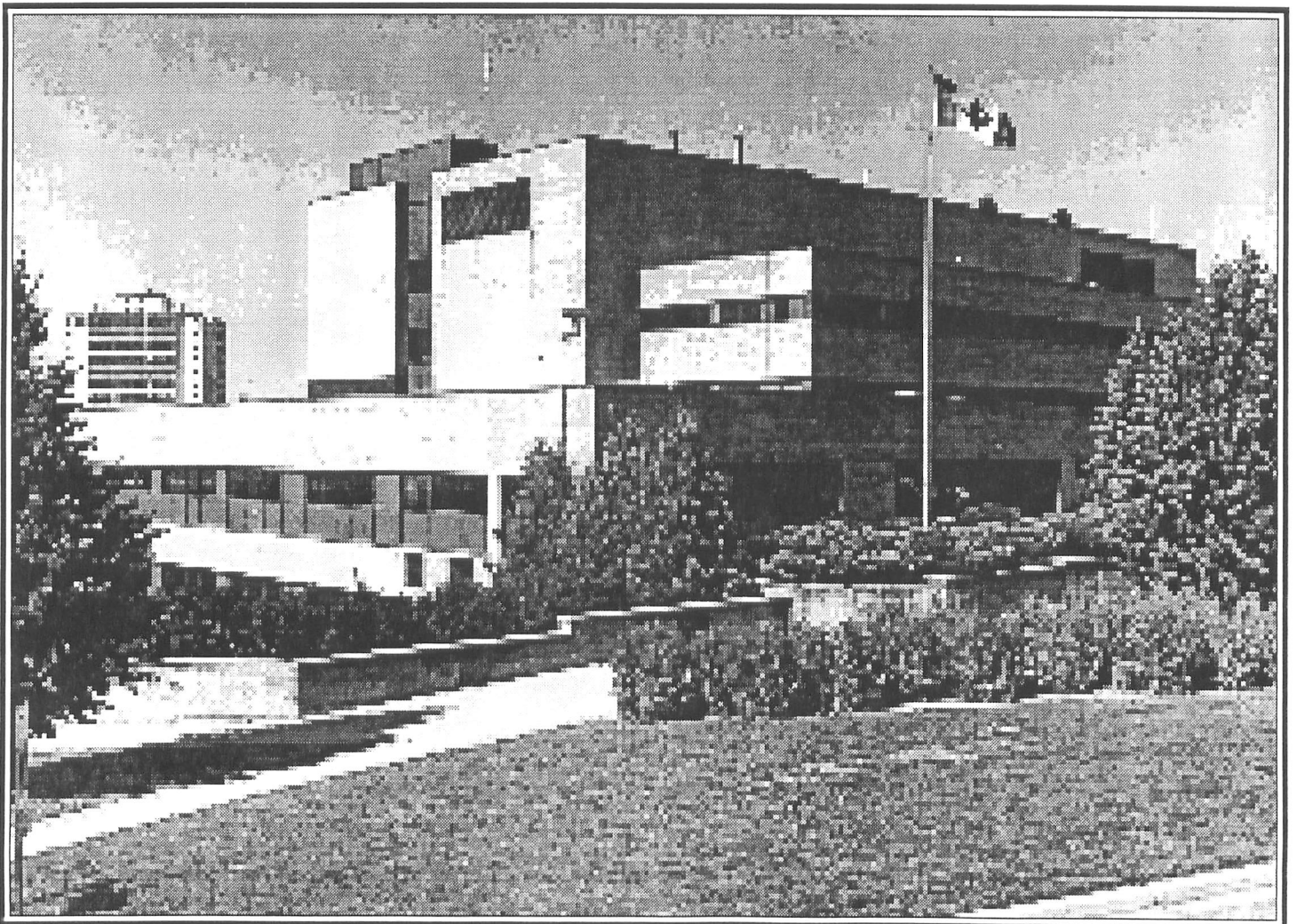




A Review of Important Forest Insect and Disease Problems in the Simcoe District of Ontario, 1950 – 1980



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

Compiled by

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FORESTRY CANADA
ONTARIO REGION
GOVERNMENT OF CANADA

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

Appendix C is a series of maps for southern 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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1962-1966	J.R. Trinnell, A.A. Harnden
1967-1969	G. Atkinson, R. Bowser
1970-1975	V. Jansons, R. Bowser, H.R. Foster
1976-1980	M.J. Applejohn, D. Constable, C.A. Barnes

TABLE OF CONTENTS

Page

INTRODUCTION

SUMMARY

FOREST INSECTS

Cedar Leafminer, *Argyresthia aureoargentella*,
A. thuiella and *Coleotechnites thujaella*

Birch Skeletonizer, *Bucculatrix canadensisella*

Spruce Budworm, *Choristoneura fumiferana*

Jack Pine Budworm, *Choristoneura pinus pinus*

Larch Casebearer, *Coleophora laricella*

Walnut Caterpillar, *Datana integerrima*

Linden Looper, *Erannis tiliaria*

Eastern Pine Shoot Borer, *Eucosma gloriola*

European Spruce Sawfly, *Gilpinia hercyniae*

European Pine Sawfly, *Neodiprion sertifer*

White Pine Weevil, *Pissodes strobi*

Larch Sawfly, *Pristiphora erichsonii*

European Pine Shoot Moth, *Rhyacionia buoliana*

Other Noteworthy Insects

FOREST DISEASES

Anthraxnose, *Aureobasidium apocryptum*

Dutch Elm Disease, *Ceratocystis ulmi*

Fomes Root Rot, *Heterobasidion annosum*

Tip Blight, *Sphaeropsis sapinea*

Other Noteworthy Diseases

APPENDICES

INTRODUCTION

This is a review of significant forest insects and diseases in the area covered by the Simcoe District from 1950 to 1980. Simcoe District was formerly part of the Lake Erie and Lake Huron districts prior to 1973. In the selection of pests for this report particular attention was paid to the major host species in the area, namely maple, oak, elm and pine as well as some ornamentals and shade trees. The insects and diseases included are capable of causing or have caused tree mortality or a reduction in growth.

SUMMARY

FOREST INSECTS

Fall Cankerworm, *Alsophila pometaria* (Harr.) [Major]
page

Although this insect rarely causes tree mortality, heavy defoliation retards growth and vigor making host trees susceptible to attack by other pests. Varying levels of damage were observed through much of the review period.

Pine Spittlebug, *Aphrophora cribrata* (Say) [Major]
page

Severe damage by this insect will weaken small trees, but most damage is to the aesthetic values of the infested trees. Varying populations of this insect were reported in most of the review period.

Cedar Leafminers, *Argyresthia aureoargentella* Brower, [Major]
A. canadensis Free., *A. thuiella* (Pack.)
and *Coleotechnites thujaella* (Kft.)
page

These serious pests of eastern white cedar can cause mortality after a number of years of severe defoliation. High populations were present in the district for 6 years with the remainder at low and moderate levels.

Birch Skeletonizer, *Bucculatrix canadensisella* Clem. [Major]
page

Defoliation by this insect seldom caused mortality of the host but weakened trees are subject to attack by secondary insects and diseases. Large outbreaks of this insect usually last 3 to 4 years, then decline rapidly. High populations were present in the late 1950's and again in 1970-1971.

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

This insect is considered the most destructive insect pest of several coniferous hosts in eastern Canada, the main hosts being with spruce and balsam fir. Though not major hosts, black spruce, eastern hemlock, and tamarack are attacked and considerable tree mortality can occur. Low populations were present through some of the review period.

Jack Pine Budworm, *Choristoneura pinus pinus* Free.
page

[Major]

This is a destructive pest of pines that can cause mortality after about two years of severe defoliation. Isolated infestations were present during the early part of the review period.

Larch Casebearer, *Coleophora laricella* Hbn.
page

[Major]

A serious pest of both native and European larch, this insect can cause reduced tree growth and tree mortality after two successive years of complete defoliation. Light infestations were present until 1976 then population levels increased resulting in moderate-to-severe defoliation through the remainder of the review period.

Walnut Caterpillar, *Datana integerrima* G. & R.
page

[Major]

This insect may severely defoliate trees for several consecutive years, and this defoliation may result in branch mortality, and in extreme cases, tree mortality. Varying damage levels were reported through most of the review period.

Linden Looper, *Erannis tiliaria* (Harr.)
page

[Major]

Because outbreaks are normally short-lived, it is rare that hardwoods die from defoliation by this looper. However, moderate-to-severe defoliation may weaken trees. Moderate-to-severe defoliation was present from 1960 to 1963 and in 1976 and 1977.

Eastern Pine Shoot Borer, *Eucosma gloriola* Heinr.
page

[Major]

This insect usually infests lateral shoots and causes only aesthetic damage. When high populations develop, some leaders are infested and killed causing deformity of infested trees. Varying population levels were recorded through the review period.

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

[Minor]

At one time this insect caused extensive tree mortality in eastern Canada, but due to a virus disease and parasitic population have remained at generally low levels. Low populations were reported in the majority of years in the review period.

European Pine Sawfly, *Neodiprion sertifer* (Geoff.)
page

[Major]

This sawfly feeds on many species of pine but is a particular pest of Scots pine plantations and, consequently, a threat to Christmas tree growers. Varying damage levels were observed from 1967 to 1980.

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

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. Varying populations were monitored through the review period in Charlotteville and South Walsingham twps.

Larch Sawfly, *Pristophora erichsonii* (Htg.) [Major]
page

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 favourable sites, mortality may follow three or more years of complete defoliation. Moderate-to-severe defoliation was recorded at a couple of sites through much of the review period.

European Pine Shoot Moth, *Rhyacionia buoliana* (D. & S.) [Major]
page

This insect attacks all species of pine, but red and Scots pine are preferred. Repeated attack on red pine has been especially damaging because of stem deformity. Varying population levels were reported on during much of the first two decades of the review period.

Other Noteworthy Insects [Major and Minor]
pages

These are insects that have the potential for causing damage to natural stands, regeneration and plantations.

FOREST DISEASES

Anthraxnose, *Aureobasidium apocryptum* (Ell. & Ev.) [Minor]
page

Symptoms of this disease appear in mid-May. Anthracnose caused the leaves to curl, dry out and fall prematurely. Trees growing along highways and throughout cities and towns are much more susceptible compared with those growing in fields or woodlots. This disease was recorded in the district from 1976 to 1980.

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

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. This disease was first recorded in the district in 1954 and quickly spread across the entire district.

Fomes Root Rot, *Heterobasidion annosum* (Fr.) Bref.
page

[Major]

Repeated attacks by this organism can cause mortality of mature trees. Moderate-to-severe damage was present in the district from 1977 to 1980.

Other Noteworthy Diseases
pages

[Major and Minor]

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

Fall Cankerworm, *Alsophila pometaria* (Harr.)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951	Defoliation averaged 20% to 30% in woodlots from 0.5 to 10 ha in area at several points in the district.
1952	Defoliation varied within the district and in several areas 100% defoliation was reported.
1953	Moderate-to-severe defoliation occurred in North and South Walsingham, Middleton, Townsend and Windham twps.
1954-1958	not reported
1959	Light defoliation occurred in Townsend Twp.
1960	Scattered pockets of moderate-to-severe defoliation occurred at scattered points in Haldimand-Norfolk County.
1961	Defoliation of 50% to 75% occurred in parts of Houghton and Middleton twps.
1962	Light damage occurred in Haldimand-Norfolk County.
1963	Moderate-to-severe defoliation occurred in the village of St. Williams and around the St. Williams Forest Nursery.
1964	Light defoliation occurred in South Walsingham Twp and at the Vanessa Conservation area in Windham Twp where moderate-to-severe defoliation occurred in red oak and shagbark hickory.
1965-1966	Light defoliation occurred in the district.
1967	trace populations
1968-1975	not reported
1976	Moderate-to-severe defoliation occurred in South Walsingham, Charlotteville and North Norwich twps.
1977	Moderate-to-severe defoliation occurred on sugar maple in Charlotteville and Windham twps. Light damage occurred elsewhere in the district.
1978-1980	not reported

Pine Spittlebug, *Aphrophora cribrata* (Wlk.)

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951	Low numbers reported in Scots pine plantings at the St. Williams Forest Nursery.
1952-1955	not reported
1956	Light infestations occurred in Haldimand-Norfolk County.
1957-1962	not reported
1963	Medium-to-heavy infestations were recorded in clumps of Scots pine plantings in Walpole Twp.
1964	not reported
1965	commonly found near Turkey Point Golf Club
1966	not reported
1967	High populations occurred in white pine plantations at scattered points in South Walsingham and Charlotteville twps.
1968	High populations recurred on white pine in South Walsingham Twp. Moderate numbers occurred on 2-m Scots pine trees in Woodhouse Twp.
1969-1970	not reported
1971	Varying degrees of damage occurred in the district.
1972-1979	not reported
1980	Extensive damage occurred in a 4-ha stand of white pine in the Normandale area with 80% of trees infested.

Cedar Leafminers, *Argyresthia aureoargentella* Brower,
A. canadensis Free., *A. thuiella* (Pack.)
 and *Coleotechnites thujaella* (Kft.)

Host(s): eC

[Major]

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951	This insect was prevalent throughout the district.
1952-1953	Light and moderate damage occurred to hedges, windbreaks and ornamental plantings in the district.
1954	Light and moderate defoliation occurred in South Walsingham Twp.
1955-1956	Light defoliation occurred at one location in Woodhouse Twp.
1957-1959	Light defoliation occurred across the district.
1960	Moderate numbers occurred near Windham Centre, while low numbers occurred elsewhere in the district.
1961	Moderate-to-severe defoliation occurred throughout Haldimand-Norfolk County.
1962	Moderate numbers were observed on open-grown trees within the St. Williams Forest Station.
1963-1967	not reported
1968	Moderate-to-severe defoliation occurred on red cedar in Haldimand-Norfolk County.
1969	Moderate-to-severe defoliation occurred throughout the St. Williams Forest Station in South Walsingham Twp and at scattered points in Charlotteville Twp.
1970	not reported
1971	high populations reported in the district
1972-1974	Moderate-to-severe defoliation occurred in parts of Haldimand-Norfolk County.
1975	Low populations were observed across the district.
1976	trace populations
1977	not reported
1978	Moderate populations occurred in Charlotteville and South Walsingham twps.
1979	Light defoliation occurred in the district.
1980	Population levels increased. Moderate-to-severe defoliation occurred throughout most of the district.

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

Host(s): birch

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1955	not reported
1956-1957	Severe browning was observed in mixed and open-grown white birch woodlots in Charlotteville and eastern South Walsingham twps.
1958	Severe browning of foliage occurred in Walsingham, Charlotteville and Middleton twps.
1959	Severe browning continued throughout Middleton, Charlotteville and Walsingham twps. The infestation also moved eastward into Woodhouse Twp.
1960	not reported
1961	Moderate-to-severe browning of foliage persisted throughout parts of Haldimand-Norfolk counties.
1962	Low numbers were observed on small, open-grown white birch trees at the St. Williams Nursery and other locations in Norfolk County.
1963-1969	not reported
1970-1971	Moderate-to-severe defoliation occurred in the Simcoe-Delhi areas.
1972	Defoliation in the Simcoe and Delhi areas declined to light.
1973	trace defoliation
1974-1980	not reported

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

Host(s): spruce, fir [Major]

<u>Year</u>	<u>Remarks</u>
1951-1952	1-ha spruce plantation sustained 20% defoliation in Charlotteville Twp
1953-1959	not reported
1960-1965	A light infestation occurred on Norway spruce at one location in Woodhouse Twp.
1966	not reported
1967	Low numbers of larvae were collected in South Walsingham Twp.
1968	Light infestations occurred on semimature white spruce trees in South Walsingham Twp and trace populations found on Norway spruce in Woodhouse Twp.
1969-1971	not reported
1972	Low but widespread populations occurred throughout the district primarily on white spruce trees.
1973	Budworm larval populations were widespread but quite variable in numbers throughout the district.
1974-1980	not reported

Jack Pine Budworm, *Choristoneura pinus pinus* Free.

Host(s): jack pine [Major]

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951-1952	Upwards of 30% defoliation occurred in jack pine plantations in Charlotteville and Walsingham twps.
1953	Approximately 2 ha of light defoliation occurred near Vittoria in Charlotteville Twp and another 1.6 ha near La Salette in Windham Twp.
1954-1955	trace populations
1956	Light infestations continued in the Vittoria area, Charlotteville Twp.
1957-1958	trace populations
1959-1960	not reported
1961	High populations were reported in a Christmas tree plantation near St. Williams and moderate numbers found on 20-m Scots and jack pine trees in Windham Twp.

(cont'd)

Jack Pine Budworm, *Choristoneura pinus pinus* Free. (concl.)

<u>Year</u>	<u>Remarks</u>
1962-1963	trace populations
1964-1980	not reported

Larch Casebearer, *Coleophora laricella* (Hbn.)

Host(s): tamarack, European larch [Major]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	Light infestation was observed on European larch at St. Williams Forest Station.
1954-1958	Light infestations were recorded throughout the district.
1959-1962	Light infestations occurred on the lower branches of large European larch trees at St. Williams Forest Station.
1963-1965	Low populations occurred across the district.
1966-1971	trace populations
1972	Low populations occurred across the district.
1973-1974	not reported
1975	Low populations occurred across the district.
1976	Light defoliation was reported across the district.
1977	Moderate-to-severe defoliation occurred in a small stand of native larch in Townsend Twp.
1978	Upwards of 100% defoliation occurred at the Waterford Conservation area in Townsend Twp.
1979	Moderate-to-severe defoliation occurred for the third year at the Waterford Conservation area in Townsend Twp and light defoliation occurred in parts of South Walsingham and Charlotteville twps.
1980	Defoliation from 20% to 40% occurred in parts of Charlotteville and South Walsingham twps.

Walnut Caterpillar, *Datana integerrima* G. & R.

Host(s): W, Bu, Hi

[Major]

<u>Year</u>	<u>Remarks</u>
1950	Defoliation ranged from 2% to 95% in the district.
1951	not reported
1952-1953	Low numbers were reported in the district.
1954-1955	Defoliation averaged 10% on roadside and open-grown trees in the district.
1956	Moderate-to-severe defoliation occurred in the southwest corner of South Walsingham and Houghton twps. Light feeding was observed in Windham Twp and did not exceed 10%.
1957	Defoliation averaged approximately 30% in the district.
1958	not reported
1959	Light defoliation occurred at scattered points in the district.
1960	Defoliation did not exceed 5% in the district.
1961	Defoliation averaged 20% in Windham Twp.
1962	Low populations were reported with defoliation in the 5% range.
1963	Low populations occurred across the district. Defoliation was less than 3%.
1964	Defoliation was less than 3% across the district.
1965	Defoliation averaged 10% across the district.
1966	trace populations
1967	High populations occurred in South Walsingham and Windham twps.
1968	Moderate-to-severe defoliation continued in parts of South Walsingham and Windham twps.
1969	Defoliation averaged 50% in Windham Twp.
1970-1973	Trace levels were reported in the district.
1974-1975	Moderate numbers were reported in the district.
1976	not reported
1977	commonly found throughout the district
1978-1979	Varying degrees of defoliation occurred in the district.
1980	Upwards of 80% defoliation was reported in the towns of Simcoe, St. Williams and Tillsonburg.

Linden Looper, *Erannis tiliaria* (Harr.)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951	commonly found in association with fall cankerworm in Haldimand-Norfolk County
1952-1955	not reported
1956-1957	Low numbers were reported in South Walsingham and Middleton twps.
1958	not reported
1959	light defoliation reported in the district
1960-1961	Moderate-to-severe defoliation occurred in parts of Haldimand-Norfolk County.
1962	Moderate-to-severe defoliation occurred near the St. Williams Forest Nursery and along Highway 59 near Langton.
1963	Moderate-to-severe defoliation recurred near the St. Williams Forest Nursery.
1964-1967	trace levels
1968-1974	not reported
1975	low numbers reported in the district
1976-1977	Moderate-to-severe defoliation on oak and maple throughout the townships Charlotteville, South and North Walsingham and Windham twps.
1978	not reported
1979-1980	trace levels

Eastern Pine Shoot Borer, *Eucosma gloriola* Heinr.

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	Light infestations of this borer were observed in Scots and eastern white pine plantations in Norfolk County.
1956-1957	Numerous damaged shoots were observed in a 2-ha Scots pine plantation near Courtland in Middleton Twp.
1958	Light damage occurred in South Walsingham Twp.
1959	Light damage occurred in Scots pine plantations in South Walsingham and Middleton twps.
1960	Severe damage occurred in two Christmas tree plantations near Courtland and moderate numbers also occurred near St. Williams.
1961	5% leader damage occurred on Scots pine trees in South Walsingham, 15% and 20% damage occurred in Charlotteville and Middleton twps.
1962	In Charlotteville Twp, 1% leader damage occurred while 15 and 50% damage occurred in Charlotteville and Middleton twps.
1963	A decline in populations occurred in the district. The percentage of leaders attacked in Middleton and Charlotteville twps was 2 and 8%.
1964	95% of white pine trees 3.6 m in height in Charlotteville Twp had 54% of leaders killed; 40% of leaders were also killed at one location in Middleton Twp on Scots pine trees averaging 2 m in height
1965	not reported
1966	Population levels declined in Charlotteville Twp where only 8% leader damage was reported.
1967	2% leader damage was reported in Charlotteville Twp
1968	Low numbers occurred across the district.
1969	not reported
1970-1971	Less than 5% leader damage occurred across the district.
1972	trace populations
1973-1974	not reported
1975	trace populations
1976	2% leader damage occurred in Charlotteville Twp

(cont'd)

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

<u>Year</u>	<u>Remarks</u>
1977	10% leader damage occurred on eastern white pine in Charlotteville Twp
1978-1979	not reported
1980	trace populations

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

Host(s): spruce [Minor]

<u>Year</u>	<u>Remarks</u>
1950-1952	low numbers reported in South Walsingham Twp
1953	Trace levels occurred at the St. Williams Forest Nursery and from a young stand of white spruce trees near Courtland in Middleton Twp.
1954	Low numbers of larvae were found in Middleton Twp while trace levels remained at the St. Williams Forest Nursery.
1955	Low populations occurred in South Walsingham and Middleton twps.
1956-1957	not reported
1958-1959	Low populations were found in Charlotteville, Middleton and South Walsingham twps.
1960-1961	Light defoliation occurred on white spruce understory trees in the St. Williams Forest Nursery.
1962-1968	Low numbers occurred in Charlotteville, Middleton, South Walsingham and Woodhouse twps.
1969	not reported
1970-1975	Low populations were reported across the district.
1976	not reported
1977-1978	Light defoliation occurred on white spruce in South Walsingham Twp.
1979-1980	not reported.

European Pine Sawfly, *Neodiprion sertifer* (Geoff.)

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1966	not reported
1967	Moderate-to-severe defoliation of red pine occurred in the Bacchus Tract in South Walsingham Twp.
1968	A slight decline in population levels occurred in the Bacchus Tract in South Walsingham Twp. Moderate numbers were observed for the second year on red pine trees.
1969	Moderate-to-severe defoliation continued in parts of Charlotteville and South Walsingham twps.
1970	Varying degrees of defoliation occurred in the district.
1971	Moderate-to-severe defoliation occurred in a small Scots pine plantation in South Walsingham Twp.
1972	Moderate-to-severe defoliation continued in a Scots pine plantation in South Walsingham Twp.
1973	Low populations were reported at one location in South Walsingham Twp.
1974	17% of trees were infested at a sample plot in South Walsingham Twp, however, only light defoliation resulted
1975	24% of trees were infested at the sample point in South Walsingham, but again defoliation was light
1976	trace populations
1977	low populations reported in the district
1978	not reported
1979	Low numbers persisted in the district. Quantitative counts at six sample locations indicated that less than one colony per tree occurred.
1980	Low population levels were reported in the district.

White Pine Weevil, *Pissodes strobi* Peck.

Host(s): pine, spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	study plot established near Normandale in Charlotteville Twp where 14% of the trees were weeviled representing damage observed throughout pine plantations in the district
1956	The number of infested leaders declined to only 3% at the study plot in Charlotteville Twp. Elsewhere in the district few trees were attacked.
1957	Light infestations persisted in a small stand at Turkey Point, Charlotteville Twp. Elsewhere in the district few trees were damaged.
1958	14% of trees in a white pine plantations were attacked in Charlotteville Twp
1959	An increase occurred at a sample plot in Charlotteville Twp; 25% of trees were attacked. Elsewhere in the district damage was light.
1960	Populations declined at a sample plot in Charlotteville Twp to 7% leader damage.
1961	15% of leaders were damaged in a white pine plantation in Charlotteville Twp; elsewhere damage remained low
1962	Low populations occurred across the district. Only 3% leader damage was reported in Charlotteville Twp.
1963	Low populations occurred across the district.
1964	9% of leaders attacked at one location in Charlotteville Twp
1965	trace populations
1966	not reported
1967	7% leaders were damaged at a sample plot in Charlotteville Twp
1968	Leader damage ranged from 7% in Charlotteville Twp to 18% in South Walsingham Twp.
1969	Very little change in leader damage in the district; damage ranged from 7% to 16%.
1970	Population levels declined in sample plots; 3% leader damage occurred in Charlotteville and 6% in South Walsingham twps.
1971	Trace levels of leader damage occurred and did not exceed more than one percent.
1972-1976	trace populations

(cont'd)

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

<u>Year</u>	<u>Remarks</u>
1977-1978	not reported
1979	Leader damage ranged from 2% to 16% at quantitative sample plots in Charlotteville Twp.
1980	Leader damage averaged 8% at 2 sample plots in Charlotteville Twp.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Host(s): tL, eL [Major]

<u>Year</u>	<u>Remarks</u>
1950	Light defoliation occurred at scattered locations in the district.
1951	Low numbers were observed on European larch near Simcoe and Normandale in Charlotteville Twp.
1952-1965	not reported
1966-1968	Moderate-to-severe defoliation was reported at several locations in the district.
1969	Moderate-to-severe defoliation recurred on European larch in Charlotteville Twp. Varying degrees of defoliation also occurred on European larch and Japanese larch at St. Williams Forest Nursery.
1970-1972	Moderate-to-severe defoliation persisted in parts of South Walsingham and Charlotteville twps.
1973	Moderate-to-severe defoliation continued in parts of Charlotteville Twp.
1974-1977	Moderate-to-severe defoliation continued in Charlotteville and South Walsingham twps.
1978	Moderate-to-severe defoliation continued in Charlotteville and South Walsingham twps. Moderate-to-severe defoliation also occurred for the second year at Waterford in Townsend Twp.
1979	High populations persisted in South Walsingham and Charlotteville twps. Several small pockets also occurred in Woodhouse Twp.
1980	High populations continued at numerous locations in South Walsingham, Charlotteville and Houghton twps.

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

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950	not reported
1951	Red pine and Scots pine trees in Norfolk County were heavily infested.
1952	Light damage occurred to hard pines in Norfolk County.
1953	This insect was the most serious pest in 1953. Heavy infestations occurred in South Walsingham, Windham and Charlotteville twps. Lighter damage occurred throughout the remainder of the district.
1954-1957	not reported
1958	Moderate numbers reported; defoliation in Windham Twp averaged 40% on trees 10 m in height.
1959	Light defoliation occurred in the district. Defoliation was less than 10%.
1960-1964	not reported
1965	trace populations
1966	light infestations reported in Woodhouse Twp; percent of bud clusters infested averaged 5.3%
1967	Low numbers were reported on red pine trees at one location in Woodhouse Twp.
1968	A slight increase occurred at a sample point in Woodhouse Twp. Approximately 23% of bud clusters were infested.
1969	trace populations
1970-1971	not reported
1972	trace populations
1973-1978	not reported
1979-1980	low population levels reported in the district

Other Noteworthy Insects

Eastern Spruce Gall Adelgid, *Adelges abietis* (L.)

Host(s): spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	Low populations occurred in compartments of white spruce at the St. Williams Tree Nursery.
1954	not reported
1955	Light damage occurred on white spruce in Woodhouse Twp.
1956	High numbers of this pest occurred in numerous white and Norway spruce plantations in Woodhouse Twp.
1957-1958	not reported
1959	Light damage reported on Norway and white spruce at St. Williams Forest Nursery.
1960	trace populations
1961-1962	not reported
1963	trace populations
1964-1966	not reported
1967	moderate numbers reported in Woodhouse Twp
1968	not reported
1969	High populations occurred on Norway and Colorado spruce in Woodhouse Twp.
1970-1979	not reported
1980	commonly observed on open-grown white spruce trees near St. Williams, in South Walsingham Twp

Uglynest Caterpillar, *Archips cerasivorana* (Fitch)

Host(s): cherry

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953-1954	Low populations occurred in Haldimand and Norfolk County.
1955-1956	Moderate numbers of tents were observed on roadside trees and shrubs in Charlotteville Twp.
1957	Low populations were again found in Haldimand-Norfolk County.
1958-1960	not reported
1961	High numbers occurred at numerous locations in Windham and Townsend twps.
1962	Low numbers were observed at widely scattered points in the district.
1963	High populations occurred in Windham Twp.
1964	Moderate numbers were observed near Vittoria in Charlotteville Twp.
1965	trace populations
1966	Low populations occurred in the district.
1967	trace populations
1968-1975	not reported
1976-1980	Low populations occurred in the district.

Yellownecked Caterpillar, *Datana ministra* (Drury)

Host(s): deciduous

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	Low numbers of this insect were collected at scattered points in the district.
1954-1955	not reported
1956-1958	Low numbers were collected across the district. White elm was the preferred host.
1959-1961	trace levels
1962-1971	not reported
1972	Scattered light infestations occurred in the district.
1973-1980	not reported

Walking Stick, *Diaperomera femorata* (Say)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1955	not reported
1956-1959	Low numbers of insects were found in oak woodlots in the St. Williams Forest Nursery area, in South Walsingham Twp.
1960-1962	trace populations
1963	Low numbers were obtained in beating mat samples in South Walsingham Twp.
1964	not reported
1965	Low numbers were observed near Turkey Point.
1966	not reported
1967	trace populations
1968	commonly found in South Walsingham and Charlotteville twps
1969-1974	not reported
1975	Low numbers occurred in Charlotteville Twp.
1976-1980	not reported

Pales Weevil, *Hylobius pales* (Hbst.)

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	not reported
1952	Light damage occurred in a Scots pine Christmas tree plantation.
1953-1958	not reported
1959-1960	High populations occurred in Christmas tree plantations in the St. Williams and Courtland areas. Stumps were treated with insecticides applied by back pumps and aircraft.
1961	Feeding by adults of these weevils caused appreciable twig mortality in Scots pine plantations in the St. Williams and Courtland areas.
1962	Low populations occurred in the St. Williams and Courtland areas. The application of sodium arsenate to freshly cut stumps in 1961 appears to have been a successful control measure.
1963	not reported
1964	Low numbers collected in the Turkey Point area from log traps.
1965-1966	not reported
1967	Moderate damage occurred in two Christmas tree plantations in Norfolk County.
1968-1972	not reported
1973	Moderate populations were in older Christmas tree plantations.
1974-1980	not reported

Fall Webworm, *Hyphantria cunea* (Drury)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1959	commonly observed at low numbers in the district
1960	A moderate number of tents occurred on black cherry trees at Turkey Point in South Walsingham Twp.
1961	Moderate numbers occurred in Haldimand-Norfolk County.
1962	not reported
1963	trace populations
1964-1967	not reported
1968	commonly observed throughout Haldimand-Norfolk County
1969	High numbers of tents were observed in Townsend Twp.
1970-1972	not reported
1973	Moderate-to-severe defoliation occurred in the district. High numbers of tents were observed on black walnut, hickory and basswood trees.
1974-1977	not reported
1978-1980	very commonly observed along secondary roads throughout Delhi and Courtland areas

Hickory Tussock Moth, *Lophocampa caryae* Harr.

Host(s): deciduous

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953	Low numbers of this insect occurred in Haldimand-Norfolk County.
1954	Light infestations occurred in Woodhouse, Middleton, Townsend and South Walsingham twps.
1955	Light infestations were recorded in Woodhouse Twp.
1956	not reported
1957	Moderate-to-severe defoliation occurred on single walnut trees in Norfolk County.
1958-1960	not reported
1961	commonly observed in the district
1962	not observed
1963	commonly observed at numerous locations
1964-1966	not reported
1967-1968	commonly found in the district
1969	Butternut was 90 to 100 percent defoliated at scattered locations in South Walsingham and Charlotteville twps.
1970	Light defoliation occurred in the district.
1971	commonly observed in Haldimand County
1972-1980	not reported

Eastern Tent Caterpillar, *Malacosoma americanum* (F.)

Host(s): deciduous

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1951	Low numbers were found commonly in the district.
1952	not reported
1953-1956	Medium-to-heavy infestations were noted on roadside cherry throughout the district.
1957-1960	trace populations
1961	Moderate numbers of tents were observed across the district.
1962	Populations levels declined to only trace levels being observed.
1963-1964	Moderate-to-severe defoliation to clumps of cherry trees occurred near Waterford and Windham Centre.
1965-1967	Populations declined to trace levels.
1968	Varying degrees of damage occurred in South Walsingham and Woodhouse twps.
1969	Trace number of tents occurred in Woodhouse Twp.
1970	High numbers of tents were observed throughout the district.
1971	Small pockets of light and moderate populations were common in the district.
1972	Moderate populations occurred in the district.
1973-1976	not reported
1977-1978	commonly observed in the district
1979	not reported
1980	commonly observed along roadsides and in fields throughout the district

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

Host(s): spruce

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1964	not reported
1965	trace levels observed in Norfolk County
1966	not reported
1967	Low numbers were observed in South Walsingham Twp.
1968	Low insect numbers were found in Norway spruce in South Walsingham and Woodhouse twps.
1969-1980	not reported

DISEASES

Anthracnose, *Aureobasidium apocryptum* (Ell. & Ev.) Hermanides-Nijhof

Host(s): maple

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1975	not reported
1976	Defoliation levels of 50% were observed on 50 and 60% of the trees in Windham and Woodhouse twps, respectively.
1977	Light-to-moderate damage was present on open-grown trees beside roads and on the fringes of stands at various points in the district.
1978	Up to 90% of the foliage was damaged on 13% of the sugar maple at one site in Woodhouse Twp and 25% defoliation was present on 17% of the trees in Townsend Twp.
1979	Foliar damage levels of 11 and 7% were observed at two sites in Woodhouse Twp.
1980	At two 10-m stands in each of South Walsingham and Charlotteville twps foliar damage levels of 10% were observed. Similar damage was detected at other points in the district on ornamentals and roadside trees.

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

Host(s): elm

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1953	not reported
1954	This disease was observed in Haldimand County.
1955	New collections of this disease were made in the northern part of the district.
1956	not reported
1957	Mortality levels increased in most elm stands in the district.
1958	Mortality levels ranged from 4 to 11% in Houghton, Middleton, North and South Walsingham, Charlotteville, Windham and Townsend twps.
1959-1963	not reported
1964	This disease continue to cause tree mortality throughout the district.
1965	not reported
1966	Mortality levels increased across the district.
1967	not reported

(cont'd)

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

<u>Year</u>	<u>Remarks</u>
1968	The degree of tree mortality was less evident than in recent years because many townships and municipalities have removed dead and diseased trees.
1969	Mortality levels of 93% were recorded in Walpole Twp.
1970-1980	not reported

Fomes Root Rot, *Heterobasidion annosum* (Fr.) Bref.

Host(s): pine [Major]

<u>Year</u>	<u>Remarks</u>
1950-1954	not reported
1955	The first collection in Ontario of this disease was made from the St. Williams Forest Tree Nursery.
1956	not reported
1957	This disease caused small pockets of mortality in a Scots pine stand at the St. Williams Forest Station and collections were made near Turkey Point.
1958-1964	not reported
1965-1966	Tree mortality continues at a low rate in the St. Williams infection center.
1967	Infection levels of 18 and 15% were recorded at the St. Williams Forest Tree Nursery and in Charlotteville Twp, respectively.
1968	Mortality continues in the red and jack pine plantations in South Walsingham and Charlotteville twps. A new infection center was discovered in a mixed white and Scots pine plantation in the former township where 2.5% mortality was recorded.
1969	Trace-to-light infections were observed in stands of red, white, jack and Scots pine in South Walsingham and Charlotteville twps.
1970-1971	not reported
1972	Disease levels intensified in red pine plantations in the St. Williams Forest Tree Nursery and Turkey Point areas.
1973-1974	not reported
1975-1979	Heavy infections continued in the red pine plantations in the St. Williams Forest Nursery and Turkey Point areas.
1980	not reported

Blight, *Sphaeropsis sapinea* (F.) Dyko & B. Sutton

Host(s): pine

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1976	not reported
1977	Approximately 20 to 25 Austrian pine 12-m in height were severely infected in Charlotteville Twp.
1978	In addition to the infections of 1977, this disease also attacked Ponderosa and red pine in Charlotteville Twp.
1979	Moderate-to-severe damage still persists at the Old Turkey Point arboretum in Charlotteville Twp.
1980	Moderate damage to small clumps and windbreaks of Austrian and Scots pine was observed in the vicinity of Port Rowan, Simcoe, Port Dover, and Long Point. Moderate and light damage were also recorded in Houghton and Middleton twps, respectively.

Other Noteworthy Diseases

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

Host(s): poplar

[Major]

<u>Year</u>	<u>Remarks</u>
1950-1952	not reported
1953-1954	Light infections occurred in poplar stands growing on poor sites in the district.
1955-1967	not reported
1968	Infection levels as high as 30% were observed at one stand in South Walsingham Twp.
1969-1980	not reported

Leaf Blotch, *Phyllosticta sphaeropsoidea* Ell. & Ev.

Host(s): horse chestnut

[Minor]

<u>Year</u>	<u>Remarks</u>
1950-1976	not reported
1977	This disease was prevalent on scattered ornamentals in the towns of Port Dover, Norwich and Simcoe.
1978	High levels of damage were observed throughout the towns of Simcoe and Port Dover.
1979	not reported
1980	Moderate-to-severe damage was found on ornamentals in the town of Simcoe.

APPENDICES

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APPENDIX A

DECIDUOUS HOST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Abbreviations</u>
Alder	<i>Alnus</i> spp.	Al
Apple	<i>Malus</i> spp.	Ap
Ash, black	<i>Fraxinus nigra</i> Marsh.	bAs
white	<i>americana</i> L.	wAs
Aspen, largetooth	<i>Populus grandidentata</i> Michx.	lA
trembling	<i>tremuloides</i> Michx.	tA
Basswood	<i>Tilia americana</i> L.	Ba
Beech	<i>Fagus grandifolia</i> Ehrh.	Be
Birch, white	<i>Betula papyrifera</i> Marsh.	wB
yellow	<i>alleghaniensis</i> Britt.	yB
Butternut	<i>Juglans cinerea</i> L.	Bu
Catalpa	<i>Catalpa</i> spp.	Ca
Cherry, eastern choke	<i>Prunus virginiana</i> L.	eaCh
pin	<i>pensylvanica</i> L.f.	pCh
Elm, white	<i>Ulmus americana</i> L.	wE
Hackberry	<i>Celtis occidentalis</i> L.	Ha
Hickory, bitternut	<i>Carya cordiformis</i> (Wang.) K. Koch	bHi
shagbark	<i>ovata</i> (Mill.) K. Koch	sHi
Horse-chestnut	<i>Aesculus carnea</i> Hayne	hChe
Ironwood	<i>Ostrya</i> spp.	I

(continued)

APPENDIX A (continued)

DECIDUOUS HOST

<u>Common Name</u>	<u>Scientific Name</u>	<u>Abbreviations</u>
Maple, Manitoba	<i>Acer negundo</i> L.	mM
red	<i>rubrum</i> L.	rM
silver	<i>saccharinum</i> L.	siM
sugar	<i>saccharum</i> Marsh.	sM
Mountain-ash, American	<i>Sorbus americana</i> Marsh.	aMo
Oak, black	<i>Quercus velutina</i> Lam.	blO
bur	<i>macrocarpa</i> Michx.	bo
red	<i>rubra</i> L.	ro
white	<i>alba</i> L.	wo
Poplar, balsam	<i>Populus balsamifera</i> L.	bPo
Carolina	<i>eugenei</i> Simon-Louis	cPo
Lombardy	<i>nigra</i> L. var. <i>italica</i> Muench.	lPo
silver	<i>alba</i> L.	sPo
Sycamore	<i>Platanus occidentalis</i> L.	Sy
Walnut, black	<i>Juglans nigra</i> L.	Wa
Willow	<i>Salix</i> spp.	W

APPENDIX B

CONIFEROUS HOST

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