

Environment  
Canada

Forestry  
Service

REFERENCE LIST OF DISEASES OF FOREST TREES  
AND SHRUBS IN NEWFOUNDLAND

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## INTRODUCTION

Diseases of trees and shrubs, caused by fungi, other micro-organisms, animals and abiotic factors, such as snow, ice and frost, affect all plant parts, including roots, stem and leaves. The resulting damage may kill or disfigure trees and cause a loss in net merchantable volume or destroy their aesthetic value. Other than data collected during cull surveys (Hudak, Meades and Richardson, 1971)<sup>1</sup> very little information has been compiled on the intensity of damage caused by diseases in Newfoundland. However, during the past 25 years the Canadian Forestry Service and the Newfoundland Forest Protection Association have accumulated considerable information on the distribution of most of the diseases of forest trees and shrubs occurring on the Island. To date a total of 2213 records of diseases have been made. These include 94 host species and 190 species of fungi, 1 phanerogamic parasite (dwarf mistletoe), 4 animals (moose, snowshoe hare, goat, horse) and numerous records of frost, snow and ice, winter killing, frost heaving, chemicals, salt, excessive water and unknown factors. The diseases are arranged in three indices: disease index, host index and general index. Instructions for the use of these indices and information pertaining to their contents are provided as a preface to each index. Representative samples of most of these diseases are

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<sup>1</sup> Hudak, J., J.P. Meades and K.S. Richardson. 1971. Cull survey of the forests of Newfoundland. Forest Research Laboratory, St. John's, Newfoundland. Int. Rept. N-42. 52 p.

deposited in the Newfoundland Forest Research Centre Mycological Herbarium (Singh, 1969; Singh and Carew, 1971)<sup>2</sup>.

This report provides a readily accessible inventory of the important and the most common diseases of forest trees and shrubs in Newfoundland. It also contains maps showing their distribution and a list of published and unpublished reports describing the occurrence and distribution of the diseases throughout the Island; no records are included from Labrador. Some of these publications contain information pertaining to the intensity of various diseases.

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<sup>2</sup> Singh, Pritam. 1969. A list of specimens deposited in the Mycological Herbarium of the Forest Research Laboratory, St. John's, Newfoundland. Inform. Rept. N-X-31. 72 p.

Singh, Pritam and G.C. Carew. 1971. A supplement to the list of specimens deposited in the Mycological Herbarium of the Forest Research Laboratory, St. John's, Newfoundland. Inform. Rept. N-X-62. 53 p.

PREFACE TO DISEASE INDEX

In this index, the diseases, including all types of abiotic damage, are classified into disease groups on the basis of the most common name of the disease or the damage, or major symptoms on the affected plant part. Examples of the groups are root and butt rots, stem rots of heartwood, stem rots of sapwood, stem cankers, needle rusts, leaf spots, animal and frost damage. The pathogens and other causal agents are grouped alphabetically under their appropriate groups. In addition, common name of the disease and scientific name of the host or hosts are provided for each causal agent. The numbers outside parenthesis under each host indicate the position on the maps (Figs. 1 to 19) and refer to the names of localities (Appendix I and II); latitudes and longitudes of 248 of the localities are given in Appendix I. The numbers within parenthesis indicate the publication in which the disease or the damage was reported (Appendix III).

DISEASE INDEX

INFECTIOUS DISEASES

ROOT AND BUTT ROTS

Pathogen	Disease	Host
<i>Armillaria mellea</i> (Vahl ex Fr.) Kummer	<i>Armillaria</i> or shoe-string root rot	<i>Abies balsamea</i> (L.) Mill. 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 17, 18, 19, 27, 37, 52, 56, 72, 84, 89, 92, 95, 109, 120, 124, 125, 149, 165, 166, 167, 168, 169, 170, 331, 332, 333, 339, 340, (2, 4, 5, 6, 7, 9, 22, 24, 25A, 25B, 26, 27, 29A, 40, 42, 43, 45, 46, 47, 49, 53, 59, 61, 62, 63, 64, 65, 71, 76, 77)
		<i>Abies holophylla</i> Maxim 5, 8, 9, 331 (2, 20, 22, 62, 65, 71, 72B, 76)
		<i>Abies homolepis</i> Sieb. & Zucc. 5, 8, 9, 331 (2, 20, 62, 65, 71, 76)
		<i>Abies mariansii</i> Mast. 5, 8, 9, 331 (2, 20, 62, 65, 71, 76)
		<i>Abies mayriana</i> Miyabe & Kudo 5, 8, 9, 331 (2, 20, 62, 65, 71, 76)
		<i>Abies sachalinensis</i> Mast. 5, 8, 9, 331 (2, 20, 62, 65, 71, 76)
		<i>Abies</i> species 331, 332, 333 (80)

Pathogen	Disease	Host
Armillaria mellea (Vahl ex Fr.) Kummer (Cont'd)		Abies Veitchii Lindl. 5, 8, 9, 331 (2, 20, 62, 65, 71, 72B, 76)
		Betula papyrifera Marsh. 11, 16
		Larix laricina (Du Roi) K. Koch 6, 17, 331, 332, 333 (4, 6, 24, 26, 40, 42, 45, 46, 47)
		Larix leptolepis (Sieb. & Succ.) Gourd. 6, 331 (3, 22, 23, 60, 62, 74)
		Picea abies (L.) Karst. 1, 4, 6, 7, 331 (2, 3, 23, 60, 62, 65, 74, 75)
		Picea glauca (Moench) Voss 6, 7, 9, 10, 37, 120, 167, 168, 331, 332, 333 (2, 3, 6, 22, 23, 26, 46, 60, 62, 65, 68, 72B, 74, 80)
		Picea mariana (Mill.) BSP. 2, 6, 7, 9, 12, 13, 14, 15, 16, 17, 24, 26, 37, 95, 113, 120, 122, 149, 167, 168, 171, 172, 173, 174, 331, 332, 333, 339, 340, 341 (2, 4, 6, 7, 8, 11, 12, 13, 24, 26, 27, 28, 30A, 31B, 32, 33, 40, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 62, 68, 72B, 80)
		Picea rubens Sarg. 4, 7, 331 (2, 62, 65)
		Picea sitchensis (Bong.) Carr. 1, 4, 6, 7, 331 (2, 3, 20, 22, 23, 42, 43, 60, 62, 65, 68, 72B, 74, 75)

Pathogen	Disease	Host
<i>Armillaria mellea</i> (Vahl ex Fr.) Kummer (Cont'd)		<i>Picea sitchensis x glauca</i> 6 (23, 60, 74)
		<i>Picea species</i> 14, 26, 331, 332, 333 (9, 11, 29A, 80)
		<i>Pinus resinosa</i> Ait. 1, 331 (2, 62, 65, 75)
		<i>Pinus strobus</i> L. 16
		<i>Pseudotsuga menziesii</i> (Mirb.) Franco (= <i>Pseudotsuga taxifolia</i> (Poir.) Britton) 6, 331 (3, 23, 60, 62, 74)
<i>Coniophora puteana</i> (Schum. ex Fr.) Karst.	Brown cubical rot (of the butt & root)	<i>Abies balsamea</i> (L.) Mill. 4, 77, 331, 340 (18, 25A, 59)
		<i>Salix species</i>
<i>Odontia bicolor</i> (A. & S.) Bres.	White stringy butt rot	<i>Abies balsamea</i> (L.) Mill. 4, 331 (25A, 59)
<i>Polyporus balsameus</i> Pk.	Brown conical rot - a butt rot	<i>Abies balsamea</i> (L.) Mill. 4 (59)
<i>Polyporus Schweinitzii</i> Fr.	Brown cubical rot or brown butt rot or red brown butt rot	<i>Picea glauca</i> (Moench) Voss 153
		<i>Picea mariana</i> (Mill.) BSP.
<i>Polyporus tomentosus</i> Fr. (= <i>P. circinatus</i> auct. non Fr.)	Red root & butt rot or white pocket rot of gymnosperms	<i>Picea glauca</i> (Moench) Voss 158, 330 (36A, 57)
		<i>Picea mariana</i> (Mill.) BSP. 330 (57)
<i>Polyporus tomentosus</i> var. <i>circinatus</i> (Fr.) Sartory and Maire	Red butt rot	<i>Pinus strobus</i> L. 82 (44)

# **NEWFOUNDLAND**

**SCALE 1" = 50mi**

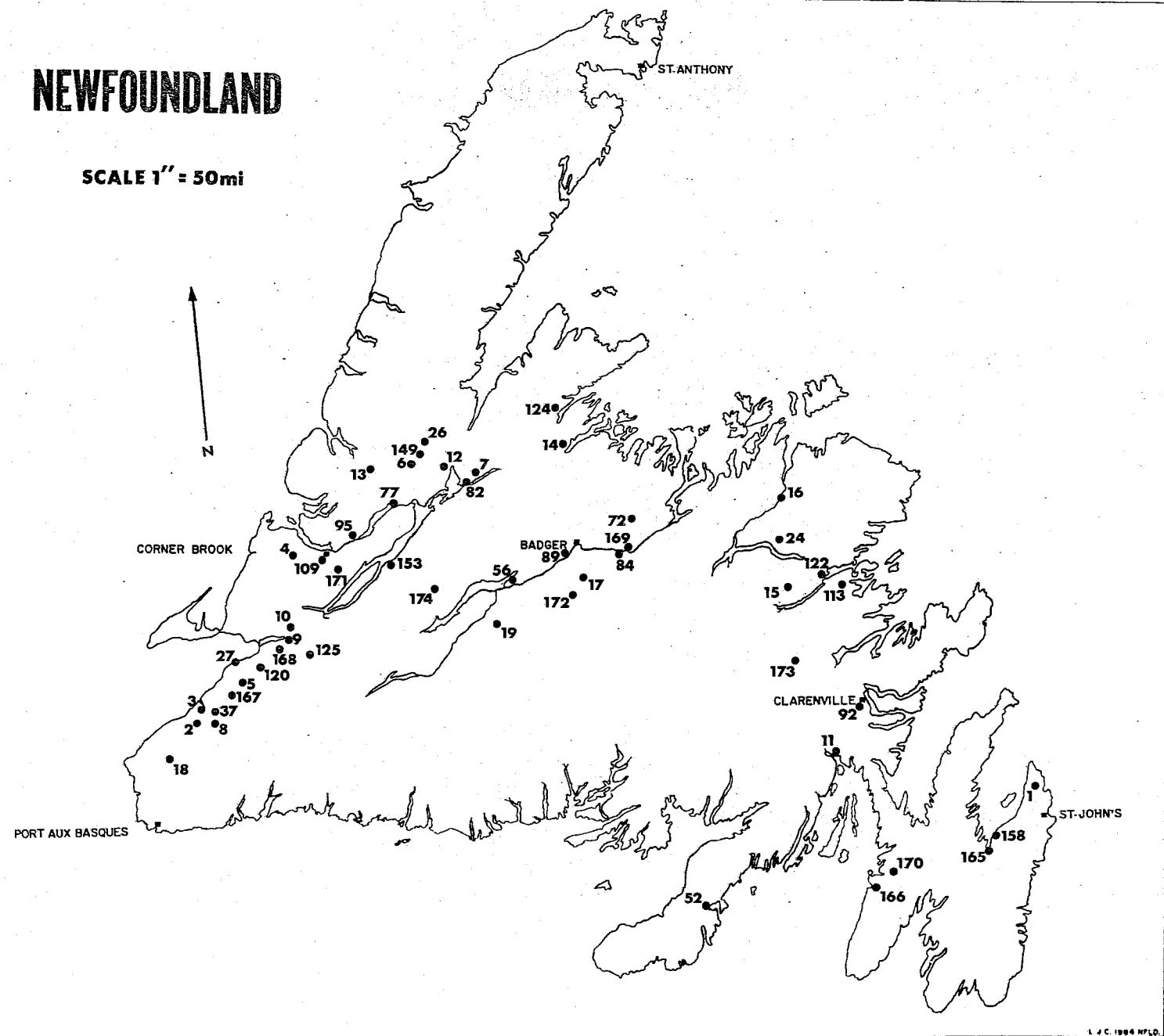


Fig. 1. Map showing 51 locations where root & butt rots were collected.

STEM ROTS OF HEARTWOOD

Pathogen	Disease	Host
<i>Corticium galactinum</i> (Fr.) Burt	White stringy rot or stringy yellow butt and root rot	<i>Abies balsamea</i> (L.) Mill. 4 (59)  <i>Picea</i> species
<i>Daedalea unicolor</i> Bull. ex Fr.	White spongy rot or canker rot	<i>Betula papyrifera</i> Marsh. 159
<i>Fomes fomentarius</i> (L. ex Fr.) Kickx	White mottled rot of heartwood and sapwood	<i>Betula alleghaniensis</i> Britt. 4, 18 (54, 56)  <i>Betula papyrifera</i> Marsh. 4, 10, 57, 94 (56)
<i>Fomes igniarius</i> (L. ex Fr.) Kickx	Soft white heart rot, white trunk rot or white heart rot	<i>Prunus pensylvanica</i> L.f. 14 (50)  <i>Betula alleghaniensis</i> Britt. 109, 110, 151 (17)
<i>Fomes igniarius</i> var. <i>laevigatus</i> (Fr.) Overh.	White spongy rot	<i>Betula papyrifera</i> Marsh. 109, 110, 156, 175, 332 (2, 3, 17, 44)  <i>Populus tremuloides</i> Michx. 56, 96 (8, 28, 48)
<i>Fomes pini</i> (Brot. ex Fr.) Karst.	Red ring rot or white pocket rot of wood of gymnosperms	<i>Salix</i> species 24, 109, 110 (17)  <i>Populus balsamifera</i> L. 250 (56)  <i>Abies balsamea</i> (L.) Mill. 14, 19, 64, 77, 86, 87, 92, 110, 116, 119, 121, 249, 331, 332, 333 (18, 57)  <i>Picea glauca</i> (Moench) Voss 14, 19, 64, 77, 86, 87, 92, 110, 116, 119, 121, 249, 331, 332, 333 (18, 57)  <i>Picea mariana</i> (Mill.) BSP. 14, 19, 20, 64, 77, 86, 87, 92, 110, 116, 119, 121, 156, 249, 331, 332, 333 (18, 57)

Pathogen	Disease	Host
<i>Fomes pini</i> (Brot. ex Fr.) Karst. (Cont'd)		<i>Picea</i> species 94 (18)
<i>Fomes pinicola</i> (Sw. ex Fr.) Cke.	Brown cubical rot	<i>Abies balsamea</i> (L.) Mill. 4, 37, 148, 151 (64)
		<i>Betula papyrifera</i> Marsh. 18, 57 (54)
		<i>Picea glauca</i> (Moench) Voss 4 (56)
		<i>Picea mariana</i> (Mill.) BSP. 57, 156
<i>Fomes robustus</i> Karst.	White spongy rot or white heart rot	<i>Betula papyrifera</i> Marsh.
<i>Fomes</i> species	Decay or heartwood rot	<i>Betula papyrifera</i> Marsh. <i>Picea mariana</i> (Mill.) BSP.
<i>Ganoderma applanatum</i> (Pers. ex Wallr.) Pat.	White mottled rot	<i>Betula papyrifera</i> Marsh. 133
		<i>Picea mariana</i> (Mill.) BSP.
		<i>Populus balsamifera</i> L.
<i>Lenzites saepiaria</i> (Wulf. ex Fr.) Fr.	Brown cubical or pocket rot	<i>Abies balsamea</i> (L.) Mill. 9, 77, 148 (18, 19, 43)
		<i>Picea mariana</i> (Mill.) BSP. 20, 57 (44)
		<i>Picea</i> species 19, 149
<i>Lenzites</i> species	Brown cubical rot	<i>Abies balsamea</i> (L.) Mill. <i>Picea mariana</i> (Mill.) BSP.
<i>Peniophora polygonia</i> (Pers. ex Fr.) Bourd. & Galz.	White spongy rot	<i>Populus</i> species 90
<i>Peniophora septentrionalis</i> Laurila	Red heart rot	<i>Picea mariana</i> (Mill.) BSP. 160

Pathogen	Disease	Host
<i>Polyporus borealis</i> Fr.	White mottled rot of gymnosperms	<i>Picea</i> species 153
<i>Stereum sanguinolentum</i> (Alb. & Schw. ex Fr.) Fr.	Red heart rot	<i>Abies balsamea</i> (L.) Mill. 4, 57, 77, 110, 157, 172, 331 (18, 19, 25A, 59, 61)
		<i>Picea</i> species 20, 77

# NEWFOUNDLAND

SCALE 1" = 50mi

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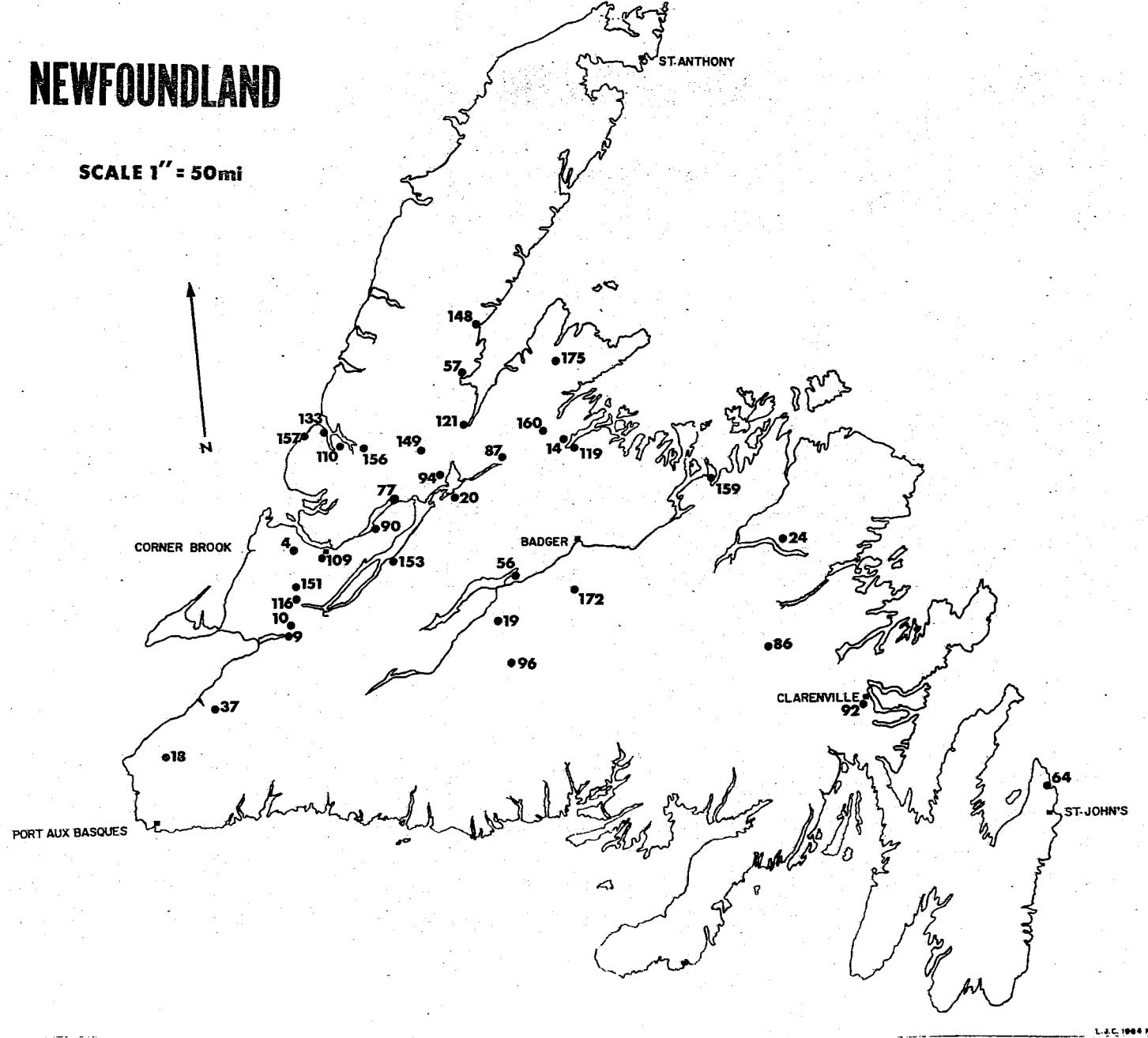


Fig. 2. Map showing 35 locations where stem rots of heartwood were collected.

STEM ROTTS OF SAPWOOD

Pathogen	Disease	Host
Ceratocystis species	Sapwood rot	<i>Abies balsamea</i> (L.) Mill. 4, 37, 124 (64)
<i>Daedalea confragosa</i> Bolt. ex Fr.	White spongy rot or soft white rot	<i>Sorbus decora</i> (Sarg.) Schneid. 164
<i>Daedalea</i> species	Decay or sapwood rot	<i>Abies balsamea</i> (L.) Mill. 164
<i>Daedalea unicolor</i> Bull. ex Fr.	White spongy rot or canker rot	<i>Betula papyrifera</i> Marsh. 159
<i>Fomes fomentarius</i> (L. ex Fr.) Kickx	White mottled rot of heartwood and sapwood	<i>Betula alleghaniensis</i> Britt. 4, 18 (54, 56)
		<i>Betula papyrifera</i> Marsh. 4, 10, 57, 94 (56)
		<i>Prunus pensylvanica</i> L.f. 14 (50)
<i>Fomes pinicola</i> (Sw. ex Fr.) Cke.	Brown cubical rot	<i>Abies balsamea</i> (L.) Mill. 4, 37, 148, 151 (64)
		<i>Betula papyrifera</i> Marsh. 18, 57 (54)
		<i>Picea glauca</i> (Moench) Voss 4 (56)
		<i>Picea mariana</i> (Mill.) BSP. 57, 156
<i>Fomes</i> species	Decay or heartwood rot	<i>Betula papyrifera</i> Marsh.
		<i>Picea mariana</i> (Mill.) BSP.
<i>Ganoderma applanatum</i> (Pers. ex Wallr.) Pat.	White mottled rot	<i>Betula papyrifera</i> Marsh. 133
		<i>Picea mariana</i> (Mill.) BSP.
		<i>Populus balsamifera</i> L.
<i>Lenzites saepiaria</i> (Wulf. ex Fr.) Fr.	Brown cubical or pocket rot of sapwood	<i>Abies balsamea</i> (L.) Mill. 9, 77, 148 (18, 19, 43)

Pathogen	Disease	Host
<i>Lenzites saepiaria</i> (Wulf. ex Fr.) Fr. (Cont'd)		<i>Picea mariana</i> (Mill.) BSP. 20, 57 (44)
<i>Lenzites species</i>	Brown cubical rot	<i>Picea</i> species 19, 149
		<i>Abies balsamea</i> (L.) Mill.
		<i>Picea mariana</i> (Mill.) BSP.
<i>Peniophora gigantea</i> (Fr.) Massee	White sap rot	<i>Picea</i> species 94
<i>Polyporus abietinus</i> Dicks. ex Fr.	White pocket rot, pitted sap rot, hollow pocket rot or white sap rot of gymnosperms	<i>Abies balsamea</i> (L.) Mill. 4, 37, 77, 94, 124, 149, 163, 331 (18, 25A, 64)
		<i>Picea mariana</i> (Mill.) BSP. 20
		<i>Picea</i> species 19, 94, 133, 149
<i>Polyporus adustus</i> Willd. ex Fr.	White mottled rot	<i>Picea mariana</i> (Mill.) BSP.
		<i>Populus</i> species 77
		<i>Populus tremuloides</i> Michx. 162
<i>Polyporus albellus</i> Pk.	White rot or white spongy rot	<i>Alnus</i> species 119
		<i>Betula alleghaniensis</i> Britt. 151
		<i>Betula papyrifera</i> Marsh. 84
		<i>Prunus pensylvanica</i> L.f. 150
<i>Polyporus arcularis</i> Batsch ex Fr.	White rot of angiosperms (dead wood)	<i>Betula papyrifera</i> Marsh. 152

Pathogen	Disease	Host
<i>Polyporus betulinus</i> Bull. ex Fr.	Brown cubical rot of sapwood	<i>Betula papyrifera</i> Marsh. 19, 94, 127, 155, 177, 332 (3, 46, 52)
<i>Polyporus biformis</i> Klotsch ex Fr.	Yellowish rot	<i>Abies balsamea</i> (L.) Mill. 162
<i>Polyporus brumalis</i> Pers. ex Fr.	White rot of broad- leaved trees	<i>Betula papyrifera</i> Marsh. 154
		<i>Populus tremuloides</i> Michx. 162
		<i>Prunus pensylvanica</i> L.f. 152
<i>Polyporus elegans</i> Bull. ex Fr.	White rot	<i>Populus</i> species 84, 119
		<i>Salix</i> species 24
<i>Polyporus fibrillosus</i> Karst.	Brown rot of gymnosperms (dead wood)	<i>Picea</i> species 151
<i>Polyporus hirsutus</i> Wulf. ex Fr.	White, spongy or brown cubical rot of sapwood of broadleaved trees; on coniferous trees rarely	<i>Populus tremuloides</i> Michx. 19, 160 (18)
<i>Polyporus mollis</i> Pers. ex Fr.	Brown rot of coniferous trees (dead wood)	<i>Abies balsamea</i> (L.) Mill. 151
<i>Polyporus nidulans</i> Fr.	Decay or sapwood rot	<i>Salix</i> species 39
<i>Polyporus pargamenus</i> Fr.	White spongy rot, white pocket rot or white sap rot	<i>Betula papyrifera</i> Marsh. <i>Populus</i> species 94
		<i>Populus tremuloides</i> Michx. 51, 123
<i>Polyporus pubescens</i> Schum. ex Fr.	White spongy rot or white rot of angiosperms	<i>Betula papyrifera</i> Marsh. 109

Pathogen	Disease	Host
<i>Polyporus pubescens</i> Schum. ex Fr. (Cont'd)		Betula species 126
<i>Polyporus semipileatus</i> Pk.	White rot	Picea species 119
<i>Polyporus</i> species	Decay or sapwood rot	<i>Abies balsamea</i> (L.) Mill. 172 (54)  <i>Picea mariana</i> (Mill.) BSP.  <i>Pinus strobus</i> L.
<i>Polyporus velutinus</i> Fr.	White rot or white spongy rot of angiosperms	<i>Betula papyrifera</i> Marsh. 161
		<i>Populus tremuloides</i> Michx. 7, 162
<i>Polyporus versicolor</i> L. ex Fr.	Soft white spongy rot or white rot of angiosperms	<i>Alnus rugosa</i> (Du Roi) Spreng.  <i>Betula papyrifera</i> Marsh. 9 (43)
		<i>Betula species</i> 6
		<i>Populus species</i> 94
		<i>Prunus pensylvanica</i> L.f. 109
<i>Pycnoporus cinnabarinus</i> (Jacq. ex Fr.) Karst. (= <i>Polyporus cinnabarinus</i> Jacq. ex Fr.)	White rot of broad- leaved trees	<i>Betula papyrifera</i> Marsh. 151
		<i>Betula species</i> 6 (18)
		<i>Sorbus species</i> 156
<i>Retinocyclus abietis</i> (Crouan) Groves and Wells	Sapwood rot	<i>Abies balsamea</i> (L.) Mill. 331, 332, 333 (61)

Pathogen	Disease	Host
<i>Schizophyllum commune</i> Fr.	White sapwood rot or white spongy rot	<i>Abies balsamea</i> (L.) Mill. 77, 95 (18)
		<i>Alnus rugosa</i> var. <i>americana</i> (Regel) Fern
		<i>Betula papyrifera</i> Marsh.
		<i>Populus</i> species
		<i>Populus tremuloides</i> Michx.
<i>Stereum hirsutum</i> (Willd. ex Fr.) S.F. Gray	White sap rot	<i>Betula papyrifera</i> Marsh. 7, 160
		<i>Prunus pensylvanica</i> L.f.
<i>Trametes</i> species	Stem decay	<i>Abies balsamea</i> (L.) Mill. 9 (43)

# NEWFOUNDLAND

SCALE 1" = 50mi

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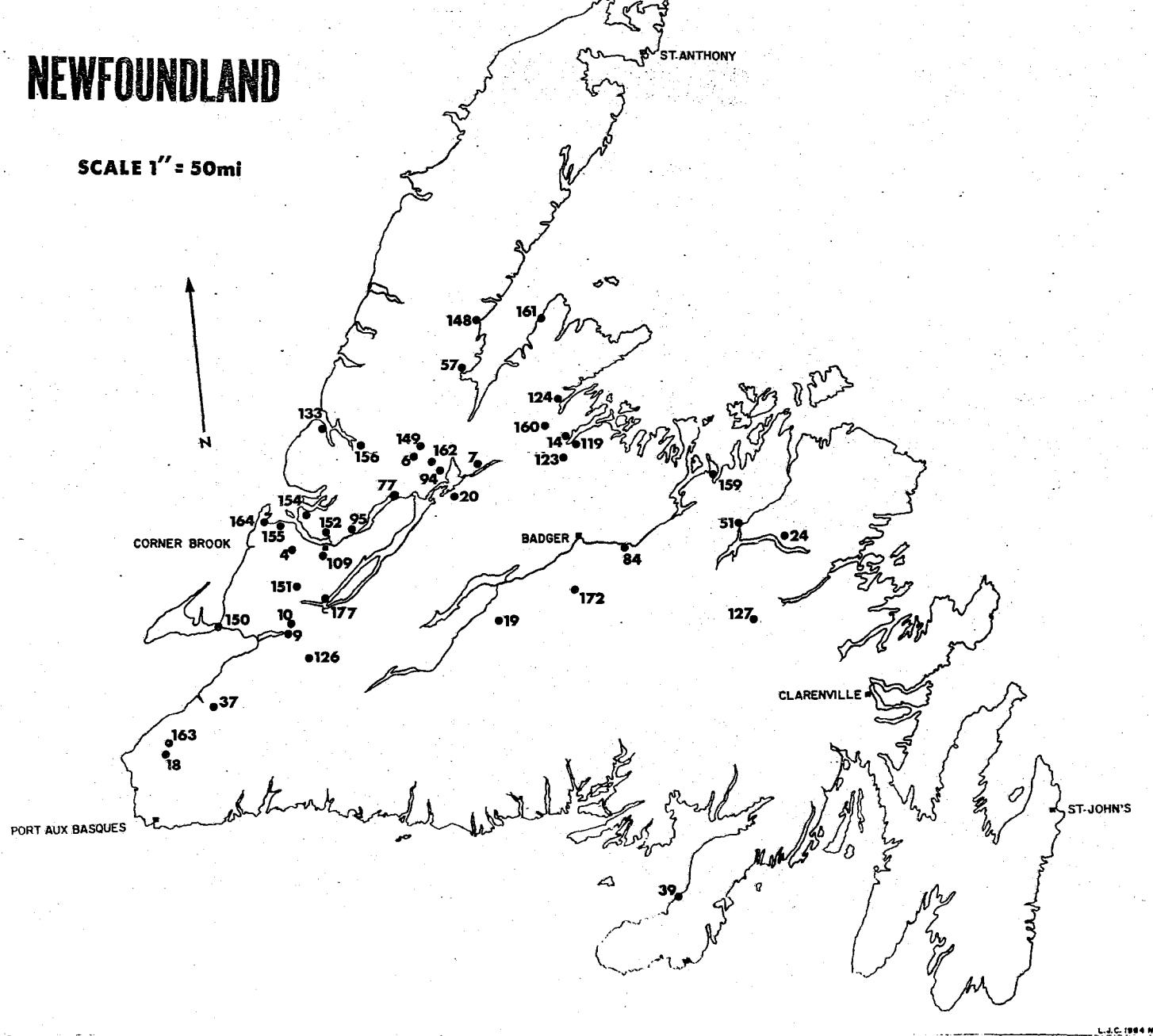


Fig. 3. Map showing 41 locations where stem rots of sapwood were collected.

STEM ROTS - MISCELLANEOUS

Pathogen	Disease	Host
<i>Alternaria tenuis</i> auct. sensu. Wiltshire	Stain sapwood - causes very little decay	<i>Abies balsamea</i> (L.) Mill. 331, 332, 333 (61)
<i>Cephalosporium</i> species	Stain sapwood - causes very little decay	<i>Abies balsamea</i> (L.) Mill. 331, 332, 333 (61)
<i>Coriolellus heteromorphus</i> (Fr.) Bond. & Singer	Brown cubical rot of coniferous wood (dead wood)	<i>Abies balsamea</i> (L.) Mill.
<i>Coriolellus</i> species (?heteromorphus or variiformis)	Brown cubical rot	<i>Abies balsamea</i> (L.) Mill.
<i>Coriolellus variiformis</i> (Pk.) Sarkar	Light brown cubical rot	<i>Picea mariana</i> (Mill.) BSP.
<i>Corticium galactinum</i> (Fr.) Burt	White stringy rot or stringy yellow butt and root rot	<i>Abies balsamea</i> (L.) Mill. 4 (59)  Coniferous wood
<i>Corticium laeve</i> Pers. ex Fr.	White spongy rot	<i>Picea</i> species 24
<i>Corticium leucoxanthum</i> Bres.		<i>Alnus</i> species 7
<i>Corticium notabile</i> Jackson	Decay of decorticated & corticated wood	<i>Picea mariana</i> (Mill.) BSP. 7
<i>Corticium pelliculare</i> Karst.		<i>Picea</i> species 119
<i>Corticium pini-</i> <i>canadensis</i> (Schw.) Jacks. & Rogers.	Stem decay of old wood and bark	<i>Abies balsamea</i> (L.) Mill. 90
<i>Corticium sulphureum</i> (Pers. ex Fr.) Fr.	Decay	Coniferous wood and slash 160

Pathogen	Disease	Host
Kirschsteiniella thujina (Pk.) Pomerleau and Etheridge (= <i>Amphisphaeria thujina</i> (Pk.) Sacc.)	Blue stain of the sapwood- causes very little decay	<i>Abies balsamea</i> (L.) Mill. 4, 37, 124, 331, 332, 333 (61, 64)
<i>Panus laevis</i> Berk. & Curt.		<i>Betula papyrifera</i> Marsh.
<i>Panus stipticus</i> (Bull. ex Fr.) Fr.	Decay of logs	<i>Alnus</i> species
		<i>Betula papyrifera</i> Marsh.
		<i>Populus tremuloides</i> Michx.
<i>Peniophora aspera</i> (Pers.) Sacc.	Decay of logs and dead wood	<i>Betula papyrifera</i> Marsh. 77
		<i>Prunus</i> species 35
<i>Peniophora aurantiaca</i> (Bres.) Höhn. & Litsch.	White rot	<i>Alnus rugosa</i> (Du Roi) Spreng. 20
		<i>Alnus rugosa</i> var. <i>americana</i> (Regel) Fern 172 (54)
		<i>Alnus</i> species 119
<i>Peniophora populinæ</i> (Pk.) Burt		<i>Populus tremuloides</i> Michx. 147
<i>Peniophora rufa</i> (Fr.) Boid. (= <i>Stereum rufum</i> Fr.)	Saprophyte	<i>Populus tremuloides</i> Michx. 84, 160, 322 (18)
<i>Peniophora separans</i> Burt	Decay	<i>Picea</i> species 148
<i>Peniophora</i> species	Decay	<i>Alnus crispa</i> (Ait.) Pursh
		<i>Alnus rugosa</i> (Du Roi) Spreng.

Pathogen	Disease	Host
Peniophora species (Cont'd)		Betula papyrifera Marsh.
		Populus tremuloides Michx.
Phlebia strigosozonata (Schw.) Lloyd	White spongy rot	Populus species
Polyporus pocula (Schw.) Berk. & Curt.		Prunus pensylvanica L.f. 109
Poria candidissima (Schw.) Cke.	White rot	Abies balsamea (L.) Mill. 148
		Picea mariana (Mill.) BSP. 20
Poria ferrea (Pers.) Bourd. & Galz.	White rot	Alnus species 93
		Sorbus americana Marsh 160
Poria prunicola (Murr.) Sacc. & Trott.	Associated with white rot	Prunus species 160
Poria species	Decay	Alnus species
		Picea glauca (Moench) Voss
		Picea mariana (Mill.) BSP.
		Populus tremuloides Michx.
Stereum chailletii (Pers. ex Fr.) Fr. (= Amylostereum chailletii (Pers. ex Fr.) Boid.)	White stringy rot	Abies balsamea (L.) Mill. 4, 37, 77, 84, 89, 90, 95, 124, 125, 126, 331(9, 18, 19, 22, 25A, 29A, 61, 63, 64)
Stereum ochraceoflavum (Schw.) Ell.		Alnus species
Stereum ostrea Blume & Nees ex Fr.	White crumbly rot	Betula papyrifera Marsh. 94
Stereum purpureum (Pers. ex Fr.) Fr.	Silver leaf	Betula papyrifera Marsh. 24, 77, 109 (55)

Pathogen	Disease	Host
Stereum purpureum (Pers. ex Fr.) Fr. (Cont'd)		Populus species
Stereum rugosum Fr.		Populus tremuloides Michx. 160 (18)
		Alnus species 133
		Betula papyrifera Marsh. 24, 57, 77
Stereum species	Brown streaks	Abies balsamea (L.) Mill. 84 (49)
Trechispora brinkmanni (Bres.) Rogers & Jacks. (=?Sistotrema brinkmanni (Bres.) John Erikss.)	White stringy rot	Populus tremuloides Michx.

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SCALE 1" = 50mi

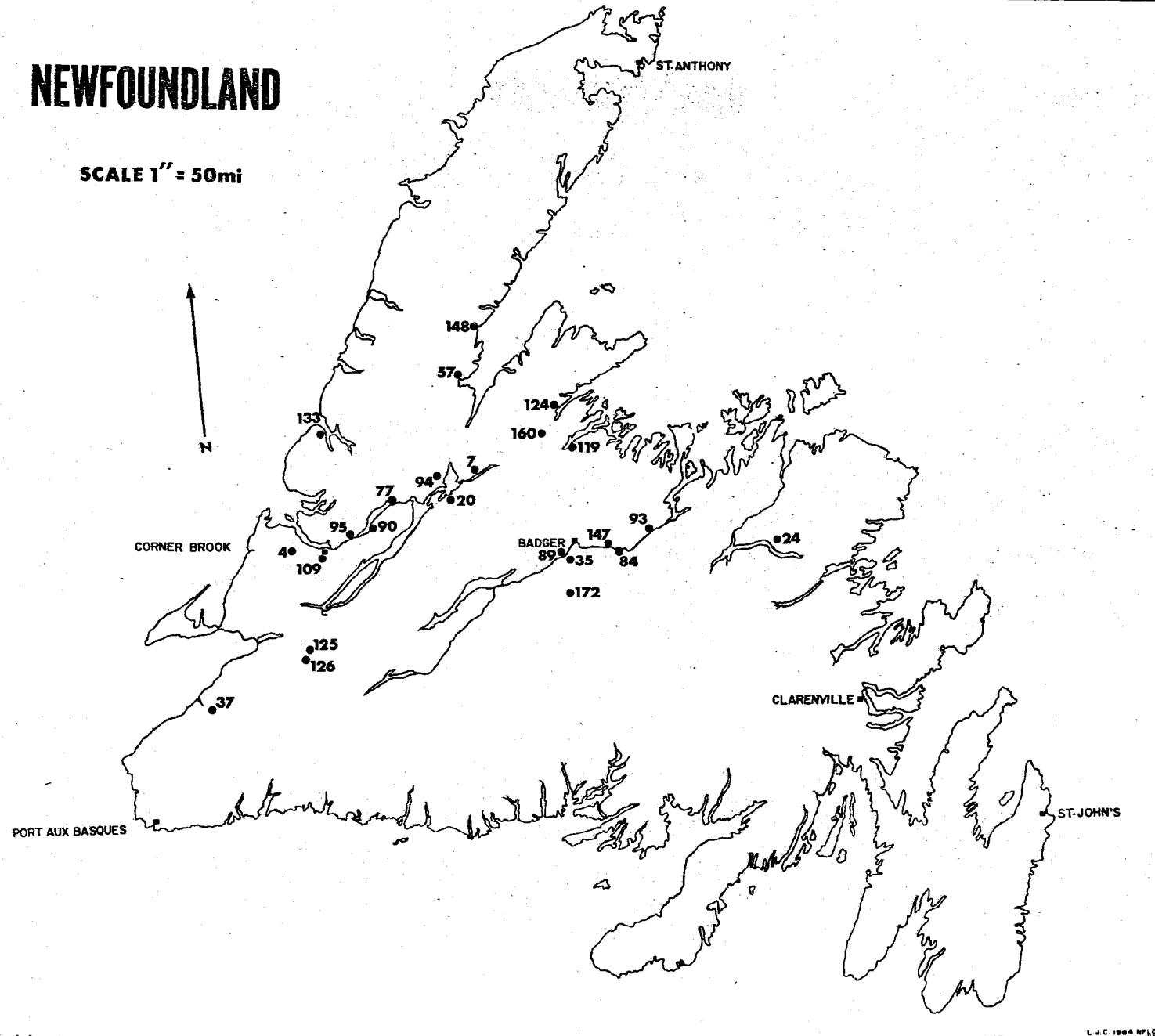


Fig. 4. Map showing 24 locations where miscellaneous stem rots were collected.

STEM CANKERS

Pathogen	Disease	Host
Aleurodiscus amorphus (Pers. ex Fr.) Schroet.	Canker	Abies balsamea (L.) Mill.
Creonectria cucurbitula (Sacc.) Seav. (=Nectria cucurbitula Sacc.)	Canker	Abies balsamea (L.) Mill. 77 (18)
Cytospora salicis (Cda.) Rabh.	Associated with dieback	Salix species 51 (53)
Cytospora species	Dieback & canker	Acer Rubrum L.
		Alnus rugosa (Du Roi) Spreng.
Encoelia fascicularis fide Groves	Canker	Populus tremuloides Michx. 160 (18)
Hymenochaete tabacina (Sow. ex Fr.) Lév.	Canker & rot	Abies balsamea (L.) Mill. Acer spicatum Lam.
		Alnus rugosa var. americana (Regel) Fern 251 (56)
		Alnus species
		Betula papyrifera Marsh.
		Picea species
		Populus tremuloides Michx. 123 (55)
		Prunus species 160 (18)
		Salix species
Hypoxyylon fuscum Pers. ex Fr.	Canker	Alnus rugosa (Du Roi) Spreng. 7 (18)

Pathogen	Disease	Host
Hypoxyylon mammatum (Wahl.) Miller (=Hypoxyylon blakei Berk. and Curt.) (=Hypoxyylon morsei Berk. and Curt.)	Stem canker	Alnus rugosa (Du Roi) Spreng. 7, 17, 101 (18)
		Alnus species 20
		Salix species 90 (18)
Hypoxyylon multiforme Fr.	Stem canker	Acer spicatum Lam. 109
		Betula alleghaniensis Britt. 163
		Betula papyrifera Marsh. 133
Nectria cinnabarinna Tode ex Fr.	Dieback & coral spot (canker)	Acer pseudoplatanus L. Acer rubrum L. 109 (6)
		Acer species 109 (7, 47)
		Sambucus pubens Michx.
		Sorbus decora (Sarg.) Schneid.
		Ulmus parvifolia Jacq. 109 (6, 7, 8, 9, 10, 29A, 30A, 47, 48)
Nectria coccinea Pers. ex Fr.	A saprobe associated with canker	Alnus crispa (Ait.) Pursh
Nectria species	Canker	Abies balsamea (L.) Mill.
		Fagus species
Tymanis pithya (Fr.) Karst.	Canker	Pinus strobus L.
Tymanis spermatoiospora (Nyl.) Nyl.	Canker	Populus species 22, 90 (18)

Pathogen	Disease	Host
Tympinis spermatoiospora (Nyl.) Nyl. (Cont'd)	Canker	Populus tremuloides Michx.
		Prunus species 7 (18)

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SCALE 1" = 50mi

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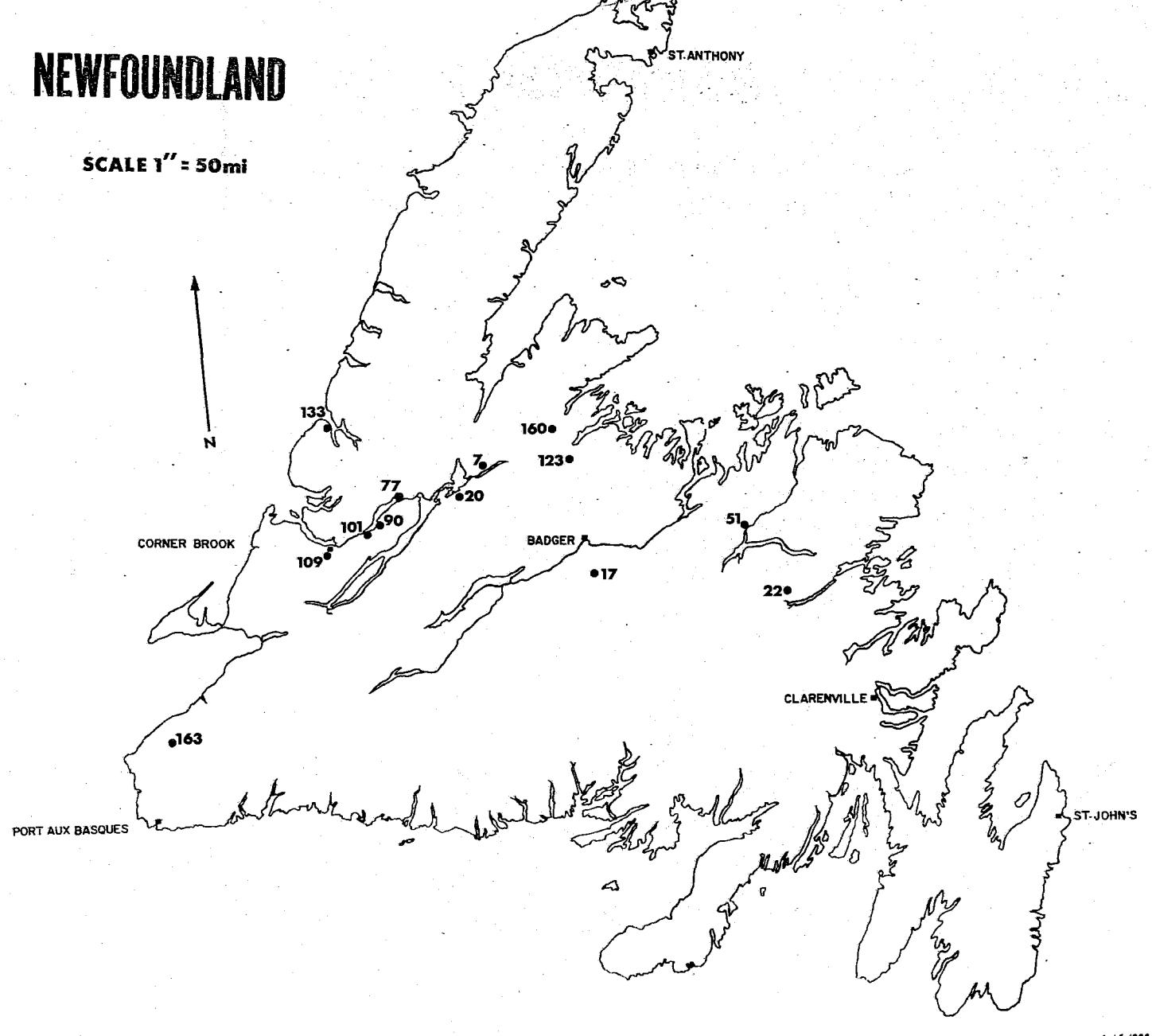


Fig. 5. Map showing 13 locations where stem cankers were collected.

STEM RUSTS

Pathogen	Disease	Host
Cronartium ribicola J.C. Fischer	Blister or stem rust of eastern white pine	<i>Pinus strobus</i> L. 7, 12, 19, 20, 21, 22, 23, 24, 25, 26, 35, 38, 55, 84, 86, 87, 90, 93, 110, 113, 121, 122, 131, 151, 162, 172, 180, 181, 182, 183, 255, 256, 307, 331, 332, 333, 337, 338, 339, 340 (1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 18, 22, 23, 31B, 32, 37B, 38, 39, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 56, 57)
		<i>Ribes glandulosum</i> Grauer (alternate host)
		<i>Ribes hirtellum</i> Michx. (alternate host)
		<i>Ribes</i> species 4, 13, 77, 90, 121, 149, 156 (18, 37B)
Gymnosporangium claviceps (Cke. & Pk.) Cke. & Pk.	Quince rust	<i>Amelanchier</i> species
Gymnosporangium species	Stem rust	<i>Amelanchier bartramiana</i> (Tausch) Roem.
		<i>Amelanchier laevis</i> Wieg.
		<i>Amelanchier sanguinea</i> (Pursh) DC.

Pathogen	Disease	Host
Melampsorella cary-ophyllacearum Schroet. (= Chrysomyxa arctostaphyli Diet.) (= Melampsorella cerastii Schroet.)	Yellow witches'-broom	Abies balsamea (L.) Mill. 25, 34, 35, 39, 47, 52, 54, 96, 101, 107, 109, 178, 179, 252, 253, 323, 328, 330, 331, 332, 333 (4, 5, 6, 7, 8, 9, 10, 18, 26, 30A, 40, 44, 45, 46, 47, 48, 49, 50, 80)
		Picea glauca (Moench) Voss 35, 39, 54 (10)
		Picea mariana (Mill.) BSP. 35, 39, 54, 89, 330, 333 (6, 30A, 44, 46, 47, 48, 50, 51)
Pucciniastrum goeppertianum (Kühn) Kleb.	Witches'-broom	Vaccinium cespitosum Michx.

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SCALE 1" = 50mi

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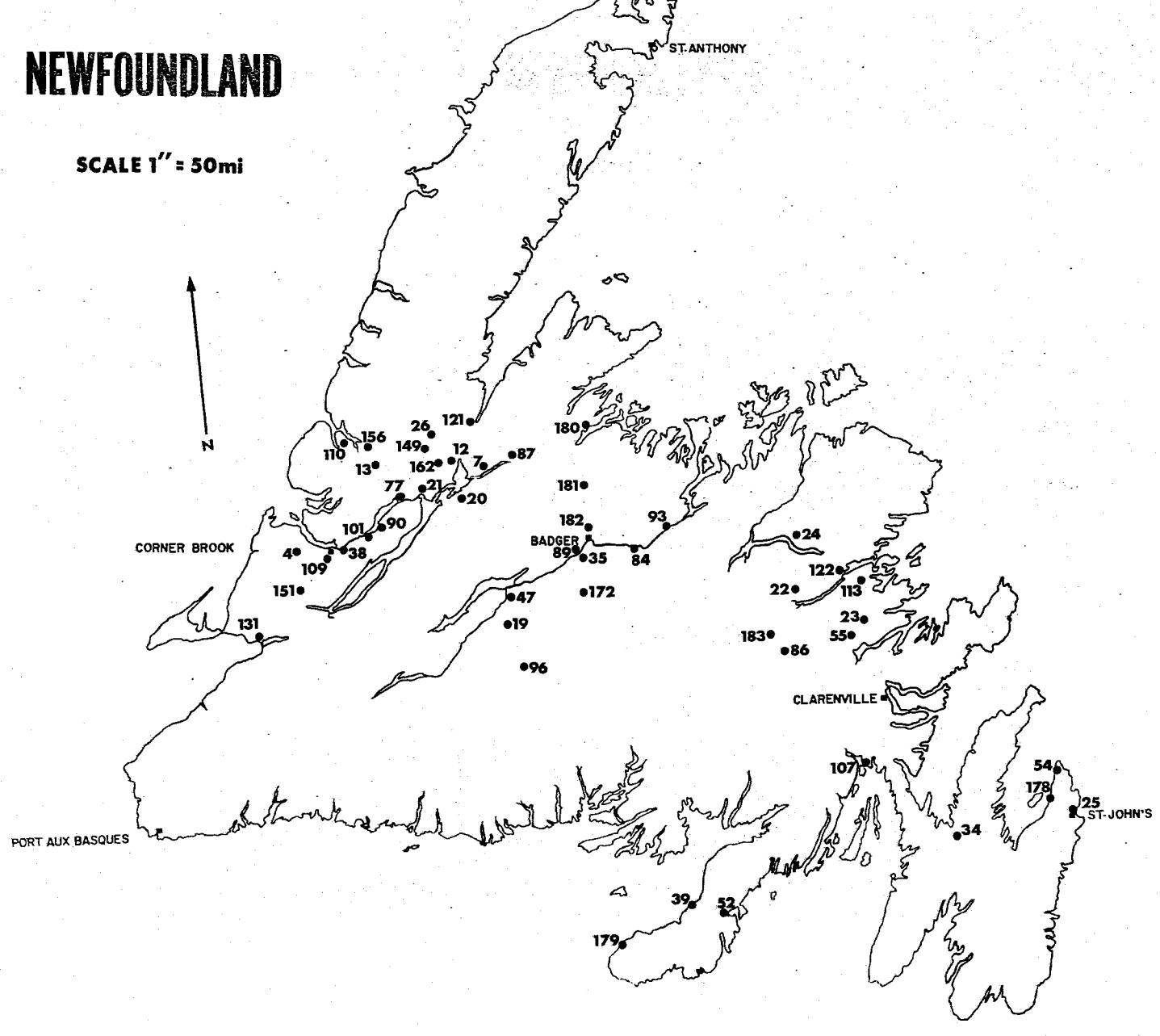


Fig. 6. Map showing 47 locations where stem rusts were collected.

STEM DISEASES - MISCELLANEOUS

Pathogen	Disease	Host
<i>Apiosporina collinsii</i> (Schw.) Höhn. (= <i>Dimerosporium collinsii</i> (Schw.) Thüm.)	Witches'-broom	<i>Amelanchier</i> species
<i>Apiosporina morbosa</i> (Schw.) Arx	Black knot	<i>Pyrus</i> species 103 (50)
		<i>Prunus insititia</i> L. 66, 259, 260, 261, 262, 331, 332, 333 (48, 49, 50, 51, 57)
		<i>Prunus pensylvanica</i> L.f. 2, 3, 6, 11, 20, 22, 25, 35, 38, 51, 55, 62, 77, 81, 89, 91, 109, 122, 123, 172, 177, 184, 185, 186, 258, 331, 332, 333, 334, 336, 337, 338, 339, 340, 341, 342 (1, 2, 3, 5, 6, 7, 8, 9, 12, 22, 23, 30A, 32, 40, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 54, 80)
		<i>Prunus</i> species 2, 14, 109, 331, 332, 333 (8, 9, 10, 30A, 37B, 47, 48, 49, 50, 52, 57)
		<i>Prunus virginiana</i> L. 331, 332, 333 (6, 48)
<i>Chlorosplenium aeruginosum</i> (Oed. ex S.F. Gray) de Not.	Stain	<i>Abies balsamea</i> (L.) Mill.
		<i>Alnus rugosa</i> (Du Roi) Spreng.
<i>Cucurbitothis pithyophila</i> (Fr.) Petrak	Stem girdle	<i>Pinus strobus</i> L. 187 (50)
<i>Cytidia salicina</i> (Fr.) Burt		<i>Alnus</i> species
<i>Dermea balsamea</i> (Pk.) Seav.	Dieback	<i>Abies balsamea</i> (L.) Mill. 19, 56 (6, 27)
<i>Diatrypella betulina</i> Pk.	On branches & twigs	<i>Betula papyrifera</i> Marsh.
<i>Polyporus picipes</i> Fr.		<i>Picea glauca</i> (Moench) Voss 126

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SCALE 1" = 50mi

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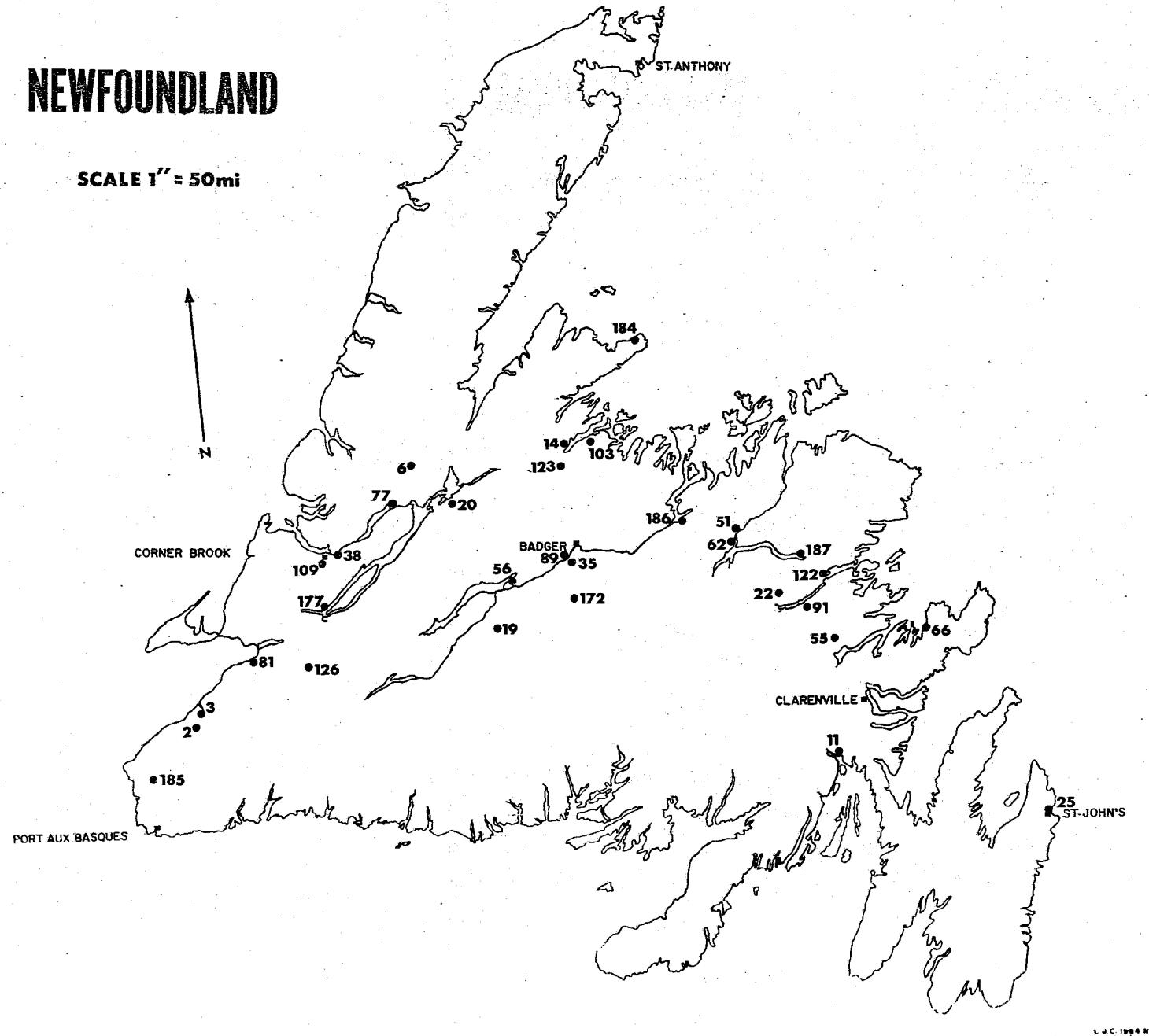


Fig. 7. Map showing 31 locations where miscellaneous stem diseases were collected.

FOLIAGE DISEASES OF CONIFEROUS TREES - NEEDLE RUSTS

Pathogen	Disease	Host
<i>Chrysomyxa empetri</i> Schroet. ex Cummins	Needle rust, occasionally on cones	<i>Picea glauca</i> (Moench) Voss 49, 330 (35A)
		<i>Picea</i> species 330 (16)
<i>Chrysomyxa ledi</i> de Bary	Needle rust	<i>Picea glauca</i> (Moench) Voss 4, 7, 11, 20, 21, 34, 35, 42, 43, 48, 52, 54, 56, 67, 92, 104, 106, 122, 131, 165, 171, 175, 179, 188, 191, 196, 199, 202, 203, 206, 207, 268, 317, 326, 327, 328, 331, 332, 333 (4, 5, 6, 7, 12, 24, 25B, 26, 32, 45, 46, 47, 50, 51, 52)
		<i>Picea mariana</i> (Mill.) BSP. 4, 7, 11, 12, 14, 19, 20, 21, 24, 34, 35, 42, 46, 47, 48, 51, 52, 53, 55, 56, 58, 67, 77, 89, 92, 104, 106, 119, 122, 127, 131, 160, 171, 173, 175, 179, 183, 188, 191, 196, 199, 200, 202, 204, 205, 206, 207, 248, 266, 268, 317, 326, 327, 328, 331, 332, 333, 339, 340, 341 (5, 6, 7, 12, 18, 25B, 26, 28, 32, 44, 45, 46, 47, 49, 50, 51, 52, 53)
		<i>Picea</i> species 200, 201, 331, 332, 333 (13, 27, 44)
<i>Chrysomyxa ledicola</i> Lagerh.	Needle rust	<i>Picea glauca</i> (Moench) Voss 4, 7, 11, 20, 21, 34, 35, 40, 44, 48, 49, 50, 52, 53, 54, 57, 67, 92, 104, 106, 122, 131, 165, 171, 175, 179, 188, 191, 196, 202, 203, 206, 207, 268,

Pathogen	Disease	Host
<i>Chrysomyxa ledicola</i> Lagerh. (Cont'd)		317, 326, 327, 328, 330, 331, 332, 333 (2, 5, 6, 7, 12, 17, 18, 22, 25B, 26, 27, 32, 35A, 40, 42, 45, 46, 47, 50, 52, 57, 80)
		<i>Picea mariana</i> (Mill.) BSP. 3, 4, 7, 11, 14, 19, 20, 21, 22, 24, 25, 31, 34, 35, 40, 42, 44, 45, 46, 47, 48, 51, 52, 53, 55, 56, 57, 58, 66, 67, 77, 88, 89, 92, 104, 106, 119, 122, 127, 131, 160, 171, 175, 179, 183, 188, 189, 191, 196, 200, 202, 204, 205, 206, 207, 208, 209, 248, 266, 268, 269, 270, 317, 326, 327, 328, 330, 331, 332, 333, 339, 340, 341, (1, 2, 3, 4, 5, 6, 7, 12, 18, 21, 22, 23, 24, 25B, 26, 27, 28, 32, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 52, 57, 81)
		<i>Picea</i> species 200, 201, 330, 331, 332, 333 (13, 16, 44)
<i>Chrysomyxa</i> species	Needle rust	<i>Picea glauca</i> (Moench) Voss 24, 53, 55, 69, 92, 188, 330, 331 (10, 30A, 36A, 48)
		<i>Picea mariana</i> (Mill.) BSP. 24, 53, 55, 69, 92, 188, 331 (8, 10, 30A, 48, 49)
		<i>Picea</i> species 24, 53 (9, 29A)
<i>Coleosporium asterum</i> (Diet.) Syd.	Needle rust	<i>Pinus resinosa</i> Ait. 10 (8, 28)
<i>Melampsora medusae</i> Thüm.	Needle rust	<i>Larix laricina</i> (Du Roi) K. Koch 340 (40, 80)

Pathogen	Disease	Host
<i>Milesia fructuosa</i> Faull	Needle rust	<i>Abies balsamea</i> (L.) Mill. 39
<i>Milesia</i> species	Needle rust	<i>Abies balsamea</i> (L.) Mill. 4, 5, 8, 21, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 81, 84, 114, 151, 171, 175, 191, 206, 207, 267, 328, 329, 330, 331, 332, 333, 339, 340, 342 (2, 3, 4, 5, 6, 7, 10, 12, 22, 23, 24, 25B, 26, 27, 28, 30A, 32, 37B, 44, 45, 46, 47, 52, 57, 81)
<i>Pucciniastrum epilobii</i> Otth (= <i>Pucciniastrum</i> <i>pustulatum</i> (Pers.) Diet.)	Needle rust	<i>Abies balsamea</i> (L.) Mill. 4, 5, 8, 9, 14, 21, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41, 81, 84, 114, 151, 165, 171, 175, 191, 206, 207, 210, 211, 267, 316, 328, 329, 330, 331, 332, 333, 339, 340, 342 (1, 2, 3, 4, 5, 6, 7, 10, 12, 18, 21, 22, 23, 24, 25B, 26, 27, 28, 30A, 32, 37B, 41, 42, 43, 44, 45, 46, 47, 57, 62, 81)
<i>Uredinopsis</i> species	Needle rust	<i>Epilobium angustifolium</i> L. (an alternate host) 93 (18)
		<i>Abies balsamea</i> (L.) Mill. 4, 267 (52)

# NEWFOUNDLAND

SCALE 1" = 50mi

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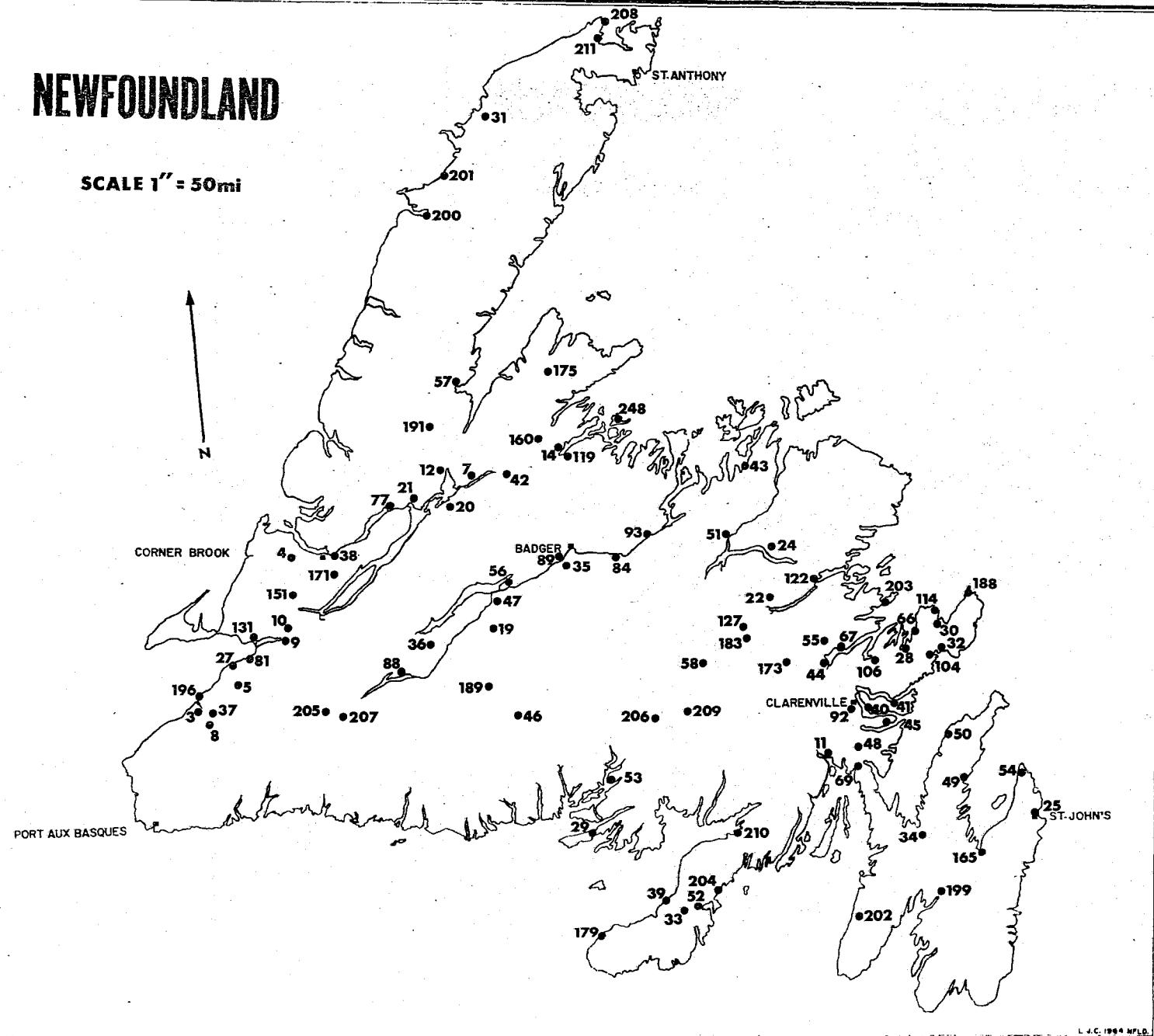


Fig. 8. Map showing 91 locations where needle rusts were collected.

FOLIAGE DISEASES OF CONIFEROUS TREES (INCLUDING SEEDLINGS) - NEEDLE CASTS

Pathogen	Disease	Host
<i>Hypodermella laricis</i> v. <i>Tub.</i>	Needle cast	<i>Larix laricina</i> (Du Roi) K. Koch 5, 14, 16, 18, 19, 20, 21, 22, 33, 35, 56, 64, 67, 79, 80, 81, 82, 83, 84, 85, 118, 167, 188, 197, 251, 263, 264, 331, 332, 333 (1, 2, 3, 4, 5, 6, 7, 12, 21, 22, 23, 26, 40, 41, 42, 43, 44, 45, 46, 47, 52, 80)
		<i>Larix leptolepis</i> (Sieb. & Zucc.) Gourd. 22
<i>Hypodermella species</i>	Needle cast	<i>Larix leptolepis</i> (Sieb. & Zucc.) Gourd. 22
<i>Isthmiella crepidiformis</i> (Darker) Darker (= <i>Bifusella crepidiformis</i> Darker)	Needle cast	<i>Picea glauca</i> (Moench) Voss 151, 254, 328, 330, 331, 332, 333 (1, 2, 3, 12, 23, 43, 52)
		<i>Picea mariana</i> (Mill.) BSP. 22, 27, 43, 45, 56, 59, 65, 66, 67, 74, 75, 76, 77, 78, 92, 111, 122, 162, 189, 190, 191, 254, 317, 328, 330, 332 (3, 12, 13, 22, 23, 41, 42, 43, 52)
		<i>Picea species</i> 331, 332, 333 (11, 31B)
<i>Isthmiella faullii</i> (Darker) Darker (= <i>Bifusella faullii</i> Darker)	Needle cast	<i>Abies balsamea</i> (L.) Mill. 2, 4, 5, 7, 8, 9, 13, 21, 30, 35, 37, 44, 47, 59, 60, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 79, 98, 111, 124, 133, 153, 171, 192, 193, 194, 265, 267, 330, 331, 332, 333, 335, 336 (2, 3, 6, 12, 22, 23, 26, 40, 42, 43, 44, 45, 46, 50, 52, 62, 80)

Pathogen	Disease	Host
<i>Lirula macrospora</i> (Hartig) Darker (= <i>Lophodermium filiforme</i> Darker)	Needle cast	<i>Picea glauca</i> (Moench) Voss 6, 10, 22, 59, 67, 77, 78, 254, 328, 330, 332 (3, 22, 23, 42, 43, 62)
<i>Lirula nervata</i> (Darker) Darker (= <i>Hypodermella nervata</i> Darker)	Needle cast	<i>Picea mariana</i> (Mill.) BSP. 6, 22, 27, 45, 56, 59, 65, 66, 67, 74, 75, 76, 78, 92, 111, 189, 190, 254, 328, 330, 331, 332, 333 (1, 2, 3, 22, 23, 41, 42, 43, 62)
<i>Lophodermium nitens</i> Darker	Needle cast	<i>Abies balsamea</i> (L.) Mill. 86, 110 (18)
<i>Lophodermium pinastri</i> (Schrad. ex Hook.) Chev.	Needle cast	<i>Pinus strobus</i> L. 7
		<i>Pinus banksiana</i> Lamb. 90
		<i>Pinus resinosa</i> Ait. 1, 330 (2, 22, 42, 62)
		<i>Pinus species</i> 22
		<i>Pinus strobus</i> L. 20, 22, 23, 86, 87
		<i>Pinus sylvestris</i> L. 1, 35
<i>Lophodermium species</i>	Needle cast	<i>Abies balsamea</i> (L.) Mill. 2, 5, 8, 9, 20, 32, 37, 44, 47, 61, 62, 63, 65, 66, 67, 68, 69, 70, 71, 72, 88, 111, 114, 195, 196, 197, 198, 331, 332, 333, 335, 336 (3, 5, 6, 7, 23, 26, 43, 45, 46, 47)
		<i>Picea species</i> 22

Pathogen	Disease	Host
Lophodermium species (Cont'd)		Pinus species 22
		Pinus sylvestris L. 25 (1)
Rhizothyrium abietis Naum.	Needle cast	Abies balsamea (L.) Mill. 156 (16)

# NEWFOUNDLAND

SCALE 1" = 50mi

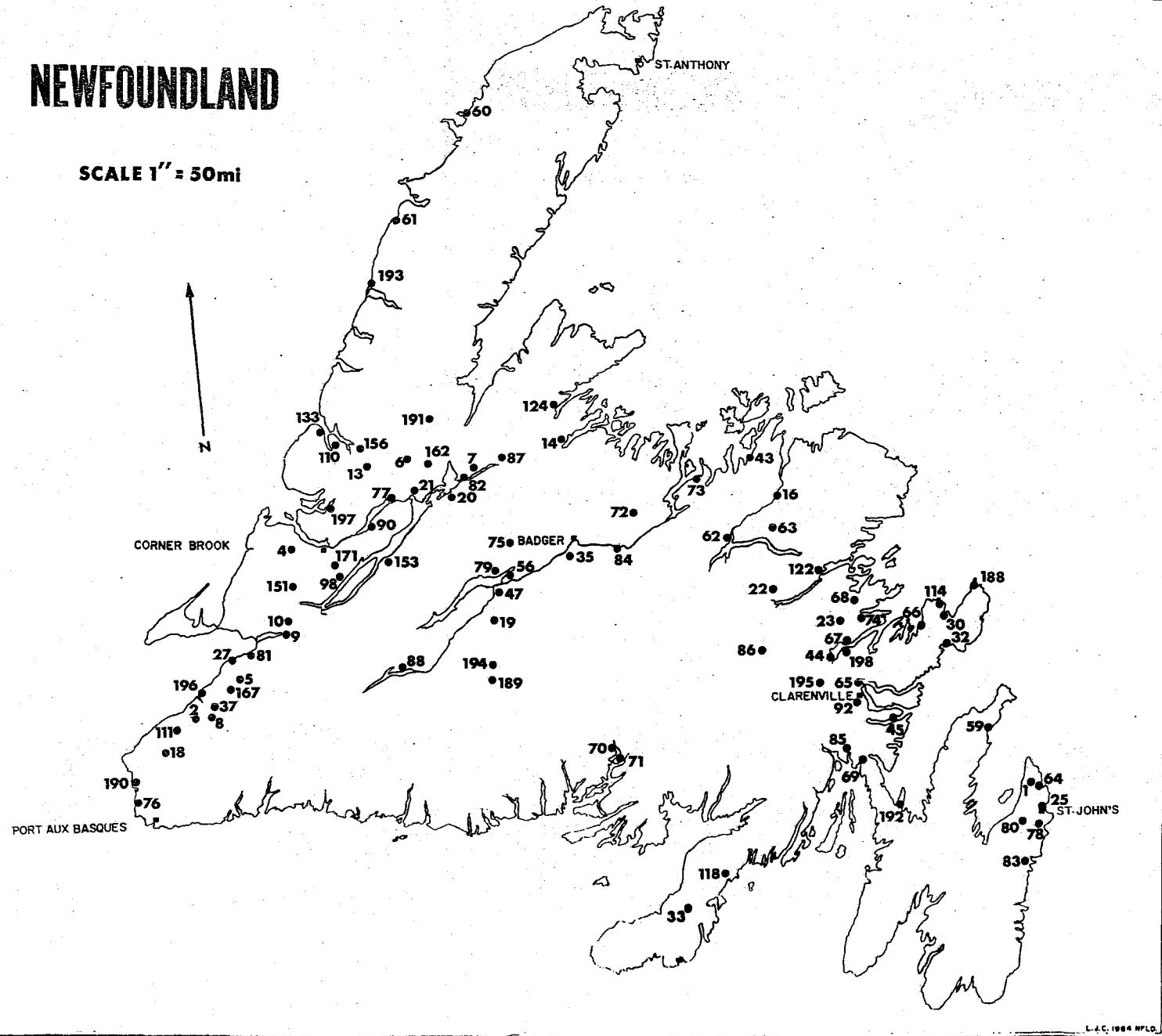


Fig. 9. Map showing 87 locations where needle casts were collected.

FOLIAGE DISEASE OF CONIFEROUS TREES (INCLUDING SEEDLINGS) -- MISCELLANEOUS

Pathogen	Disease	Host
<i>Bothrodiscus pinicola</i> Shear	Twig blight	<i>Abies balsamea</i> (L.) Mill.
<i>Dothistroma pini</i> Hulb.	Needle blight	<i>Pinus nigra</i> Arnold 25 (6)
		<i>Pinus resinosa</i> Ait. 199 (44)
<i>Fusicoccum abietinum</i> (Hartig) Prill. & Del.	Red flag	<i>Abies balsamea</i> (L.) Mill. 2, 17, 51, 55, 56, 65, 67, 88, 89, 134, 213, 214, 215, 216, 325, 330, 331, 332, 333 (3, 4, 6, 7, 24, 27, 44, 45, 47)
<i>Meliola pinicola</i> Dearn.	Sooty mold	<i>Picea glauca</i> (Moench) Voss 78
<i>Phacidium infestans</i> Karst.	Snow blight	<i>Picea mariana</i> (Mill.) BSP. 22, 84
		<i>Picea</i> species 22
<i>Phacidium</i> species	Snow blight	<i>Picea mariana</i> (Mill.) BSP. 217, 271 (6, 46)
<i>Phaeocryptopus nudus</i> (Pk.) Petrak (= <i>Adelopus balsamicola</i> (Pk.) Theiss.)	Needle blight	<i>Abies balsamea</i> (L.) Mill. 54, 81, 86, 92, 110 (18)
<i>Rehmiellopsis balsameae</i> Waterman	Tip blight	<i>Abies balsamea</i> (L.) Mill. 18, 37, 51, 60, 101, 116, 212, 331 (3, 6, 7, 26, 27, 45, 46, 47)
<i>Rhizosphaera abietis</i> Mang. & Har.	Needle blight	<i>Abies balsamea</i> (L.) Mill.
<i>Sphaerulina taxicola</i> (Pk.) Berl.	Leaf spot	<i>Taxus canadensis</i> Marsh.

# NEWFOUNDLAND

SCALE 1" = 50mi

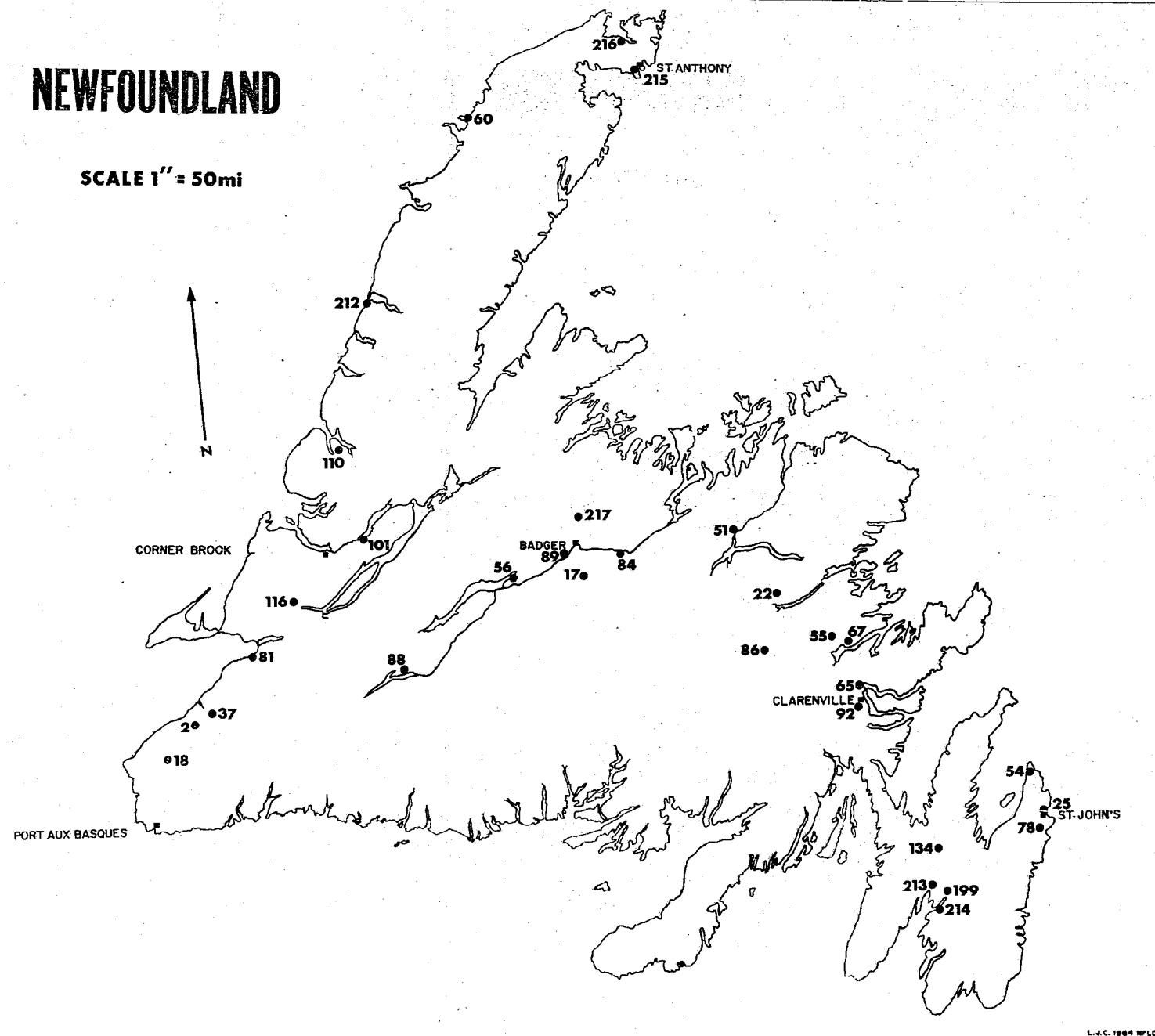


Fig. 10. Map showing 31 locations where miscellaneous foliage diseases of coniferous trees were collected.

FOLIAGE DISEASES OF BROADLEAVED TREES - LEAF RUSTS

Pathogen	Disease	Host
<i>Coleosporium asterum</i> (Diet.) Syd. (= <i>Coleosporium solidaginis</i> Thüm.)	Leaf rust	<i>Solidago</i> species 321 (18)
<i>Gymnoconia peckiana</i> (Howe) Trott.	Orange rust (on leaves)	<i>Rubus canadensis</i> L.  <i>Rubus</i> species
<i>Gymnosporangium</i> <i>cornutum</i> Arth. ex Kern (= <i>Gymnosporangium</i> <i>aurantiacum</i> Chev.)	Rust gall (on leaves)	<i>Acer spicatum</i> Lam. 31, 105, 107 (43, 44)
		<i>Sorbus americana</i> Marsh 14, 32, 35, 44, 48, 56, 66, 69, 92, 104, 105, 106, 107, 110, 111, 115, 121, 139, 188, 227, 239, 247, 285, 328, 329, 330, 331, 332, 333 (1, 2, 3, 4, 5, 6, 7, 18, 40, 42, 43, 44, 45, 46, 47, 50, 55, 80)
		<i>Sorbus decora</i> (Sarg.) Schneid. 14, 108
		<i>Sorbus</i> species 108
<i>Gymnosporangium</i> species	Rust gall (on leaves)	<i>Amelanchier</i> species 35 (44)
		<i>Sorbus americana</i> Marsh 5, 228 (44, 52)
		<i>Sorbus aucuparia</i> L. 109
		<i>Sorbus decora</i> (Sarg.) Schneid. 57 (52)

Pathogen	Disease	Host
<i>Melampsora abietis-canadensis</i> Ludwig ex Arth.	Leaf rust	<i>Populus tremuloides</i> Michx. 35, 93, 103 (18, 50)
<i>Melampsora abietis-capraearum</i> Tub.	Leaf rust	<i>Salix bebbiana</i> Sarg.  <i>Salix</i> species 14, 35, 57, 77, 110, 188, 321 (18, 40, 54, 80)
<i>Melampsora epitea</i> Thüm.	Rust	<i>Populus tremuloides</i> Michx. 84, 272, 286 (43)
		<i>Pyrola</i> species 133 (18)
		<i>Salix discolor</i> Muhl.
		<i>Salix</i> species 84, 152, 229, 251, 272, 281, 286 (43, 53)
<i>Melampsora</i> species	Leaf rust	<i>Populus tremuloides</i> Michx. 35, 67, 84, 93, 103, 122, 325, 332, 333 (1, 21, 41)
		<i>Salix</i> species 149, 251, 320 (52)
<i>Melampsoridium betulinum</i> (Fr.) Kleb.	Leaf rust	<i>Betula papyrifera</i> Marsh. 188 (40, 80)
<i>Puccinia coronata</i> Cda.	Crown rust (on leaves)	<i>Rhamnus alnifolia</i> L'Hér.
<i>Puccinia porphyrogenita</i> Curt.	Leaf rust	<i>Cornus canadensis</i> L.
<i>Puccinia recondita</i> Rob. ex Desm.	Leaf rust	<i>Thalictrum polygamum</i> Muhl.
<i>Puccinia sparganioides</i> Ell. and Barth.	Leaf rust	<i>Amelanchier</i> species 78, 313 (43)

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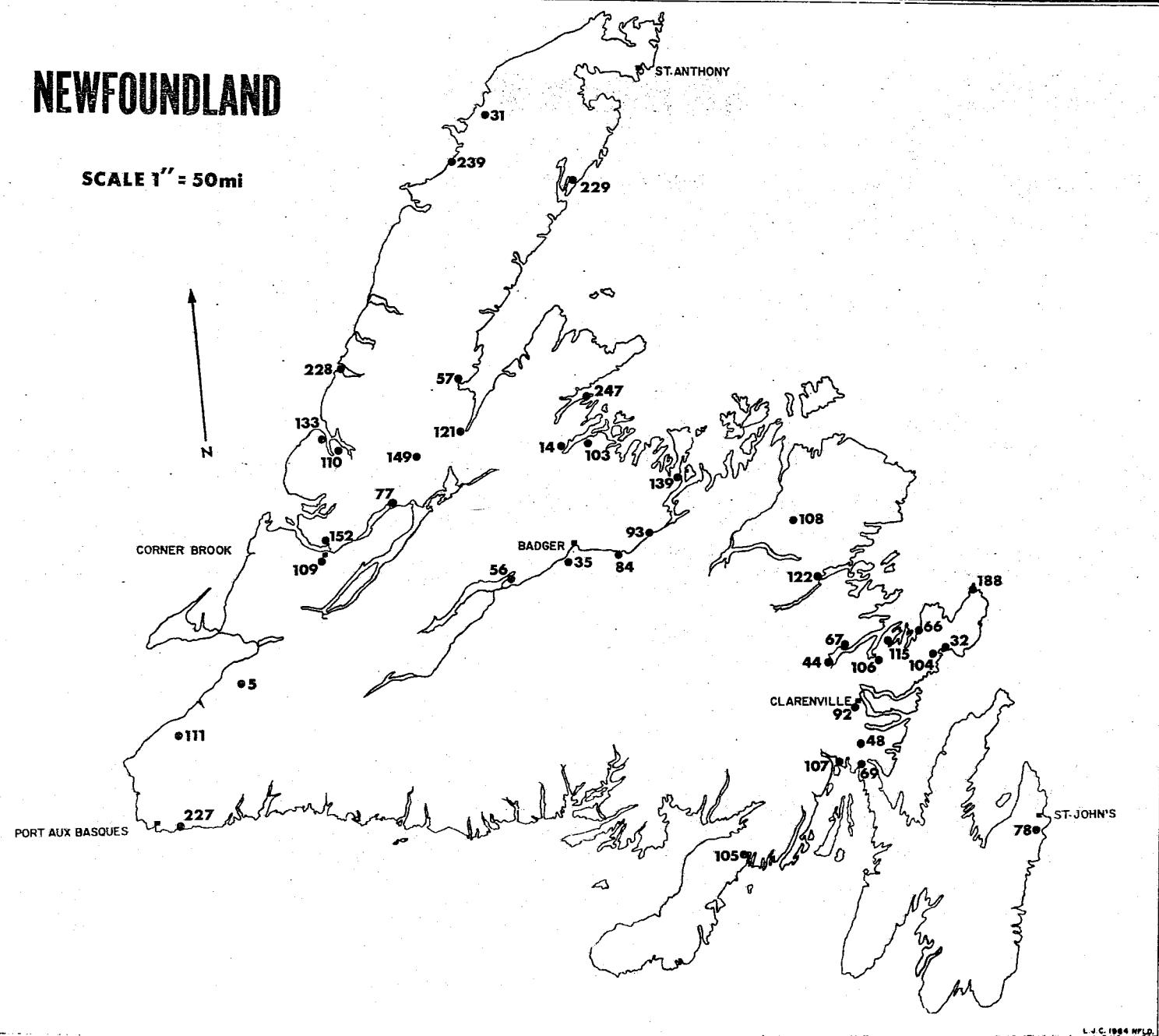


Fig. 11. Map showing 39 locations where leaf rusts of broadleaved trees were collected.

FOLIAGE DISEASES OF BROADLEAVED TREES - LEAF SPOTS

Pathogen	Disease	Host
<i>Cercospora salicina</i> Ell. & Ev.	Leaf spot	<i>Salix discolor</i> Muhl.
<i>Ciborinia whetzelii</i> (Seav.) Seav. (= <i>Ciborinia bifrons</i> (Whetz) Whetz.)	Ink spot	<i>Populus tremuloides</i> Michx. 7, 12, 14, 26, 35, 57, 63, 67, 68, 74, 84, 93, 95, 96, 97, 98, 99, 100, 101, 102, 122, 139, 160, 169, 218, 219, 220, 265, 325, 327, 331, 332, 333, 338 (1, 3, 4, 5, 6, 7, 8, 10, 14, 17, 21, 23, 24, 25B, 26, 28, 30A, 41, 44, 45, 46, 47, 48, 50, 54)
<i>Cladosporium humile</i> Davis (= <i>Venturia acerina</i> Plakidas, nom. nud.)	Leaf spot	<i>Acer rubrum</i> L. 112 (43)
<i>Cladosporium subsessile</i> Ell. and Barth.	Leaf spot	<i>Populus tremuloides</i> Michx. 14, 315 (15, 55)
<i>Cocomyces hiemalis</i> Higgins	Shot hole	<i>Prunus pensylvanica</i> L.f. 18, 221 (44, 45)
		<i>Prunus</i> species 331, 332, 333 (10)
		<i>Prunus virginiana</i> L. 93, 222 (6, 46)
<i>Cylindrosporium betulae</i> Davis	Leaf spot	<i>Betula papyrifera</i> Marsh. 18, 81, 88, 90, 127, 212, 223, 273, 274, 331, 332, 333 (3, 6, 23, 43, 44, 45, 46, 52)
<i>Cylindrosporium</i> species	Leaf spot	<i>Prunus pensylvanica</i> L.f. 93, 109, 275, 331 (52, 55)
<i>Elsinoë corni</i> Jenk. and Bot.	Leaf spot or anthracnose	<i>Cornus</i> species 120 (43)

Pathogen	Disease	Host
Gloeosporium apocryptum Ell. & Ev.	Large leaf spot	Acer rubrum L. 14, 16, 32, 36, 44, 48, 52, 56, 66, 67, 74, 104, 105, 113, 114, 117, 118, 119, 120, 141, 224, 225, 276, 279, 280, 328, 329, 331, 332, 333 (3, 4, 5, 6, 23, 25B, 26, 43, 44, 45, 46)
		Acer species 331, 332, 333 (24)
		Acer spicatum Lam. 14, 16, 32, 36, 44, 48, 52, 56, 66, 67, 74, 104, 105, 113, 114, 117, 118, 119, 121, 188, 224, 225, 276, 277, 278, 279, 280, 319, 328, 329, 331, 332, 333 (3, 4, 5, 6, 9, 10, 23, 25B, 26, 40, 43, 44, 45, 46, 48, 49, 80)
		Betula papyrifera Marsh. 188 (40, 80)
Gloeosporium species	Leaf spot	Betula papyrifera Marsh. 281 (53)
Gnomonia ulmea (Schw.) Thüm.	Leaf spot	Ulmus species 77 (18)
Gnomoniella coryli (Batsch ex Fr.) Sacc.	Leaf spot	Corylus cornuta Marsh.
Mycosphaerella colorata (Pk.) Earle	Leaf spot	Kalmia angustifolia L.
Mycosphaerella species	Leaf spot	Fraxinus species 35, 53 (43)
		Populus tremuloides Michx. 35, 47, 53, 328, 331, 332, 333 (3, 23, 43)
		Sorbus americana Marsh 107 (43)

Pathogen	Disease	Host
<i>Phleospora aceris</i> (Lib.) Sacc.	Small leaf spot	<i>Acer spicatum</i> Lam. 110 (18)
<i>Phleospora ulmi</i> (Fr.) Wallr.	Leaf spot	<i>Ulmus glabra</i> var. <i>camperdownii</i> Rehd. 135 (16)
<i>Phyllosticta minima</i> (Berk. & Curt.) Underw. & Earle	Leaf spot or purple eye spot	<i>Acer rubrum</i> L. 9, 12, 13, 14, 15, 24, 25, 44, 53, 112, 113, 114, 115, 167, 226, 279, 314, 328, 331, 332, 333 (1, 2, 3, 6, 40, 41, 43, 44, 45, 80)
		<i>Acer spicatum</i> Lam. 331, 332, 333 (6)
		<i>Sorbus americana</i> Marsh 44, 69 (46)
<i>Ramularia effusa</i> Pk.	Leaf spot	<i>Vaccinium</i> species
<i>Rhytisma acerinum</i> (Pers.) Fr.	Tar spot	<i>Acer rubrum</i> L.
		<i>Acer</i> species 331 (48, 49)
		<i>Acer spicatum</i> Lam. 14, 120, 331, 332, 333 (6, 7, 8, 9, 10, 30A, 47)
<i>Rhytisma punctatum</i> (Pers.) Fr.	Speckled tar spot	<i>Acer</i> species 331 (49)
		<i>Acer spicatum</i> Lam. 4, 24, 51, 110, 116, 283, 284, 331, 332, 333 (3, 6, 7, 9, 10, 23, 30A, 47, 52, 53, 55)
<i>Rhytisma salicinum</i> (Pers.) Fr.	Tar spot	<i>Salix discolor</i> Muhl.
		<i>Salix</i> species 35, 109, 180, 275, 282, 318, 331, 332, 333 (6, 7, 8, 43, 47, 52)

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Pathogen	Disease	Host
<i>Septoria betulae</i> (Lib.) West.	Leaf spot	<i>Betula papyrifera</i> Marsh. 71, 94, 121, 152, 191, 251. (15, 43, 52, 53, 55)

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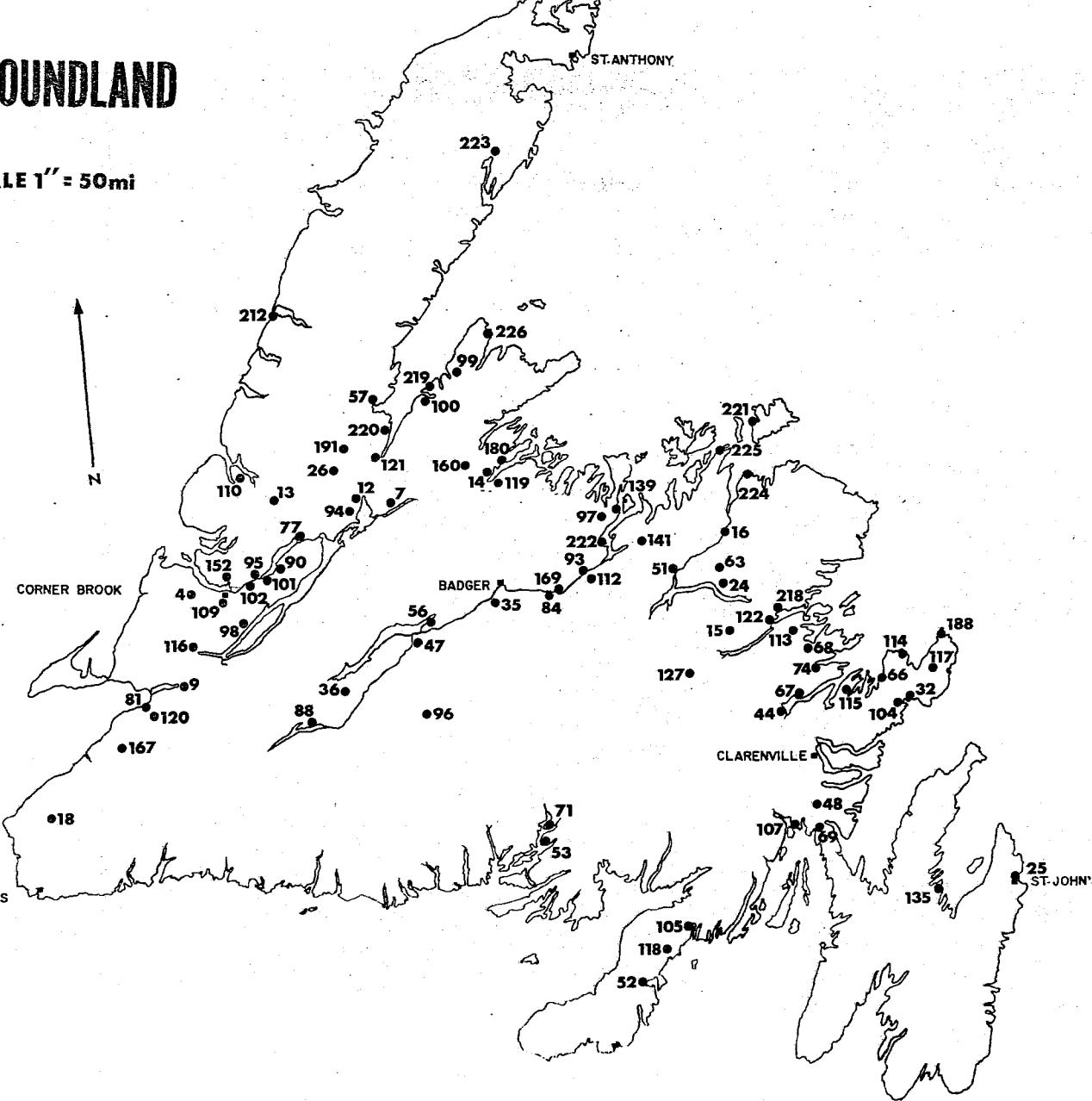


Fig. 12. Map showing 82 locations where leaf spots of broadleaved trees were collected.

FOLIAGE DISEASES OF BROADLEAVED TREES -- LEAF BLISTERS

Pathogen	Disease	Host
<i>Taphrina aurea</i> Fr.	Yellow leaf blister	<i>Populus nigra</i> L.
		<i>Populus nigra</i> var. <i>italica</i> Muenchh.
<i>Taphrina carnea</i> Johans.	Leaf blister	<i>Betula alleghaniensis</i> Britt. 101, 110 (43)
		<i>Betula papyrifera</i> Marsh.
<i>Taphrina confusa</i> (Afk.) Gies.	Pockets	<i>Prunus</i> species 331, 332, 333 (10)
		<i>Prunus virginiana</i> L. 3, 93 (6, 45)
<i>Taphrina populina</i> Fr.	Yellow leaf blister	<i>Populus</i> species 11 (21)
		<i>Populus tremuloides</i> Michx. 93 (6)
<i>Taphrina robinsoniana</i> Giesenh.	Catkin blister	<i>Alnus rugosa</i> (Du Roi) Spreng. 38, 44, 51, 93, 114, 179, 230, 269, 273, 280, 331, 332, 333 (5, 6, 18, 44, 45, 47)
		<i>Alnus rugosa</i> var. <i>americana</i> (Regel) Fern
		<i>Alnus</i> species 55, 195, 331, 332, 333 (7, 46, 47)
		<i>Betula alleghaniensis</i> Britt. 38 (45)
<i>Taphrina</i> species	Leaf blister	<i>Betula Alleghaniensis</i> Britt. 287 (43)
<i>Taphrina</i> species prob. <i>americana</i> Mix	Leaf blister	<i>Betula papyrifera</i> Marsh. 84 (57)
<i>Taphrina wiesneri</i> (Rathay) Mix	Witches'-broom	<i>Prunus pensylvanica</i> L.f.

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SCALE 1" = 50mi

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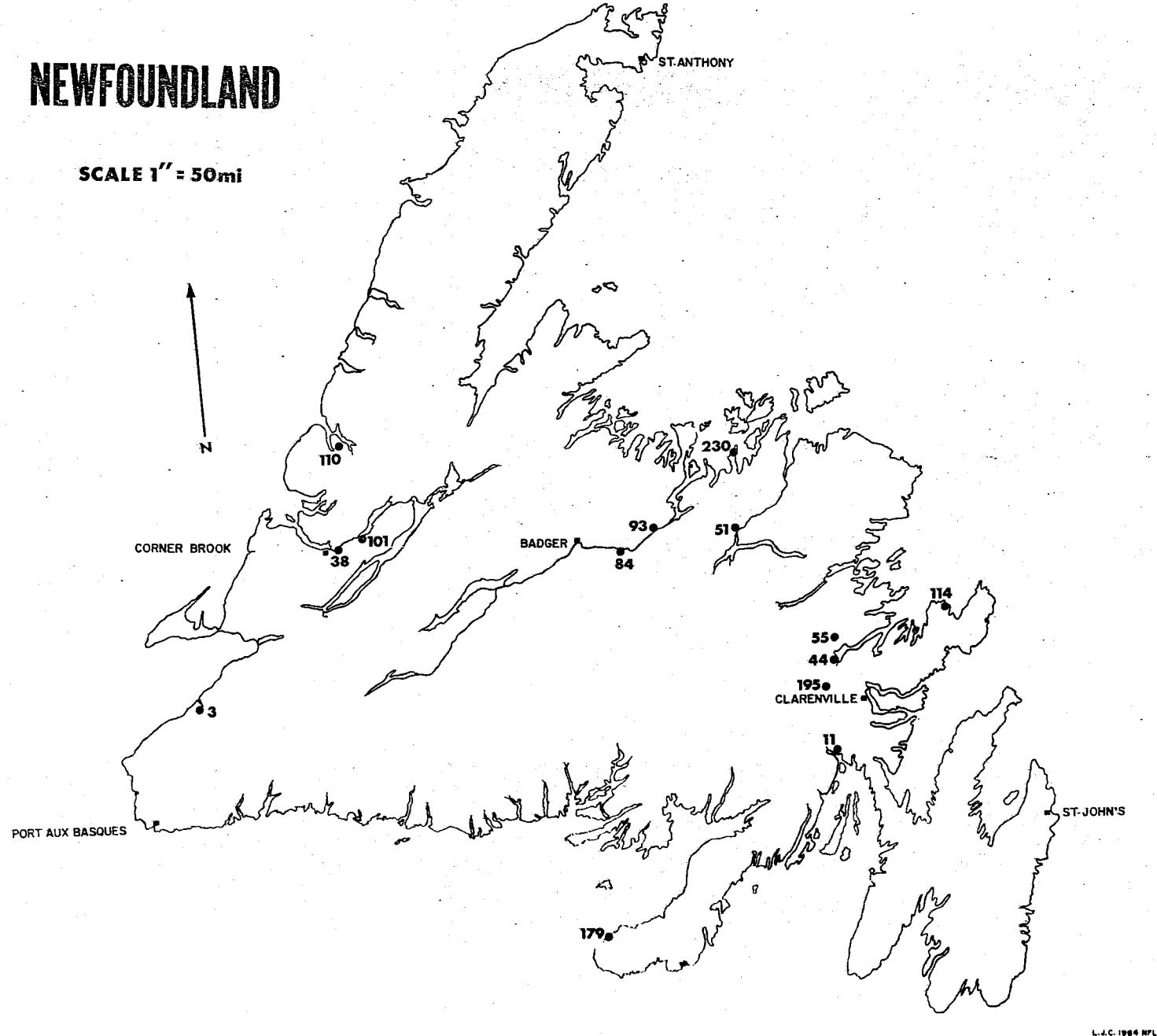


Fig. 13. Map showing 14 locations where leaf blisters of broadleaved trees were collected.

FOLIAGE DISEASES OF BROADLEAVED TREES - MILDEWS

Pathogen	Disease	Host
<i>Phyllactinia guttata</i> (Fr.) Lev.	Powdery mildew	<i>Alnus</i> species
		<i>Salix discolor</i> Muhl.
<i>Podosphaera clandestina</i> (Wallr. ex Fr.) Lev.	Powdery mildew	<i>Amelanchier</i> species
<i>Uncinula salicis</i> (DC. ex Méret) Wint.	Powdery mildew	<i>Salix discolor</i> Muhl.

FOLIAGE DISEASES OF BROADLEAVED TREES - MISCELLANEOUS

Pathogen	Disease	Host
Guignardia aesculi V.B. Stewart	Leaf blotch	Aesculus hippocastanum L. 25 (19)
Pollacia elegans Serv.	Leaf & shoot blight	Populus balsamifera L. 291 (11)
		Populus species 93, 109, 167, 331, 332, 333 (1, 5, 24, 44)
		Populus tremuloides Michx. 11, 12, 14, 15, 16, 22, 24, 28, 44, 54, 55, 63, 66, 68, 77, 84, 91, 92, 93, 104, 109, 113, 122, 133, 139, 159, 165, 168, 176, 180, 226, 259, 265, 280, 288, 289, 290, 311, 312, 331, 332, 333, 338 (1, 3, 5, 6, 21, 23, 25B, 26, 30A, 37B, 40, 41, 43, 44, 45, 46, 72A, 79, 81)
Pollacia radiososa (Lib.) Bald. & Cif.	Leaf & shoot blight	Populus balsamifera L. 121, 141, 159, 288 (7, 47)
		Populus species 14, 93, 94, 109, 167, 331, 332, 333 (1, 5, 24, 44)
		Populus tremuloides Michx. 11, 12, 14, 15, 16, 22, 24, 26, 28, 44, 47, 51, 54, 55, 62, 63, 66, 67, 68, 77, 84, 91, 92, 93, 94, 104, 109, 113, 121, 122, 123, 133, 139, 159, 165, 168, 176, 180, 185, 226, 259, 265, 280, 288, 289, 290, 311, 312, 331, 332, 333, 338 (1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 16, 17, 21, 23, 25B, 26, 30A, 36A, 37B, 40, 41, 43, 44, 45, 46, 47, 48, 49, 50, 53, 54, 55, 57, 72A, 79, 80, 81)

# NEWFOUNDLAND

SCALE 1" = 50mi

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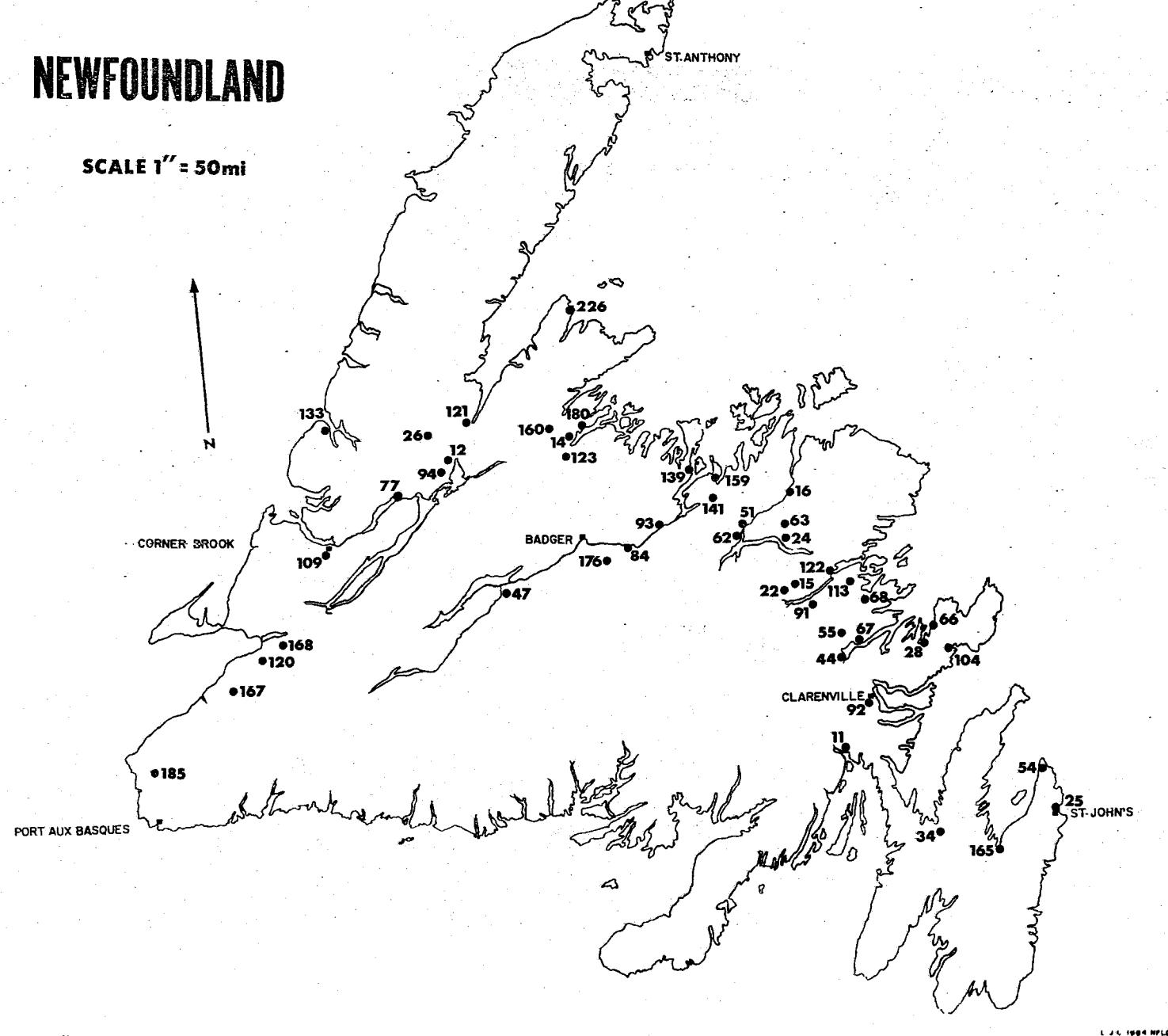


Fig. 14. Map showing 46 locations where miscellaneous foliage diseases of broadleaved trees were collected.

PHANEROGAMIC PARASITE - DWARF MISTLETOE

Pathogen	Disease	Host
<i>Arceuthobium pusillum</i> Peck.	Dwarf mistletoe	<i>Picea mariana</i> (Mill.) BSP. 14, 21, 35, 77, 81, 84, 87, 89, 95, 98, 153, 180, 191, 197, 292, 293, 331, 332, 333 (4, 5, 6, 7, 8, 9, 11, 12, 17, 26, 27, 29A, 30A, 32, 34, 45, 46, 47, 48, 49, 50, 52, 53, 54)

# NEWFOUNDLAND

SCALE 1" = 50mi

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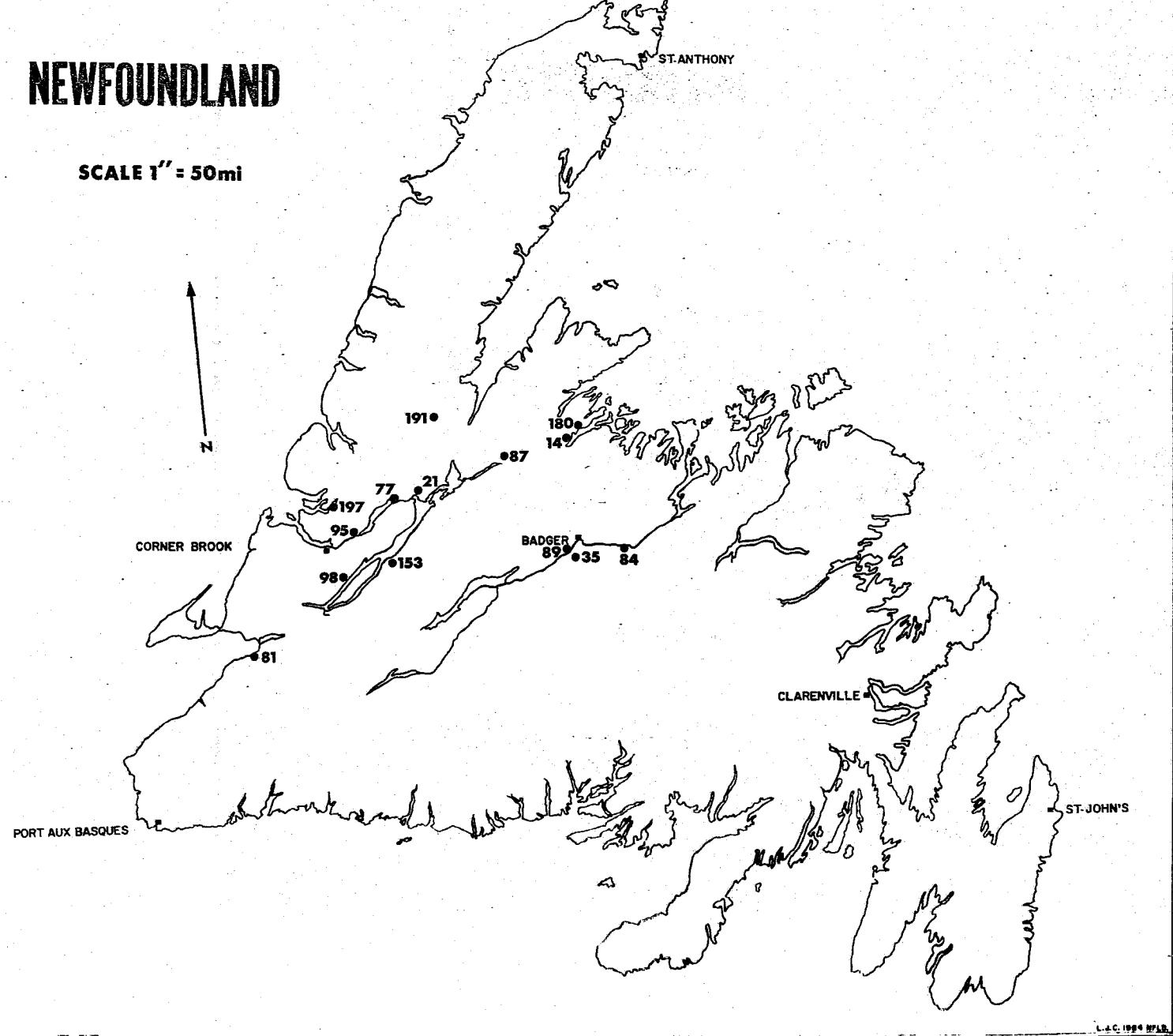


Fig. 15. Map showing 14 locations where dwarf mistletoe was collected.

NON-INFECTIONOUS DISEASES

<u>Causal agent</u>	<u>Damage</u>	<u>Host</u>
Animal	Animal damage - browsing, breaking & deformation	<i>Abies balsamea</i> (L.) Mill. 2, 7, 12, 19, 20, 21, 23, 35, 53, 55, 56, 57, 77, 79, 81, 87, 93, 94, 96, 98, 109, 113, 116, 124, 127, 133, 138, 149, 153, 160, 162, 169, 172, 189, 191, 197, 200, 231, 232, 233, 234, 235, 236, 237, 294, 295, 296, 297, 298, 309, 310, 324, 330 (29B, 30B, 31A, 35B, 36B, 37A, 45, 51, 52, 55, 69)
		<i>Abies</i> species 5, 9
		<i>Acer spicatum</i> Lam. 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Amelanchier</i> species 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Betula papyrifera</i> Marsh. 2, 7, 12, 19, 20, 21, 23, 35, 53, 55, 56, 57, 77, 79, 81, 87, 93, 94, 96, 98, 109, 113, 116, 124, 127, 133, 138, 149, 153, 160, 162, 169, 172, 189, 191, 197, 199, 200, 231, 232, 233, 234, 235, 236, 237, 294, 295, 296, 297, 298, 309, 310, 324, 330 (30B, 31A, 35B, 36B, 37A, 51, 52, 55, 78)
		<i>Cornus</i> species 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Larix leptolepis</i> (Sieb. & Zucc.) Gourd. 6

<u>Causal agent</u>	<u>Damage</u>	<u>Host</u>
Animal (Cont'd)		<i>Nemopanthus mucronata</i> (L.) Trel. 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Picea abies</i> (L.) Karst. 1, 4, 6, 49, 136, 143, 144, 145, 146.
		<i>Picea glauca</i> (Moench) Voss 7, 10, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Picea mariana</i> (Mill.) BSP. 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Picea sitchensis</i> (Bong.) Carr. 1, 4, 6
		<i>Pinus banksiana</i> Lamb. 49, 136, 143, 144, 145, 146 (78)
		<i>Pinus resinosa</i> Ait. 1, 49, 136, 143, 144, 145, 146
		<i>Pinus species</i> 308 (57)
		<i>Pinus sylvestris</i> L. 49, 136, 143, 144, 145, 146, 179 (78)
		<i>Populus tremuloides</i> Michx. 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Prunus pensylvanica</i> L.f. 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Pseudotsuga menziesii</i> (Mirb.) Franco 6-

Causal agent	Damage	Host
Animal (Cont'd)		<i>Salix</i> species 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Sorbus americana</i> Marsh 7, 20, 94, 127, 149, 172, 189, 237, 295, 310 (36B, 52)
		<i>Sorbus</i> species
		<i>Taxus canadensis</i> Marsh. 7, 20, 94, 127, 149, 172, 295, 310 (36B)
		<i>Viburnum cassinoides</i> L. 7, 20, 94, 127, 149, 172, 295, 310 (36B)
Chemical (Fumes - from pulp & paper mill)	Fume damage - death of foliage and young shoots	<i>Betula papyrifera</i> Marsh. - On trees 84, 109, 169 (7, 8, 27, 28, 47, 48)
		<i>Larix laricina</i> (Du Roi) K. Koch - On trees 84, 169 (8, 28, 47, 48)
		<i>Populus balsamifera</i> L. 84 (47)
Chemical (insecticide) - Aldrin	Chemical damage - browning of foliage and death of seedlings	<i>Picea omorika</i> (Pančić) Purkyne - On seedlings 90
		<i>Picea sitchensis</i> (Bong.) Carr. - On seedlings 90
Frost	Frost damage - browning and death, in late spring	<i>Abies alba</i> Mill. - On seedlings 22
	Frost damage - browning and death, in spring and summer	<i>Abies balsamea</i> (L.) Mill. On seedlings - 8, 9 (2, 42, 62, 73)

Causal agent	Damage	Host
Frost (Cont'd)	Frost damage - browning and death, in spring, summer, fall and winter	On trees - 4, 11, 17, 19, 25, 35, 48, 52, 54, 55, 56, 67, 77, 84, 95, 96, 98, 99, 104, 109, 121, 122, 127, 128, 133, 162, 172, 194, 223, 238, 240, 241, 264, 265, 268, 331, 332, 333, 340, 341 (7, 12, 13, 27, 32, 33, 40, 41, 47, 48, 49, 50, 51, 52, 53, 55, 72A, 73, 80)
	Frost damage - browning and death, in late spring	Abies species - On seedlings and trees 8, 9, 19, 22, 96, 172, 194, 331, 332 (2, 42, 62, 73)
	Frost damage - browning and death, in late spring	Abies Veitchii Lindl. 9 (62, 73)
	Frost damage - browning and death, in early summer	Acer spicatum Lam. - On trees 2, 37 (44)
	Frost damage - browning and death, in late spring	Fagus species - On trees 25
	Frost damage - browning and death, in late spring	Larix laricina (Du Roi) K. Koch On seedlings - 90 (21)
	Frost damage - browning and death, in late spring, summer, fall and winter	On trees - 11, 25, 35, 52, 56, 122, 127, 128, 268 (47, 53)
	Frost damage - browning and death, in late spring	Larix leptolepis (Sieb. & Zucc.) Gourd. - On seedlings 22

Causal agent	Damage	Host
Frost (Cont'd)	Frost damage - browning and death, in spring and late summer	<i>Larix occidentalis</i> Nutt. - On seedlings 22, 131 (1, 21, 41)
	Frost damage - browning and death, in late spring	<i>Picea abies</i> (L.) Karst. - On seedlings 90 (21)
	Frost damage - browning and death, in summer, fall and winter	<i>Picea glauca</i> (Moench) Voss 4, 19, 35, 77, 95, 96, 109, 121, 133, 172, 194, 223, 241, 331, 332, 333 (12, 32, 47, 48, 52, 55, 73)
	Frost damage - browning and death, in late spring	<i>Picea jezoensis</i> (Sieb. & Zucc.) Carr. - On seedlings 22
	Frost damage - browning and death, in late spring	<i>Picea mariana</i> (Mill.) BSP. On seedlings - 22, 84
	Frost damage - browning and death, in spring and summer	On trees - 6, 17, 18, 19, 25, 26, 35, 56, 84, 96, 122, 127, 128, 172, 194 (41, 47, 48, 50, 55, 73)
	Frost damage - browning and death, in late spring	<i>Picea sitchensis</i> (Bong.) Carr. - On seedlings 90 (21)
	Frost damage - browning and death, in late spring	<i>Picea</i> species On seedlings - 22
	Frost damage - browning and death, in late spring	On trees - 19, 25, 35, 56, 96, 122, 127, 128, 268, 341 (13, 50, 53, 62)
	Frost damage - browning and death, in late spring	<i>Pinus banksiana</i> Lamb. - On seedlings 90 (21)

Causal agent	Damage	Host
Frost (Cont'd)	Frost damage - browning and death, in late fall	<i>Pinus nigra</i> var. <i>poiretiana</i> (Ant.) Aschers. & Graebn. - On seedlings 22
	Frost damage - browning and death, in late spring	<i>Thuja occidentalis</i> L. - On seedlings 90 (21)
	Frost damage - browning and death, in late spring	<i>Thuja plicata</i> D. Don - On seedlings 90
Heaving	Heaving - Uprooting and death of seedlings	<i>Abies nordmanniana</i> (Stev.) Spach. 22
		<i>Larix leptolepis</i> (Sieb. & Zucc.) Gourd. 22
		<i>Larix</i> species 299 (58)
		<i>Picea mariana</i> (Mill.) BSP. 69, 330 (58, 67)
		<i>Picea</i> species 299 (58)
		<i>Pinus densiflora</i> Sieb. & Zucc. 22
		<i>Pinus</i> species 299 (58)
Salt	Salt injury	<i>Juniperus</i> species 59
		<i>Picea mariana</i> (Mill.) BSP. 59, 343
Snow and Ice	Snow and ice damage - breakage and killing	<i>Abies balsamea</i> (L.) Mill. 21, 25, 34, 35, 38, 48, 69, 77, 90, 92, 107, 109, 116, 131, 134, 137, 138, 140, 153, 176, 242, 300, 301,

Causal agent	Damage	Host
Snow and Ice (Cont'd)	302, 330 (8, 9, 28, 29A, 40, 41, 48, 49, 62, 70, 72A)	<i>Betula papyrifera</i> Marsh. 21, 25, 34, 38, 69, 77, 90, 97, 109, 129, 130, 141, 142, 300, 303, 305, 306 (6, 26, 40, 46, 70, 72A)
		<i>Larix laricina</i> (Du Roi) K. Koch 21, 25, 34, 38, 69, 77, 90, 92, 107, 109, 129, 130, 137, 138, 141, 142, 300, 305, 306 (6, 9, 26, 29A, 40, 41, 46, 49, 70, 72A)
		<i>Picea mariana</i> (Mill.) BSP. 21, 25, 34, 38, 48, 69, 77, 90, 92, 97, 107, 109, 129, 130, 138, 140, 141, 142, 300, 303, 305, 306, 330 (6, 26, 40, 41, 46, 70, 72A)
		<i>Picea sitchensis</i> (Bong.) Carr. 4, 6, 25 (62)
		<i>Picea</i> species 25, 34, 48, 69, 92, 107, 138 (9, 29A, 49, 62, 70)
		<i>Pinus resinosa</i> Ait. 1, 25, 113 (62)
		<i>Pinus</i> species 25, 135, 136
		<i>Populus tremuloides</i> Michx. 25, 34, 69, 97, 109, 129, 130, 141, 142, 300, 303, 305, 306 (6, 26, 46, 70, 72A)
Unknown factor	Purple foliage	<i>Larix laricina</i> (Du Roi) K. Koch 90

Causal agent	Damage	Host
Water excess	Water excess injury - asphyxiation	<i>Picea glauca</i> (Moench) Voss 10 (62)
Winter	Winter killing	<i>Abies balsamea</i> (L.) Mill. 10, 25, 34, 38, 39, 44, 48, 64, 66, 77, 88, 92, 96, 104, 106, 109, 110, 116, 131, 132, 133, 134, 135, 151, 164, 171, 182, 185, 188, 193, 198, 243, 244, 245, 246, 250, 257, 264, 267, 291, 304, 324, 328, 331, 342 (6, 7, 8, 12, 26, 27, 28, 32, 33, 46, 47, 48, 50, 52, 53, 66)
		<i>Larix laricina</i> (Du Roi) K. Koch 44, 92, 198, 291 (47)
		<i>Larix occidentalis</i> Nutt. 22
		<i>Picea glauca</i> (Moench) Voss 193 (52)
		<i>Picea mariana</i> (Mill.) BSP. - On seedlings 22, 84
		<i>Pinus banksiana</i> Lamb. - On seedlings 90, 179, 188 (48)
		<i>Pinus nigra</i> var. <i>poiretiana</i> (Ant.) Aschers. & Graebn. 22
		<i>Pinus resinosa</i> Ait. 25, 113, 122, 135, 136 (8, 12, 28, 32, 48, 51, 52)
		<i>Pinus species</i> 44, 92, 135, 136, 179, 188, 198, 291 (8, 28, 32, 47, 52)
		<i>Pinus sylvestris</i> L. 135, 136, 188, 199 (12, 51)

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SCALE 1" = 50mi

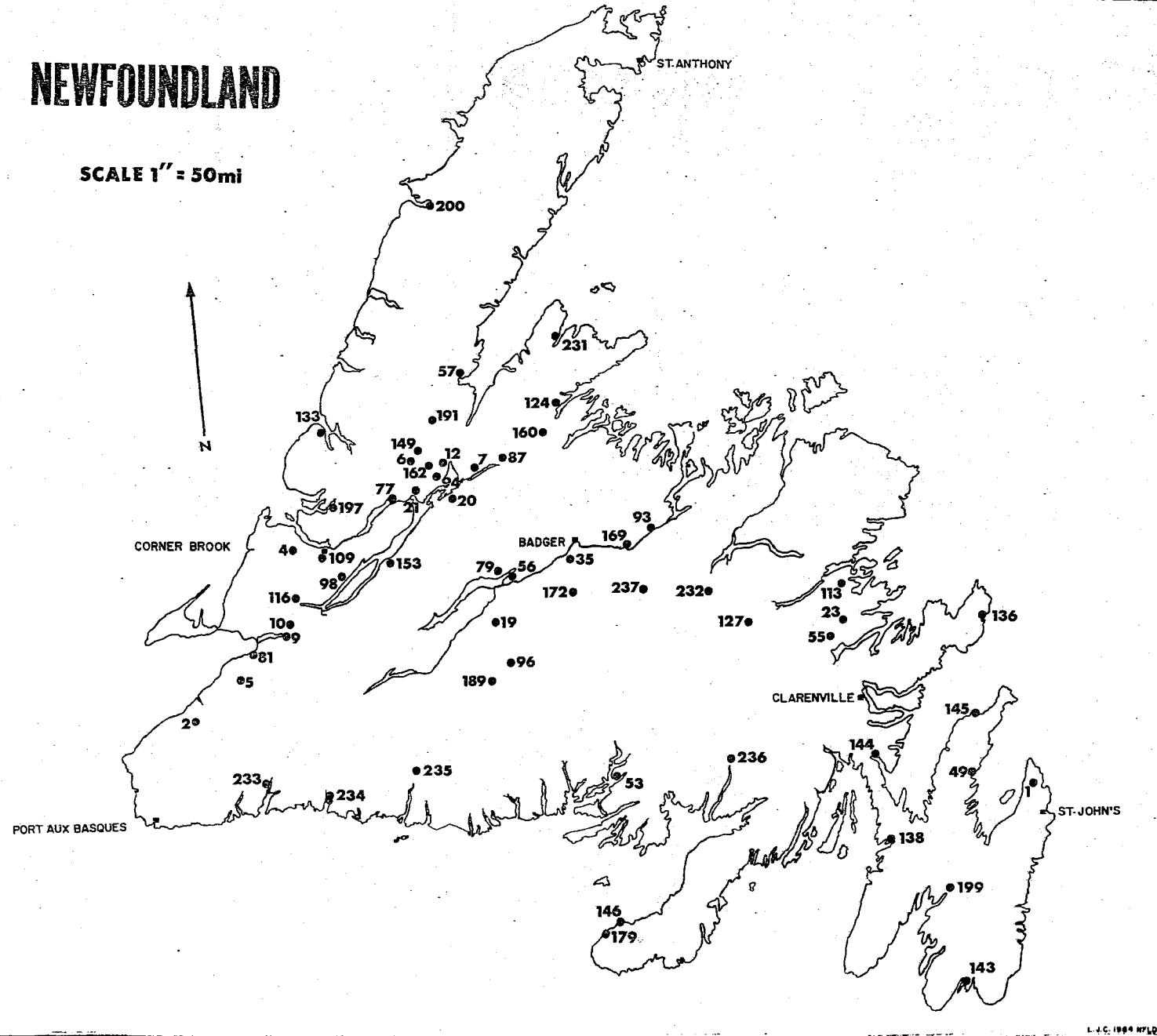


Fig. 16. Map showing 58 locations where animal damage was observed.

# NEWFOUNDLAND

SCALE 1" = 50mi

N

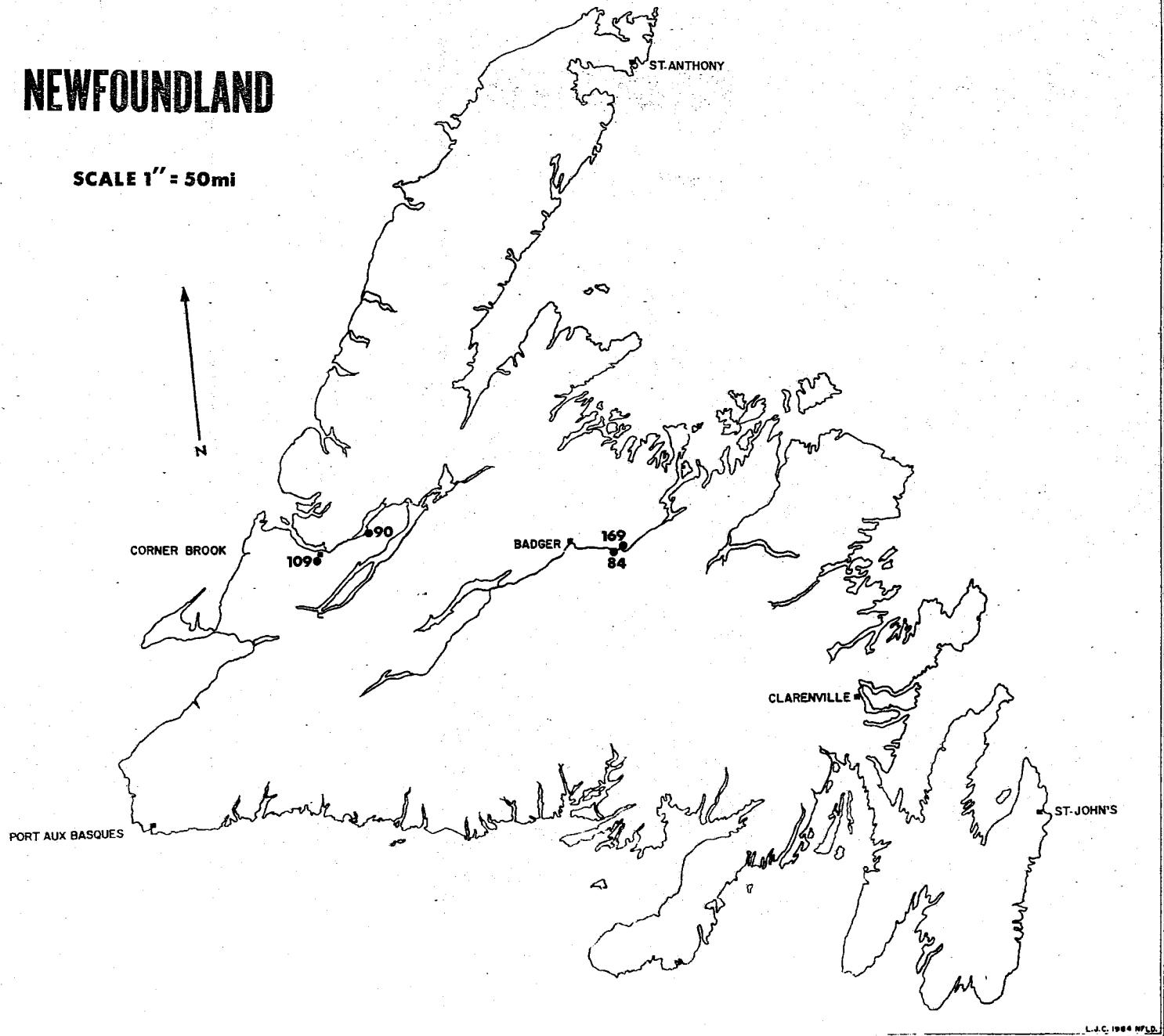


Fig. 17. Map showing 4 locations where chemical damage was observed.

# NEWFOUNDLAND

SCALE 1" = 50mi

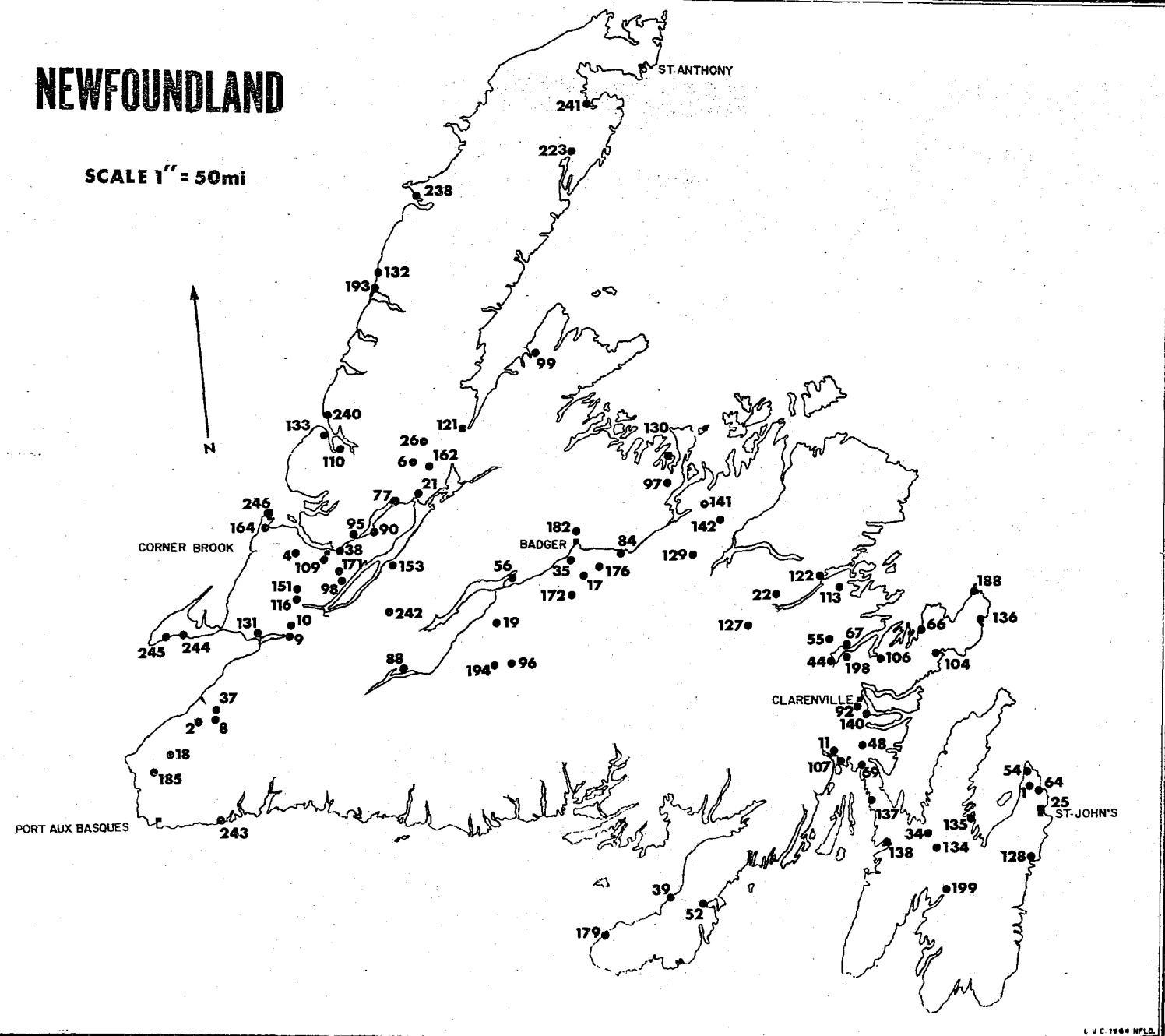
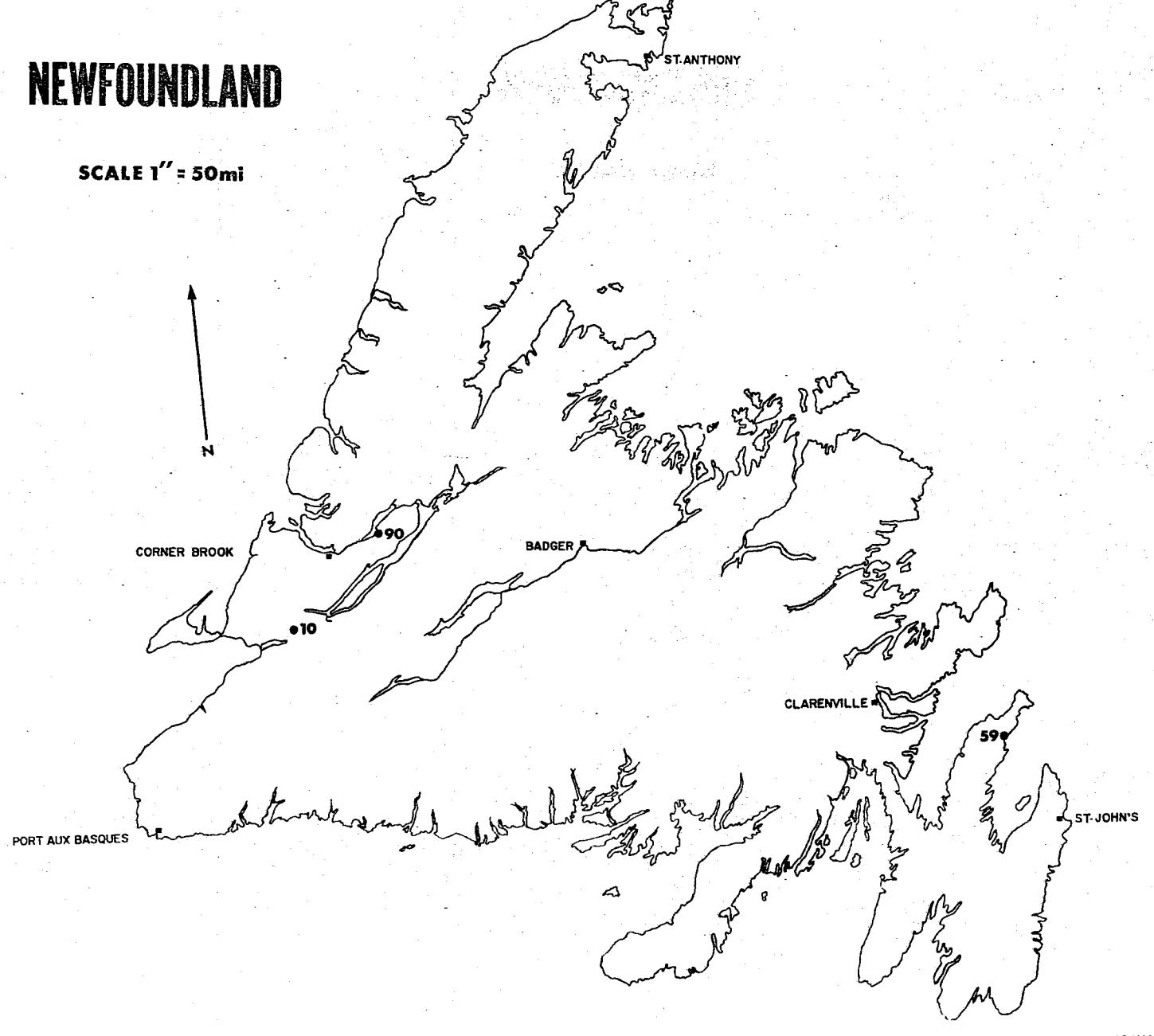


Fig. 18. Map showing 88 locations where frost, heaving, snow & ice, & winter drying were observed.

# NEWFOUNDLAND

SCALE 1" = 50mi

N



L.A.C. 1964 NFLO

Fig. 19. Map showing 3 locations where salt, unknown & water excess damage was observed.

PREFACE TO HOST INDEX

In this index, the hosts are arranged alphabetically by their scientific names, followed by the appropriate common name with its abbreviation in parenthesis. The pathogenic fungi, phanerogamic parasites, animals and abiotic factors causing different types of damage are also arranged alphabetically under their appropriate hosts regardless of their taxonomic status.

HOST INDEX

*ABIES ALBA* Mill., silver fir (sF)

Frost

On seedlings (in late spring)

*ABIES BALSAMEA* (L.) Mill., balsam fir (bF)

*Aleurodiscus amorphus* (Pers. ex Fr.) Schroet.

*Alternaria tenuis* auct. sensu Wiltshire

Animal

*Armillaria mellea* (Vahl ex Fr.) Kummer

*Bothrodiscus pinicola* Shear

*Cephalosporium* species

*Ceratocystis* species

*Chlorosplenium aeruginosum* (Oed. ex S.F. Gray) de Not.

*Coniophora puteana* (Schum. ex Fr.) Karst.

*Coriolellus heteromorphus* (Fr.) Bond. & Singer

*Coriolellus* species (?*heteromorphus* or *variiformis*)

*Corticium galactinum* (Fr.) Burt

*Corticium pini-canadensis* (Schw.) Jacks. & Rogers

*Creonectria cucurbitula* (Sacc.) Seav.

*Daedalea* species

*Dermea balsamea* (Pk.) Seav.

*Fomes pini* (Brot. ex Fr.) Karst.

*Fomes pinicola* (Sw. ex Fr.) Cke.

Frost

On seedlings (in spring & summer)

On trees (in spring, summer, fall & winter)

- Fusicoccum abietinum* (Hartig) Prill. & Del.  
*Hymenochaete tabacina* (Sow. ex Fr.) Lév.  
*Isthmiella faullii* (Darker) Darker  
*Kirschsteiniella thujina* (Pk.) Pomerleau and Etheridge  
*Lenzites saeparia* (Wulf. ex Fr.) Fr.  
*Lenzites* species  
*Lirula nervata* (Darker) Darker  
*Lophodermium* species  
*Melampsorella caryophyllacearum* Schroet.  
*Milesia fructuosa* Faull  
*Milesia* species  
*Nectria* species  
*Odontia bicolor* (A. and S.) Bres.  
*Phaeocryptopus nudus* (Pk.) Petrak  
*Polyporus abietinus* Dicks. ex Fr.  
*Polyporus balsameus* Pk.  
*Polyporus biformis* Klotsch ex Fr.  
*Polyporus mollis* Pers. ex Fr.  
*Polyporus* species  
*Poria candidissima* (Schw.) Cke.  
*Pucciniastrum epilobii* Otth  
*Rehmiellopsis balsameae* Waterman  
*Retinocyclus abietis* (Crouan) Groves and Wells  
*Rhizosphaera abietis* Mang. & Har.  
*Rhizothyrium abietis* Naum.  
*Schizophyllum commune* Fr.

Snow and ice

*Stereum chailletii* (Pers. ex Fr.) Fr.

*Stereum sanguinolentum* (Alb. & Schw. ex Fr.) Fr.

*Stereum* species

*Trametes* species

*Uredinopsis* species

Winter

*ABIES HOLOPHYLLA* Maxim., needle fir

*Armillaria mellea* (Vahl ex Fr.) Kummer

*ABIES HOMOLEPIS* Sieb. & Zucc., Nikko fir

*Armillaria mellea* (Vahl ex Fr.) Kummer

*ABIES MARIÉSII* Mast., Maries fir

*Armillaria mellea* (Vahl ex Fr.) Kummer

*ABIES MAYRIANA* Miyabe & Kudo

*Armillaria mellea* (Vahl ex Fr.) Kummer

*ABIES NORDMANNIANA* (Stev.) Spach., caucasian or Nordmann's fir

Heaving

*ABIES SACHALINENSIS* Mast., Saghalin fir

*Armillaria mellea* (Vahl ex Fr.) Kummer

*ABIES SP.*, fir (F)

Animal

*Armillaria mellea* (Vahl ex Fr.) Kummer

Frost

On seedlings (in late spring)

*ABIES VEITCHII* Lindl., Veitch's silver fir or Veitch fir

*Armillaria mellea* (Vahl ex Fr.) Kummer

Frost

On seedlings (in late spring)

ACER PSEUDOPLATANUS L., sycamore maple (~M)

Nectria cinnabrina Tode ex Fr.

ACER RUBRUM L., red maple (rM)

Cladosporium humile Davis

Cytospora species

Gloeosporium apocryptum Ell. & Ev.

Nectria cinnabrina Tode ex Fr.

Phyllosticta minima (Berk. & Curt.) Underw. & Earle

Rhytisma acerinum (Pers.) Fr.

ACER SP., maple (M)

Gloeosporium apocryptum Ell. & Ev.

Nectria cinnabrina Tode ex Fr.

Rhytisma acerinum (Pers.) Fr.

Rhytisma punctatum (Pers.) Fr.

ACER SPICATUM Lam., mountain maple (moM)

Animal

Frost

On trees (in early summer)

Gloeosporium apocryptum Ell. & Ev.

Gymnosporangium cornutum Arth. ex Kern

Hymenochaete tabacina (Sow. ex Fr.) Lév.

Hypoxyton multifforme Fr.

Phleospora aceris (Lib.) Sacc.

Phyllosticta minima (Berk. & Curt.) Underw. & Earle

- Rhytisma acerinum (Pers.) Fr.
- Rhytisma punctatum (Pers.) Fr.
- AESCULUS HIPPOCASTANUM L., horse chestnut
- Guignardia aesculi V.B. Stewart
- ALNUS CRISPA (Ait.) Pursh, green alder (gAl)
- Nectria coccinea Pers. ex Fr.
- Peniophora species
- ALNUS RUGOSA (Du Roi) Spreng., speckled alder (spAl)
- Chlorosplenium aeruginosum (Oed. ex S.F. Gray) de Not.
- Cytospora species
- Hypoxyton fuscum Pers. ex Fr.
- Hypoxyton mammatum (Wahl.) Miller
- Peniophora aurantiaca (Bres.) Höhn. & Litsch.
- Peniophora species
- Polyporus versicolor L. ex Fr.
- Taphrina robinsoniana Giesenh.
- ALNUS RUGOSA var. AMERICANA (Regel) Fern, speckled alder (spAl)
- Hymenochaete tabacina (Sow. ex Fr.) Lev.
- Peniophora aurantiaca (Bres.) Höhn. & Litsch.
- Schizophyllum commune Fr.
- Taphrina robinsoniana Giesenh.
- ALNUS SP., alder (Al)
- Corticium leucoxanthum Bres.
- Cytidia salicina (Fr.) Burt
- Hymenochaete tabacina (Sow. ex Fr.) Lev.

*Hypoxyylon mammatum* (Wahl.) Miller  
*Panus stipticus* (Bull. ex Fr.) Fr.  
*Peniophora aurantiaca* (Bres.) Höhn. & Litsch.  
*Phyllactinia guttata* (Fr.) Lev.  
*Polyporus albellus* Pk.  
*Poria ferrea* (Pers.) Bourd. & Galz.  
Poria species  
*Stereum ochraceoflavum* (Schw.) Ell.  
*Stereum rugosum* Fr.  
*Taphrina robinsoniana* Giesenh.

AMELANCHIER BARTRAMIANA (Tausch) Roem., bartram's serviceberry (bSe)

Gymnosporangium species  
AMELANCHIER LAEVIS Wieg., allegheny serviceberry (aSe)

Gymnosporangium species  
AMELANCHIER SANGUINEA (Pursh) DC., roundleaf serviceberry (rSe)

Gymnosporangium species  
AMELANCHIER SP., serviceberry (Se)

Animal  
*Apiosporina collinsii* (Schw.) Höhn.  
Gymnosporangium claviceps (Cke. & Pk.) Cke. & Pk.  
Gymnosporangium species  
*Podosphaera clandestina* (Wallr. ex Fr.) Lev.

*Puccinia sparganioides* Ell. & Barth.

BETULA ALLEGHANIENSIS Britt., yellow birch (yB)

*Fomes fomentarius* (L. ex Fr.) Kickx  
*Fomes igniarius* (L. ex Fr.) Kickx

*Hypoxylon multififorme* Fr.

*Polyporus albellus* Pk.

*Taphrina carnea* Johans.

*Taphrina robinsoniana* Giesenh.

*Taphrina* species

*BETULA PAPYRIFERA* Marsh., white birch (wB)

Animal

*Armillaria mellea* (Vahl ex Fr.) Kummer

Chemical (fumes) on trees

*Cylindrosporium betulae* Davis

*Daedalea unicolor* Bull. ex Fr.

*Diatrypella betulina* Pk.

*Fomes fomentarius* (L. ex Fr.) Kickx

*Fomes igniarius* (L. ex Fr.) Kickx

*Fomes pinicola* (Sw. ex Fr.) Cke.

*Fomes robustus* Karst.

*Fomes* species

*Ganoderma applanatum* (Pers. ex Wallr.) Pat.

*Gloeosporium apocryptum* Ell. & Ev.

*Gloeosporium* species

*Hymenochaete tabacina* (Sow. ex Fr.) Lev.

*Hypoxylon multififorme* Fr.

*Melampsoridium betulinum* (Fr.) Kleb.

*Panus laevis* Berk. & Curt.

*Panus stipticus* (Bull. ex Fr.) Fr.

*Peniophora aspera* (Pers.) Sacc.

Peniophora species

*Polyporus albellus* Pk.

*Polyporus arcularis* Batsch ex Fr.

*Polyporus betulinus* Bull. ex Fr.

*Polyporus brumalis* Pers. ex Fr.

*Polyporus pargamenus* Fr.

*Polyporus pubescens* Schum. ex Fr.

*Polyporus velutinus* Fr.

*Polyporus versicolor* L. ex Fr.

*Pycnoporus cinnabarinus* (Jacq. ex Fr.) Karst.

*Schizophyllum commune* Fr.

*Septoria betulae* (Lib.) West.

Snow and ice

*Stereum hirsutum* (Willd. ex Fr.) S.F. Gray

*Stereum ostrea* Blume & Nees ex Fr.

*Stereum purpureum* (Pers. ex Fr.) Fr.

*Stereum rugosum* Fr.

*Taphrina carneae* Johans.

*Taphrina* species prob. *americana* Mix

BETULA SP., birch (B)

*Polyporus pubescens* Schum. ex Fr.

*Polyporus versicolor* L. ex Fr.

*Pycnoporus cinnabarinus* (Jacq. ex Fr.) Karst.

CONIFEROUS WOOD AND SLASH

*Corticium galactinum* (Fr.) Burt

*Corticium sulphureum* (Pers. ex Fr.) Fr.

CORNUS CANADENSIS L., bunch berry, dwarf cornel or dwarf dogwood (dDo)

Puccinia porphyrogenita Curt.

CORNUS SP., dogwood

Animal

Elsinoë corni Jenk. and Bot.

CORYLUS CORNUTA Marsh., beaked hazelnut

Gnomoniella coryli (Batsch ex Fr.) Sacc.

EPILOBIUM ANGUSTIFOLIUM L., great willow herb or fireweed

Pucciniastrum epilobii Otth

FAGUS SP., beech (Be)

Frost

On trees (in late spring)

Nectria species

FRAXINUS SP., ash

Mycosphaerella species

JUNIPERUS SP., juniper (J)

Salt

KALMIA ANGUSTIFOLIA L., sheep laurel

Mycosphaerella colorata (Pk.) Earle

LARIX LARICINA (Du Roi) K. Koch, tamarack (tL)

Armillaria mellea (Vahl ex Fr.) Kummer

Chemical (fumes) on trees

Frost

On seedlings (in late spring)

On trees (in late spring, summer, fall and winter)

Hypoderella laricis v. Tub.

*Melampsora medusae* Thüm.

Snow and ice

Unknown (Purple foliage)

Winter

LARIX LEPTOLEPIS (Sieb. & Zucc.) Gourd., Japanese larch (jL)

Animal

*Armillaria mellea* (Vahl ex Fr.) Kummer

Frost

On seedlings (in late spring)

Heaving

*Hypodermella laricis* v. Tub.

*Hypodermella* species

LARIX OCCIDENTALIS Nutt., western larch (wL)

Frost

On seedlings (in spring and late summer)

Winter

LARIX SP., larch (L)

Heaving

NEMOPANTHUS MUCRONATA (L.) Trel., mountain holly

Animal

PICEA ABIES (L.) Karst., Norway spruce (nS)

Animal

*Armillaria mellea* (Vahl ex Fr.) Kummer

Frost

On seedlings (in late spring)

PICEA GLAUCA (Moench) Voss, white spruce (wS)

Animal

*Armillaria mellea* (Vahl ex Fr.) Kummer

*Chrysomyxa empetri* Schroet. ex Cummins

*Chrysomyxa ledi* de Bary

*Chrysomyxa ledicola* Lagerh.

*Chrysomyxa* species

*Fomes pini* (Brot. ex Fr.) Karst.

*Fomes pinicola* (Sw. ex Fr.) Cke.

Frost

On trees (in summer, fall & winter)

*Isthmiella crepidiformis* (Darker) Darker

*Lirula macrospora* (Hartig) Darker

*Melampsorella caryophyllacearum* Schroet.

*Meliola pinicola* Dearn.

*Polyporus picipes* Fr.

*Polyporus schweinitzii* Fr.

*Polyporus tomentosus* Fr.

*Poria* species

Water excess

Winter

PICEA JEZOENSIS (Sieb. & Zucc.) Carr., hondo or yezo spruce

Frost

On seedlings (in late spring)

PICEA MARIANA (Mill.) BSP., black spruce (bS)

Animal

*Arceuthobium pusillum* Peck.

*Armillaria mellea* (Vahl ex Fr.) Kummer

*Chrysomyxa ledi* de Bary

*Chrysomyxa ledicola* Lagerh.

*Chrysomyxa* species

*Coriolellus variiformis* (Pk.) Sarkar

*Corticium notabile* Jackson

*Fomes pini* (Brot. ex Fr.) Karst.

*Fomes pinicola* (Sw. ex Fr.) Cke.

*Fomes* species

Frost

On seedlings (in late spring)

On trees (in spring & summer)

*Ganoderma applanatum* (Pers. ex Wallr.) Pat.

Heaving

*Isthmiella crepidiformis* (Darker) Darker

*Lenzites saepiaria* (Wulf. ex Fr.) Fr.

*Lenzites* species

*Lirula macrospora* (Hartig) Darker

*Melampsorella caryophyllacearum* Schroet.

*Peniophora septentrionalis* Laurila

*Phacidium infestans* Karst.

*Phacidium* species

*Polyporus abietinus* Dicks. ex Fr.

*Polyporus adustus* Willd. ex Fr.

*Polyporus schweinitzii* Fr.

Polyporus species

Polyporus tomentosus Fr.

Poria candidissima (Schw.) Cke.

Poria species

Salt

Snow and ice

Winter

PICEA OMORIKA (Pančić) Purkyne, Serbian spruce

Chemical (Insecticide) - Aldrin

PICEA RUBENS Sarg., red spruce (rS)

Armillaria mellea (Vahl ex Fr.) Kummer

PICEA SITCHENSIS (Bong.) Carr., Sitka spruce (SS)

Animal

Armillaria mellea (Vahl ex Fr.) Kummer

Chemical (Insecticide) - Aldrin

Frost

On seedlings (in late spring)

Snow and ice

PICEA SITCHENSIS X GLAUCA

Armillaria mellea (Vahl ex Fr.) Kummer

PICEA SP., spruce (S)

Armillaria mellea (Vahl ex Fr.) Kummer

Chrysomyxa empetri Schroet. ex Cummins

Chrysomyxa ledi de Bary

Chrysomyxa ledicola Lagerh.

Chrysomyxa species

*Corticium galactinum* (Fr.) Burt

*Corticium laeve* Pers. ex Fr.

*Corticium pelliculare* Karst.

*Fomes pini* (Brot. ex Fr.) Karst.

Frost

On seedlings (in late spring)

On trees (in late spring)

Heaving

*Hymenochaete tabacina* (Sow. ex Fr.) Lev.

*Isthmiella crepidiformis* (Darker) Darker

*Lenzites saeparia* (Wulf. ex Fr.) Fr.

*Lophodermium* species

*Peniophora gigantea* (Fr.) Massee

*Peniophora separans* Burt

*Phacidium infestans* Karst.

*Polyporus abietinus* Dicks. ex Fr.

*Polyporus borealis* Fr.

*Polyporus fibrillosus* Karst.

*Polyporus semipileatus* Pk.

Snow and ice

*Stereum sanguinolentum* (Alb. & Schw. ex Fr.) Fr.

PINUS BANKSIANA Lamb., jack pine (jP)

Animal

Frost

On seedlings (in late spring)

*Lophodermium pinastri* (Schrad. ex Hook.) Chev.

Winter

PINUS DENSIFLORA Sieb. & Zucc., Japanese red pine

Heaving

PINUS NIGRA Arnold, Austrian pine

Dothistroma pini Hulb.

PINUS NIGRA var. POIRETTIANA (Ant.) Aschers. & Graebn., corsican pine

Frost

On seedlings (in late fall)

Winter

PINUS RESINOSA Ait., red pine (rP)

Animal

Armillaria mellea (Vahl ex Fr.) Kummer

Coleosporium asterum (Diet.) Syd.

Dothistroma pini Hulb.

Lophodermium pinastri (Schrad. ex Hook.) Chev.

Snow and ice

Winter

PINUS SP., pine (P)

Animal

Heaving

Lophodermium pinaatri (Schrad. ex Hook.) Chev.

Lophodermium species

Snow and ice

Winter

PINUS STROBUS L., eastern white pine (ewP)

Armillaria mellea (Vahl ex Fr.) Kummer

*Cronartium ribicola* J.C. Fischer

*Cucurbitothis pithyophila* (Fr.) Petrak

*Lophodermium nitens* Darker

*Lophodermium pinastri* (Schrad. ex Hook.) Chev.

*Polyporus* species

*Polyporus tomentosus* var. *circinatus* (Fr.) Sartory and Maire

*Tympanis pithya* (Fr.) Karst.

*PINUS SYLVESTRIS* L., Scots pine (scP)

Animal

*Lophodermium pinastri* (Schrad. ex Hook.) Chev.

*Lophodermium* species

Winter

*POPULUS BALSAMIFERA* L., balsam poplar (bPo)

Chemical (fumes) on trees

*Fomes igniarius* var. *laevigatus* (Fr.) Overh.

*Ganoderma applanatum* (Pers. ex Wallr.) Pat.

*Pollacia elegans* Serv.

*Pollacia radiosua* (Lib.) Bald. and Cif.

*POPULUS NIGRA* L., black poplar (-Po)

*Taphrina aurea* Fr.

*POPULUS NIGRA* var. *ITALICA* Muenchh., Lombardy poplar (LPo)

*Taphrina aurea* Fr.

*POPULUS SP.*, poplar (Po)

*Peniophora polygonia* (Pers. ex Fr.) Bourd. & Galz.

*Phlebia strigosozonata* (Schw.) Lloyd

*Pollacia elegans* Serv.

*Pollacia radiosua* (Lib.) Bald. & Cif.  
*Polyporus adustus* Willd. ex Fr.  
*Polyporus elegans* Bull. ex Fr.  
*Polyporus pargamenus* Fr.  
*Polyporus versicolor* L. ex Fr.  
*Schizophyllum commune* Fr.  
*Stereum purpureum* (Pers. ex Fr.) Fr.  
*Taphrina populinna* Fr.  
*Tympanis spermatoiospora* (Nyl.) Nyl.

POPULUS TREMULOIDES Michx., trembling aspen (tA)

Animal

*Ciborinia whetzelii* (Seav.) Seav.  
*Cladosporium subsessile* Ell. and Barth.  
*Encoelia fascicularis* fide Groves  
*Fomes igniarius* (L. ex Fr.) Kickx  
*Hymenochaete tabacina* (Sow. ex Fr.) Lev.  
*Melampsora abietis-canadensis* Ludwig ex Arth.  
*Melampsora epitea* Thüm.  
*Melampsora species*  
*Mycosphaerella species*  
*Panus stipticus* (Bull. ex Fr.) Fr.  
*Peniophora populnea* (Pk.) Burt.  
*Peniophora rufa* (Fr.) Boid.  
*Peniophora species*  
*Pollacia elegans* Serv.  
*Pollacia radiosua* (Lib.) Bald. & Cif.

- Polyporus adustus Willd. ex Fr.
- Polyporus brumalis Pers. ex Fr.
- Polyporus hirsutus Wulf. ex Fr.
- Polyporus pargamenus Fr.
- Polyporus velutinus Fr.
- Poria species
- Schizophyllum commune Fr.
- Snow and ice
- Stereum purpureum (Pers. ex Fr.) Fr.
- Taphrina populina Fr.
- Trechispora brinkmanni (Bres.) Rogers & Jacks.
- Tymanitis spermatoiospora (Nyl.) Nyl.
- PRUNUS INSITITIA L., damson plum
- Apiosporina morbosa (Schw.) Arx
- PRUNUS PENNSYLVANICA L.f., pin cherry (pCh)
- Animal
- Apiosporina morbosa (Schw.) Arx
- Cocomyces hiemalis Higgins
- Cylindrosporium species
- Fomes fomentarius (L. ex Fr.) Kickx
- Polyporus albellus Pk.
- Polyporus brumalis Pers. ex Fr.
- Polyporus pocula (Schw.) Berk. & Curt.
- Polyporus versicolor L. ex Fr.
- Stereum hirsutum (Willd. ex Fr.) S.F. Gray
- Taphrina wiesneri (Rathay) Mix

PRUNUS SP., cherry (Ch)

- Apiosporina morbosa* (Schw.) Arx  
    *Coccomyces hiemalis* Higgins  
    *Hymenochaete tabacina* (Sow. ex Fr.) Lev.  
    *Peniophora aspera* (Pers.) Sacc.  
    *Poria prunicola* (Murr.) Sacc. & Trott.  
    *Taphrina confusa* (Atk.) Gies.  
    *Tymanopis spermatoiospora* (Nyl.) Nyl.

PRUNUS VIRGINIANA L., choke cherry (cCh)

- Apiosporina morbosa* (Schw.) Arx  
    *Coccomyces hiemalis* Higgins  
    *Taphrina confusa* (Atk.) Gies.

PSEUDOTSUGA MENZIESII (Mirb.) Franco, Douglas fir or pine douglas (D)

- Animal  
        *Armillaria mellea* (Vahl ex Fr.) Kummer

PYROLA SP., pyrola

- Melampsora epitea* Thüm.

PYRUS SP., pear

- Apiosporina collinsii* (Schw.) Höhn.

RHAMNUS ALNIFOLIA L'Her., alder-leaved buckthorn or cascara (-Ca)

- Puccinia coronata* Cda.

RIBES GLANDULOSUM Grauer, skunk currant

- Cronartium ribicola* J.C. Fischer

RIBES HIRTELLUM Michx., bristly gooseberry

- Cronartium ribicola* J.C. Fischer

RIBES SP., currant and gooseberry

- Cronartium ribicola* J.C. Fischer

RUBUS CANADENSIS L., smooth blackberry

Gymnoconia peckiana (Howe) Trott.

RUBUS SP., brambles or blackberries

Gymnoconia peckiana (Howe) Trott.

SALIX BEBBIANA Sarg., bebb or long-beaked willow (beW)

Melampsora abietis-capraearum Tub.

SALIX DISCOLOR Muhl., large pussy willow (puW)

Cercospora salicina Ell. & Ev.

Melampsora epitea Thüm.

Phyllactinia guttata (Fr.) Lev.

Rhytidisma salicinum (Pers.) Fr.

Uncinula salicis (DC. ex Merat) Wint.

SALIX SP., willow (W)

Animal

Cercospora salicina Ell. & Ev.

Coniophora puteana (Schum. ex Fr.) Karst.

Cytospora salicis (Cda.) Rabh.

Fomes igniarius (L. ex Fr.) Kickx

Hymenochaete tabacina (Sow. ex Fr.) Lev.

Hypoxyylon mammatum (Wahl.) Miller

Melampsora abietis-capraearum Tub.

Melampsora epitea Thüm.

Melampsora species

Pollacia saliciperda (All. & Tub.) Arx

Polyporus elegans Bull. ex Fr.

Polyporus nidulans Fr.

*Rhytisma salicinum* (Pers.) Fr.

*SAMBUCUS PUBENS* Michx., catberry or scarlet elder (-El)

*Nectria cinnabarinina* Tode ex Fr.

*SOLIDAGO* SP., goldenrod

*Coleosporium asterum* (Diet.) Syd.

*SORBUS AMERICANA* Marsh, American mountain ash or dogberry (aMo)

Animal

*Gymnosporangium cornutum* Arth. ex Kern

*Gymnosporangium* species

*Mycosphaerella* species

*Phyllosticta minima* (Berk. and Curt.) Underw. and Earle

*Poria ferrea* (Pers.) Bourd. & Galz.

*SORBUS AUCUPARIA* L., European mountain ash (eMo)

*Gymnosporangium* species

*SORBUS DECORA* (Sarg.) Schneid., showy mountain ash (sMo)

*Daedalea confragosa* Bolt. ex Fr.

*Gymnosporangium cornutum* Arth. ex Kern

*Gymnosporangium* species

*Nectria cinnabarinina* Tode ex Fr.

*SORBUS* SP., mountain ash (Mo)

Animal

*Gymnosporangium cornutum* Arth. ex Kern

*Pycnoporus cinnabarinus* (Jacq. ex Fr.) Karst.

*TAXUS CANADENSIS* Marsh., Canada yew or ground hemlock (-Y)

Animal

*Sphaerulina taxicola* (Pk.) Berl.

THALICTRUM POLYGAMUM Muhl., muskrat weed

Puccinia recondita Rob. ex Desm.

THUJA OCCIDENTALIS L., eastern white cedar (eC)

Frost

On seedlings (in late spring)

THUJA PLICATA D. Don, western red cedar (wC)

Frost

On seedlings (in late spring)

ULMUS GLABRA var. CAMPERDOWNII Rehd., camperdown elm

Phleospora ulmi (Fr.) Wallr.

ULMUS PARVIFOLIA Jacq., Chinese elm (cE)

Nectria cinnabarinna Tode ex Fr.

ULMUS SP., elm (E)

Gnomonia ulmea (Schw.) Thüm.

VACCINIUM CESPITOSUM Michx., English blueberry

Pucciniastrum goeppertianum (Kühn) Kleb.

VACCINIUM SP., cranberries and blueberries

Ramularia effusa Pk.

VIBURNUM CASSINOIDES L., wild raisin

Animal

PREFACE TO GENERAL INDEX

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APPENDIX I

Names, and latitude and longitude of localities cited in  
the maps and in the disease index

<u>Locality number</u>	<u>Name of locality</u>	<u>Latitude</u>	<u>Longitude</u>
1	Bauline Line	47° 40'N	52° 48'W
2	Codroy Pond - Codroy Valley	48° 05'N	58° 52'W
3	St. Fintans	48° 11'N	58° 51'W
4	Serpentine Lake	48° 54'N	58° 09'W
5	Middle Brook	48° 20'N	58° 30'W
6	Cormack	49° 22'N	57° 19'W
7	Birchy Lake - Birchy Ridge	49° 20'N	56° 49'W
8	Highlands River	48° 05'N	58° 46'W
9	Bottom Brook	48° 32'N	58° 14'W
10	Stephenville	48° 36'N	58° 15'W
11	Swift Current	47° 53'N	54° 13'W
12	Upper Humber Region	48° 49'N	55° 57'W
13	Big Bonne Bay Pond	49° 21'N	57° 37'W
14	Halls Bay Region	49° 30'N	56° 09'W
15	North Pond Road	48° 42'N	54° 26'W
16	Gander Bay Road (Area #1)	49° 10'N	54° 29'W
17	Sandy Lake, Badger (7 mi. N. of)	49° 20'N	56° 23'W
18	South Branch	47° 55'N	59° 02'W
19	Lake Ambrose	48° 34'N	56° 36'W
20	Sandy Lake Region, Western Nfld.	49° 10'N	56° 59'W
21	Main Dam, Grand Lake (Area #1)	49° 12'N	57° 14'W
22	North Pond	48° 12'N	54° 33'W
23	Terra Nova Village Road	48° 30'N	54° 10'W
24	Gander	48° 56'N	54° 34'W
25	St. John's	47° 34'N	52° 43'W
26	Adies River	49° 29'N	57° 08'W
27	Flat Bay	48° 24'N	58° 35'W
28	Princeton	48° 25'N	53° 35'W
29	Hermitage	47° 33'N	55° 56'W
30	Knights Cove	48° 32'N	53° 19'W
31	Ten Mile Lake	51° 06'N	56° 37'W
32	Port Rexton	48° 23'N	53° 20'W
33	Marystown - Fortune	47° 08'N	55° 19'W
34	Whitbourne	47° 25'N	53° 32'W
35	Badger	48° 54'N	56° 05'W
36	Long Lake	48° 29'N	57° 04'W
37	Crabbes River	48° 08'N	58° 44'W
38	Steady Brook	48° 57'N	57° 49'W
39	Frenchman's Cove, Burin Peninsula	47° 13'N	55° 24'W
40	Elliotts Cove	48° 09'N	53° 54'W
41	Britannia, Random Island	48° 09'N	53° 43'W
42	Birchy Lake Road	49° 22'N	56° 33'W
43	Birchy Bay	49° 21'N	54° 44'W
44	Port Blandford	48° 21'N	54° 10'W

<u>Locality number</u>	<u>Name of locality</u>	<u>Latitude</u>	<u>Longitude</u>
45	St. Jones Within	48° 03'N	53° 45'W
46	Lake Ebbegunbaeg	48° 17'N	56° 23'W
47	Exploits Dam - Lake Ambrose	48° 42'N	56° 38'W
48	Goobies	47° 56'N	53° 58'W
49	Harbour Grace - Carbonear	47° 44'N	53° 13'W
50	Winterton	47° 57'N	53° 20'W
51	Glenwood	49° 00'N	54° 52'W
52	Marystown	47° 10'N	55° 10'W
53	Bay D'Espoir	47° 49'N	55° 47'W
54	Bauline Line - Pouch Cove Road	47° 44'N	52° 48'W
55	Terra Nova	48° 30'N	54° 13'W
56	Millertown	48° 49'N	56° 33'W
57	Sop's Arm, White Bay	49° 47'N	56° 52'W
58	Middle Ridge Pond	48° 16'N	55° 05'W
59	Northern Bay	47° 57'N	53° 04'W
60	Brig Bay	51° 03'N	56° 55'W
61	River of Ponds	50° 32'N	57° 23'W
62	Glenwood Forest Road	48° 12'N	54° 53'W
63	Gander Bay Road (Area #2)	48° 59'N	54° 29'W
64	Torbay	47° 40'N	52° 44'W
65	Milton	48° 13'N	53° 58'W
66	Plate Cove	48° 30'N	53° 30'W
67	Charlottetown Region, T.N.N.P.	48° 26'N	54° 04'W
68	Gloverville	48° 39'N	54° 01'W
69	Come By Chance River Valley	47° 48'N	53° 58'W
70	St. Veronica's	47° 56'N	55° 47'W
71	Morrisville	47° 52'N	55° 46'W
72	New Bay Pond	49° 11'N	55° 36'W
73	Brown's Arm	49° 15'N	55° 10'W
74	Park Harbour, T.N.N.P.	48° 32'N	53° 56'W
75	Millertown (11 mi. N. of)	48° 58'N	56° 37'W
76	Cape Ray	47° 42'N	59° 16'W
77	Deer Lake	49° 10'N	57° 25'W
78	Goulds	47° 29'N	52° 46'W
79	Buchans - Red Indian Lake	48° 50'N	56° 38'W
80	Paddys Pond - Cochrane Pond	47° 29'N	52° 52'W
81	St. George's	48° 26'N	58° 29'W
82	Birchy and Sandy Lake Narrows	49° 18'N	56° 52'W
83	Witless Bay	47° 17'N	52° 50'W
84	Grand Falls Region	48° 55'N	55° 42'W
85	North Harbour Road	47° 53'N	54° 06'W
86	Lake St. John	48° 24'N	54° 37'W
87	Sheffield Lake	49° 22'N	56° 36'W
88	Victoria Lake	48° 21'N	57° 19'W
89	Badger-Buchans Road (5 mi. S.W. of Badger)	48° 56'N	56° 07'W
90	Pasadena - Midland	49° 01'N	57° 36'W

<u>Locality number</u>	<u>Name of locality</u>	<u>Latitude</u>	<u>Longitude</u>
91	Gambo Lake	48° 38' N	54° 22' W
92	Clarenville	48° 10' N	53° 59' W
93	Bishop's Falls	49° 01' N	55° 29' W
94	Big Falls	49° 21' N	57° 10' W
95	Lower Humber Valley	48° 59' N	57° 50' W
96	Noel Paul's Brook	48° 32' N	56° 32' W
97	Northern Arm - Point Leamington Road	49° 15' N	55° 22' W
98	North Shore, Grand Lake (Area #2)	48° 50' N	57° 45' W
99	Southern Arm	49° 54' N	56° 22' W
100	Western Arm	49° 49' N	56° 47' W
101	South Brook, Humber East District	49° 01' N	57° 38' W
102	Little Rapids	48° 59' N	57° 44' W
103	Robert's Arm Road	49° 27' N	55° 55' W
104	Trinity	48° 23' N	53° 23' W
105	Boat Harbour	47° 25' N	54° 51' W
106	Lethbridge	48° 21' N	53° 52' W
107	Garden Cove	47° 51' N	54° 09' W
108	Indian Bay Road	49° 05' N	54° 21' W
109	Corner Brook	48° 57' N	57° 58' W
110	Lomond	49° 28' N	57° 46' W
111	North Branch	48° 01' N	58° 57' W
112	Bay d'Espoir Road (4.8 mi. S. of TCH)	48° 58' N	55° 25' W
113	Alexander Bay	48° 42' N	54° 07' W
114	Kings Cove	48° 34' N	53° 20' W
115	Winter Brook	48° 26' N	53° 45' W
116	Gallants	48° 42' N	58° 14' W
117	Northern Portion, Bonavista Peninsula	48° 30' N	53° 10' W
118	Boat Harbour - Marystown	47° 20' N	55° 00' W
119	South Brook - Wolf Cove	49° 26' N	56° 05' W
120	Flat Bay Brook - Steel Mountain Road	48° 23' N	58° 25' W
121	Hampden - Bayside	49° 32' N	56° 54' W
122	Gambo	48° 46' N	54° 14' W
123	South Pond	49° 21' N	56° 09' W
124	Rattling Brook, Green Bay	49° 38' N	56° 10' W
125	South West Brook	48° 29' N	58° 01' W
126	Little Barachois Brook	48° 27' N	58° 05' W
127	Triton Brook	48° 33' N	54° 47' W
128	Bay Bulls	47° 19' N	52° 49' W
129	Mt. Peyton	48° 57' N	55° 06' W
130	South Arm, New Bay	49° 22' N	55° 21' W
131	Stephenville Crossing - Peilleys Brook	48° 32' N	58° 26' W
132	Bellburns	50° 20' N	57° 32' W
133	Bonne Bay	49° 30' N	57° 55' W
134	Markland	47° 23' N	53° 33' W
135	Brigus	47° 32' N	53° 13' W
136	Catalina	48° 31' N	53° 05' W
137	Little Harbour	47° 39' N	53° 56' W
138	Long Harbour	47° 26' N	53° 49' W

<u>Locality number</u>	<u>Name of locality</u>	<u>Latitude</u>	<u>Longitude</u>
139	Point of Bay	49° 15' N	55° 15' W
140	Deep Bight	48° 06' N	53° 57' W
141	Notre Dame Jct.	49° 07' N	55° 05' W
142	Lake O'Brien	49° 03' N	54° 59' W
143	Trepassey	46° 44' N	53° 22' W
144	Sunnyside	47° 52' N	53° 56' W
145	New Melbourne	48° 03' N	53° 09' W
146	Grand Bank	47° 06' N	55° 45' W
147	Oasis, Grand Falls	48° 57' N	55° 46' W
148	Big Coney Arm	50° 00' N	56° 47' W
149	Adies Lake	49° 25' N	57° 12' W
150	Port au Port	48° 34' N	58° 43' W
151	Georges Lake	48° 44' N	58° 13' W
152	Hughes Brook	49° 03' N	57° 50' W
153	Grand Lake (Area #3)	48° 53' N	57° 25' W
154	Cox's Cove	49° 07' N	58° 04' W
155	Blow Me Down	49° 03' N	58° 16' W
156	Wiltondale	49° 24' N	57° 37' W
157	Trout River	49° 29' N	58° 08' W
158	Seal Cove	47° 28' N	53° 04' W
159	Lewisporte	49° 15' N	55° 04' W
160	Indian River	49° 28' N	56° 18' W
161	Wild Cove	50° 00' N	56° 20' W
162	Birchy Basin	49° 23' N	57° 11' W
163	Coal Brook	47° 56' N	58° 59' W
164	York Harbour	49° 04' N	58° 23' W
165	Holyrood	47° 23' N	53° 08' W
166	Placentia	47° 15' N	53° 58' W
167	Fishels Brook	48° 17' N	58° 34' W
168	Barachois Pond Provincial Park	48° 28' N	58° 18' W
169	Exploits River	48° 55' N	55° 40' W
170	North East River	47° 18' N	53° 47' W
171	Stag Hill	48° 52' N	57° 54' W
172	Sandy Lake-Sandy Brook, Grand Falls	48° 45' N	56° 00' W
173	N.W. River (6-8 mi. W. of)	48° 24' N	54° 33' W
174	Glover Island (25 mi. E. of)	48° 45' N	57° 04' W
175	Baie Verte Road	49° 52' N	56° 13' W
176	West Lake, Badger	48° 52' N	55° 08' W
177	Sandy Point, Grand Lake (Area #4)	48° 41' N	57° 54' W
178	Portugal Cove	47° 38' N	52° 51' W
179	Fortune	47° 04' N	55° 50' W
180	Springdale	49° 30' N	56° 04' W
181	Burnt Pond	49° 15' N	56° 04' W
182	Badger Brook	49° 00' N	56° 03' W
183	Deer Pond	48° 30' N	54° 48' W
184	La Scie	49° 57' N	55° 35' W
185	Doyles	47° 50' N	59° 11' W
186	Norris Arm	49° 05' N	55° 16' W

<u>Locality number</u>	<u>Name of locality</u>	<u>Latitude</u>	<u>Longitude</u>
187	Benton	48° 54' N	54° 25' W
188	Bonavista	48° 39' N	53° 08' W
189	Snowshoe Pond	48° 06' N	56° 50' W
190	St. Andrews	47° 47' N	59° 16' W
191	Taylor Brook	49° 37' N	57° 02' W
192	Thornlea	47° 37' N	53° 44' W
193	Daniels Harbour	50° 14' N	57° 35' W
194	Rogerson Lake	48° 33' N	56° 45' W
195	Southwest River	48° 13' N	54° 14' W
196	Jeffreys	48° 14' N	58° 51' W
197	Goose Arm	49° 07' N	57° 55' W
198	Bunyan's Cove	48° 24' N	54° 01' W
199	Salmonier	47° 12' N	53° 23' W
200	Hawke Bay	50° 36' N	57° 11' W
201	Doctor's Brook	50° 48' N	57° 04' W
202	Great Barasway River	47° 08' N	54° 02' W
203	Eastport	48° 39' N	53° 45' W
204	John the Bay	47° 13' N	55° 04' W
205	King George IV Lake	48° 12' N	57° 54' W
206	Conne River Pond	48° 10' N	55° 29' W
207	Peter Stride's Lake	48° 09' N	57° 44' W
208	Cooks Harbour	51° 36' N	55° 52' W
209	Mt. Sylvester	48° 10' N	55° 05' W
210	Bay L'Argent	47° 33' N	54° 53' W
211	Jct., St. Anthony and Cooks Harbour Road	51° 30' N	55° 54' W
212	Portland Creek	50° 10' N	57° 36' W
213	Colinet	47° 13' N	53° 33' W
214	St. Joseph's	47° 07' N	53° 31' W
215	St. Anthony	51° 22' N	55° 35' W
216	Pistolet Bay	51° 30' N	55° 45' W
217	Crooked Lake	49° 09' N	56° 03' W
218	Middle Brook Provincial Park	48° 48' N	54° 13' W
219	Bear Cove, White Bay	49° 51' N	56° 33' W
220	Brown's Cove	49° 38' N	56° 49' W
221	Hare Bay	49° 40' N	54° 18' W
222	Botwood	49° 09' N	55° 21' W
223	Roddickton (6 mi. N. of)	50° 57' N	56° 06' W
224	Frederickton	49° 26' N	54° 21' W
225	Port Albert	49° 33' N	54° 32' W
226	Coachman's Cove	50° 04' N	56° 07' W
227	Isle aux Morts	47° 35' N	58° 58' W
228	St. Pauls	49° 51' N	57° 49' W
229	Englee (5 mi. N. of)	50° 49' N	56° 05' W
230	Newstead (2 mi. S. of)	49° 23' N	54° 51' W
231	Baie Verte	49° 56' N	56° 11' W
232	Southwest Gander River	48° 40' N	55° 03' W
233	North Bay, La Poile Bay	47° 48' N	58° 20' W
234	Connoire Bay	47° 42' N	57° 54' W

<u>Locality number</u>	<u>Name of locality</u>	<u>Latitude</u>	<u>Longitude</u>
235	White Bear River	47° 51'N	57° 17'W
236	Long Harbour River	47° 52'N	54° 55'W
237	Great Rattling Brook	48° 45'N	55° 35'W
238	Port Saunders	50° 39'N	57° 18'W
239	Barr'd Harbour	50° 49'N	57° 04'W
240	Rocky Harbour	49° 36'N	57° 55'W
241	Main Brook	51° 11'N	56° 01'W
242	Caribou Lake	48° 41'N	57° 26'W
243	Rose Blanche	47° 37'N	58° 42'W
244	Lower Cove	48° 32'N	59° 00'W
245	March Point	48° 30'N	59° 08'W
246	Lark Harbour	49° 06'N	58° 22'W
247	Jackson's Cove	49° 41'N	56° 00'W
248	Long Island, Notre Dame Bay	49° 36'N	55° 40'W

APPENDIX II

Names of localities cited in the disease index

<u>Locality number</u>	<u>Name of locality</u>
249	Georges Brook, Trinity Bay
250	Trout Brook, St. Georges River, Western Nfld.
251	Corner Brook Pond, Western Nfld.
252	Humber Arm, Western Nfld.
253	Hungry Hill, Red Indian Lake
254	Windsor Lake, Eastern Nfld.
255	Alderburn, Bay of Exploits
256	Windsor, Central Nfld.
257	Cooks Brook, Western Nfld.
258	Bishops Falls - Norris Arm Road, Central Nfld.
259	Sweet Bay, Bonavista Peninsula
260	Summerville, Bonavista Peninsula
261	Stock Cove, Bonavista Peninsula
262	Petley, Random Island
263	Country Pond, Eastern Nfld.
264	Port au Port Peninsula
265	White Bay
266	Soulis Pond, Central Nfld.
267	Frenchman's Cove, Western Nfld.
268	North Side of Gander Lake, Central Nfld.
269	Bloomfield Jct., Bonavista Peninsula
270	North End of Sandy Lake, Western Nfld.
271	Pauls Lake, Central Nfld.
272	Cottrells Cove Road, Bay of Exploits
273	Burgoynes Cove, Bonavista Peninsula
274	Boot Brook, West of Sandy Lake, Western Nfld.
275	Sopers, Humber Arm, Western Nfld.
276	Michaels Harbour, Notre Dame Bay
277	Aspen Brook, Central Nfld.
278	St. Davids Road, Western Nfld.
279	Shoal Harbour River, Central Nfld.
280	Southern Bay, Bonavista Peninsula
281	Little Sandy Point, Southwest of Grand Lake
282	T.C.H. at Hampden Road
283	Harrys Brook, Western Nfld.
284	Southeast of Glover Island
285	Charleston, Bonavista Peninsula
286	Rushy Pond, Central Nfld.
287	Whites Brook Road, Western Nfld.
288	Harcourt, Bonavista Peninsula
289	Lockleven Road in the Codroy Valley, Western Nfld.
290	Campbellton - Loon Bay Road, Notre Dame Bay
291	Random Island
292	Wetstone Point, Grand Lake.

<u>Locality number</u>	<u>Name of locality</u>
293	Robinson's, Western Nfld.
294	Notre Dame Bay
295	Terra Nova River
296	Northeast End of Glover Island
297	Little Falls, Humber River
298	Lake Douglas, Central Nfld.
299	Avondale, Eastern Nfld.
300	Baie Verte Jct.
301	Northern Harbour, Grand Lake
302	Snug Harbour, Deer Lake
303	West Arm - Point Leamington Road, Notre Dame Bay
304	John's Beach, Humber Arm, Western Nfld.
305	Glovers Harbour, Notre Dame Bay
306	Lockport, Notre Dame Bay
307	Pine Falls, Lake Ambrose, Central Nfld.
308	Colliers Ridge, Georges Lake, Western Nfld.
309	Riverside, White Bay
310	Twin Lakes, Central Nfld.
311	Charles Brook, Bay of Exploits
312	Bakers Brook, along the North Shore of Grand Lake
313	Wiley Brook, Red Indian Lake
314	Duntara, Bonavista Peninsula
315	Goodyears Cove, Halls Bay
316	Carter's Road, Stephenville Crossing, Western Nfld.
317	Gales Valley, Western Nfld.
318	Valley Brook, Victoria Lake
319	McIsaac's Brook, Western Nfld.
320	Nichols Brook, Western Nfld.
321	Bishops Highway, Central Nfld.
322	Kirkland, Eastern Nfld.
323	Bantalor Portage
324	Northern Peninsula
325	Baie Verte Peninsula
326	Placentia Bay
327	Trinity Bay
328	Bonavista Peninsula
329	Burin Peninsula
330	Avalon Peninsula
331	Western Nfld.
332	Central Nfld.
333	Eastern Nfld.
334	Avalon District
335	Bonavista District
336	Gander District
337	Hermitage District
338	Grand Falls District
339	St. Georges District
340	Humber District
341	White Bay District
342	St. Barbe District
343	Topsail

APPENDIX III

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