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

Compiled by

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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 $\rm km^2$ = area (sq. mi.) x 2.59 = area $\rm km^2$]. 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 northeastern 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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We also wish to acknowledge the following authors of the FIDS district and regional reports from which this review was abstracted.

1950-1953 J. Belcher

1954-1956 J.F. Robinson

1957 F. A. Bricault

1958 F.A. Bricault, J. Hook

1959 D.F. Lynn

1960-1966 G.T. Atkinson

1967 F.F. Foreman

1968-1969 J. Baker

1970-1973 H.R. Foster, J. Hook

1974 L.S. MacLeod, F. Livesey, J. Hook

1975-1977 L.S. MacLeod, H.J. Evans, J. Hook

1978-1979 L.S. MacLeod, H.J. Evans, W.A. Ingram

1980 L.S. MacLeod, D.C. Constble, W.A. Ingram

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INTRODUCTION

This report is a review of significant forest insects and diseases that have occurred in the Kapuskasing District throughout the period 1950 to 1981, with a brief summary of outbreaks prior to 1950. In the selection of pests for this report particular attention was paid to the major working groups of host species in the area, namely hardwoods (birch, poplar) and conifers (jack, red and white pine, balsam fir, white and black spruce and larch). 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 tree damage, i.e., frost, wind and snow damage.

SUMMARY

FOREST INSECTS

Birch Skeletonizer, Bucculatrix canadensisella Cham. pages 9-13

[Major]

Defoliation by this insect seldom causes tree mortality of the host but the weakened trees are subject to attack by secondary insects and diseases and may be a predisposing factor in "birch decline". Severe defoliation was reported in 1954, 1964, 1965 and 1971. No severe defoliation was observed prior to 1953.

Large Aspen Tortrix, Choristoneura conflictana (Wlk.) [Major] pages 14-18

No tree mortality has been recorded as caused by this aspen defoliator, which affects primarily aspen and poplar. Severe defoliation was reported between 1972 and 1975. Low numbers were observed from 1956 to 1980.

Spruce Budworm, Choristoneura fumiferana (Clem.) [Major] pages 19-43

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 and tamarack are attacked and considerable tree mortality can occur. This report shows the decline of an infestation that was reported between 1947 and 1952, with lower populations prevailing until 1967 when the current infestation started. Tree mortality of balsam fir was first observed in 1975 and progressed to widespread tree mortality of balsam fir and white spruce in 1980.

Larch Casebearer, Coleophora laricella (Hbn.) page 44

[Major]

Populations of this insect have remained low in the District since it was first recorded in 1962.

Aspen Defoliators, Enargia decolor (Wlk.), Epinotia solandriana L., Gonioctena americana (Schaef.), and Pseudexentera oregonana Wlshm. [Major]

pages 45-47

No tree mortality has been recorded as caused by this complex of defoliators, which affects primarily aspen and poplar. Varying degrees of defoliation have been recorded since 1954.

Forest Tent Caterpillar, Malacosoma disstria Hbn. pages 48-60

[Major]

Outbreaks of this insect occurred between 1940 and 1944, in 1948, from 1948 to 1954, and from 1973 to 1980. Trembling aspen, the preferred host, is seldom killed in an outbreak but secondary insects and diseases can cause mortality in weakened trees.

Whitespotted Sawyer, Monochamus scutellatus (Say) pages 61-62

[Major]

The larvae of this insect feed in the skidway logs and the adults feed on the twigs of both black and white spruce and jack pine. Heavy damage to branch tips occurred in 1955, and from 1977 to 1980. Low populations have been observed periodically since 1956.

Pine Sawflies, Neodiprion compar (Leach), N. maurus Leach, [Major]
N. nanulus nanulus Schedl., N. nigroscutum (Midd.), N.
pratti banksianae Roh. and N. virginianus complex
pages 63-64

These sawflies are capable of causing mortality of semimature and plantation trees when populations are high. Varying degrees of defoliation have been recorded periodically since 1954, with severe defoliation being reported only in 1975.

Northern Pitch Twig Moth, Petrova albicapitana (Busck) pages 64-65

[Major]

Normally, high populations of this insect on twigs of trees cause only aesthetic damage but when high populations occur on leaders, tree height is reduced. High populations occurred only in 1967-1968. Low populations have prevailed since 1955.

Aspen Leafblotch Miner, Phyllonorycter ontario (Free.) pages 65-66

[Major]

Although this is not an extremely damaging insect, loss of increment during severe infestations is damaging to aspen stands. Varying degrees of infestation have prevailed in the District since 1950.

Yellowheaded Spruce Sawfly, Pikonema alaskensis (Roh.) pages 66-67

[Major]

This insect is a serious pest of open-growing trees, ornamentals, and also stands and plantations of young spruce. Although no large areas of mortality have occurred in the district, severe defoliation and single-tree mortality have occurred since 1950.

White Pine Weevil, *Pissodes strobi* (Peck) pages 67-68

[Major]

This weevil, by attacking the leaders of small spruce and pine trees, causes a reduction in height growth and after a few years of attack, "cabbaging" occurs. Varying degrees of infestation have occurred since 1950 and leader damage has varied from a reported low of 1% to a high of 64%.

Larch Sawfly, Pristiphora erichsonii (Htg.) pages 69-70

[Major]

Severe defoliation by this sawfly for 6 to 9 years can cause tree mortality. High populations were recorded during the periods 1954-1955, 1958-1959, and 1976-1977. Light-to-moderate defoliation has occurred periodically since 1950.

Mountain-ash Sawfly, Pristiphora geniculata (Htg.) page 70

[Major]

Although mountain—ash trees are not considered merchantable, a great number are utilized as shade trees and ornamentals in rural and urban areas. This insect can weaken trees when prolonged severe defoliation occurs and subsequent borer infestations can cause tree mortality. The insect was first observed in 1961 and has caused varying degrees of defoliation since then.

Ambermarked Birch Leafminer, Profenusa thomsoni (Konow) page 71

[Major]

Browning of foliage is usually restricted to individual shade trees, but when infestations build up, stands of birch trees are infested. Prolonged defoliation can weaken trees, which are then predisposed to disease and borer attacks. Severe infestations were present from 1958 to 1969. Lower populations have occurred periodically since 1956.

Other Noteworthy Insects pages 71-78

[Major and Minor]

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

FOREST DISEASES

Armillaria Root Rot, Armillaria mellea (Vahl: Fr.) Kummer [Major] page 81

This root rot is capable of killing both weakened and healthy trees and is a particularly serious pest in pine and spruce plantations that have been planted around old stumps. Light tree mortality occurred in a spruce plantation in 1972 and 1973. Light damage has been observed periodically since 1963.

Scleroderris Canker, Ascocalyx abietina (Lagerb.) Schläpfer-Bernhard pages 81-83 [Major]

This disease can cause mortality of young trees up to the age of 3 to 4 years. The pathogen was first reported in the District in 1966 and has fluctuated in intensity until the present.

Spruce Needle Rust, Chrysomyxa ledi (Alb. & Schwein.) de Bary [Major] and C. ledicola (Peck) Lagerh.
page 84

Severe infections of spruce foliage can cause a loss of increment in trees when prolonged infection occurs. Varying degrees of infection have occurred since 1954.

Ink Spot of Aspen, Ciborinia whetzelii (Seaver) Seaver [Major] pages 84-85

No tree mortality caused by this disease has been recorded. Severe infections have been reported in 1958, 1959, 1965, 1970, 1973 and 1974.

Sweet Fern Blister Rust, Cronartium comptoniae Arthur pages 85-86

[Major]

Only light infections were reported in 1958, 1971 and 1979.

White Pine Blister Rust, Cronartium ribicola J.C. Fischer [Major] page 86

Very low levels of infection were reported from 1963 to 1965 and from 1971 to 1973. Moderate levels were reported in 1978 and 1979.

Jack Pine Needle Cast, Davisomycella ampla (J. Davis) Darker [Major] page 86-87

This disease can cause severe defoliation when incidence is high. Severe infection levels were reported in 1980. The disease was not reported prior to 1960.

Western Gall Rust, Endocronartium harknessii (J.P. Moore) [Major] page 87

Low levels of infection were reported in 1970, 1973-1974, 1979 and 1980. High levels were reported in 1975 and 1976.

Hypoxylon Canker, Hypoxylon mammatum (Wahlenb.) J. Miller [Major] page 88

This disease usually attacks the stems of immature trees between 7.6 to 12.7 cm in diameter growing on poor sites, but also attacks upper stems and branches of larger trees. The disease has been common in aspen stands in varying degrees since the inception of the Forest Disease Survey in 1953.

Larch-poplar Rust, Melampsora medusae Thüm. page 88

[Major]

This disease does not cause damage to trees except for a loss of increment when infection is high. Low levels of infection were recorded between 1963 and 1966.

Shoot Blight, Venturia macularis (Fr.) E. Müller and v. Arx [Major] page 89

Reduced stocking of reproduction aspen occurs when the incidence of this disease is high. High incidence was reported in 1963 and 1964 and again in 1976 at separate locations. This disease was not reported in the District before 1963.

ABIOTIC DAMAGE

page 93-94

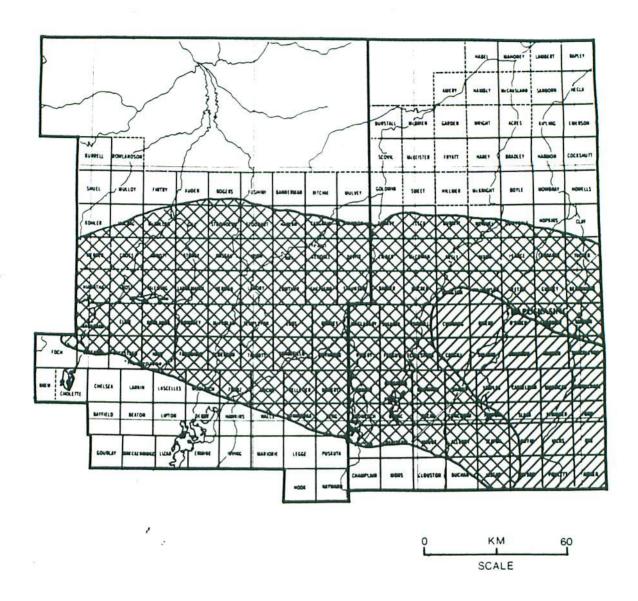
This condition is caused by a variety of influences, e.g., frost, wind and hail.

INSECTS

Birch Skeletonizer, Bucculatrix canadensisella Cham.

Host(s): wB [Major	.]
--------------------	----

Year	Remarks
1950-1953	not reported
1954	Moderate-to-severe defoliation in the southern and eastern parts of the District
1955	decline to low levels
1956-1962	not reported
1963	low populations in Macvicar Twp
1964	Moderate-to-severe defoliation, with large areas of light defoliation in the southern part of the District (see map, page 10).
1965	Moderate-to-severe defoliation in Opasatika, Ecclestone, Usnac, O'Brien, Nansen and Fauquier twps; light defoliation at other locations
1966	Infestations declined.
1967	very light populations
1968	light populations in O'Brien and Seaton twps
1969-1970	not reported
1971	Moderate-to-severe defoliation occurred in the south- western part of the District (see map, page 11).
1972	light populations in Fauquier Twp (see map, page 12).
1973	A slight increase in populations occurred south of Kapus- kasing (see map, page 13).
1974-1980	not reported



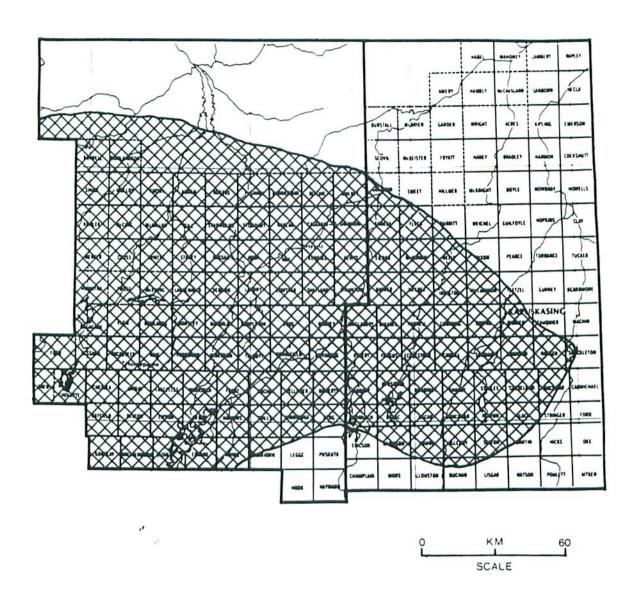
BIRCH SKELETONIZER

Areas within which defoliation occurred in 1964

LEGEND

Light defoliation Moderate-to-severe defoliation



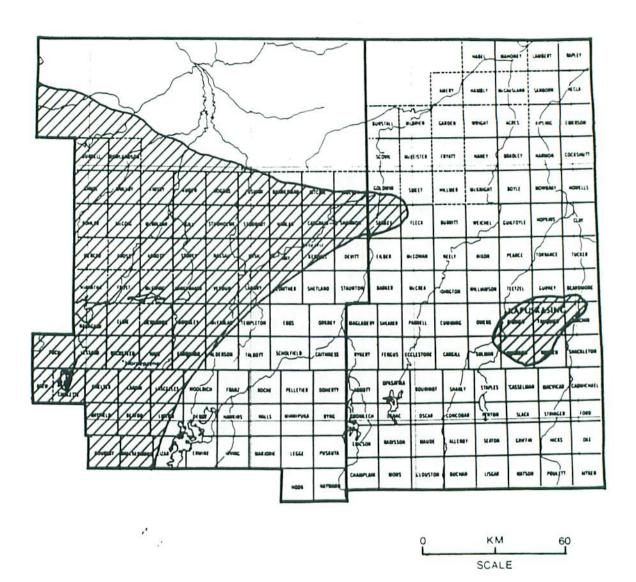


BIRCH SKELETONIZER

Areas within which defoliation occurred in 1971

LEGEND



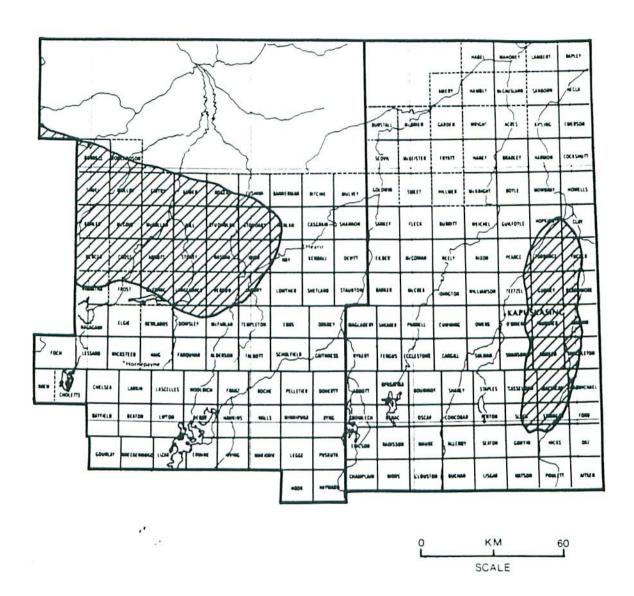


BIRCH SKELETONIZER

Areas within which defoliation occurred in 1972

LEGEND

Light defoliation



BIRCH SKELETONIZER

Areas within which defoliation occurred in 1973

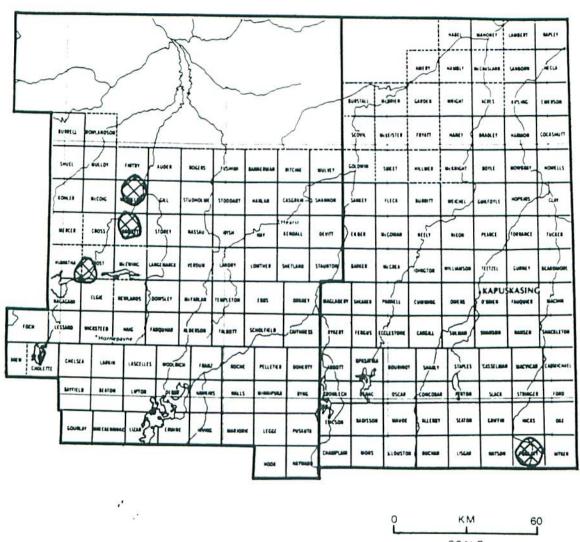
LEGEND

Light defoliation

Large Aspen Tortrix, Choristoneura conflictana (Wlk.)

1978-1980 not reported

Host(s): asp	en [Major]
Year	Remarks
1950-1955	not reported
1956	low populations general in the District
1957-1966	not reported
1967	low populations in Fergus and Shearer twps
1968-1970	not reported
1971	low populations in Poulett Twp (see map, page 15)
1972	moderate-to-severe defoliation in the southern part of the District (see map, page 16).
1973	There was a decline in the area infested. Pockets of moderate-to-severe defoliation persisted in the southern part of the District (see map, page 17).
1974	three pockets of moderate-to-severe defoliation, one in the north and two in the southeastern part of the District (see map, page 18).
1975	severe defoliation occurred in the central part of the District. Pseudexentera oregonana Clem. was found in conjunction with the tortrix.
1976	There were very low numbers in the District; P . oregonana was the principal defoliator in the area of defoliation.
1977	There were very low numbers; defoliation by P . oregonana was moderate to severe.



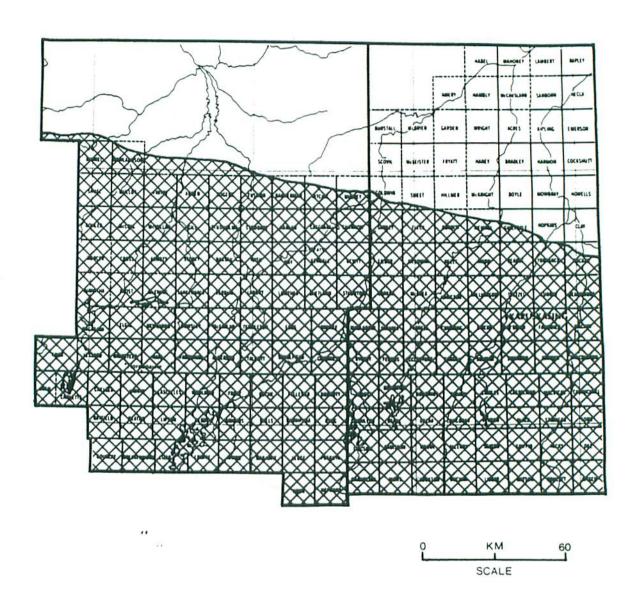
SCALE

LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1971

LEGEND



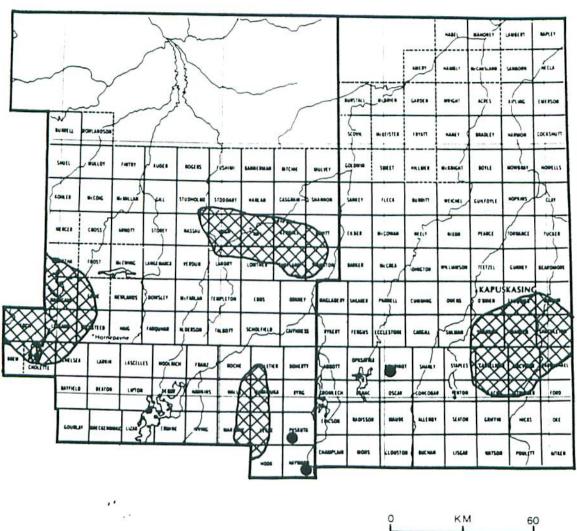


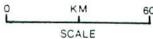
LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1972

LEGEND



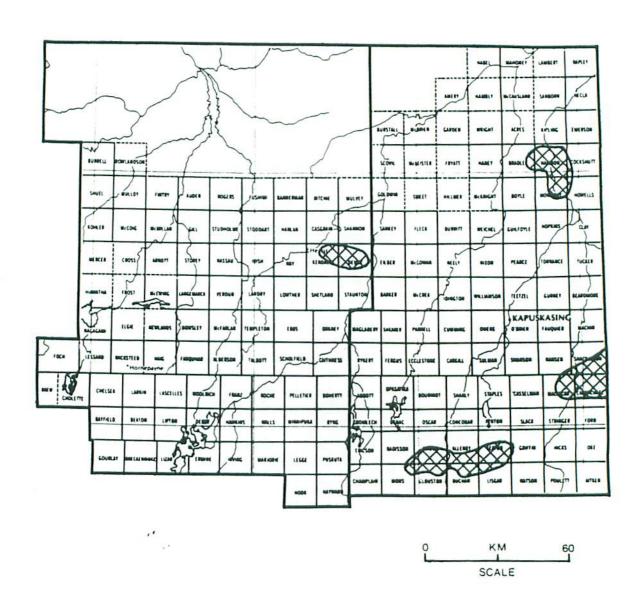




LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1973

LEGEND



LARGE ASPEN TORTRIX

Areas with which defoliation occurred in 1974

LEGEND



Spruce Budworm, Choristoneura fumiferana (Clem.)

Host(s): wS, bF, bS,

[Major]

Year	Remarks
1950	decline in populations; moderate-to-severe defoliation in the area bounded by Clay Twp on the north, Ford Twp on the south, Sulman Twp on the west and the Cochrane District border on the east; light defoliation in the south (see map, page 21); balsam fir tree mortality recorded in the eastern part of the District (see map, page 22).
1951	A further decline occurred. Pockets of moderate-to-severe defoliation were observed in Fauquier, Gurney, Shackleton, Macvicar and Carmichael twps; there was light defoliation in other townships in the southern part of the District (see map, page 23)
1952	pockets of light infestation observed in the southern part of the district (see map, page 24); little change in tree mortality
1953	An increase in moderate-to-severe defoliation occurred in Carmichael and Seaton twps (see map, page 25). There was little change in mortality.
1954	moderate-to-severe defoliation in Carmichael, Shackleton, and Ford twps (see map, page 26)
1955	A decline to light intensity occurred along the Cochrane-Kapuskasing district border.
1956-1961	not reported
1962-1965	low populations in Gurney Twp
1966	not reported
1967	light defoliation in Torrance Twp
1968	light defoliation in Champlain, Mons, Buchan, Lisgar, Watson, Bourinot, Fergus, Parnell and Harmon twps.
1969	Moderate-to-severe defoliation in Champlain, Mons, Buchan, Lisgar and Watson twps.
1970	Severe defoliation persisted in the above townships (see map, page 27).

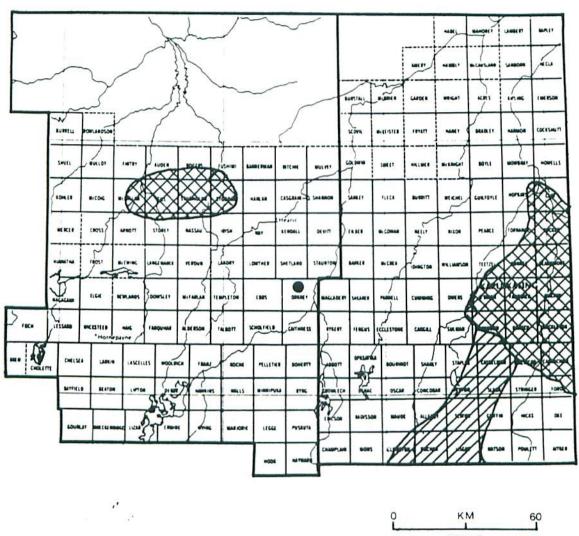
Spruce Budworm, Choristoneura fumiferana (Clem.) (concl.)

Host(s):	wS,	bF, bS, tL [Major]
Year		Remarks
1971		Moderate-to-severe defoliation occurred in the southern part of the District (see map, page 28).
1972		Moderate-to-severe defoliation; little change in infestation boundaries (see map, page 29).
1973		pockets of moderate-to-severe defoliation in Opasatika, Mons, Abbott and Cromlech twps (see map, page 30).
1974		A northward spread occurred (see map, page 31).
1975		Infestation boundaries expanded east and north (see map, page 32). Balsam fir tree mortality occurred in Champlain and Mons twps (see map, page 33).
1976		a further extension in northern and eastern boundaries (see map, page 34); increases in tree mortality (see map, page 35).
1977		Infestation increases of up to 64 km occurred in the District (see map, page 36). There was increased tree mortality (see map, page 37).
1978		Almost the entire District had moderate-to-severe defoliation (see map, page 38). There was little change in tree mortality (see map, page 39).
1979		Infestations were found in most susceptible stands in the district (see map, page 40). Infestations were also observed along most watersheds that flow north. Tree mortality increased (see map, page 41).

little change in populations (see map, page 42); increases in tree mortality (see map, page 43); a total of

146 ha of valuable trees sprayed with Cygon.

1980



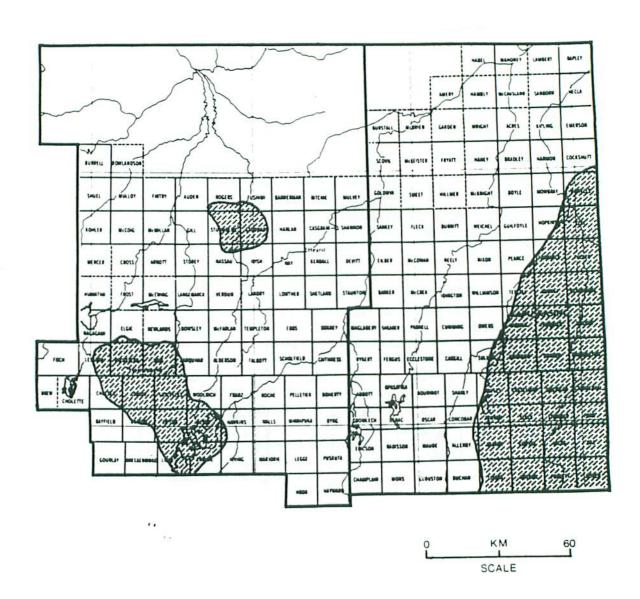
SCALE

SPRUCE BUDWORM

Areas within which defoliation occurred in 1950

LEGEND

Light defoliation Moderate-to-severe defoliation o

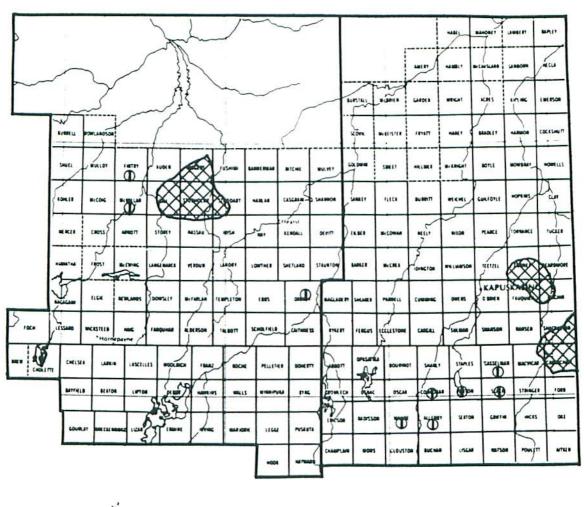


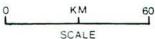
SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1950

LEGEND

Mortality William





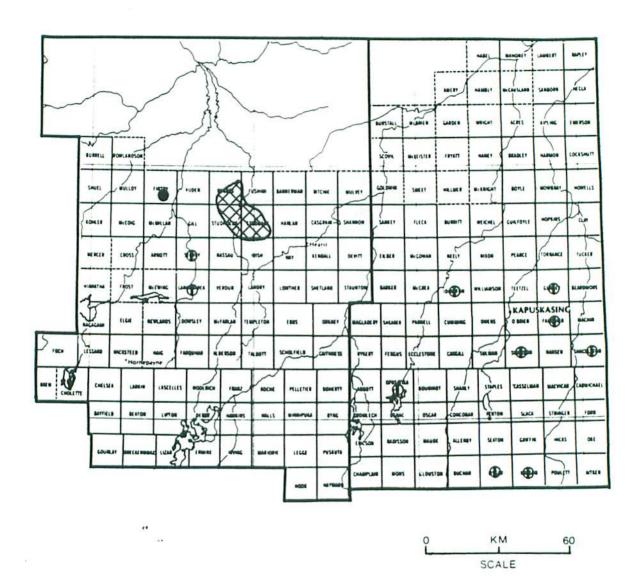
SPRUCE BUDWORM

Areas within which defoliation occurred in 1951

LEGEND

Light defoliation ① Moderate-to-severe defoliation





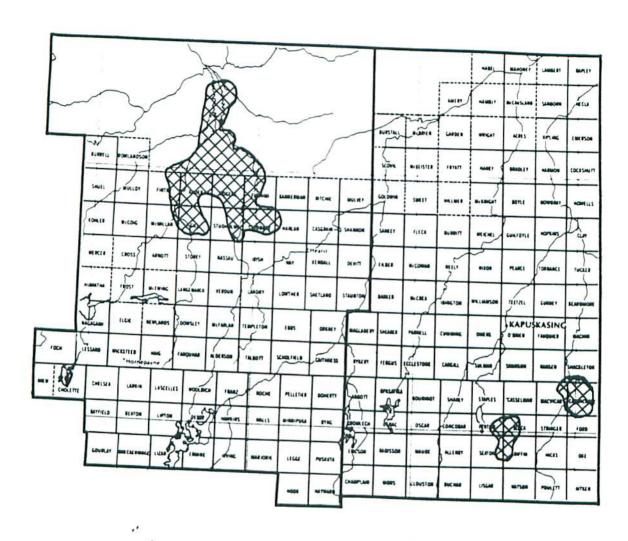
SPRUCE BUDWORM

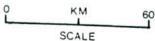
Areas within which defoliation occurred in 1952

LEGEND

Light defoliation ①





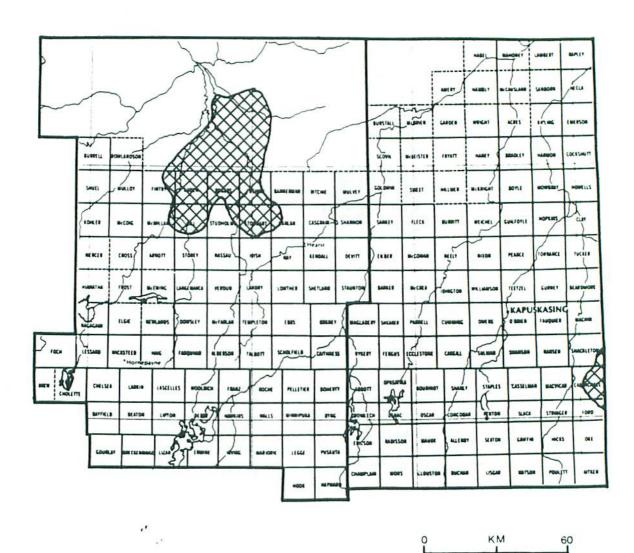


SPRUCE BUDWORM

Areas within which defoliation occurred in 1953

LEGEND



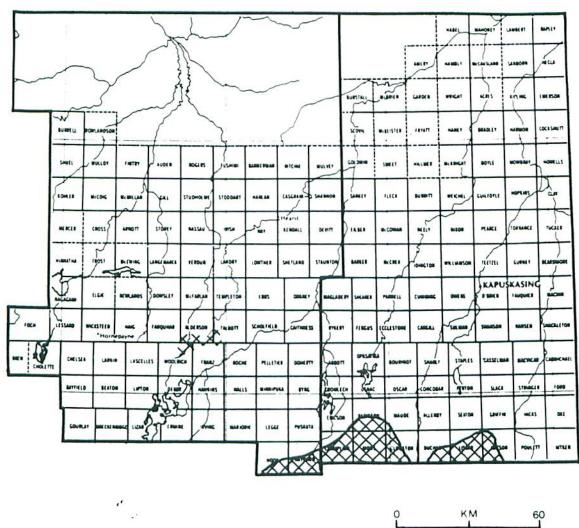


SPRUCE BUDWORM

Areas within which defoliation occurred in 1954

LEGEND





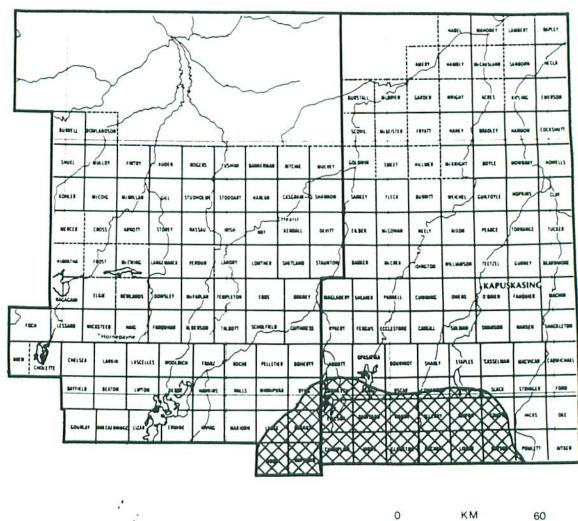
SCALE

SPRUCE BUDWORM

Areas within which defoliation occurred in 1970

LEGEND





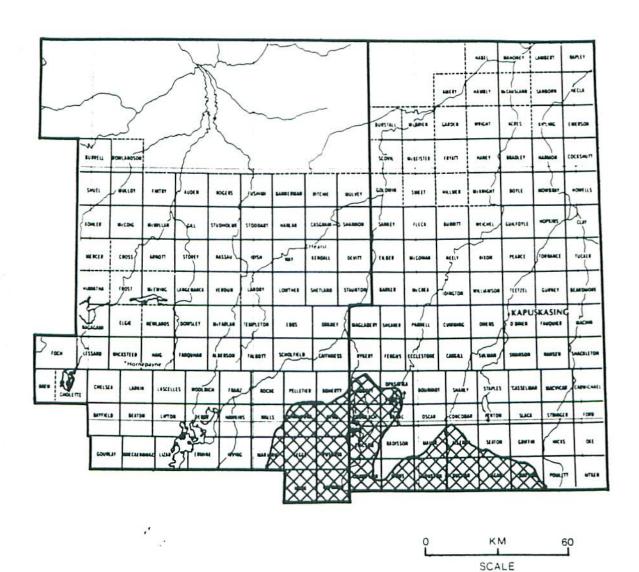
60 SCALE

SPRUCE BUDWORM

Areas within which defoliation occurred in 1971

LEGEND



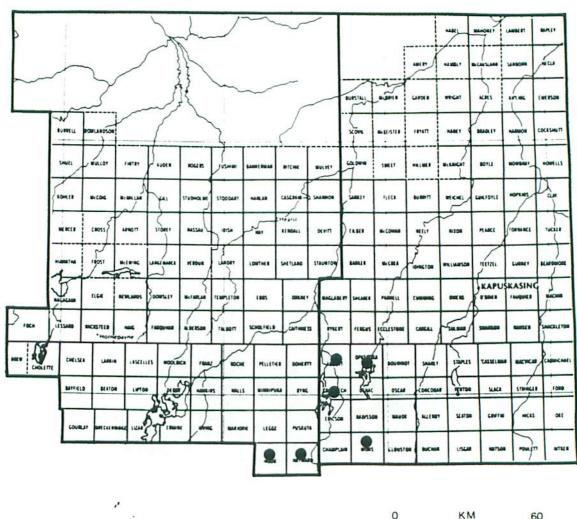


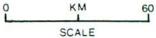
SPRUCE BUDWORM

Areas within which defoliation occurred in 1972

LEGEND





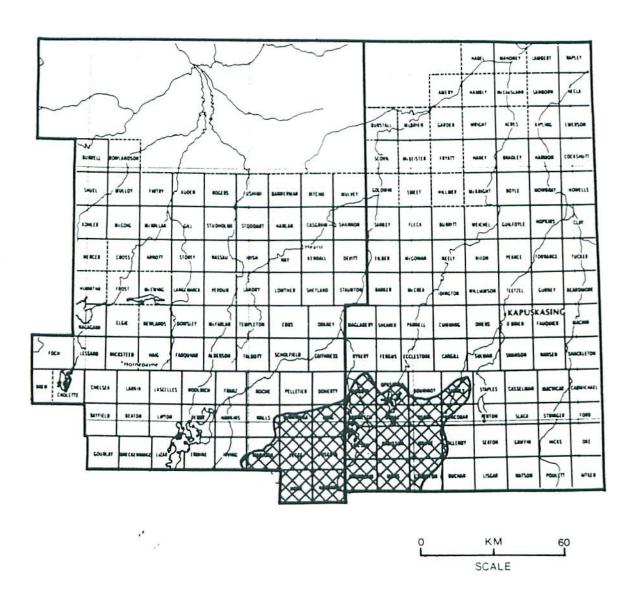


SPRUCE BUDWORM

Areas within which defoliation occurred in 1973

LEGEND



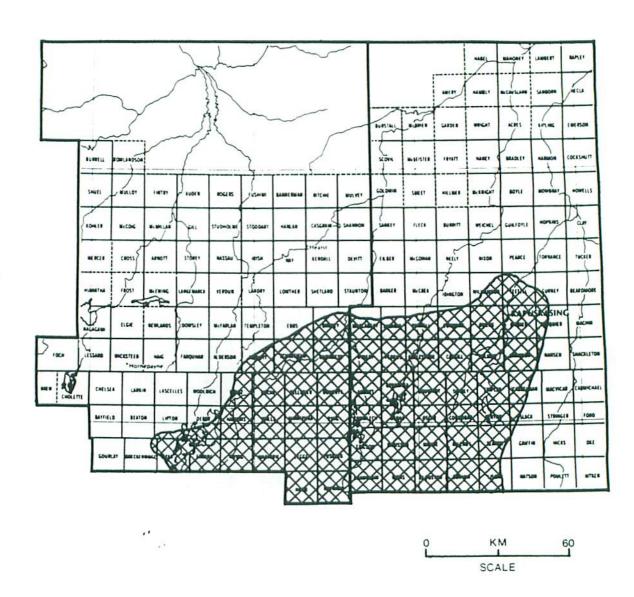


SPRUCE BUDWORM

Areas within which defoliation occurred in 1974

LEGEND



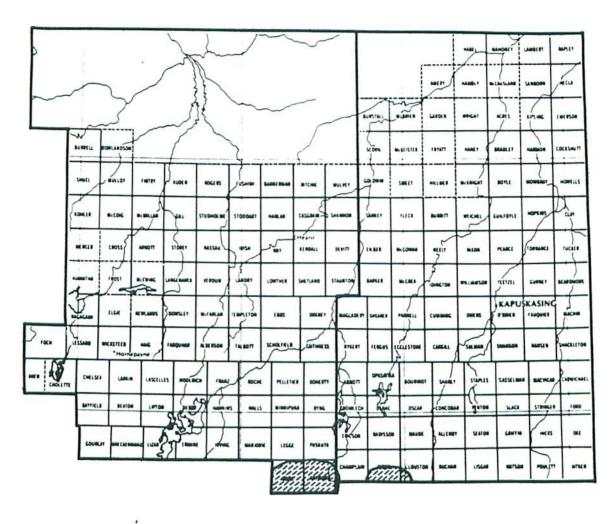


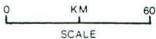
SPRUCE BUDWORM

Areas within which defoliation occurred in 1975

LEGEND



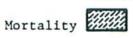


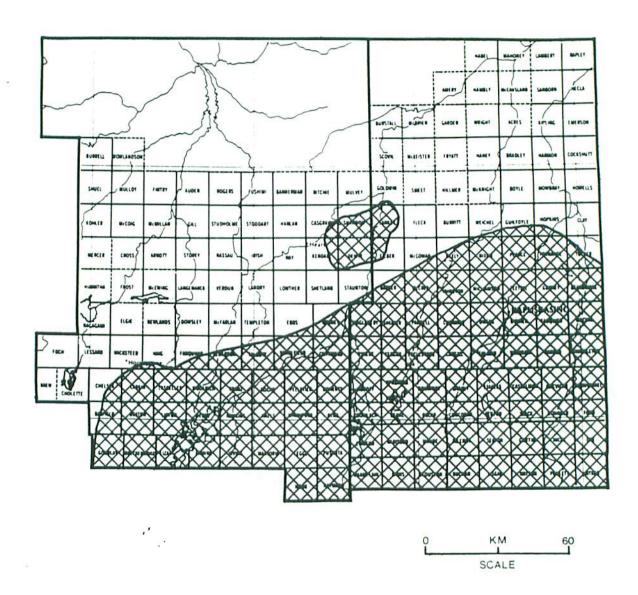


SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1975

LEGEND



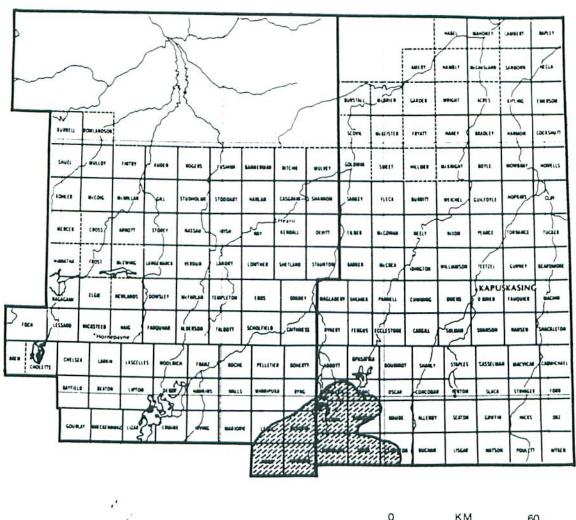


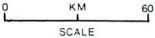
SPRUCE BUDWORM

Areas within which defoliation occurred in 1976

LEGEND







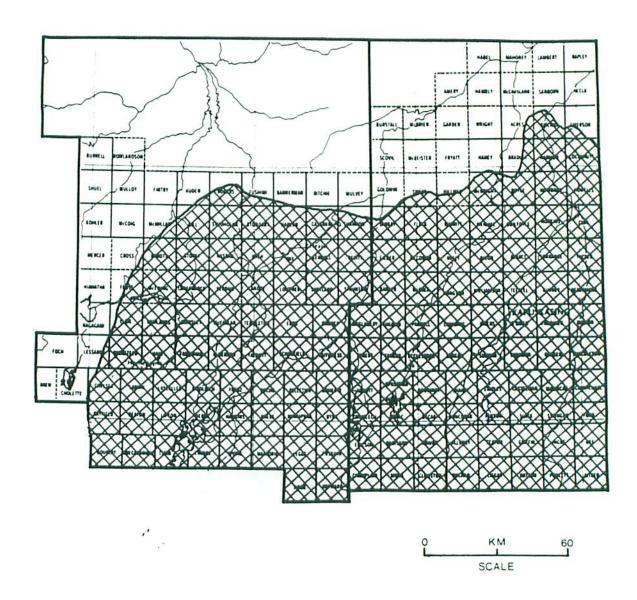
SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1976

LEGEND

Mortality



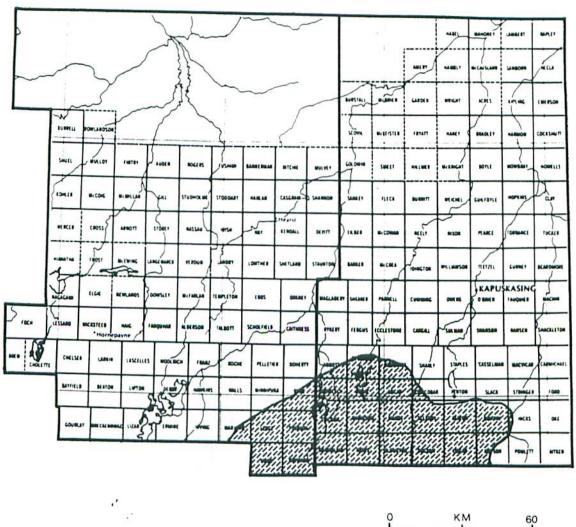


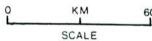
SPRUCE BUDWORM

Areas within which defoliation occurred in 1977

LEGEND





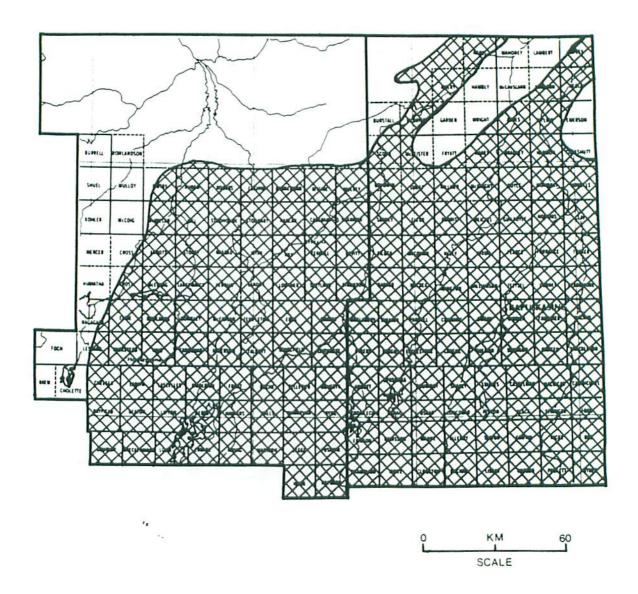


SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1977

LEGEND

Mortality

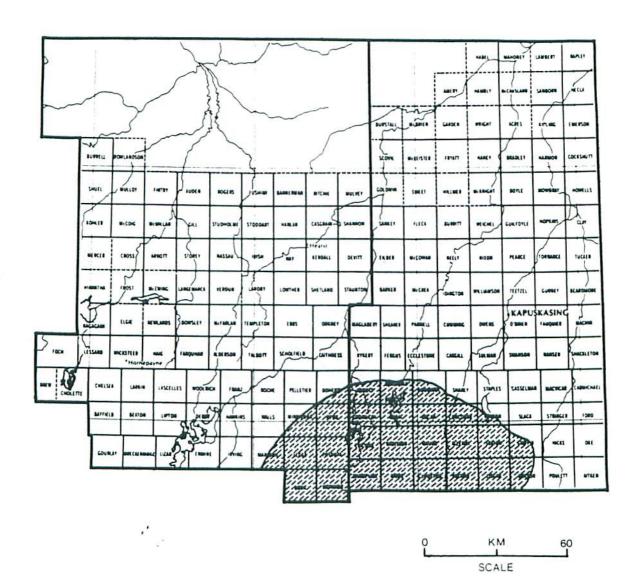


SPRUCE BUDWORM

Areas within which defoliation occurred in 1978

LEGEND

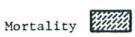


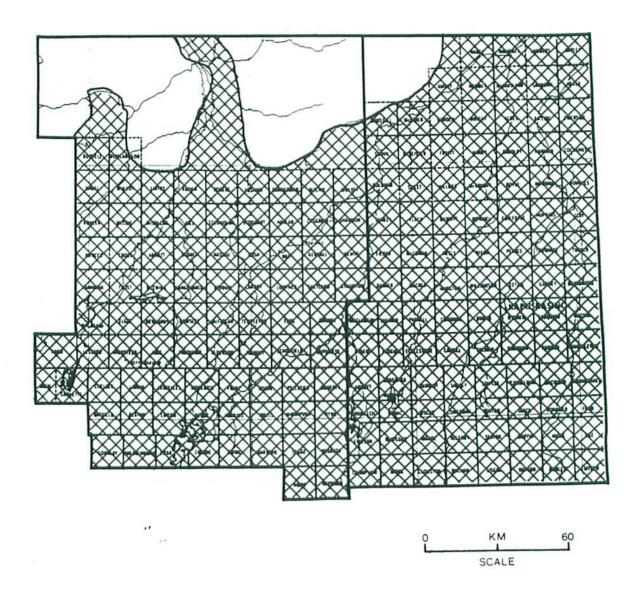


SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1978

LEGEND



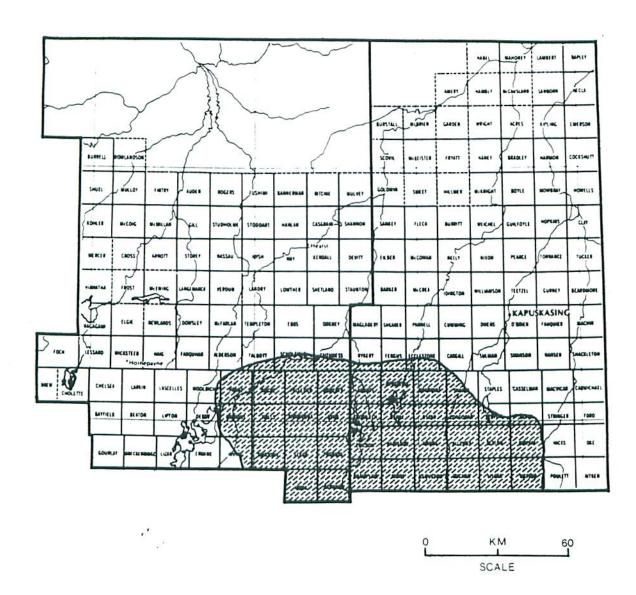


SPRUCE BUDWORM

Areas within which defoliation occurred in 1979

LEGEND

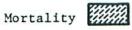


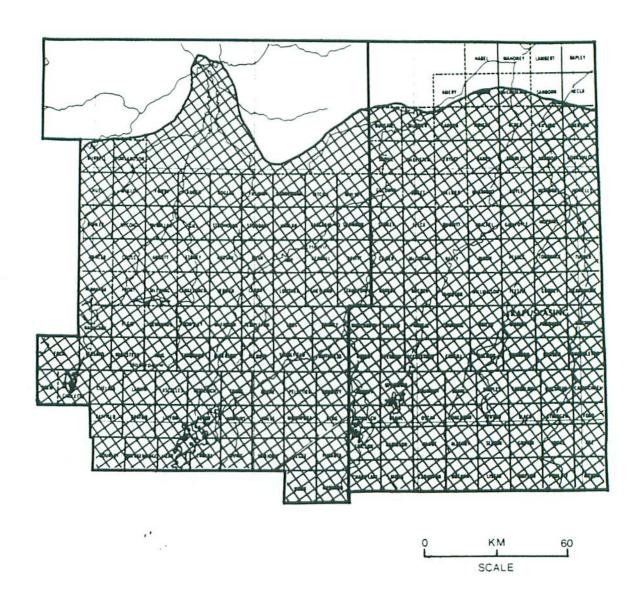


SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1979

LEGEND



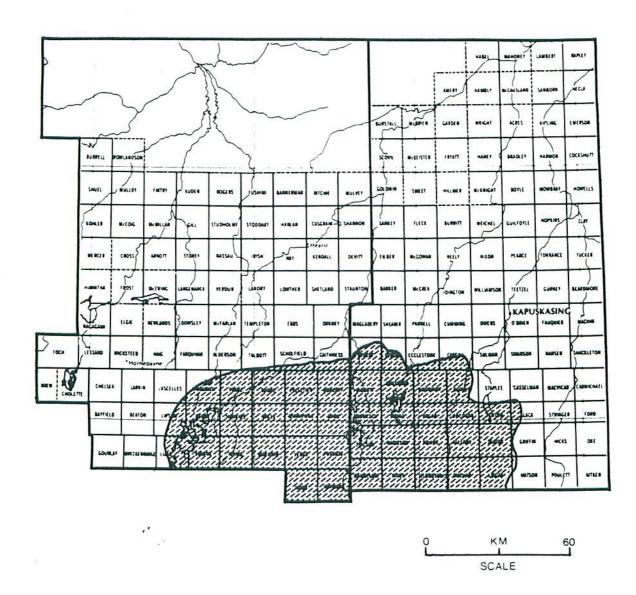


SPRUCE BUDWORM

Areas within which defoliation occurred in 1980

LEGEND





SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1980

LEGEND

Mortality ///



Larch Casebearer, Coleophora laricella (Hbn.)

Host(s): larch

[Major]

Year	Remarks
1950-1961	not reported
1962	very low populations in Fauquier Twp; first distribution record in the District
1963-1968	low populations in O'Brien and Fauquier twps
1969	not reported
1970	low populations in Fauquier Twp
1971-1975	moderate populations in Fauquier Twp
1976	decline to low populations in Fauquier Twp
1977-1980	light populations in Fauquier Twp

Aspen Defoliators, Enargia decolor (Wlk.), Epinotia solandriana L., Gonioctena americana (Schaef.) and Pseudexentera oregonana Wlshm.

Host(s):	aspen	[Major]
Year		Remarks
1950-1953		not reported
1954	G. americana	common on regeneration
1955	G. americana	moderate-to-severe defoliation in Nansen Twp
1956-1958	G. americana	low populations
1959	G. americana	light defoliation in Fauquier, Machin and Nansen twps
	E. solandriana	light defoliation in Fauquier, O'Brien and Dowsley twps
1960	G. americana	light defoliation in Machin, Fauquier and Shackleton twps
	E. decolor	light in Gurney, Casselman and Parnell
	E. solandriana	light in Fauquier Twp
1961	E. decolor	light infestations in Casselman and Shearer twps
	E. solandriana	low populations
1962	, E. decolor	light infestations in Casselman, Shearer, O'Brien, Fauquier and Machin twps
	E. solandriana	low populations
1963	E. decolor	decline to light
	E. solandriana	low populations
1964	E. solandriana	low populations
1965	P. oregonana	moderate-to-severe defoliation in the southeastern part of the District (see map, page 47).

Aspen Defoliators, Enargia decolor (Wlk.), Epinotia solandriana Linn.,

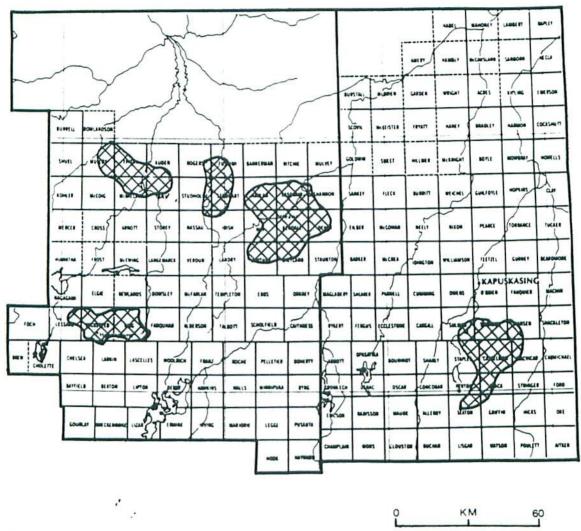
Gonioctena americana (Schaef.) and Pseudexentera

oregonana Wlshm. (concl.)

Host(s):	aspen	[Major]
Year		Remarks
1966	G. americana	low populations
	P. oregonana	decline in populations
1967	E. decolor	low populations
	P. oregonana	low populations in Eilber Twp
1968	E. solandriana	low populations in Shearer Twp
	P. oregonana	low populations in Parnell Twp
1969-1972		not reported
1973	G. americana	low populations
1974	G. americana	light defoliation in Buchan Twp
1975	P. oregonana	severe defoliation along Gurney Road
1976	P. oregonana	severe defoliation along Gurney Road
1977	G. americana	severe defoliation in Fauquier Twp.
	P. oregonana	severe defoliation in Fauquier and Gurney twps
1978		not reported
1979	G. americana	severe defoliation at numerous locations

not reported

1980



SCALE

ASPEN LEAFROLLER (P. oregonana)

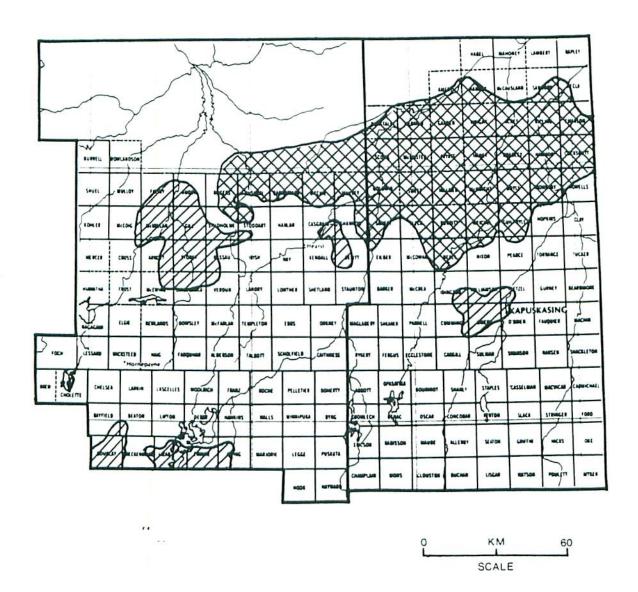
Areas within which defoliation occurred in 1965

LEGEND



Forest Tent Caterpillar, Malacosoma disstria Hbn.

Host(s):	aspen, deciduous [Major]
Year	Remarks
1950	Moderate-to-severe defoliation across the northern part of the District with pockets of light defoliation in the south (see map, page 49).
1951	moderate-to-severe defoliation in the northern part of the District, with smaller pockets in the central part (see map, page 50).
1952	Moderate-to-severe defoliation in the western part of the District, with three smaller pockets along the eastern boundary (see map, page 51).
1953	An increase in infestation occurred, with moderate-to-severe defoliation in most of the District (see map, page 52).
1954	a dramatic decline in infestation; moderate-to-severe defoliation in several twps in the southeastern portion, and in Ericson, Radisson, Maude and Allenby twps in the southwestern portion (see map, page 53)
1955	a further decline in infestation; only a few larvae observed (see map, page 54).
1956-1972	not reported
1973	light defoliation in Fauquier Twp
1974	three pockets of light defoliation in Fauquier, Kipling and Rapley twps (see map, page 55).
1975	a dramatic increase; moderate-to-severe defoliation in the northern part of the District (see map, page 56).
1976	a further increase in defoliation (see map, page 57).
1977	Moderate-to-severe defoliation over a large area (see map, page 58).
1978	a further spread southward (see map, page 59).
1979	a major decline in infestation; numerous pockets of moderate-to-severe defoliation (see map, page 60).
1980	There was a further decline. A pocket of infestation persisted in approximately 81 ha in Shackleton Twp.



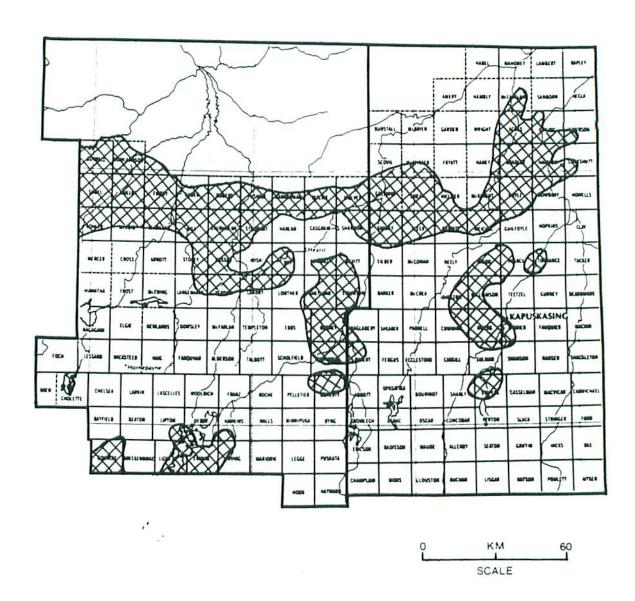
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1950

LEGEND

Light defoliation Moderate-to-severe defoliation



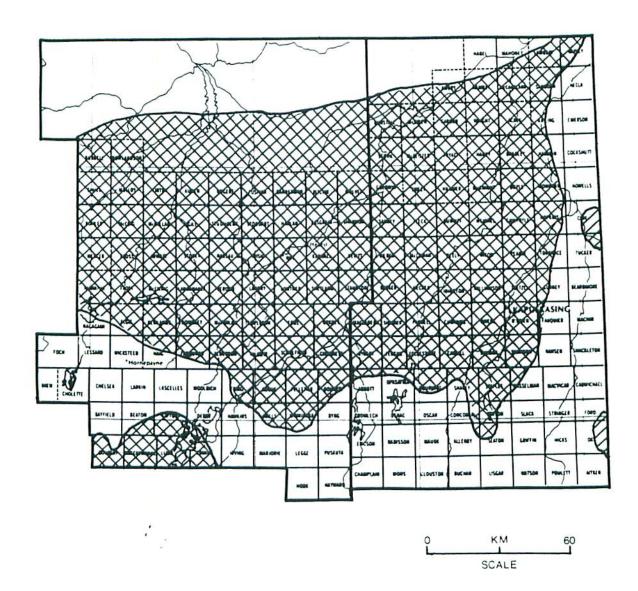


FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1951

LEGEND





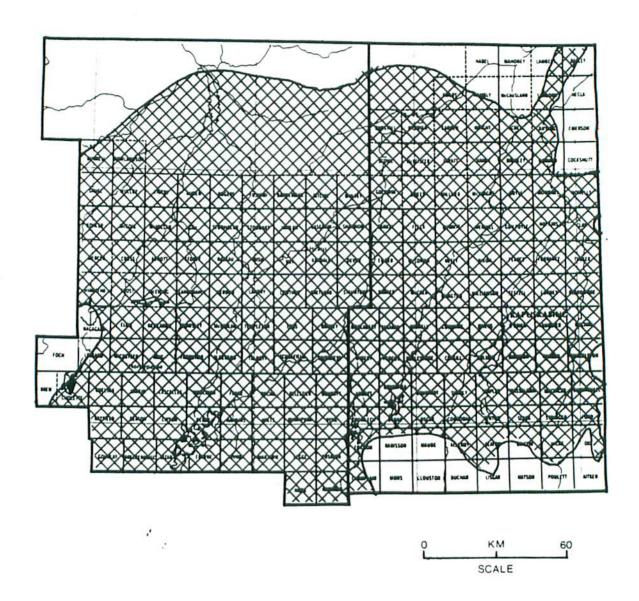
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1952

LEGEND

Light defoliation

Moderate-to-severe defoliation



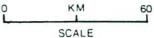
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1953

LEGEND





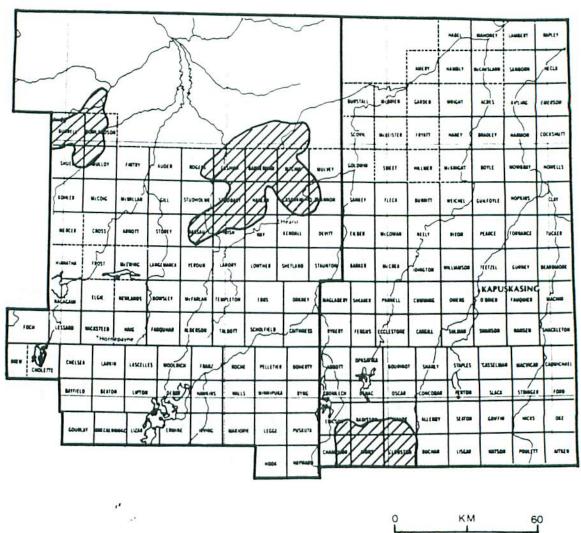


FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1954

LEGEND





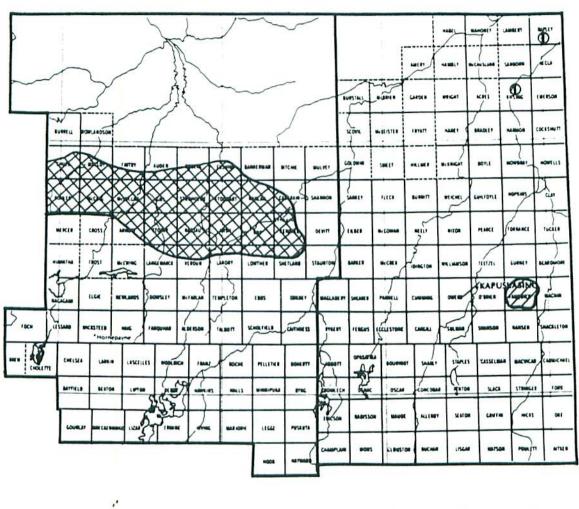
SCALE

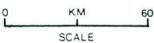
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1955

LEGEND

Light defoliation



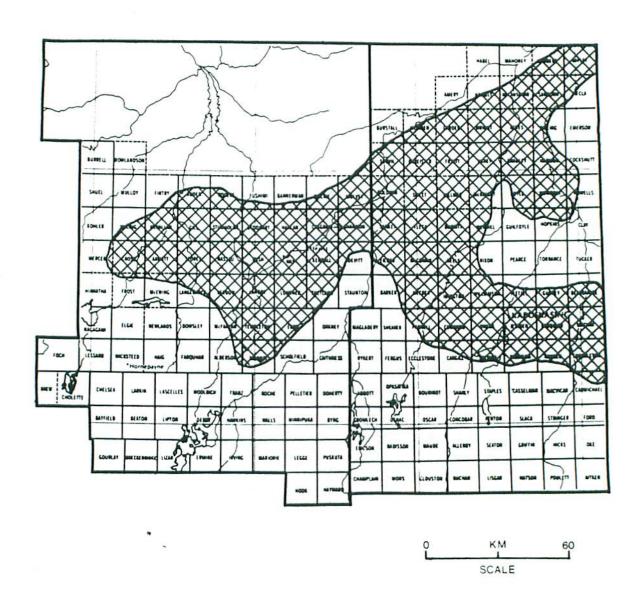


FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1974

LEGEND

Light defoliation or Φ Moderate-to-severe defoliation

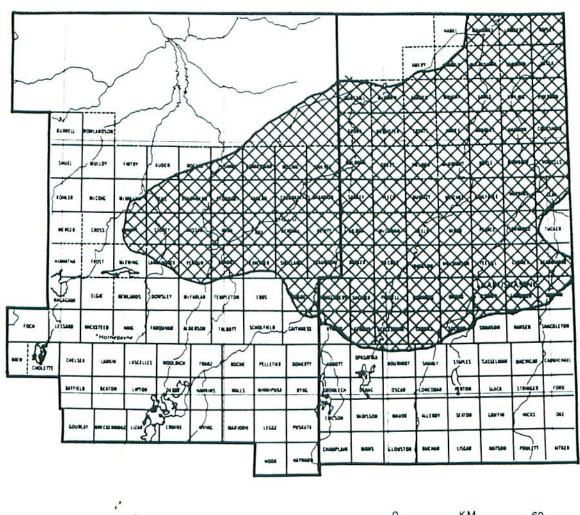


FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1975

LEGEND





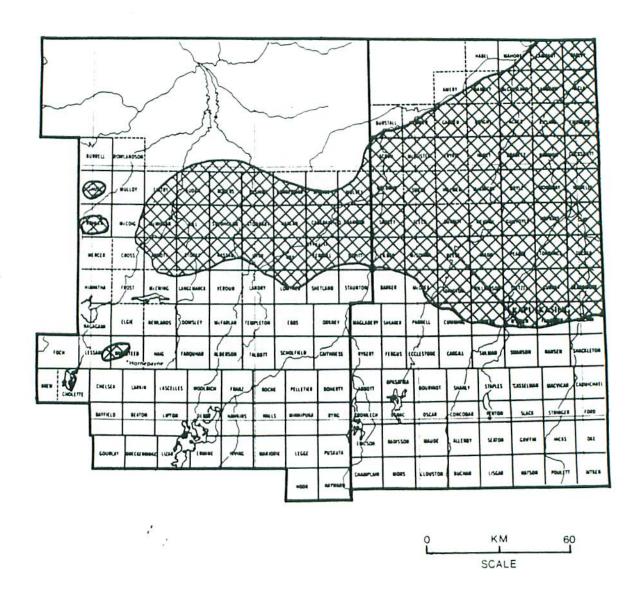
SCALE

FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1976

LEGEND



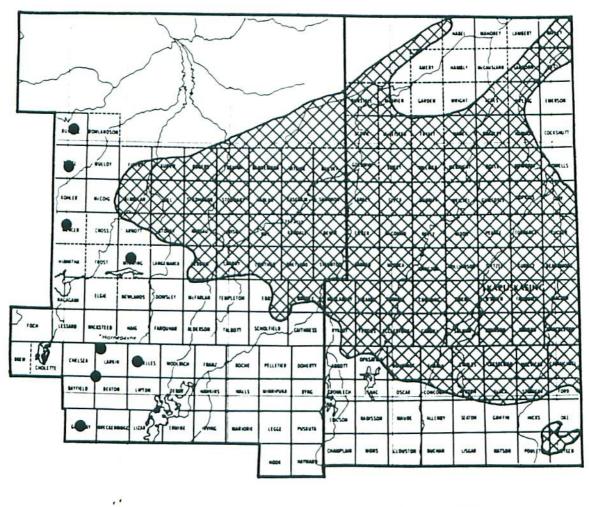


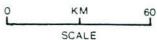
FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1977

LEGEND







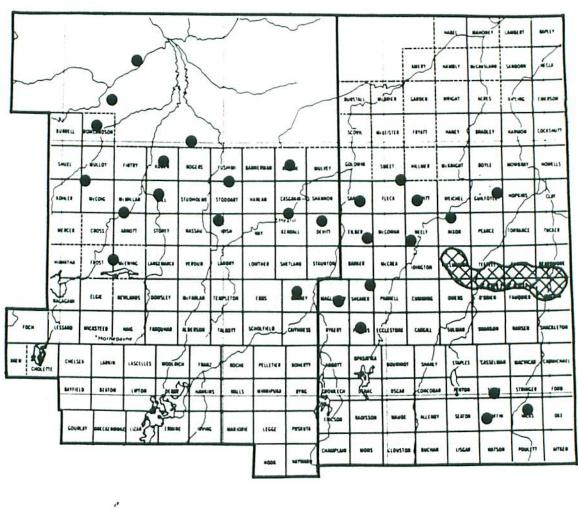
FOREST TENT CATERPILLAR

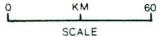
Areas within which defoliation occurred in 1978

LEGEND









FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1979

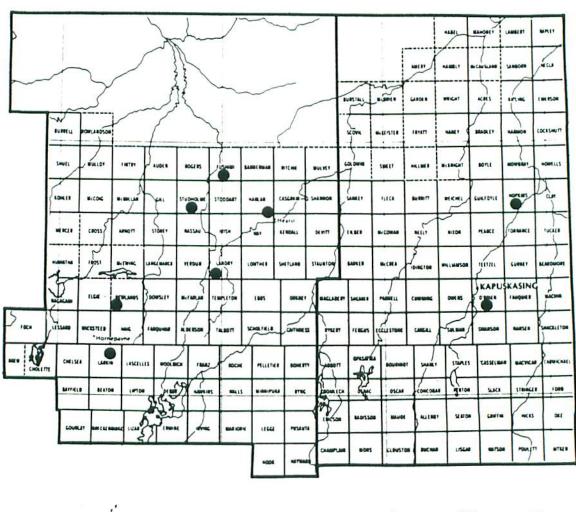
LEGEND

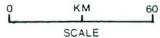
Whitespotted Sawyer, Monochamus scutellatus (Say)

	, ,	VOSES:	The second secon	
Host	S):	coniferous	

[Major]

Year	Remarks
1950-1954	not reported
1955	moderate-to-severe damage to spruce trees by adult sawyers in Nansen Twp
1956	low populations
1957	not reported
1958	low populations
1959-1966	not reported
1967	light damage to white spruce in Lisgar Twp
1968-1976	not reported
1977	High populations of adults caused severe damage to seed trees and new growth in cutover areas in the Spruce Falls Pulp and Paper Co. limits north of Kapuskasing.
1978	branch mortality of white and black spruce in Fauquier and Ecclestone twps after thinning and cutting operations
1979	high populations in Fauquier Twp
1980	Moderate-to-severe damage to seed trees and residual black spruce trees in Hopkins and O'Brien twps (see map, page 62).





WHITESPOTTED SAWYER

Locations where damage was observed in 1980

LEGEND

Damage areas

Pine Sawflies, Neodiprion compar Roh., N. maurus (Leach), N. nanulus nanulus Schedl, N. nigroscutum (Midd.), N. pratti banksianae Roh. and N. virginianus complex

Host(s): jP		[Major]
Year		Remarks
1950-1953		not reported
1954-1959	N. virginianus	light defoliation in O'Brien, Fauquier, Machin, Teetzel and Sweet twps
1960	N. virginianus	light defoliation in Fauquier and Sweet twps
	N. maurus	one colony in Sweet Twp
	N. compar	one colony in Sweet Twp
1961	N. virginianus	low populations in Gurney Twp
	N. nigroscutum	one colony in Fauquier Twp
1962	N. virginianus	low populations in Gurney Twp
1963		not reported
1964-1965	N. virginianus	low populations in Gurney Twp
1966		not reported
1967	N. virginianus	low populations in Torrance and Gurney twps
,•	N. nanulus nanulus	light in Kipling Twp
	N. nigroscutum	light in Kipling Twp
	N. maurus	light in Gurney Twp
1968	N. virginianus	light in Harmon Twp
	N. pratti banksianae	very low in Kipling Twp
1969-1970		not reported

(cont'd)

Pine Sawflies, Neodiprion maurus Roh, N. compar (Leach), N. nanulus nan-ulus Schedl, N. nigroscutum (Midd.), N. pratti banksi-anae Roh., N. virginianus complex (concl.)

Year		Remarks
1971	N. virginianus	low populations in Kipling and Gurney twps
	N. nanulus nanulus	low populations in Gurney Twp
1972-1973		not reported
1974	N. virginianus	few colonies in Fauquier Twp
1975	N. virginianus	severely defoliated plantation in Fauquier Twp
	N. nanulus nanulus	low defoliation in Kipling Twp
1976		not reported
1977-1978	N. virginianus	low populations
1979-1980		not reported

Northern Pitch Twig Moth, Petrova albicapitana (Busck)

Host(s): pine	[Minor]
Year	Remarks
1950-1954	not reported
1955	light infestations in pine plantations in Fauquier, Teetzel and Eilber twps
1956	population decline in the district
1957-1962	low populations in Fauquier and Gurney townships
1963-1964	not reported
1965	low levels in Fenton and Gurney twps
1966	not reported

(cont'd)

[Minor]

Northern Pitch Twig Moth, Petrova albicapitana (Busck) (concl.)

Year	Remarks
1967-1968	high populations in a .5-ha jack pine plantation in Gurney Twp; low populations in Fauquier Twp
1969-1973	not reported
1974-1979	low levels common in the district
1980	low populations on regeneration in Kipling Twp

Aspen Leafblotch Miner, Phyllonorycter ontario (Free.)

Host(s):	aspen	[Major]	
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Year	Remarks
1950-1951	common in the District
1952	decline in infestations
1953	very low populations
1954-1955	not reported
1956	moderate-to-severe defoliation in Goldwin Twp
1957	decline in Goldwin Twp
1958-1961	low populations general in the District
1962	slight increase in populations
1963	light infestation common in the District
1964-1965	a decline in populations
1966	medium-to-heavy infestations in Gurney and O'Brien twps
1967	a decline in populations in Gurney and O'Brien twps
1968-1969	low populations general in the District
1970-1971	not reported

(cont'd)

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

Year	Remarks	
1972	low populations general in the District	
1973	a general increase in population levels	
1974	Light infestations general in the District	
1975-1976	not reported	
1977	low populations general in the District	
1978-1980	not reported	

Yellowheaded Spruce Sawfly, Pikonema alaskensis (Roh.)

Remarks Year low populations 1950-1953 light defoliation in Fauquier and O'Brien twps 1954-1957 moderate-to-severe defoliation in Mowbray Twp 1958 moderate-to-severe defoliation in Parnell Twp 1959 1960 low populations moderate-to-severe defoliation in Fauquier Twp 1961 light defoliation in Fauquier Twp 1962-1963 1964 not reported light defoliation in Fenton, Macvicar, Owens and Gurney 1965-1966 twps light moderate-to-severe defoliation in Howells, 1967 Cargill and Owens twps moderate-to-severe defoliation in O'Brien Twp; low popula-1968 tions elsewhere

(cont'd)

[Major]

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

Host(s):	spruce	[Major]

Year	Remarks
1969	light defoliation in Kipling Twp
1970-1971	moderate-to-severe defoliation on ornamentals in urban areas
1972-1973	low populations on ornamentals in urban areas
1974	increase in populations on ornamentals
1975	moderate-to-severe defoliation of ornamentals in urban areas, and on regeneration in Kipling Twp
1976-1977	moderate-to-severe defoliation of ornamentals in urban areas
1978	moderate-to-severe damage in planted white spruce in Sankey Twp
1979	decline in populations in Sankey Twp
1980	moderate-to-severe defoliation of white spruce snow hedge in Fauquier Twp

White Pine Weevil, Pissodes strobi (Peck)

Host(s):	pines, spruces	[Major]
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Year	Remarks	
1950-1953 '	not reported	
1954	heavy damage to leaders in Nansen Twp (64% infested)	
1955	not reported	
1956	moderate leader damage in Shackleton Twp (8% infested); light in Teetzel (2% infested)	
1957	light damage in Fauquier Twp (5% infested)	

(cont'd)

White Pine Weevil, Pissodes strobi (Peck) (concl.)

Year	Remarks
1958	heavy damage in Teetzel Twp (15% infested)
1959	not reported
1960	light damage in O'Brien, Teetzel, Pearce, Guilfoyle twps
1961	moderate damage in Teetzel and Pearce twps
1962	Severe damage in Fauquier and O'Brien twps (30% and 50%, respectively); light damage in Gurney Twp (3% infested)
1963	light leader damage in Fauquier and O'Brien twps (5% and 1%, respectively)
1964	higher populations in Pearce, Shearer and Parnell twps (18%, 4% and 18%, respectively); medium-to-heavy infestation in Fauquier Twp
1965	decline in damage in Pearce (6%), Shearer (3%) and Parnell (2%) twps; heavy damage to red pine trees in Fauquier Twp (9%)
1966	light damage in Lisgar and Gurney twps
1967	heavy leader damage in Owens Twp (50% infested); light damage in Gurney Twp
1968-1970	not reported
1971-1974	light damage in Fauquier, Casselman and Gurney twps
1975-1976	moderate damage in Fauquier, Casselman, Gurney, Cumming and Fergus twps
1977	declines in leader damage in Fauquier, Casselman, Cumming twps, with increases in Gurney and Fergus twps
1978	light leader damage in Fauquier, Cummings, Fergus and Sankey twps
1979	not reported
1980	moderate leader damage in Shearer Twp (9% infested)

Larch Sawfly, Pristiphora erichsonii (Htg.)

Host(s): tL	[Major]	
Year	Remarks	
1950	light defoliation in Idington Twp	
1951	light defoliation between Devitt and Williamson twps	
1952-1953	numerous stands with light defoliation	
1954	Populations increased, and there was moderate-to-severe defoliation in most stands.	
1955	further increases in populations; moderate-to-severe defoliation in most stands examined	
1956	a decline in populations; light defoliation at numerous locations	
1957	a further decline; one area in Fauquier Twp severely defoliated; light defoliation elsewhere	
1958	Populations increased in both the eastern and western parts of the District	
1959	little change in infestations	
1960	Light defoliation occurred at numerous locations.	
1961	a decline in populations at all but two locations; some tree mortality observed in Teetzel and Pearce twps	
1962	a further decline in populations; only a few locations with light defoliation; low mortality in the eastern and western parts of the District	
1963	not reported	
1964	light defoliation at three locations	
1965-1966	light populations general in the District	
1967	medium-to-heavy infestations in Casselman and Howells twps	
1968	low populations general in the District	
1969	light defoliation in Fauquier and Casselman twps	

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

Host(s): tL [Major]

Year Remarks 1970-1973 light defoliation general in the District moderate-to-severe defoliation in Gurney and Sulman twps 1974 1975 light defoliation general in the District moderate-to-severe defoliation of European larch in 1976 Fauquier Twp 1977 moderate-to-severe defoliation along Hwy 11 Mattice and the Kapuskasing-Cochrane district boundary; moderate damage to European larch in Fauquier Twp 1978-1980 a general decline to low populations

Mountain-ash Sawfly, Pristiphora geniculata (Htg.)

Host(s): aMo [Major]

Year	Remarks
1950-1960	not reported
1961	first distribution record in Guilfoyle Twp
1962	light defoliation in Nixon Twp
1963-1969	not reported
1970	light defoliation in eastern part of District
1971	new distribution record in Kipling Twp
1971-1973	Light defoliation persisted in Kipling Twp.
1974	high populations along the Chain of Lakes road
1975	low populations in Kipling Twp
1976-1978	high populations on ornamentals in Kapuskasing and along the Chain of Lakes road
1979-1980	high populations on ornamentals in the District

Ambermarked Birch Leafminer, Profenusa thomsoni (Konow)

Host(s):	birch	[Major]
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Year	Remarks
1950-1955	not reported
1956-1957	low populations general in the District
1958-1969	severe browning in Opasatika, Fauquier, O'Brien, Casselman, Williamson, Seaton, Shearer, Griffin and Guilfoyle twps
1970	moderate browning along the Chain of Lakes road
1971-1972	low populations general in the District
1973	not reported
1974	light defoliation in Fauquier Twp
1975-1977	not reported
1978	low populations general in the District
1979-1980	not reported

Other Noteworthy Insects

[Minor]

(cont'd)

Eastern Blackheaded Budworm, Acleris variana (Fern.)

Host(s): spruce, bF

	50 • CONTROL • C	
Year	Remarks	
1950	not reported	
1951-1959	low populations in the District	
1960-1962	common in Eilber and Barker twps	
1963	not reported	
1964-1965	low populations general in the District	
1966	light infestation in Fauquier and Owens twps	

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

Host(s): spruce, bF

[Minor]

Year Remarks

1967

not reported

1968

low levels general in the District

1969-1980

not reported

Pine Spittlebug, Aphrophora cribrata (Wlk.)

Host(s): conifers

[Major]

Year Remarks

1950-1958

not reported

1959-1960

light infestation in Fauquier Twp

1961

not reported

1962

light populations general in the District

1963-1980

not reported

Cedar Leafminers, Argyresthia aureoargentella Brower, Pulicalvaria thujaella (Kft.)

Host(s): eC

[Major]

<u>Year</u> Remarks

1950-1957

not reported

1958

light browning in Usnac and Opasatika twps

1959

common in the District

1960

low populations in the District

1961

not reported

1962

common in the District

1963-1980

not reported

Fringed Birch Sawfly, Dimorphopteryx melanognathus Roh.

Host(s): birch

[Major]

Year Remarks

1950-1961

not reported

1962

light defoliation in Fauquier Twp; first record in the

District

1963

continued low populations in Fauquier Twp

1964-1980

not reported

Spruce Coneworm, Dioryctria reniculelloides Mut. & Mun.

Host(s): spruce

[Minor]

Year Remarks

1950-1965

not reported

1966

low numbers general in the District

1967-1977

not reported

1978

coneworms numerous in Fauquier Twp

1979

severe cone damage in Fauquier Twp

1980

not reported

Birch Leafminer, Fenusa pusilla (Lep.)

Host(s): birch

[Major]

Year Remarks

1950-1966

not reported

1967

moderate-to-heavy infestation in the town of Kapuskasing;

first District record

1968

low populations in O'Brien Twp

Birch Leafminer, Fenusa pusilla (Lep.) (concl.)

Year	Remarks
1969	not reported
1970	low levels in O'Brien and Fauquier twps
1971	not reported
1972	low levels in O'Brien Twp
1973-1974	not reported
1975-1976	moderate-to-severe browning in O'Brien and Fauquier twps
1977-1980	not reported

European Spruce Sawfly, Gilpinia hercyniae (Htg.)

Host(s):	spruce	[Minor]
----------	--------	---------

Year	Remarks		
1950-1960	not reported		
1961	low numbers, first distribution record in Guilfoyle Twp		
1962	low populations in the District		
1963-1964	not reported		
1965	increase in numbers in the District		
1966	not, reported		
1967	low numbers in the District		
1968-1969	not reported		
1970	low populations in Teetzel Twp		
1971-1980	not reported		

Warren's Collar Weevil, Hylobius warreni Wood

Host(s): coniferous

[Minor]

Year
1950-1964 not reported
1965 medium-to-heavy infestation on scP in Fauquier Twp
1966-1970 moderate-to-severe damage on jP in Fauquier Twp; light damage in bS plantation in the District
1971-1977 not reported
1978 mortality of young scP and bS in Magladery Twp
1979-1980 not reported

Balsam Fir Sawfly, Neodiprion abietis complex

Host(s): spruce, bF

[Major]

Year	Remarks
1950-1952	not reported
1953-1958	low numbers general in the District
1959	not reported
1960	light infestation in Barker Twp
1961	light infestation in Guilfoyle Twp
1962-1964	low populations in the District
1965	slight increase in Nansen Twp
1966-1968	low populations in the District
1969-1973	not reported
1974	low populations in the District
1975-1980	not reported

Balsam Shootboring Sawfly, Pleroneura brunneicormis Roh. (= borealis Felt)

Host(s): bF		[Minor]
Year	Remarks	
1950-1959	not reported	
1960	light infestation in Barker Twp	
1961	not reported	
1962	low levels in the District	
1963	not reported	
1964	an increase in infestation in Fauquier Twp	
1965-1966	low populations in the District	
1967	light infestation in Fergus and Shackleton twps	
1968	low numbers in the District	
1969-1980	not reported	

Spruce Bud Midge, Rhabodphaga swainei Felt

Host(s):	spruce	[Minor]
11036(3).	Sprace	TITLIOT

Year	Remarks		
1950-1959	not reported		
1960	common in all examined stands in Eilber and Owens twps		
1961	low populations in Parnell and Macvicar twps		
1962	low populations in McCrea Twp		
1963	common in Macvicar Twp		
1964	decline in populations in Macvicar Twp		
1965	low populations in the District		
1966	increase in infestation in Macvicar Twp		

Spruce Bud Midge, Rhabodphaga swainei Felt (concl.)

Year

1967 low populations in McCrea and Macvicar twps

1968 slight increase in McCrea Twp

1969 not reported

Pine Tip Moth, Rhyacionia adana Heinr.

Host(s): pine [Major]

<u>Year</u> <u>Remarks</u>

1950-1959 not reported

1960 low populations, first distribution record in Fauquier Twp

1961 not reported

1962 low populations in Gurney Twp

1963-1966 not reported

1967 low numbers in nursery in Fauquier Twp

1968-1980 not reported

Aspen Webworm, Tetralopha aplastella (Hlst.)

Host(s): aspen [Minor]

<u>Year</u> Remarks

1950-1961 not reported

1962 light infestation in Gurney Twp

1963 moderate-to-severe infestation in Fauquier Twp

1964 a further increase in Fauquier Twp

Aspen Webworm, Tetralopha aplastella (Hlst.) (concl.)

<u>Year</u> <u>Remarks</u>

1965 a decline in Fauquier Twp

1966-1968 not reported

1979 common in McCowan Twp

1980 not reported

Poplar Blackmine Beetle, Zeugophora abnormis Lec.

Host(s): poplar [Minor]

<u>Year</u> <u>Remarks</u>

1950-1954 not reported

1955-1960 low populations general in the District

1961 low populations in Seaton and Gurney twps

1962-1980 not reported

DISEASES

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

Host(s): all species

[Major]

Year	Remarks
1950-1962	not reported
1963	light damage on jP in Seaton Twp
1964-1967	not reported
1968-1970	trace damage on jP in Seaton Twp
1971	moderate damage in O'Brien, Macvicar and Casselman twps
1972-1973	light tree mortality in bS plantation in Stringer, O'Brien and Macvicar twps
1974-1978	light damage in jack pine plantations in the District
1979-1980	not reported

Scleroderris Canker, Ascocalyx abietina (Lagerb.) Schläpfer-Bernhard

Host(s): pine

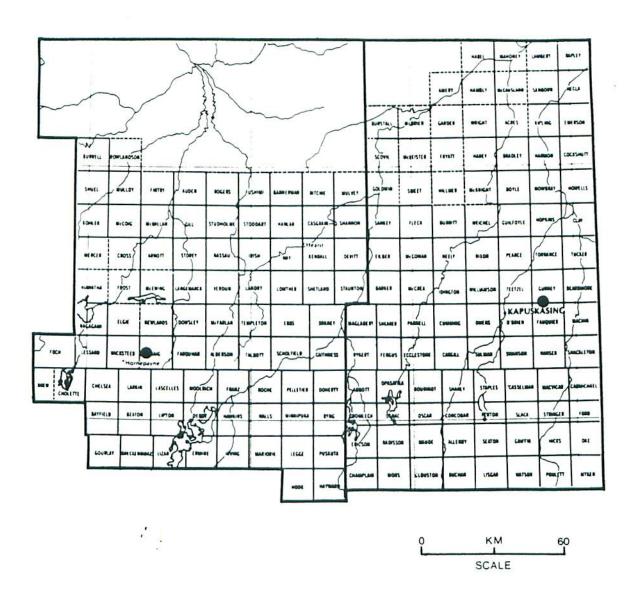
[Major]

6270 (250) (250)	1	5 1
Year	Remarks	
1950-1965	not reported	
1966	light-to-moderate in Fauquier Twp	
1967	severe infections persisted (see map, page 83).	
1968	not reported	
1969	trace levels in Fauquier Twp	
1970	not reported	
1971	trace levels in Kipling; new northern distribution	
1972	moderate levels in Fauquier twp	

Scleroderris Canker, Ascocalyx abietina (Lagerb.) Schläpfer-Bernhard (concl.)

Year	Remarks
1973-1975	low infections at a few locations
1976-1978	not reported
1979-1980	trace levels in Kipling Twp

HEARST AND KAPUSKASING DISTRICTS



SCLERODERRIS CANKER

Locations where infections were observed in 1967

LEGEND

Several records

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

Host(s): s	pruce [Maj	jor]	
Year	Remarks		
1950-1953	not reported		
1954-1955	low levels of infection in the District		
1956-1961	not reported		
1962-1963	low levels of infection in Idington Twp		
1964	light-to-moderate levels in Fenton Twp		
1965	severe browning in Gurney Twp; moderate in Fenton Twp		
1966-1968	reduction to low levels of infection		
1969	small pocket of heavy infection in Idington Twp		
1970	moderate infection in Teetzel Twp		
1971-1972	not reported		
1973	severe infection in Shearer Twp; light in Teetzel Twp		
1974	varying degrees of infection in Mowbray Twp		
1975	moderate damage in Owens and Cargill twps		
1976-1977	low levels of infection in the District		
1978	moderate-to-severe infection in McCrea Twp		
1979-1980	low levels of infection in the District		
Ink Spot of Aspen, Ciborinia whetzelii (Seaver) Seaver			
Host(s): a	spen [Maj	jor]	
Year	Remarks		
1950-1957	not reported		

Ink Spot of Aspen, Ciborinia whetzelii (Seaver) Seaver (concl.)

Host(s): aspen [Major]

Year	Remarks		
1958	heavy infections in O'Brien Twp		
1959	moderate-to-severe infection along Hwy 11		
1960	common in the District		
1961-1962	not reported		
1963	increase in incidence in the District		
1964	light-to-moderate incidence in the District		
1965	moderate-to-heavy in Owens and Cummings twps to the Hearst District boundary		
1966-1968	general decline in infection levels		
1969	light infection in Eilber, Indington, Owens and O'Brien twps		
1970	severe infection in Lisgar Twp		
1971-1972	general decline in Lisgar Twp		
1973-1974	severe infections in Buchan, Fauquier and O'Brien twps		
1975	light infections general in the District		
1976-1977	not reported		
1978	light damage in Swanson, Lisgar and Fauquier twps		
1979-1980	light damage general in the District		

Sweet Fern Blister Rust, Cronartium comptoniae Arthur

Host(s): jP [Major]

Year Remarks

1950-1957 not reported

Sweet Fern Blister Rust, Cronartium comptoniae Arthur (concl.)

Host(s): jP

[Major]

<u>Year</u> Remarks

1958 light infection in Machin Twp

1959-1970 not reported

1971 light infection in Kipling Twp

1972-1978 not reported

1979 light infection in Fauquier and Kipling twps

1980 not reported

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

Host(s): wP [Major]

Year

1950-1962

not reported

1963-1965

low in Fauquier Twp

1966-1970

not reported

1971-1973

light infection in Fauquier Twp

1974-1977

not reported

1978-1979 moderate-to-severe infection in Fauquier Twp

1980 not reported

Jack Pine Needle Cast, Davisomycella ampla (J. Davis) Darker

Host(s): jP [Minor]

<u>Year</u> <u>Remarks</u>

1950-1959 not reported

Jack Pine Needle Cast, Davisomycella ampla (J. Davis) Darker (concl.)

Host(s): jP

[Minor]

Year Remarks

1960

light infections in the District

1961-1963

not reported

1964

low incidence in the District

1965-1975

not reported

1976-1979

low incidence in the District

1980

severe infection levels in Kipling Twp

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

Host(s): jP

[Major]

<u>Year</u> Remarks

1950-1969

not reported

1970

trace infections in the District

1971-1972

not reported

1973

low damage in Farquhar Twp

1974

trace infections in the District

1975-1976

, 40% incidence in plantations in O'Brien Twp

1977

not reported

1978

common in plantations in Harmon twp

1979

light in Kipling Twp

1980

low levels of infection

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

Host(s):	tA	[Major]

Year	Remarks
1950-1952	not reported
1953	low levels of infection in Fauquier Twp
1954-1955	widely separated areas of infection
1956-1961	not reported
1962-1963	extensive damage in the District
1964-1967	light infection levels in Fauquier and Way twps
1968	severe damage in Fauquier Twp (34% infected)
1969	high incidence in O'Brien, Eilber and Fauquier twps; moderate in Shackleton and McRea twps
1970-1972	little change in infection levels in the District
1973	high incidence in Fauquier Twp; moderate in Casselman, O'Brien and Shackleton twps
1974-1980	little change in infection levels in the District

Larch-poplar Rust, Melampsora medusae Thüm.

Host(s):	larch	[Major]

Year	,•	Remarks	
1950-1962	not reported		
1963-1966	light damage in	Fauquier and Casselman twps	
1967-1980	not reported		

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

Host(s): tA [Major]

Year	Remarks
1950-1962	not reported
1963-1964	severe infection at numerous locations
1965	severe infection in Casselman, Ecclestone, Fauquier and Teetzel twps
1966	not reported
1967-1968	light infection in Slack and Torrance twps
1969-1971	not reported
1972-1973	trace levels in the District
1974-1975	not reported
1976	severe damage in Fergus, Opasatika and Fauquier twps
1977	light damage in the District
1978-1980	not reported

ABIOTIC DAMAGE

Frost

Remarks Year 1950-1953 not reported 1964 severe damage in Gurney and Fauquier twps 1965 severe damage to wS and bF in the District 1966-1967 not reported severe damage to wS in the central and northern parts of 1968 the District 1967-1971 not reported 1972 severe damage to bF shoots in the southeastern part of the District 1973-1977 not reported 1978 severe damage in Teetzel Twp; light in Fauquier and McCrea twps 1979 some damage in low-lying areas 1980

moderate damage from frost and snow in the District

Wind

Year Remarks 1950-1972 not reported

severe blowdown at Remi Lake 1973

1974 not reported

1975 severe damage to aspen and pine in Kipling Twp

1976-1980 not reported Hail

Year Remarks

1950-1974 not reported

1975 18 km^2 of damage to aspen and jack pine in Barker Twp

1976-1980 not reported

APPENDICES

APPENDIX A

DECIDUOUS HOST

Common Name	Scientific Name	Abbreviations
Alder	Alnus spp.	Al
Apple	Malus spp.	Ap
Ash, black	Fraxinus nigra Marsh.	As
Aspen, largetooth	Populus grandidentata Michx.	1A
trembling	tremuloides Michx.	tA
Basswood	Tilia spp.	Ва
Beech	Fagus grandifolia Ehrh.	Ве
Birch, white	Betula papyrifera Marsh.	wB
yellow	alleghaniensis Britt.	уВ
Butternut	Juglans cinerea L.	Bu
Cherry, eastern choke	Prunus virginiana L.	eaCh
pin	pensylvanica L.f.	pCh
Elm, white	Ulmus americana L.	wE
Horse-chestnut	Aesculus hippocastanum L.	hChe
Ironwood	Ostrya spp.	I
Maple, Manitoba	Acer negundo L.	mM
red	rubrum L.	rM
sugar	saccharum Marsh.	sM
Mountain-ash, American	Sorbus americana Marsh.	aMo
Oak, bur	Quercus macrocarpa Michx.	ьо
red	rubra L.	rO
Poplar, balsam	Populus balsamifera L.	bPo
Carolina	eugenei Simon-Louis	cPo
Lombardy	nigra L.	1Po
silver	alba L.	sPo
Willow	Salix spp.	W

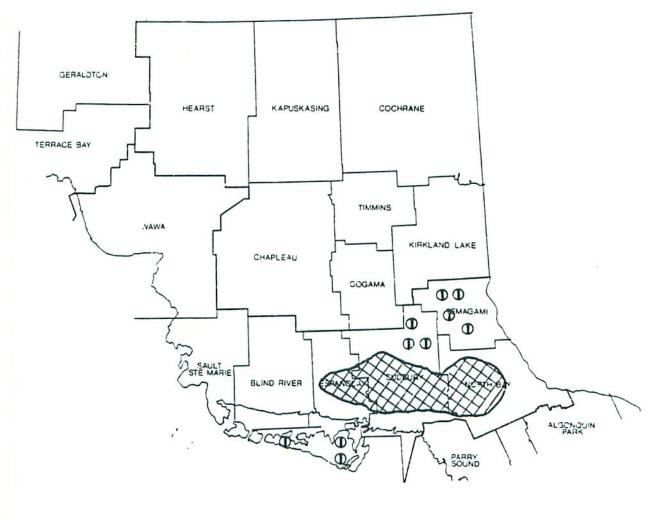
APPENDIX B

CONIFEROUS HOST

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

APPENDIX C

MAPS - NORTHEASTERN ONTARIO



Birch Skeletonizer

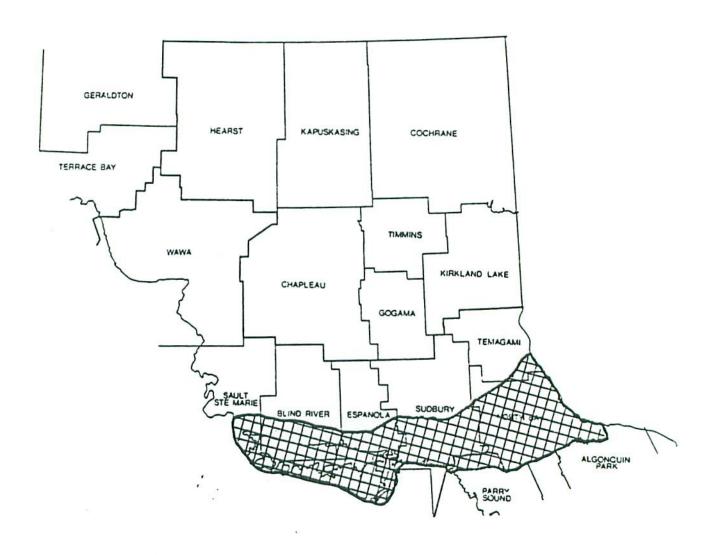
Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1950

LEGEND

Light defoliation ① Moderate-to-severe defoliation





Birch Skeletonizer

Areas within which defoliation occurred in 1961

LEGEND

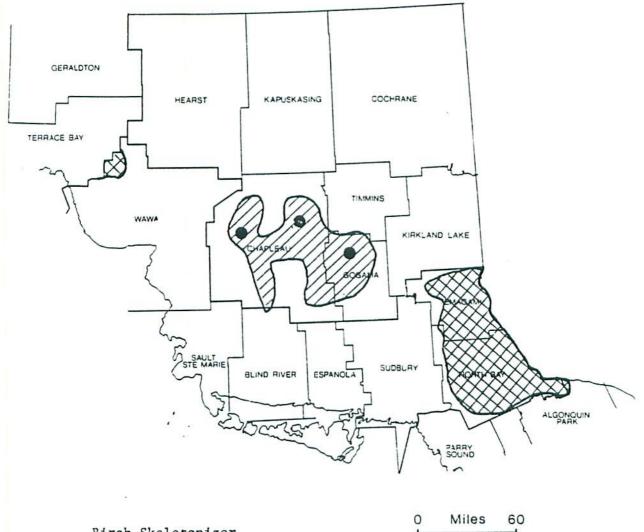
Moderate-to-severe defoliation



Miles

O Kilometres 96

60



Birch Skeletonizer

0 Kilometres 96

Areas within which defoliation occurred in 1963

LEGEND

Light defoliation

Moderate-to-severe defoliation ● or





Birch Skeletonizer

Areas within which defoliation occurred in 1970

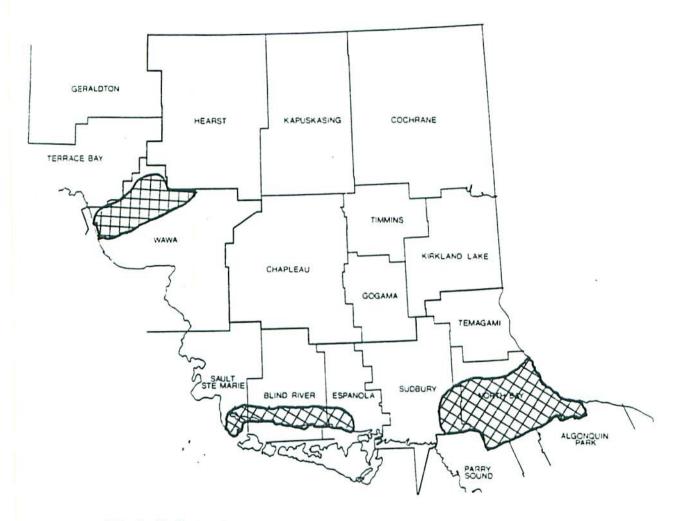
Miles 60 0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or







Birch Skeletonizer

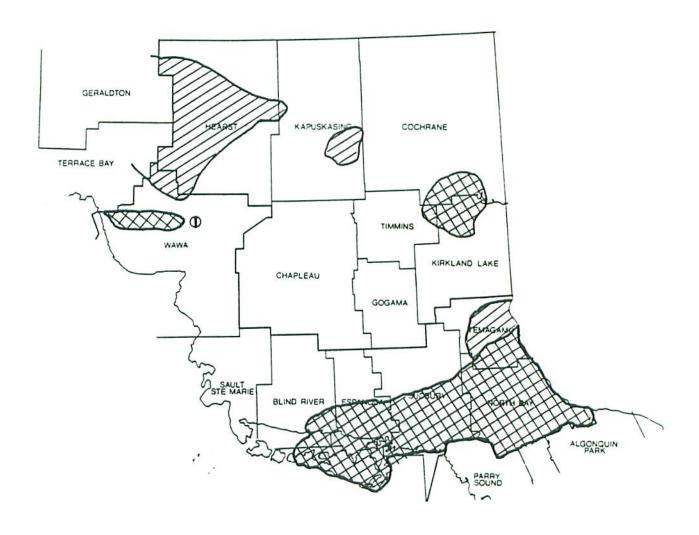
Areas within which defoliation occurred in 1971

Miles 60 O Kilometres 96

LEGEND

Moderate-to-severe defoliation





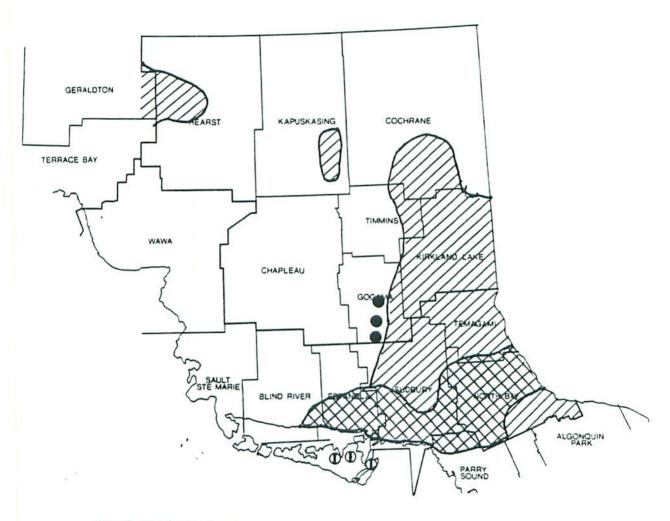
Birch Skeletonizer

Areas within which defoliation occurred in 1972

LEGEND

Light defoliation ⊕ or Moderate-to-severe defoliation

0 Miles 60 0 Kilometres 96



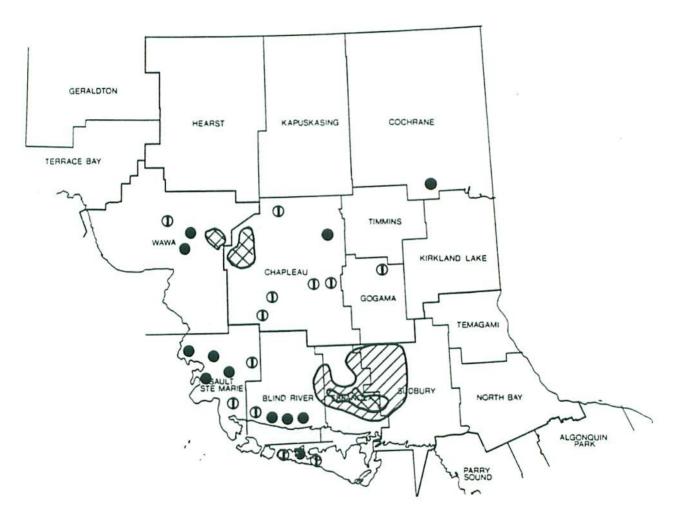
Birch Skeletonizer

Areas within which defoliation occurred in 1973

0 Miles 60 0 Kilometres 96

LEGEND

Light defoliation ① or Moderate-to-severe defoliation ② or



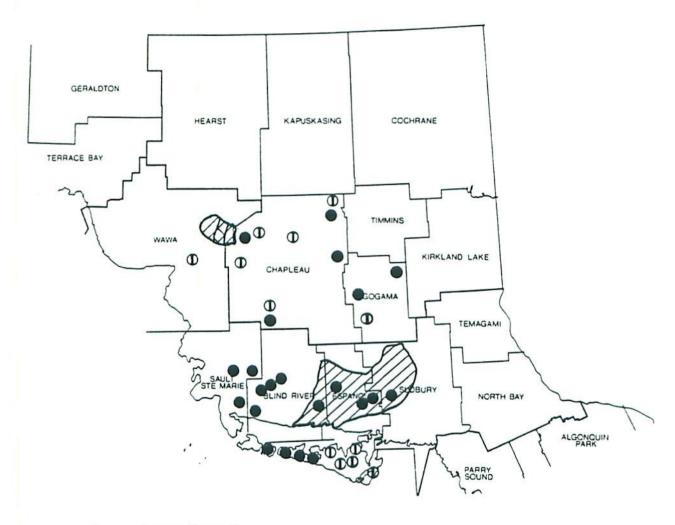
Large Aspen Tortrix

Areas within which defoliation occurred in 1957

0 Miles 60 0 Kilometres 96

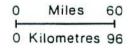
LEGEND

Light defoliation ⊕ or Moderate-to-severe defoliation ● or



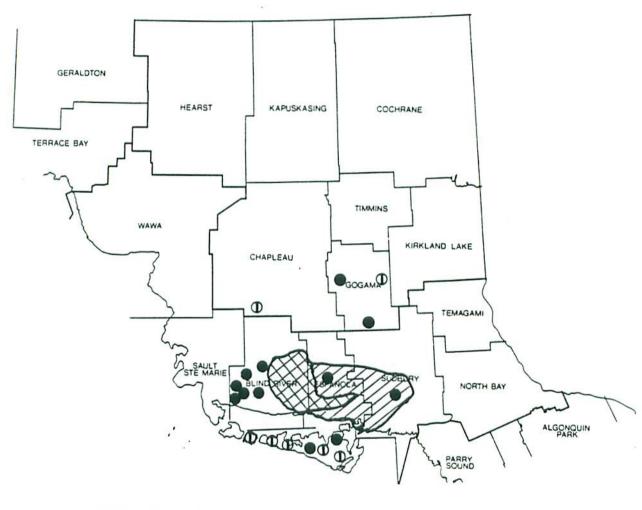
Large Aspen Tortrix

Areas within which defoliation occurred in 1958



LEGEND

Light defoliation ① or Moderate-to-severe defoliation ② or



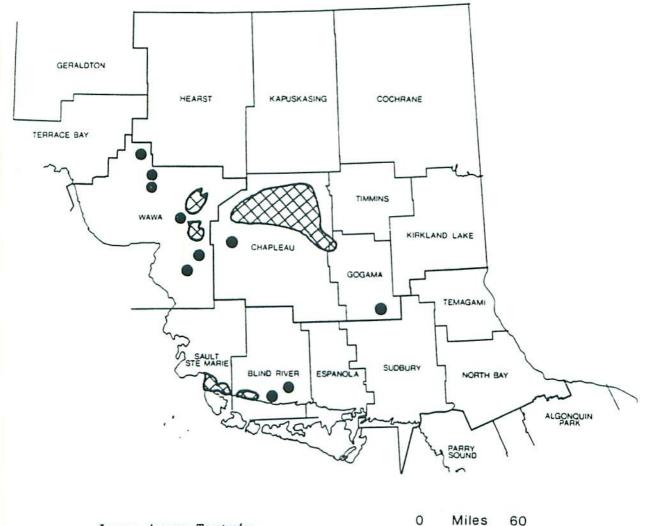
Large Aspen Tortrix

Areas within which defoliation occurred in 1959



LEGEND

Light defoliation ⊕ or Moderate-to-severe defoliation ● or

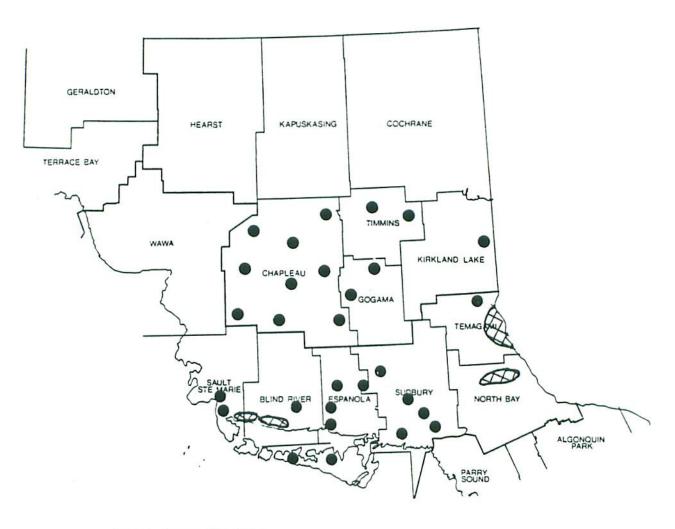


Large Aspen Tortrix

0 Miles 60 0 Kilometres 96

Areas within which defoliation occurred in 1970

LEGEND



Large Aspen Tortrix

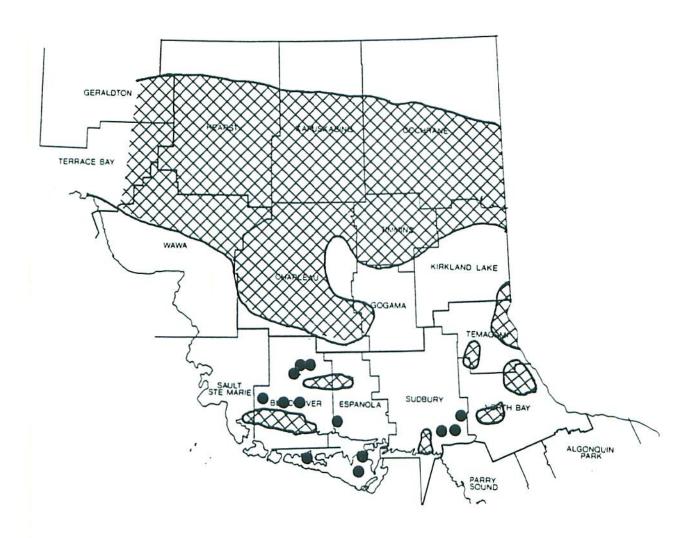
Areas within which defoliation occurred in 1971

Miles 60 0 Kilometres 96

LEGEND







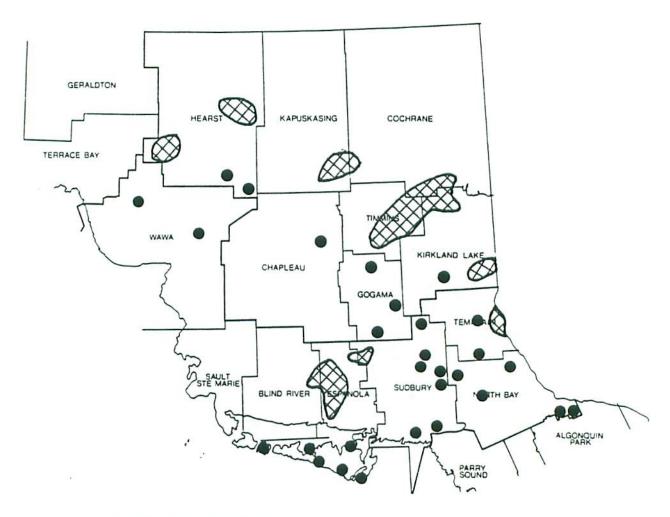
Large Aspen Tortrix

Areas within which defoliation occurred in 1972

Miles 60 0 Kilometres 96

LEGEND



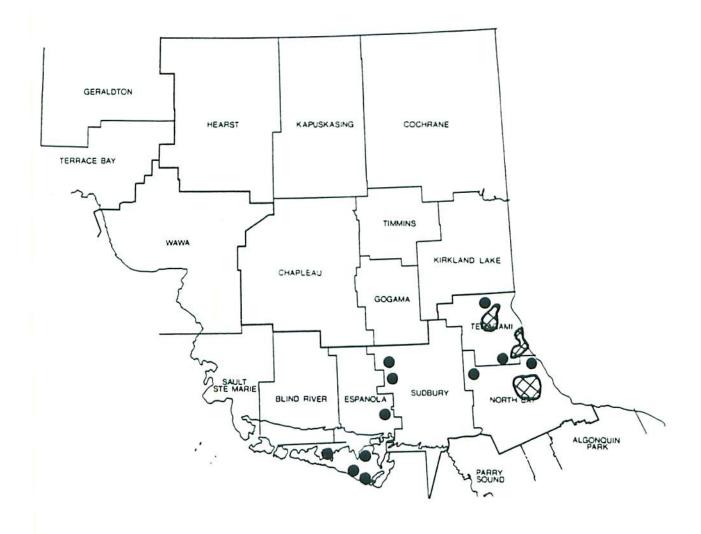


Large Aspen Tortrix

Areas within which defoliation occurred in 1973

O Miles 60 O Kilometres 96

LEGEND



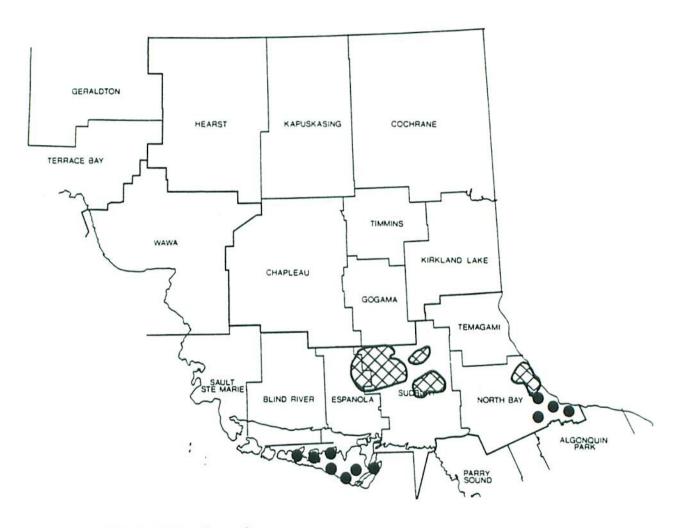
Large Aspen Tortrix

Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1974

LEGEND



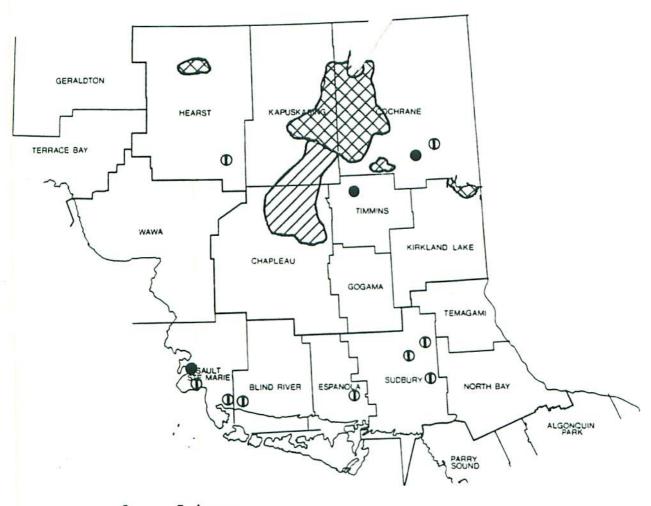


Large Aspen Tortrix

Areas within which defoliation occurred in 1975



LEGEND



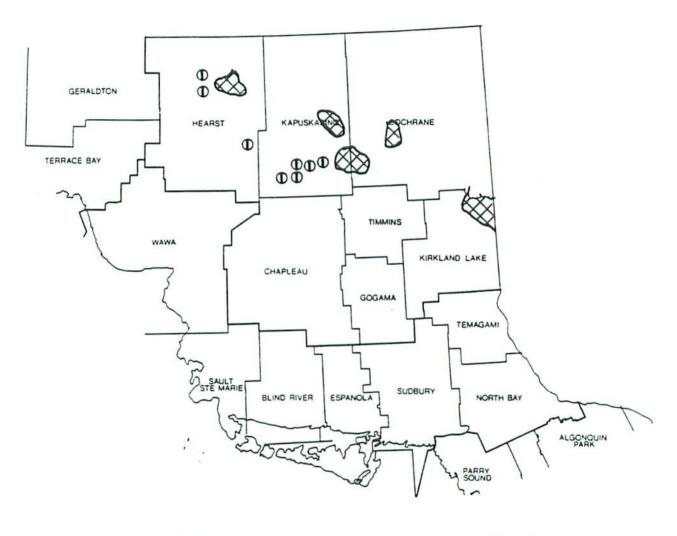
Spruce Budworm

Areas within which defoliation occurred in 1950

O Miles 60 O Kilometres 96

LEGEND

Light defoliation ① or Moderate-to-severe defoliation ② or



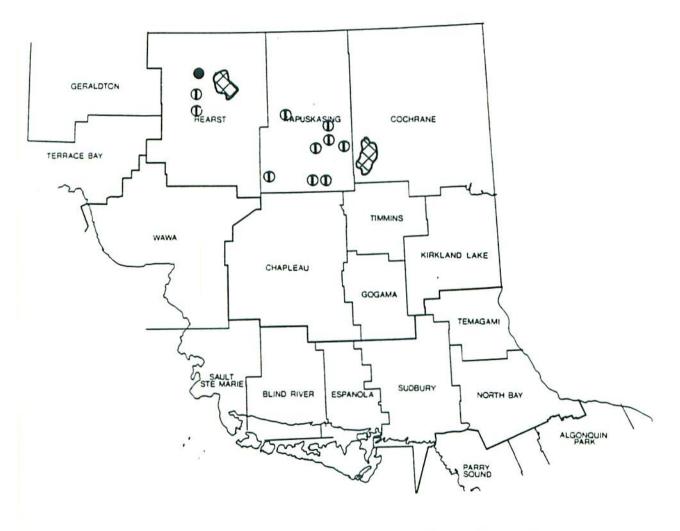
Spruce Budworm

Areas within which defoliation occurred in 1951

0 Miles 60 0 Kilometres 96

LEGEND

Light defoliation \bigcirc Moderate-to-severe defoliation



Spruce Budworm

Miles 60 0 Kilometres 96

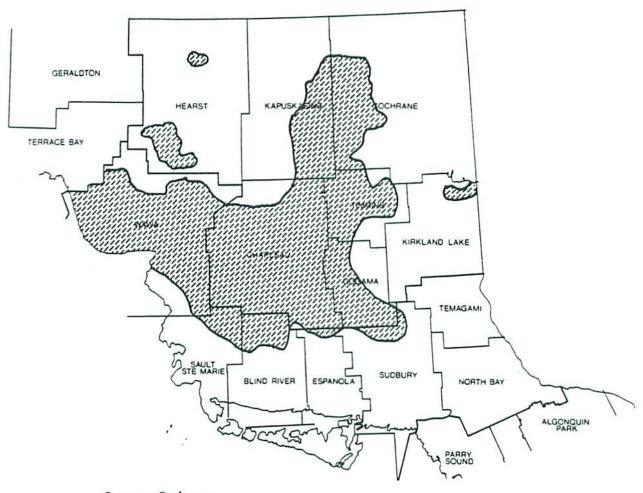
Areas within which defoliation occurred in 1952

LEGEND

Light defoliation ①







Spruce Budworm

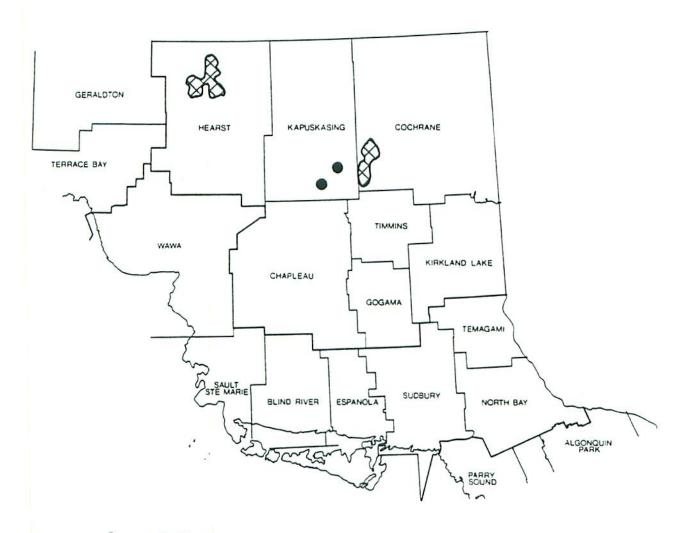
Areas within which balsam fir whole tree and top mortality occurred in 1950

O Miles 60 O Kilometres 96

LEGEND

Mortality



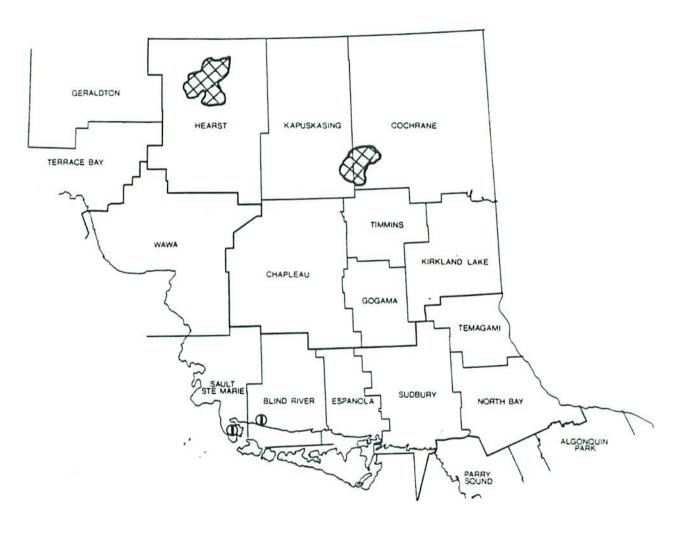


Spruce Budworm

Areas within which defoliation occurred in 1953

0 Miles 60 0 Kilometres 96

LEGEND



Spruce Budworm

Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1954

LEGEND

Light defoliation ① Moderate-to-severe defoliation





Spruce Budworm

Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1955

LEGEND

Light defoliation Φ or





Spruce Budworm

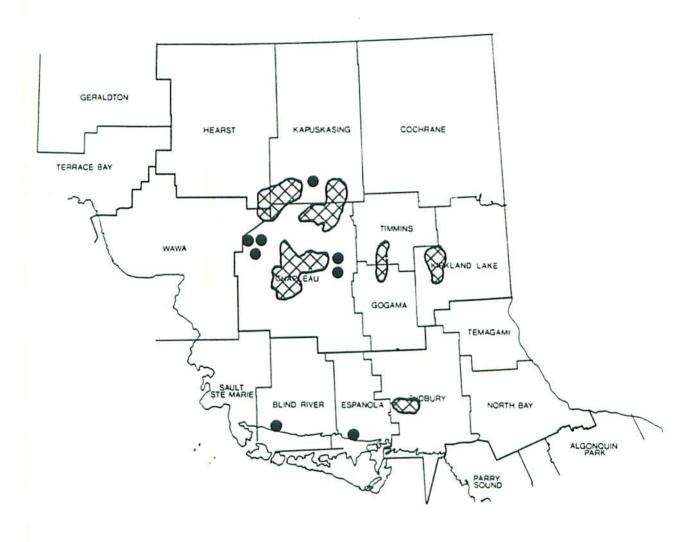
Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1956

LEGEND

Light defoliation





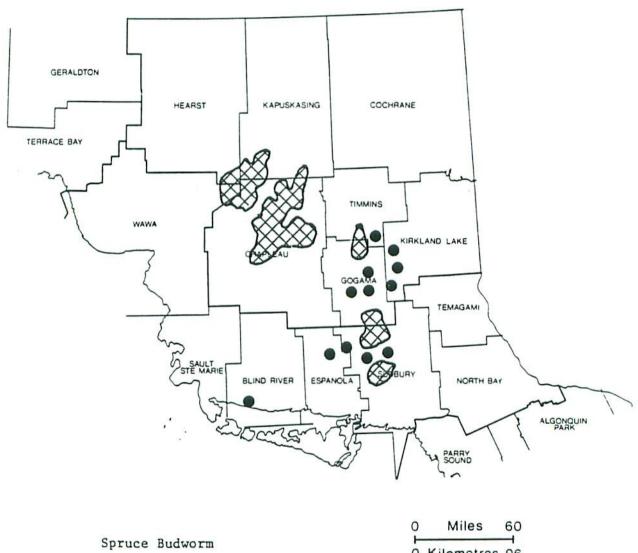
Spruce Budworm

0 Miles 60 0 Kilometres 96

Areas within which defoliation occurred in 1968

LEGEND





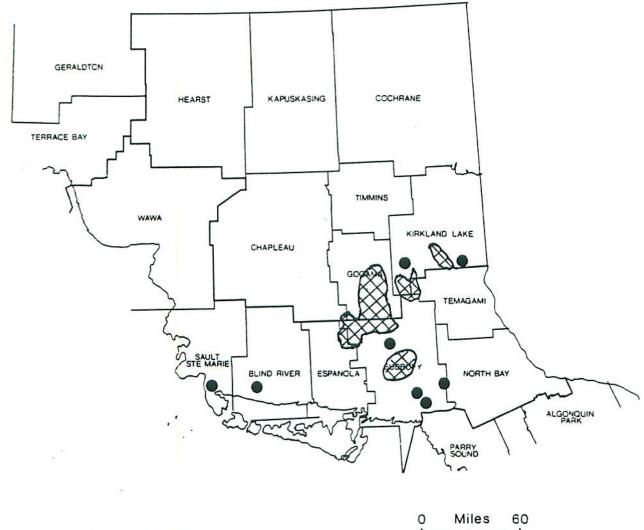
O Kilometres 96

Areas within which defoliation occurred in 1969

LEGEND







Spruce Budworm

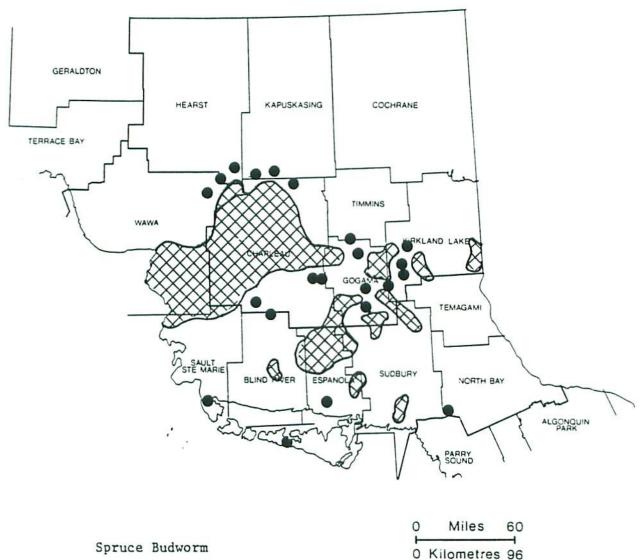
O Kilometres 96

Areas within which defoliation occurred in 1970

LEGEND



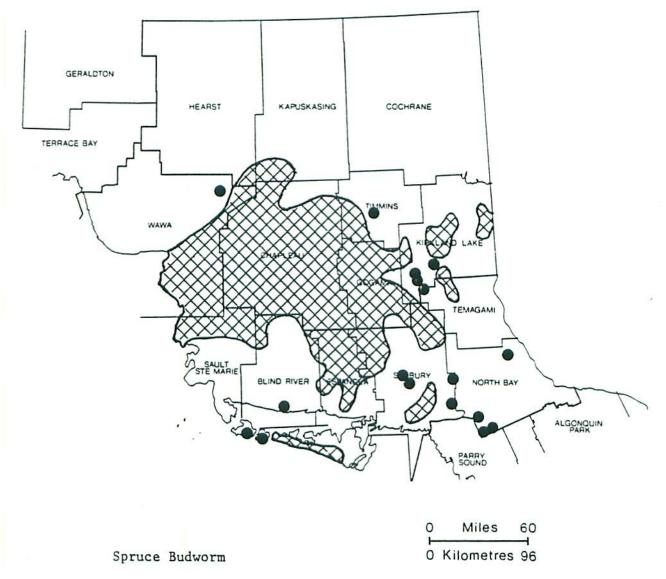




Spruce Budworm

Areas within which defoliation occurred in 1971

LEGEND

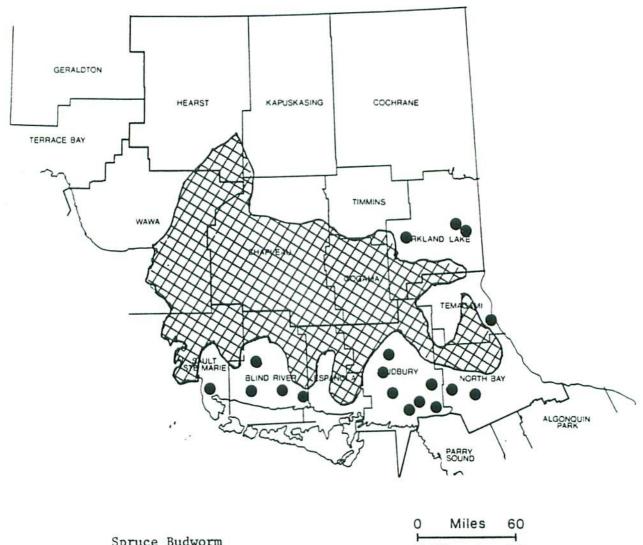


Areas within which defoliation occurred in 1972

LEGEND





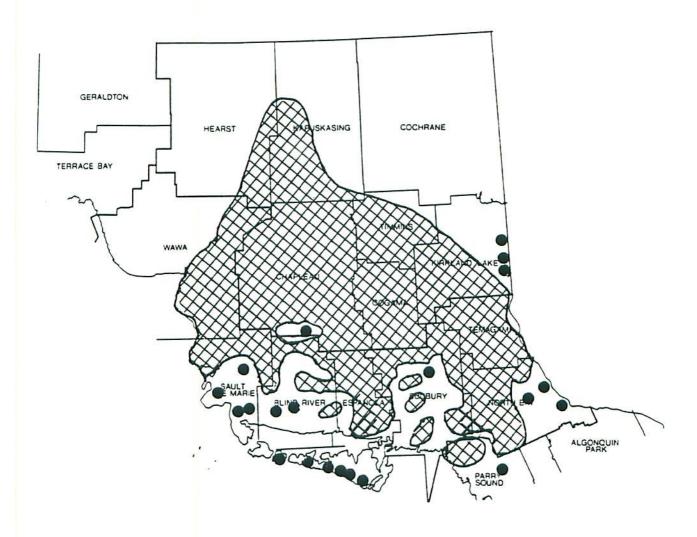


Spruce Budworm

0 Kilometres 96

Areas within which defoliation occurred in 1973

LEGEND



Spruce Budworm

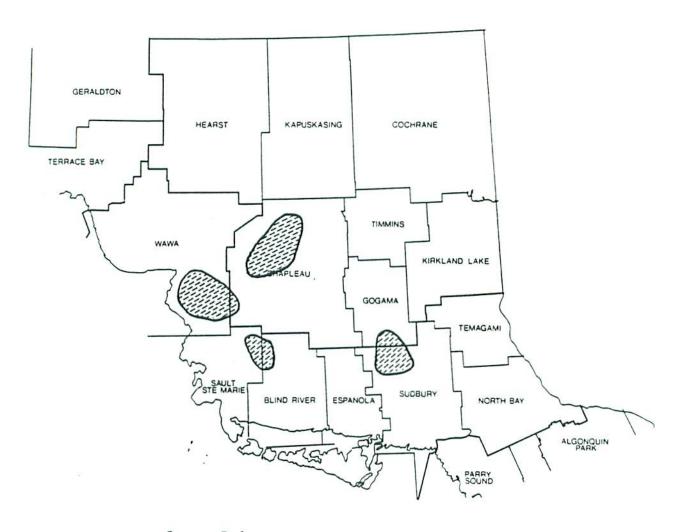
Areas within which defoliation occurred in 1974

Miles 60 O Kilometres 96

LEGEND







Spruce Budworm

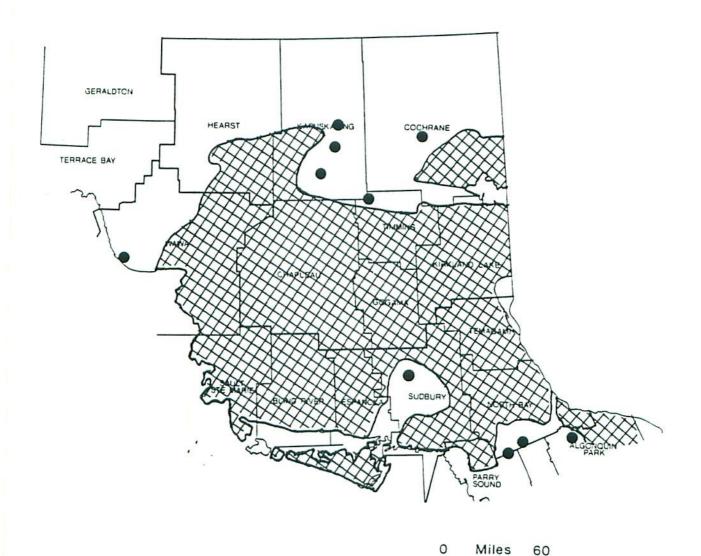
Areas within which balsam fir whole tree and top mortality occurred in 1974

O Miles 60 O Kilometres 96

LEGEND

Mortality



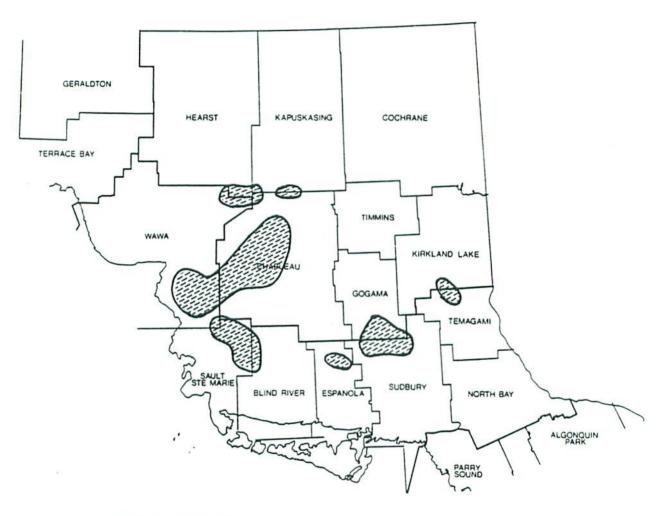


O Kilometres 96

Spruce Budworm

Areas within which defoliation occurred in 1975

LEGEND



Spruce Budworm

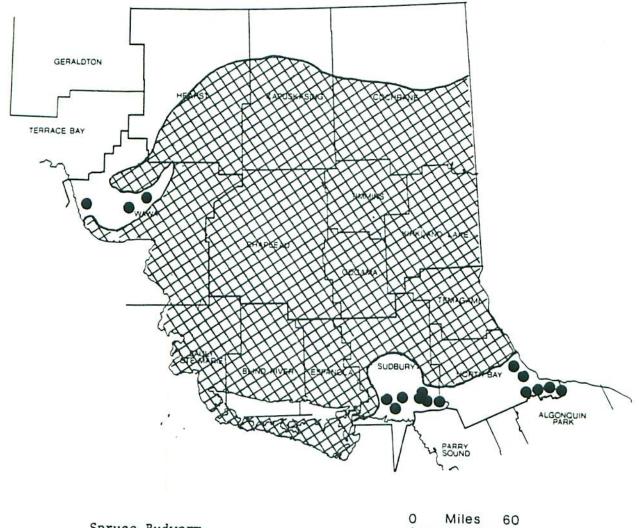
Areas within which balsam fir whole tree and top mortality occurred in 1975

0 Miles 60 0 Kilometres 96

LEGEND

Mortality

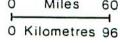




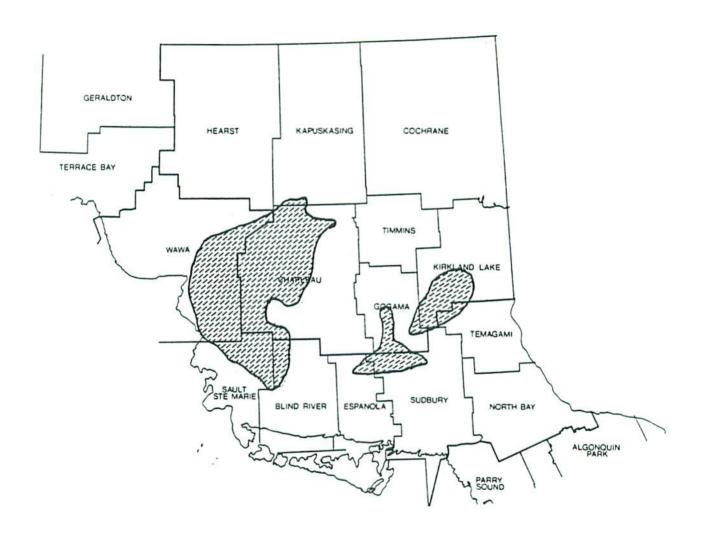
Spruce Budworm

Areas within which defoliation occurred in 1976

LEGEND







Miles

0 Kilometres 96

60

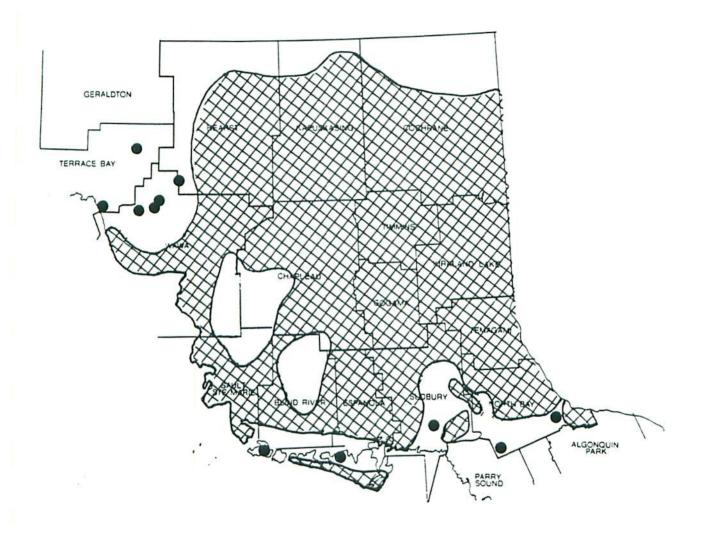
Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1976

LEGEND

Mortality





Spruce Budworm

Areas within which defoliation occurred in 1977

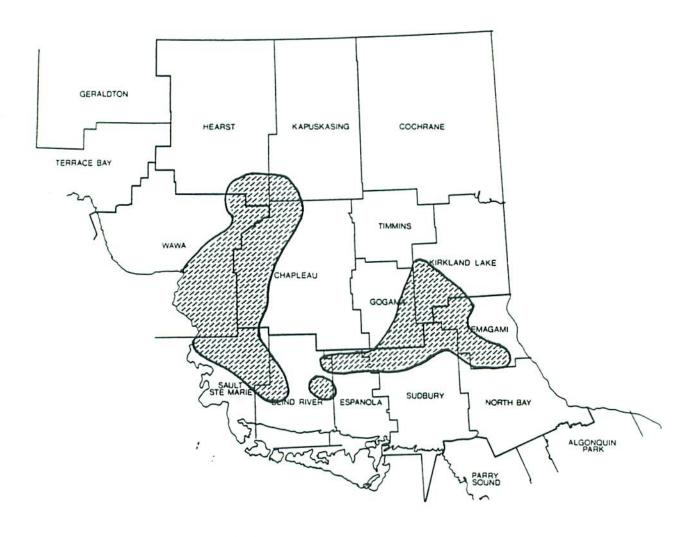
LEGEND

Moderate-to-severe defoliation ● or





0 Kilometres 96



Miles

0 Kilometres 96

60

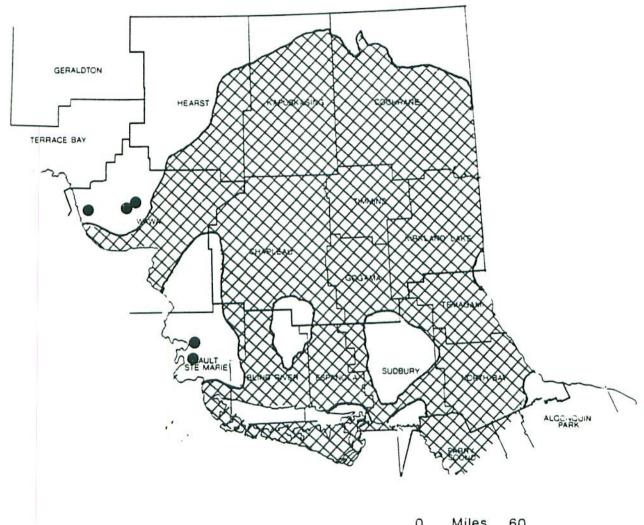
Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1977

LEGEND

Mortality





Spruce Budworm

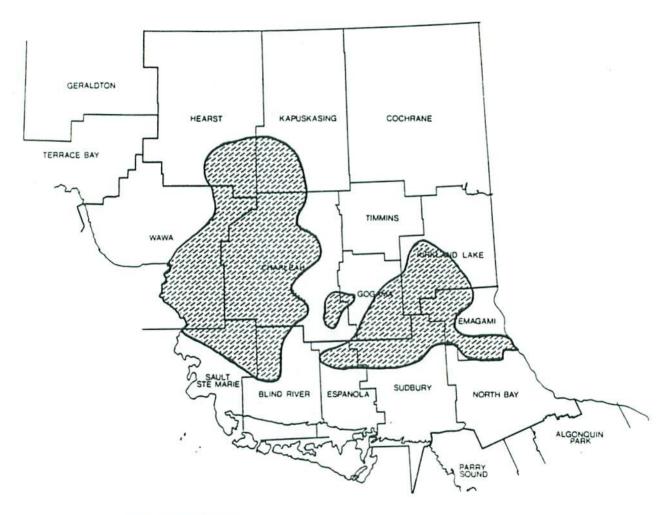
Miles 0 Kilometres 96

Areas within which defoliation occurred in 1978

LEGEND







Spruce Budworm

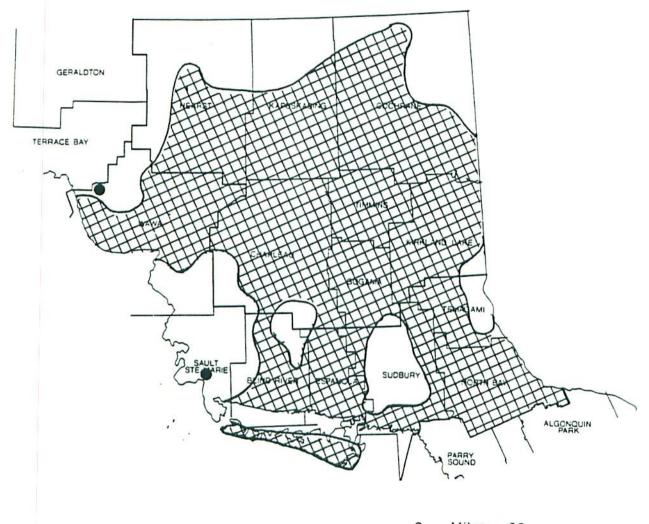
Areas within which balsam fir whole tree and top mortality occurred in 1978

O Miles 60 O Kilometres 96

LEGEND

Mortality





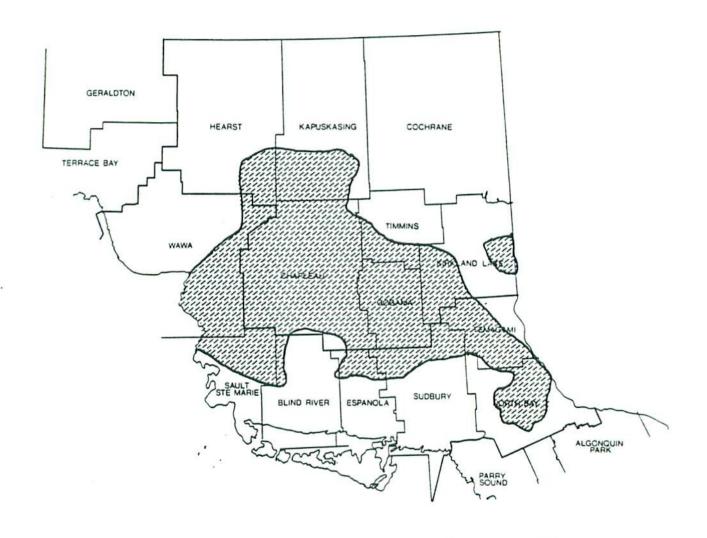
Spruce Budworm

Miles 60 0 Kilometres 96

Areas within which defoliation occurred in 1979

LEGEND





Miles

0 Kilometres 96

60

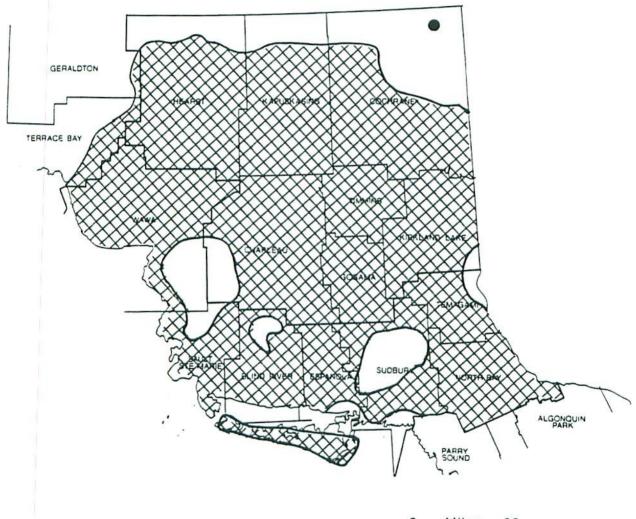
Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1979

LEGEND

Mortality



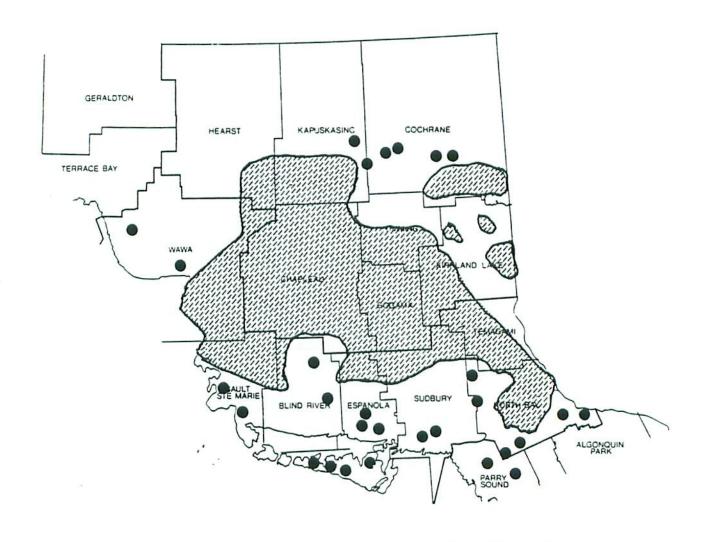


O Miles 60 O Kilometres 96

Spruce Budworm

Areas within which defoliation occurred in 1980

LEGEND



Miles

O Kilometres 96

60

Spruce Budworm

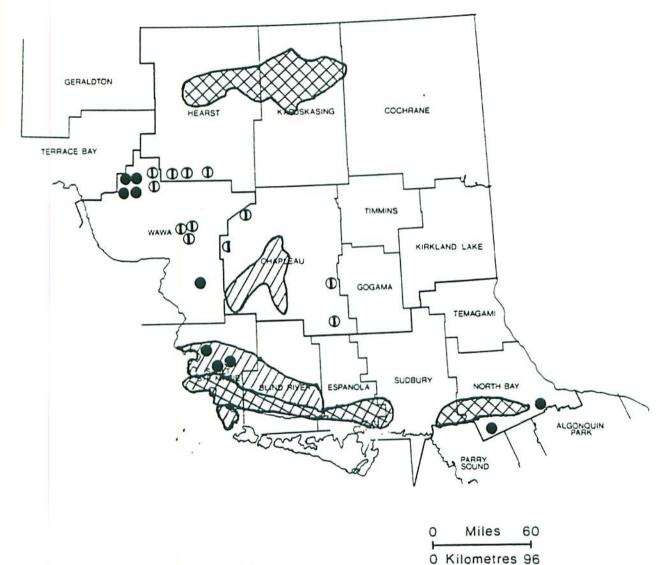
Areas within which balsam fir whole tree and top mortality occurred in 1980

LEGEND

Mortality



or

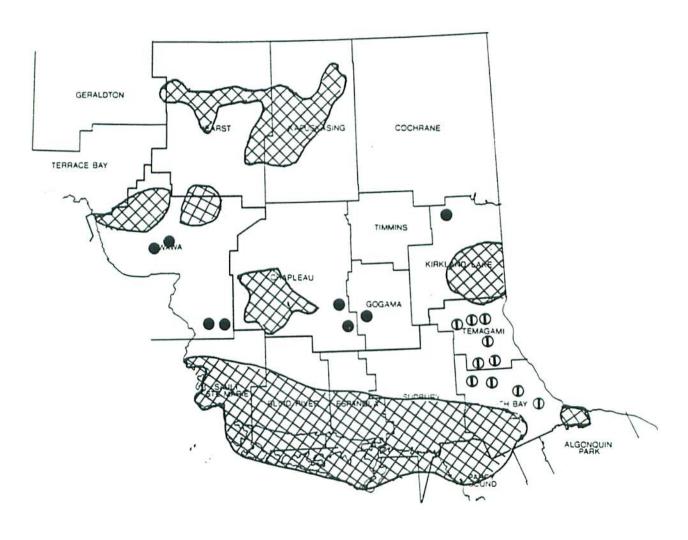


Forest Tent Caterpillar

Areas within which defoliation occurred in 1950

LEGEND

Light defoliation ① or Moderate-to-severe defoliation ② or



Miles

O Kilometres 96

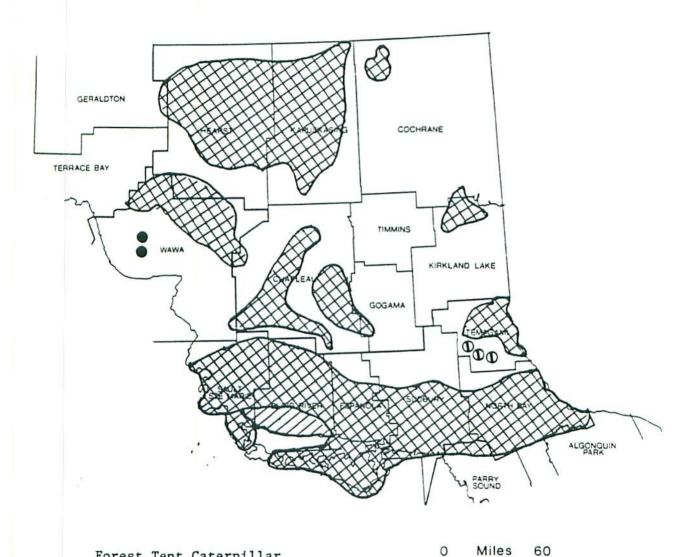
60

Forest Tent Caterpillar

Areas within which defoliation occurred in 1951

LEGEND

Light defoliation ①



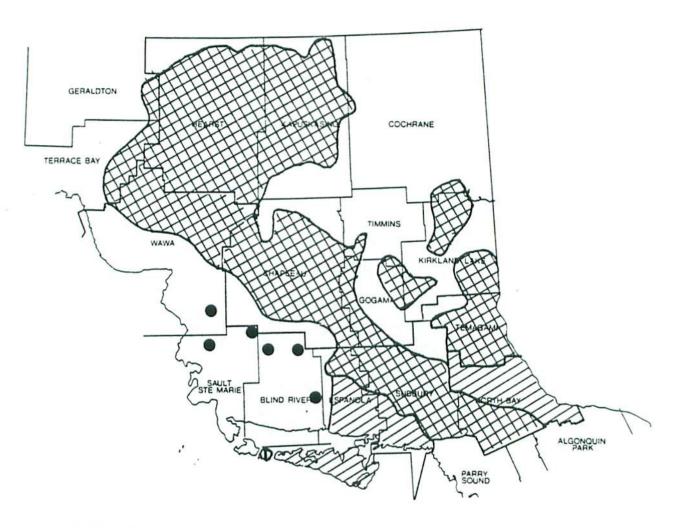
O Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1952

LEGEND

Light defoliation ① or Moderate-to-severe defoliation ● or



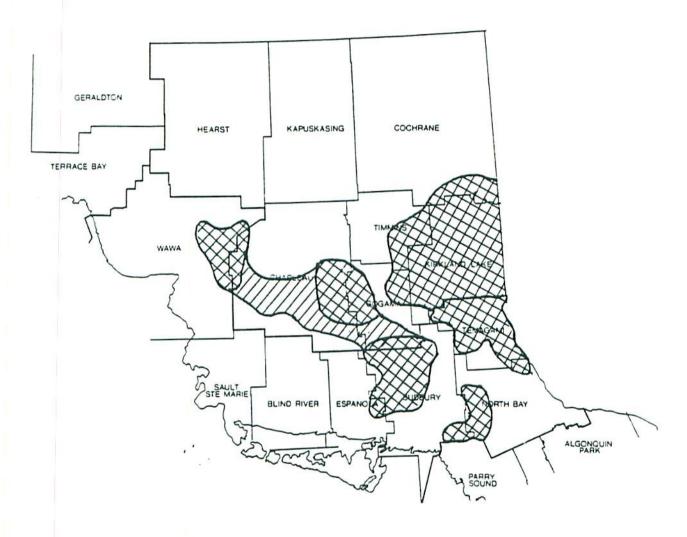
Forest Tent Caterpillar

Areas within which defoliation occurred in 1953

0 Miles 60 0 Kilometres 96

LEGEND

Light defoliation Φ or



Forest Tent Caterpillar

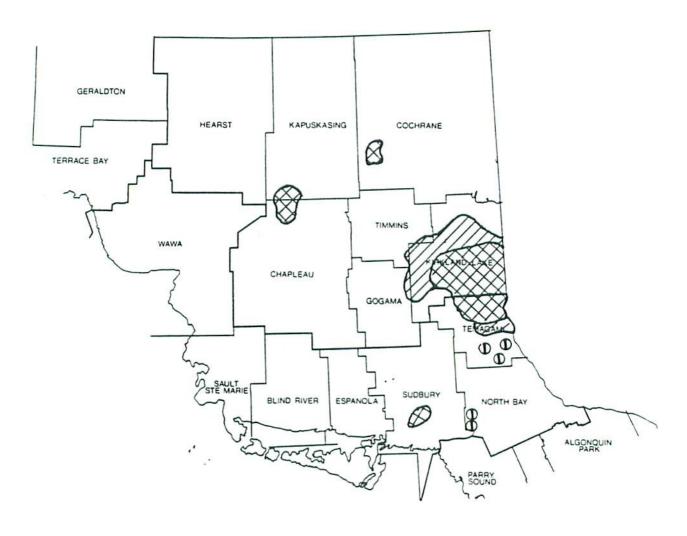
Areas within which defoliation occurred in 1954

O Miles 60 O Kilometres 96

LEGEND

Light defoliation

Moderate-to-severe defoliation



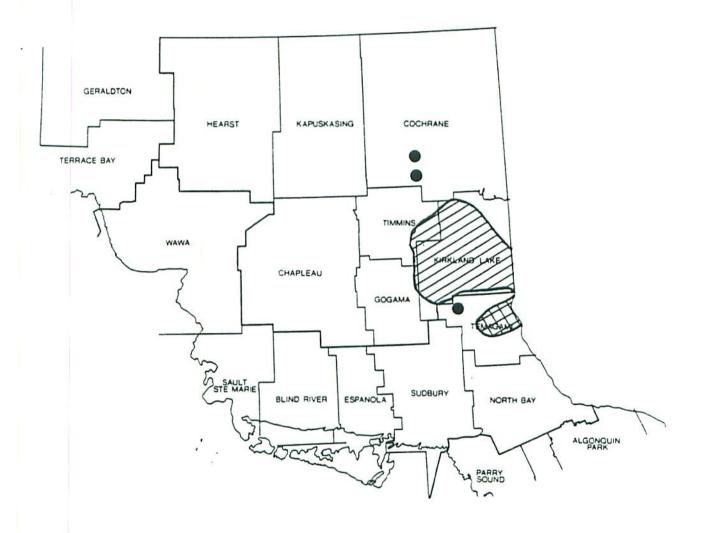
Forest Tent Caterpillar

Areas within which defoliation occurred in 1955

LEGEND

Light defoliation ① or Moderate-to-severe defoliation





Forest Tent Caterpillar

Miles O Kilometres 96

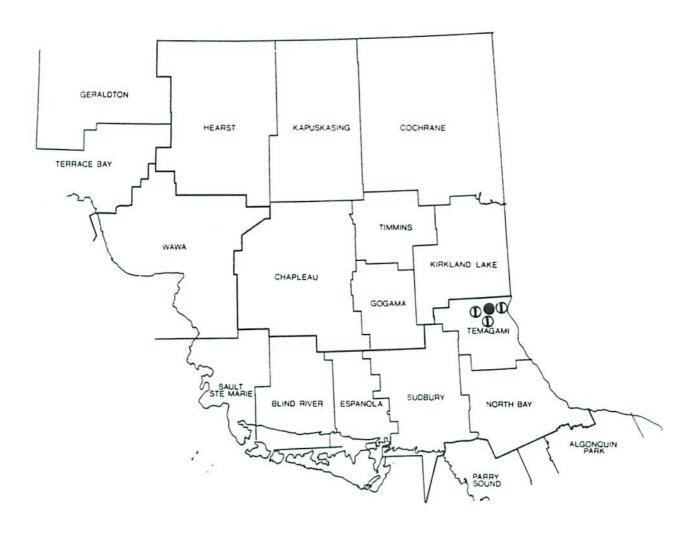
Areas within which defoliation occurred in 1956

LEGEND

Light defoliation







Forest Tent Caterpillar

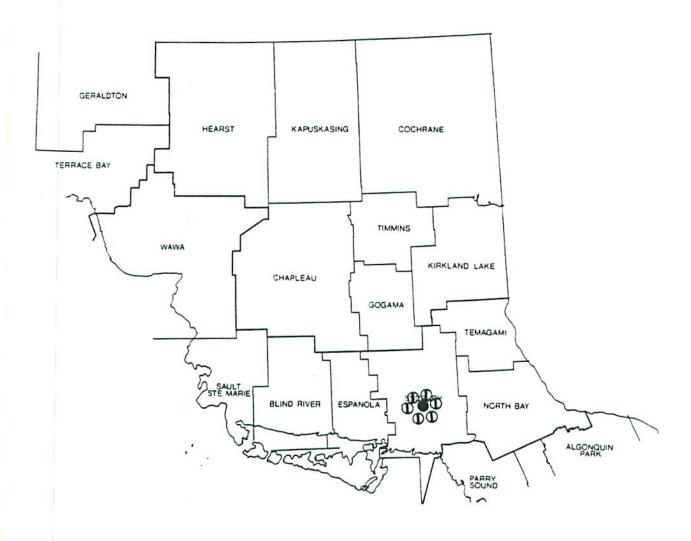
Areas within which defoliation occurred in 1957

0 Miles 60 0 Kilometres 96

LEGEND

Light defoliation ①

Moderate-to-severe defoliation ●

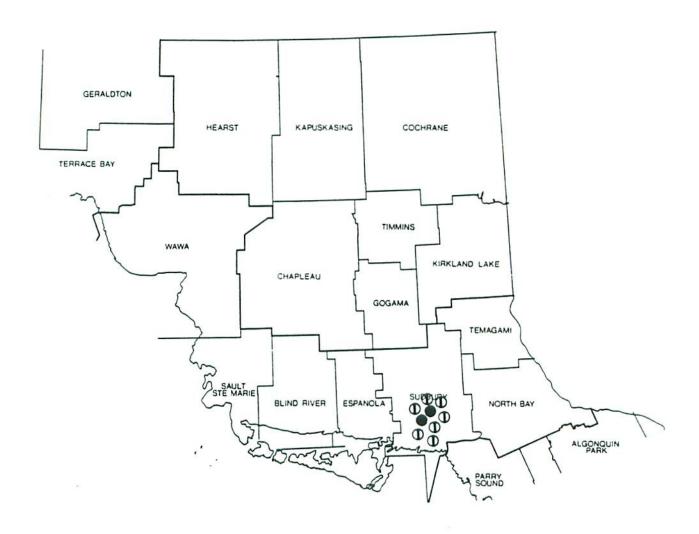


Forest Tent Caterpillar

O Miles 60
O Kilometres 96

Areas within which defoliation occurred in 1960

LEGEND



Forest Tent Caterpillar

Areas within which defoliation occurred in 1961

0 Miles 60 0 Kilometres 96

LEGEND



Forest Tent Caterpillar

Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1962

LEGEND

Light defoliation ① Moderate-to-severe defoliation





Forest Tent Caterpillar

60 Miles O Kilometres 96

Areas within which defoliation occurred in 1963

LEGEND

Light defoliation ① Moderate-to-severe defoliation ● or



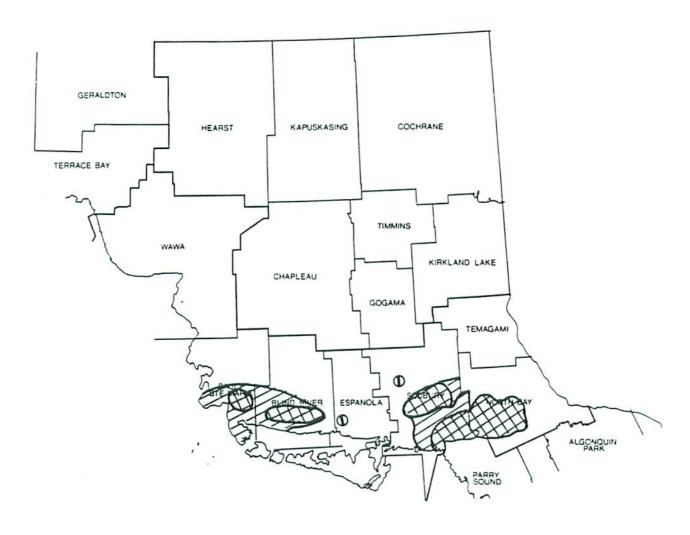


Forest Tent Caterpillar

Areas within which defoliation occurred in 1964

0 Miles 60 0 Kilometres 96

LEGEND

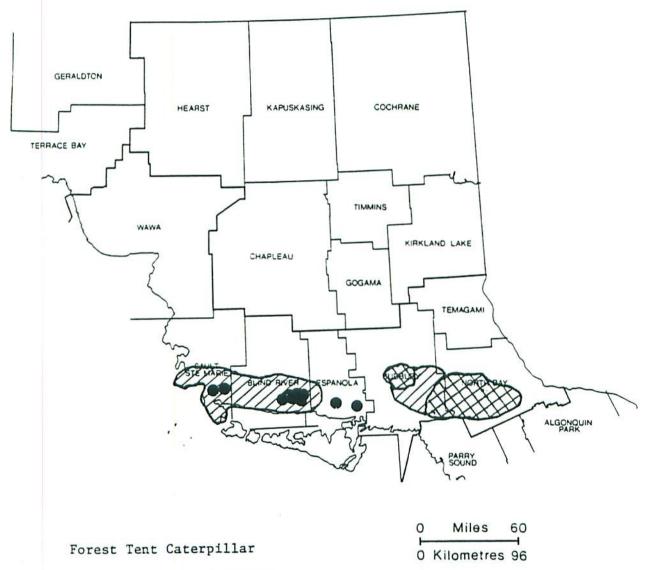


Forest Tent Caterpillar

Areas within which defoliation occurred in 1965

LEGEND





Areas within which defoliation occurred in 1966

LEGEND

Light defoliation









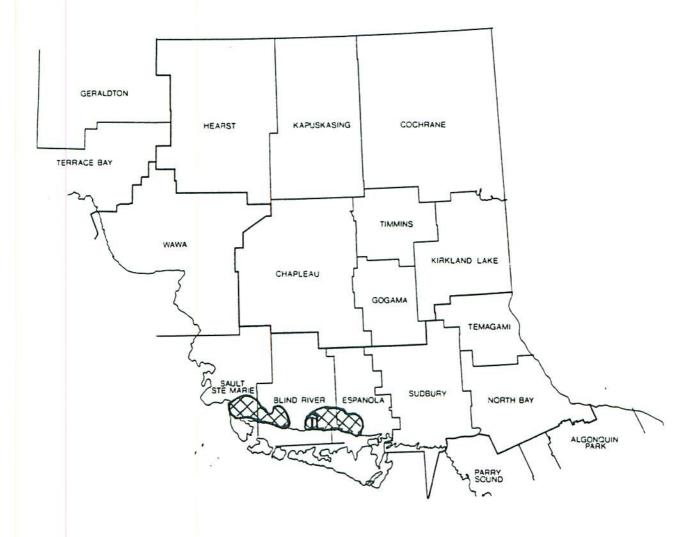
Forest Tent Caterpillar

O Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1967

LEGEND

Light defoliation \bullet Moderate-to-severe defoliation \bullet or



Forest Tent Caterpillar

Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1968

LEGEND

Light defoliation ① Moderate-to-severe defoliation





Forest Tent Caterpillar

Areas within which defoliation occurred in 1969

0 Miles 60 0 Kilometres 96

LEGEND

Light defoliation ${\bf \oplus}$



Forest Tent Caterpillar

O Kilometres 96

Areas within which defoliation occurred in 1973

LEGEND





Forest Tent Caterpillar

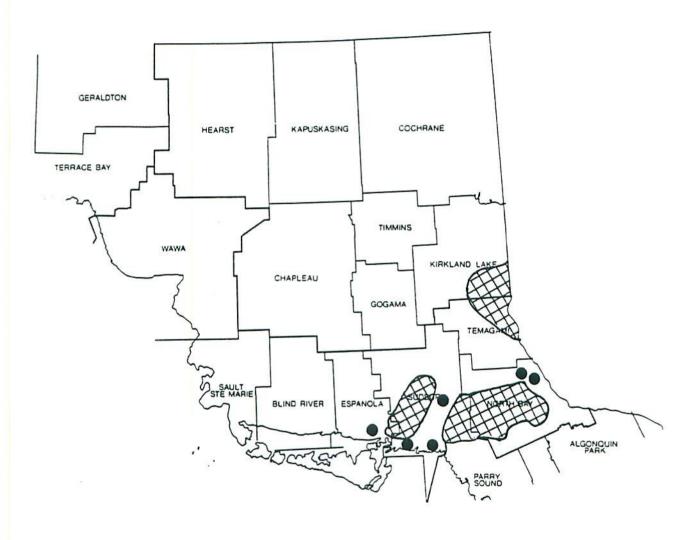
Areas within which defoliation occurred in 1974

Miles 60 0 Kilometres 96

LEGEND







Forest Tent Caterpillar

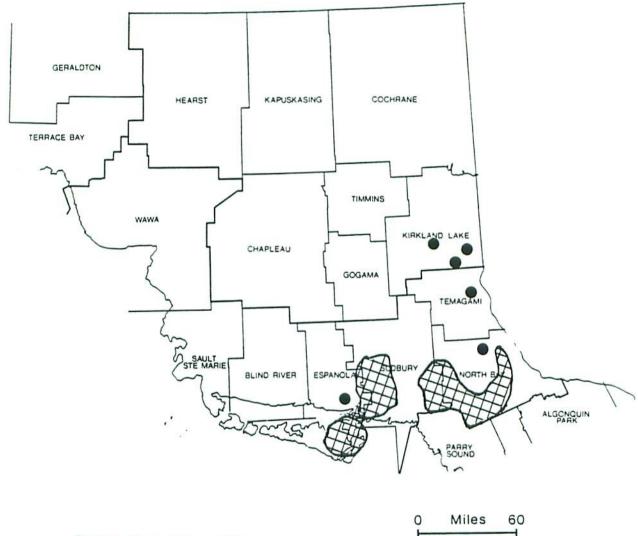
Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1975

LEGEND







Forest Tent Caterpillar

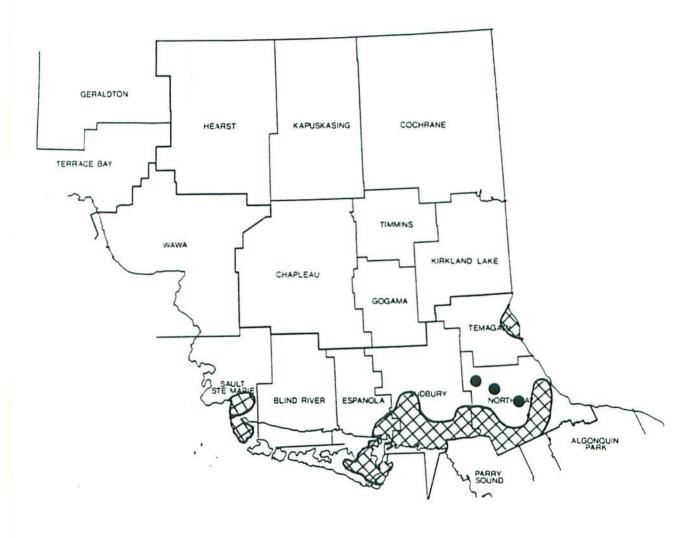
O Kilometres 96

Areas within which defoliation occurred in 1976

LEGEND





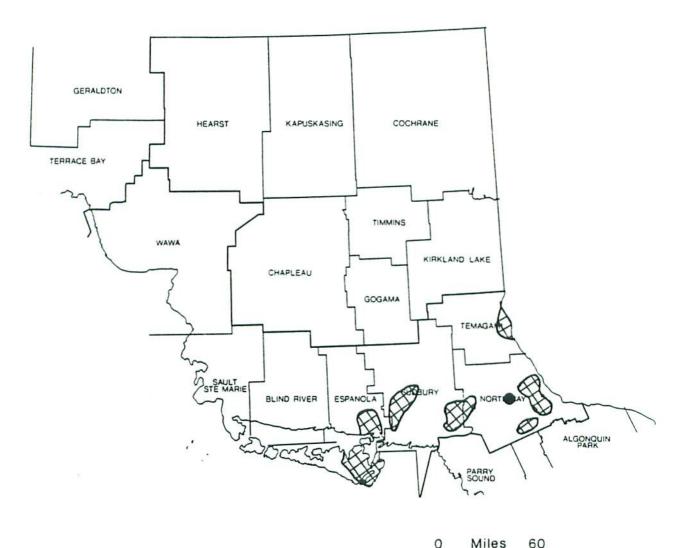


Forest Tent Caterpillar

O Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1977

LEGEND



Forest Tent Caterpillar

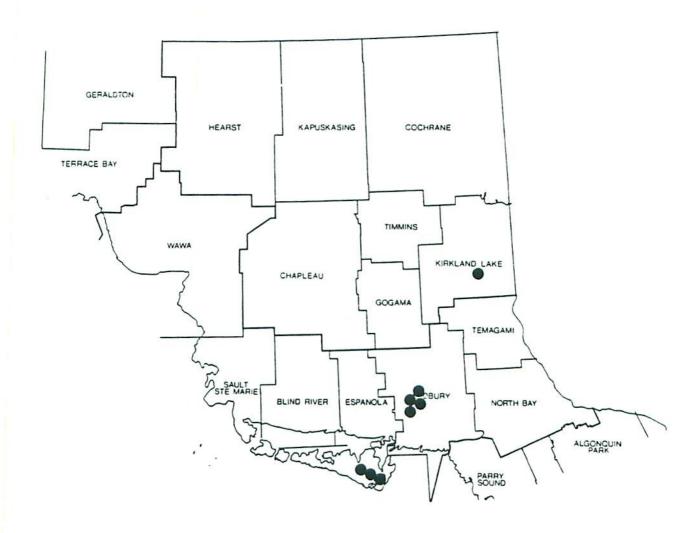
Miles O Kilometres 96

Areas within which defoliation occurred in 1978

LEGEND







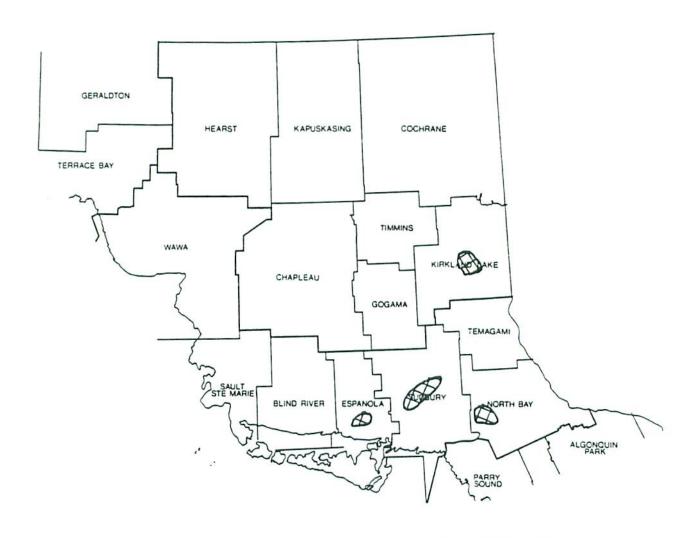
Forest Tent Caterpillar

Areas within which defoliation occurred in 1979

LEGEND

Moderate-to-severe defoliation ●

0 Miles 60 0 Kilometres 96



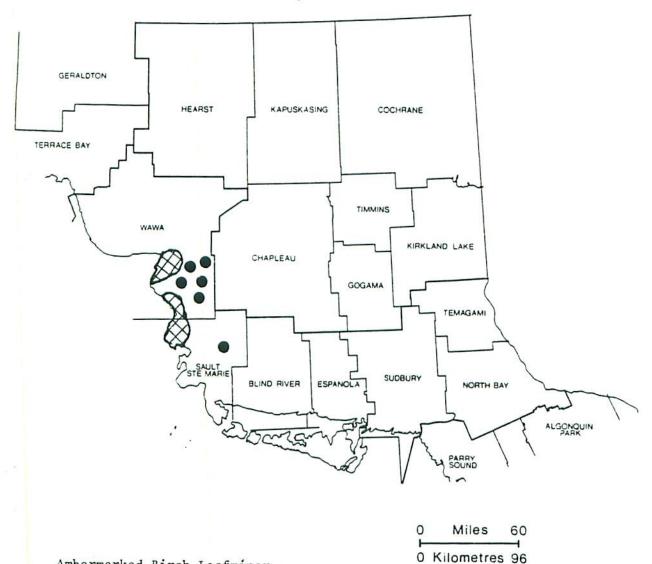
Forest Tent Caterpillar

Miles 60 O Kilometres 96

Areas within which defoliation occurred in 1980

LEGEND

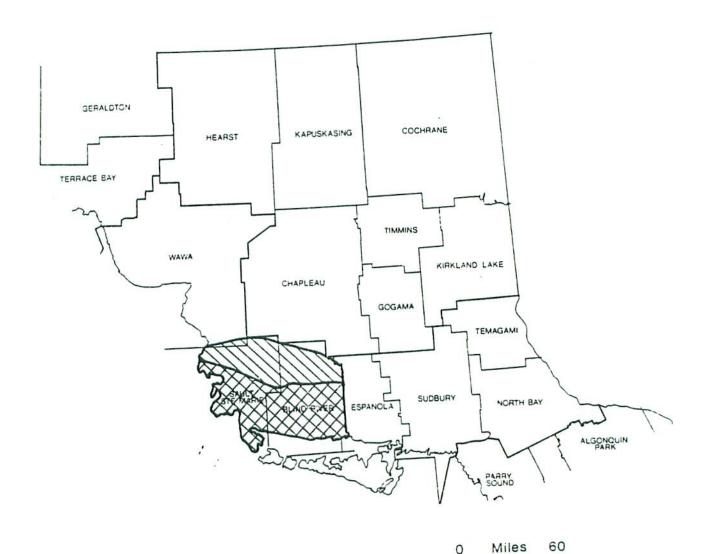




Ambermarked Birch Leafminer

Areas with which defoliation occurred in 1958

LEGEND



Ambermarked Birch Leafminer

Areas within which defoliation occurred in 1960

LEGEND

Light defoliation Moderate-to-severe defoliation



O Kilometres 96