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Forest insect and disease conditions in Newfoundland and Labrador in 1987

L.J. Clarke and G.C. Carew

Information Report N-X- 265
Newfoundland Forestry Centre

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ABSTRACT

This report summarizes forest pest conditions in Newfoundland and Labrador in 1987 and was compiled from information collected in 12 Forest Insect and Disease Survey Districts. Major pests of fir, spruce, pine and larch forests and deciduous tree species are discussed in detail and pests of lesser importance are tabulated.

RÉSUMÉ

Ce rapport est un résumé de la situation des ravageurs forestiers à Terre-Neuve et au Labrador en 1987. Les renseignements qu'il contient proviennent du relevé des insectes et des maladies des arbres effectué dans 12 districts. Les ravageurs des forêts de sapin d'épinette, de pin et de mélèze et ceux des espèces feuillues font l'objet d'un exposé détaillé et les les ravagers de moindre importance sont présentés sous forme de tableau.

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ACKNOWLEDGEMENTS

Information for this report is based on the results of surveys conducted by all personnel of the Forest Insect and Disease Survey and research officers of the Forest Protection Section. The cooperation of the Provincial Department of Forestry, providing technicians, casual workers, inventory maps and aircraft time for insect and disease assessment and the forest industry for providing inventory figures is gratefully appreciated. We thank Hildegarde Dunphy for typing this report.

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by

L.J. Clarke and G.C. Carew

INTRODUCTION

This report summarizes forest insect and disease conditions in 1987 and forecast conditions for 1988. The region is divided into 12 ranger districts with the following rangers: Humber-St. Georges, Dave Stone; St. Barbe-White Bay, Dave O'Brien; Grand Falls-Hermitage-Gander, Edgar Banfield; Bonavista-Burin-Avalon-Port Hope Simpson-Goose Bay, Wally Sutton; responsible for detecting, monitoring and collecting forest pests, maintaining records and conducting surveys to support forest research and providing advisory services on forest pests and disease conditions to governments, industry and the general public. The information in this report was compiled from the observations and field records of the rangers and other survey personnel. The Forest Insect and Disease Survey Districts and the Provincial Forest Management Units are included for reference (Figures 1 and 2).

SUMMARY

A record heavy snowfall, cold temperatures and blizzard conditions occurred this winter. Spring temperatures were relatively warm and the summer was warmer and drier than normal causing drought conditions in many areas.

Tree development was more advanced because of lack of ground frost, however, insect development was only slightly ahead of normal.

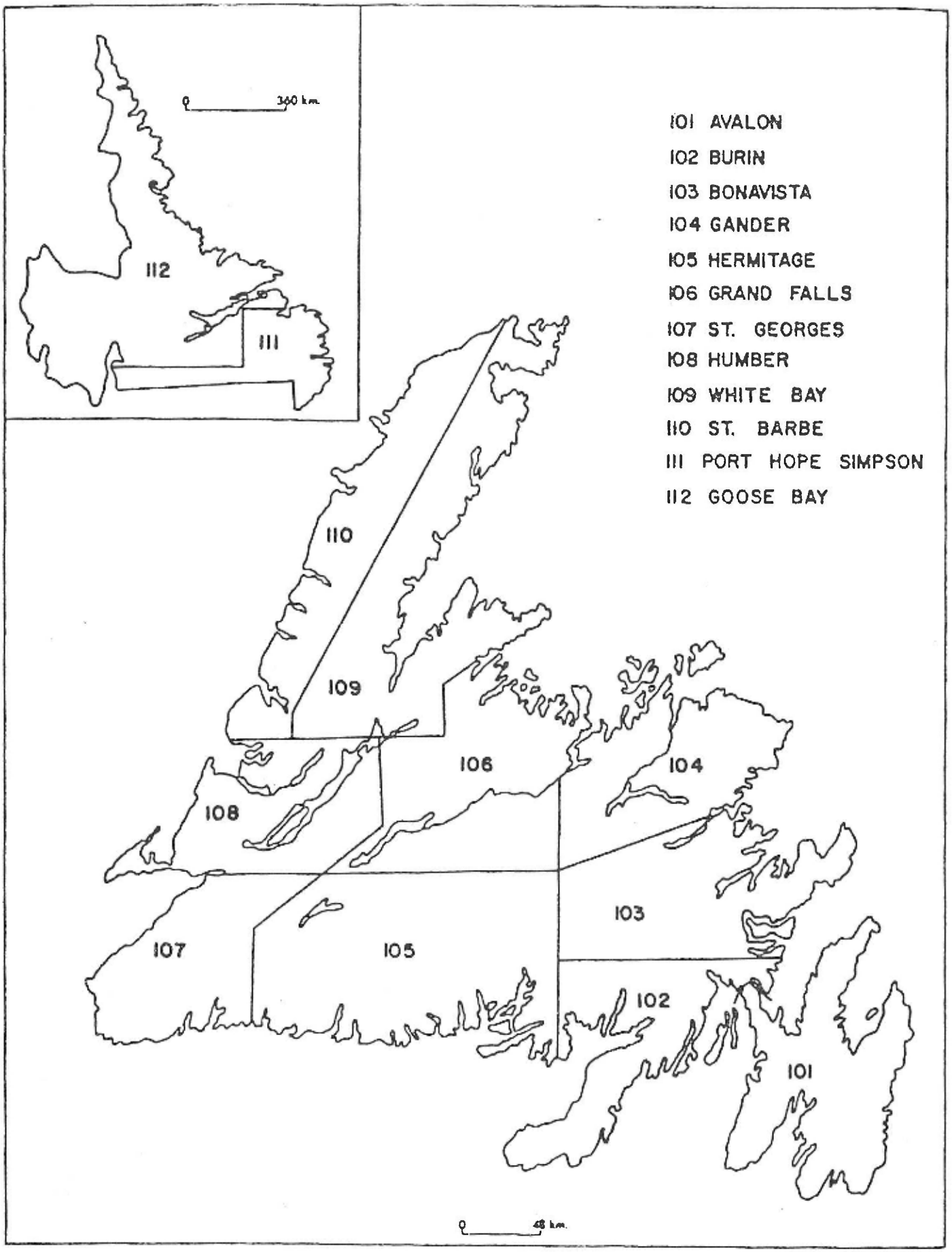

Figure 1. Forest Insect and Disease Survey Districts.

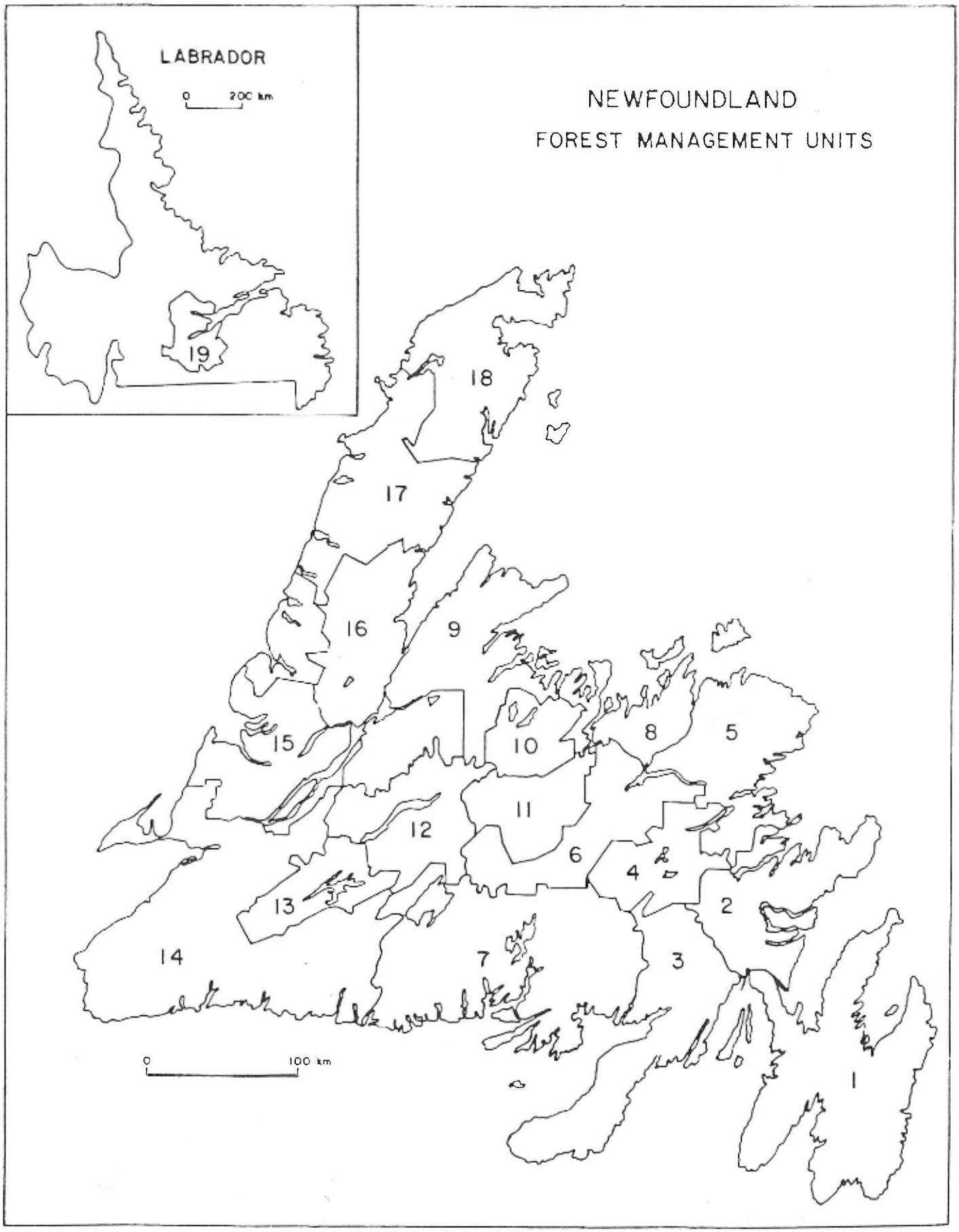

Figure 2. Newfoundland Forest Management Units.

The hemlock looper was the most damaging insect in the Province's forests in 1987 but its populations appear to be collapsing in the older infestations in western Newfoundland, south of Bonne Bay. The two small spruce budworm infestations in western Newfoundland continued and population levels within these areas remained relatively high. Pheromone baited traps were deployed at 50 permanent sample locations to monitor population levels of adults. Balsam woolly aphid populations continued to increase in many young stands in southwestern areas of the Island. Population levels of the black army cutworm were high and caused severe damage to planted black spruce seedlings in four burnt areas. Spruce bud scale populations increased in spruce plantations in central Newfoundland but high numbers of scale insects were parasitized by an undetermined hymenopterous parasite. The yellowheaded spruce sawfly caused light defoliation of black spruce in two plantations in Gander district. The white pine sawfly caused severe defoliation of ornamental white pine in the Terra Nova National Park. Two infestations of the white-marked tussock moth caused severe defoliation of several hardwood species as well to young spruce, larch and fir trees in the St. Georges district. The larch sawfly infestation on the Avalon Peninsula decreased in intensity in 1987. Population levels of the birch casebearer were generally low throughout the Island except in a few isolated areas in central and eastern Newfoundland.

The incidence of scleroderris canker increased on the Avalon Peninsula and Salmonier Line and infected trees in a plantation near Roddickton on the Northern Peninsula were cut or pruned. A moderate

incidence of Armillaria root rot was recorded in the provincial nursery in the Grand Falls district. Severe reddening of balsam fir foliage caused by winter drying was common in many areas especially along the coast of the Northern Peninsula. Sirococcus shoot blight caused some mortality of white spruce seedlings in the Wooddale Nursery. Special surveys were continued in cooperation with Memorial University of Newfoundland to determine the distribution of parasitic wood nematodes in the Province. The mucronate form of the pinewood nematode occurred in samples collected near Marystown in 1987 and the same nematode was again collected near Lake Ambrose.

Drought conditions occurred throughout most of the Island in July causing severe damage in plantations. A pheromone trap program was continued in cooperation with Agriculture Canada to monitor for introduction of the gypsy moth, and traps baited with forest tent caterpillar pheromone were employed throughout the Island to monitor for possible introduction of this pest.

Aerial surveys were conducted in fixed-wing aircraft and helicopters to monitor, map defoliation and damage, and collect branch samples of all important pests and forecast outbreaks.

Approximately 110 hours were flown during aerial surveys and 120 hours during egg sampling and monitoring of hemlock looper and spruce budworm populations.

Special surveys and studies conducted by survey rangers and by other forest protection personnel included the reassessment of the ARNEWS plots, defoliation on hemlock looper population dynamics plots, plot

layout for experimental applications of chemical and biological insecticides, and sampling for natural mortality of the hemlock looper; assessing balsam woolly aphid, black army cutworm and white-marked tussock moth populations in sprayed and unsprayed areas; and testing of pheromone baited traps for the black army cutworm. Special surveys were also continued for the balsam woolly aphid in thinned stands and for the masked shrew in four permanent plots across the Island.

SPRUCE AND FIR PESTS

Eastern Hemlock Looper

Lambdina fiscellaria fiscellaria

The egg survey conducted in the fall of 1986 indicated that the area of moderate and severe defoliation by the looper in 1987 would be about 327 000 ha distributed mostly in western Newfoundland.

Larval surveys conducted in early summer of 1987 showed moderate to high numbers of looper along the west coast of the Island from Codroy Pond to Hawke's Bay. The reddish discoloration of severe defoliation was less evident in the older parts of the outbreak (south of Corner Brook) because the surviving trees damaged last year produced less foliage this year. However, very severe reddening of foliage occurred elsewhere as the high larval population, especially north of Bonne Bay, completely defoliated the trees and advanced regeneration, leaving no fir foliage for late developing larvae. They were observed feeding on black spruce, birch, alder, maple and any herbaceous vegetation and many of these late larvae died of starvation. A few isolated infestations with

moderate to high larval numbers remained in central and eastern Newfoundland. The total area of defoliation in 1987 was about 160 000 ha including 150 000 ha in the moderate and severe category (Table 1, Figure 3). Stands that were severely defoliated over the past two years in the headwater areas of the major rivers of southwestern Newfoundland are now mostly dead or dying. The majority of the severe defoliation occurred in western Newfoundland in predominantly mature and overmature stands, but some semi-mature stands were also severely damaged.

Table 1. Areas (ha) of defoliation caused by the hemlock looper in productive forests of Newfoundland in 1987.

Management Unit No.	Defoliation Class*			
	Light	Moderate	Severe	Total
1	-	-	1 014	1 014
6	-	-	248	248
12	-	-	68	68
13	-	-	16 790	16 790
14	1 497	578	36 470	38 545
15	1 394	918	24 147	26 459
16	-	-	204	204
17	5 826	3 811	56 423	66 060
Total	8 717	5 307	135 364	149 388
GMNP	-	357	11 431	11 788
Grand Total	8 717	5 664	146 795	161 176

*Light = 1-25%
Moderate = 26-75%
Severe = 76-100%

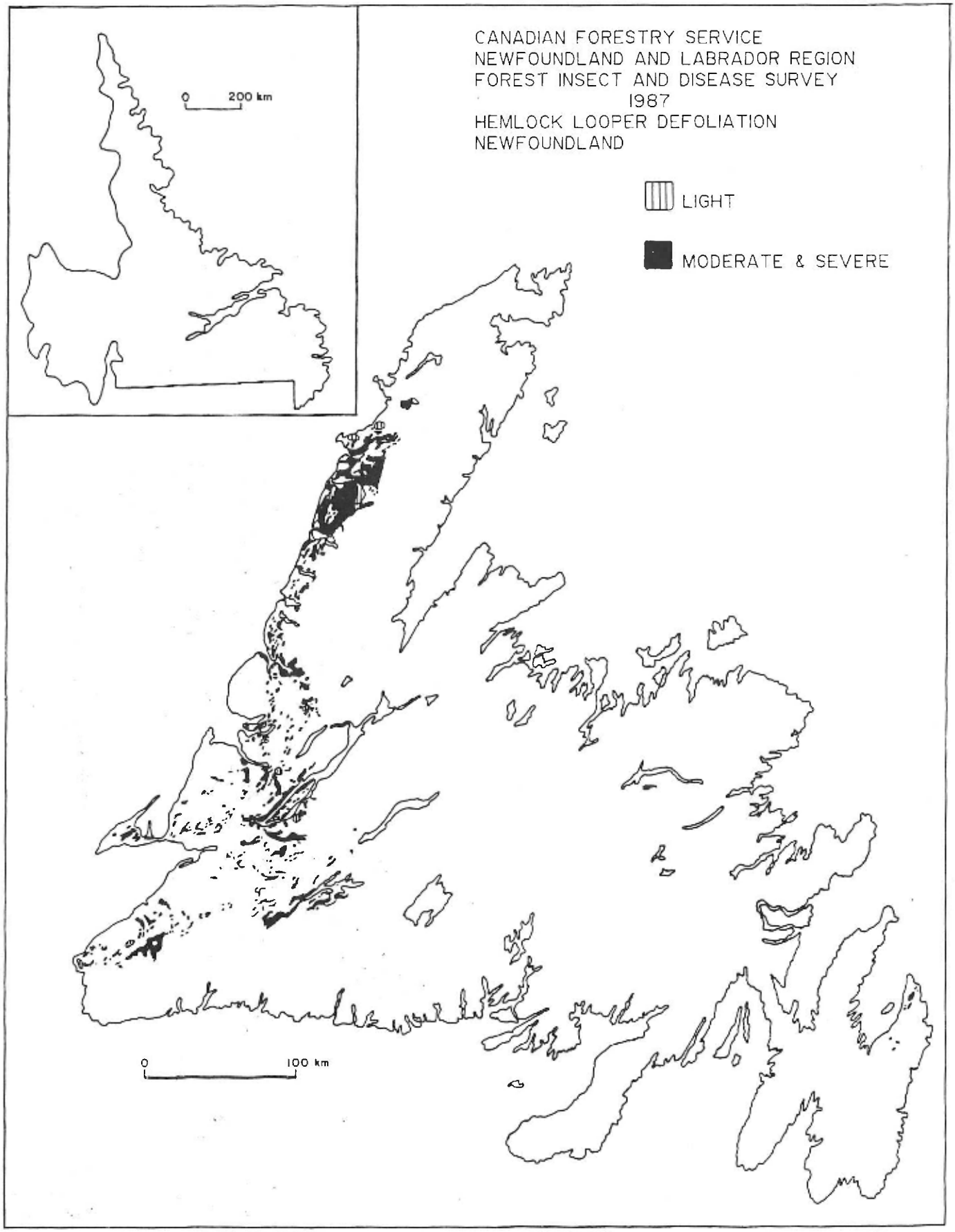

Figure 3. Areas of defoliation by the hemlock looper in productive forests of Newfoundland in 1987.

Tree mortality ranging from 50% to over 90% is already evident in areas severely defoliated in 1986, and similar high levels of tree mortality are expected in stands defoliated in 1987 (Figure 4). The Department of Forestry will assess tree mortality in damaged stands.

The Department of Forestry conducted an operational control program against the looper and treated about 165 000 ha with fenitrothion and about 4 000 ha with Bacillus thuringiensis (B.t.).

The Canadian Forestry Service in cooperation with the Department of Forestry conducted an experimental program testing the effectiveness of new formulations and dosages of fenitrothion, B.t. and diflubenzuron. Oil-base formulations of fenitrothion and B.t. were very effective in reducing looper numbers and protecting foliage. Results with water-base diflubenzuron formulations were less than expected because of poor foliage deposit.

In 1987 hemlock looper samples were collected from 22 locations on the Island to assess biological mortality. The majority of larval and pupal parasites were the tachinid flies Winthemia occidentis and Madremyia saundersii. A few parasitic wasps were also recovered. The incidence of pathogenic fungus was greater in larval than pupal samples. Paecilomyces farinosus was the major fungus disease, but Entomophaga aulicae, Ergnia radicans and Verticillium lecanii also occurred. Parasitism and fungal disease in late instar larvae averaged 7% and 25% respectively in the older part of the infestation and only 1% in the youngest part. Pupal parasitism was 5% and less than 1% in the older and younger infestations respectively, while fungi caused about 2% pupal mortality

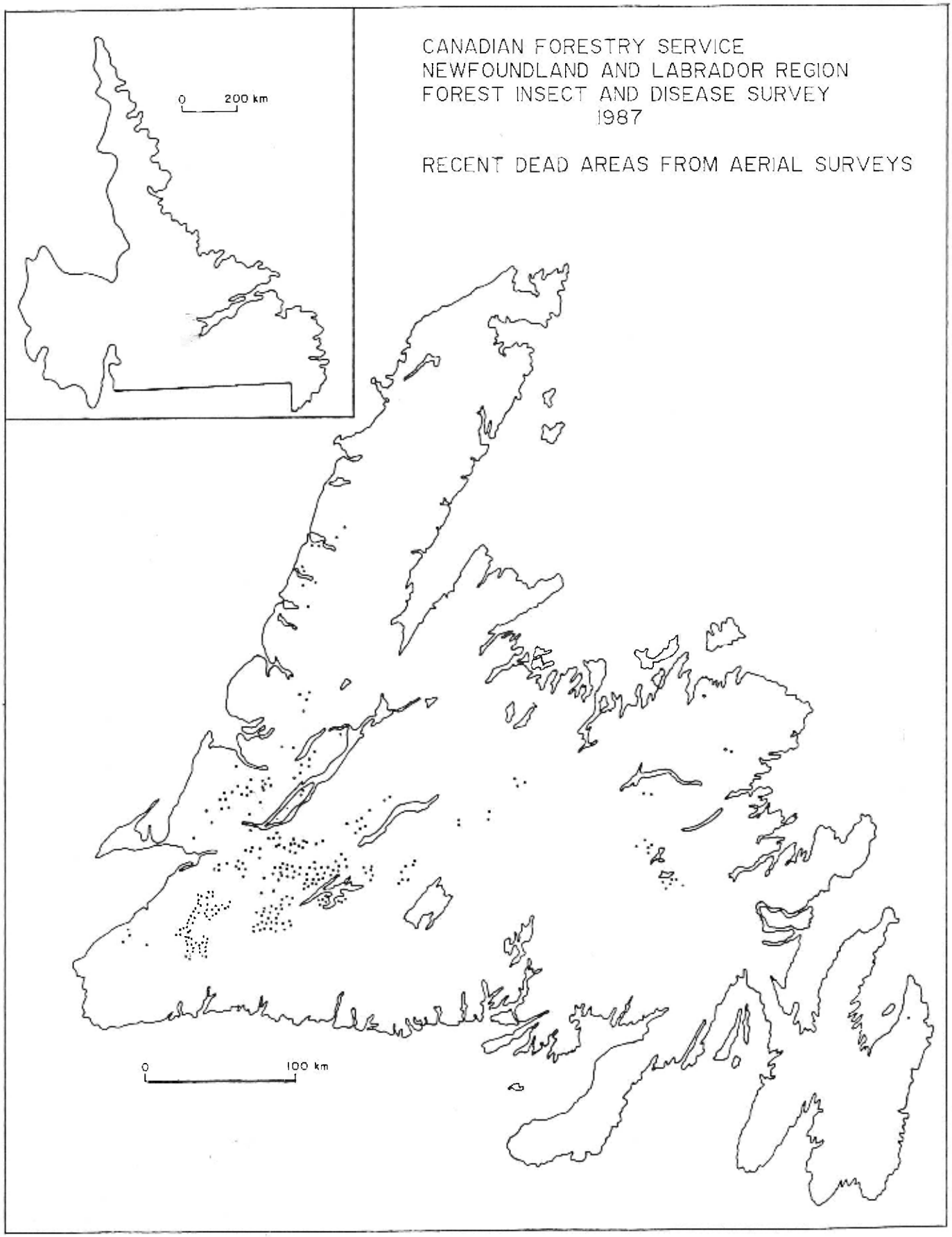

Figure 4. Areas where recent tree mortality was detected during aerial surveys in 1987.

throughout the outbreak. Less than 1% of the larvae and pupae were infected by an unidentified microsporidian. In addition to the above, about 5% of the larvae in both the older and younger infestations were infected by a fungus tentatively identified as Aureobasidium pullulans. This fungus was less common in pupae and its pathogenicity is being investigated.

The egg survey commenced in mid-October and branches were collected from about 520 sample points throughout the Island. Based on the comprehensive analysis of all data about the outbreak, including results of the egg survey, and assuming favorable weather during larval development, the total area of moderate and severe defoliation forecast for 1988 is about 118 000 ha distributed mostly in western Newfoundland (Table 2, Figure 5). Moderate and severe defoliation is expected to occur along Broom Brook near Cape Anguille, from Codroy Pond to Highlands, on the Port au Port Peninsula, from George's Lake to Corner Brook and along the west coast of the Northern Peninsula from Goose Arm to Western Brook Pond, from Parson's Pond to Port au Choix, near Leg Pond in the Castor River Valley and in a small area near Round Pond. Moderate and severe defoliation is also expected to occur in a few small isolated areas on the Avalon Peninsula. Light defoliation is forecast to occur on about 48 000 ha in western Newfoundland.

The forecast indicates a decrease in the area of moderate and severe defoliation from 150 000 ha in 1987 to about 118 000 ha in 1988. It appears the outbreak is collapsing south of Bonne Bay except for the severe infestations near Corner Brook, on the Port au Port Peninsula and

Table 2. Areas (ha) of defoliation by the hemlock looper forecast in productive forests of Newfoundland for 1988.

Management Unit No.	Defoliation Class*		
	Light**	Moderate & Severe***	Total
1	2 100	1 000	3 100
9	1 170	900	2 070
12	600	-	600
13	4 100	-	4 100
14	6 700	8 302	15 002
15	19 309	16 883	36 192
16	2 120	700	2 820
17	7 052	74 524	81 576
18	2 300	890	3 190
Total	45 451	103 199	148 650
GMNP	2 908	14 557	17 465
Grand Total	48 359	117 756	166 115

*Light = 1-25%
Moderate = 26-75%
Severe = 76-100%

**Areas with low egg density (2-3 eggs/branch).

***Areas with moderate and high egg density (4 or more eggs/branch).

near Codroy Pond. However, the egg density continued to remain high in most of the infestations north of Bonne Bay including most of Gros Morne National Park and in the Hawke's Bay area on the Northern Peninsula.

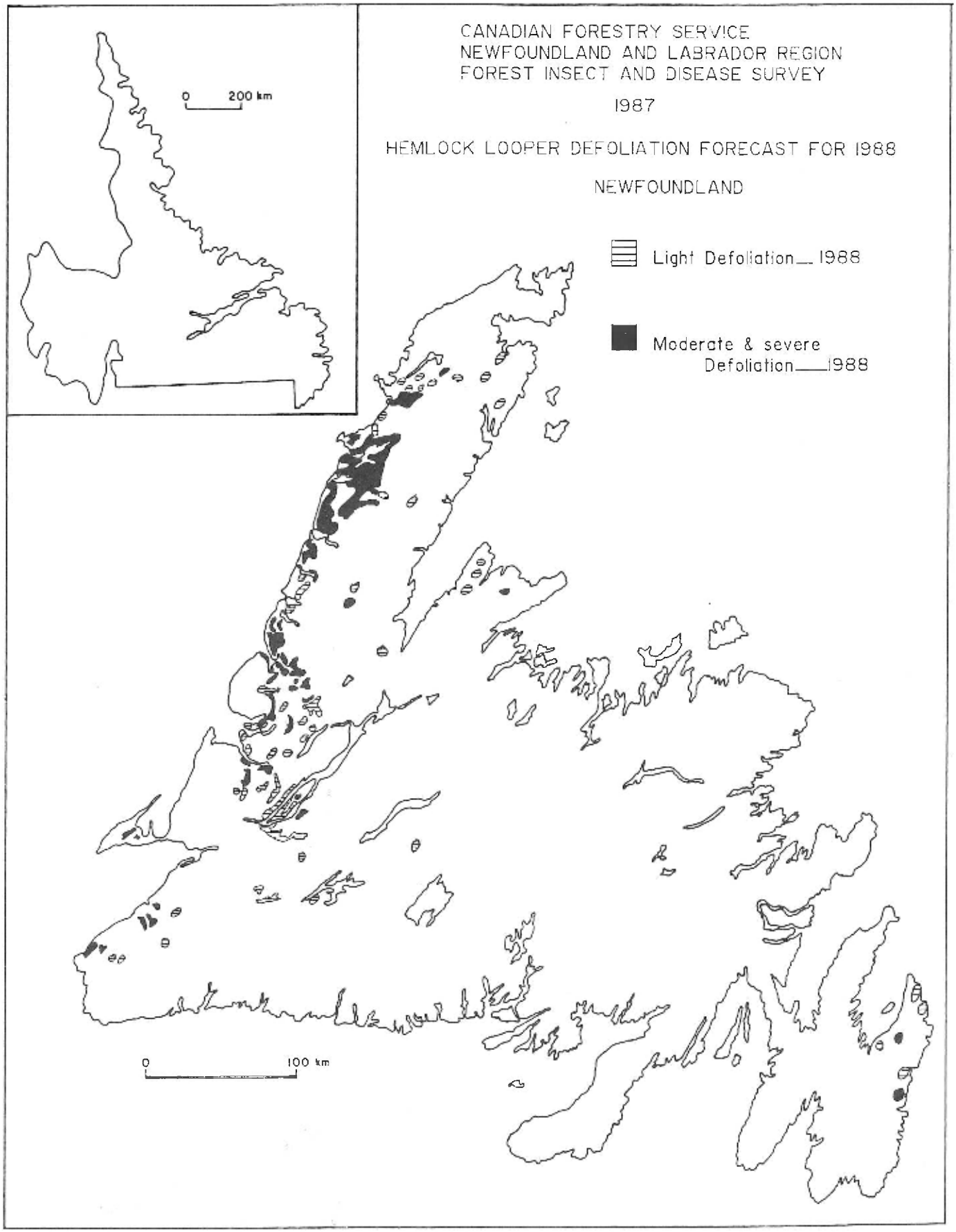

Figure 5. Areas of defoliation by the hemlock looper forecast in Newfoundland for 1988.

In addition, the outbreak is expected to expand north into the Castor River Valley where moderate and severe defoliation is forecast to occur in valuable mature balsam fir stands in 1988.

Spruce Budworm

Choristoneura fumiferana

Population levels remained relatively high and caused moderate to severe defoliation in two small isolated infestations; one at South Branch, one on the Baie Verte Peninsula. A new infestation developed near Ten Mile Lake on the Northern Peninsula where about 2 300 ha were severely defoliated (Figure 6). Generally larval numbers increased throughout western Newfoundland. The area of moderate and severe defoliation covered about 3 600 ha. Light defoliation occurred on about 1 700 ha (Table 3).

Table 3. Areas (ha) of defoliation caused by the spruce budworm in productive forests of Newfoundland in 1987.

Management Unit No.	Defoliation Class*			
	Light	Moderate	Severe	Total
9	88	-	762	850
14	-	520	-	520
17	1 118	-	1 142	2 260
18	540	-	1 202	1 742
Total	1 746	520	3 106	5 372

*Light = 1-25%
Moderate = 26-75%
Severe = 76-100%

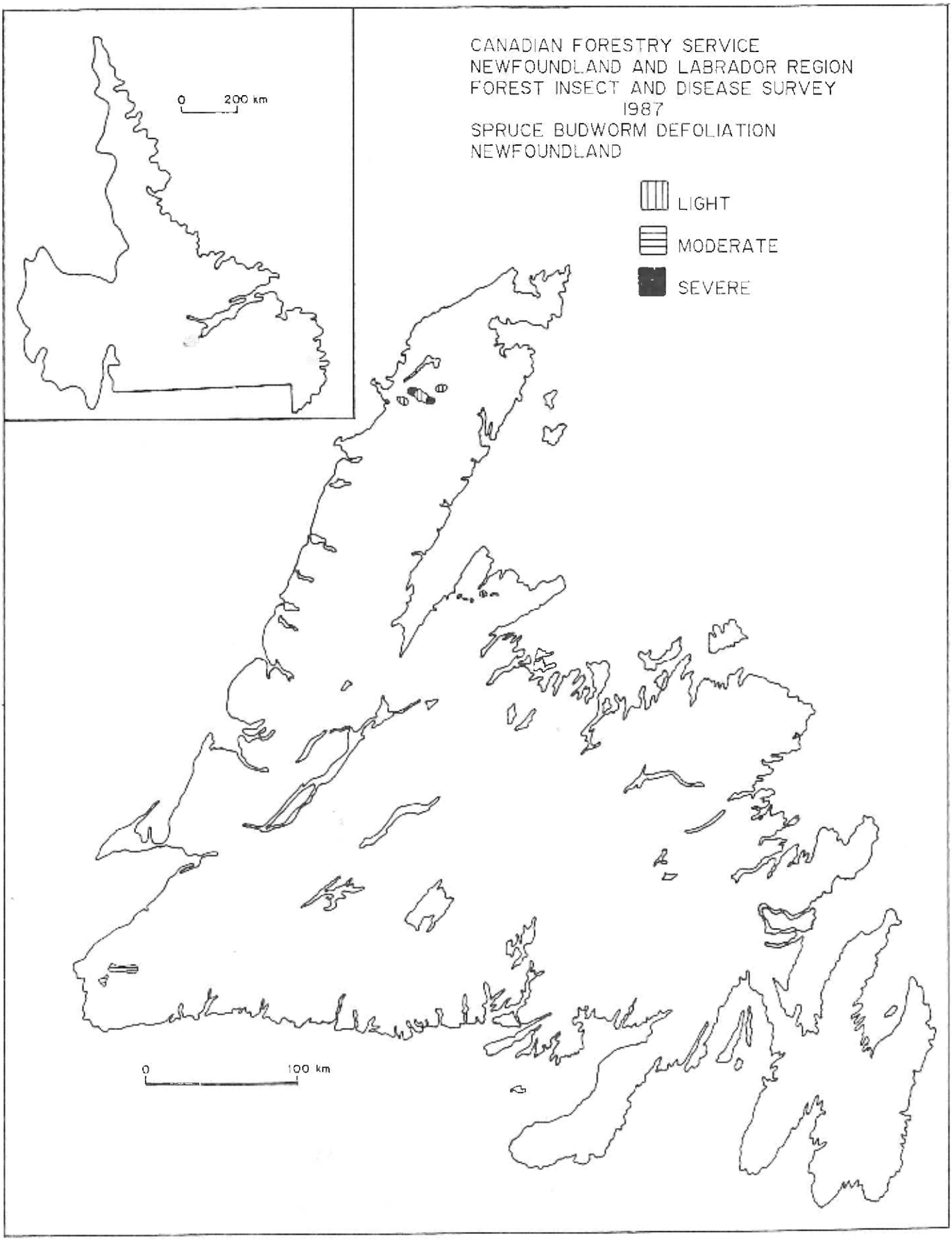

Figure 6. Areas of defoliation by the spruce budworm in Newfoundland in 1987.

There was no operational or experimental control programs conducted against the spruce budworm in 1987. Larval samples were collected near Baie Verte for biological mortality studies. The main larval parasites were Glypta fumiferanae and Meteorus trachynotus, causing about 19% mortality, and Ephialtes ontario, the most common pupal parasites, which caused about 62% mortality. Several tachinid parasites also emerged from large larvae and pupae.

The most commonly detected fungal pathogen was Paecilomyces farinosus causing about 1% infection. Entomophaga aulicae occurred less frequently. Less than 1% of the samples were infected by Nosema fumiferanae. In addition about 3% of the budworm samples were infected by a fungus tentatively identified as Aureobasidium pullulans.

Pheromone traps were placed at 50 permanent locations throughout the Island (Figure 7), and moths were caught at 58% of these. Moths were trapped at every location throughout western Newfoundland. The highest numbers were recorded on the Port au Port Peninsula (118) and near the infestation in the Codroy Valley (87). The number trapped at Sally's Cove (52) remains high for the third year in spite of a lack of a local infestation. High numbers (44) were also recorded near the infestation on the Baie Verte Peninsula. Very few moths were trapped in central and eastern Newfoundland, and in general the number of moths trapped decreased from 1986 to 1987.

Branch samples to determine the number of egg masses were collected in conjunction with the hemlock looper egg survey in late October. The number of samples was increased to 74 this year in western Newfoundland.

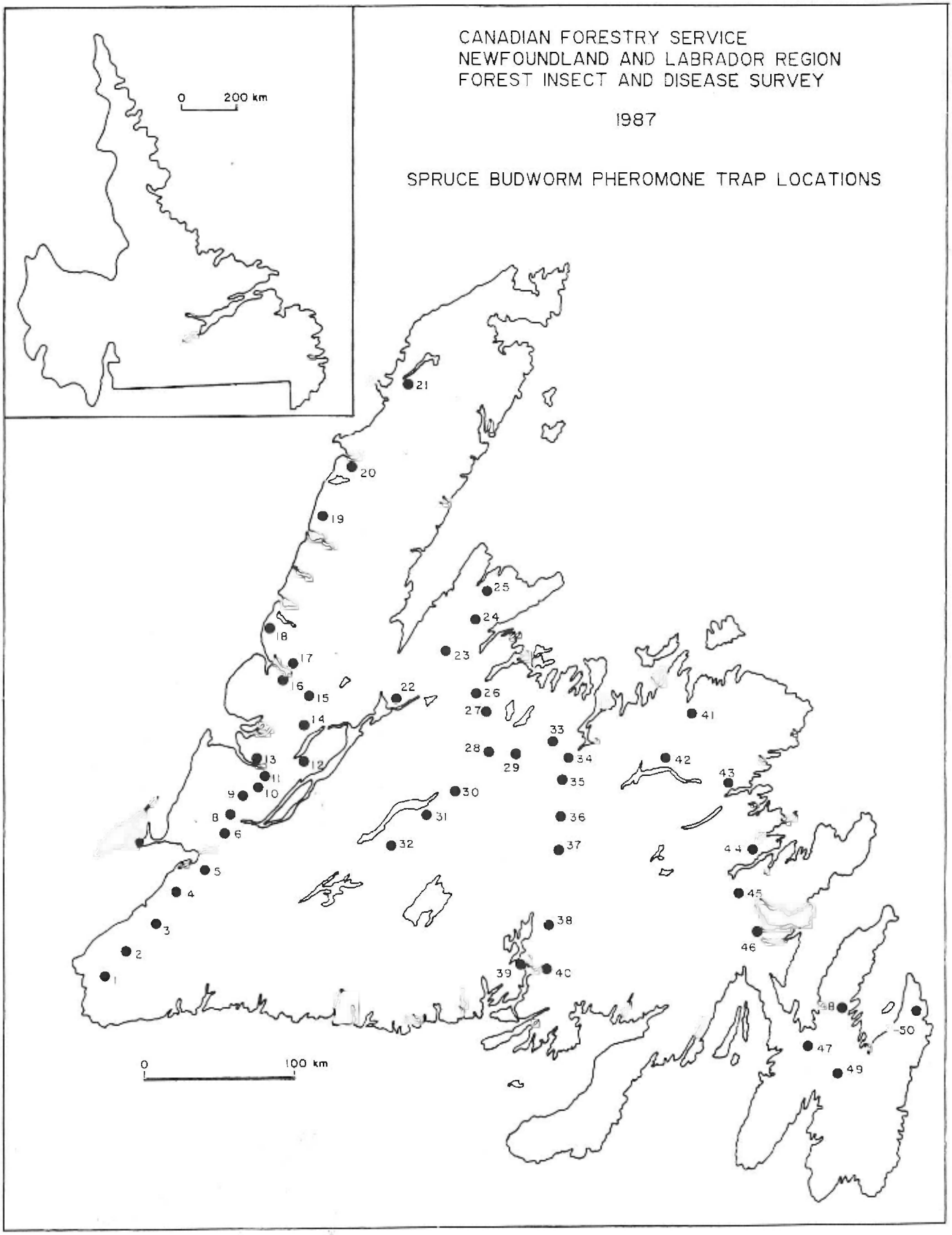

Figure 7. Spruce budworm pheromone trap locations.

About 2 240 ha of moderate and severe defoliation is expected near South Branch (Figure 8). Light defoliation in isolated patches is forecast to occur from Codroy Valley to George's Lake, on the Baie Verte Peninsula and near Ten Mile Lake on the Northern Peninsula (Table 4).

Table 4. Areas (ha) of defoliation by the spruce budworm forecast in productive forests of Newfoundland for 1988.

Management Unit No.	Defoliation Class*		
	Light	Moderate & Severe	Total
9	1 100	-	1 100
14	2 000	2 240	4 240
15	500	-	500
Total	3 600	2 240	5 840

*Light = 1-25%
Moderate = 26-75%
Severe = 76-100%

Balsam Woolly Aphid

Adelges piceae

For the past several years population levels of the aphid have been increasing in natural and in thinned stands in southwestern Newfoundland. In 1987, a co-operative project was initiated between the Newfoundland Forestry Centre and the Forest Pest Management Institute to test the potential use of insect growth regulators (IGR) against the aphid.

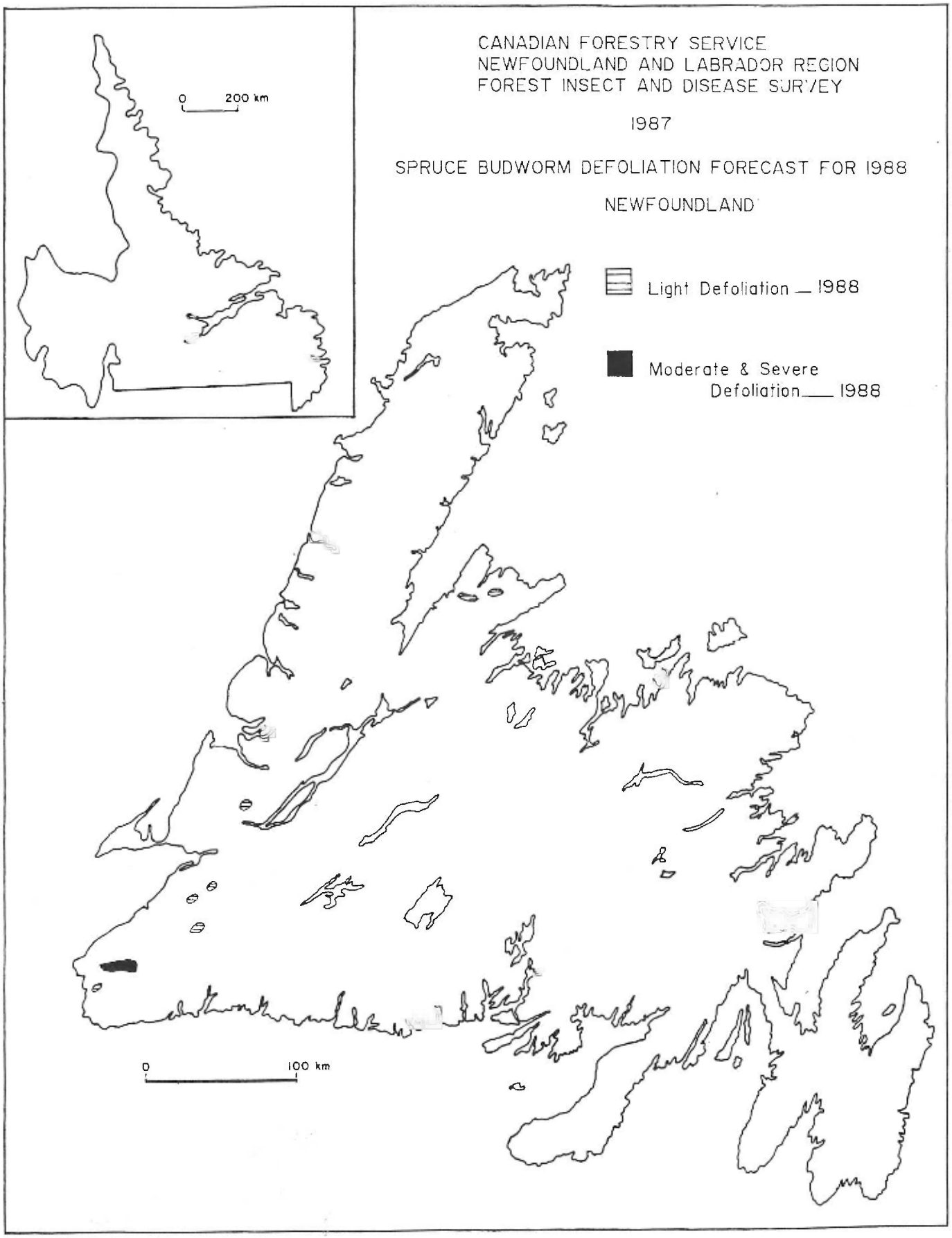

Figure 8. Areas of defoliation by the spruce budworm forecast in productive forests of Newfoundland for 1988.

Four IGRs were tested in field trials at Bottom Brook in western Newfoundland. All four IGRs reduced aphid numbers, compared to unsprayed trees, and two reduced numbers to near zero.

Scleroderris Canker

Ascocalyx abietina

European Race

The incidence of Scleroderris canker increased in 1987. Surveys conducted recorded the disease in four new locations. Three of these were in St. John's on red, Scots and Austrian pine and one is in an old Scots pine plantation on the Salmonier Line. A 20 year old Sitka spruce experimental plantation near Roddickton on the Northern Peninsula was confirmed to be infected by the canker. A survey of the stand indicated that most of the Sitka spruce trees were infected showing positive signs and symptoms of the disease. The disease has not been recorded on black spruce in the Province and surveys to determine the possible spread to native spruce are in progress. Cutting and pruning of infected trees were carried out in the Roddickton area and in the St. John's area. The occurrence of Scleroderris canker on the Northern Peninsula is the first record of this disease outside the Avalon Peninsula and the second record outside the quarantine area established in 1980 (Figure 9). About 30% of the Austrian pine trees on Pitts Memorial Drive near the Kilbride turnoff, were also infected. The canker was also recorded again this year on Austrian pine at Bowring Park, near Worker's Compensation Building, Factory Lane, Anglican Cemetary and Rennies Mill Road.

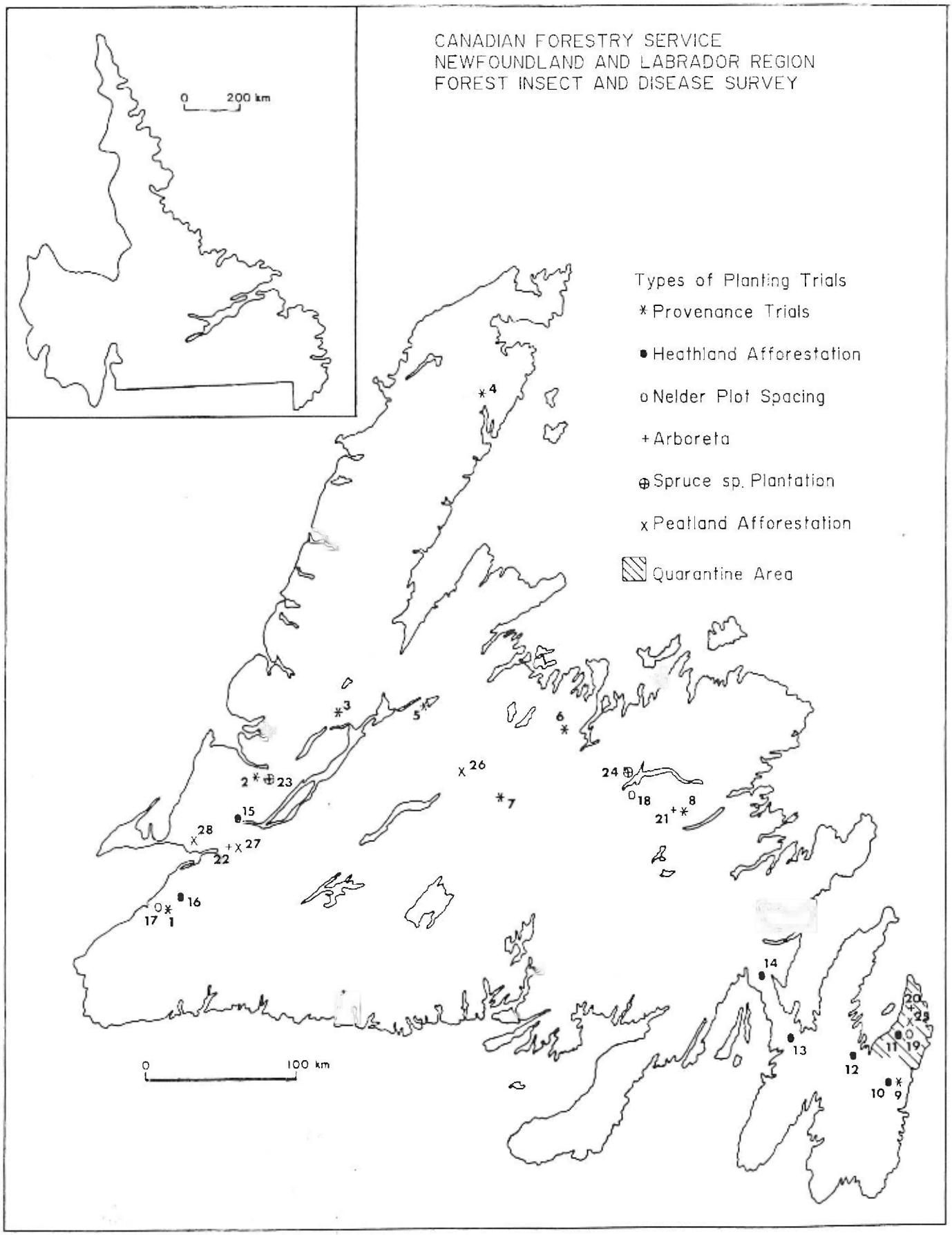

Figure 9. Locations of Scleroderris canker quarantine area and the Sitka spruce experimental plantations.

Armillaria Root Rot

Armillaria spp.

A moderate incidence of Armillaria root rot was recorded in the Wooddale Nursery on larch seedlings. The seedlings were stressed due to drought and root collar weevil. The root rot was also recorded on an all range provenance trial of young black spruce near Roddickton. Mortality of a few eastern white pine occurred along the Barachois Brook road. Red pine at Alexander Bay and Northern Arm, Botwood were also affected by the pathogen.

Black Army Cutworm

Actebia fennica

High numbers of black army cutworms were found in four recently burnt areas planted with black spruce seedlings in central and western Newfoundland. The larvae first fed on a variety of herbaceous plants then on hardwood and softwood regeneration. The highest population levels occurred in western Newfoundland where the cutworm had consumed all herbaceous vegetation and caused severe defoliation to planted seedlings. Chemicals were applied in late June to protect the planted seedlings but little foliage protection was achieved because many larvae had pupated before the sprays were applied.

Cutworm infestations usually develop in recently burnt areas and subside within three years after the burn. It is expected that the cutworm will infest these areas again in 1988.

Spruce Bud Scale

Physokermes piceae

The bud scale was recorded for the first time in Newfoundland in 1986 in plantations in central Newfoundland. In 1987 population levels increased in two plantations near Springdale in central Newfoundland. An undetermined parasite was common on the scale insects. Other plantations visited in the central district had low numbers of the bud scale.

Broom Rust

Melampsorella caryophyllacearum

This disease is present in most fir stands throughout the Island. The incidence was highest along the Bauline Line on the Avalon Peninsula where several brooms per tree occurred on about 10% of the trees. Other areas where it was recorded in 1987 were from Portugal Cove, Mount Carmel, Sheffield Brook and Portland Creek.

Sirococcus Shoot Blight

Sirococcus strobilinus

This shoot blight was first recorded on black spruce seedlings at the Wooddale Nursery in 1982. This year it was recorded for the first time on white spruce from the Nursery but caused less than 1% seedling mortality.

Yellowheaded Spruce Sawfly

Pikonema alaskensis

Low to medium population levels of this pest caused light defoliation of black spruce in plantations near Grand Falls and in the Gander

area. Only moderate damage was recorded on a few trees in these areas. These insects usually feed gregariously and can cause top mortality to immature trees.

Eastern Dwarf Mistletoe

Arceuthobium pusillum

Dwarf mistletoe continued to affect previously healthy trees in a black spruce stand near Gambo. The total number of new black spruce affected in 1987 was about 50% of the total number of trees affected from 1983 to 1986. The number of trees affected each year has increased since 1983. No mortality has resulted in trees that have been affected by the mistletoe.

Drought Conditions

Drought was common and widespread throughout the Province especially in central and eastern Newfoundland and the Avalon Peninsula. The water level in many lakes and ponds dropped one to two metres below normal. Many softwood trees had needles turn brown and drop, a common symptom of stress brought on by drought. Some mortality occurred on ornamental trees as a result of low water tables. In certain areas up to 60% of the trees showed damage due to drought.

Winter Drying

Winter drying was very common and widespread on softwood trees in Newfoundland and Labrador in 1987. A severe incidence of winter drying on balsam fir occurred along the Northern Peninsula from Plum Point

to Deer Lake where up to 100% of the trees were affected near Rocky Barachois Brook and South East Brook. Fifty percent of a two hectare balsam fir area was affected in western Labrador. Twenty percent of red pine seedlings were affected in a nursery in western Newfoundland.

PINE AND LARCH PESTS

Larch Sawfly

Pristiphora erichsonii

The infestation on the Avalon Peninsula was less intense in 1987 than in 1986. This was the fourth year of attack and the infestation is expected to decline further in 1988. The masked shrew, an introduced species seems to shorten the length of infestations from 8-10 years to 3-5 years. Table 5 shows the trapping records from 1982-87 in the four permanent sampling plots across the Island.

Table 5. Estimated number of shrews per hectare in Newfoundland.

	October					
Location	1982	1983	1984	1985	1986	1987
St. George's	4.30	10.77	2.15	3.21	2.15	4.30
Hall's Bay	6.45	4.30	6.45	3.21	2.15	2.15
Terra Nova	8.60	4.30	10.80	-	6.42	3.24
Paddy's Pond	5.39	3.24	5.39	2.15	5.39	1.09

White Pine Sawfly

Neodiprion pinetus

Severe defoliation of white pine was recorded in 1986 on several trees near Charlottetown in Terra Nova National Park. Limited larval collections made late in the season in 1986 were tentatively identified as the redheaded pine sawfly. However, collections made in 1987 were able to identify the causal insect correctly as the white pine sawfly.

White Pine Blister Rust

Cronartium ribicola

A high incidence of white pine blister rust was recorded on eastern white pine on Southwest Gander River road where 80% of the trees in this area were dead or dying from the disease. In Clarenville several trees were affected with stem and branch cankers. In a private garden at Head Bay d'Espoir most of the white pine trees showed infection for the first time this year. A low incidence was observed at Octagon Pond where up to 5% of the branches were affected.

Pinewood Nematode

Bursaphalenchus xylophilus

Surveys were conducted in 1987 in cooperation with Memorial University to detect this nematode and its insect vectors.

Rangers collected wood borings and discs from healthy, dying and recently dead trees of fir, spruce, larch and pine in several areas on the Island that were not previously sampled (Figure 10). About 25% of the samples contained some nematodes, identified as the "m" form of the pinewood nematode collected from three larch samples and one black spruce near Lake Ambrose and from a larch and balsam fir sample near Marystown.

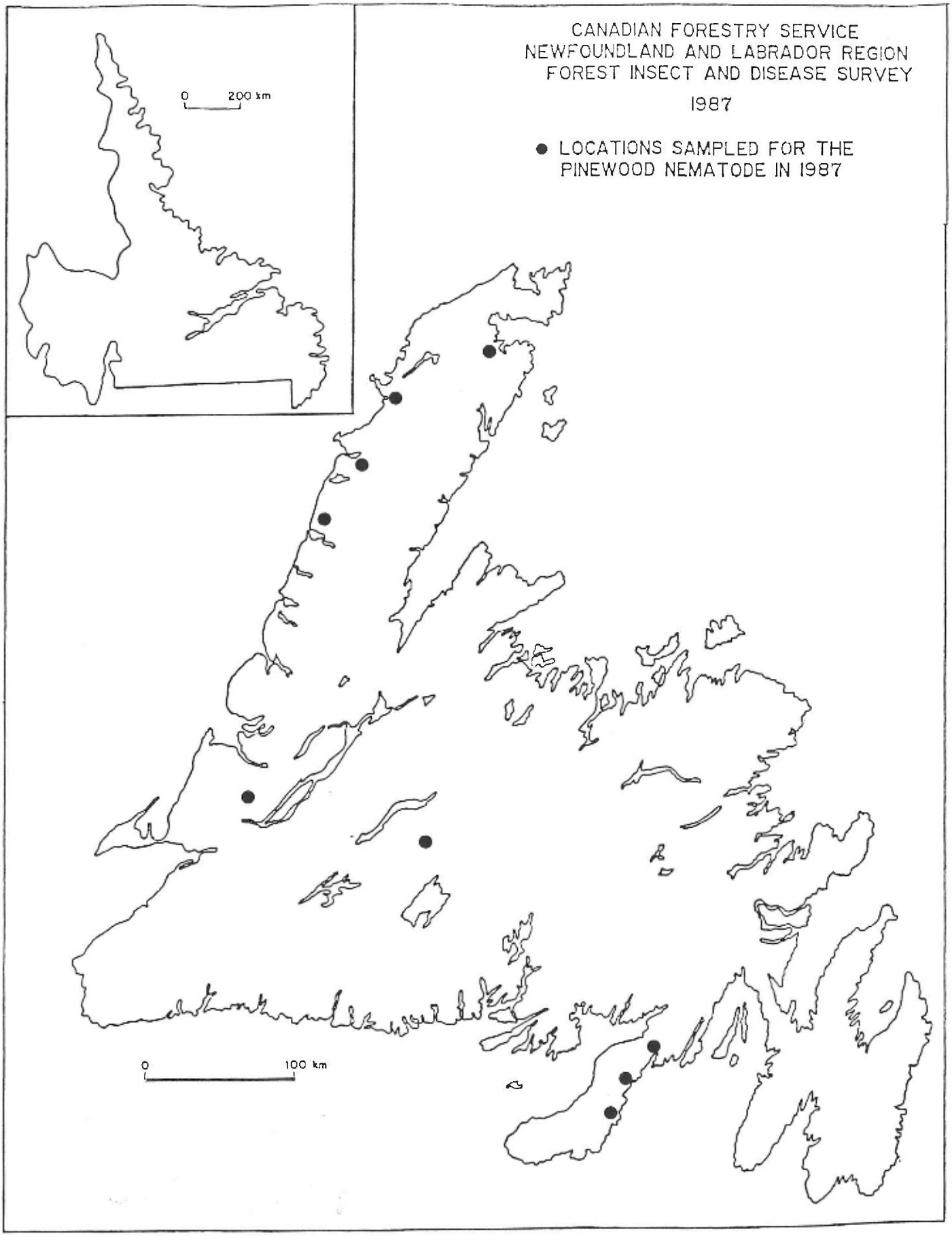

Figure 10. Locations where wood borings and discs were collected for pinewood nematode in Newfoundland in 1987.

These samples show the presence of the pinewood nematode "m" form in living larch and a new area near Marystown in addition to the six locations previously found.

Probable insect vectors of the pinewood nematode were collected from freshly cut and piled logs at three locations and from a commercial wood chip pile. A total of 65 specimens of bark beetles, weevils, wood wasps and wood borers were collected and several contained some nematodes but not the pinewood or "m" form.

DECIDUOUS TREE PESTS

Birch Casebearer

Coleophora serratella

Population levels of the casebearer were generally low in western and central Newfoundland except for some moderate areas along the roadside between Pasadena and Steady Brook, Gallant's Road, Goose Arm, Sir Richard Squires Provincial Park and Jackson's Arm. Severe defoliation of white birch and alder occurred along the Trans Canada Highway from Gander to Gambo and from Thorburn Lake to Clarenville in eastern Newfoundland.

Leaf and Shoot Blight

Venturia macularis

The incidence of leaf and shoot blight is very common and widespread in cutover areas in central and eastern Newfoundland, especially where black spruce-trembling aspen forests occur. The damage is usually

restricted to aspen regeneration. In 1987 moderate damage to shoots was recorded near Sheffied Lake. Other collections were made at Goose Bay, Churchill Road and Northwest River in Labrador.

White-Marked Tussock Moth

Orgyia L. leucostigma

The two infestations that occurred in western Newfoundland, along the Bottom Brook Road and near Overfalls Brook, continued in 1987. A virus was applied to a part of the infestation in Bottom Brook in 1986, and larval numbers were low in 1987. Additional areas of the infestation in Bottom Brook were treated with the virus in 1987.

Satin Moth

Leucoma salicis

Mature willows near the golf course and paper mill in Corner Brook were completely defoliated by the satin moth. This is the third year of severe attack on the trees and some branch mortality is expected. Light defoliation of poplars occurred on ornamental trees at Pasadena.

Fall Webworm

Hyphantria cunea

Population levels were high throughout the area from Black Duck-Stephenville Crossing to Stephenville. Numerous webs on roadside shrubs and trees containing larvae were very noticeable along all roads throughout these areas.

Birch Leafminer

Fenusa pusilla

Moderate to severe damage was recorded in white birch regneration in patches from Clarenville to Red Indian Lake along the Trans Canada Highway and along some secondary roads. Light damage occurred throughout western Newfoundland except for moderate and severe patches at Howley and Hampden Junctions along the Trans Canada Highway at Birchy Ridge, Gros Morne National Park and near Hawke's Bay. Severe browning was also recorded in a small area near Otter Creek in Labrador.

Gypsy Moth

Lymantria dispar

A survey for gypsy moths was conducted by FIDS in co-operation with Agriculture Canada using pheromone baited traps. These were placed in camping sites, parks and near towns to catch moths that may be introduced by recreation vehicles from infested areas on the mainland. Only one male moth was trapped in Pippy Park in St. John's.

Forest Tent Caterpillar

Malacosoma disstria

Pheromone baited traps were placed throughout the Island in camping areas and near towns to collect moths that might be introduced on recreation vehicles from mainland Canada. No moths were caught in these traps in 1987.

OTHER INSECTS AND DISEASES

Insect or Disease	Host(s)	Location	Remarks
Anthracnose *Kabatiella apocrypta* (Ell. & Ev.) Arx	Red maple	Western Newfoundland	Low incidence. 20% of foliage affected on few saplings.
Balsam fir sawfly *Neodiprion abietis* complex	Balsam fir	Western and eastern Newfoundland	Low populations. No significant defoliation.
Balsam twig aphid *Mindarus abietinus* Koch.	Balsam fir	Western and eastern Newfoundland Western Labrador	Low to moderate populations. Infestations of new shoots ranged from 10% to 60%.
Black knot *Apiosporina morbosa* (Schw.) Arx	Pin cherry	Throughout Newfoundland	Low incidence to ornamentals on the Avalon Peninsula. Common on pin cherry throughout the Island.
Cytospora canker and dieback *Cytospora chrysosperma* (Pers.) Fr.	Willow Pin cherry	Avalon Peninsula	Moderate incidence. 100% of the willow trees in a 2 hectare area affected.

Other Insects and Diseases (Cont'd.)

Insect or Disease	Host(s)	Location	Remarks
Eastern blackheaded budworm *Acleris variana* (Fern.)	Black spruce White spruce Balsam fir	Throughout Newfoundland	Low populations.
European alder leafminer *Fenusa dohrnii* (Tischb.)	Speckled alder	Western Newfoundland Labrador	Low populations. Light to moderate browning.
European poplar canker *Dothichiza populea* Sacc. & Briard	Lombardy poplar	Western Newfoundland Avalon Peninsula	High incidence. 100% infection resulted in up to 80% of the branches affected. Mortality also occurred on some smaller trees.
European spruce sawfly *Gilpinia hercyniae* (Htg.)	Black spruce White spruce Sitka spruce	Western and central Newfoundland Western Labrador	Low populations. No significant damage.
Four-eyed spruce bark beetle *Polygraphus rufipennis* (Kby.)	Black spruce	Western Labrador	Low numbers found on wind-thrown black spruce.
Green balsam looper *Cladara limitaria* (Wlk.)	Balsam fir White spruce	Western and eastern Newfoundland	Low numbers. No significant defoliaton.

Other Insects and Diseases (Cont'd.)

Insect or Disease	Host(s)	Location	Remarks
Ice and snowstorm damage	Softwood and hardwood species	Avalon Peninsula	Weight of ice and snow caused outer twigs and branches to break.
Leaf rust *Melampsora abieti-capraearum* Tub.	Willow	Western and eastern Newfoundland Western Labrador	Varying levels of infection scattered throughout the region.
Leaf spot *Entomosporium mespili* (DC. ex Duby) Sacc.	Hawthorn	Avalon Peninsula	Moderate incidence. 95% of the foliage affected. Approximately 50% of the leaves dropped prematurely.
Marssonina brunnea (Ell. & Ev.) Sacc.	Hybrid poplar	Avalon Peninsula	Low incidence to 100% of the foliage of one tree.
Mycosphaerella colorata (Pk.) Earle	Sheep laurel	Eastern Newfoundland	Low incidence. 10% of the foliage affected.
Leaf spot and canker *Septoria musiva* Peck.	Balsam poplar	Western Newfoundland	100% of the trees infected and 5% dead in Crabbes River Provincial Park. Dieback from the tops is also very characteristic.

Other Insects and Diseases (Cont'd.)

Insect or Disease	Host(s)	Location	Remarks
Mountain-ash sawfly *Pristiphora geniculata* (Htg.)	American mountain-ash	Western and eastern Newfoundland Western Labrador	Moderate to severe defoliation on a few trees in western Newfoundland.
Nectria canker *Nectria cinnabarina* Tode ex Fr.	Horse chestnut Basswood Sycamore maple	Avalon Peninsula	Low incidence. Up to 5% of the branches affected.
Nectria galligena Bres.	Red maple	Avalon Peninsula	30% of the trees infected in urban St. John's.
Needle cast *Isthmiella crepidiformis* (Darker) Darker	Black spruce	Central Newfoundland	Low incidence. Only a few trees affected.
Lirula nervata (Darker) Darker	Balsam fir	Eastern Labrador	Moderate damage on a few trees.
Lophodermium pinastri (Schrad. ex Fr.) Chev.	Eastern white pine Jack pine	Central Newfoundland Avalon Peninsula	High incidence. 80% of the foliage affected in a jack pine plantation on the Avalon Peninsula.
Needle rust *Pucciniastrum epilobii* Otth	Balsam fir	Central Newfoundland western Labrador	High incidence. Severe damage to few trees in central Newfoundland; also severe damage recorded to a 1 hectare stand in western Labrador.

Other Insects and Diseases (Cont'd.)

Insect or Disease	Host(s)	Location	Remarks
Phomopsis blight *Phomopsis juniperovora* Hahn.	Northern white cedar	Avalon Peninsula	Up to 100% of the cedars infected with up to 50% of the foliage affected in urban areas of St. John's.
Poplar serpentine leafminer *Phyllocnistis populiella* (Cham.)	Trembling aspen Balsam poplar	Western and central Newfoundland Eastern Labrador	Populations varied from low to high. 10-20% damage recorded throughout the areas.
Red flag *Fusicoccum abietinum* (Hartig) Prill. & Del.	Balsam fir	Western Labrador	Moderate incidence. Common throughout the area.
Root collar weevil *Hylobius* sp.	Red pine Balsam fir	Western and eastern Newfoundland	Light damage to pine plantations in North Pond area.
Shot hole *Coccomyces hiemalis* Higgins	Pin cherry	Avalon Peninsula	Low incidence.
Spruce bud moth *Zeiraphera canadensis* M. & F.	Black spruce White spruce	Throughout Newfoundland	Low numbers and light damage found at several locations across the Island.

Other Insects and Diseases (Cont'd.)

Insect or Disease	Host(s)	Location	Remarks
Striped alder sawfly *Hemichroa crocea* (Geoff.)	Speckled alder White birch	Western Newfoundland Labrador	Populations ranged from low to high. In western Newfoundland defoliation varied from a trace to 100%. High numbers were recorded in Labrador, but only 20% defoliation occurred due to late larval emergence.
Taphrina witches' broom *Taphrina cerasi* (Fckl.) Sadeb.	Pin cherry	Avalon Peninsula	Low incidence. Up to 3 brooms affecting 20% of 1 tree.
Tar spot *Rhytisma salicinum* (Pers.) Fr.	Willow	Labrador	Low to moderate incidence. Up to 40% affected. Common throughout.
Willow blight *Fusicladium saliciperdum* (All. & Tub.) Lind.	Willow	Eastern Newfoundland	Up to 60% of laurel leaf willow affected. High mortality to golden willow.
Physalospora miyabeana Fukushi	Willow	Eastern Newfoundland	Up to 60% of laurel leaf willow affected. High mortality to golden willow.
Willow leaf beetle *Chrysomela falsa* Brown	Willow Balsam poplar	Western Newfoundland Eastern Labrador	Severe defoliation (up to 90%) was recorded on both host species in a square kilometre area near Otter Creek in eastern Labrador. Light defoliation elsewhere.

Other Insects and Diseases (Concl'd.)

Insect or Disease	Host(s)	Location	Remarks
Wind damage	Urban trees	Western Newfoundland	Trees 15 m high blown over by 140 km per hour winds in the city of Corner Brook.
Yellow leaf blister *Taphrina populina* Fr.	Hybrid poplar Lombardy poplar	Central and eastern Newfoundland	Low incidence. 30% of the foliage affected on ornamentals in St. John's.