

**DISTRIBUTION OF 59 ORGANISMS
THAT CAUSE TREE DISEASES
IN ONTARIO**

D.T. Myren

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ABSTRACT

Maps depicting collection points of 59 fungi associated with tree diseases in Ontario are presented. The locations of collection points were determined from the records of the Forest Insect and Disease Survey Unit of Forestry Canada, Ontario Region for the period from 1957 to 1988. Brief notes accompany each map and include such information as the taxonomic position of the fungus, the hosts on record and the collections retained in Ontario Region's herbarium.

RÉSUMÉ

Le présent rapport contient des cartes montrant les sites de prélèvement de 59 champignons associés à des maladies des arbres en Ontario. L'emplacement de ces sites a été déterminé à partir des dossiers de l'unité du Relevé des insectes et des maladies des arbres de Forêts Canada, Région de l'Ontario, pour la période de 1957 à 1988. Chaque carte est accompagnée de brèves notes qui fournissent des renseignements divers, notamment le classement taxonomique du champignon, les hôtes connus et les collections conservées à l'herbarium de la Région de l'Ontario.

ACKNOWLEDGMENTS

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Cover photo: *Taphrina caerulescens* leaf blister on red oak.

INTRODUCTION

In 1977, an information report was published to provide a record of the distribution (in map form), hosts, number of records, taxonomy and herbarium specimens for 58 of the more common organisms that cause tree diseases in Ontario (Myren and Gross 1977). Since that time, several diseases not included in the earlier report have increased significantly in their importance and some diseases new to Ontario have been collected. This report provides information on these diseases and a number of others collected by Forestry Canada's Forest Insect and Disease Survey (FIDS) staff from 1967 to 1988.

Collection records accumulated during this time are the foundation on which the present publication is based. Most of these records are compiled from data submitted with disease samples by field staff and from the identification made by the FIDS unit's Mycologist or Disease Identification Technician. Herbarium collections from sources outside FIDS are also covered. In total, 59 organisms and 1,701 records have been included in this study.

Occurrence and distribution of the organisms selected for coverage in this report are indicated by dots on a series of maps; each dot indicates the general area in which one or more collections of an organism were made; hence, the number of dots does not necessarily coincide with the number of collections, and is usually smaller. It must be recognized that the points on the maps indicate locations at which collections have been made and do not necessarily represent the actual distribution of an organism. The distribution of host-specific organisms in Ontario usually coincides with the range of the host. Range maps of native trees can be found in *Native Trees of Canada* (Hosie 1979). Some information on other hosts can be found in *Gray's Manual of Botany* (Fernald 1970).

The causal organisms are arranged alphabetically by genus and species, without regard to taxonomic position. A brief set of notes provides the Latin binomial, classifying authors and taxonomic position for each organism. Also presented are the diseases caused, the recorded hosts, the number of records on which distribution is based, and the number of samples in the Forestry Canada, Ontario Region herbarium. Synonyms are included where they are felt to be of value and the anamorph is indicated, if known. Indices of common names and Latin binomials of pathogenic organisms and of host plants are also provided.

Taxonomy for the Ascomycetes follows that of Ainsworth et al. (1973). Taxonomy for the Basidiomycetes and Deuteromycetes follows that of Hawksworth et al. (1983). The recommendations of Hawksworth (1980) were followed for the names of authors and current Latin binomials for the fungi are as given by Ginns (1986). Hosie (1979) served as the main reference for Latin binomials and common names of tree hosts, but either Fernald (1950) or Little (1953) was used if Hosie's text did not include the name of a species.

DISEASES AND COLLECTION POINTS

Aureobasidium apocryptum (Ell. & Ev.) Hermanides-Nijhof
 syn.: *Kabatiella apocrypta* (Ell. & Ev.) v. Arx
 syn.: *Gloeosporium apocryptum* Ell. & Ev.

Taxonomic position: Deuteromycotina, Hyphomycetes,
 Hyphomycetales, Moniliaceae

Disease caused: anthracnose

Hosts on record: *Acer nigrum*, *A. platanoides*, *A. rubrum*,
A. saccharinum, *A. saccharum*, *Acer* sp.

Number of records: 193

Herbarium specimens: *Acer rubrum* (1)
Acer saccharum (3)

Remarks: A common cause of anthracnose of maple in
 Ontario. *Acer saccharum* is its most common host.

Climacodon septentrionalis (Fr.) P. Karsten
 syn.: *Hydnum septentrionale* Fr.
 syn.: *Steccherinum septentrionale* (Fr.) Banker

Taxonomic position: Basidiomycotina, Hymenomycetes,
 Aphylliphorales, Hydnaceae

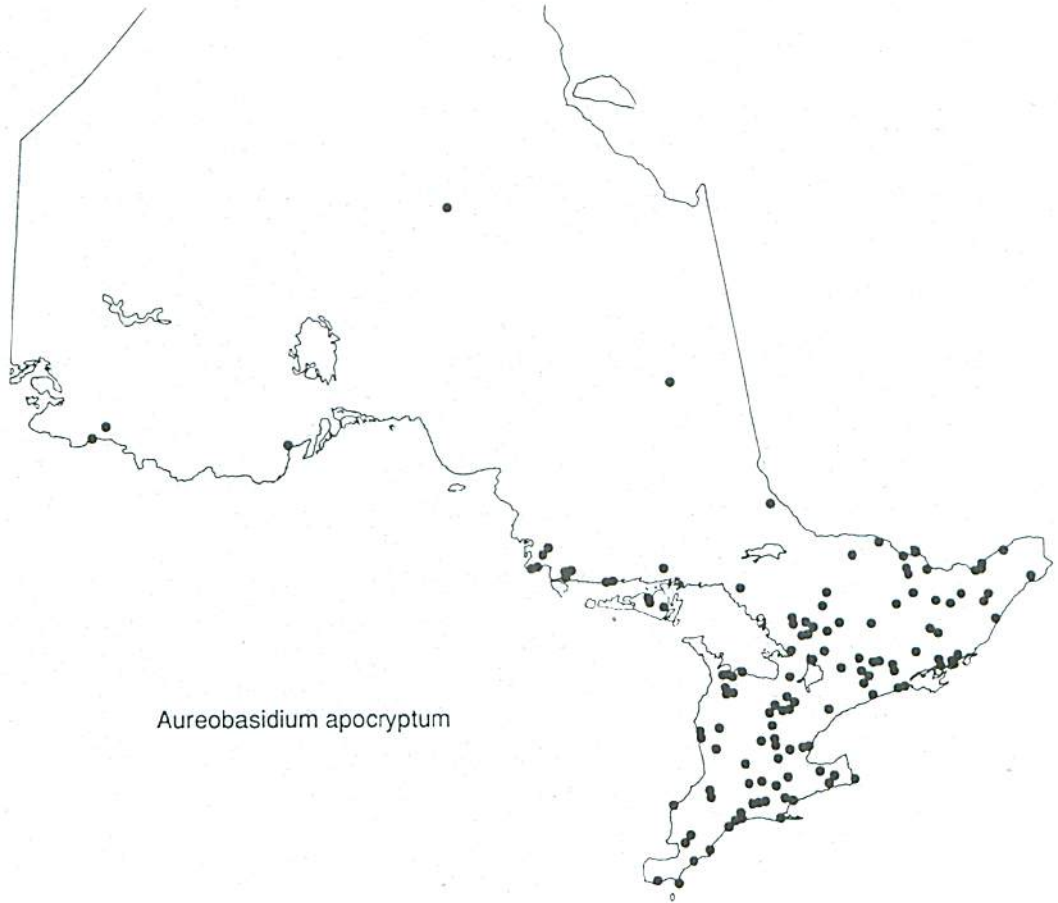
Disease caused: heartwood rot

Hosts on record: *Acer saccharum*, *Fagus* sp.

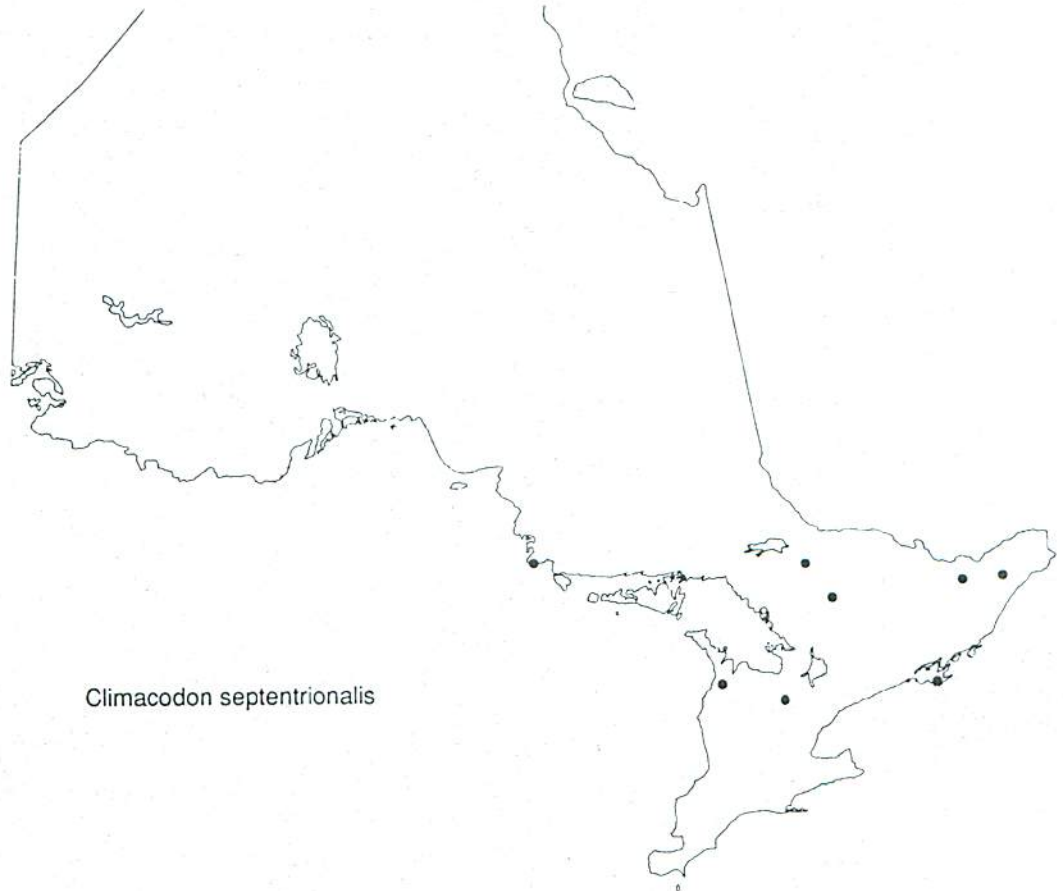
Number of records: 11

Herbarium specimens: *Acer saccharum* (4)
Fagus sp. (1)

Remarks: A soft, spongy white rot of the heartwood of living
Acer spp. and other hardwoods. Fruiting bodies are
 formed on the trunk as large, bracketlike clusters.



Aureobasidium apocryptum



Climacodon septentrionalis

Coleosporium viburni Arthur

Taxonomic position: Basidiomycotina, Urediniomycetes,
Uredinales, Melampsoraceae

Disease caused: needle rust

Hosts on record: *Pinus banksiana*, *Viburnum cassinoides*

Number of records: 4

Herbarium specimens: *Pinus banksiana* (1)
Viburnum cassinoides (1)

Remarks: This rust seems to be infrequent in Ontario, but this may reflect the fact that most field identifications are made as *Coleosporium asterum*. Spore measurements easily separate the two species.

Cryptodiaporthe populea (Sacc.) Butin
ana.: *Discosporium populeum*
syn.: *Dothichiza populea* Sacc. & Briard

Taxonomic position: Ascomycotina, Pyrenomycetes,
Sphaeriales, Diaporthaceae

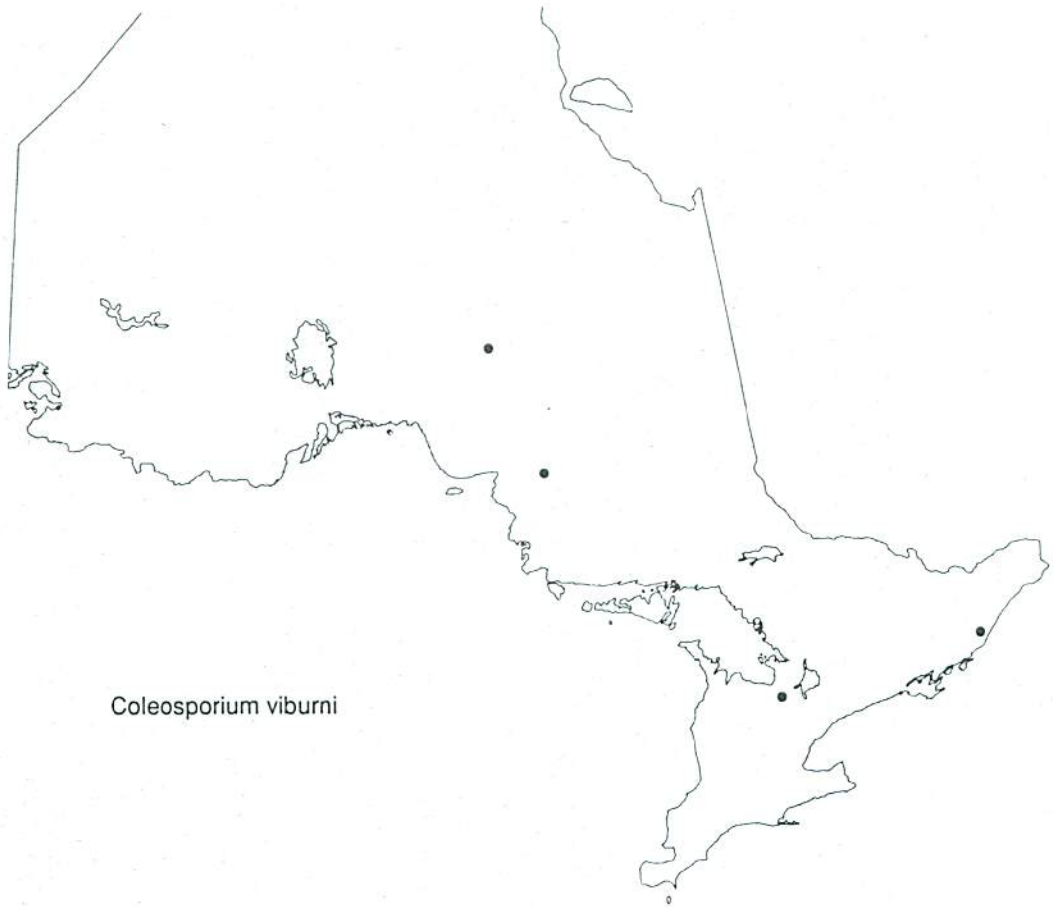
Disease caused: poplar canker

Hosts on record: *Populus alba*, *P. balsamifera*, *P. eugenii*,
P. nigra var. *italica*, *Populus* sp.

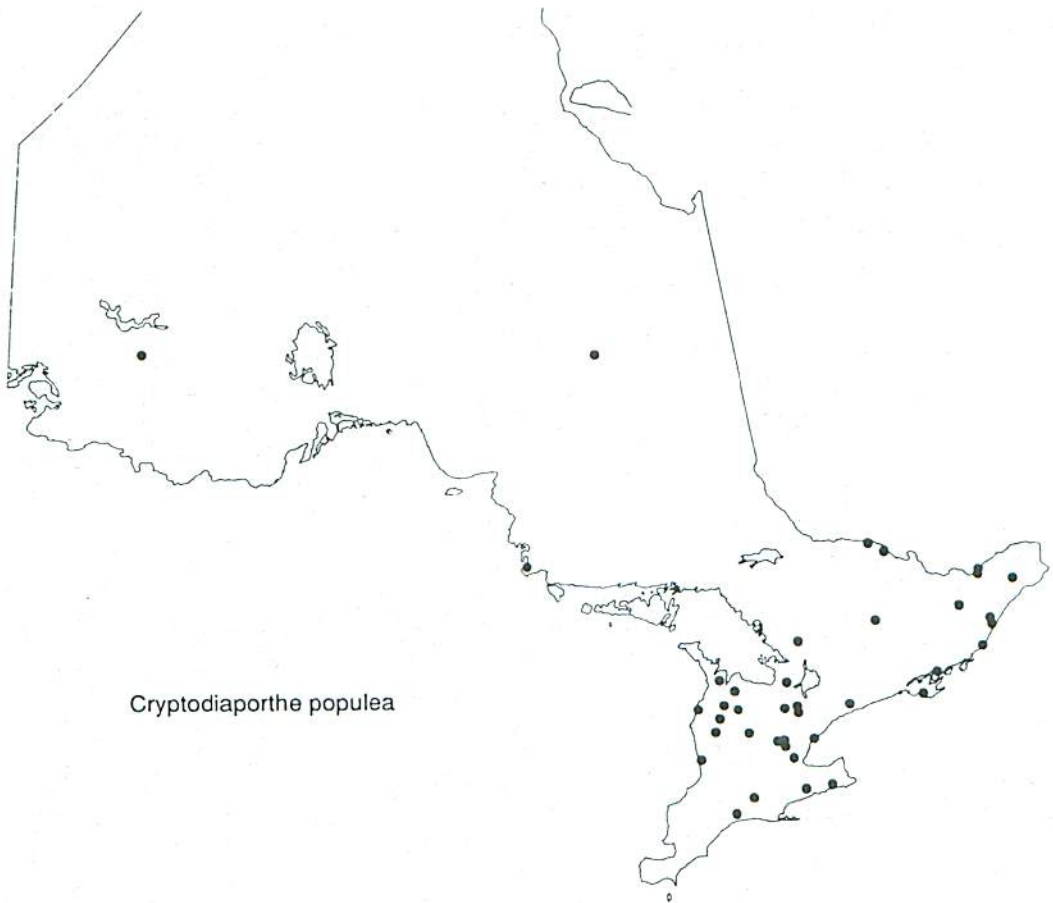
Number of records: 45

Herbarium species: *Populus alba* (1)
P. alba var. *nivea* (1)
P. balsamifera (2)
P. grandidentata (2)
P. nigra var. *italica* (17)
Populus sp. (1)

Remarks: This fungus is native to North America and is a serious cause of cankers on exotic poplars. It is particularly serious on *Populus nigra* var. *italica*.



Coleosporium viburni



Cryptodiaporthe populea

Diplocarpon mespili (Sorauer) B. Sutton
 ana.: *Entomosporium maculatum* Lév.
 ana.: *Entomosporium mespili* (DC.) Sacc.
 syn.: *Fabraea maculata* Atk.

Taxonomic position: Ascomycotina, Discomycetes,
 Helotiales, Dermateaceae

Disease caused: pear leaf blight

Hosts on record: *Crataegus monogyna*, *C. oxycantha*, *Crataegus* sp.,
Sorbus americana, *S. decora*, *Sorbus* sp.

Number of records: 13

Herbarium specimens: *Crataegus oxycantha* (1)
Crataegus sp. (3)
Sorbus decora (1)
Sorbus sp. (1)

Remarks: This fungus causes a leaf blight of *Pyrus* spp.
 and a number of other rosaceous species. The
 fungus affects both the leaves and fruit and can
 cause twig cankers.

Discula betulina (Westend.) v. Arx
 syn.: *Gloeosporium betulinum* Westend.

Taxonomic position: Deuteromycotina, Coelomycetes,
 Melanconiales, Melanconiaceae

Disease caused: anthracnose

Hosts on record: *Betula papyrifera*

Number of records: 5

Herbarium specimens: nil

Remarks: *Discula betulina* causes leaf spots and premature
 defoliation of *Betula* spp. It is not considered
 common in Ontario.



Discula campestris (Pass.) v. Arx

Taxonomic position: Deuteromycotina, Coelomycetes,
Melanconiales, Melanconiaceae

Disease caused: anthracnose

Hosts on record: *Acer nigrum*, *A. saccharinum*, *A. saccharum*

Number of records: 17

Herbarium specimens: *Acer nigrum* (1)
A. saccharinum (1)
A. saccharum (4)

Remarks: This anthracnose fungus is not uncommon in portions of southern Ontario but, without laboratory examination, may be mistaken for other anthracnose fungi.

Discula platani (Peck) Sacc.

syn.: *Gloeosporium nervisequum* (Fuckel) Sacc.
syn.: *Gloeosporium platani* (Mont.) Oudem.

Taxonomic position: Deuteromycotina, Coelomycetidae,
Melanconiales, Melanconiaceae

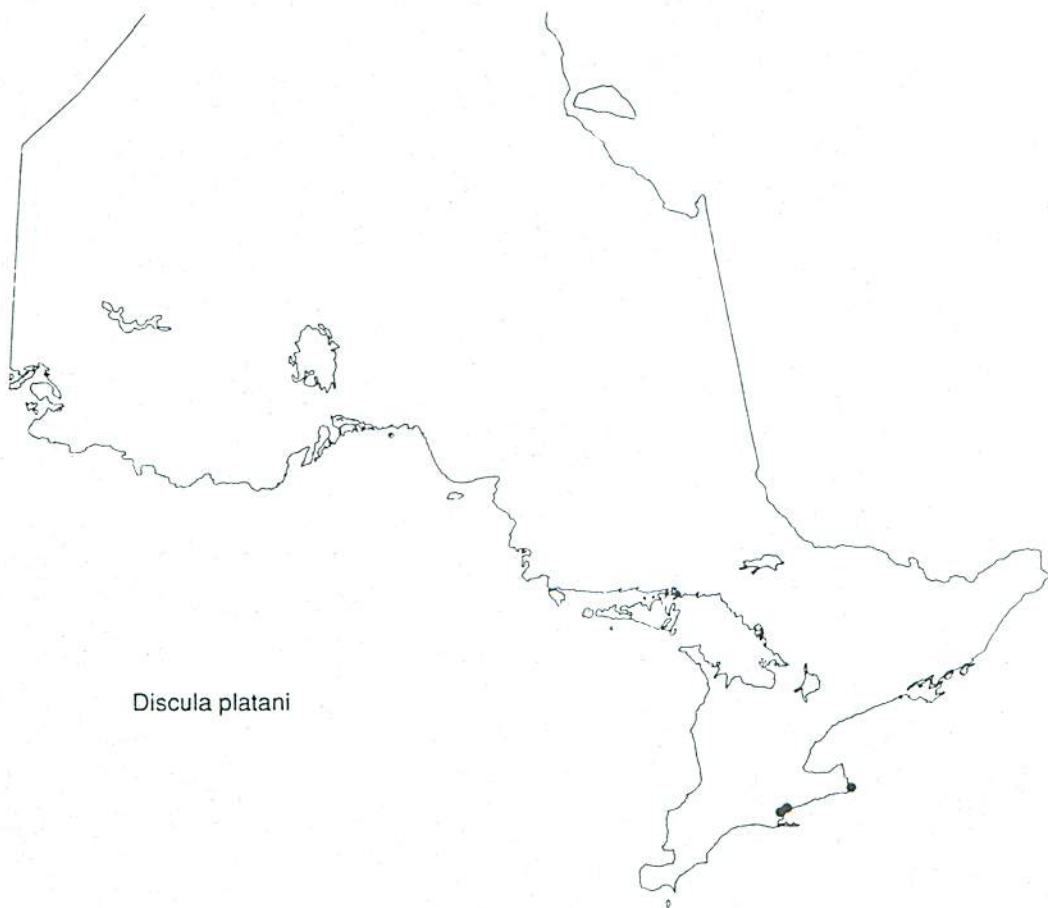
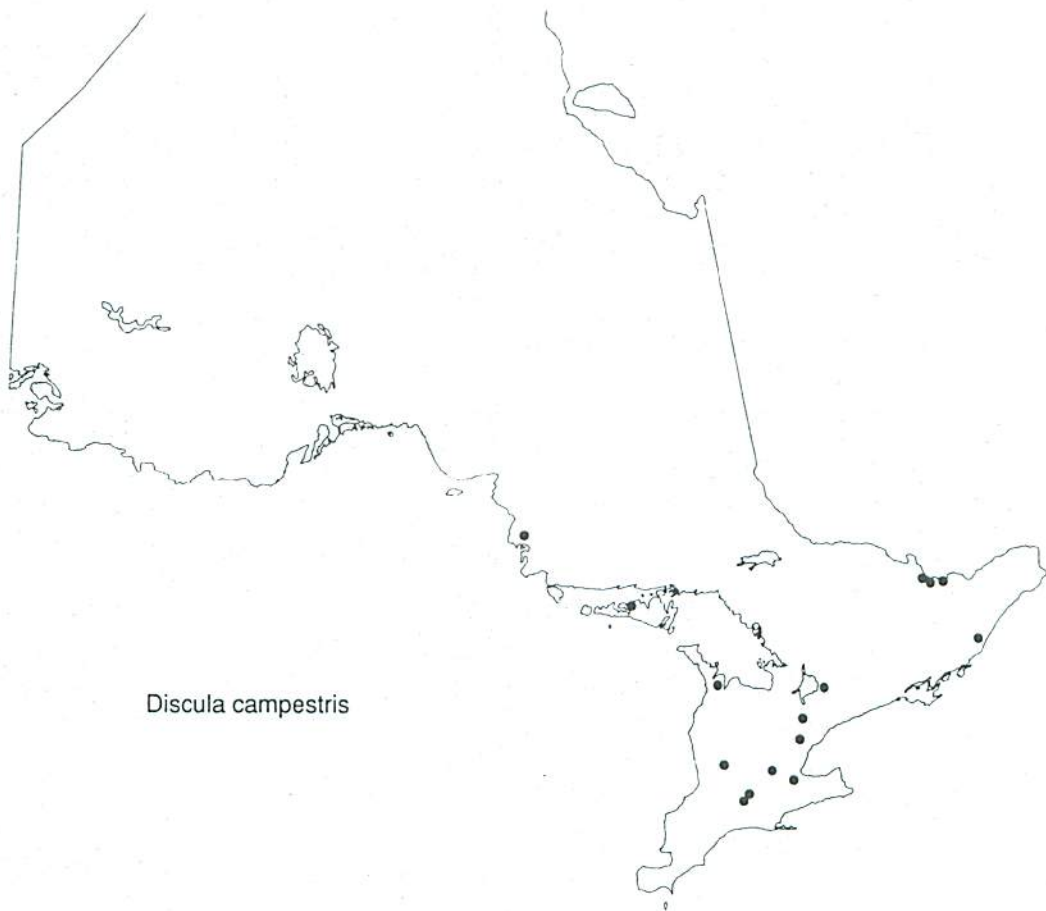
Disease caused: anthracnose

Hosts on record: *Platanus* sp.

Number of records: 3

Herbarium specimens: *Platanus* sp.

Remarks: *Platanus* is is not a common tree in Ontario, which is probably why the collection number is so low. Some collections of this fungus may be listed under *D. umbrinella* (Berk. & Broome) Morelet.



Drepanopeziza populi-alba (Kleb.) Nannf.ana.: *Marssonina castagnei* (Desm. & Mont.) Magnus

Taxonomic position: Ascomycotina, Discomycetes,
Helotiales, Dermateaceae

Disease caused: Marssonina leaf spot

Hosts on record: *Populus alba*

Number of records: 4

Herbarium specimens: *Populus alba* (1)

Remarks: This fungus has been collected only in the
Marssonina states and is limited to *Populus alba*.

Drepanopeziza populorum (Desm.) Höhneltana.: *Marssonina populi* (Lib.) Magnusana.: *Marssonina populi-nigrae* Kleb.

Taxonomic position: Ascomycotina, Discomycetes,
Helotiales, Dermateaceae

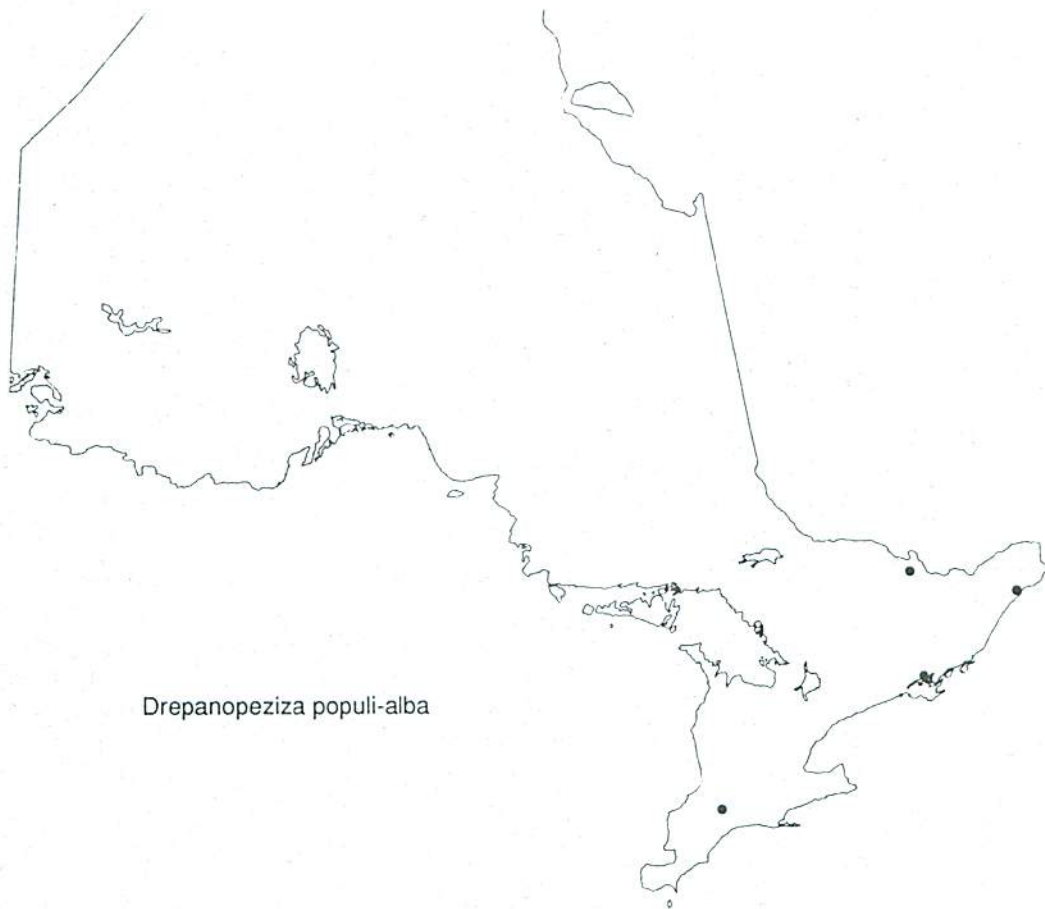
Disease caused: Marssonina leaf spot

Hosts on record: *Populus alba*, *P. balsamifera*, *P. canadensis*,
P. eugenii, *P. grandidentata*, *P. tremuloides*,
Populus sp., hybrid poplar

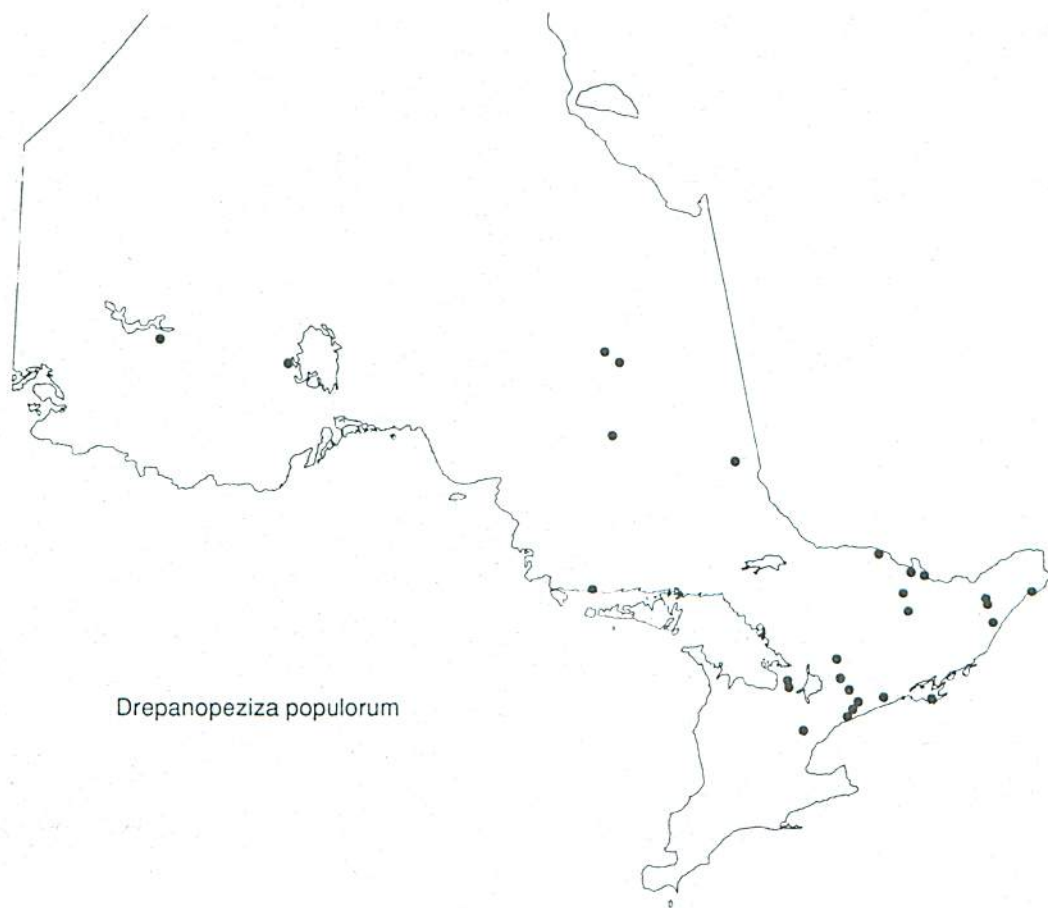
Number of records: 31

Herbarium specimens: *Populus eugenii* (2)
Populus tremuloides (1)
hybrid poplar (1)

Remarks: The fungus is found only in the *Marssonina*
states. *Drepanopeziza populorum*, the teleomorph,
has not been recorded in North America but is
found on overwintered leaves in Europe.



Drepanopeziza populi-alba



Drepanopeziza populorum

Drepanopeziza salicis (Tul. & C. Tul.) Höhnel
 ana.: *Gloeosporium salicis* Westend.
 ana.: *Monostichella salicis* (Westend.) v. Arx

Taxonomic position: Ascomycotina, Discomycetes,
 Helotiales, Dermateaceae

Diseases caused: leaf spot

Hosts on record: *Salix* sp.

Number of records: 2

Herbarium specimens: *Salix* sp. (2)

Remarks: A rarely collected black leaf spot on *Salix* spp.
 Collected only as *Monostichella salicis*, although
 the teleomorph is apparently known in North
 America.

Drepanopeziza tremulae Rimpau
 ana.: *Gloeosporium brunneum* Ell. & Ev.
 ana.: *Marssonina brunnea* (Ell. & Ev.) Magnus

Taxonomic position: Ascomycotina, Discomycetes,
 Helotiales, Dermateaceae

Disease caused: leaf spot

Hosts on record: *Populus eugenei*, *P. grandidentata*,
Populus sp., *P. tremuloides*, hybrid poplar

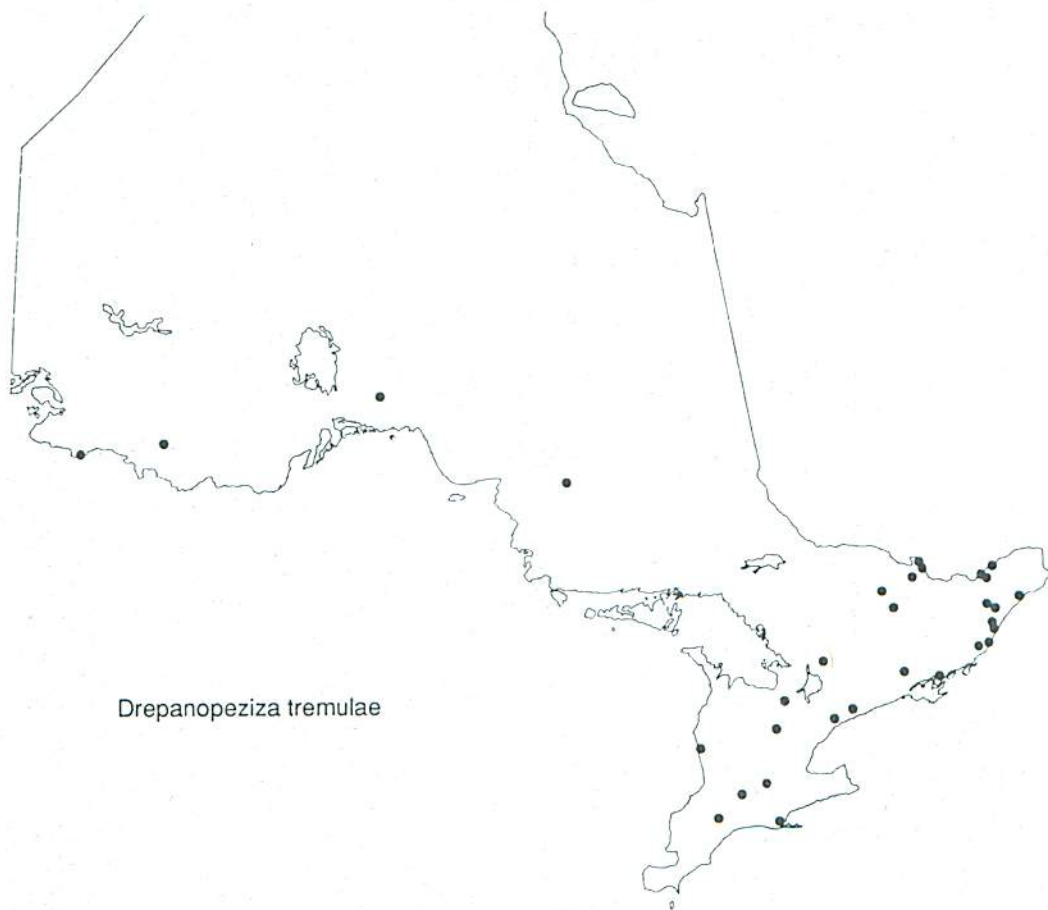
Number of records: 35

Herbarium specimens: *Populus* sp. (2)
Populus tremuloides (2)
 hybrid poplar (2)

Remarks: Apparently only the anamorph, *M. brunnea*, is
 found in North America; the holomorph has been
 reported from Europe.



Drepanopeziza salicis



Drepanopeziza tremulae

Erwinia amylovora (Burrill) Winslow et al.

Taxonomic position: Bacteria, Eubacteriales,
Enterobacteriaceae, Erwinieae

Disease caused: fire blight

Hosts on record: *Malus* sp., *Sorbus americana*,
S. aria utescens, *S. aucuparia*,
S. decora, *Sorbus* sp.

Number of records: 33

Herbarium specimens: *Sorbus aria utescens* (1)

Remarks: Fire blight is the most serious disease of members of the genus *Sorbus*, and results in the death of many of these trees, which are used as ornamentals.

Gnomonia leptostyla (Fr.) Ces. & de Not.

ana.: *Marssoniella juglandis* (Lib.) Höhnelt
ana.: *Marssonina juglandis* (Lib.) Magnus

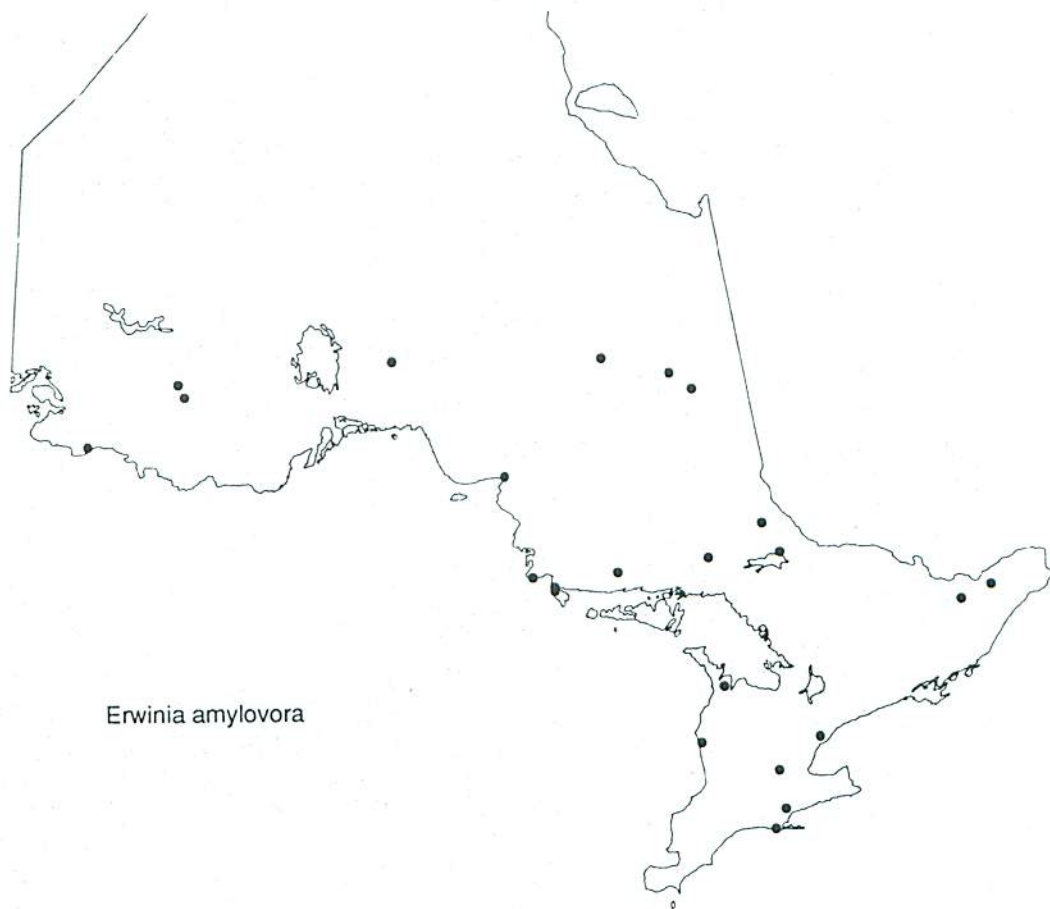
Taxonomic position: Ascomycotina, Pyrenomycetes,
Sphaeriales, Diaporthaceae

Disease caused: leaf spot

Hosts on record: *Juglans cinerea*, *J. nigra*, *Juglans* sp.

Herbarium specimens: *Juglans cinerea* (4)
J. nigra (2)
Juglans sp. (4)

Remarks: This fungus can infect and kill young shoots as well as leaves. It is the most serious foliar disease of *Juglans nigra* in Ontario and can cause extensive premature defoliation.



Erwinia amylovora



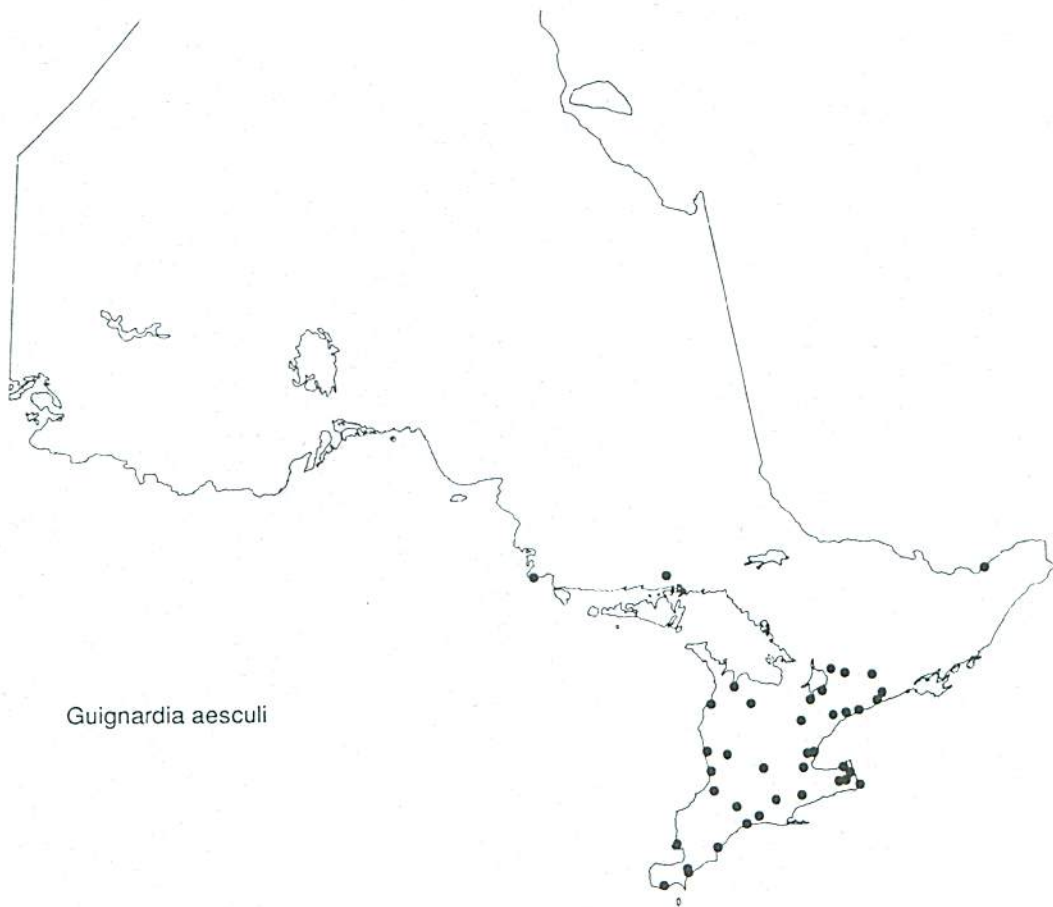
Gnomonia leptostyla

Guignardia aesculi (Peck) Stewartana.: *Leptodothiorella aesculicola* (Sacc.) Sivan.ana.: *Phyllosticta paviae* Desm.ana.: *Phyllosticta sphaeropsoides* Ell. & Ev.

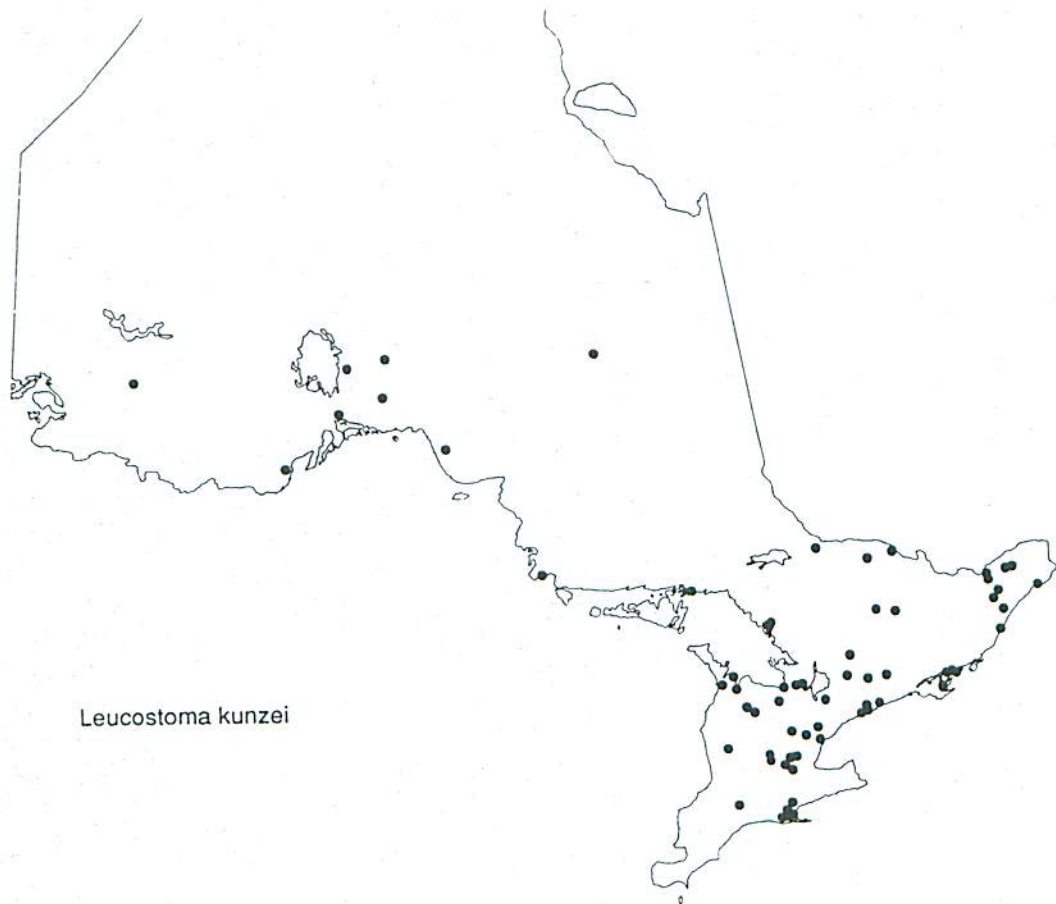
- Taxonomic position: Ascomycotina, Loculoascomycetes,
Dothideales, Dothideaceae
- Disease caused: leaf blotch
- Hosts on record: *Aesculus hippocastanum*
- Number of records: 47
- Herbarium specimens: *Aesculus hippocastanum* (10)
- Remarks: The presence of the *Phyllosticta* state of the fungus readily distinguishes this disease from a somewhat similar problem caused by heat and drought. Severe infections can involve the entire tree and cause premature defoliation.

Leucostoma kunzei (Fr.) Munkana.: *Cytospora kunzei* Sacc.

- Taxonomic position: Ascomycotina, Pyrenomycetes,
Sphaeriales, Diaporthaceae
- Disease caused: Cytospora canker
- Hosts on record: *Abies balsamea*, *Larix decidua*, *Picea abies*,
P. glauca, *P. mariana*, *P. pungens*, *P. rubens*,
Pinus strobus
- Number of records: 81
- Herbarium specimens: *Larix decidua* (1)
Picea abies (1)
P. glauca (4)
P. pungens (3)
Picea sp. (1)
Pinus strobus (6)
- Remarks: This fungus is most damaging to ornamental *Picea* spp., particularly *P. pungens*, on which its characteristic killing of individual branches destroys the value of its host. The presence of pitch on infected branches is characteristic of the disease.



Guignardia aesculi



Leucostoma kunzei

Leucostoma nivea (Hoffm.: Fr.) Höhnelt
 ana.: *Cytospora nivea* (Hoffm.) Fr.

Taxonomic position: Ascomycotina, Pyrenomycetes,
 Sphaeriales, Diaporthaceae

Disease caused: *Cytospora* canker

Hosts on record: *Populus grandidentata*, *P. nigra*,
P. nigra var. *italica*,
Populus sp., *P. tremuloides*

Herbarium specimens: *Populus grandidentata* (1)
P. nigra (1)
P. tremuloides (4)
Populus sp. (1)

Remarks: The white disk and reddish tendrils are
 characteristic of the *Cytospora* state of this
 fungus.

Linospora tetraspora G.E. Thompson

Taxonomic position: Ascomycotina, Pyrenomycetes,
 Sphaeriales, Diaporthaceae

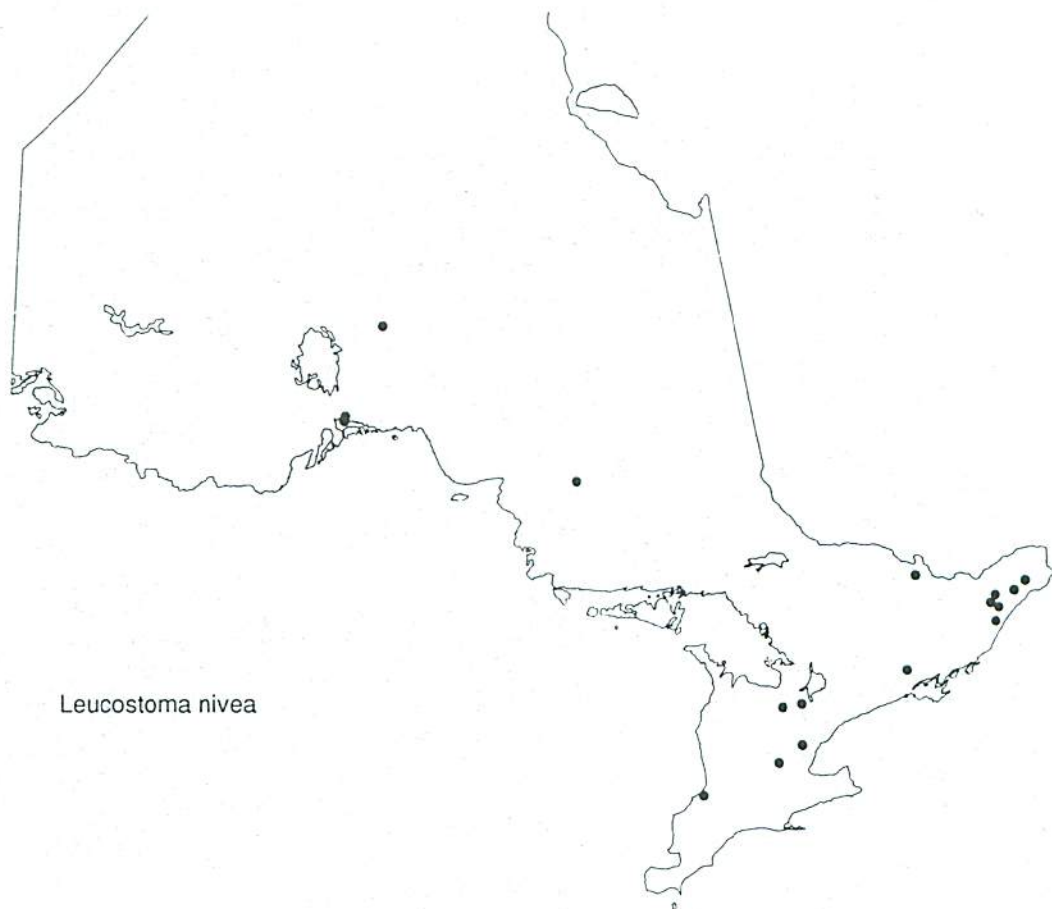
Disease caused: leaf blight

Hosts on record: *Populus balsamifera*

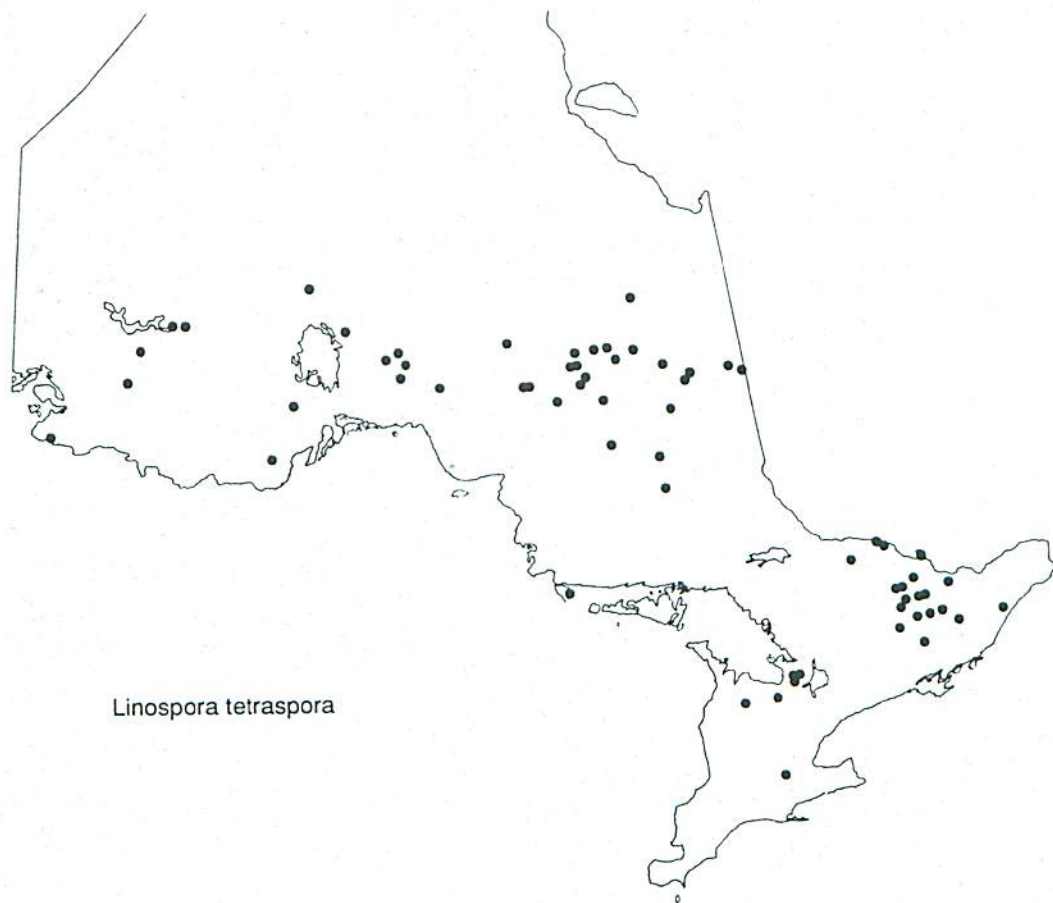
Number of records: 69

Herbarium specimens: *Populus balsamifera* (6)

Remarks: This leaf blight is very common in Ontario and is
 limited to *Populus balsamifera*. A number of
 small black dots (pseudoclypei) on the upper leaf
 surface is a useful diagnostic feature of the
 disease.



Leucostoma nivea



Linospora tetraspora

Marssonina betulae (Lib.) Magnus

Taxonomic position: Deuteromycotina, Coelomycetes,
Melanconiales, Melanconiaceae

Disease caused: leaf spot

Hosts on record: *Betula glandulosa*

Number of records: 2

Herbarium specimens: *Betula glandulosa* (2)

Remarks: This leaf spots is also known on *Betula papyri-
fera*, but is uncommon on that host. The small
number of collections may reflect the true
occurrence of this leaf spot, as *Betula* spp. are
frequently sampled.

Marssonina martini (Sacc. & Ell.) Magnus

Taxonomic position: Deuteromycotina, Coelomycetes,
Melanconiales, Melanconiaceae

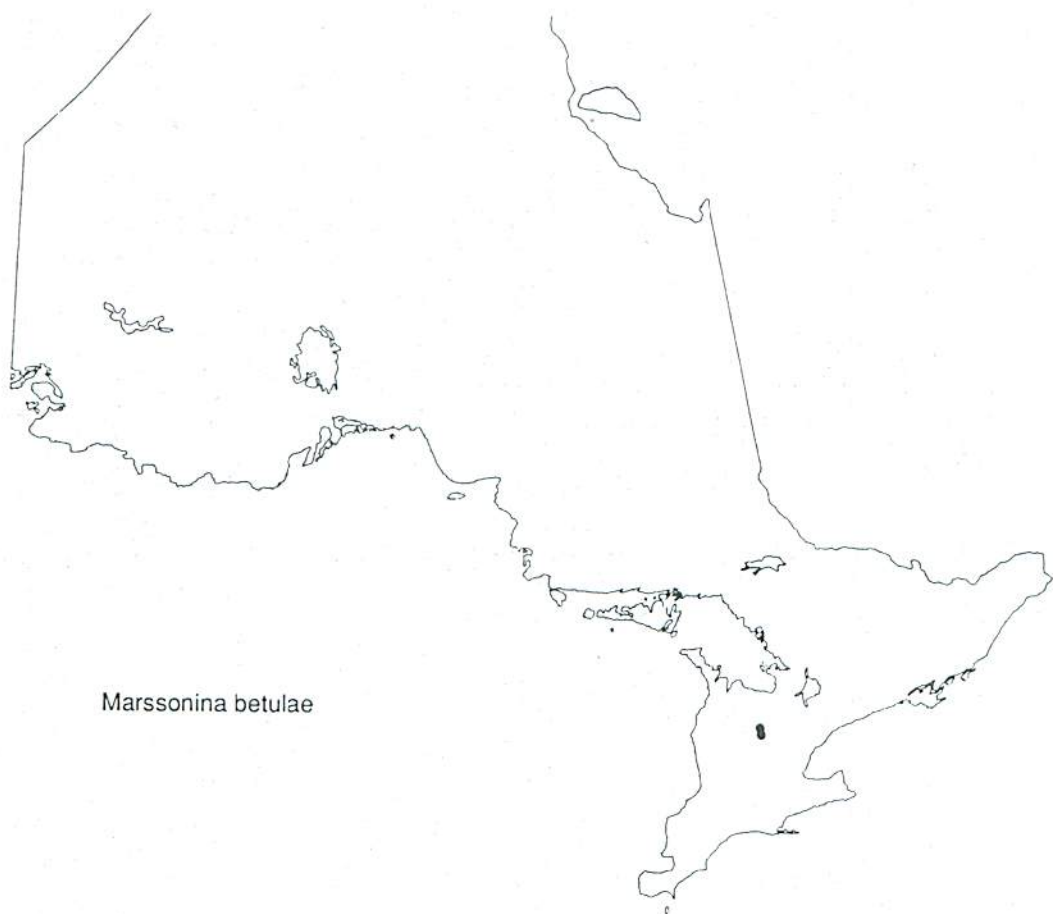
Disease caused: leaf spot

Hosts on record: *Quercus alba*, *Q. macrocarpa*, *Q. prinus*

Number of records: 4

Herbarium specimens: *Quercus alba* (1)
Q. macrocarpa (1)
Q. prinus (1)

Remarks: The fact that fungus has never caused a serious
problem on *Quercus* spp. in Ontario probably
accounts for the small number of collections.
The fungus is thought to be fairly common
throughout the range of its host in the province.



Marssonina betulae



Marssonina martini

Marssonina quercina (Winter) Lentz

Taxonomic position: Deuteromycotina, Coelomycetes,
Melanconiales, Melanconiaceae

Disease caused: leaf spot

Number of records: 2

Herbarium specimens: *Quercus rubra* (2)

Hosts on record: *Quercus rubra*

Remarks: An infrequently encountered leaf spot of *Quercus*
spp.

Meria laricis Vuill.

Taxonomic position: Deuteromycotina, Hyphomycetes,
Hyphomycetales, Moniliaceae

Disease caused: needle cast

Hosts on record: *Larix decidua*, *Larix* sp.

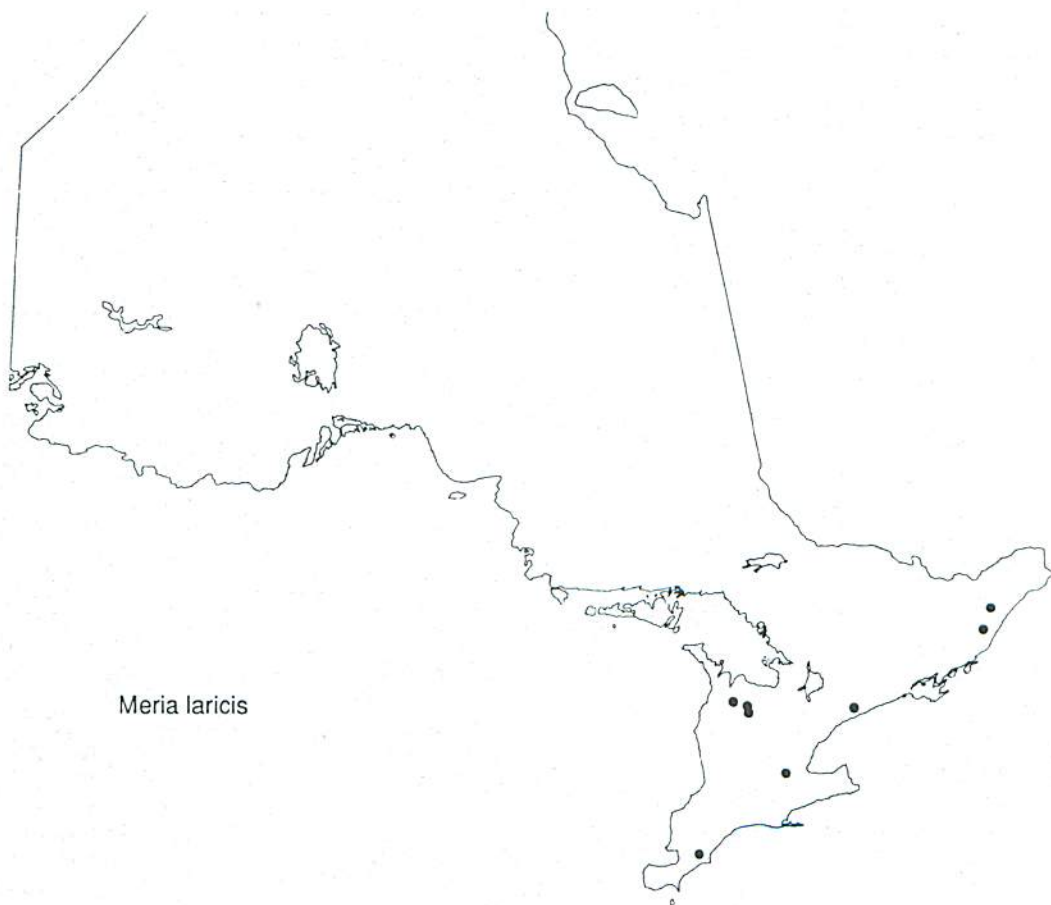
Number of records: 14

Herbarium specimens: *Larix decidua* (2)
Larix sp. (2)

Remarks: Collections are from plantations of *Larix decidua*
and represent the first North American
collections on this host, and the first
collections of the fungus in eastern North
America. The fungus has also been found on stock
from the Ontario Ministry of Natural Resources
nursery at Orono.



Marssonina quercina



Meria laricis

Mycosphaerella dearnessii Barrana.: *Lecanosticta acicola* (Thüm) Sydowsyn.: *Scirrhia acicola* (Dearn.) Siggers

- Taxonomic position: Ascomycotina, Loculoascomycetes,
Dothideales, Dothideaceae
- Disease caused: brown-spot needle blight
- Hosts on record: *Pinus mugo* var. *mughus*, *P. nigra*
- Number of records: 9
- Herbarium specimens: *Pinus mugo* var. *mughus* (3)
P. nigra (2)
- Remarks: Since the first detection of this disease in 1980, most collections have been made on *Pinus mugo* var. *mughus*, probably because this host is used as an ornamental and is observed closely. This fungus can cause damage to young *Pinus* spp. plantations but no collections have yet been made from plantations in Ontario.

Mycosphaerella effigurata (Schwein.) Houseana.: *Asteromella fraxini* (Berk. & M.A. Curtis) Petrakana.: *Cylindrosporium fraxini* (Ell. & Kellerman) Ell. & Ev.

- Taxonomic position: Ascomycotina, Loculoascomycetes,
Dothideales, Dothideaceae
- Disease caused: leaf spot
- Hosts on record: *Fraxinus nigra*, *F. pennsylvanica*, *Fraxinus* sp.
- Number of records: 10
- Herbarium specimens: nil
- Remarks: The small number of collections of this fungus, considered the cause of one of the more common leaf spots of *Fraxinus* spp., probably reflects a lack of emphasis on foliar problems of this host.



Mycosphaerella dearnessii



Mycosphaerella effigurata

Mycosphaerella pini Rostrup

ana.: *Dothistroma septospora* (Dorogin) Morelet var. *septospora*
 syn.: *Scirrhia pini* Funk & Parker

Taxonomic position: Ascomycotina, Loculoascomycetes,
 Dothideales, Dothideaceae

Disease caused: red-band disease

Hosts on record: *Pinus contorta*, *P. nigra*

Number of records: 20

Herbarium specimens: *Pinus nigra* (4)

Remarks: This fungus is found primarily on *Pinus nigra* in southern Ontario. A recent collection on *Pinus sylvestris* was made near Sault Ste. Marie.

Mycosphaerella populi (Auersw.) Schröter

ana.: *Septoria populi* Desm.

Taxonomic position: Ascomycotina, Loculoascomycetes,
 Dothideales, Dothideaceae

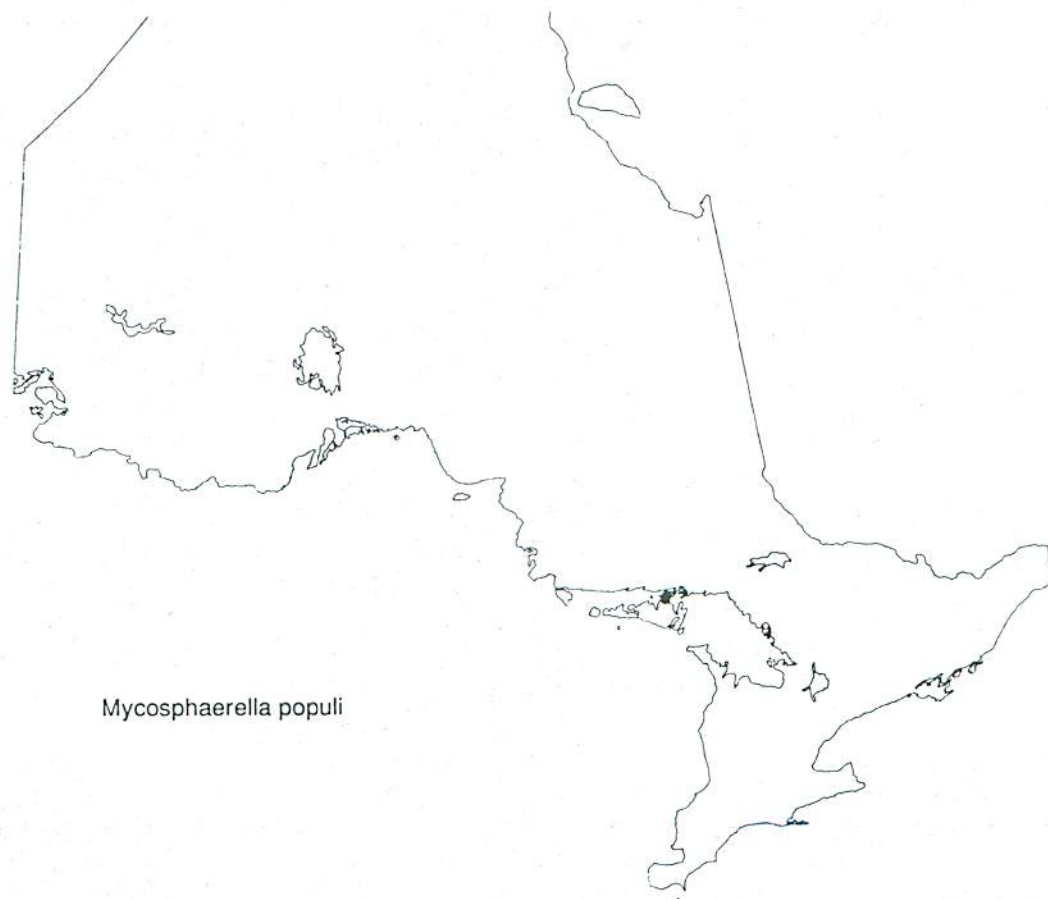
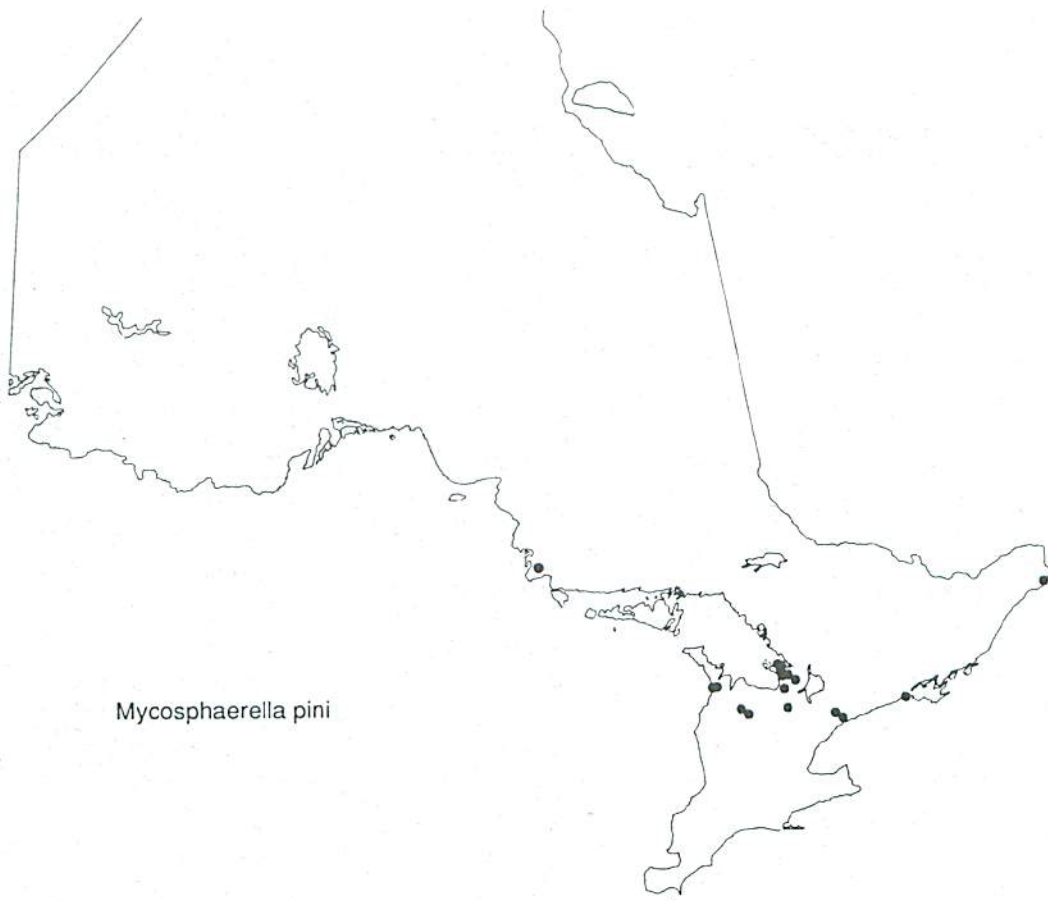
Disease caused: leaf spot

Hosts on record: *Populus balsamifera*

Number of records: 1

Herbarium specimens: *Populus balsamifera* (1)

Remarks: An infrequently found leaf spot, but this may reflect the fact that *Populus balsamifera* is not a commonly sampled host.



Mycosphaerella populicola G.E. Thompson
 ana.: *Septoria populicola* Peck

Taxonomic position: Ascomycotina, Loculoascomycetes,
 Dothideales, Dothideaceae

Disease caused: leaf spot

Hosts on record: *Populus alba*, *P. balsamifera*, *P. deltoides*,
Populus sp., *P. tremuloides*

Number of records: 113

Herbarium specimens: *Populus balsamifera* (7)
Populus sp. (1)

Remarks: Collections indicate that this fungus is somewhat
 more common than *M. populorum* G.E. Thompson and
 is the cause of severe premature defoliation of
Populus balsamifera each year.

Mycosphaerella populorum G.E. Thompson
 ana.: *Septoria musiva* Peck

Taxonomic position: Ascomycotina, Loculoascomycetes,
 Dothideales, Dothideaceae

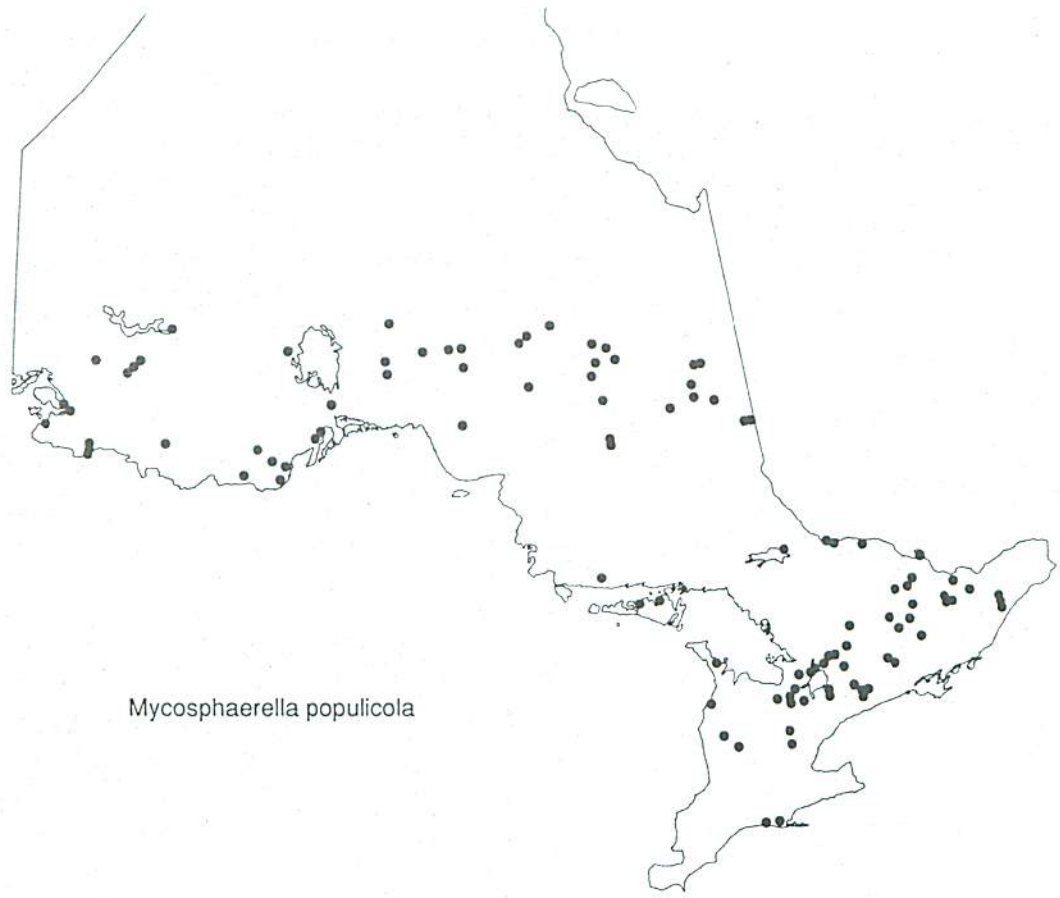
Disease caused: leaf spot

Hosts on record: *Populus balsamifera*, *P. berolinensis*,
P. deltoides, *P. deltoides* var. *occidentalis*
P. laurifolia, *P. petrowskyana*,
P. rasumowskyana, *P. trichocarpa*, hybrid poplar

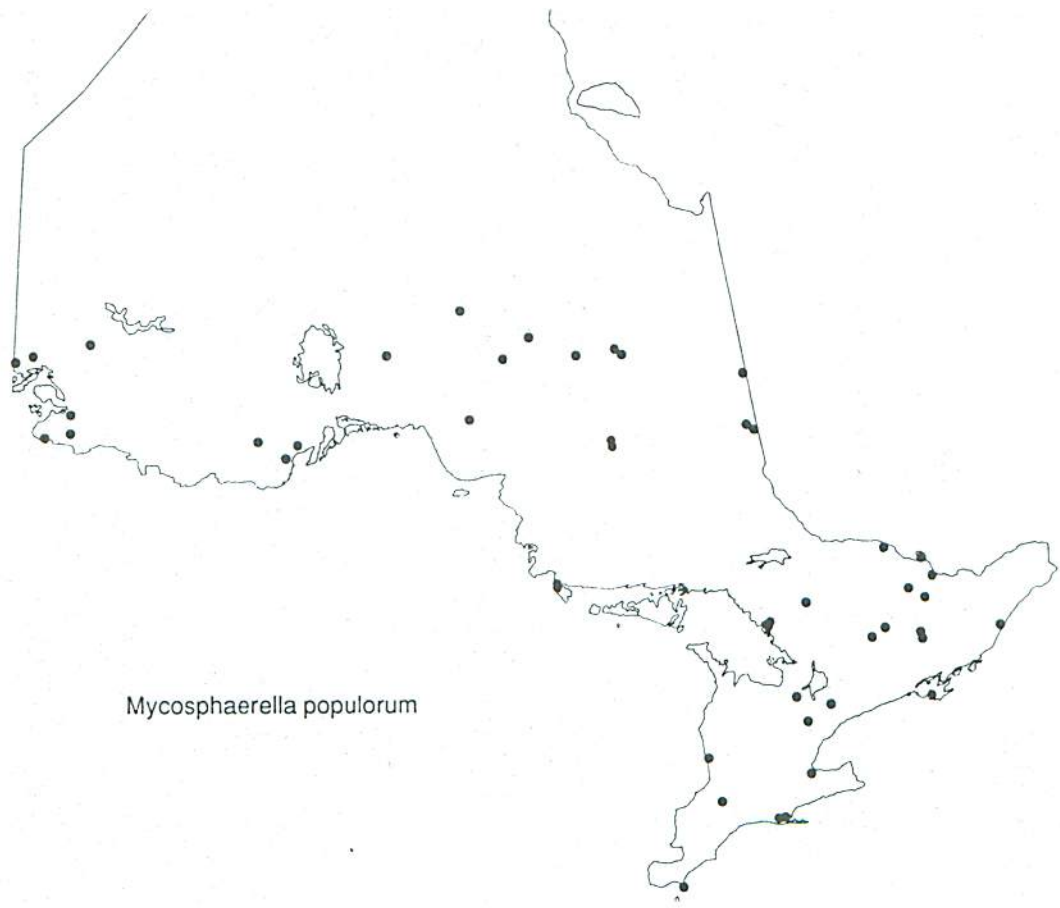
Number of records: 76

Herbarium specimens: *Populus balsamifera* (16)
P. berolinensis (3)
P. deltoides (3)
P. deltoides var. *occidentalis* (1)
P. laurifolia (1)
P. petrowskyana (2)
P. rasumowskyana (13)
P. trichocarpa (1)
Populus sp. (1)

Remarks: A common leaf spot on *Populus balsamifera* and
 hybrid *Populus*, this fungus often causes
 premature defoliation of its hosts.



Mycosphaerella populicola



Mycosphaerella populorum

Phaeocryptopus gaeumannii (Rohde) Petrak
syn.: *Adelopus gaeumannii* Rohde

Taxonomic position: Ascomycotina, Loculoascomycetes
Pleosporales, Venturiaceae

Disease caused: Swiss needle cast

Hosts on record: *Pseudotsuga menziesii*

Number of records: 6

Herbarium specimens: *Pseudotsuga menziesii* (4)

Remarks: This disease is becoming more common with the increasing number of plantations of *Pseudotsuga menziesii* established for Christmas tree production.

Phaeoramularia maculicola (Romell & Sacc.) B. Sutton
syn.: *Cladosporium subsessile* Ell. & Barth.

Taxonomic position: Deuteromycotina, Hyphomycetes,
Hyphomycetales, Dematiaceae

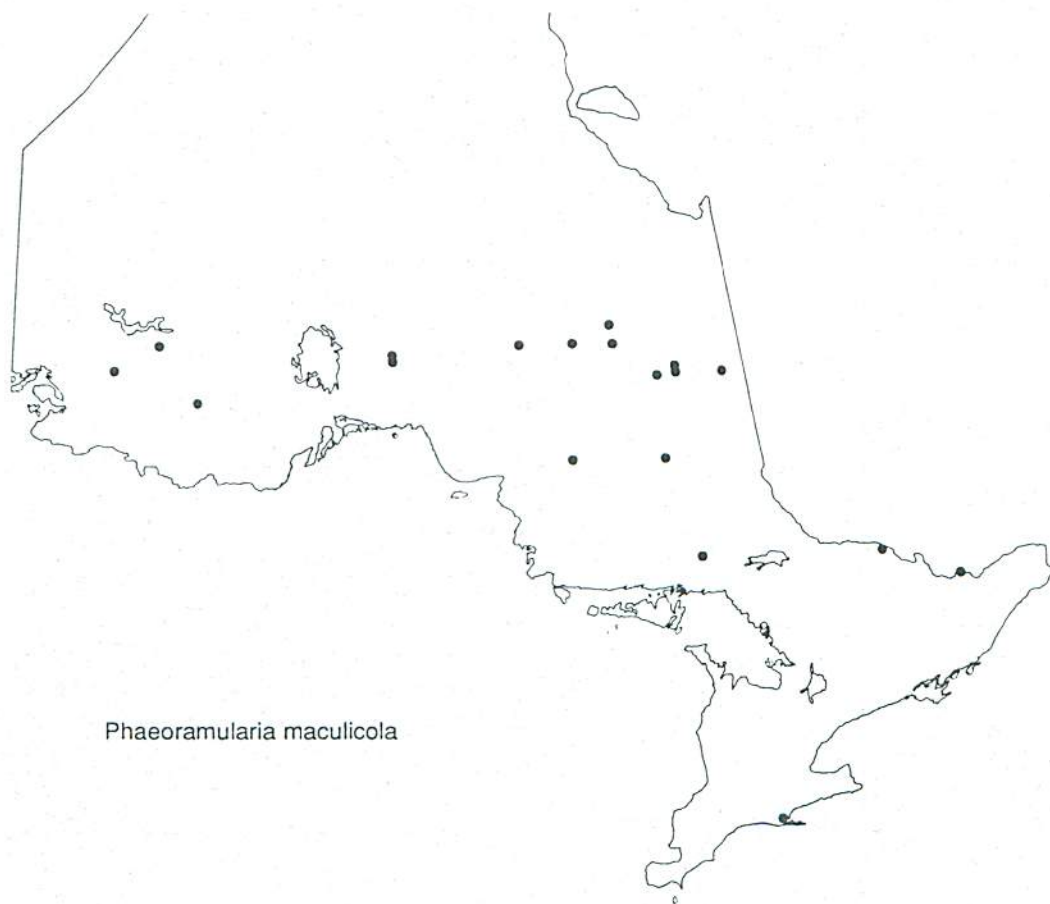
Disease caused: leaf spot

Hosts on record: *Populus eugenei*, *P. grandidentata*,
Populus sp., *P. tremuloides*

Number of records: 19

Herbarium specimens: *Populus grandidentata* (3)
P. tremuloides (2)
Populus sp. (1)

Remarks: The small size of the lesions, 0.5 mm in diameter, does not make this disease striking unless infection is quite heavy. The disease does appear similar to secondary infection by shoot blight of poplar (*Venturia macularis* (Fr.) Müller & v. Arx).



Phellinus everhartii (Ell. & Gall.) A. Ames
 syn.: *Fomes everhartii* (Ell. & Gall.) von Schrenk and Spaulding

Taxonomic position: Basidiomycotina, Hymenomycetes,
 Aphyllophorales, Hymenochaetaceae

Disease caused: trunk rot

Hosts on record: *Quercus rubra*, *Quercus* sp.

Number of records: 5

Herbarium specimens: *Quercus rubra* (2)
Quercus sp. (1)

Remarks: Although *Quercus* spp. are the most common hosts,
 and the only hosts of record in Ontario, the
 fungus is known to cause decay in other
 hardwoods.

Phyllosticta minima (Berk. & M.A. Curtis) Underw. & Earle

Taxonomic position: Deuteromycotina, Coelomycetes,
 Sphaeropsidales, Sphaerioidaceae

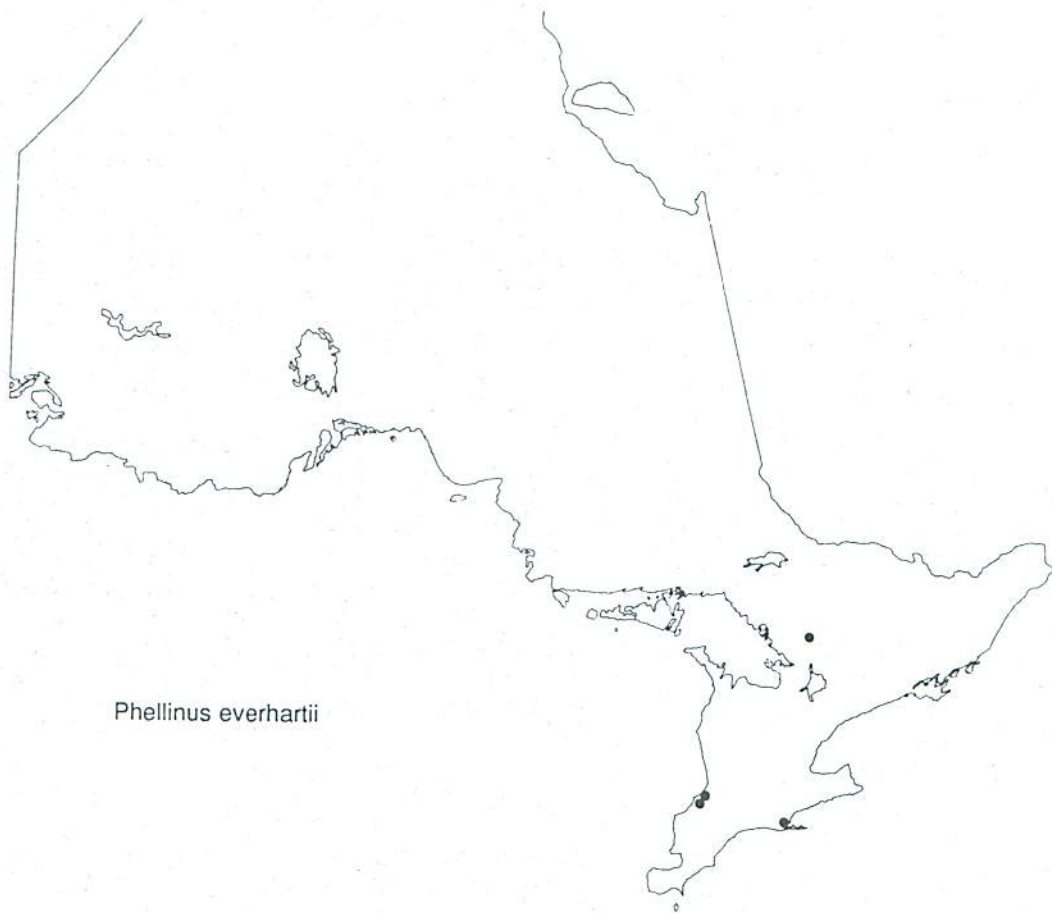
Disease caused: leaf spot

Hosts on record: *Acer ginnala*, *A. pseudoplatanus*,
A. rubrum, *A. saccharum*, *A. spicatum*

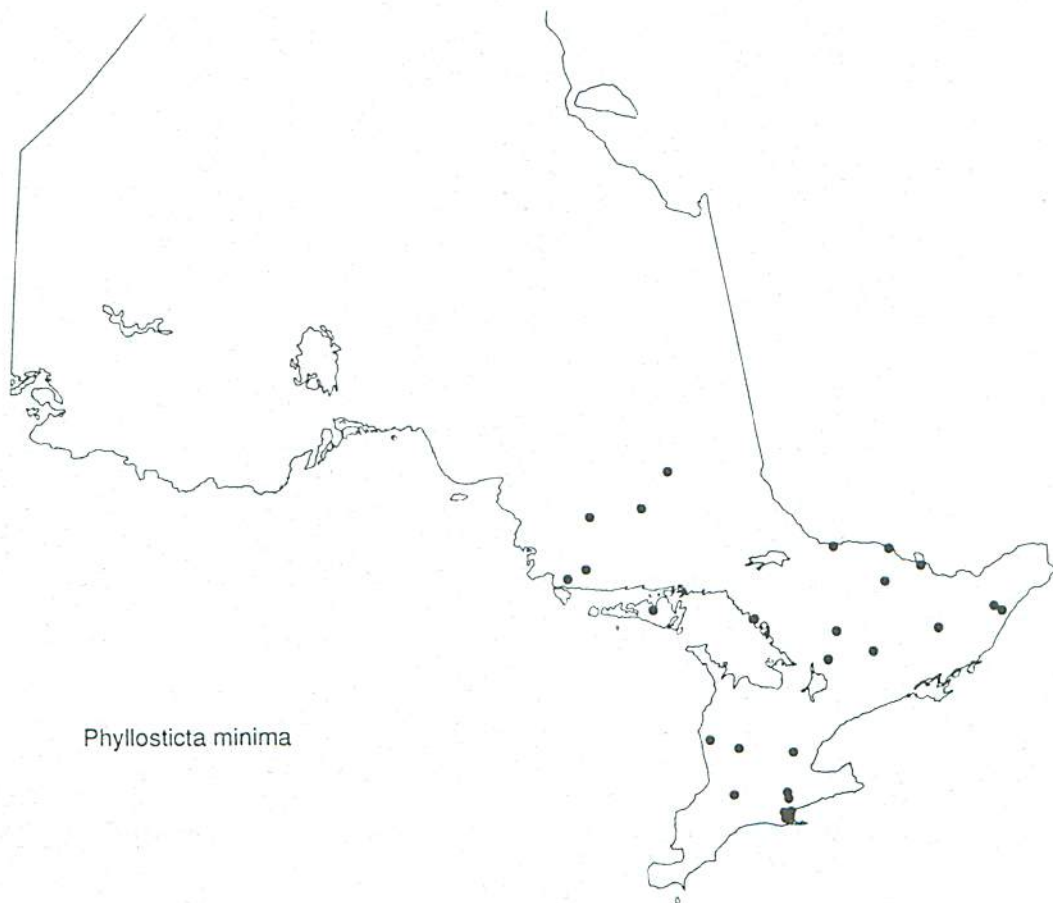
Number of records: 32

Herbarium specimens: *Acer ginnala* (1)
A. pseudoplatanus (1)
A. rubrum (3)
A. saccharum (1)
A. spicatum (1)

Remarks: A common leaf spot on *Acer* spp. that is often
 confused with a somewhat similar midge spot. The
 latter has a concave area in the center of the
 spot when viewed from below.



Phellinus everhartii



Phyllosticta minima

Phyllosticta sorbi Westend.

Taxonomic position: Deuteromycotina, Coelomycetes,
Sphaeropsidales, Sphaerioidaceae

Disease caused: leaf spot

Hosts on record: *Sorbus americana*

Number of records: 14

Herbarium specimens: *Sorbus americana* (2)

Remarks: *Sorbus americana* is native to much of Ontario but most collections have been from ornamental trees. The fungus, which produces a brown spot on the leaflets, is the anamorph of *Mycosphaerella aucupariae* (Lasch) Laibach.

Piggotia coryli (Desm.) B. Sutton
syn.: *Monostichella coryli* (Desm.) Höhnelt

Taxonomic position: Deuteromycotina, Coelomycetes,
Sphaeropsidales, Leptostromataceae

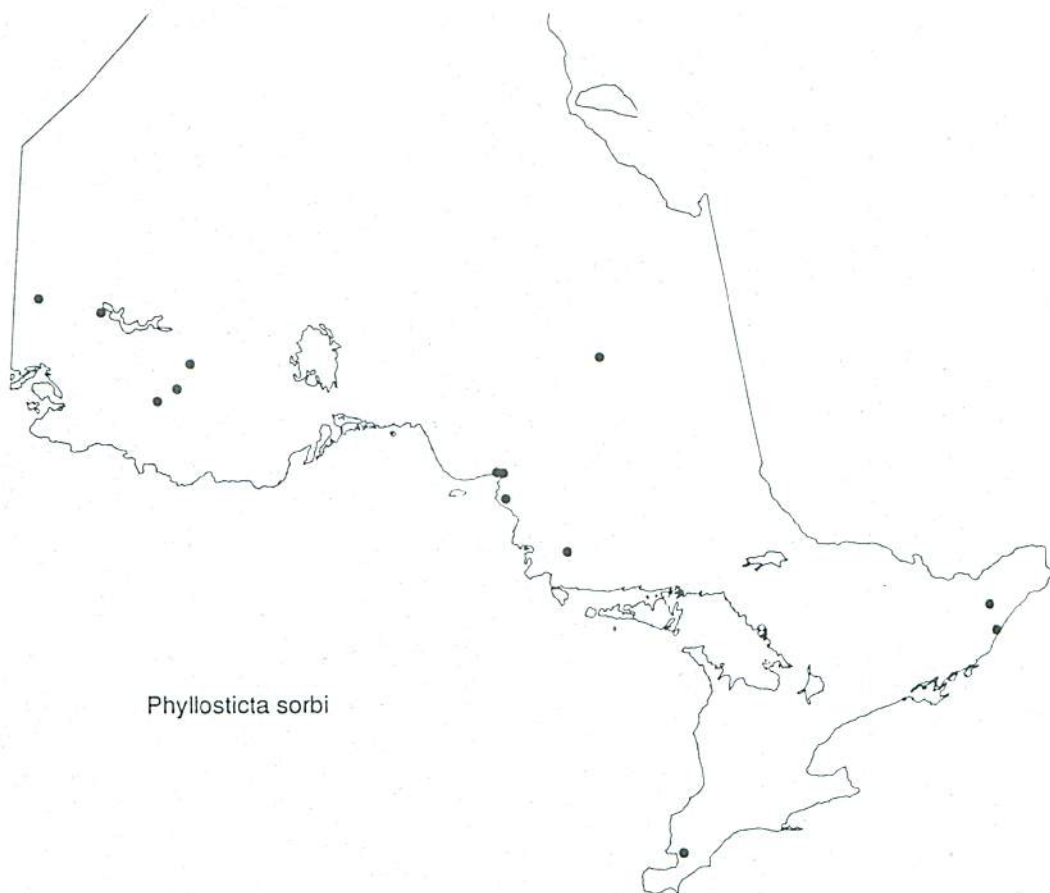
Disease caused: leaf spot

Hosts on record: *Corylus cornuta*

Number of records: 2

Herbarium specimens: *Corylus cornuta* (2)

Remarks: *Corylus cornuta* is not regularly sampled, but the fungus appears to be uncommon nonetheless.



Pleuroceras populi G.E. Thompsonana.: *Marssonina rhabdospora* (Ell. & Ev.) Magnus

Taxonomic position: Ascomycotina, Pyrenomycetes,
Diaporthales, Valasaceae

Disease caused: leaf spot

Hosts on record: *Populus grandidentata*, *P. tremuloides*

Number of records: 7

Herbarium specimens: *Populus grandidentata* (5)
P. tremuloides (1)

Remarks: Collected only in the *Marssonina* states.
Although not frequently collected, the fungus
does not appear to be uncommon.

Puccinia sparganioides Ell. & Barth.

Taxonomic position: Basidiomycotina, Urediniomycetes,
Uredinales, Pucciniaceae

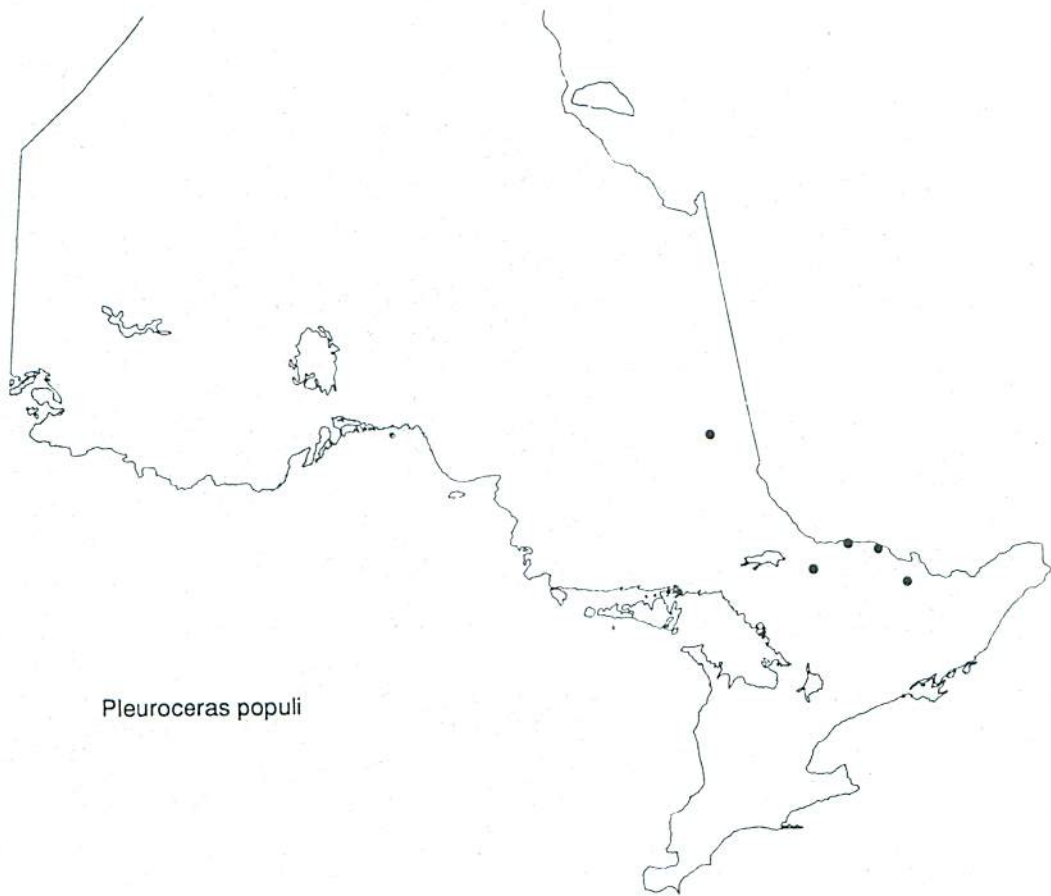
Disease caused: leaf rust

Hosts on record: *Fraxinus pennsylvanica*

Number of records: 1

Herbarium specimens: nil

Remarks: The alternate host for this rust is *Spartina* spp.
grass, but no collections on this host have been
made by FIDS in Ontario. It has been reported on
Spartina pectinata and *Spartina* sp. by other
collectors.



Pleuroceras populi



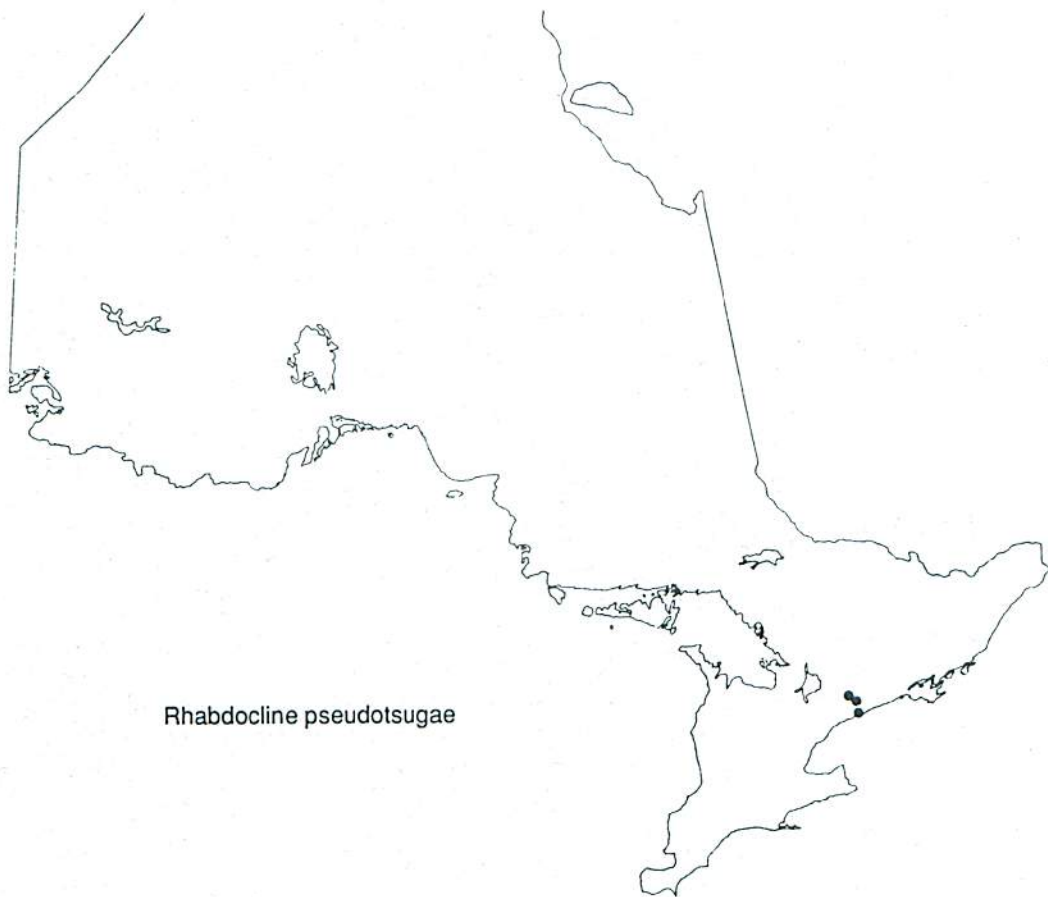
Puccinia sparganioides

Rhabdocline pseudotsugae Sydow ssp. *pseudotsugae*

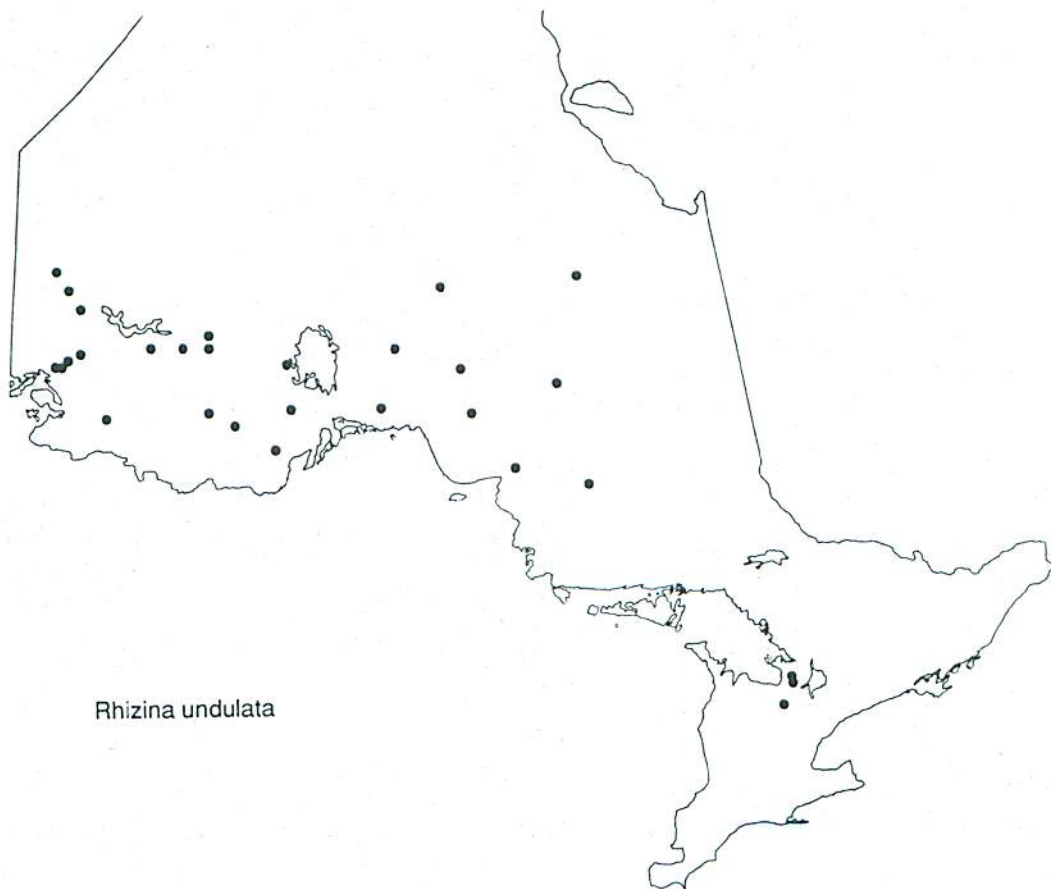
- Taxonomic position: Ascomycotina, Discomycetes,
Helotiales, Hemiphacidiaceae,
Rhytismatales, Rhytismataceae
- Disease caused: needle cast
- Hosts on record: *Pseudotsuga menziesii*, *Pseudotsuga* sp.
- Number of records: 3
- Herbarium specimens: *Pseudotsuga* sp. (3)
- Remarks: Although the host is scattered as an ornamental in the southern part of the province, the disease has been found only where *Pseudotsuga* spp. have been used in Christmas tree plantations.

Rhizina undulata Fr.syn.: *Rhizina inflata* (Schäffer) Quélet

- Taxonomic position: Ascomycotina, Discomycetes,
Pezizales, Pezizaceae
- Disease caused: root rot
- Hosts on record: *Picea mariana*, *Pinus banksiana*,
P. resinosa, *P. strobus*
- Number of record: 37
- Herbarium specimens: ground (1)
humicolous (3)
Pinus banksiana (1)
P. resinosa (2)
- Remarks: This fungus, which is usually found fruiting on burned areas in the year following the fire, has been associated with root rot of *Pinus strobus* and *Quercus rubra* seedlings. It is suspected as the cause of mortality of young *Pinus* spp. and *Picea* spp. planted on recently burned sites.



Rhabdocline pseudotsugae



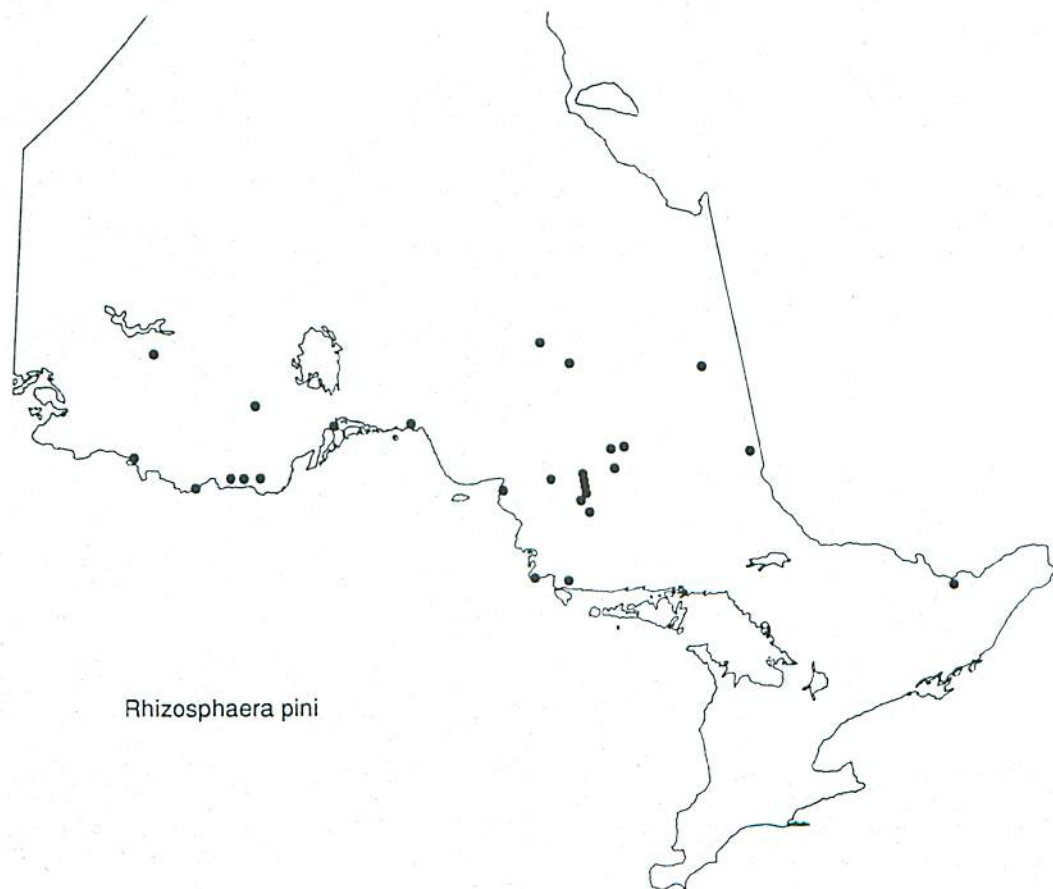
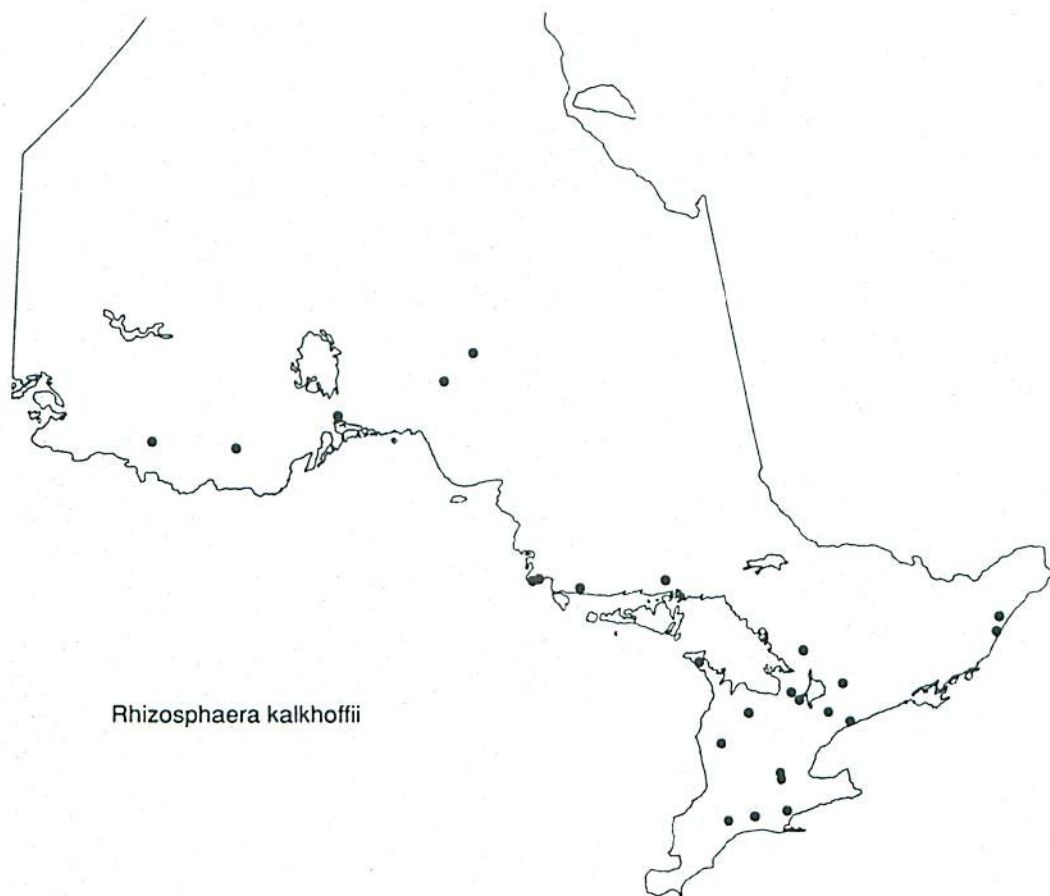
Rhizina undulata

Rhizosphaera kalkhoffii Bubák

- Taxonomic position: Deuteromycotina, Coelomycetes,
Sphaeropsidales, Sphaeropsidaceae
- Disease caused: needle blight
- Hosts on record: *Picea glauca*, *P. mariana*,
P. pungens, *Picea* sp.
- Number of records: 36
- Herbarium specimens: *Picea glauca* (2)
P. pungens (3)
- Remarks: This fungus is a fairly common cause of minor needle blight and is often found on senescent *Picea* spp. needles. *Rhizosphaera pini* (Corda) Maubl. is similar and causes needle blight on *Picea* spp. and *Abies* spp. The two fungi are easily distinguished by spore size.

Rhizosphaera pini (Corda) Maubl.
syn.: *Coniothyrium pini* Corda

- Taxonomic position: Deuteromycotina, Coelomycetes,
Sphaeropsidales, Sphaeropsidaceae
- Disease caused: needle blight
- Hosts on record: *Abies balsamea*
- Number of records: 31
- Herbarium specimens: *Abies balsamea* (4)
- Remarks: *Rhizosphaera kalkhoffii* Bubák is also found on *Abies balsamea*, but can be differentiated by the size of its spores.



Sarcotrochila balsamea (J. Davis) Korf
syn.: *Phacidium balsamea* J. Davis

Taxonomic position: Ascomycotina, Discomycetes,
Helotiales, Hemiphacidiaceae

Disease caused: snow blight

Hosts on record: *Abies balsamea*

Number of records: 18

Herbarium specimens: *Abies balsamea* (8)

Remarks: A rather common snow blight in northern *Abies balsamea* areas; this species of fir is not a nursery crop in Ontario, which tends to reduce the impact of the fungus.

Sphaeropsis sapinea (Fr.) Dyko & B. Sutton
syn.: *Diplodia pinea* (Desm.) Kickx

Taxonomic position: Deuteromycotina, Coelomycetes,
Sphaeropsidales, Sphaeropsidaceae

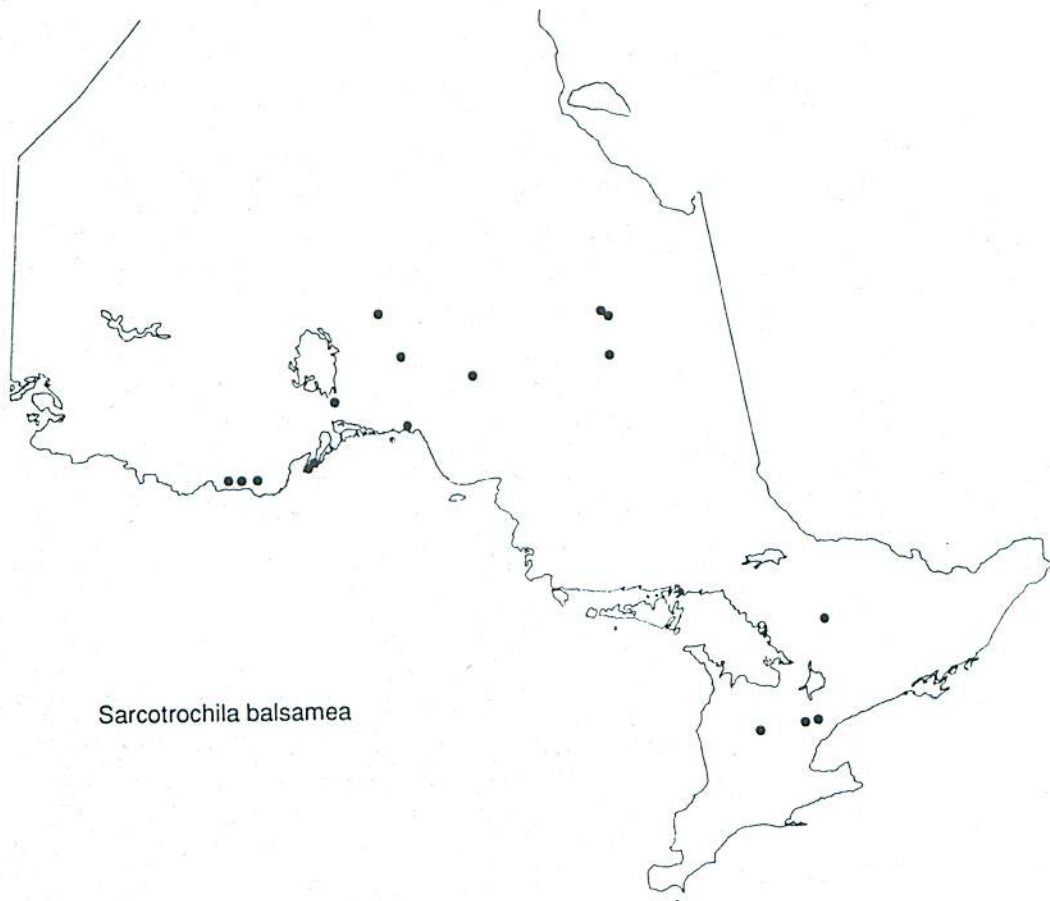
Disease caused: Diplodia tip blight

Hosts on record: *Larix decidua*, *L. laricina*, *Picea abies*,
P. pungens, *Pinus banksiana*, *P. monticola*,
P. nigra, *P. ponderosa*, *P. resinosa*,
P. strobus, *P. sylvestris*, *Pseudotsuga menziesii*

Number of records: 145

Herbarium specimens: *Pinus banksiana* (1)
P. nigra (1)
P. resinosa (2)
P. sylvestris (4)
Pseudotsuga menziesii (1)
cone (1)

Remarks: This fungus seems to have increased in severity over the last several years. It was found to be killing *Pinus resinosa* in one of the provincial forestry nurseries in 1987, and the infection originated from heavily infected windbreaks. The disease has also been responsible for mortality on large *Pinus sylvestris*.



Sarcotrochila balsamea



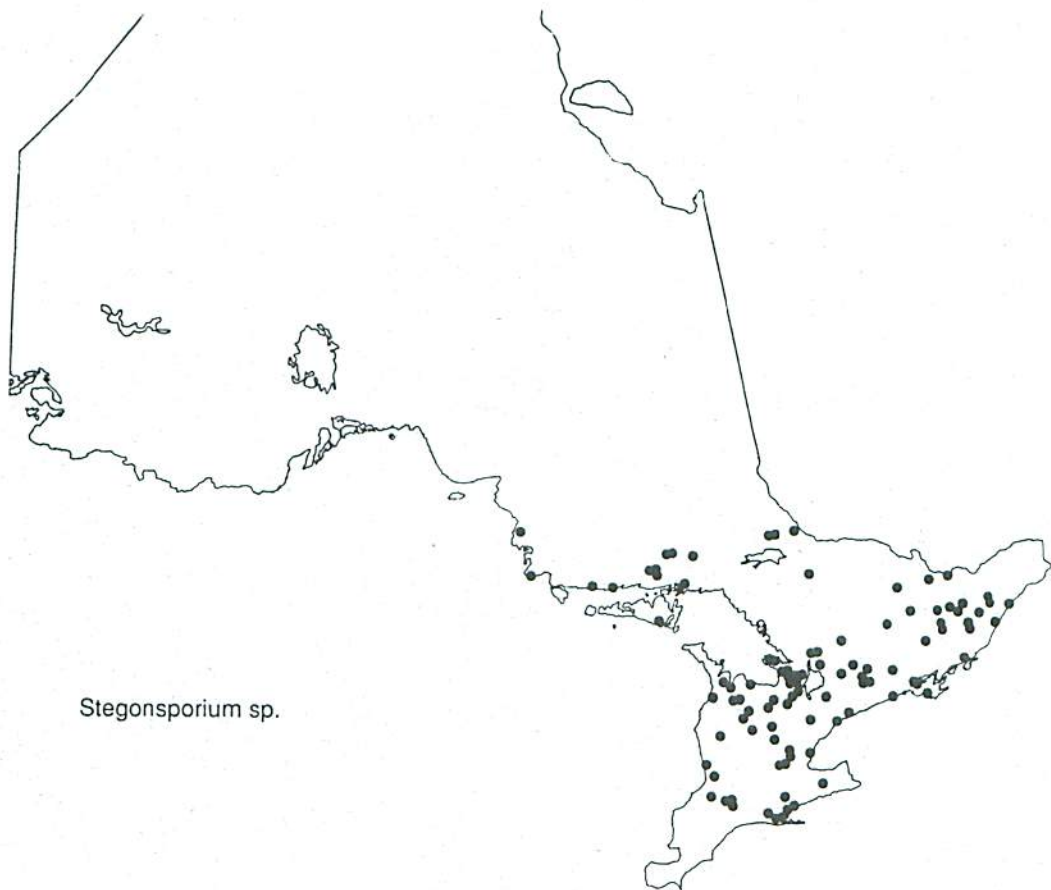
Sphaeropsis sapinea

Stegonsporium sp.

- Taxonomic position: Deuteromycotina, Coelomycetes,
Melanconiales, Melanconiaceae
- Disease caused: branch and twig canker
- Hosts on record: *Acer platanoides*, *A. rubrum*,
A. saccharinum, *A. saccharum*
- Number of records: 123
- Herbarium specimens: *Acer platanoides* (1)
A. saccharinum (12)
A. saccharum (2)
- Remarks: There are only two species of *Stegonsporium*, *S. acerinum* Peck and *S. pyriforme* (Hoffm.:Fr.) Corda. Changes in nomenclature have made the species determination in many early collections questionable, so no species designation is given here. J. Bisset (1977) states that *S. acerinum* is restricted to *Acer saccharum*.

Taphrina americana Mix

- Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae
- Disease caused: witches' broom
- Hosts on record: *Betula papyrifera*
- Number of records: 1
- Herbarium specimens: *Betula papyrifera* (1)
- Remarks: This fungus also causes witches' broom on *Betula alleghaniensis*, on which it has been recorded in New England. The fungus is considered to occur only occasionally.



Stegonsporium sp.



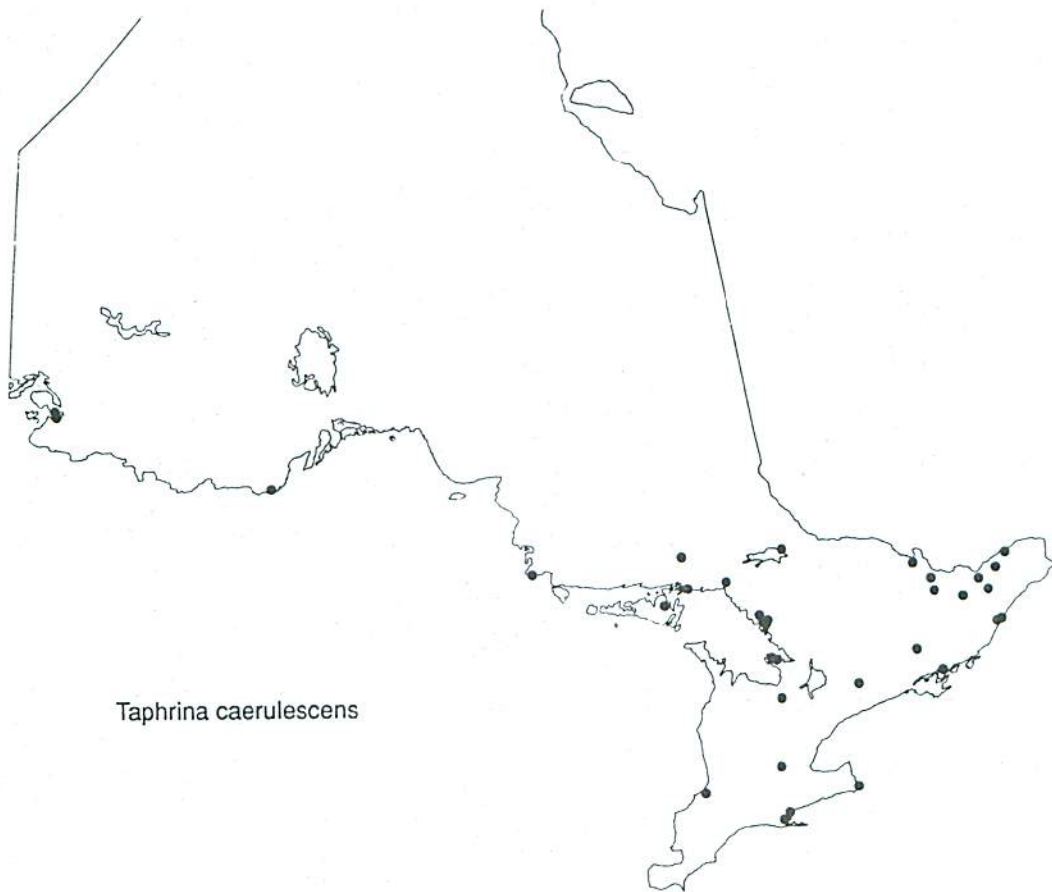
Taphrina americana

Taphrina caerulescens (Desm. & Mont.) Tul.

- Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae
- Disease caused: leaf blister
- Hosts on record: *Quercus alba*, *Q. macrocarpa*,
Q. rubra, *Quercus* sp.
- Number of records: 32
- Herbarium specimens: *Quercus alba* (1)
Q. macrocarpa (1)
Q. rubra (8)
- Remarks: Relatively common in Ontario, with most of our records coming from ornamental *Quercus* spp.

Taphrina carnea Johanson

- Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae
- Disease caused: red leaf blister
- Hosts on record: *Betula alba*, *B. papyrifera*
- Numbers of record: 2
- Herbarium specimens: *Betula alba* (1)
B. papyrifera (1)
- Remarks: This thickened, reddish-yellow leaf deformation also occurs on *Betula alleghaniensis*.



Taphrina caerulescens



Taphrina carnea

Taphrina communis (Sadebeck) Giesenh.

Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae

Disease caused: plum pocket

Hosts on record: *Prunus americana* var. *nigra*,
P. nigra, *Prunus* sp.

Number of records: 10

Herbarium specimens: *Prunus americana* var. *nigra* (1)

Remarks: More common than *T. pruni* Tul. as a cause of plum
pocket in Ontario.

Taphrina confusa (Atk.) Giesenh.

Taxonomic position: Ascomycetes, Hemiascomycetes,
Taphrinales, Taphrinaceae

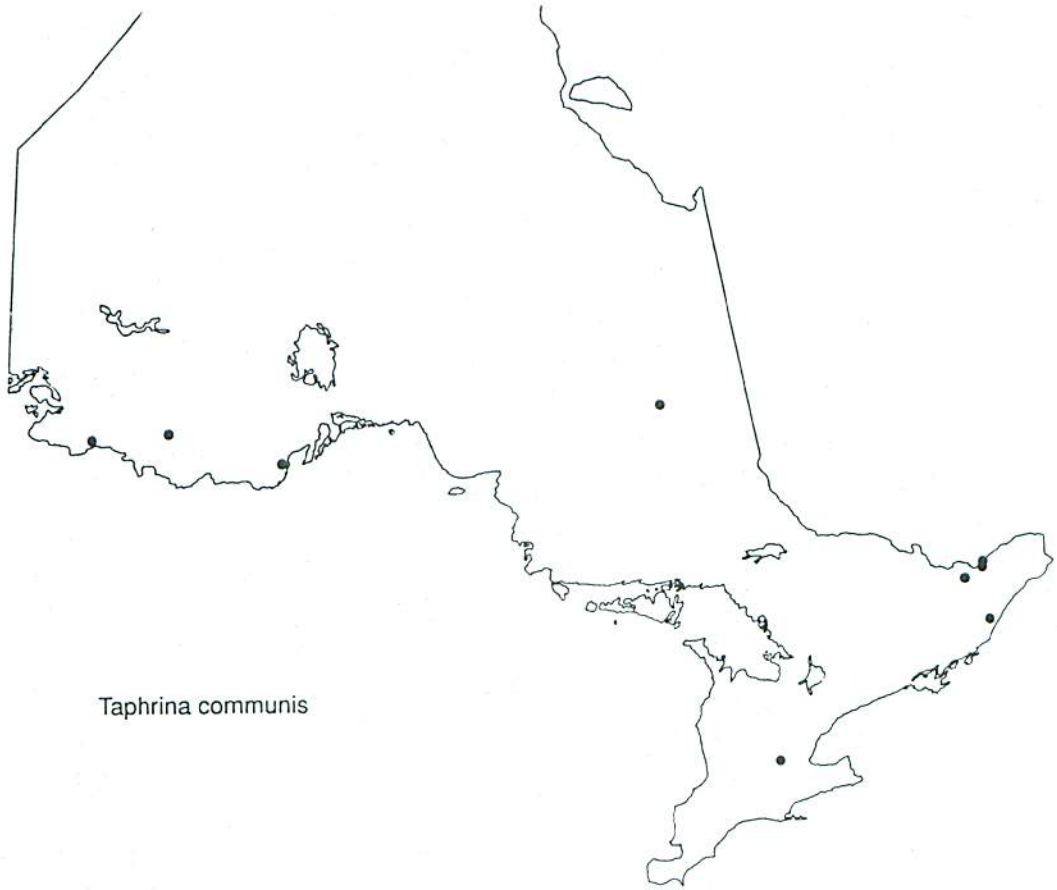
Disease caused: leaf blister

Hosts on record: *Prunus virginiana*

Number of records: 1

Herbarium specimens: *Prunus virginiana* (1)

Remarks: This species is specific to *Prunus virginiana*.
The single collection may be a reflection of the
secondary level of importance placed on this host
by FIDS staff in Ontario.



Taphrina dearnessii Jenkins

Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae

Disease caused: leaf blister

Hosts on record: *Acer rubrum*

Number of records: 1

Herbarium specimen: *Acer rubrum* (1)

Remarks: The presence of this fungus in adjacent states and in Quebec suggests it might be somewhat more frequent in Ontario than our single collection indicates.

Taphrina flava Farlow

Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae

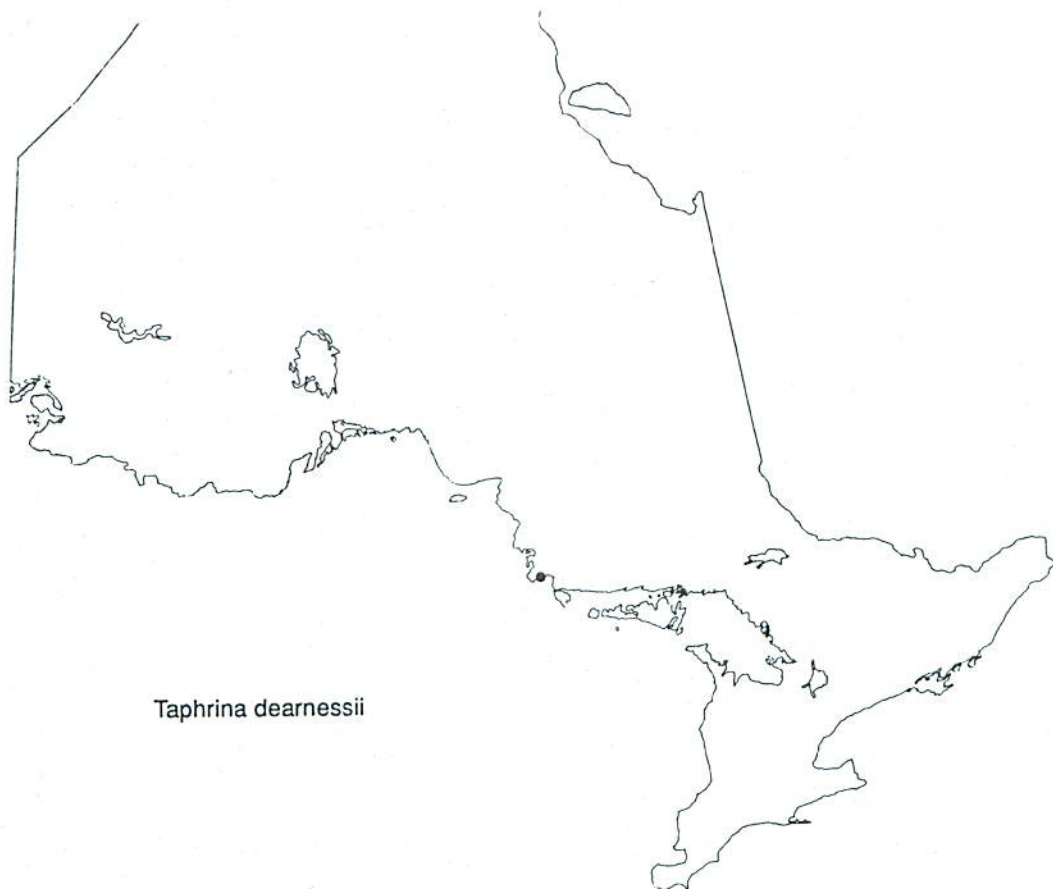
Disease caused: yellow leaf blister

Hosts on record: *Betula papyrifera*

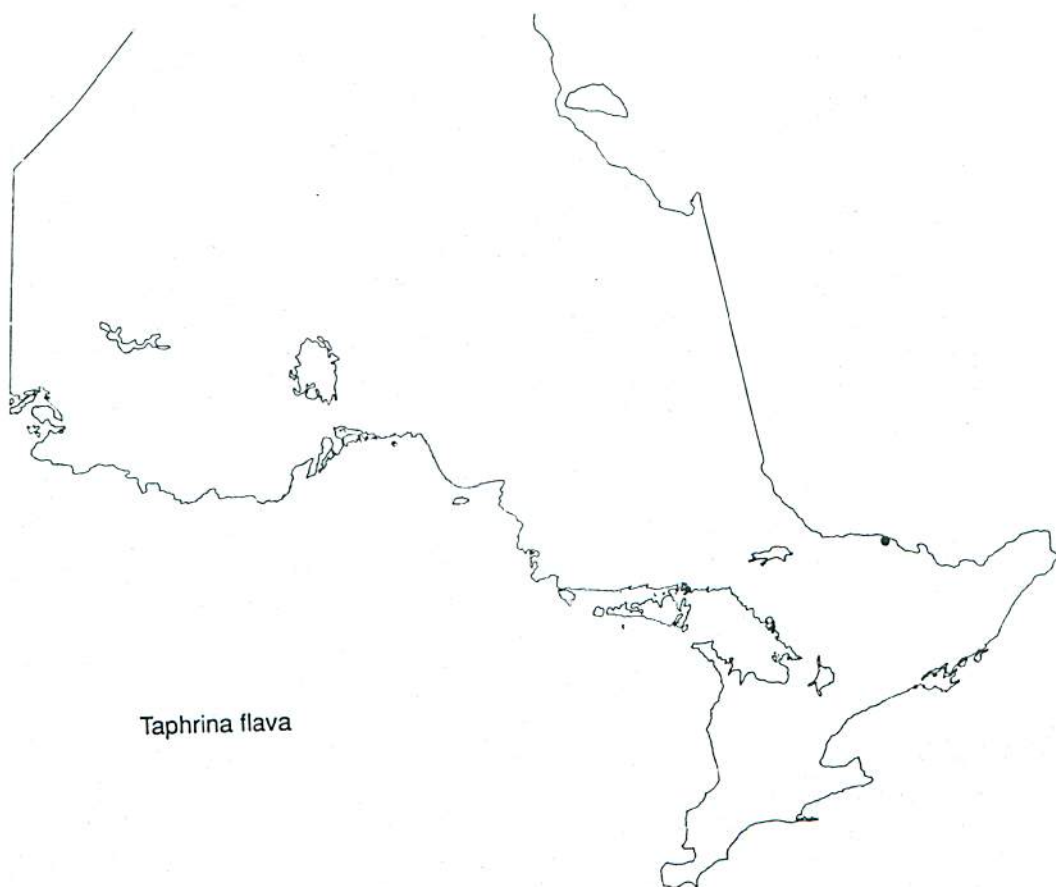
Number of records: 1

Herbarium specimens: *Betula papyrifera* (1)

Remarks: This disease is characterized by small (5 mm) yellow to brown or reddish-brown leaf spots.



Taphrina dearnessii



Taphrina flava

Taphrina johansonii Sadebeck

Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae

Disease caused: catkin blister

Hosts on record: *Populus tremuloides*

Number of records: 2

Herbarium specimens: *Populus tremuloides* (2)

Remarks: Cottonwood (*Populus* sp.) and *P. grandidentata* are also known as hosts for this species.

Taphrina letifera (Peck) Sacc.

Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae

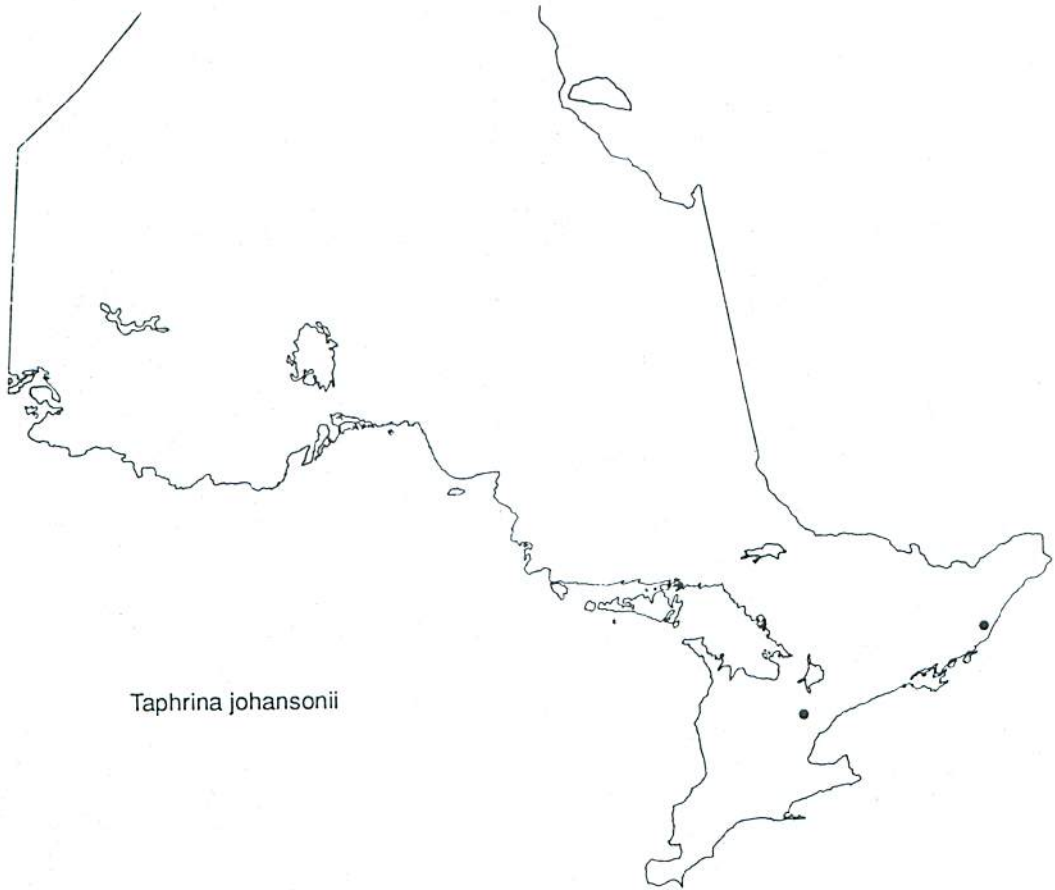
Disease caused: leaf blister

Hosts on record: *Acer spicatum*

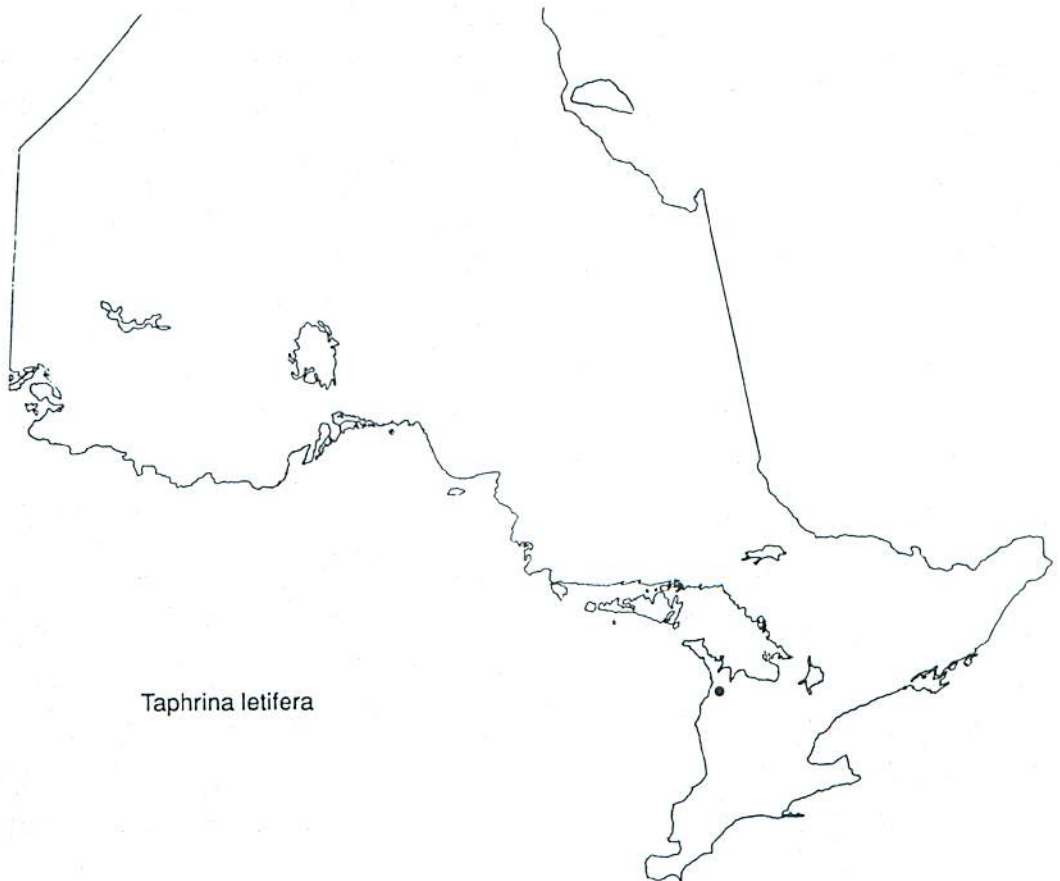
Number of records: 1

Herbarium specimens: *Acer spicatum* (1)

Remarks: This fungus typically occurs on *Acer spicatum* and is very similar in many respects to *T. dearnessii*.



Taphrina johansonii



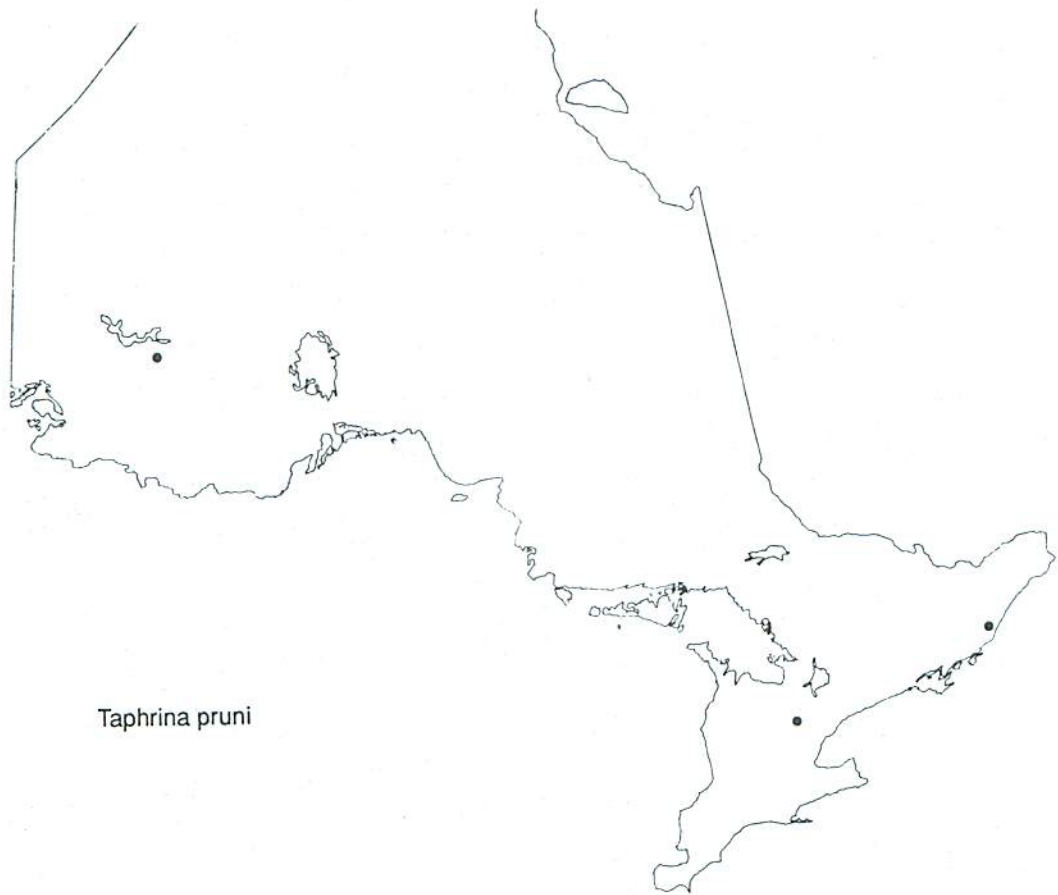
Taphrina letifera

Taphrina pruni Tul.

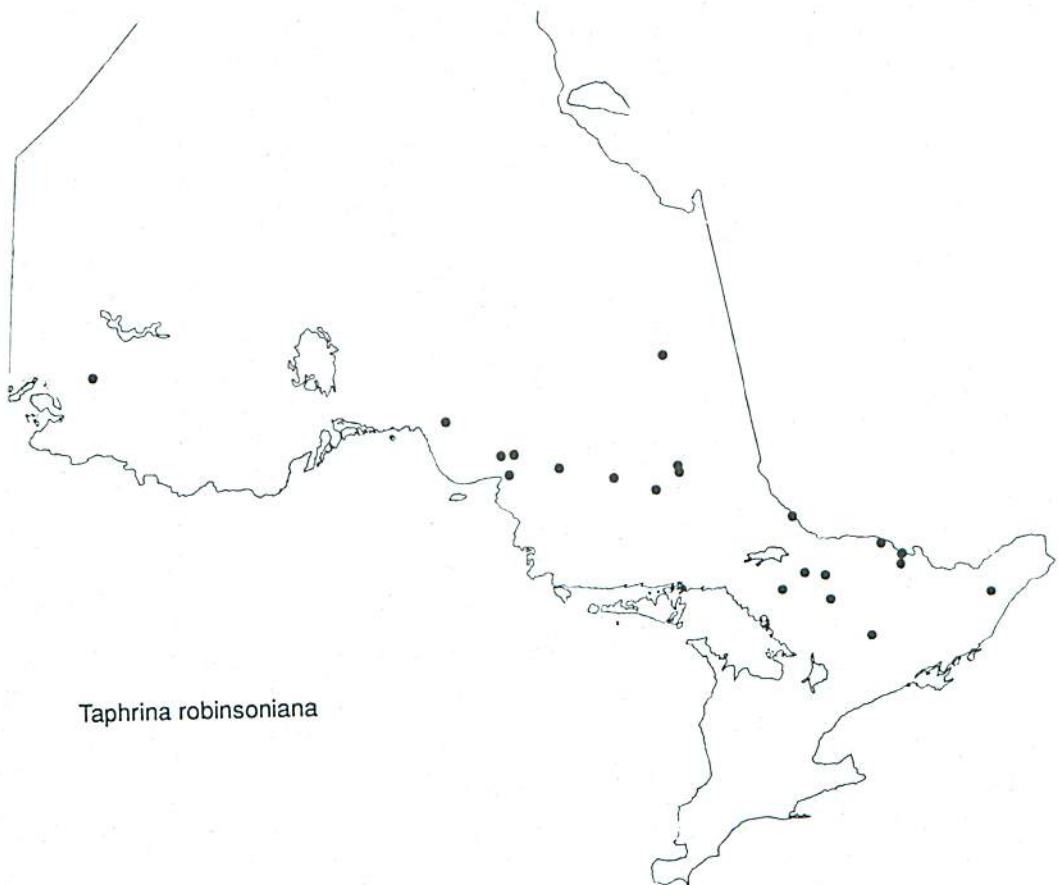
- Taxonomic position: Ascomycetes, Hemiascomycetes,
Taphrinales, Taphrinaceae
- Disease caused: plum pocket
- Hosts on record: *Prunus americana*, *P. nigra*
- Number of records: 3
- Herbarium specimens: *Prunus americana* (1)
P. nigra (2)
- Remarks: Although widespread in Europe, this species of *Taphrina* is encountered only infrequently in Ontario. It is suspected that this fungus is not native to North America.

Taphrina robinsoniana Giesenh.

- Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae
- Disease caused: catkin tongue
- Hosts on record: *Alnus incana*, *A. rugosa*, *Alnus* sp.
- Number of records: 23
- Herbarium specimens: *Alnus incana* (4)
A. rugosa (1)
Alnus sp. (10)
- Remarks: This disease occurs on common *Alnus* spp.; the tongue-like structure protruding from the catkins is very striking.



Taphrina pruni



Taphrina robinsoniana

Taphrina wiesneri (Ráthay) Mixsyn.: *Taphrina cerasi* (Fuckel) Sadeb.

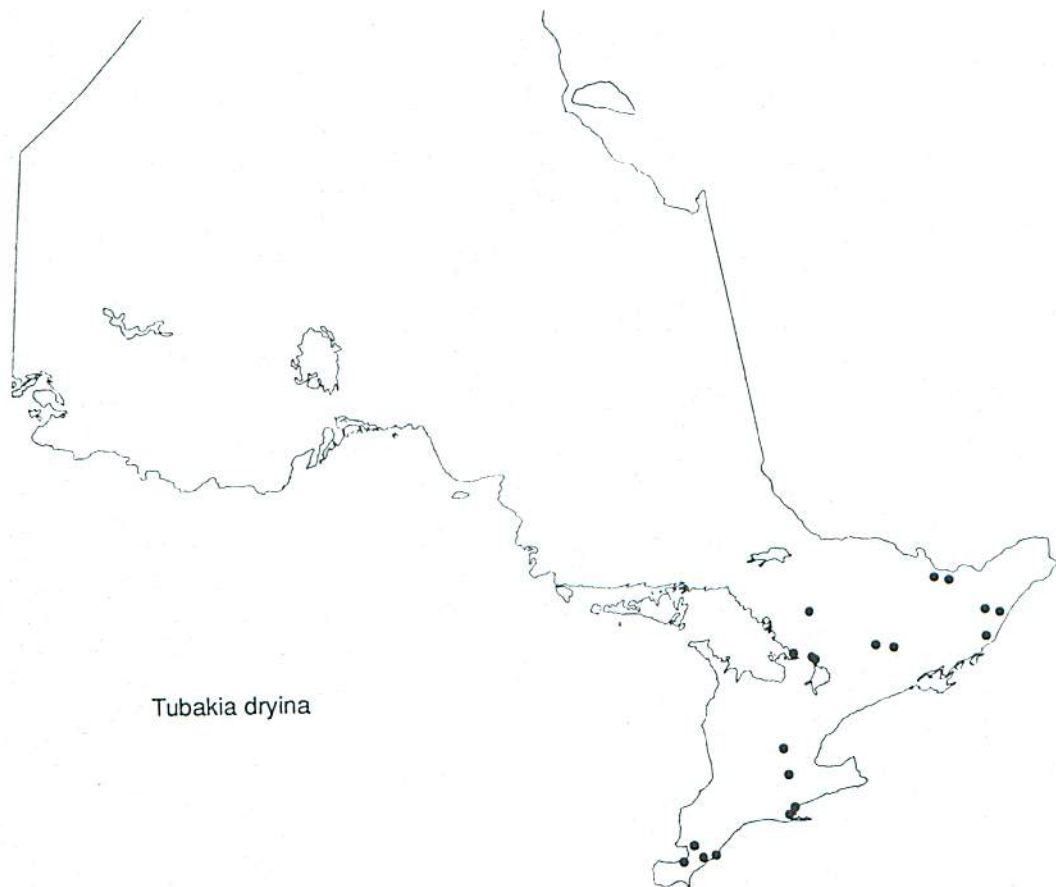
- Taxonomic position: Ascomycotina, Hemiascomycetes,
Taphrinales, Taphrinaceae
- Disease caused: witches' broom
- Hosts on record: *Prunus pensylvanica*, *Prunus* sp.
- Number of records: 4
- Herbarium specimens: *Prunus pensylvanica* (2)
Prunus sp. (1)
- Remarks: This fungus is considered the most serious of the
Taphrina species that attack *Prunus* spp.

Tubakia dryina (Sacc.) B. Suttonsyn.: *Actinopelte dryina* (Sacc.) Höhnelt

- Taxonomic position: Deuteromycotina, Coelomycetes,
Pycnothyriales, Actinopeltaceae
- Disease caused: leaf spot
- Hosts on record: *Quercus alba*, *Q. macrocarpa*,
Q. rubra, *Quercus* sp., *Q. velutina*
- Number of records: 20
- Herbarium specimens: *Quercus macrocarpa* (2)
Q. rubra (4)
Quercus sp. (1)
- Remarks: A rather common leaf spot in southern Ontario
that has been associated with premature defolia-
tion of *Quercus* spp. in years when infection is
severe. Infection is usually quite localized.



Taphrina wiesneri



Tubakia dryina

Uncinula adunca (Wallr.: Fr.) Lév.

syn.: *Uncinula salicis* (DC.) Winter

Taxonomic position: Ascomycotina, Plectomycetes,
Erysiphales, Erysiphaceae

Disease caused: powdery mildew

Hosts on record: *Populus balsamifera*, *P. grandidentata*,
P. tremuloides, *Populus* sp., *Salix* sp.

Number of records: 80

Herbarium specimens: *Populus balsamifera* (9)
P. tremuloides (4)
Salix sp. (9)

Remarks: A very common powdery mildew, collected almost every field season.

Valsa friesii (Duby) Fuckel

ana.: *Cytospora friesii* Sacc.

ana.: *Cytospora pinastri* Fr.

Taxonomic position: Ascomycotina, Pyrenomycetes,
Sphaeriales, Diaporthaceae

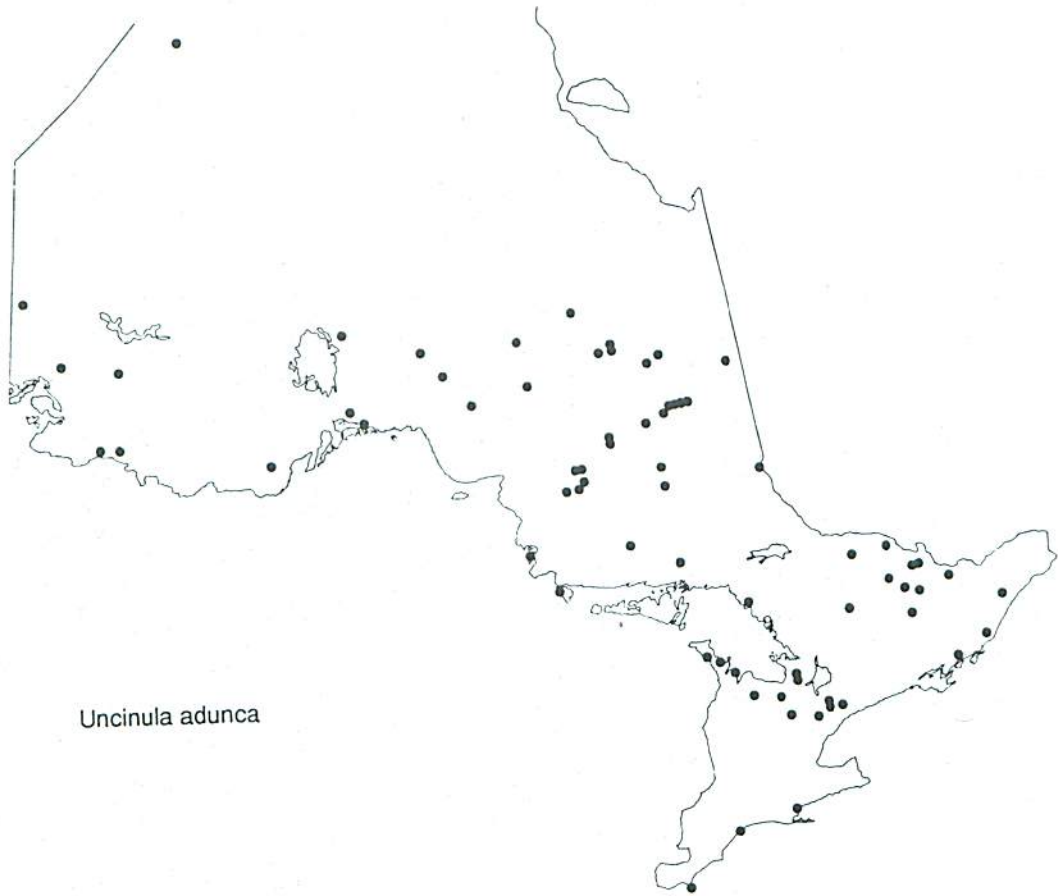
Disease caused: dieback

Hosts on record: *Abies balsamea*

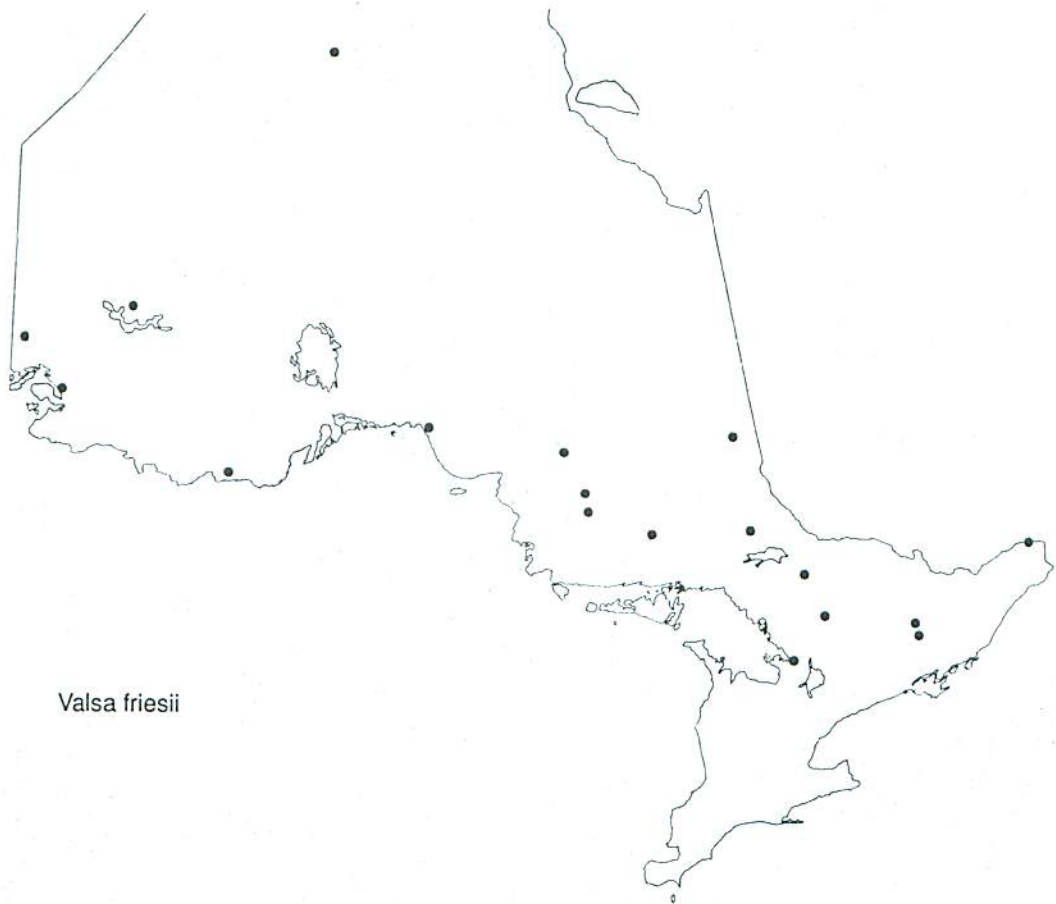
Number of records: 18

Herbarium specimens: *Abies balsamea* (12)

Remarks: This is a common cause of dead needles on *Abies balsamea*. The role of this fungus as a parasite is open to question, but it may hasten the death of needles already dying as a result of suppression or age.



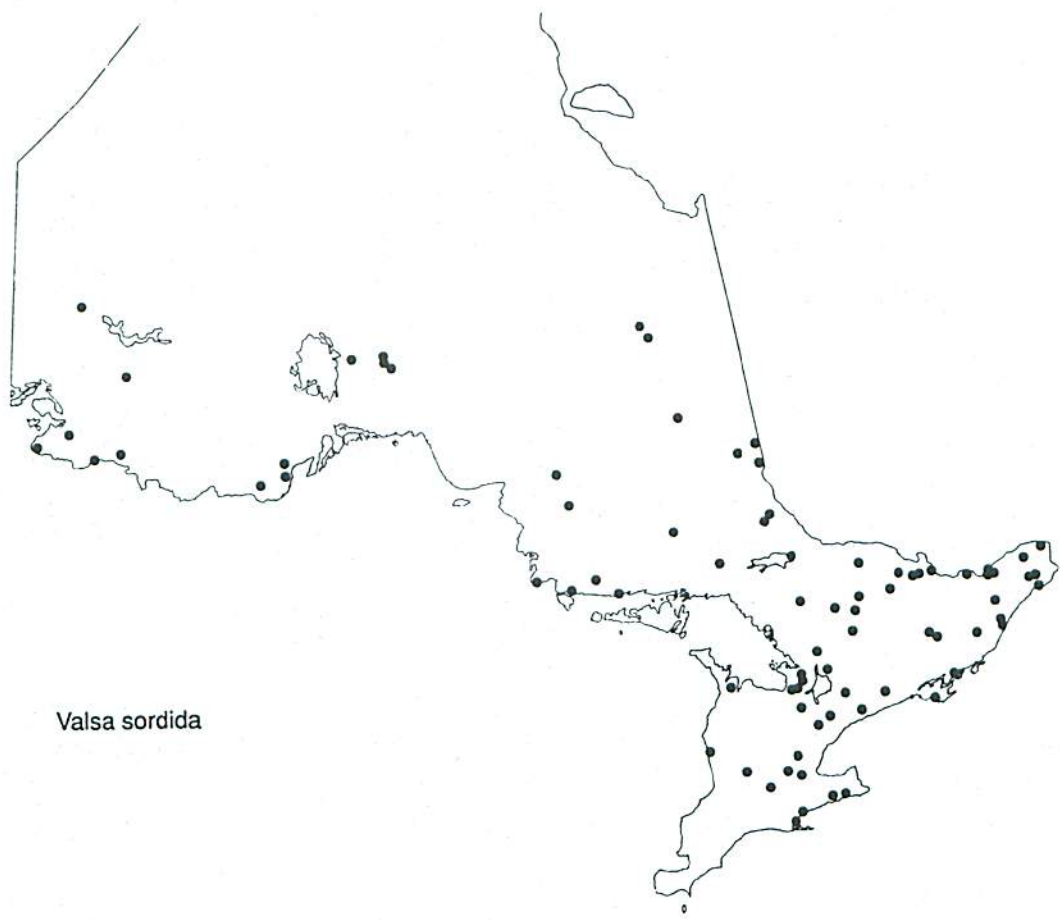
Uncinula adunca



Valsa friesii

Valsa sordida Nitschkeana.: *Cytospora chrysosperma* (Pers: Fr.) Fr.

- Taxonomic position: Ascomycotina, Pyrenomycetes,
Sphaeriales, Diaporthaceae
- Disease caused: Cytospora canker
- Hosts on record: *Acer rubrum*, *A. saccharum*, *Populus alba*,
P. balsamifera, *P. deltoides*, *P. eugenii*,
P. grandidentata, *P. nigra* var. *italica*, *Populus*
sp., *P. tremuloides*, *Salix* sp., *Sorbus* sp.
- Number of records: 95
- Herbarium specimens: *Populus alba* (1)
P. balsamifera (2)
P. eugenii (2)
P. grandidentata (1)
P. tremuloides (4)
Populus sp. (1)
Salix sp. (3)
Sorbus sp. (1)
- Remarks: The darkish disk and yellow or golden tendrils
are characteristic of this fungus. This fungus
infects trees that have wounds or that are
weakened and is most often active in nurseries or
amenity plantings.



Valsa sordida

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APPENDIX A

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- Cytospora nivea* - Cytospora canker of poplar
- Cytospora pinastri* - dieback of pine
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- Discula platani* - anthracnose of sycamore
- Discula umbrinella* - anthracnose of maple
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- Drepanopeziza populi-alba* - Marssonina leaf spot of white poplar
Drepanopeziza populorum - Marssonina leaf spot of poplar
Drepanopeziza salicis - leaf spot of willow
Drepanopeziza tremulae - leaf spot of poplar
Entomosporium maculatum - pear leaf blight
Entomosporium mespili - pear leaf blight
Erwinia amylovora - fire blight
Fabraea maculata - pear leaf blight
Fomes everhartii - trunk rot
Gloeosporium apocryptum - anthracnose of maple
Gloeosporium betulinum - anthracnose of birch
Gloeosporium brunneum - leaf spot of poplar
Gloeosporium nervisequum - anthracnose of sycamore
Gloeosporium platani - anthracnose of sycamore
Gloeosporium salicis - leaf spot of willow
Gnomonia leptostyla - leaf spot of walnut
Guignardia aesculi - leaf blotch of horse-chestnut
Hydnum septentrionale - heartwood rot
Kabatiella apocrypta - anthracnose of maple
Lecanosticta acicola - brown-spot needle blight
Leptodothiorella aesculicola - leaf blotch of horse-chestnut
Leucostoma kunzei - Cytospora canker of spruce
Leucostoma nivea - Cytospora canker of poplar
Linospora tetraspora - leaf blight of balsam poplar
Marssoniella juglandis - leaf spot of walnut
Marssonina betulae - leaf spot of birch
Marssonina brunnea - leaf spot of poplar

- Marssonina castagnei* - Marssonina leaf spot
Marssonina juglandis - leaf spot of walnut
Marssonina martini - leaf spot of oak
Marssonina populi - Marssonina leaf spot
Marssonina populi-nigrae - Marssonina leaf spot
Marssonina quercina - leaf spot of red oak
Marssonina rhabdospora - leaf spot of poplar
Meria laricis - larch needle cast
Monostichella coryli - leaf spot of beaked hazelnut
Monostichella salicis - leaf spot of willow
Mycosphaerella aucupariae - leaf spot of mountain-ash
Mycosphaerella dearnessii - brown-spot needle blight
Mycosphaerella effigurata - leaf spot of ash
Mycosphaerella pini - red-band disease of pine
Mycosphaerella populi - leaf spot of balsam poplar
Mycosphaerella populicola - leaf spot of poplar
Mycosphaerella populorum - leaf spot of poplar
Phacidium balsamea - snow blight
Phaeocryptopus gaeumannii - Swiss needle cast
Phaeoramularia maculicola - leaf spot of poplar
Phellinus everhartii - trunk rot of oak
Phyllosticta minima - leaf spot of maple
Phyllosticta paviae - leaf spot of horse-chestnut
Phyllosticta sorbi - leaf spot of mountain-ash
Phyllosticta sphaeropsoidea - leaf blotch of horse-chestnut
Piggotia coryli - leaf spot of beaked hazelnut
Pleuroceras populi - leaf spot of poplar

- Puccinia sparganioides* - ash leaf rust
Rhabdocline pseudotsugae ssp. *pseudotsugae* - needle cast
Rhizina inflata - root rot
Rhizina undulata - root rot
Rhizosphaera kalkoffii - needle blight
Rhizosphaera pini - needle blight
Sarcotrochila balsamea - snow blight
Scirrhia acicola - brown-spot needle blight
Scirrhia pini - red-band disease
Septoria musiva - leaf spot of poplar
Septoria populi - leaf spot of poplar
Septoria populicola - leaf spot of poplar
Sphaeropsis sapinea - Diplodia tip blight
Steccherinum septentrionale - heartwood rot
Stegonsporium acerinum - branch and twig canker
Stegonsporium pyriforme - branch and twig canker
Stegonsporium sp. - branch and twig canker
Taphrina americana - witches' broom of birch
Taphrina caerulescens - leaf blister of oak
Taphrina carnea - birch red-leaf blister
Taphrina cerasi - cherry witches' broom
Taphrina communis - plum pocket
Taphrina confusa - leaf blister of birch
Taphrina dearnessii - maple leaf blister
Taphrina flava - yellow leaf blister of birch
Taphrina johansonii - catkin blister of aspen
Taphrina letifera - maple leaf blister

- Taphrina pruni* - plum pocket
Taphrina robinsoniana - catkin tongue of alder
Taphrina wiesneri - cherry witches' broom
Tubakia dryina - leaf spot of oak and hickory
Uncinula adunca - powdery mildew
Uncinula salicis - powdery mildew
Valsa friesii - dieback of balsam fir
Valsa sordida - Cytospora canker of hardwoods
Venturia macularis - shoot blight

APPENDIX B

COMMON NAMES OF HOSTS

Abies balsamea - balsam fir

Acer

ginnala - ginnala maple
nigrum - black maple
platanoides - Norway maple
pseudoplatanus - sycamore maple
rubrum - red maple
saccharinum - silver maple
saccharum - sugar maple
sp. - maple species
spicatum - mountain maple

Aesculus hippocastanum - horse-chestnut

Alnus

incana - speckled alder, tag alder
rugosa - speckled alder, tag alder
sp. - alder species

Betula

alba - white birch
alleghaniensis - yellow birch
glandulosa - resin birch
papyrifera - white birch, paper birch
sp. - birch species

Corylus cornuta - beaked hazel

Crataegus

monogyna - maythorn or one-seeded hawthorn
oxycantha - English hawthorn
sp. - hawthorn species

Fagus sp. - beech species

Fraxinus

nigra - black ash
pennsylvanica - red ash
sp. - ash species

Juglans

cinerea - butternut
nigra - black walnut
sp. - walnut sp.

Larix

- decidua* - European larch
- laricina* - eastern larch, tamarack
- sp. - larch species

Malus sp. - apple species

Picea

- abies* - Norway spruce
- glauca* - white spruce
- mariana* - black spruce
- pungens* - Colorado blue spruce
- rubens* - red spruce
- sp. - spruce species

Pinus

- banksiana* - jack pine
- contorta* - lodgepole pine
- monticola* - western white pine
- mugo* var. *mughus* - mugho pine
- nigra* - Austrian pine
- ponderosa* - ponderosa pine
- resinosa* - red pine
- strobus* - white pine
- sylvestris* - Scots pine

Platanus sp. - sycamore species

Populus

- alba* - white poplar
- balsamifera* - balsam poplar
- X berolinensis* - hybrid poplar
- X canadensis* - Carolina poplar
- deltoides* - eastern cottonwood
- deltoides* var. *occidentalis* - plains cottonwood
- X eugenei* - Carolina poplar
- grandidentata* - largetooth aspen
- hybrid - hybrid poplar
- laurifolia* - Siberian poplar
- nigra* - black poplar
- nigra* var. *italica* - Lombardy poplar
- X petrowskyana* - hybrid poplar
- X rasumowskyana* - hybrid poplar
- sp. - poplar species
- tremuloides* - quaking aspen
- trichocarpa* - black cottonwood

Prunus

- americana* - wild plum
- americana* var. *nigra* - plum
- nigra* - Canadian plum
- pensylvanica* - pin cherry
- sp. - plum, cherry species
- virginiana* - choke cherry

Pseudotsuga

- menziesii* - Douglas-fir
- sp. - Douglas-fir

Pyrus sp. - pear species

Quercus

- alba* - white oak
- macrocarpa* - bur oak
- prinus* - chestnut oak
- rubra* - red oak
- sp. - oak species
- velutina* - black oak

Salix sp. - willow species

Sorbus

- americana* - American mountain-ash
- aria utescens* - white-beam mountain-ash
- aucuparia* - European mountain-ash
- decora* - showy mountain-ash
- sp. - mountain-ash species

Spartina

- pectinata* - cordgrass
- sp. - cordgrass

Viburnum cassinoides - wild raisin, witherod