A REVIEW OF IMPORTANT FOREST INSECT AND DISEASE PROBLEMS IN THE PARRY SOUND 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 three 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 from the earliest reports are taken to the second decimal point, [e.g., sq. mi. to km^2 = area (sq. mi.) x 2.59 = area 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 annual maps for southern Ontario, grouped alphabetically by insect species or disease pathogen, and which show 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	A.L. Rose
1951-1953	F.A. Bricault
1954-1958	D.G. Grisdale
1959-1968	C.A. Barnes
1969	H.D. Lawrence
1970-1973	L.S. MacLeod and H.D. Lawrence
1974-1975	H.J. Weir and H.D. Lawrence
1976-1979	H.J. Weir and V. Jansons
1980	H.J. Weir and H.J. Evans

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Maple Decline

Oak Decline

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INTRODUCTION

This report is a review of significant forest insects and diseases that occurred in the Parry Sound District during the period from 1950 to 1980, and includes 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 tolerant hardwoods (sugar maple, hemlock, yellow birch, red oak) and white pine-red pine (white pine, red pine, jack pine, poplar and white birch). 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 caused tree damage, i.e., frost, salt, snow and winter drying.

SUMMARY

FOREST INSECTS

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

Defoliation by this insect seldom causes mortality of the host but the weakened trees are subject to attack by secondary insects and diseases. Large outbreaks of the insect usually last three to four years, then decline rapidly. Outbreaks recorded since the Insect Survey was established in 1936 were from 1941 to 1944, from 1961 to 1963 and from 1971 to 1973, inclusive. Studies of mortality have not been recorded but birch decline reported in 1966 and 1967 may be a result of the 1961-1963 infestation.

Aspen defoliators, *Choristoneura conflictana* (Wlk.),
Enargia decolor (Wlk.),
Epinotia nisella criddleana Kft.,
Pseudexentera oregonana Wlshm., and
Xylomyges dolosa (Grt.) [Major]
pages

Defoliation caused by the complex of insects was common between 1950 and 1980. Although population levels were mostly low and damage light, several more serious infestations occurred.

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

This insect is considered the most destructive insect pest of several coniferous hosts in eastern Canada. Its main hosts are white spruce and balsam fir. Though not major hosts, black spruce, eastern hemlock and tamarack are attached and considerable tree mortality can occur. This report describes the beginning of the current infestation in 1965, when low numbers of insects were present, notes the increase in defoliation in 1969 and the occurrence of top and tree mortality of balsam fir in 1977, and finally documents widespread mortality of both white spruce and balsam fir by 1980. Previous to this infestation an infestation of minor proportions was recorded between 1940 and 1943.

Jack Pine Budworm, *Choristoneura pinus pinus* Free. [Major]
pages

This is a destructive pest of pines that can cause tree mortality after about two years of severe defoliation. The most recent outbreak of this pest started in 1967 and populations increased until 1972. Mortality of jack pine trees began in 1969. An aerial spraying operation that used the insecticide Zectran- was carried out over an area of 727 ha in 1972. Populations declined to low levels in 1975. No infestations were reported in this area before 1967.

Greenstriped Mapleworm, *Dryocampa rubicunda rubicunda* (Fabr.) [Major]
page

This insect defoliates both red and sugar maple but prefers red maple understory trees. In Parry Sound District, light defoliation of red maple occurred in 1955 and continued until 1962. There was no record of mortality.

Birch Leafminer, *Fenusa pusilla* (Lep.) [Major]
pages

Defoliation by this miner can weaken trees and leave them susceptible to secondary insects and diseases, and may be a predisposing factor in birch decline. As a rule these insects attack single trees, but when populations build up, stands of trees can be severely defoliated. Yearly fluctuations in populations have occurred since 1955. There were no infestations reported before 1955.

Saddled Prominent, *Heterocampa guttivitta* (Wlk.) [Major]
pages

Outbreaks of this insect cause severe defoliation of birch and sugar maple, which retards growth and vigor. Moderate-to-severe defoliation occurred in the district in 1967, 1968 and 1969.

Hemlock Looper, *Lambdina fiscellaria fiscellaria* (Gn.) [Major]
page

This destructive pest of hemlock, cedar and balsam fir can cause mortality of mature trees after one year of severe defoliation. Severe defoliation of hemlock and cedar occurred on Bernice Island in Georgian Bay between 1954 and 1956. Earlier infestations were recorded in 1928 and 1929 on islands in Lake Joseph. Aerial spraying with calcium arsenate dust was carried out on 19 June 1929 over 400 ha of heavily infested forest. Larval mortality ranged from 90 to 100% within 24 hours of spraying. Severe defoliation was recorded "south of Parry Sound" between 1937 and 1939. No infestations have been reported since 1969.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn. [Major]
pages

This caterpillar is widely distributed through North America. Infestations usually last an average of five years and high populations denude large areas of susceptible stands. The principal host attacked is aspen; however, many other deciduous species also suffer severe defoliation. Repeated defoliation retards tree growth and vigor, leaving the tree susceptible to attack by other pests. Outbreaks of this insect occurred from 1948 to 1953, from 1961 to 1966 and from 1972 to 1978.

Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch) [Major]
pages

This perennial pest of red pine plantation trees was first reported "south of Parry Sound" in 1936 when the Insect Survey was formed. Since then, yearly defoliation of various degrees of intensity has been recorded in the district. Annual population trends are difficult to determine because of the efforts of the government and private plantation owners to control the insect by clipping of infested foliage and by ground or aerial applications of insecticides.

Pine Sawflies, Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl.
Jack Pine Sawfly, *N. pratti banksianae* Roh.,
Swaine Jack Pine Sawfly, *N. swainei* Midd.,
Redheaded Jack Pine Sawfly, *N. virginianus* complex
pages [Major]

These sawflies are capable of causing mortality of semimature and plantation jack pine trees when population levels are high. Although no mortality surveys have been carried out, some mortality was reported in stands after severe defoliation occurred between 1955 and 1957, and again in 1959 and 1963. Defoliation by these sawflies was not recorded before 1950.

- Prebble, M. 1975. Aerial spraying of forest insects in Canada.

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.) [Major]
page

This destructive insect has been categorized as a serious pest of young spruce plantations and open-growing ornamentals. High mortality can occur after successive years of severe defoliation. No large areas of severe damage were recorded in the district.

White Pine Weevil, *Pissodes strobi* (Peck) [Major]
pages

This weevil is considered the most destructive pest of white pine in North America. Successive weeviling over a period of years results in multiple-stemmed trees. Various degrees of infestation were recorded in the district from 1950 to 1980.

Larch Sawfly, *Pristiphora erichsonii* (Htg.) [Major]
pages

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.

Other Noteworthy Insects [Major and Minor]
pages

Insects that have the potential for causing damage to stands, regeneration and plantations.

FOREST DISEASES

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

Although surveys were carried out for this destructive pest of young pine, the pathogen was not confirmed by culturing in this district until 1969. Since then, infected trees have been found in 30 plantations in five townships.

Dutch Elm Disease, *Ceratocystis ulmi* (Buism.) C. Moreau [Major]
pages

This major disease organism, which affects all species of elm, was first recorded in Ontario in Prescott County, in 1946, and has gradually spread throughout most of the known range of elm in Ontario. It was first reported in Parry Sound District in 1960, "just south of Parry Sound". The incidence of the disease and mortality of white elm have increased throughout the district.

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

This ink spot disease is widespread throughout the range of aspen. Many poplar species and hybrids are susceptible, but trembling aspen is most commonly affected. Heavily infected trees may be defoliated prematurely and repeated attacks can reduce increment and even kill regeneration. Moderate-to-severe discoloration of foliage was evident in the northern part of the district in 1963, 1972, 1974 and 1978.

White Pine Blister Rust, *Cronartium ribicola* J.C. Fischer [Major]
pages

White pine blister rust is the most serious disease of eastern white pine. The disease caused top killing and mortality of trees of all ages in the Parry Sound District.

Hypoxylon Canker, *Hypoxylon mammatum* (Wahlenb.) J. Miller [Major]
pages

Mortality caused by this disease is usually restricted to trees in the 7-cm to 13-cm diameter class that grow on poor sites, but branch and top mortality may occur in larger trees. The incidence of the disease has been high since 1952, the year the Forest Disease Survey began monitoring forest tree diseases.

Leaf and Shoot Blight of Aspen, *Venturia macularis* (Fr.) E. Müller & v. Arx [Major]
page

Reduced stocking of regeneration aspen occurs when the incidence of this disease is high. Trees more than 5 years old are seldom affected and, therefore, the disease is of little economic importance in natural stands.

Other Noteworthy Diseases [Major and Minor]
pages

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

ABIOTIC DAMAGE
pages

Abiotic damage was caused by a variety of influences, such as frost, salt, snow, and winter drying. Weakened trees are susceptible to a number of insects and diseases.

DIEBACKS AND DECLINES

Declines
pages

Birch, maple, and oak trees were all reported to have been affected by declines at various times between 1950 and 1980.

Semi-mature Needle Tissue Blight
page

This condition, whose origin is not yet known, causes conspicuous foliar browning on white pine trees of all ages. The incidence of this blight was reported to be severe in 1972.

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

Host(s): wB [Major]

Year	Remarks
1950-1960	not reported
1961	Severe defoliation occurred throughout the district (see map, page 10).
1962	Moderate damage occurred throughout the district (see map, page 11).
1963	Damage was heavy in Ferrie, Lount, Wilson and McConkey twps; elsewhere, damage was generally light (see map, page 12).
1964-1970	not reported
1971	Severe damage occurred in the northeastern part of the district (see map, page 13).
1972	Severe damage occurred in the northern part of the district (see map, page 14).
1973	Populations declined; severe damage persisted in McConkey and Henvey twps (see map, page 15).
1974-1980	not reported

Aspen Defoliators: Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.); Aspen Twolief Tier, *Enargia decolor* (Wlk.); Yellowheaded Aspen Leaftier, *Epinotia nisella criddle-criddleana* Kft.; Aspen Leafroller, *Pseudexentera* oregonana Wlshm.; and Lined Black Aspen Caterpillar, *Xylomyges dolosa* (Grt.)

Host(s): tA [Major]

Year		Remarks
1950-1956	not reported	
1957	*C. conflictana*	Light defoliation occurred in Henvey, Mowat and Wallbridge twps.
1958	C. conflictana	Population levels were generally low.
1959-1960	not reported	
1961	*E. decolor*	caused severe defoliation of aspen between French River and Parry Sound
1962	*E. decolor*	Population levels decreased in Mowat, Blair and Henvey twps.
1963	*E. nisella criddleana*	caused severed defoliation along Hwy 69

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Aspen Defoliators: Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.); Aspen Twolief Tier, *Enargia decolor* (Wlk.); Yellowheaded Aspen Leaftier, *Epinotia nisella criddle-criddleana* Kft.; Aspen Leafroller, *Pseudexentera* oregonana Wlshm.; and Lined Black Aspen Caterpillar, *Xylomyges dolosa* (Grt.) (concl.)

Year		Remarks
1963	*E. decolor*	low population levels in Harrison Twp
1964	*P. oregonana*	caused moderate defoliation throughout district
1965	*P. oregonana*	Population levels remained moderate.
1966	*P. oregonana*	Severe defoliation occurred in Blair, Mowat and Henvey
1967	*P. oregonana*	Populations in Blair and Mowat twps decreased; low population levels were reported in McMurrich, Spence, Ferguson, McKenzie and Croft twps.
1968	*P. oregonana*	Populations declined.
1969-1972	not reported	
1973	*E. decolor*	Population levels were generally low.
1974-1978	not reported	
1979	*C. conflictana*	caused severe defoliation of aspen in Mowat and Blair twps
1980	*C. conflictana* *P. oregonana* *E. decolor* *X. dolosa*	These four pests severely defoliated approximately 25,000 ha in Blair, Mowat and Henvey twps.

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

Host(s): bF, wS, eH, tL [Major]

Year	Remarks
1950-1958	not reported
1959	very low population levels
1960-1964	not reported
1965-1966	very small numbers
1967	small numbers in Henvey, Mowat and McKellar twps (see map, page 19)
1968	light defoliation in Mowat and Henvey twps (see map, page 20)
1969	Populations increased in Mowat, Henvey and McConkey twps (see map, page 21).
1970	Populations increased in Blair and McConkey twps (see map, page 22)
1971	further increases in Blair and McConkey twps (see map, page 23)
1972	Severe defoliation occurred over 8,080 ha in Blair and McConkey twps (see map, page 24).
1973	little change in the 8,080-ha infestation in Blair and McConkey twps (see map, page 25)
1974	Severe defoliation occurred in Mowat, Blair and McConkey twps (see map, page 26).
1975	Infestation levels increased in Blair, McConkey and Mowat twps, and there were new infestations in Spence and Monteith twps (see map, page 27).
1976	Pockets of severe defoliation were reported in McConkey, Mowat, Blair, Wilson, Lount, Spence and Monteith twps (see map, page 28).
1977	Severe defoliation occurred in McConkey, Blair, Mowat, Henvey, Lount, Ferrie, Spence, Ryerson and McMurrich twp (see map, page 29); top and whole-tree mortality occurred in Blair, McConkey, Brown and Wilson twps (see map, page 30).
1978	Populations generally increased throughout the district (see map, page 31); balsam fir top and tree mortality increased (see map, page 32).
1979	Major increases in population levels occurred in the northern and eastern part of the district (see map, page 33); balsam fir and white spruce tree mortality increased (see map, page 34).

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

Year	Remarks
1980	Populations generally increased throughout the area infested; a new, severe infestation was reported in Wallbridge Twp (see map, page 35); aerial spraying was conducted in Spence and Mowat twps; mortality of white spruce and balsam fir trees increased (see map, page 36).

Jack Pine Budworm, *Choristoneura pinus pinus* Free.

Host(s): jP, rP, scP [Major]

Year	Remarks
1950-1956	not reported
1957	low populations in Mowat and Henvey twps
1958-1966	not reported
1967	Moderate-to-severe defoliation occurred in the northern part of the district; light defoliation occurred in McDougall Twp (see map, page 38).
1968	Moderate-to-severe defoliation recurred in Henvey, Mowat, Wallbridge and Harrison twps (see map, page 39).
1969	Populations increased in Henvey, Mowat, Wallbridge, Harrison and Wilson twps (see map, page 40); some mortality occurred.
1970	Populations remained high in the areas of infestation and also in a pocket in Wilson and McKenzie twps (see map, page 41). Mortality occurred over an area of 160 km-between Hwy 69 and Georgian Bay, from Still River to Pickerel River.
1971	High populations continued between Pointe aux Baril and the French River and in Wilson and McKenzie twps (see map, page 42). Mortality of jack pine increased.
1972	Infestation boundaries were similar to those in 1971, with lower population levels but increased mortality. Aerial spraying with Zectran- was carried out along hwys 69 and 529. Over 727 ha were treated.
1973	There was a general decline in population levels, but severe defoliation persisted in approximately 112 km in Wallbridge and Harrison twps.
1974	a reduction in populations in Wallbridge and Harrison twps
1975	low numbers of insects in Henvey Twp
1976-1980	not reported

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

Host(s): rM, sM [Major]

Year	Remarks
1950-1954	not reported
1955-1957	light defoliation on understory red maple in Shawanaga Twp
1958	light defoliation in Shawanaga and Croft twps
1959	light defoliation in Shawanaga and Spence twps
1960	Light defoliation persisted in Shawanaga Twp.
1961-1962	Infestations declined in Shawanaga Twp.
1963-1980	not reported

Birch Leafminer, *Fenusa pusilla* (Lep.)

Host(s): wB [Major]

Year	Remarks
1950-1954	not reported
1955	Low population levels were general in the district.
1956	Severe foliar browning occurred in Lount Twp.
1957	Moderate foliar browning occurred in Carling Twp.
1958-1961	low population levels
1962	Severe foliar browning occurred in Blair Twp.
1963	not reported
1964	Severe foliar browning occurred in Chapman Twp.
1965	Severe foliar browning occurred in Burpee and Mowat twps.
1966	Severe foliar browning occurred in Henvey, Chapman and Mowat twps.
1967	Severe foliar browning occurred in Henvey and Mowat twps; moderate foliar browning was reported in numerous areas.
1968	continued high population levels in the district
1969	Moderate-to-severe browning was reported in Ryerson, Chapman and McMurrich twps.
1970	light infestation levels in Freeman and Gibson twps
1971	Severe foliar browning occurred in Chapman Twp.

(cont'd)

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

Year	Remarks
1972	continued high populations in Chapman Twp
1973	not reported
1974	Severe leaf mining occurred in McMurrich Twp.
1975-1976	not reported
1977	severe browning in Carling Twp; moderate in Mowat and Blair twps
1978	low population levels
1979-1980	Severe foliar browning occurred along Hwy 69 in Carling and Foley twps.

Saddled Prominent, *Heterocampa guttivitta* (Wlk.)

Host(s): Be, sM [Major]

Year	Remarks
1950-1967	not reported
1968	low numbers in Mowat Twp
1969	Pockets of moderate-to-severe defoliation were reported in Lount, Chapman, Ryerson and McMurrich twps (see map, page 45).
1970-1980	not reported

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

Host(s): eH, bF, eC [Major]

Year	Remarks
1950	not reported
1951	Low population levels were reported in Ferrie, Shawanaga, Christie, and Foley twps.
1952-1953	not reported
1954	Severe defoliation occurred on Bernice Island in Georgian Bay.
1955	Severe defoliation recurred on Bernice Island in Georgian Bay; 65% hemlock and 100% cedar mortality was reported; the island was sprayed with DDT and oil, and control was excellent.
1956	Very small numbers of loopers were found in Foley Twp; none was found on Bernice Island.
1957	low populations in Humphrey Twp; not found on Bernice Island
1958-1964	not reported
1965	very small numbers in Humphrey Twp
1966-1967	not reported
1968	very small numbers in Humphrey Twp
1969-1980	not reported

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Host(s): tA, sM, rO [Major]

Year	Remarks
1950	Populations increased dramatically over levels reported in previous years (see map, page 49).
1951	Infestations increased over 90% of the district (see map, page 50).
1952	Severe defoliation occurred in the northern half of the district (see map, page 51).
1953	Moderate-to-severe infestation was reported in the northeastern part of the district and in Freeman Twp (see map, page 52).
1954	low population levels
1955-1960	not reported
1961	low population levels
1962	Populations increased in Humphrey and Christie twps; low population levels were reported near French River.
1963	Moderate-to-severe defoliation occurred in the southern part of the district (see map, page 53).
1964	Severe defoliation occurred in Freeman and Gibson twps; light defoliation was reported in Henvey and Mowat twps (see map, page 54).
1965	The area infested and the severity of the damage increased in the southern part of the district (see map, page 55).
1966	Populations increased in the northern part of the district, but declined in Conger, Freeman, Gibson and Humphrey twps (see map, page 56).
1967	The infestation collapsed. There was light defoliation in Mowat Twp (see map, page 57).
1968	Very few larvae were found.
1969-1971	not reported
1972	Few larvae were found.
1973	Light defoliation occurred in Mowat and Henvey twps (see map, page 58).
1974	Severe defoliation occurred in Henvey, Mowat and Wallbridge twps; light defoliation occurred in Carling Twp (see map, page 59).

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Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Year	Remarks
1975	Severe defoliation occurred in a band from French River to Freeman twp (see map, page 60); aerial spraying with fenitrothion was carried out over 500 ha in Grundy Park; fenitrothion and *Bacillus thuringiensis (B.t.)* were used in field trials in Henvey Twp.
1976	There was severe defoliation throughout the district (see map, page 61). A spray was planned for Grundy Park but was cancelled because of a population collapse that resulted from cold weather in this part of the district.
1977	Complete defoliation occurred throughout the district (see map, page 62), and larval starvation was widespread. Spray projects with *B.t.* were carried out in Grundy, Killbear and Oastler provincial parks.
1978	The infestation collapsed, but several pockets of light defoliation persisted in Mowat and Blair twps (see map, page 63). *B.t.* was sprayed in Grundy Park. Some sugar maple mortality was observed near Moon River.
1979-1980	No larvae were observed, but maple mortality increased in 1979.

Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch)

Host(s): rP, scP, jP [Major]

Year	Remarks
1950	Low population levels were reported in Foley, Conger and Humphrey twps.
1951	Low population levels were reported in Monteith, Croft, Burpee and Burton twps.
1952	Moderate defoliation occurred in Foley Twp. Light defoliation occurred in other areas of the district.
1953	Severe defoliation occurred in young jack pine stands in Monteith Twp. Light defoliation occurred in other areas of the district.
1954	Moderate defoliation occurred in Hagerman Twp. Light defoliation was reported in Mowat, McKenzie and Humphrey twps.
1955	Severe defoliation was reported in Hagerman Twp. Moderate defoliation occurred in Foley Twp.
1956	Severe defoliation recurred in Hagerman Twp. Light defoliation was reported in Foley and McConkey twps.
1957	Light defoliation was common throughout the district.
1958	Low population levels were reported in Henvey, Mowat, Shawanaga, McDougall and Humphrey twps.
1959	Low population levels were reported in Mowat and Henvey twps.
1960	Moderate defoliation occurred in McConkey Twp. Light defoliation was common throughout the district.
1961	Moderate defoliation occurred in McDougall Twp. Light defoliation was reported in Wilson and Henvey twps.
1962	Low population levels were reported in Mowat and Gibson twps.
1963	Low population levels were reported in Henvey Twp.
1964	Moderate defoliation occurred on jack and Scots pine wind-breaks in Wilson Twp.
1965	Severe defoliation occurred in Freeman and Gibson twps. Low levels of defoliation were reported in Mowat Twp.
1966	Severe defoliation recurred in Gibson and Freeman twps.
1967	Moderate defoliation recurred in Gibson Twp; light defoliation was reported in Mowat and Wilson twps.
1968	Low population levels were reported in Mowat and Wilson twps.
1969	High population levels were reported in Ferguson Twp, and low levels in Mowat Twp.

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Redheaded Pine Sawfly, *Neodiprion lecontei* (Fitch) (concl.)

Year	Remarks
1970	Severe defoliation of red and Scots pine was reported in Ferguson, Hagerman, Croft and Chapman twps.
1971	A general decline in populations occurred in the district.
1972	not reported
1973	Low population levels were reported in McConkey Twp.
1974	not reported
1975	Numerous areas were lightly infested.
1976	Population levels increased throughout the district. Moderate defoliation occurred in Carling Twp.
1977	Severe defoliation occurred in many red pine plantations in Burton and McKenzie twps. Light defoliation was reported in several other areas.
1978	Populations remained at moderate levels.
1979	Light-to-moderate levels of infestation were reported in Hagerman, Croft, Carling and Foley twps.
1980	In Algonquin Region, population levels have generally increased since 1978. Damage caused by this insect in private and Woodlot Improvement Act plantations, and on Crown land, caused O.M.N.R. some concern; they requested assistance from the Forest Pest Management Institute (Sault Ste. Marie), and an experimental aerial and ground spray program that used nuclear polyhedrosis virus was carried out. In 1980, this program was conducted in 96 plantations in six districts (see map, page 67): 8 plantations were sprayed from the air, 88 from the ground. A total of 539.8 ha were treated. Spraying was carried out when the majority of larvae were in the second and third instar stages; when third and fourth instar larvae were found later in the summer, malathion sprays were used as well. Preliminary results were excellent, but final results will be evaluated in 1981 by means of population surveys.

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl.,
Jack Pine Sawfly, *N. pratti banksianae* Roh.,
Swaine Jack Pine Sawfly, *N. swainei* Midd., and
Redheaded Jack Pine Sawfly, *N. virginianus* complex

Host(s): jP, rP [Major]

Year		Remarks
1950-1953		not reported
1954	*N. banksianae*	caused moderate damage in Humphrey Twp
1955	*N. banksianae*	caused severe damage in Humphrey and Foley twps
1956	*N. banksianae*	Severe infestation was reported in Humphrey Twp; light infestations occurred in Harrison, Hagerman, Croft, Mowat and Christie twps.
	N. virginianus	Light infestations occurred along Hwy 69 from Shawanaga Twp to the French River.
1957	*N. banksianae*	general decline in population; light damage in Harrison and Humphrey twps
	N. virginianus	moderate defoliation between Shawanaga Twp and the French River
	N. swainei	moderate damage between Shawanaga Twp and French River
1958	*N. banksianae* *N. virginianus* *N. swainei*	low population levels between Harrison Twp and the French River
1959	*N. banksianae*	general increase throughout the district
	N. virginianus	high population levels in Henvey, Shawanaga and Burton twps
	N. swainei	low population levels in the French and Pickerel rivers area
1960	*N. banksianae*	High population levels persisted along Hwy 69.
	N. virginianus *N. swainei*	Populations declined near the French River.
1961	*N. banksianae*	The infestation declined to medium levels in Humphrey Twp. Low population levels persisted in Christie, Burton, McDougall and Monteith twps.
	N. virginianus	Populations declined to low levels.
	N. n. nanulus	minor increase in McDougall Twp

(cont'd)

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl., Jack Pine Sawfly, *N. pratti banksianae* Roh., Swaine Jack Pine Sawfly, *N. swainei* Midd., and Redheaded Jack Pine Sawfly, *N. virginianus* complex (cont'd)

Year		Remarks
1962	*N. banksianae*	Populations increased in Ryerson and Monteith twps.
	N. virginianus	Populations increased in Henvey, Mowat and Shawanaga twps.
1963	*N. banksianae*	Severe defoliation occurred in Humphrey Twp.
1964	*N. banksianae*	small numbers of larvae in McDougall,Ryerson, Monteith and Humphrey twps
	N. virginianus	low population levels
	N. n. nanulus	Populations of larvae increased in McDougall Twp.
1965	*N. banksianae* *N. virginianus*	low population levels
	N. swainei	Colonies were observed in Mowat Twp for the first time since 1960.
1966	*N. banksianae*	low population levels McDougall and Monteith twps
	N. virginianus	low population levels in Blair, Mowat, Henvey and Shawanaga twps
	N. swainei	light infestation in Henvey and Mowat twps
1966	*N. n. nanulus*	low population levels in McDougall Twp
1967	*N. banksianae*	low population levels in McDougall, Monteith, and Ryerson twps
	N. virginianus	low population levels in the French River area
1968	*N. banksianae*	very low population levels
	N. swainei	low numbers in Mowat Twp
	N. n. nanulus	light levels of defoliation in the French River area
1969-1972		not reported
1973	*N. virginianus*	low population levels in Henvey and Carling twps
1974	*N. virginianus*	common in Spence Twp

(cont'd)

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl.,
Jack Pine Sawfly, *N. pratti banksianae* Roh.,
Swaine Jack Pine Sawfly, *N. swainei* Midd., and
Redheaded Jack Pine Sawfly, *N. virginianus* complex
(concl.)

Year		Remarks
1975	*N. virginianus*	numerous colonies in McMurrich Twp
1976	*N. banksianae*	light levels of defoliation in Wallbridge Twp
1977		not reported
1978	*N. banksianae*	Light-to-moderate levels of defoliation occurred in natural and plantation jack pine in Blair and Mowat twps.
1979	*N. banksianae*	Moderate levels of defoliation occurred in Blair, Mowat and Harrison twps.
1980	*N. banksianae*	Population levels decreased in Blair, Mowat and Harrison twps.
	N. virginianus	low population levels in McMurrich Twp

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

Host(s): wS, bS, Note: In some instances heavy infestations were confined to small numbers of trees. This sawfly can cause severe damage and tree mortality to open-growing and plantation trees.
[Major]

Year	Remarks
1950	not reported
1951	Low population levels were reported at scattered points.
1952	Severe defoliation occurred in Harrison Twp, but defoliation was light in McKenzie and Burpee twps.
1953	Defoliation was less severe, but remained widespread.
1954	Severe defoliation occurred in Humphrey Twp. Defoliation was light in McMurrich Twp.
1955	Severe defoliation occurred in Humphrey Twp.
1956	Moderate defoliation occurred on black spruce in Lount Twp.
1957	Moderate defoliation was reported in Humphrey Twp.
1958-1960	low population levels
1961	Severe defoliation occurred in Humphrey Township, but low population levels were reported elsewhere.
1962	Severe defoliation occurred in Humphrey and Christie twps.
1963-1966	low population levels
1967	Light defoliation was reported in Chapman Twp.
1968	Moderate defoliation occurred in Chapman Twp.
1969-1971	not reported
1972-1974	low population levels
1975-1977	not reported
1978	Moderate defoliation occurred on ornamentals in Parry Sound.
1979-1980	low population levels

White Pine Weevil, *Pissodes strobi* (Peck)

Host(s): wP, scP, rP, jP, wS [Major]

Year	Remarks
1950	not reported
1951	low numbers
1952	not reported
1953	low numbers
1954	Moderate infestations occurred in McMurrich and Hagerman twps.
1955-1957	Moderate levels of infestation persisted in McMurrich and Hagerman twps.
1958	Low levels of infestation persisted in McMurrich and Hagerman twps.
1959	High population levels were reported in McMurrich and Hagerman twps.
1960	Moderate levels of infestation occurred in McMurrich Twp.
1961	not reported
1962-1963	Low levels of infestation were reported in McKenzie and Hagerman twps.
1964	Low levels of infestation occurred in McMurrich, McKenzie and Armour twps.
1965	Moderate levels of infestation were reported in McMurrich, McKenzie and Armour twps.
1966	Low population levels were reported in McMurrich Twp.
1967	generally low populations
1968	High population levels were reported in McKenzie Twp.
1969-1971	not reported
1972	High population levels were reported in McKenzie and McMurrich twps.
1973	not reported
1974	Low population levels occurred in Mowat Twp.
1975-1976	not reported
1977	Severe infestations occurred in planted jack pine in Blair Twp.
1978	Severe infestation recurred in planted jack pine in Blair Township, and was reported on white pine in McDougall and Monteith twps.

(cont'd)

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

Year	Remarks
1979	Severe damage occurred on white pine in Hagerman Twp and on planted jack pine in Blair Twp.
1980	High population levels persisted in Blair Twp.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Host(s): tL [Major]

Year	Remarks
1950-1954	not reported
1955	Low population levels were common.
1956-1959	not reported
1960	Severe defoliation occurred between Britt and the Naiscoot River; moderate defoliation was reported in Mowat Twp.
1961	Severe defoliation persisted in Wallbridge and Henvey twps, moderate defoliation occurred in Christie Twp, and low population levels were common elsewhere.
1962	There was a general decline in population levels.
1963	Populations declined further, to low levels, in Wallbridge and Henvey twps.
1964	A moderate infestation persisted in Henvey Twp. Low population levels were reported elsewhere.
1965	Moderate defoliation occurred in Wallbridge Twp.
1966	Low population levels were reported throughout the district.
1967	Population levels increased in the northwestern part of the district.
1968	Population levels continued to increase.
1969	Population levels decreased.
1970	not reported
1971	A small pocket of severe defoliation was reported in Mowat Twp.
1972-1977	not reported
1978	A few scattered pockets of light defoliation were reported.
1979-1980	not reported

Other Noteworthy Insects

Pine False Webworm, *Acantholyda erythrocephala* (L.)

Host(s): rP [Major]

Year	Remarks
1950-1975	not reported
1976-1977	Moderate-to-severe defoliation of red pine occurred in Killbear Provincial Park.
1978-1979	not reported
1980	This webworm severely defoliated trees at one location in McMurrich Twp.

Birch Sawfly, *Arge pectoralis* (Leach)

Host(s): birch [Major]

Year	Remarks
1950-1953	not reported
1954-1955	Small numbers of larvae were common throughout the district.
1956	Small numbers of larvae were reported in Carling and Shawanaga twps.
1957-1958	not reported
1959-1960	Lightly infested trees were reported near Ardbeg.
1961-1972	not reported
1973	Small numbers of larvae were reported in Mowat Twp.
1974-1980	not reported

Larch Casebearer, *Coleophora laricella* (Hbn.)

Host(s): tL [Major]

Year	Remarks
1950	not reported
1951	Foliar browning was moderate in Foley Twp, and light in Wallbridge, Harrison and Burton twps (see map, page 77).
1952	Defoliation was severe in Wallbridge Twp, and light in Chapman, Hagerman and Christie twps.
1953	Infestations declined, but remained common throughout the district.
1954	Very low population levels were reported in Wallbridge, Chapman, Christie, and McKenzie twps.
1955	very low population levels
1956	not reported
1957	Low population levels were reported in Wallbridge and Chapman twps.
1958	Light foliar browning occurred in Foley and Chapman twps.
1959-1961	very low population levels
1962	Low population levels were common; higher levels were reported in Chapman Twp.
1963-1967	Low population levels were common.
1968	Low population levels were common. Severe browning occurred in McDougall Twp.
1969	Low population levels were reported in Wallbridge and Chapman twps.
1970-1972	very low population levels
1973-1974	Moderate foliar browning occurred in McMurrich Twp.
1975-1976	Light foliar browning occurred in McMurrich Twp.
1977-1979	very low population levels
1980	Severe defoliation occurred in Spence Twp.

Oak Leaf Shredder, *Croesia semipurpurana* (Kft.)

Host(s): rO [Major]

Year	Remarks
1950-1978	not reported
1979	Moderate-to-severe defoliation was reported in Harrison, Carling, McDougall, Foley and Gibson twps.
1980	Low population levels were reported in Foley and McDougall twps.

Linden Looper, *Erannis tiliaria* (Harr.)

Host(s): deciduous [Major]

Year	Remarks
1950-1961	not reported
1962	Severe defoliation of American elm occurred in Chapman Twp.
1963	Moderate-to-severe defoliation of elm occurred at several points in Foley Twp.
1964	Lightly infested elms were reported in Christie Twp.
1965-1975	not reported
1976	Small numbers of larvae were reported on elms at many points in the district.
1977-1980	not reported

Eastern Pine Shoot Borer, *Eucosma gloriola* Heinr.

Host(s): pine [Major]

Year	Remarks
1950-1955	not reported
1956-1961	Small numbers of borers were reported in McMurrich Twp.
1962	Small numbers of borers were reported at several locations.
1963	Large numbers of borers were reported in McMurrich Twp.
1964	Populations decreased to low levels in McMurrich Twp.
1965-1967	trace populations
1968-1970	not reported
1971	Moderate numbers of borers were reported in Mowat Twp.

(cont'd)

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

Year	Remarks
1972-1974	not reported
1975	Small numbers of borers were reported in McMurrich Twp.
1976-1979	not reported
1980	Moderate numbers of larvae were reported in McMurrich and Carling twps.

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

Host(s): wS [Minor]

Year	Remarks
1950-1952	not reported
1953	trace populations
1954-1955	not reported
1956	trace populations
1957-1960	not reported
1961	trace populations
1962-1963	not reported
1964	Numerous larvae were collected in beating-tray samples from Croft, Chapman, Monteith and McMurrich twps.
1965-1966	not reported
1967	trace populations
1968-1976	not reported
1977	trace populations
1978-1980	not reported

Balsam Fir Sawfly, *Neodiprion abietis* complex

Host(s): bF, wS [Major]

Year	Remarks
1950	not reported
1951	Small numbers of larvae were reported in the district.
1952	not reported
1953	Small numbers of larvae were reported in Foley and Harrison twps.
1954	Lightly defoliated trees were observed in Carling, Harrison and Wallbridge twps.
1955	not reported
1956	trace populations
1957	not reported
1958	Lightly infested trees were reported near McKellar.
1959-1980	not reported

White Pine Sawfly, *Neodiprion pinetum* (Nort.)

Host(s): wP [Minor]

Year	Remarks
1950-1970	not reported
1971	Moderate-to-severe defoliation occurred on small trees on islands in Georgian Bay and at several points in Carling Twp.
1972-1973	Moderate-to-severe defoliation of young trees occurred in Cowper Twp.
1974-1980	not reported

European Pine Shoot Moth, *Rhyacionia buoliana* (D. & S.)

Host(s): rP, scP [Major]

Year	Remarks
1950-1978	not reported
1979	In a red pine plantation at Killbear Provincial Park, 16% of the trees were lightly infested.
1980	not reported

Pine Tortoise Scale, *Toumeyella parvicornis* (Ckll.)

Host(s): jP [Major]

Year	Remarks
1950-1954	not reported
1955	Large numbers of scales were reported in Conger Twp, but only occasional infested trees were found in McKenzie and Blair twps.
1956	Small numbers of scales were reported in Wallbridge Twp.
1957-1959	not reported
1960	Heavily infested trees were reported in Blair, Mowat and Henvey twps.
1961-1962	not reported
1963	large numbers of scales at several points in Carling Twp
1964	not reported
1965	small numbers of scales in Blair and Mowat twps
1966-1967	not reported
1968	small numbers of scales in Mowat Twp
1969-1971	not reported
1972	small numbers of scales in the French River area
1973-1978	not reported
1979	Large numbers of scales were found on scattered trees at several points in Blair and Mowat twps.
1980	In a plantation in Blair Twp, 3% mortality occurred.

DISEASES

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

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

Year	Remarks
1950-1965	not reported
1966-1968	The distribution of the canker was surveyed, but none was reported.
1969	The canker was first recorded and confirmed in a 40-ha plantation in Lount Twp.
1970	No further increase in distribution occurred.
1971	Severe infections occurred at a new location in McMurrich Twp.
1972	Incidence in McMurrich Twp remained high.
1973	High incidence was reported at a new location in Spence Twp.
1974	In McMurrich and Spence twps, 70% incidence was recorded.
1975-1976	High levels of incidence persisted at previously affected locations.
1977	High incidence of cankers persisted, but the distribution did not increase.
1978-1980	High levels of incidence persisted throughout the canker's known range (see map, page 86).

Dutch Elm Disease, *Ceratocystis ulmi* (Buism.) C. Moreau

Host(s): wE [Major]

Year	Remarks
1950-1959	not reported
1960	The first record of this disease was reported just south of Parry Sound.
1961	The disease spread further north.
1962	The disease was found in most of the district.
1963	High mortality of elm occurred in the southern part of the district.
1964	The disease caused mortality throughout most of the district.
1965	Mortality increased in Chapman, Ryerson and Wilson twps.
1966	An average of 31.6% mortality was reported at three locations.
1967	Little change in distribution or mortality occurred in the district.
1968-1969	not reported
1970-1980	High levels of mortality persisted throughout the district.

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

Host(s): tA [Major]

Year	Remarks
1950-1957	not reported
1958	Light foliar browning occurred in the French River area.
1959-1962	not reported
1963	Severe foliar browning occurred at numerous locations.
1964-1966	Light foliar browning was common at numerous locations.
1967	Moderate foliar browning occurred in Harrison Twp.
1968-1969	not reported
1970-1971	Very light foliar browning occurred in Mowat Twp.
1972	Foliar browning was severe in Wallbridge Twp, and light-to-moderate in Mowat, Henvey, and Monteith twps.
1973	Moderate levels of infection were reported in Burpee Twp.

(cont'd)

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

Year	Remarks
1974	High levels of infection were reported in Wallbridge Twp; infection levels were low in the remainder of the district.
1975	not reported
1976-1977	low levels in the district
1978	A high level of infection was reported in Blair Twp.
1979-1980	not reported

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

Host(s): wP [Major]

Year	Remarks
1950-1952	not reported
1953	Infections were severe in Christie Twp, light in Croft Twp.
1954	not reported
1955	High levels of incidence (an average of 20%) were reported on islands in Georgian Bay, and in Harrison, Mowat and Ferguson twps.
1956-1958	not reported
1959-1965	Blister rust was common in the district.
1966	High levels of infection and some mortality were reported in Mowat Twp.
1967	Blister rust was common in the district.
1968	Moderate levels of infection were reported in Blair and Mowat twps.
1969	Moderate levels of infection and some mortality were reported in Harrison Twp.
1970-1972	Blister rust was common in the district.
1973	High levels of incidence were reported in Mowat and Spence twps.
1974	High levels of incidence (an average of 41%) were reported in Blair, Mowat and Spence twps.
1975	not reported
1976-1979	Blister rust was common in the district.
1980	Levels of incidence were high in Hagerman Twp, and low in McMurrich and McKellar twps.

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

Host(s): tA [Major]

Year	Remarks
1950-1952	not reported
1953-1955	Cankers were common in aspen stands throughout the district.
1956-1961	not reported
1962	Cankers were common in the district.
1963	Moderate levels of damage occurred in Foley Township, and 5% mortality resulted.
1964-1967	Moderate levels of damage occurred in the district.
1968	Moderate-to-heavy damage occurred in Mowat Twp.
1969-1972	Moderate levels of damage occurred in the district.
1973	Incidence was high in Henvey Twp, and 10% mortality resulted.
1974-1980	Cankers were common in the district, and high mortality occurred.

Leaf and Shoot Blight of Aspen, *Venturia macularis* (Fr.) E. Müller & v. Arx

Host(s): tA [Major]

Year	Remarks
1950-1961	not reported
1962	Severe infections occurred on regeneration along hwys 69, 124, and 141.
1963-1966	Low levels of incidence were general in the district.
1967	High levels of incidence were general in the district.
1968	not reported
1969	low levels of incidence in the district
1970-1971	not reported
1972-1973	low levels of incidence in the district
1974-1977	not reported
1978	Low levels of incidence were reported throughout the district.
1979-1980	not reported

Other Noteworthy Diseases

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

Host(s): coniferous [Major]

Year	Remarks
1950-1956	not reported
1957	Slight mortality was reported in a red pine plantation in Burton Twp.
1958-1962	not reported
1963	Several dead white pine trees were reported in Blair Twp.
1964-1967	Infected trees were found throughout the district.
1968-1973	not reported
1974-1977	Scattered mortality occurred throughout the district
1978-1980	not reported

Needle Rust, *Coleosporium asterum* (Dietel) Sydow

Host(s): rP [Major]

Year	Remarks
1950-1957	not reported
1958-1959	Light levels of infection were common in the district.
1960-1962	not reported
1963	Light levels of infection were common in the district.
1964-1970	not reported
1971	Light levels of infection were common in the district.
1972-1977	not reported
1978	Moderate levels of infection were reported in McDougall Twp.
1979	Light levels of infection were reported in Hagerman Twp.
1980	Incidence was high but damage was light in Ferguson Twp.

Sweetfern Blister Rust, *Cronartium comptoniae* Arthur

Host(s): jP [Major]

Year	Remarks
1950-1969	not reported
1970	The first record of this disease in the district was reported in Harrison Twp.
1971-1972	Moderate levels of infection were reported in Harrison Twp.
1973-1980	not reported

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

Host(s): jP [Minor]

Year	Remarks
1959-1957	not reported
1958	Severe levels of infection were reported in the French River area.
1959-1962	not reported
1963-1964	Moderate levels of infection were reported in Shawanaga McDougall and Monteith twps.
1965-1973	not reported
1974	Moderate levels of infection were reported in Wallbridge Twp.
1975-1980	not reported

Eutypella Canker, *Eutypella parasitica* Davidson & Lorenz

Host(s): sM [Major]

Year	Remarks
1950-1962	not reported
1963-1964	Low levels of incidence were common in the southern part of the district.
1965-1972	not reported
1973	Low levels of incidence were common in the district.
1974-1980	not reported

Pine Needle Cast, *Lophodermium pinastri* (Schrader: Fr.) Chev.

Host(s): rP, wP [Major]

Year	Remarks
1950-1956	not reported
1957-1959	Damage was generally light in the district.
1960-1964	not reported
1965	Severe damage was reported in McMurrich Twp.
1966-1975	not reported
1976	Damage was generally light in the district.
1977-1978	not reported
1979	Moderate levels of infection were reported in Hagerman Twp; incidence was light at other locations.
1980	not reported

White Trunk Rot, *Phellinus igniarius* (L.: Fr.) Quélet

Host(s): sM, tA, wB [Major]

Year	Remarks
1950-1952	not reported
1953	This trunk rot was common throughout the district.
1954	The rot was common on mature trees in Wallbridge, Foley, McDougall, Christie and Carling twps.
1955	Little change occurred in the pathogen's incidence; infections were common in alder stands.
1956-1980	not reported

Red Ring Rot of Conifers, *Phellinus pini* (Brot.: Fr.) A. Ames

Host(s): wP [Major]

Year	Remarks
1950-1953	not reported
1954	Trace levels of infection were reported in Foley and Mowat twps.
1955	Ring rot was common at low levels throughout the district.
1956-1980	not reported

ABIOTIC DAMAGE

Late Spring Frost

Year	Remarks
1950-1956	not reported
1957	Severe frost damage occurred on red oak foliage throughout the district.
1958-1959	not reported
1960	Severe frost damage occurred on white spruce in Spence and McMurrich twps.
1961-1963	not reported
1964	Frost caused various degrees of damage to oaks, ashes, and aspen.
1965-1968	not reported
1969	Frost damage affected red oak stands in Conger, Freeman and Gibson twps.
1970-1971	not reported
1972	Frost caused severe damage to white spruce in McMurrich and Ryerson twps.
1973-1979	not reported
1980	Frost caused severe damage to white spruce in Ferguson Twp.

Salt

Year	Remarks
1950-1977	not reported
1978	Salt caused severe damage along Hwy 69, between Nobel and MacTier.
1979	not reported
1980	Salt caused severe damage between Parry Sound and Pointe aux Baril on Hwy 69.

Snow

Year	Remarks
1950-1970	not reported
1971	Snow caused localized branch mortality in exposed plantations.
1972-1980	not reported

Winter Drying

Year	Remarks
1950-1958	not reported
1959	Severe winter drying of red pine plantations occurred in the district.
1960	Severe winter drying of red pine occurred in Spence and McMurrich twps.
1961-1963	not reported
1964	Winter drying occurred on red and Scots pine throughout the district.
1965-1966	not reported
1967	Winter drying caused extensive damage in red and white pine plantations on exposed sites.
1968-1969	not reported
1970	Winter drying caused moderate damage to foliage in plantations in exposed areas.
1971	Winter drying caused very light damage.
1972	Winter drying caused severe damage in exposed plantations.
1973-1975	not reported
1976	Winter drying caused severe browning of foliage (chiefly of red and white pines) in Mowat Twp.
1977-1980	not reported

Birch Decline

Host(s): wB, yB [Major]

Year	Remarks
1950-1965	not reported
1966-1967	This condition was common in white birch stands and, to a lesser extent, in yellow birch stands throughout the district.
1968-1980	not reported

Maple Decline

Host(s): sM

Year	Remarks
1950-1970	not reported
1971	High mortality was reported in Lount Twp.
1979	High mortality was reported in the southern part of the district (see map, page 102).
1980	Few additional trees died other than those reported to be in decline in 1978 and 1979.

Oak Decline

Host(s): rO [Major]

Year	Remarks
1950-1978	not reported
1979	High incidence of tree mortality was reported near Parry Sound.
1980	High incidence of tree mortality persisted in Ferguson and McDougal twps, north of Parry Sound.

Map

Semi-mature Needle Tissue Blight (cause has not been satisfactorily established)

Host(s): wP [Minor]

Year	Remarks
1950-1961	not reported
1962	low levels of incidence in the district
1963-1966	not reported
1967	low levels of incidence in the district
1968-1971	not reported
1972	Severe damage was reported on shoreline trees near Georgian Bay between French River and Parry Sound.
1973	Low levels of infection were reported on shoreline trees near Georgian Bay.
1974-1980	not reported

A P P E N D I C E S

APPENDIX A

DECIDUOUS HOST

Common Name	Scientific Name	Abbreviations
Alder	*Alnus* spp.	Al
Apple	*Malus* Mill.	Ap
Ash, black	*Fraxinus nigra* Marsh.	As
Aspen, largetooth	*Populus grandidentata* Michx.	lA
trembling	*tremuloides* Michx.	tA
Basswood	*Tilia* spp.	Ba
Beech	*Fagus grandifolia* Ehrh.	Be
Birch, white	*Betula papyrifera* Marsh.	wB
yellow	*alleghaniensis* Britt.	yB
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.	bO
red	*rubra* L.	rO

Poplar, balsam	*Populus balsamifera* L.	bPo
Carolina	X *canadensis* Moench	cPo
Lombardy	*nigra* L. var. *Italica* Moencch.	lPo
silver	*alba* L.	sPo
Willow	*Salix* spp.	W

APPENDIX B

CONIFEROUS HOST

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