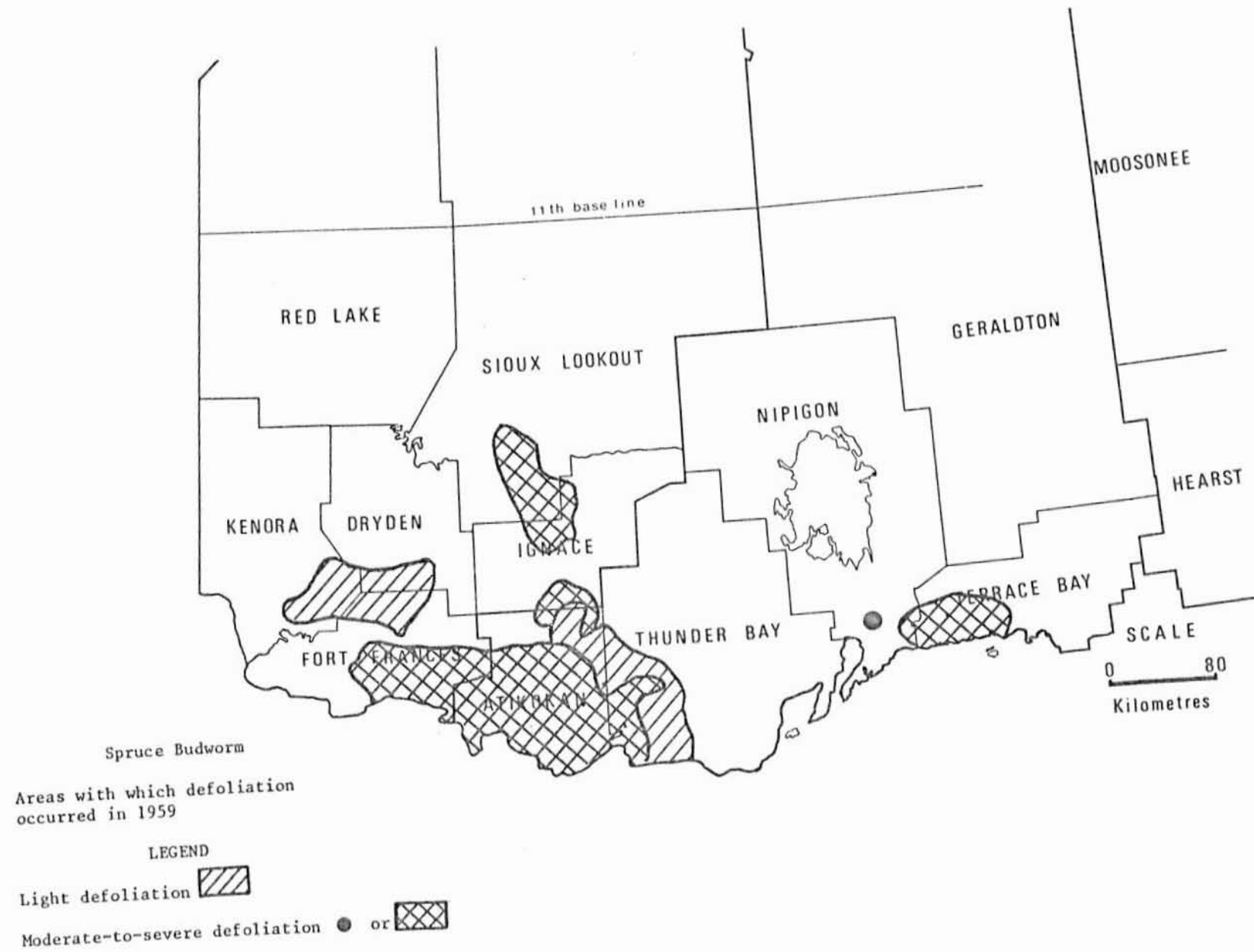
NORTHWESTERN ONTARIO



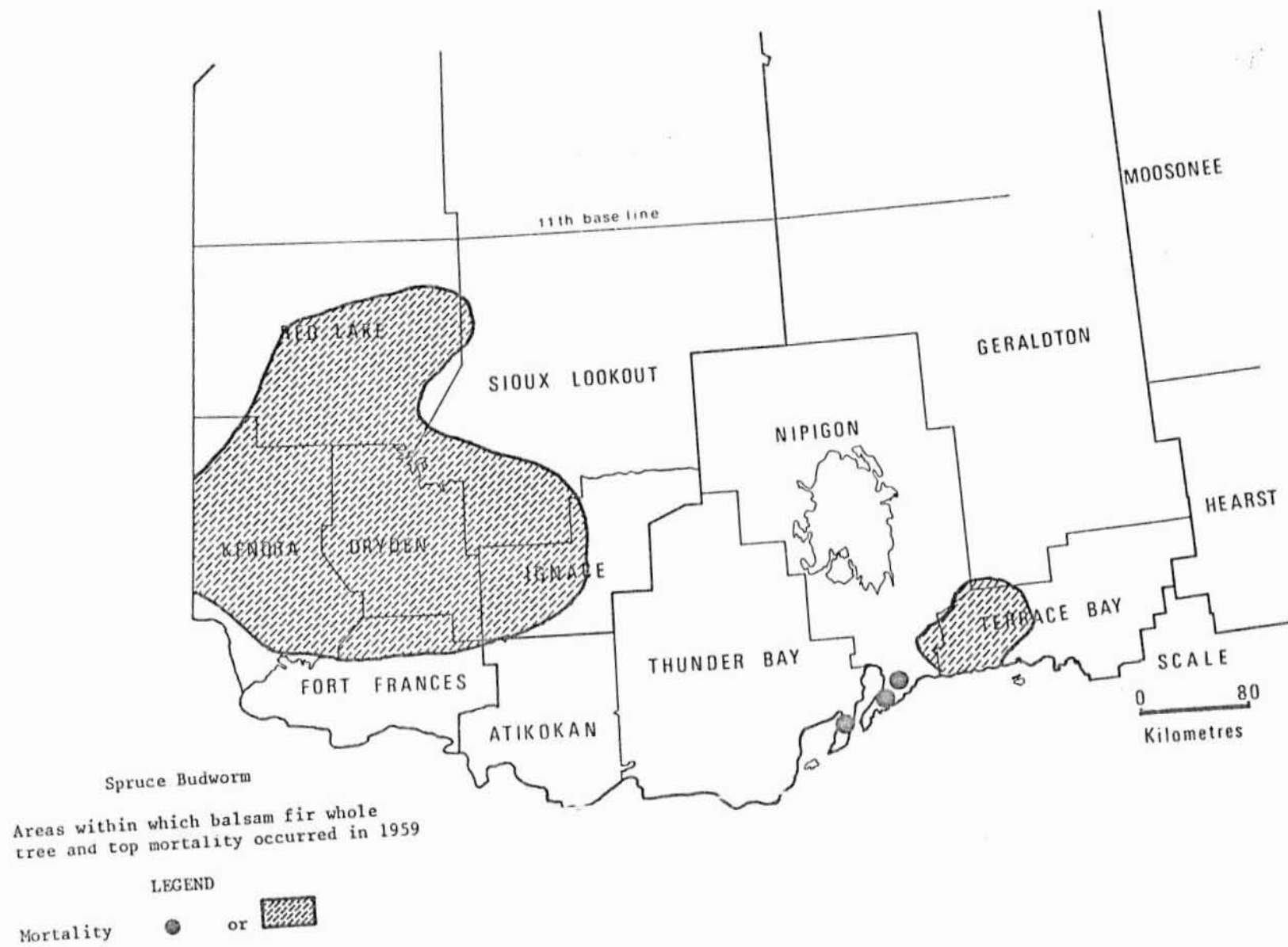
NORTHWESTERN ONTARIO



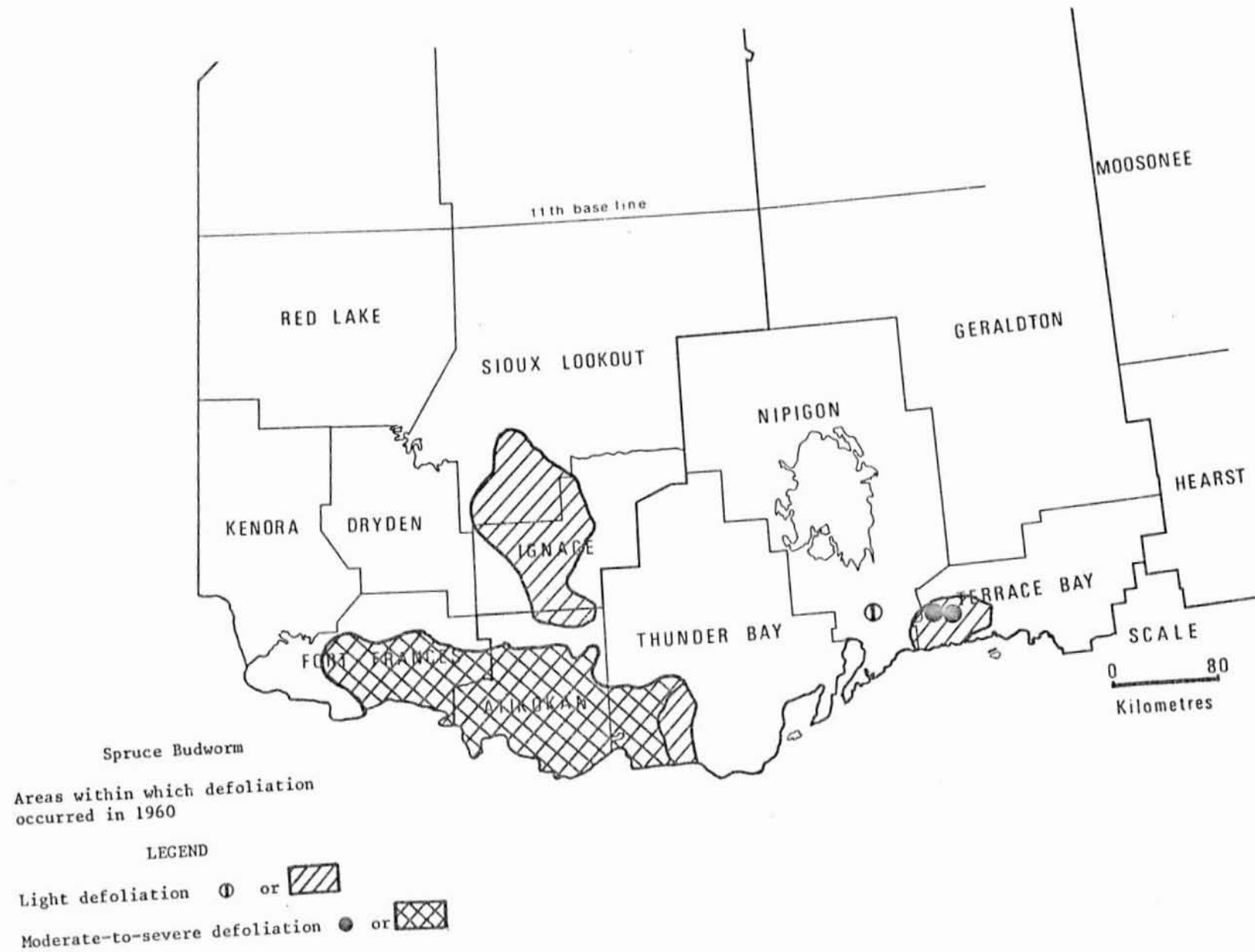
NORTHWESTERN ONTARIO



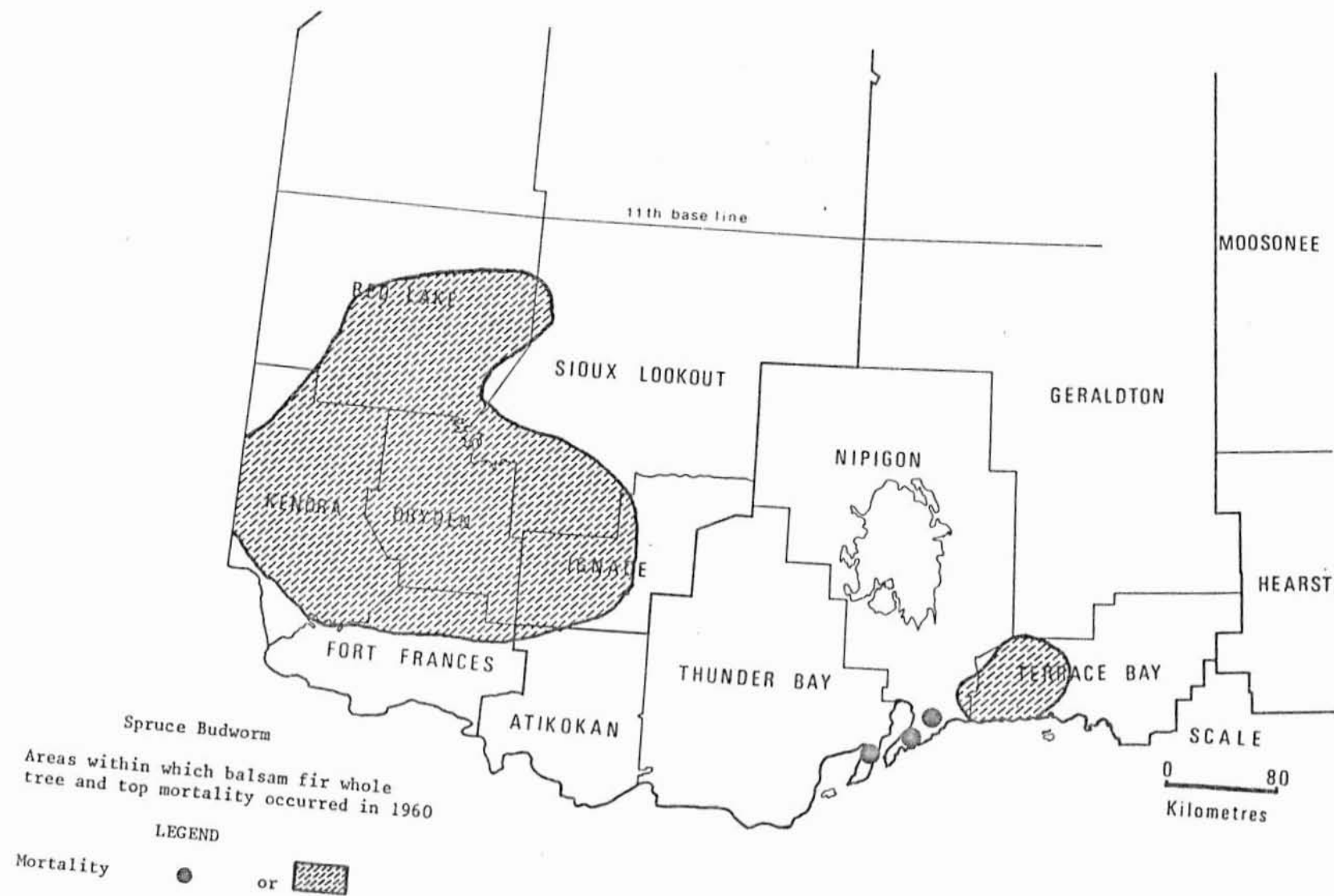
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NORTHWESTERN ONTARIO



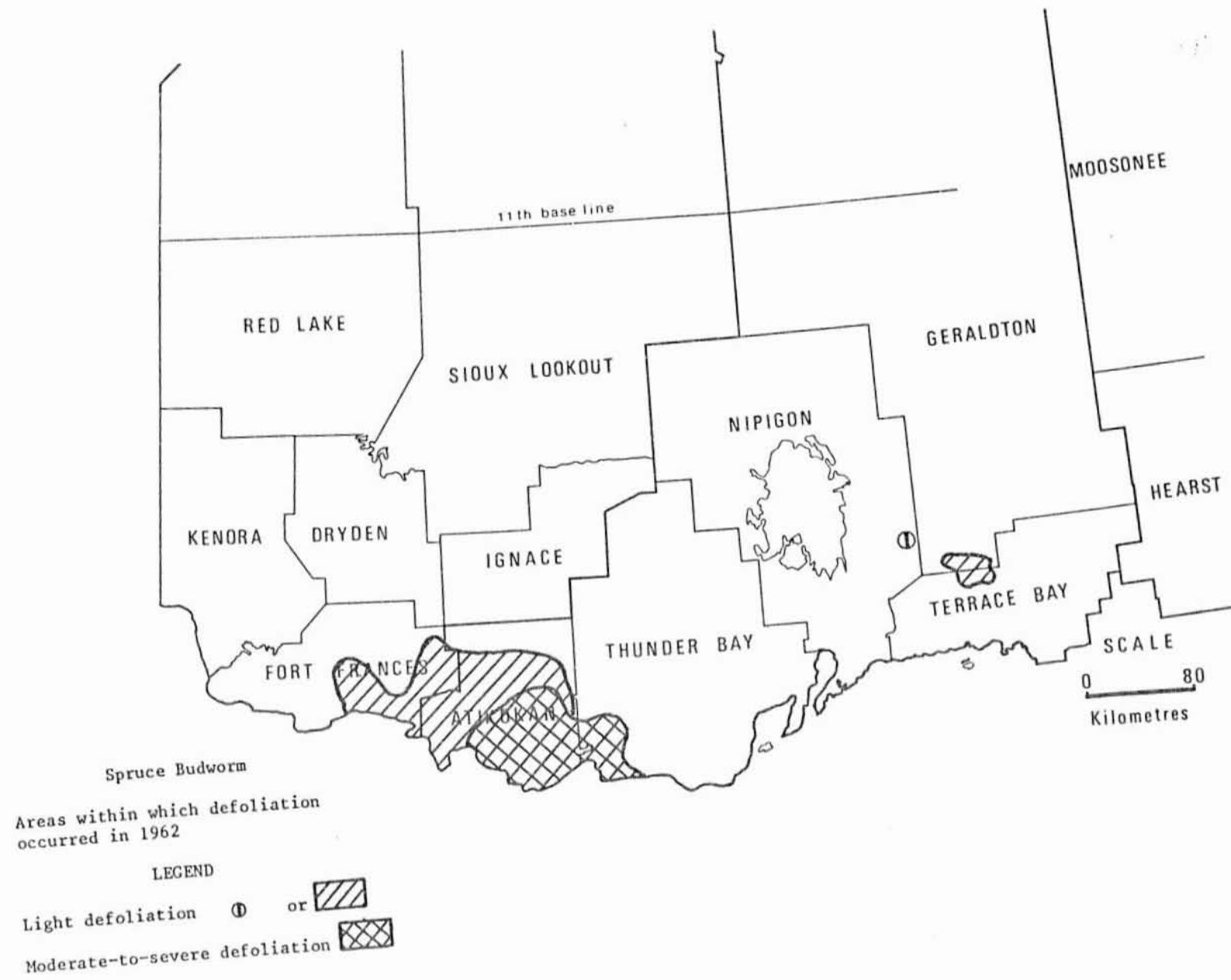
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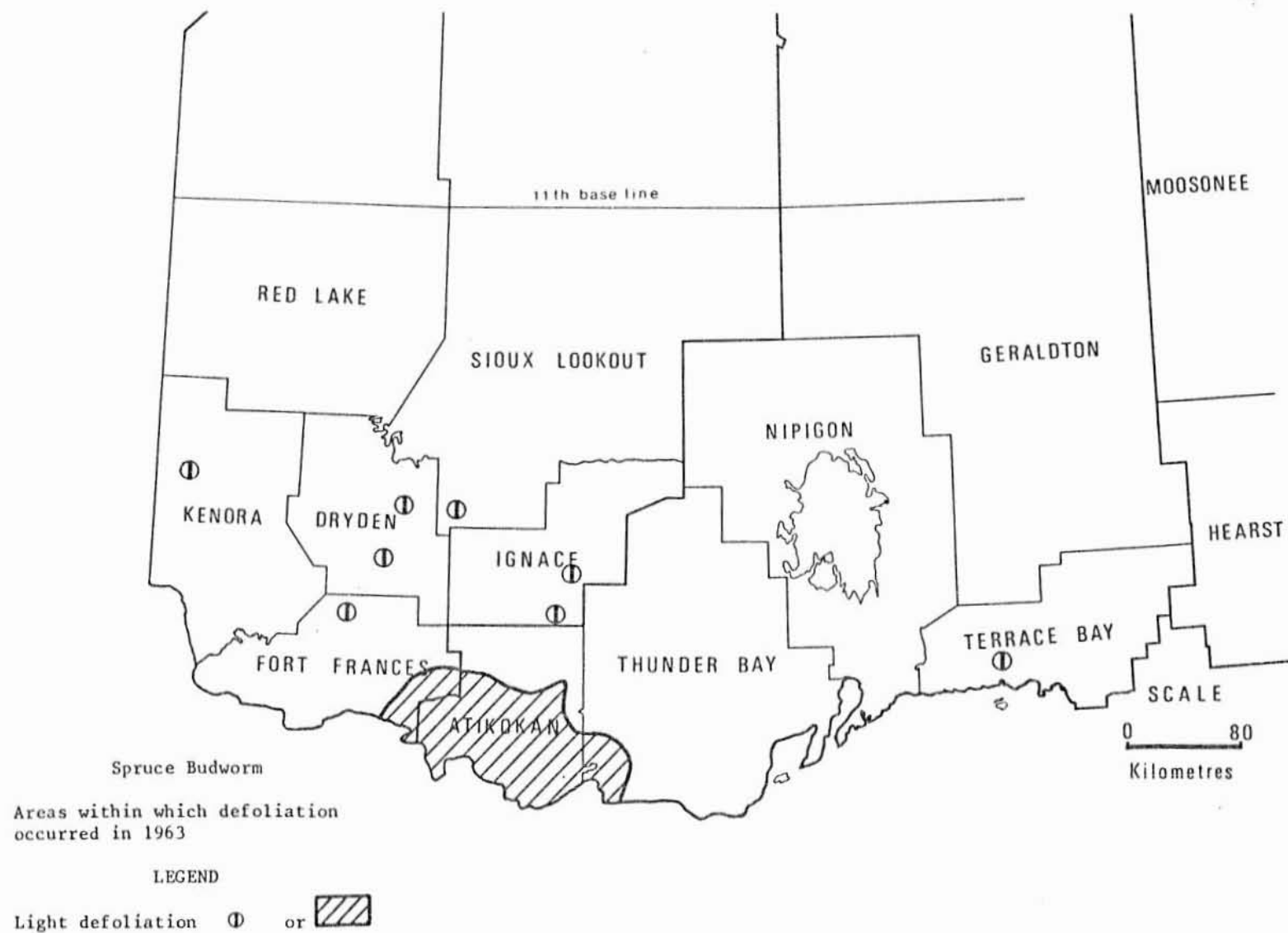
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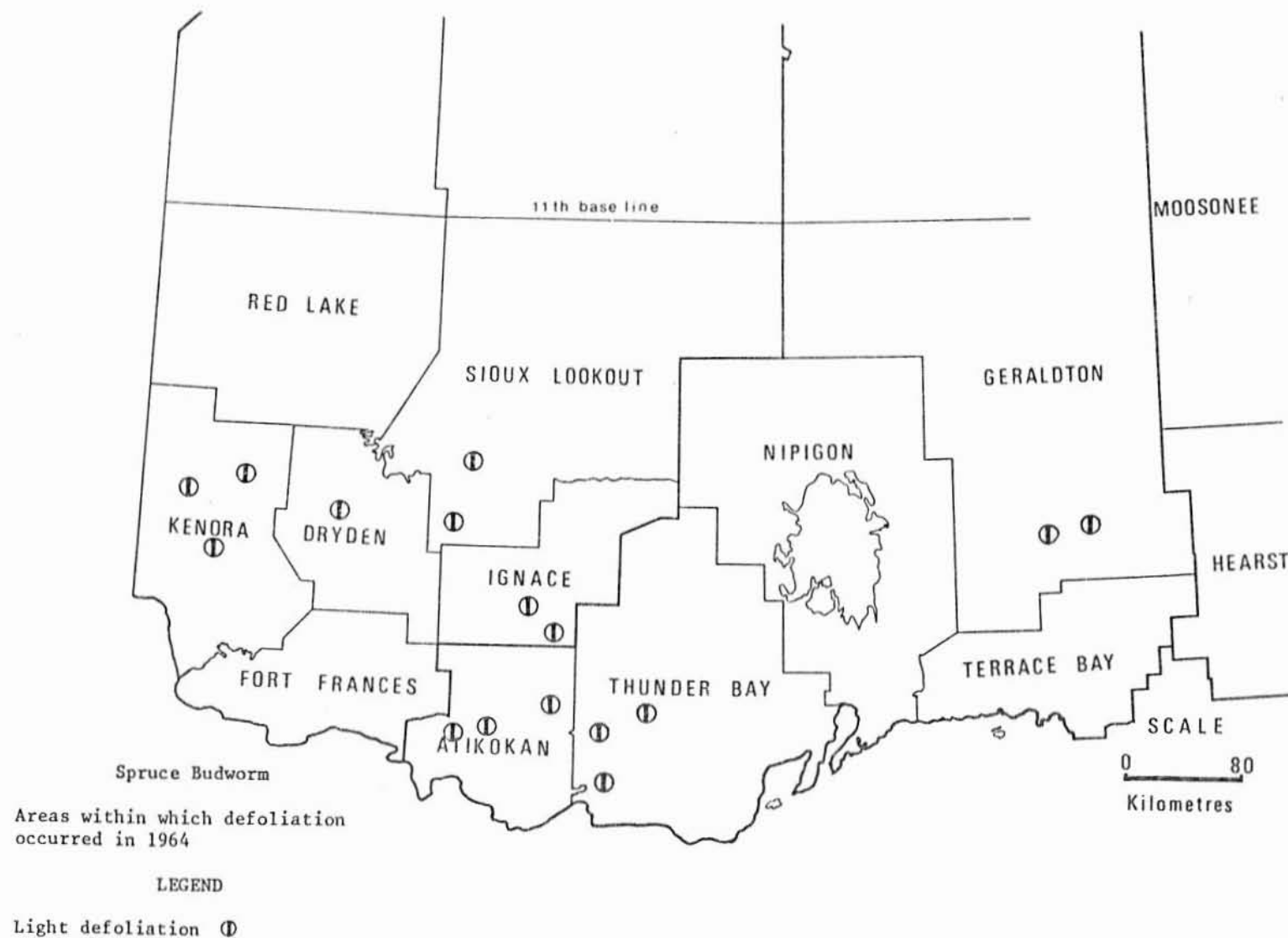
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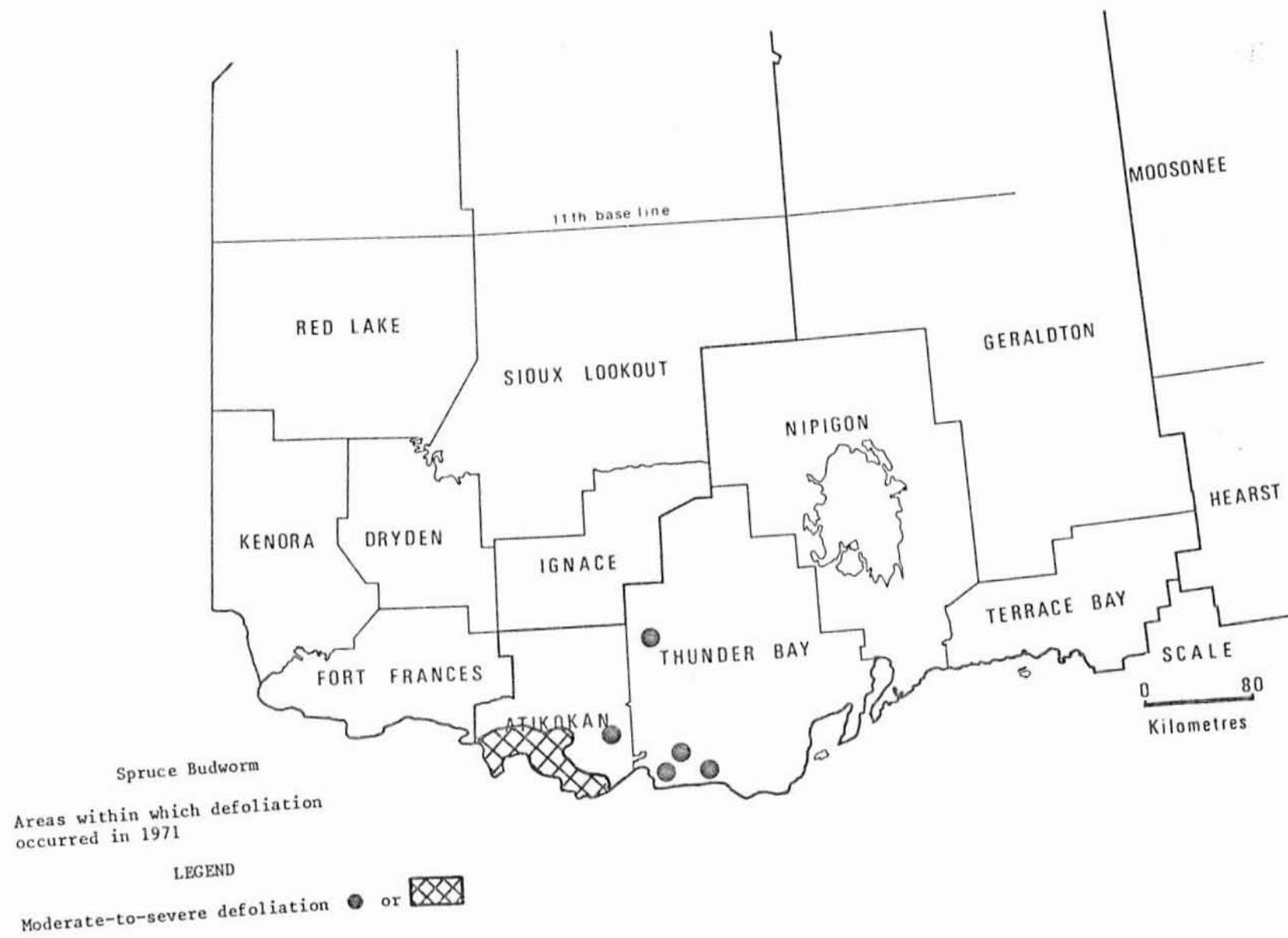
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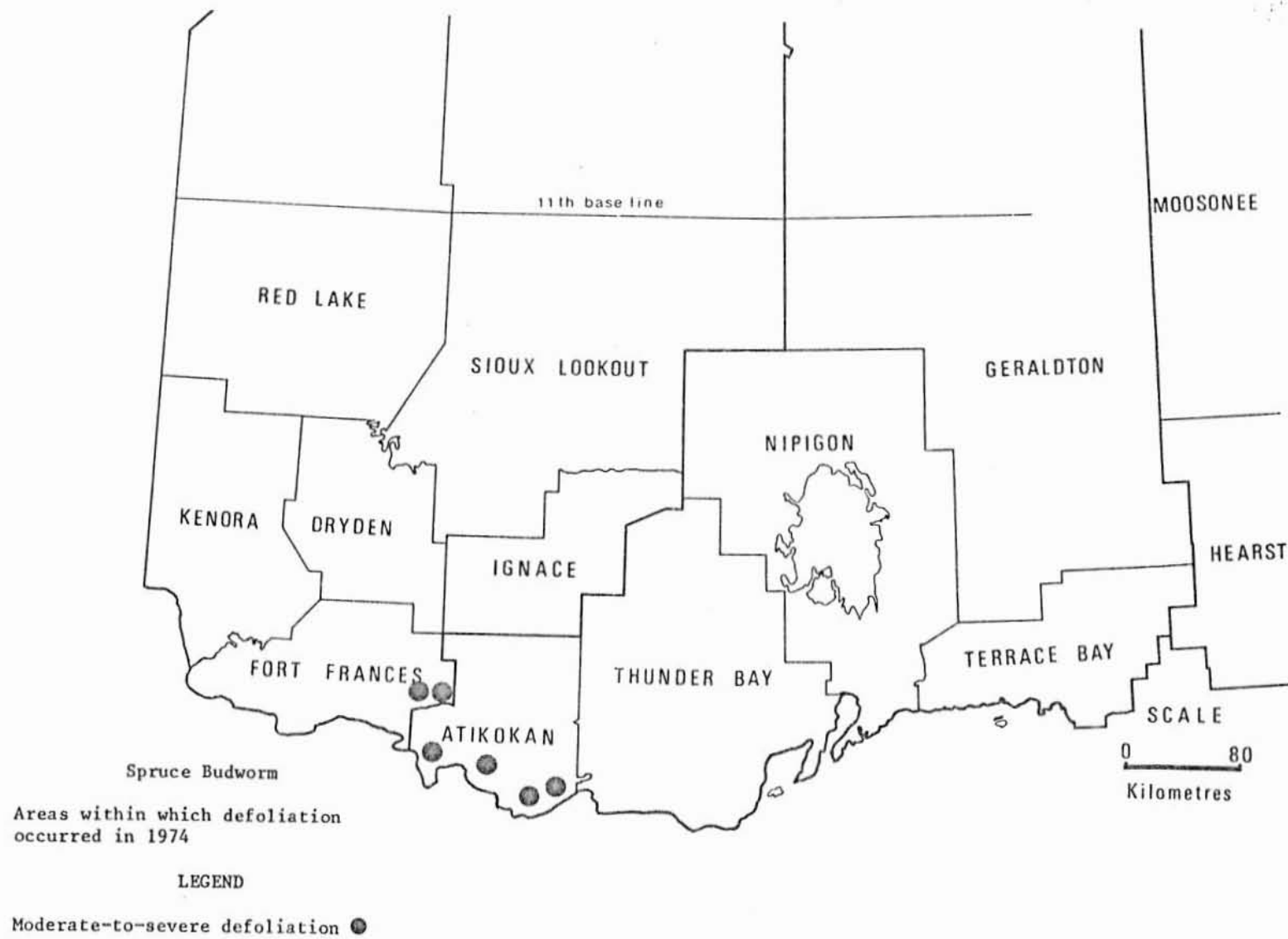
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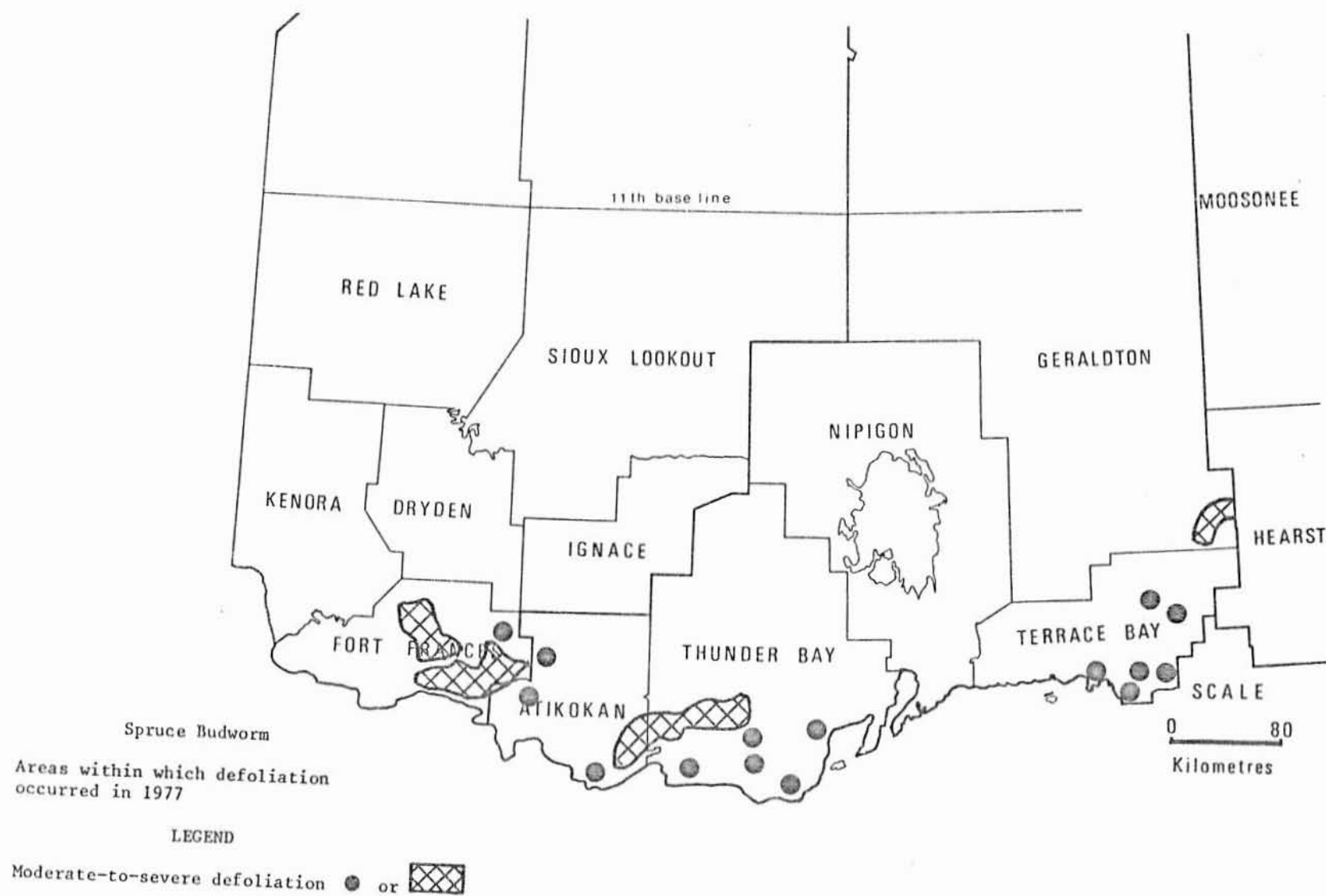
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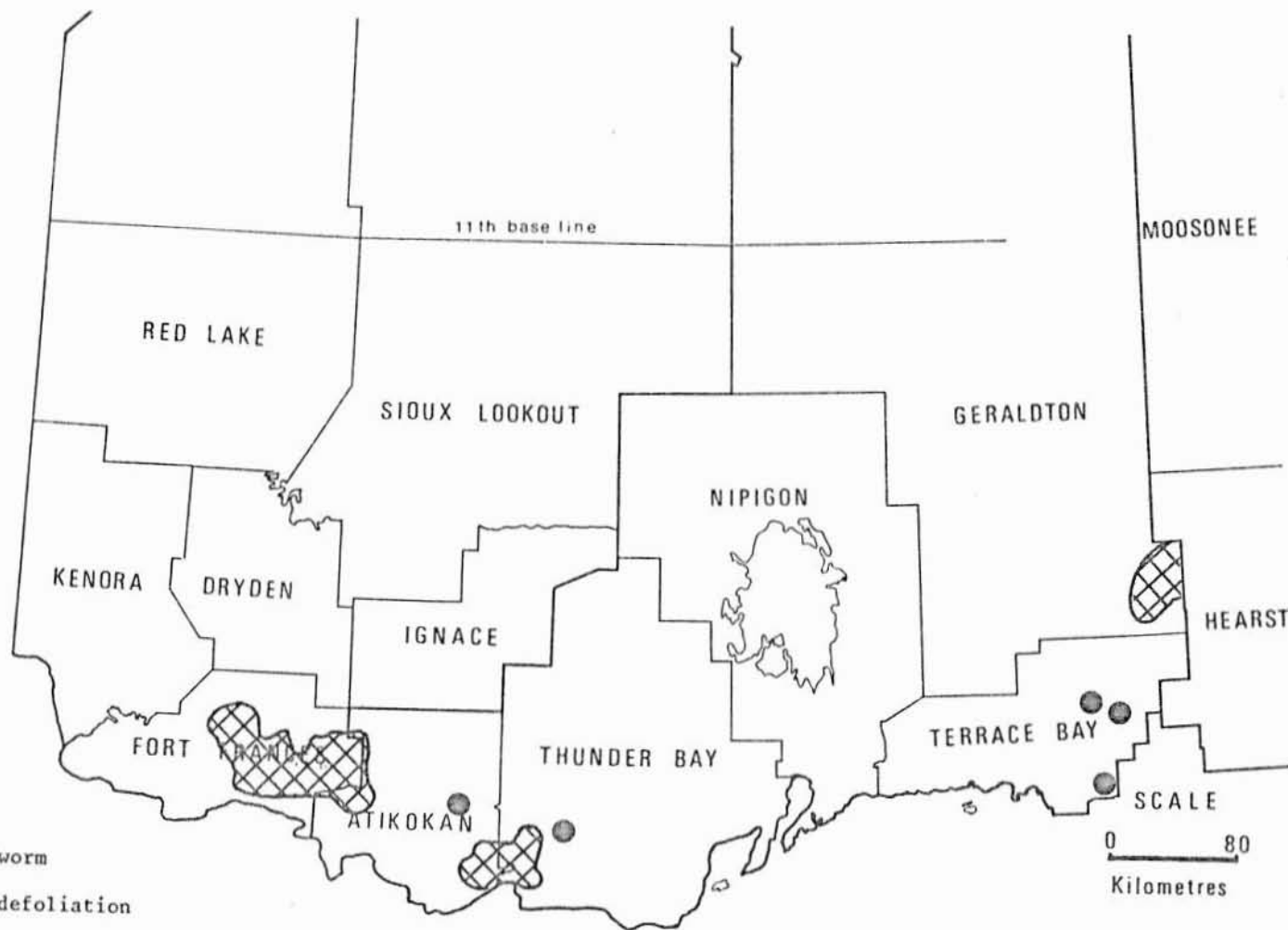
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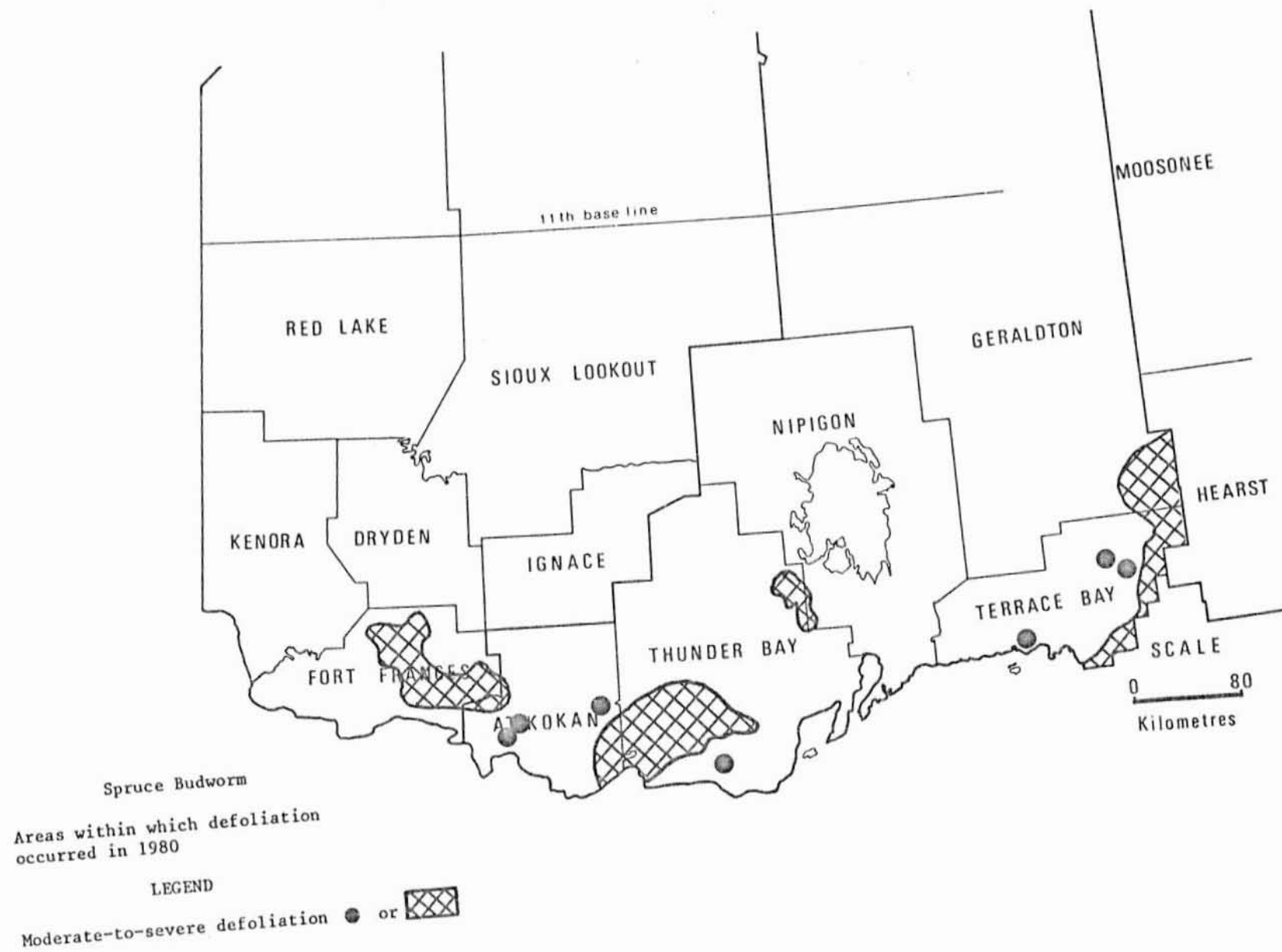
Spruce Budworm

Areas within which defoliation
occurred in 1979

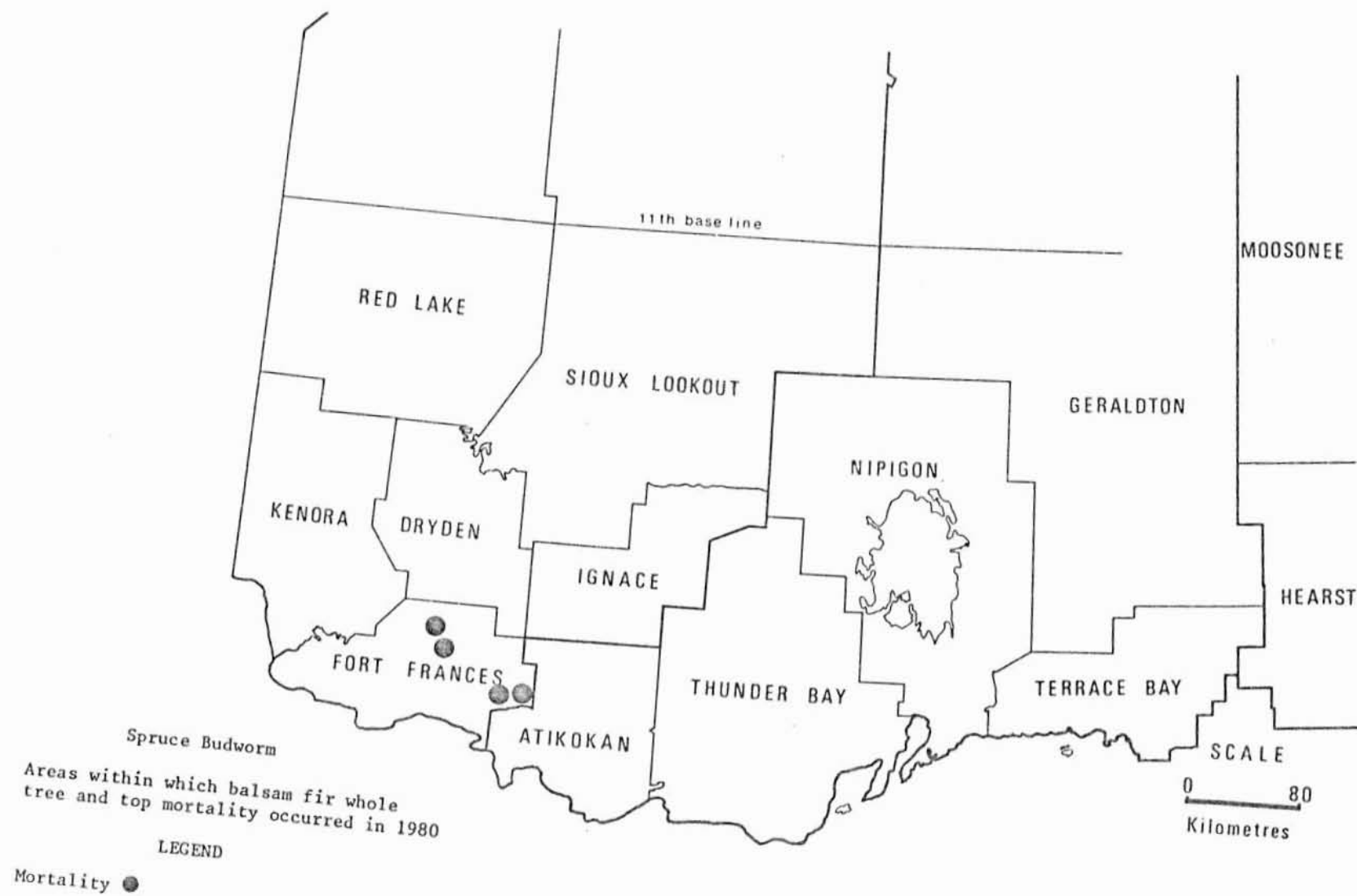
LEGEND

Moderate-to-severe defoliation ● or 

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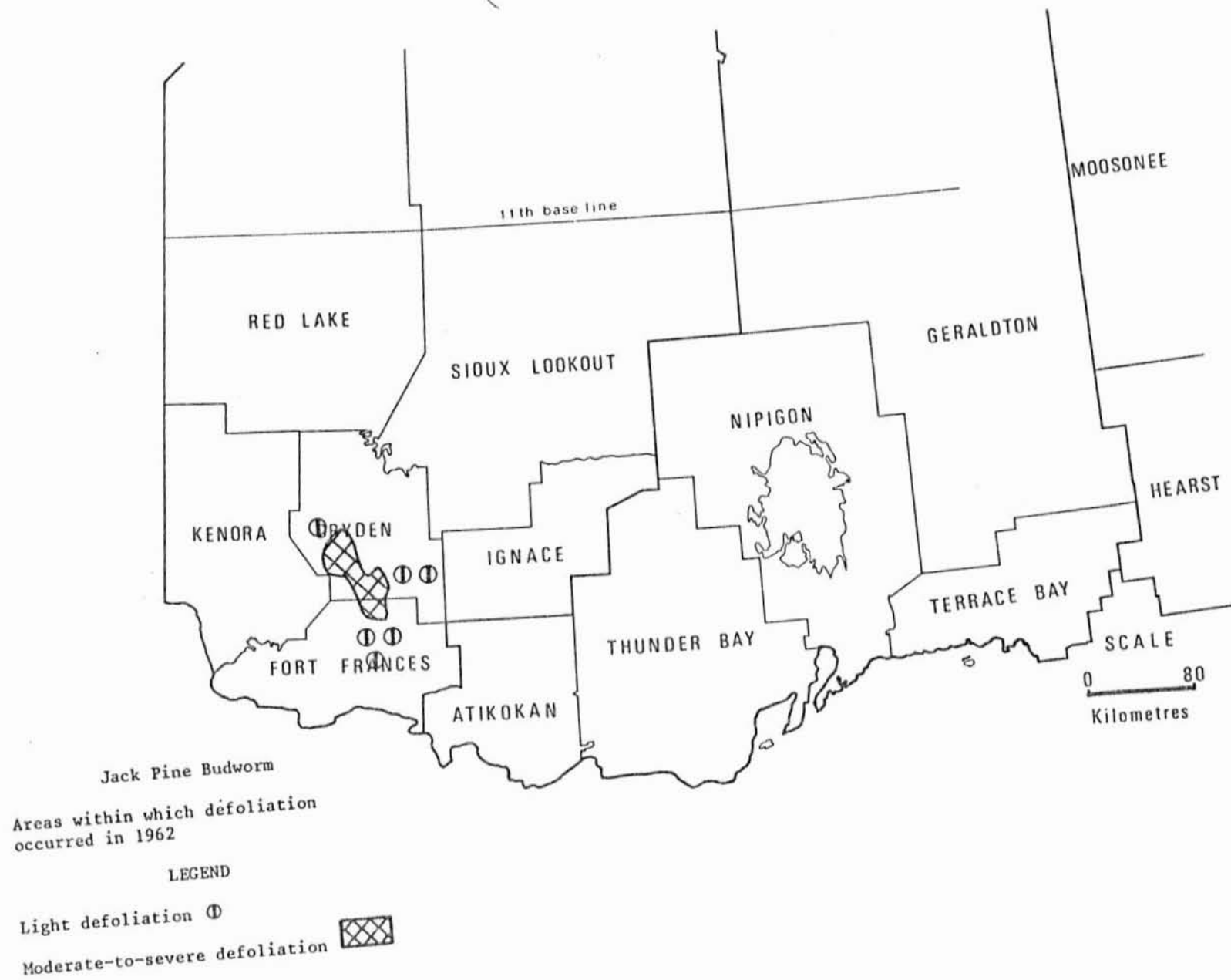
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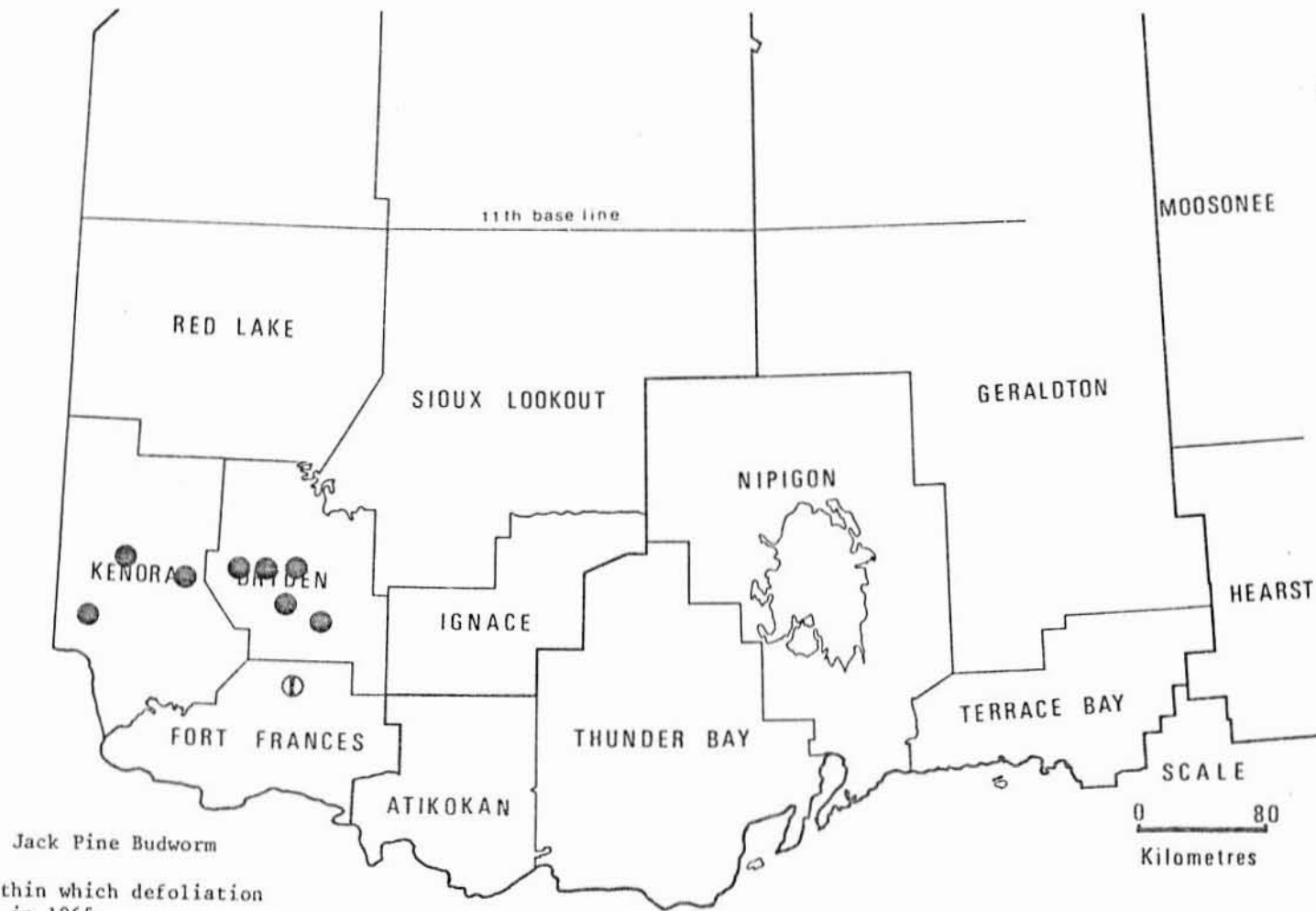
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LEGEND

Light defoliation ○

Moderate-to-severe defoliation ●

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Spearmarked Black Moth

Areas within which defoliation
occurred in 1962

LEGEND

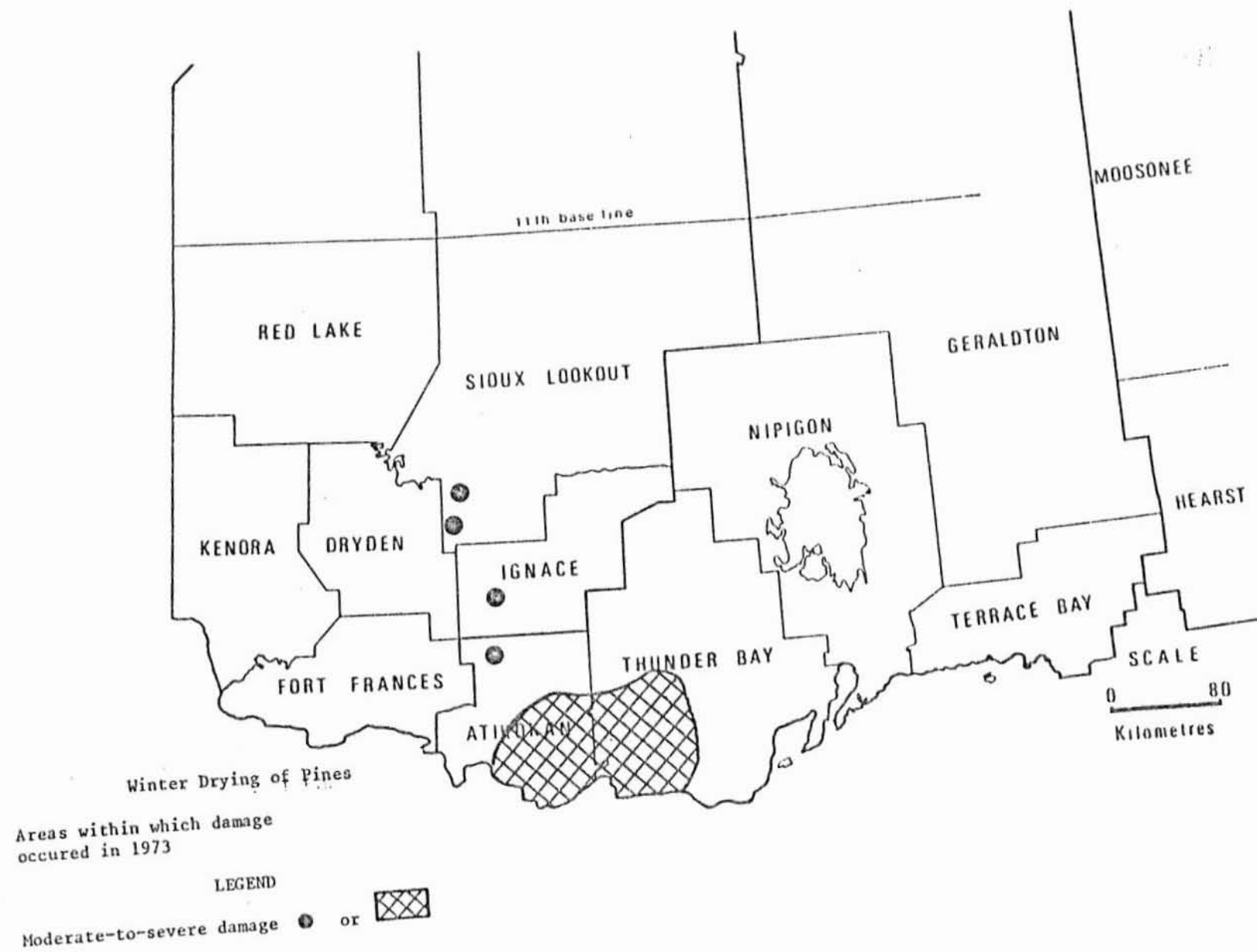
Light defoliation ①

Moderate-to-severe defoliation ● or 

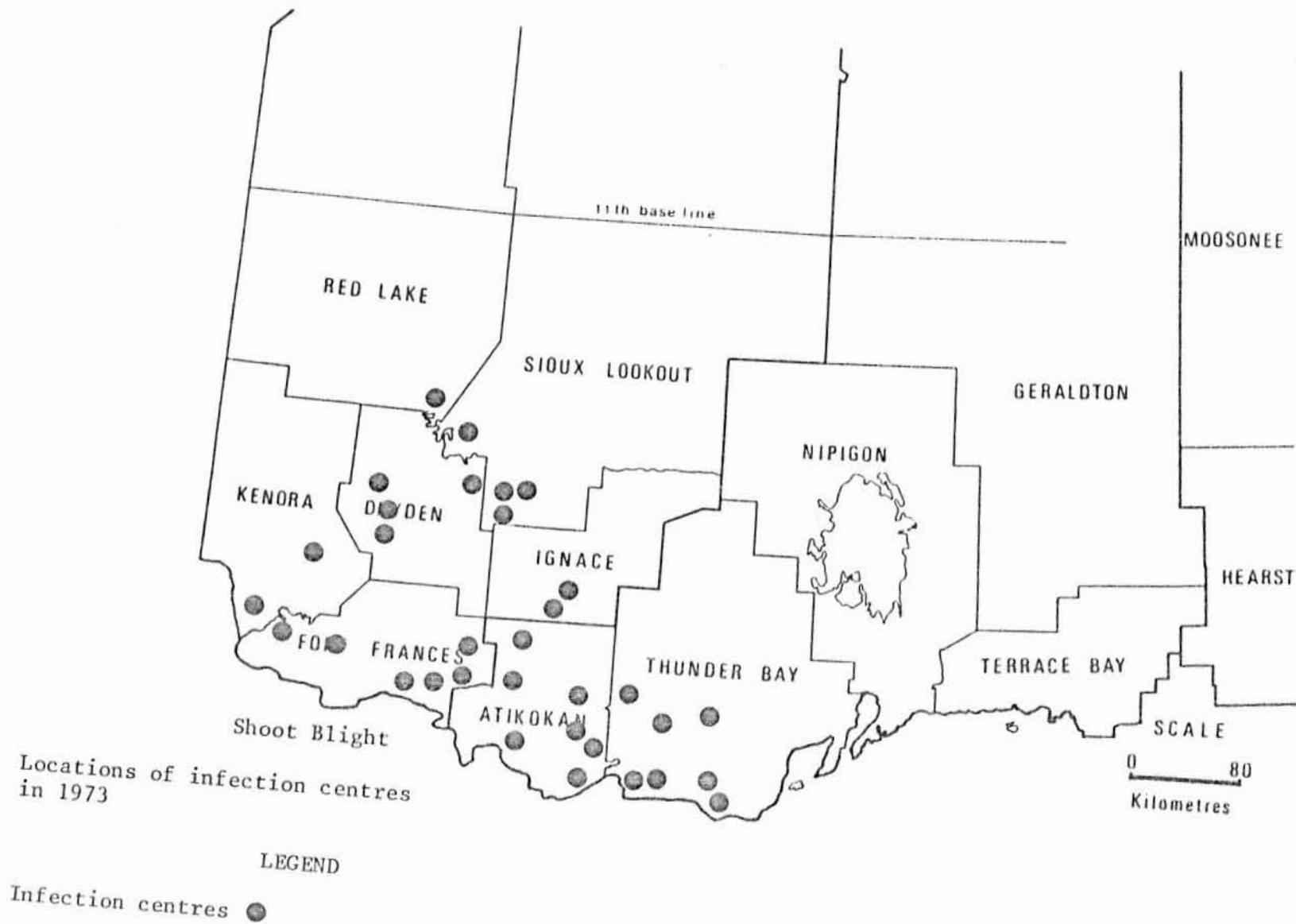
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Locations of infection centres
in 1973