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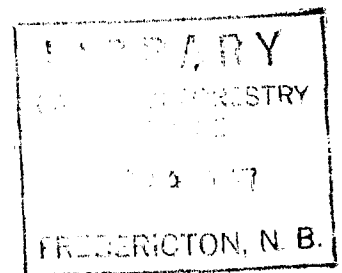
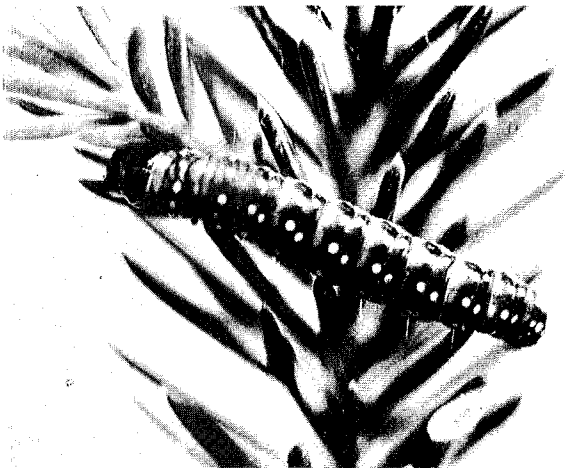
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Annual District Report Forest Insect and Disease Survey 1975 Newfoundland



Newfoundland Forest Research Centre
St. John's, Newfoundland
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1975 ANNUAL DISTRICT REPORT
FOREST INSECT AND DISEASE SURVEY
NEWFOUNDLAND

by: L.J. CLARKE, E.C. BANFIELD, W.J. SUTTON, D.M. STONE,
D.S. O'BRIEN, K.E. PARDY and G.C. CAREW

NEWFOUNDLAND FOREST RESEARCH CENTRE
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INTRODUCTION

This report is a comprehensive summary of forest insect and disease conditions throughout the Province in 1975. It is based on regular and special surveys conducted in the 10 survey districts on the Island and in 2 new districts established this year in Labrador (Fig. 1). A total of 826 insect and disease samples were collected of which 22 contained species recorded for the first time in Newfoundland.

Approximately 52 hours were flown in fixed-wing aircraft to complete an aerial survey of the forests on the Island and in Labrador and 87 hours were flown in helicopters during the spruce budworm egg-mass survey. These surveys involved a high level of cooperation from other forest agencies. The Forestry Division of the Provincial Department of Forestry and Agriculture provided aircraft time and also assisted in the spruce budworm egg counting. The National and Historic Parks Branch of the Department of Indian Affairs and Northern Development provided personnel, aircraft and vehicles for surveys throughout the Parks.

The annual sampling of the masked shrew and a study to evaluate its impact on sawfly populations was conducted in October. Assistance was provided to the Canadian Broadcasting Corporation in the production of a 30-minute film on the spruce budworm for the television program "Land and Sea". Advice and consultation was provided to property owners on the control

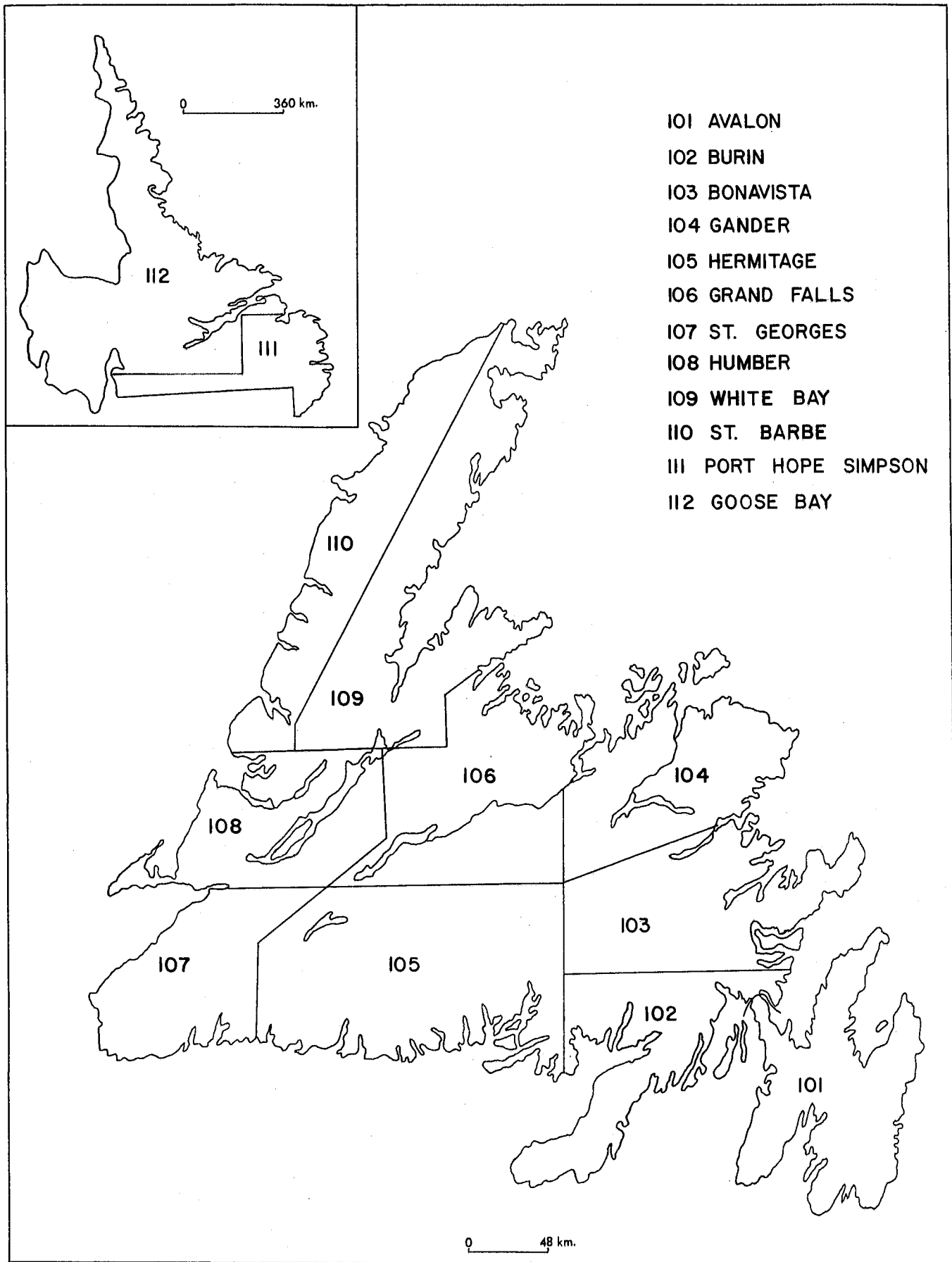


Fig. 1. Forest Insect and Disease Survey Districts.

of insects and diseases on shade and ornamental trees. Special insect collections for local and mainland university research scientists were also provided during the summer.

Cool, wet weather was experienced in eastern Newfoundland during May and June but warm, dry conditions prevailed throughout the rest of the Island and in Labrador. Record hours of sunshine, above normal temperatures and below normal rainfall were experienced throughout the Island in July. Relatively dry and warm weather conditions continued throughout August and September. Absolute temperatures and precipitation for the past five years are shown in Table 1.

The spruce budworm and blackheaded budworm were the most serious insect pests in 1975 and they caused severe damage to fir and spruce stands throughout the Province. Hemlock looper populations increased in Central and Western districts and reached outbreak numbers in some areas on the Avalon Peninsula. Balsam fir sawfly population levels remained high in Labrador but this sawfly and the balsam woolly aphid and larch casebearer were lower in infestations on the Island. Larch sawfly populations caused moderate to severe damage to tamarack stands in both the Island and Labrador. Birch casebearer infestations extended east to Clarenville and caused severe damage throughout central and eastern Newfoundland. The rusty tussock moth caused severe defoliation of many species of trees and shrubs throughout the Avalon and Burin peninsulas. The plum web-spinning sawfly caused severe damage to pin cherry in the Goose Bay area of Labrador and was reported for the first time in the Badger area. The large aspen tortrix was a major defoliator of aspen in the west-central section of the Island and completely denuded most aspen stands throughout the Exploits Valley.

Table 1.- Average temperatures and total precipitation for Newfoundland 1971-1975

Year	Location	Temperatures (°C)*								Precipitation (cm)			
		May		June		July		August		May	June	July	August
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.				
1971	St. John's	3	13	6	16	11	19	13	21	4.24	9.37	14.68	15.04
1972	"	0	10	10	20	9	19	11	19	10.44	9.75	1.93	11.81
1973	"	2	9	6	16	14	23	10	17	12.24	15.88	6.60	19.15
1974	"	-2	14	-1	28	1	26	5	24	10.87	6.12	9.12	14.40
1975	"	-2	22	0	26	2	29	5	27	22.02	11.18	1.93	14.53
1971	Gander	4	16	6	17	11	21	12	22	2.49	5.77	7.95	7.95
1972	"	-1	10	7	19	10	22	10	20	13.34	9.80	4.52	6.25
1973	"	2	10	6	17	14	23	9	18	9.83	14.63	5.92	16.21
1974	"	-3	14	-2	28	1	26	4	27	7.11	10.64	5.05	5.26
1975	"	-4	21	-2	25	5	34	5	29	17.93	2.44	6.20	6.03
1971	Deer Lake	3	17	4	18	9	23	10	22	4.19	6.07	6.30	13.61
1972	"	-1	11	6	19	8	23	7	21	9.45	10.21	4.04	9.32
1973	"	2	12	6	18	13	24	8	21	6.65	15.29	8.69	13.28
1974	"	-4	14	-4	31	0	29	-1	31	3.56	2.21	8.99	6.27
1975	"	-6	22	-3	27	1	33	0	31	6.60	4.72	3.71	8.10

*Shown in Absolute Readings.

The most serious diseases were shoot and leaf blight of aspen, needle cast of conifers, yellow witches broom, winter drying and a canker of Lombardy poplar.

IMPORTANT FOREST INSECTS

Spruce Budworm, *Choristoneura fumiferana* (Clem.) - The 1975 aerial survey showed the budworm outbreak had extended from the Codroy Valley, north to Cow Head and east to Terra Nova, with a separate infestation on Random Island. The total infested area was 2 017 762 hectares (4,985,996 acres) of productive forest; moderate to severe defoliation occurred on 569 580 hectares (1,654,565 acres) about 265 158 hectares (655,222 acres) less than in 1974, Table 2. The most noticeable decrease occurred in the Codroy Valley; between Cow Head and Main Brook and between Bishops Falls and Bay d'Espoir. Although the area of infestation decreased slightly, larval numbers for the Island increased from an average of 22.3 per tree in 1974 to 29.3 per tree in 1975, Table 3.

Defoliation by this budworm was generally light east of Gander except for 21 043 hectares (52,000 acres) of moderate and severe near Soulis Pond. The infestation on Random Island extended from Hickmans Harbour to Shoal Harbour River near the Trans Canada Highway. Larval counts in the latter area averaged 51 per tree, defoliation of the current year's foliage of balsam fir was 50%.

A spruce budworm egg-mass survey was conducted in September to determine the number of budworm egg-masses per 100 square feet of foliage at each sample location, Table 4. This information was used to estimate and forecast the severity of defoliation and to delineate the areas where tree mortality is expected in 1976. The survey was conducted similar to the 1974 operations with the assistance and cooperation of the Provincial Forest Service, Forest Industry and National Parks personnel.

Table 2.- 1975 Spruce budworm infestations by 1:250,000 scale topographic map sheets

Map sheet	Region*	Light	Moderate	Severe	Total infestation
Blanc Sablon	W	22 286 ^{**}	653	-	22 939
"	"	(55,069) ^{***}	(1,613)	-	(55,232)
Port Saunders	W	53 171	17 459	28 479	99 109
"	"	(131,388)	(43,141)	(70,374)	(244,903)
Bay of Islands	W	4 239	2 960	6 693	13 892
"	"	(10,474)	(7,315)	(16,539)	(34,328)
Stephenville	W	37 365	11 404	142 306	191 075
"	"	(92,330)	(28,181)	(351,646)	(472,157)
Port aux Basques	W	2 505	-	9 945	12 450
"	"	(6,189)	-	(24,575)	(30,764)
Sandy Lake	W	270 229	51 038	156 838	478 105
"	"	(667,750)	(126,118)	(387,555)	(1,181,423)
Sandy Lake	C	99 473	3 208	26 870	129 551
"	"	(245,804)	(7,927)	(66,396)	(320,127)
Red Indian Lake	W	64 303	25 991	47 771	138 065
"	"	(158,895)	(64,224)	(118,044)	(341,163)
Red Indian Lake	C	141 587	21 770	12 575	175 932
"	"	(349,870)	(53,794)	(31,073)	(434,737)
Botwood	C	263 767	19 953	31 066	314 786
"	"	(651,781)	(49,306)	(76,765)	(777,852)
Gander Lake	C	348 077	32 916	16 567	397 560
"	"	(860,117)	(81,337)	(40,938)	(982,392)
Gander Lake	E	28 661	-	-	28 661
"	"	(70,823)	-	-	(70,823)
Belleoram	C	2 698	1 070	-	3 768
"	"	(6,666)	(2,645)	-	(9,311)
Bonavista	E	11 871	-	-	11 871
"	"	(29,334)	-	-	(29,334)

* W = Western
 C = Central
 E = Eastern
 ** = Hectares
 *** = Acres

Table 3.- Average number of spruce budworm larvae collected in ranger districts.

District	No. trees sampled	No. larvae collected	No. larvae per tree
Eastern 101-102-103-104	379	1,518	4.0
Central 105-106	284	16,675	58.7
Western 107-108	469	16,680	35.6
Northern 109-110	288	6,691	23.3
TOTAL	1,420	41,564	29.3

The forecast for 1976 is that larval numbers and defoliation will decrease in western Newfoundland but will increase in central and eastern Newfoundland. The 1975 outbreak by damage class and its population intensity from 1972 to 1975 are shown in Table 5. It is expected that some tree mortality will occur, particularly in western Newfoundland where some areas have been severely defoliated by the budworm for the past three years and damaged previously by other insect pests (Fig. 2). The total area where these conditions exist is 248 876 hectares (614,985 acres) with a total merchantable volume of 28 550 086 cubic meters (7,876,842 cords) Table 6. The 1975 defoliation by district is shown in Figs. 3, 4, 5 and 6.

Table 4.- Results of spruce budworm egg mass sampling 1975.

Plot location	No. egg masses per 10 m ² foliage 1975	Egg mass category* 1975
<u>WESTERN</u>		
Mummichog Prov. Park	931	H
O'Regan's	942	H
South Branch	700	H
Coal Brk.	1522	H
4.8 km (3.0 mi.) E. Coal Brk.	187	L
North Branch	434	M
" "	673	H
Codroy Pond	666	H
N.E. end Codroy Pond	427	H
1.6 km (1.0 mi.) E. River Brk.	521	H
Lochleven	600	H
" "	83	L
Crabbes River	111	L
" "	319	M
" "	666	H
Jefferys Station	289	L
Robinsons River	1451	H
" "	962	H
Robinsons River Rd.	467	H
Fischells River	87	L
" "	867	H
" "	78	L
" "	98	L
" "	471	H
Flat Bay Rd.	875	H
Steel Mountain Rd.	1428	H
" " "	428	H
" " "	2248	H
" " "	745	H
" " "	690	H
Barachois Brk.	116	L
" "	728	H
" "	1000	H
Southwest Brk.	46	L
" "	64	L
" "	892	H
" "	338	M
" "	100	L
Bottom Brk.	76	L
" "	316	M

Table 4- Continued

Plot location	No. egg masses per 10 m ² foliage 1975	Egg mass category* 1975
Bottom Brk.	1250	H
Stephenville Rd.	545	H
" "	479	H
Cold Brk. Rd.	942	H
" " "	0	-
Stephenville	630	H
" "	0	-
" "	472	M
Port au Port	61	L
" " "	0	-
" " "	681	H
" " "	0	-
Bottle Pond	571	H
" "	566	H
Silver Pond	425	H
Portage Lake	669	H
Lloyds Lake	148	L
Lloyds River	535	M
Little Grand Lake	1099	H
" " "	444	H
Grand Lake	641	M
" "	0	-
" "	202	L
" "	363	H
" "	0	-
" "	744	H
" " (Northern Hr.)	137	L
Camp 33 Rd.	580	M
Gallants	451	H
" "	550	H
" "	512	M
" "	2263	H
Georges Lake	1300	H
" "	3061	H
" "	543	H
Spruce Brk.	447	M
Pinchgut Lake Rd.	441	H
" " "	1285	H
Pinchgut Lake	611	H
" "	731	H
Glover Island	341	M
" "	321	M
Corner Brk. Lake	114	L
" " "	555	H
" " "	575	H

Table 4-- Continued

Plot location	No. egg masses per 10 m ² foliage		Egg mass category*
	1975		1975
Stag Lake Rd.	1619		H
" " "	1866		H
" " "	3333		H
Stag Lake	1048		H
Stag Hill Rd.	1500		H
Jct. T.C.H. & Stag Hill Rd.	833		H
Corner Brook	0		--
Serpentine Lake Rd.	820		H
Serpentine Lake	1338		H
" "	1190		H
" "	1801		H
Frenchman's Cove	1008		H
Old Woman Head	705		H
3.2 km (2.0 mi.) N. McIvers	298		L
Balance Pt.	728		H
Gillams	0		--
" "	2274		H
Cox's Cove	386		H
Summerside	742		H
Hughes Brk.	586		M
Hughes Lake	1222		H
Steady Brk. Lake	328		M
Pasadena	0		--
" "	0		--
" "	492		M
" "	500		M
Pynns Brk.	716		H
Glide Lake	530		H
St. Judes	833		H
Deer Lake	1206		H
" "	614		M
" "	711		H
Old Man's Pond	465		M
" " "	510		H
Snug Hr. Rd.	683		H
Goose Arm Rd.	914		H
" " "	370		H
" " "	2700		H
" " "	653		H
" " "	0		--
Goose Arm	450		H
" "	503		M
Trout Brk.	414		H
Governors Pond	133		L
Bonne Bay Rd.	1050		H
" " "	1091		H
" " "	656		H

Table 4- Continued.

Plot location	No. egg masses per 10 m ² foliage	Egg mass category [#]
	1975	1975
Cormack Rd.	818	H
" "	2032	H
Junction Brk.	3333	H
Crooked Feeder	1955	H
Adies Lake	466	H
" "	283	L
" "	914	H
W. of Adies Lake	3600	H
Adies Stream	50	L
Little Falls	686	H
Big Falls	1130	H
Birchy Ridge	800	H
Birchy Basin	3800	H
Silver Mountain	410	H
Upper Humber River	0	-
" " "	266	L
" " "	500	H
" " "	0	-
" " "	1500	H
St. Paul's Big Pond	0	-
S. of Portland Creek	157	L
Portland Creek	400	H
N. of Daniels Hr.	520	H
Bellburns	40	L
" "	0	-
" "	279	M
Brian's Pond	449	M
Flat Pond	533	H
Western Blue Pond	100	L
Eastern Blue Pond	514	M
S. of River of Ponds Lake	0	-
River of Ponds	100	L
" " "	866	H
" " "	0	-
Hawke Bay	0	-
" "	137	L
Bryant's Raft Pond	466	H
" " "	66	L
Big East River	50	L
Eddies Cove	0	-
Squid Cove	0	-
6.4 km (4.0 mi.) N. of Castors River	0	-
Leg Pond	57	L
" "	937	H

Table 4- Continued

Plot location	No. egg masses per 10 m ² foliage 1975	Egg mass category* 1975
N.E. of Leg Pond	0	-
E. of St. Barbe	0	-
Ten Mile Lake	0	-
Salmon River	116	L
N.W. of Salmon River	0	-
Main Brk. Rd.	0	-
W. of Main Brk.	66	L
" " " "	0	-
Roddickton Rd.	0	-
" "	0	-
" "	561	M
" "	586	H
" "	323	M
" "	0	-
Roddickton Pond	0	-
Northern Arm (Canada Bay)	1413	H
Conche Rd.	666	H
" "	0	-
" "	80	L
Bide Arm	0	-
Soufflets River	0	-
N.W. of Great Hr. Deep	0	-
S.W. of Great Hr. Deep	0	-
Little Hr. Deep	0	-
" " "	0	-
" " "	385	M
" " "	246	L
" " "	100	L
Great Cat Arm	0	-
W. of Great Cat Arm	0	-
Cat Arm River	0	-
" " "	0	-
Jacksons Arm	571	H
Jacksons Arm Rd.	1626	H
N.W. of Sop's Arm	266	L
Main River	755	H
Sop's Arm	600	H
" "	833	H
Sop's Arm Rd.	705	H
" " "	733	H
" " "	343	H
" " "	871	H
" " "	472	M

Table 4- Continued

Plot location	No. egg masses per 10 m ² foliage	Egg mass category*
	1975	1975
White Bay	2666	H
" "	480	H
" "	808	H
Hampden	884	H
Hampden Rd.	254	M
" "	305	L
6.4 km (4.0 mi.) E. of Little Falls	1432	H
Jct. T.C.H. & Howley Rd.	698	H
Howley	800	H
Goose Brk.	103	L
Hinds Brk.	125	L
Kittys Brk.	913	H
" "	95	L
N. Side of Birchy Lake	576	H
" " " " "	1175	H
Birchy Lake Narrows	545	H
Chain Lakes	883	H
Sheffield Lake	333	M
" "	406	M
Indian River	932	H
Baie Verte Prov. Park	681	H
Baie Verte Jct.	565	M
Black Lake	284	L
Gull Pond	533	H
" "	678	H
Wild Cove Pond	1142	H
Pumbly Cove	786	H
Purbecks Cove	1202	H
" "	1727	H
12.8 km (8.0 mi.) S. of Baie Verte	316	M
Seal Cove	1010	H
Jct. Seal Cove & Wild Cove rds.	421	H
Baie Verte Rd.	513	H
South Brk.	1040	H
" "	1100	H
South West Brk.	1222	H
Baie Verte	357	H
" "	600	H
" "	555	H
N. of Baie Verte	1500	H
Wild Cove Brk.	914	H
Wild Cove Rd.	966	H
" " "	380	H
Wild Cove	1296	H
Fleur de Lys Rd.	1777	H
Fleur de Lys	363	H

Table 4- Continued

Plot location	No. egg masses per 10 m ² foliage 1975	Egg mass category* 1975
Coachman's Cove	952	H
Jct. Ming's Bight & La Scie rds.	478	H
Ming's Bight Rd.	714	H
Jct. Woodstock & La Scie rds.	500	H
La Scie Rd.	850	H
" " "	414	M
Cross Country Pond	1200	H
East Pond	923	H
Burlington Rd.	968	H
" "	1333	H
Middle Arm	370	H
Middle Arm Brook	712	H
Middle Arm Ridge	2000	H
<u>CENTRAL</u>		
Indian River	1600	H
" "	520	H
King's Point Rd.	78	L
" " "	1772	H
Southwest Arm	1846	H
" "	562	H
Springdale	489	H
" "	2592	H
Burnt Berry Brook	400	H
" " "	533	H
West Pond	855	H
" "	1835	H
" "	566	H
Barney's Brk.	1133	H
South Brook	0	-
Crescent Lake	948	H
South Pond	1779	H
8.0 km (5.0 mi.) E. of South Brook	1304	H
16.0 km (10.0 mi.) S. of South Brook (T.C.H.)	1266	H
Gull Bridge Mines	350	H
Jct. Gull Bridge Rd. & T.C.H.	1016	H
4.8 km (3.0 mi.) S. of Jct. Gull Bridge Rd. (T.C.H.)	1153	H
Three Corner Pond	66	L
Crooked Lake	1344	H
Joes Lake	491	H
Dawes Pond Rd.	2236	H
Dawes Pond	502	M
2.4 km (1.5 mi.) S. of Dawes Pond Rd. (T.C.H.)	1307	H
3.2 km (2.0 mi.) W. of Badger	948	H

Table 4- Continued

Plot location	No. egg masses per 10 m ² foliage 1975	Egg mass category* 1975
Little Glodes Pond	680	H
Aspen Brk.	748	H
Leech Brk.	928	H
Hodges Hill	969	H
Mary Ann Lake	1040	H
Rocky Pond	400	H
South Twin Lake	554	H
" " "	2888	H
" " "	904	H
N. of South Twin Lake	916	H
North Twin Lake	553	H
" " "	1722	H
" " "	1133	H
" " "	1761	H
Marks Lake	1406	H
Sops Arm (Notre Dame Bay)	600	H
Wild Bight	3111	H
Seal Bay Brk.	3450	H
Middle Cove	733	H
4.8 km (3.0 mi.) N. of Pt. Leamington	1866	H
Pt. Leamington Rd.	2622	H
" " "	3458	H
6.4 km (4.0 mi.) S. Pt. Leamington	833	H
5.6 km (3.5 mi.) N. Pt. of Bay	623	H
3.2 km (2.0 mi.) N. Phillips Head	2533	H
Northern Arm	860	H
New Bay Pond	700	H
Rattling Brk.	642	H
" "	1133	H
" "	111	L
" "	693	H
Lemotte's Lake	1198	H
Diversion Lake	565	M
West Lake	530	H
2.4 (1.5 mi.) S. of West Lake Jct.	1322	H
1.6 km (1.0 mi.) W. of Grand Falls	925	H
Sandy Lake Rd.	980	H
8.0 km (5.0 mi.) N. Sandy Lake Rd.	1129	H
Sandy Lake	382	H
" "	0	-
" "	1185	H
6.4 km (4.0 mi.) S. Badger (Buchans Rd.)	1515	H
12.8 km (8.0 mi.) S. Badger (Buchans Rd.)	524	H
Jct. Millertown Jct. & Buchans rds.	2000	H
Millertown Jct. Rd.	2277	H

Table 4- Continued

Plot location	No. egg masses per 10 m ² foliage 1975	Egg mass category* 1975
Millertown Jct.	500	H
Buchans Rd.	1893	H
Millertown	33	L
Mary March Prov. Park	0	-
Noel Paul's Brk.	551	H
" " "	571	H
" " "	583	H
" " "	785	H
" " "	556	M
" " "	606	H
Hungry Hill	42	L
Tally Pond	1099	H
Harpoon Hill	443	M
Lake Ambrose	550	M
" "	579	H
" "	428	H
Lake Douglas	435	H
Red Indian Lake	0	-
" " "	1176	H
" " "	293	L
" " "	0	-
" " "	347	H
" " "	437	M
" " "	814	H
" " "	0	-
" " "	514	H
Hinds Lake	400	H
Victoria Lake	6703	H
" "	330	M
Long Lake	740	H
Snowshoe Pond	654	H
Quinn Lake	38	L
" "	0	-
Rogerson Lake	113	L
Beaver Pond	606	H
Camp Boggy (Bay d'Espoir)	76	L
St. Veronicas	580	H
3.2 km (2.0 mi.) W. St. Alban's	0	-
St. Alban's Rd.	574	M
6.7 km (4.2 mi.) S. Conne River Rd.	55	L
Conne River Rd.	212	L
Milltown Rd.	378	H
9.6 km (6.0 mi.) S. Bernards Brk.	517	H
3.2 km (2.0 mi.) S. Bernards Brk.	633	H
Third Berry Hill Pond	0	-

Table 4- Continued

Plot location	No. egg masses per 10 m ² foliage	Egg mass category*
	1975	1975
Great Gull River	582	M
Miguels Lake	3000	H
Bay d'Espoir Rd.	752	H
" " "	431	M
" " "	739	H
" " "	518	H
" " "	149	M
Burnt Lake	2311	H
Crowe Lake	381	M
Webber Pond	0	-
Northwest Gander River	969	H
" " "	866	H
" " "	533	H
" " "	1047	H
" " "	400	H
" " "	0	-
" " "	0	-
" " "	376	H
Southwest Gander River	64	L
" " "	595	M
" " "	60	L
" " "	533	H
" " "	727	H
" " "	0	-
" " "	535	H
Caribou Lake	232	L
Hunts Brk.	611	H
" " "	652	H
Hunts Pond	615	H
Gander Lake	1400	H
" " "	1666	H
" " "	1551	H
Joe Batts Pond	397	H
Glenwood	1035	H
Salmon Pond	436	H
Notre Dame Prov. Park	659	M
Jumpers Brk.	535	H
Norris Arm	562	H
Burnt Cove	4400	H
Lawrencetown	1533	H
Exploits River	707	H
" " "	586	H
Brown's Arm	388	H
Loon Bay	434	M
" " "	496	M

Table 4- Continued

Plot location	No. egg masses per 10 m ² foliage	Egg mass category*
	1975	1975
Loon Bay (Cont'd)	390	H
" "	1900	H
" "	6451	H
" "	1213	H
" "	1470	H
Brinks Pond	380	H
Long Pond	437	H
Rocky Pond	90	L
Burnt Lake	602	H
" "	484	H
Bellman's Lake	627	H
Gander River	142	L
Gander Bay	783	H
" "	4112	H
" "	346	H
" "	965	H
" "	2755	H
Carmanville	146	L
" "	117	L
" "	742	H
Weirs Pond	685	H
Jonathans Pond Prov. Park	423	M
N.W. Gander	758	H
Home Pond	83	L
Soulis Pond	458	H
Benton	49	L
Benton Rd.	0	-
Jct. T.C.H. & Benton Rd.	1420	H
6.4 km (4.0 mi.) E. of Benton Jct.	0	-
Lower Dark Cove	0	-
Gambo	500	H
Square Pond	1200	H
North Pond Rd.	0	-
" " "	577	H
" " "	1305	H
Rodney Pond	0	-
" "	1156	H
Dead Wolf Pond	575	M
<u>EASTERN</u>		
Riverhead Brk.	486	M
Triton Brk.	357	H
Deer Pond	51	L
" "	523	H
" "	535	M

Table 4- Concluded

Plot location	No. egg masses per 10 m ² foliage 1975	Egg mass category* 1975
Newton Lake	0	-
Lake St. John	833	H
" " "	0	-
" " "	51	L
Pinsents Pond	0	-
Terra Nova Rd.	126	L
Northwest Brk.	0	-
Port Blandford	446	M
Bunyan's Cove	111	L
Thorburn Lake	599	H
9.6 km (6.0 mi.) E. Thorburn Lake	526	H
Shoal Harbour River	935	H
Chain Pond	0	-
Old Eastport Rd.	1071	H
Lethbridge	133	L
Dalton Pond	74	L
Charleston	444	H
Southern Bay	0	-
Plate Cove	0	-
King's Cove	0	-
Stock Cove	119	L
Lockston Rd.	0	-
Cabot Highway	220	L
Random Island	121	L
" "	75	L
" "	533	M
" "	548	H
" "	83	L
Elliotts Cove	406	H
Adeytown	52	L
Kite Hill	211	L
Thornlea	0	-
"	365	M
"	1692	H
Bellevue	0	-

* L = Low
M = Medium
H = High

Table 5.- Estimated intensity of spruce budworm outbreaks in Newfoundland, 1972, 1973, 1974 and 1975.

Location	F.I.D.S. District	Defoliation [*]			
		1972	1973	1974	1975
<u>WESTERN NFLD.</u>					
S.W. end Ten Mile Lake	110	L	-	L	-
Castors River	110	L	L	S	L
Leg Pond	110	-	-	-	M
S.E. end Leg Pond	110	-	-	-	L
16.1 km (10 mi.) E. Flowers Cove	110	-	-	M	-
Round Lake	110	-	-	L	-
N. end Western Brook Pond	110	-	L	S	M
Port Saunders--Torrent River Pond	110	-	L	L	-
Eastern Blue Pond	110	-	L	S	-
Hawkes Bay--River of Ponds Lake	110	L	L	L	S
River of Ponds South	110	L	L	S	L
Western Blue Pond & Flat Pond area	110	L	L	S	M
Bellburns--Western Brook Pond	110	L	L	S	S
Parsons Pond	110	L	L	M	S
6.4 km (4 mi.) N.E. Parsons Pond	110	S	M	M	S
Sally's Cove--Gulls Marsh	110	L	L	L	L
Baker's Bk.--Norris Point	110	L	L	S	M
Western Brook Pond--Rocky Barachois Bk.	110	L	L	S	S
Main River--Humber River	110	-	-	L	L
Lomond--North Arm--Rocky Bk.	110	M-S	L	M-S	L-S
Bonne Bay	110	M-S	S	L	L-M
Big Bonne Bay Pond	110	M-S	L	L-M	S
Trout River	110	L	S	-	M
Main Brook	109	-	-	L	-
6.4 km (4 mi.) W. Roddickton	109	-	L	M	L
Northwest Brook	109	-	L	S	L
Salmon Pond--Boony Lake--Bide Arm	109	-	-	L	L
Jacksons Arm	109	L-M	L	S	M
Sops Arm--Sandy Lake	109	-	-	L-S	M-S
Silver Mountain	109	-	-	M-S	S
Hampden	109	-	L-S	S	M-S
Adies Lake	109	-	-	M-S	L-S
Cormack--Sandy Lake	109	-	-	L-M	L-M
Birchy Lake--Sheffield Lake	109	L-S	M-S	M-S	L
N.E. end Birchy Lake--Baie Verte	109	-	-	L-S	L
Deer Lake--Deadwater Bk.--Sandy Lake	109	-	-	L-M	L-M
Baie Verte--Flatwater Pond	109	-	-	S	L
Middle Arm--Baie Verte	109	-	L-M	S	S
Flatwater Pond	109	-	-	S	L
Middle Arm	109	L-M	M	S	S
Wild Cove Pond	109	-	-	L	L
Purbecks Cove	109	-	L	M	L

Table 5 - Continued

Location	F.I.D.S. District	Defoliation			
		1972	1973	1974	1975
Gull Pond (Baie Verte Pen.)	109	M	L	L	L
Baie Verte Jct.-Hampden	109	-	-	L	L
Old Man's Pond	108	M	L	L-S	S
Goose Arm	108	M	L	L-S	S
Penguin Arm	108	M	L	L	S
Deer Lake	108	-	L	M	S
Pynns Bk.	108	S	L	L	S
Pasadena	108	S	S	S	S
Glide Lake	108	S	L	L	L
Hinds Bk.	108	M	-	L	L-S
E. Side Grand Lake	108	M-S	L	L-M	L
Glover Island	108	L-S	L	M	L-S
Lewaseechjeech Bk.	108	M-S	L	L-M	S
Little Grand Lake	108	S	L	L-M	S
Island Pond	108	-	L	L	L
Corner Brook Lake	108	-	L	S	L-S
Bay of Islands-Little Barachois Bk.	108	L-S	L-S	L-S	S
Serpentine Lake	108	M-S	L	S	S
Cooks Bk.	108	M-S	M	S	S
Spruce Brook	108	S	L	M	S
Pinchgut Lake	108	-	L	S	S
Camp 33 Rd.	108	-	-	L	S
Lady Slipper Rd.	108	-	M	S	S
Port au Port Peninsula	108	-	-	L-S	L
Whites Rd.	108	-	L	S	S
Point au Mal	108	L	L	S	L
Junction Bk.	108	-	L	L	L-M
Boot Bk.	108	-	-	L	M
Little Barachois Bk.	107	M-S	S	S	L-S
Flat Bay Bk.	107	L	S	S	L-S
Fishells River	107	L	L	M-S	L-S
Robinsons River	107	L	L	L-S	L-S
St. Fintans	107	L	L	L	L-M
Ship Cove-Codroy Pond	107	-	-	L	M-S
North Branch	107	-	-	L	S
Mummichog Prov. Park-North Branch River	107	-	-	L	L-S
Cape Ray-St. Andrews	107	-	-	L	-
Bottom Bk.-Little Barachois Bk.	107	L	L-S	L-S	M-S
Battle Pond-Puddle Pond	107	-	-	M	M
<u>CENTRAL NFLD.</u>					
Kittys Bk.	106	-	-	L-M	L-S
Sheffield Lake-Halls Bay-Badger-					
Joe Glodes Lake	106	-	L	L-S	L-S
Burnt Berry Brook	106	S	L	L-S	L-S

Table 5 -- Continued

Location	F.I.D.S. District	Defoliation			
		1972	1973	1974	1975
West Pond	106	M-S	L	M-S	L-S
South Bk. (Hall's Bay)	106	-	L	L	L-S
Springdale	106	L	L	L	L
1.6 km (1 mi.) W. King's Pt.	106	M	S	L	L
Gulls Pond-Kings Pt.	106	S	S	L	L
South Pond	106	-	L	M-S	S
Indian River Pond	106	S	L	L	L
Great Gull Lake	106	-	L	M	L-S
Dawes Pond	106	L	L	L-M	L
Badger Lakes-Twin Lakes	106	-	L-S	L-M	L-S
Pauls Lake	106	-	L	L-M	L-M
N. end North Twin Lake	106	-	L	M	S
S. end North Twin Lake	106	-	S	L	S
E. Side South Twin Lake	106	L	L	L	L-S
Mary Ann Lake-Aspen Pond	106	-	L	L	L-S
N. end South Twin Lake	106	-	L	L	S
Cornfield Pond-New Bay Pond	106	-	-	L	L
New Bay River-Northern Arm	106	-	-	L	S
Point Leamington	106	-	-	L	S
Bishops Falls-Badger Bay	106	-	-	L	L
Grand Falls	106	-	-	M	L
Badger	106	-	L	M	M-S
Great Rattling Pond	106	-	L	L-M	L-S
Diversion Lake	106	-	L	L	L-M
Frozen Ocean Lake-South Great Rattling Bk.	106	-	L	L	L
Sandy Lake-Badger-Red Indian Lake	106	-	L	L	L-S
Sandy Lake-West Pond	106	L	-	L	M-S
Mouth Noel Paul's Bk.	106	-	L	M-S	M-S
Lake Ambrose-Hungry Hill	106	-	L	L	M-S
Bobbys Pond	106	-	L	L	M-S
Harbour Round Pond	106	-	L	L-S	L-M
Harbour Round (Red Indian Lake)	106	-	L	S	S
Joe Glodes Bk.-Badger	106	-	L	L	L-S
Red Indian Lake-Hinds Lake	106	-	L	M	M
Lake Douglas-Noel Paul's Bk.	106	-	L	L	L
S. end Costigan Lake	105	-	L	L	M
N. end Victoria Lake	105	-	L	L	M
Lloyds River	105	-	L	S	L
Lloyds Lake	105	-	L	S	L-S
Conne River	105	-	-	L	L-M
Long Pond-St. Josephs Cove	105	-	-	M	L-M
Little River (Bay d'Espoir)	105	-	-	M	-
Bay d'Espoir-Jct. Northwest Gander River & Little Gull River	105	-	-	L	L-M

Table 5 - Concluded

Location	F.I.D.S. District	Defoliation			
		1972	1973	1974	1975
<u>EASTERN NFLD.</u>					
Thwart Island	104	-	-	L	-
Jumpers Bk.-Michaels Hr.-Bellman's Pond- Glenwood-Beatty Pond	104	-	-	L	L
Salmon Pond	104	-	-	L	M
Grants Lake-Tote Hill	104	-	-	L	M-S
Loon Bay-Boyd's Cove-Weirs Pond	104	-	-	-	L
New World Island	104	-	-	L	-
South Pond	104	-	-	M	L
First Pond (Gander River)-Soulis Pond	104	-	-	-	M-S
Island Pond	104	-	-	L	-
Rolling Pond-Crowe Lake	104	-	-	L	M-S
Hunts Pond	104	-	-	-	M-S
Rodney Pond	104	-	-	-	M
Northwest Gander River-Sunday Lake- Paul's Pond	104	-	L	L	L-M
Caribou Lake-Rattling Bk.-Soulis Pond- Gambo	104	-	-	-	L-M
Gander Lake	104	-	-	L	L
Newton Lake	103	-	-	L	L
Watchers Bk.	103	-	L	L	L
Conne River	103	-	-	L	L-M
Little Gull River-Southwest Gander River- Third Berry Hill Pond	103	-	-	L	L
Little Gull River-Gambo-Terra Nova Lake- Kepenkeck Lake-Little Gull River	103	-	L	-	L-M
Dead Wolf Pond-Triton Bk.	103	-	L	-	M
Shoal Harbour River-Hatchet Cove	103	-	-	-	L
Random Island	103	-	-	-	L

L = Light
M = Medium
S = Severe

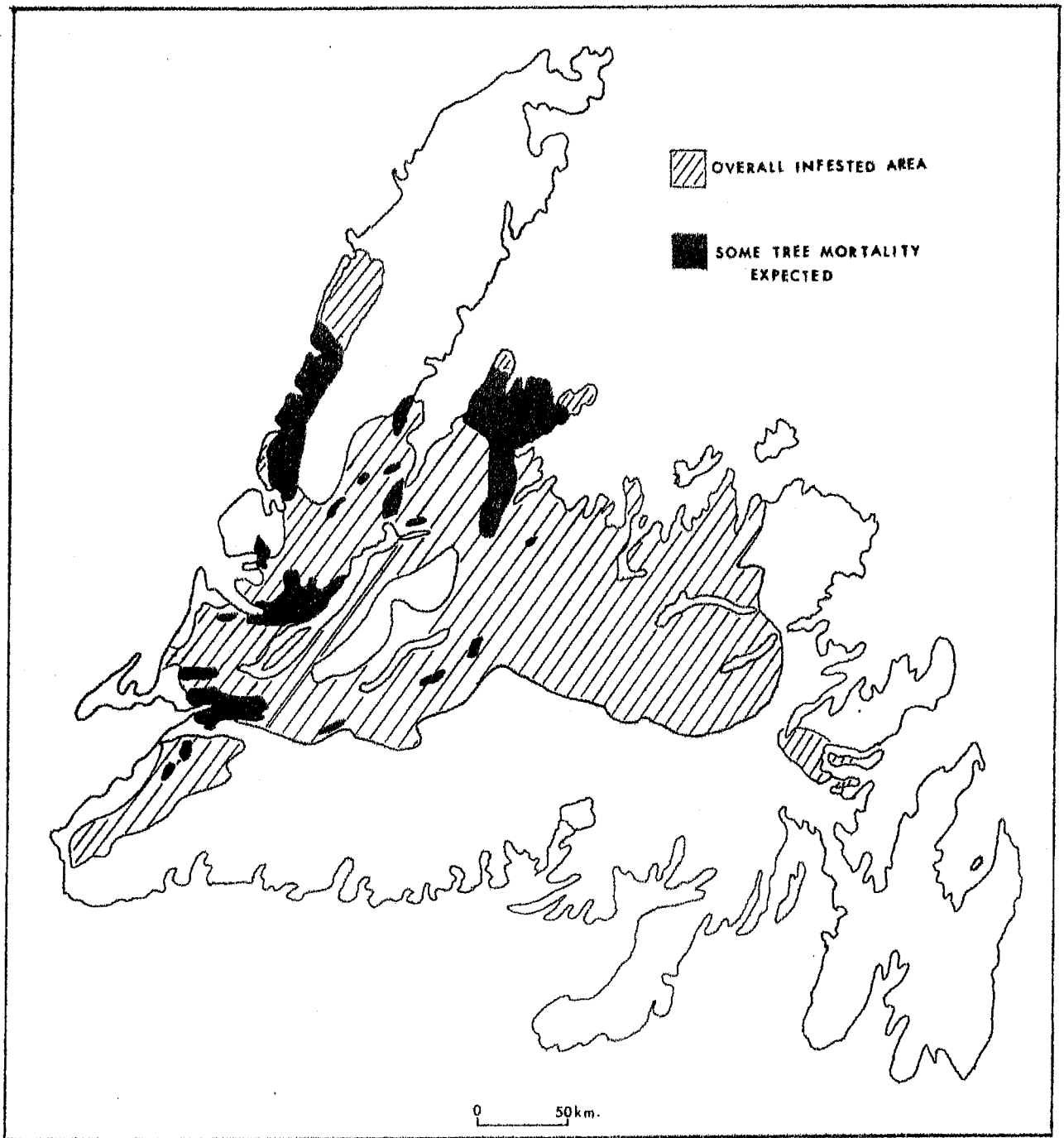


Fig. 2. Forecasted area of 1976 spruce budworm infestation showing areas where some tree mortality (about 10%) is expected.

Table 6.- * Area and volume of severe damage and mortality forecast for 1976.

Cover type	Merchantable		Non-merchantable**		Total	
	Area hectares (acres)	Volume cubic meters (cords)	Area hectares (acres)	Volume cubic meters (cords)	Area hectares (acres)	Volume hectares (acres)
S	161 457	21 074 384	14 923	312 096	176 380	21 386 480
"	(398,969)	(5,814,329)	(36,875)	(86,106)	(435,844)	(5,900,435)
SH	37 622	4 879 263	9 426	219 489	47 048	5 098 752
"	(92,966)	(1,346,167)	(23,291)	(60,556)	(116,257)	(1,406,723)
HS	12 922	1 450 353	2 627	93 166	15 549	1 543 519
"	(31,930)	(400,146)	(6,492)	(25,704)	(38,422)	(425,850)
H	3 994	340 140	5 905	181 196	9 899	521 335
"	(9,870)	(93,843)	(14,592)	(49,991)	(24,462)	(143,834)
Total	215 995	27 744 140	32 881	805 947***	248 876	28 550 086
	(533,735)	(7,654,485)	(81,250)	(222,357)	(614,985)	(7,876,842)

S = softwood

SH = softwood-hardwood

HS = hardwood-softwood

H = hardwood

* = table supplied by Provincial Forestry Service




** = less than 5 cords per acre

*** = Volume for 24 281 hectares (60,000 acres) of the 32 881 hectares (81,250 acres) of non-merchantable forest, on the remaining 8 600 hectares (21,250 acres) no volume could be calculated because trees were less than 30' in height.

FOREST RESEARCH CENTRE
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FOREST INSECT AND DISEASE SURVEY

1975

Spruce Budworm Defoliation
Districts 103 and 104

Light		515,090 hectares (1,272,812 acres)
Moderate		49,934 " (123,390 ")
Severe		45,165 " (111,604 ")

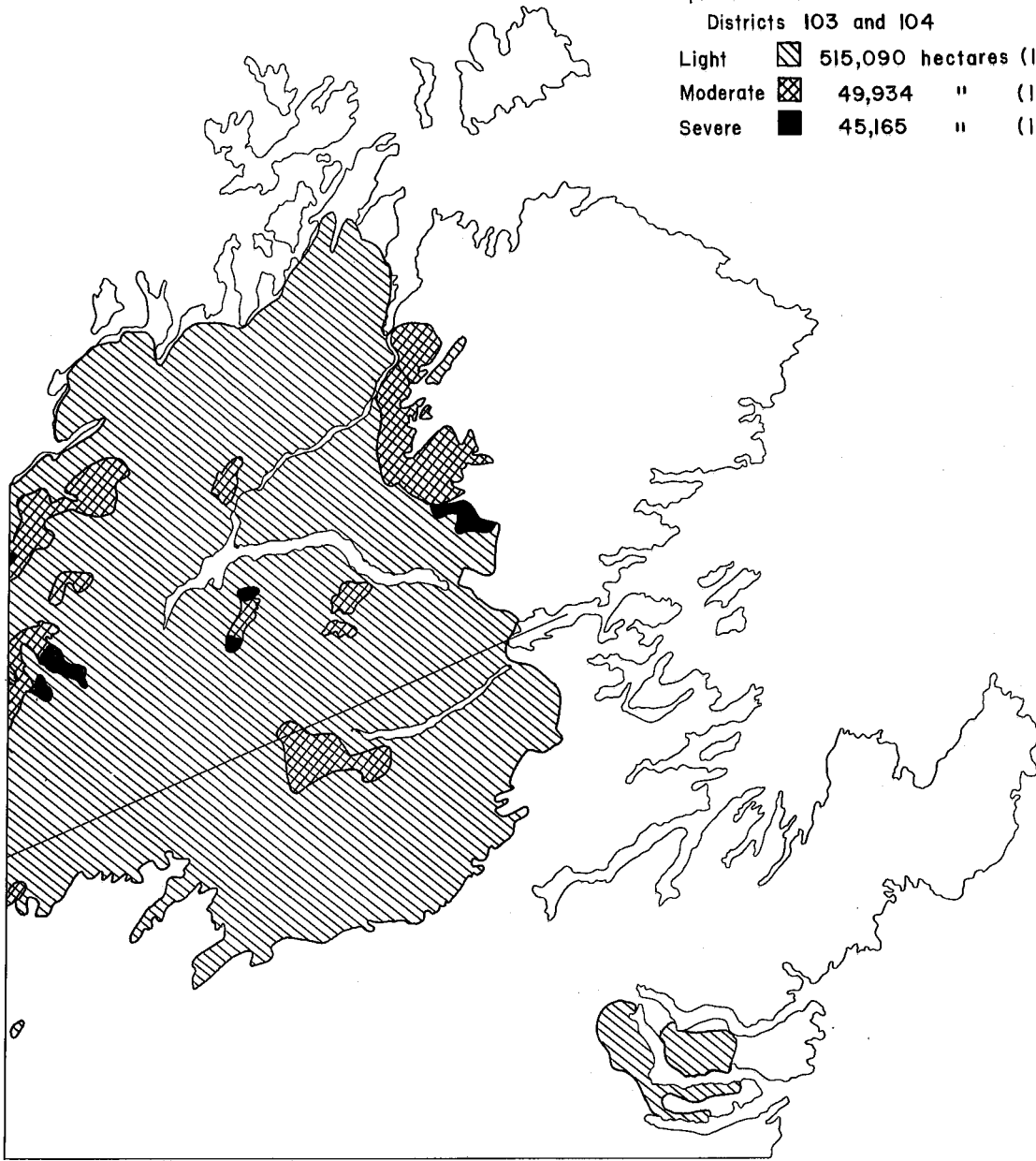





Fig. 3

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1975

Spruce Budworm Defoliation

Districts 105 and 106

Light		488,211 hectares (1,206,395 acres)
Moderate		34,246 " (84,623 ")
Severe		84,624 " (209,111 ")

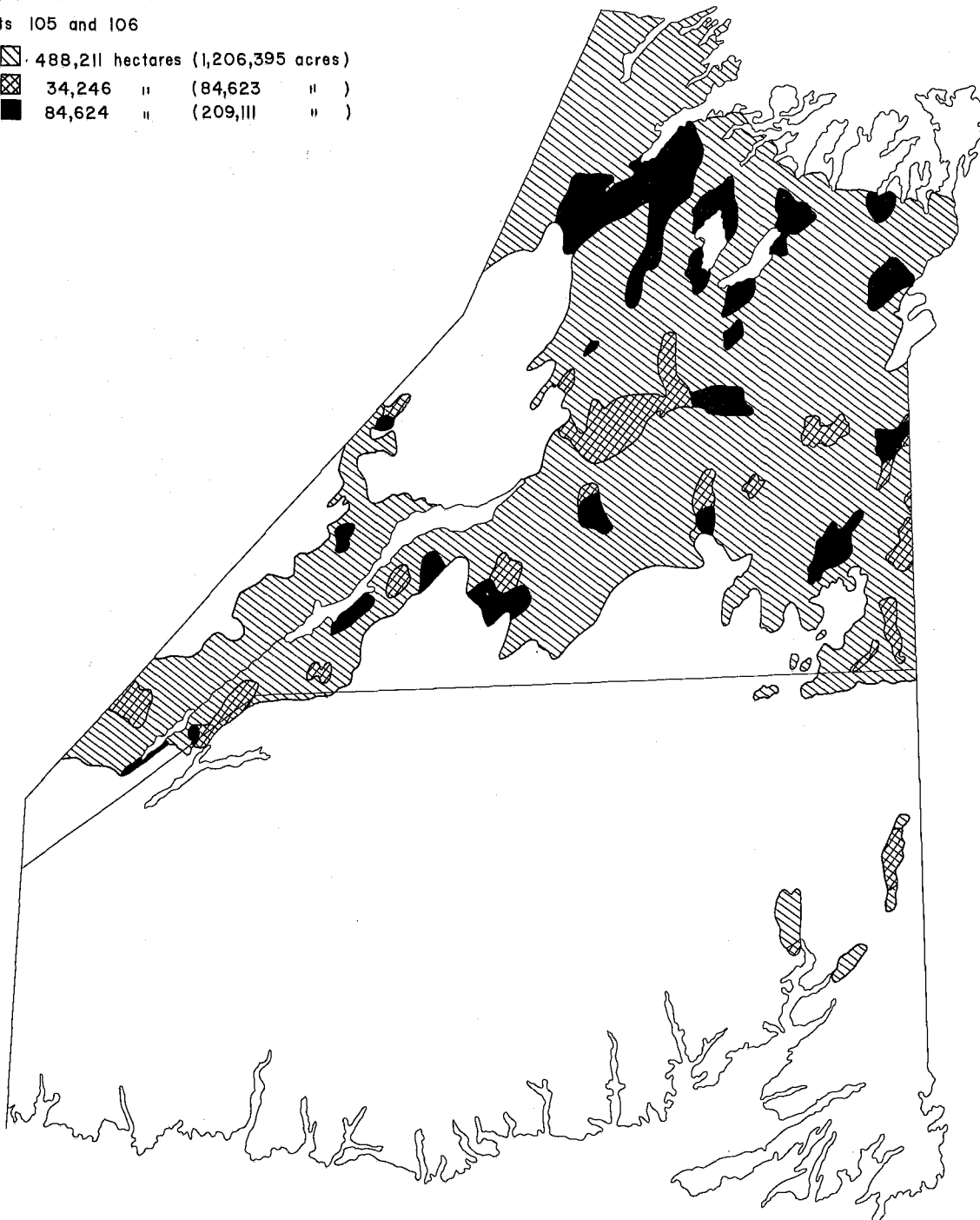





Fig. 4

FOREST RESEARCH CENTRE
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FOREST INSECT AND DISEASE SURVEY
1975

Spruce Budworm Defoliation
Districts 107 and 108

Light		120,726 hectares (298,321 acres)
Moderate		41,078 " (101,505 ")
Severe		251,691 " (621,942 ")

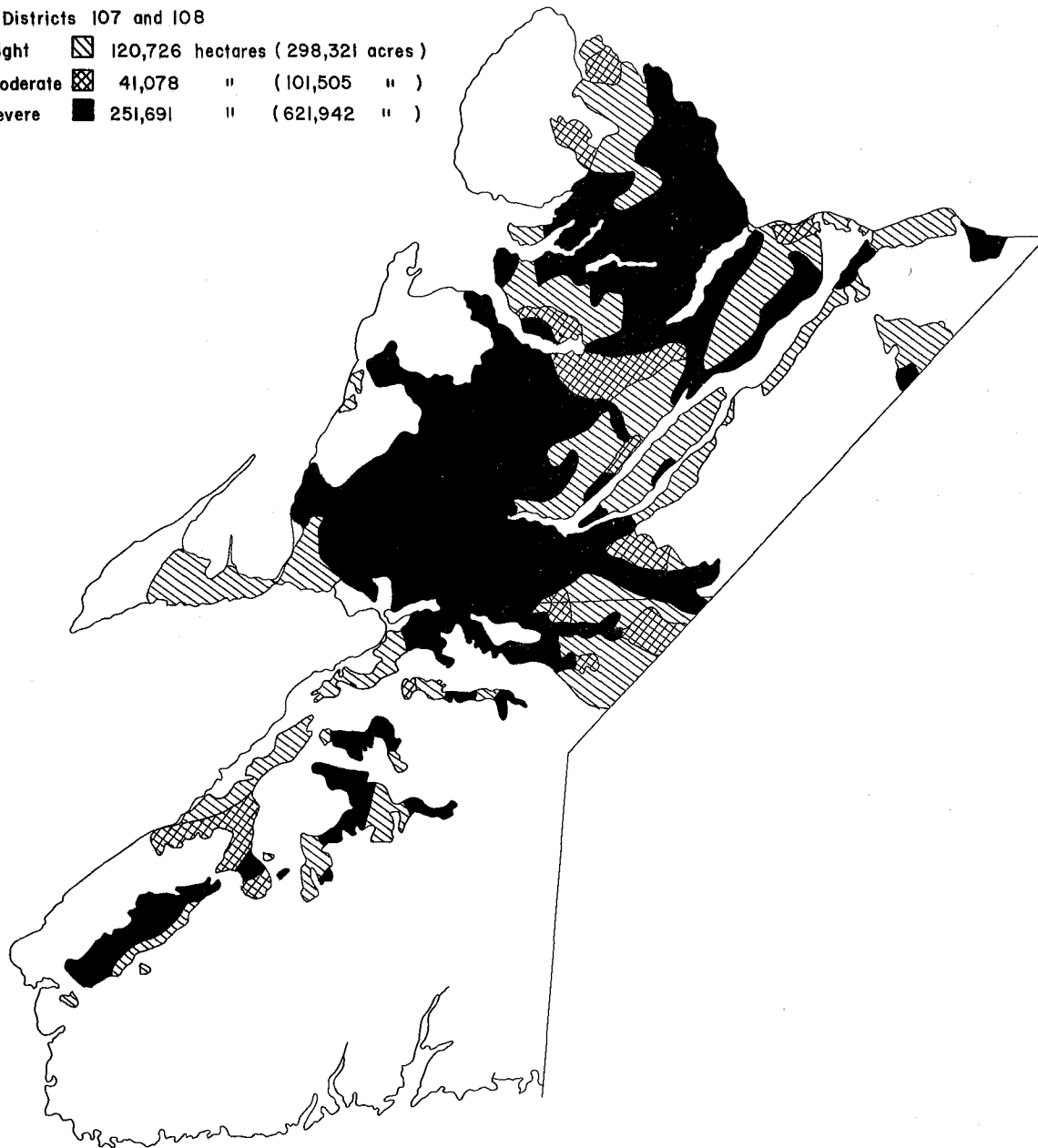





Fig. 5

FOREST RESEARCH CENTRE
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FOREST INSECT AND DISEASE SURVEY
1975

Spruce Budworm Defoliation
Districts 109 and 110

Light		239,769 hectares (592,482 acres)
Moderate		65,246 " (161,226 ")
Severe		97,595 " (241,164 ")

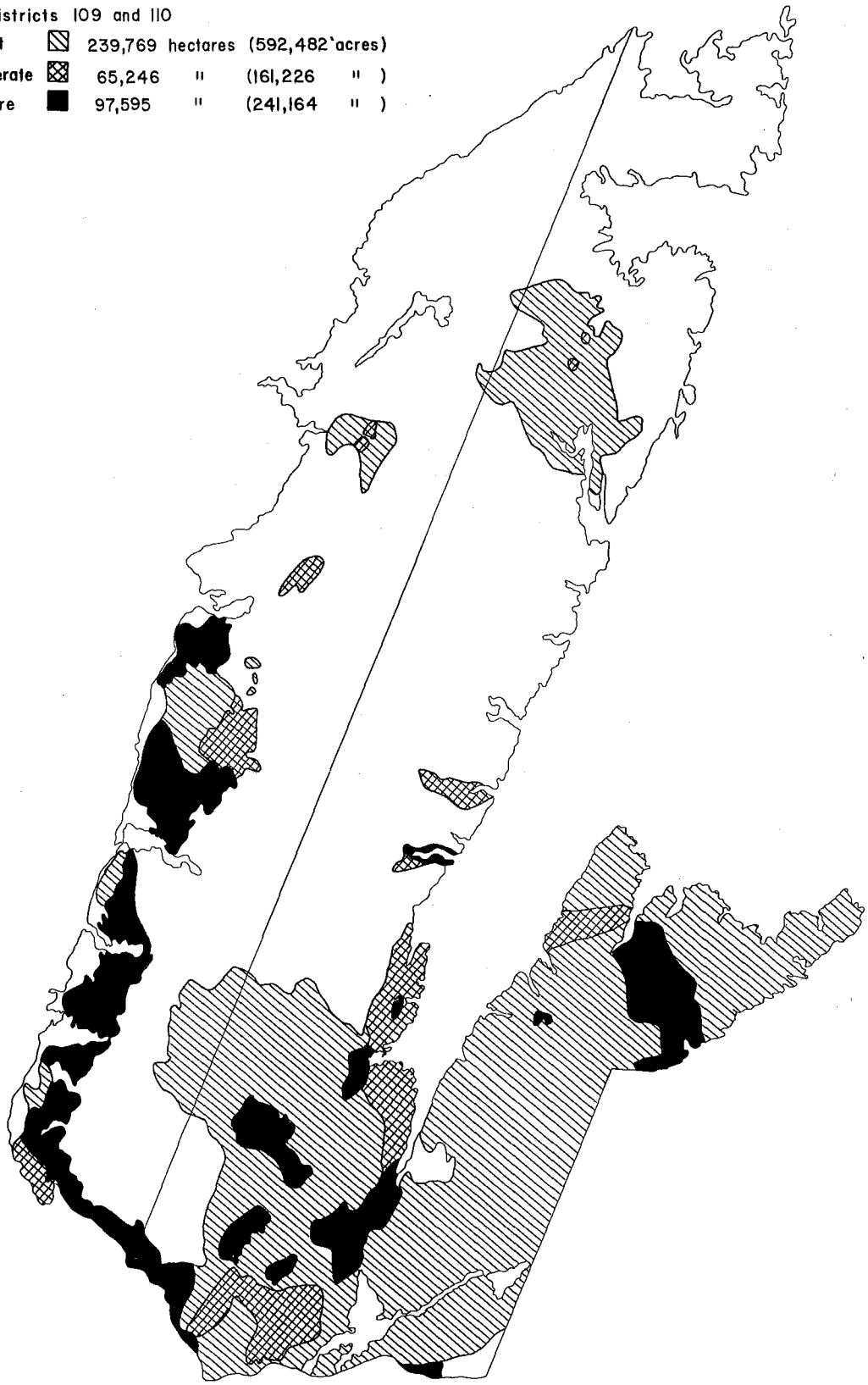


Fig. 6

Blackheaded Budworm, *Acleris variana* (Fern.) - Population levels of this budworm reached outbreak numbers throughout eastern and northern sections of the Island and in the Lake Melville and Sandwich Bay areas of Labrador.

In eastern Newfoundland separate infestations occurred from Holyrood to Cape St. Francis, Paddys Pond to Bay Bulls, Bellevue, Whitbourne, Salmonier Valley, Sunnyside, Kings Cove, Ocean Pond and Terra Nova National Park. The infested area was 75 032 hectares (185,410 acres) including 19 679 hectares (48,629 acres) in the moderate to severe category (Figs. 7, 8). Larval numbers more than doubled since 1974 with the highest larvae counts of 170 per tree collected in the St. Phillips area and 100 per tree near Bellevue. In the latter area high numbers of hemlock looper, spruce budworm and rusty tussock moth were also recorded.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	71	0.3	19.4	170.7

In central Newfoundland an average of 5.6 larvae per tree were collected from Halls Bay to Lake Ambrose and east to Norris Arm, however, defoliation could not be estimated due to the severe defoliation caused by the spruce budworm.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	21	0.3	5.6	24.0

In western Newfoundland moderate defoliation of balsam fir and black spruce was recorded in an area of 3 345 hectares (8,265 acres) 3.2 km (2.6 mi.) northeast of Roddickton between Conche Road and Coles Pond (Fig. 9). The only collections in this area were made during the spruce budworm monitoring program and high numbers of first instar larvae were recorded.

FOREST RESEARCH CENTRE
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FOREST INSECT AND DISEASE SURVEY
1975

Blackheaded Budworm

Districts 101 and 102

Light 

Moderate 

Severe 

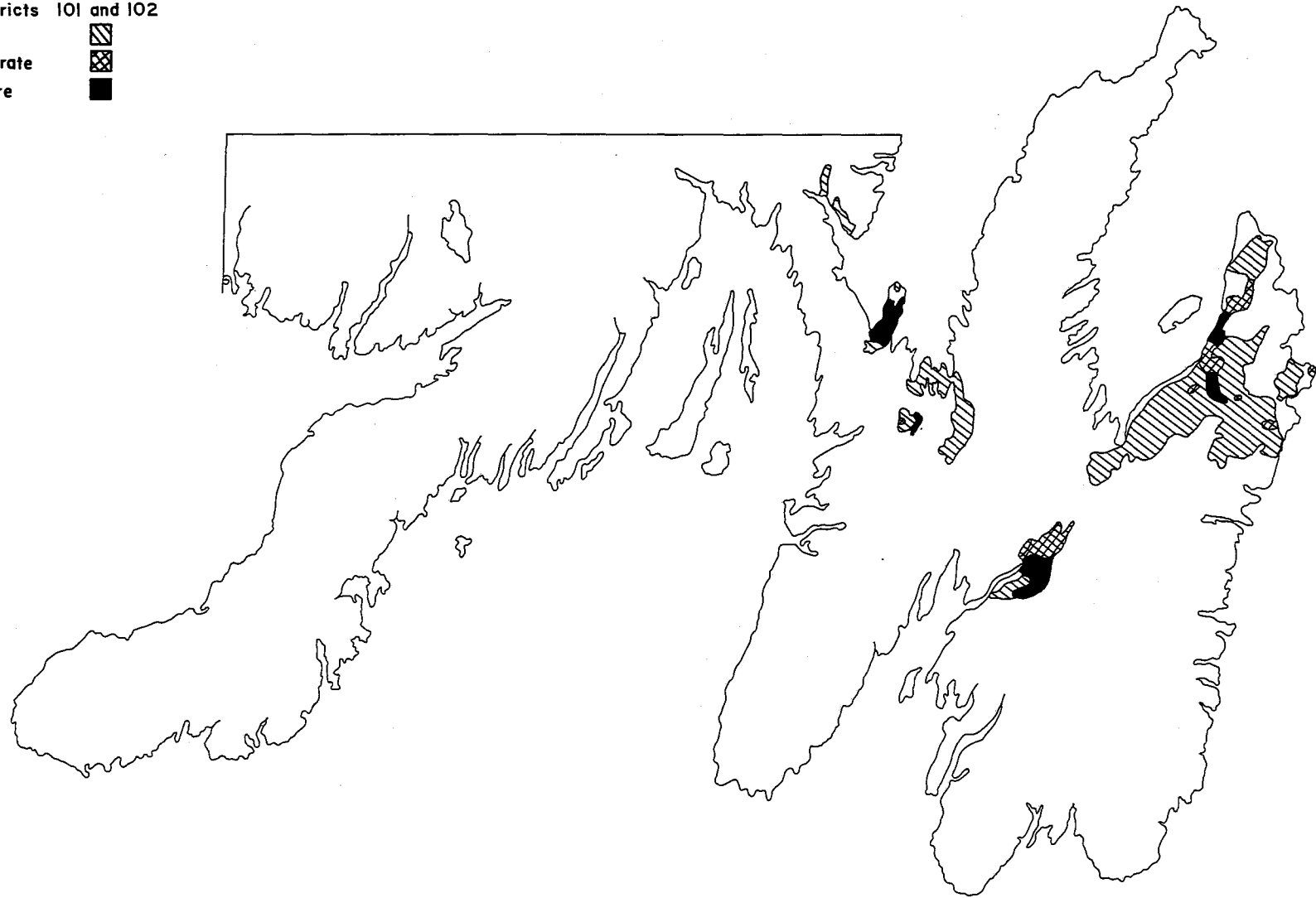


FIG. 7

FOREST RESEARCH CENTRE
ST. JOHN'S, NEWFOUNDLAND
FOREST INSECT AND DISEASE SURVEY
1975

Blackheaded Budworm
Districts 103 and 104

Light 
Moderate 
Severe 

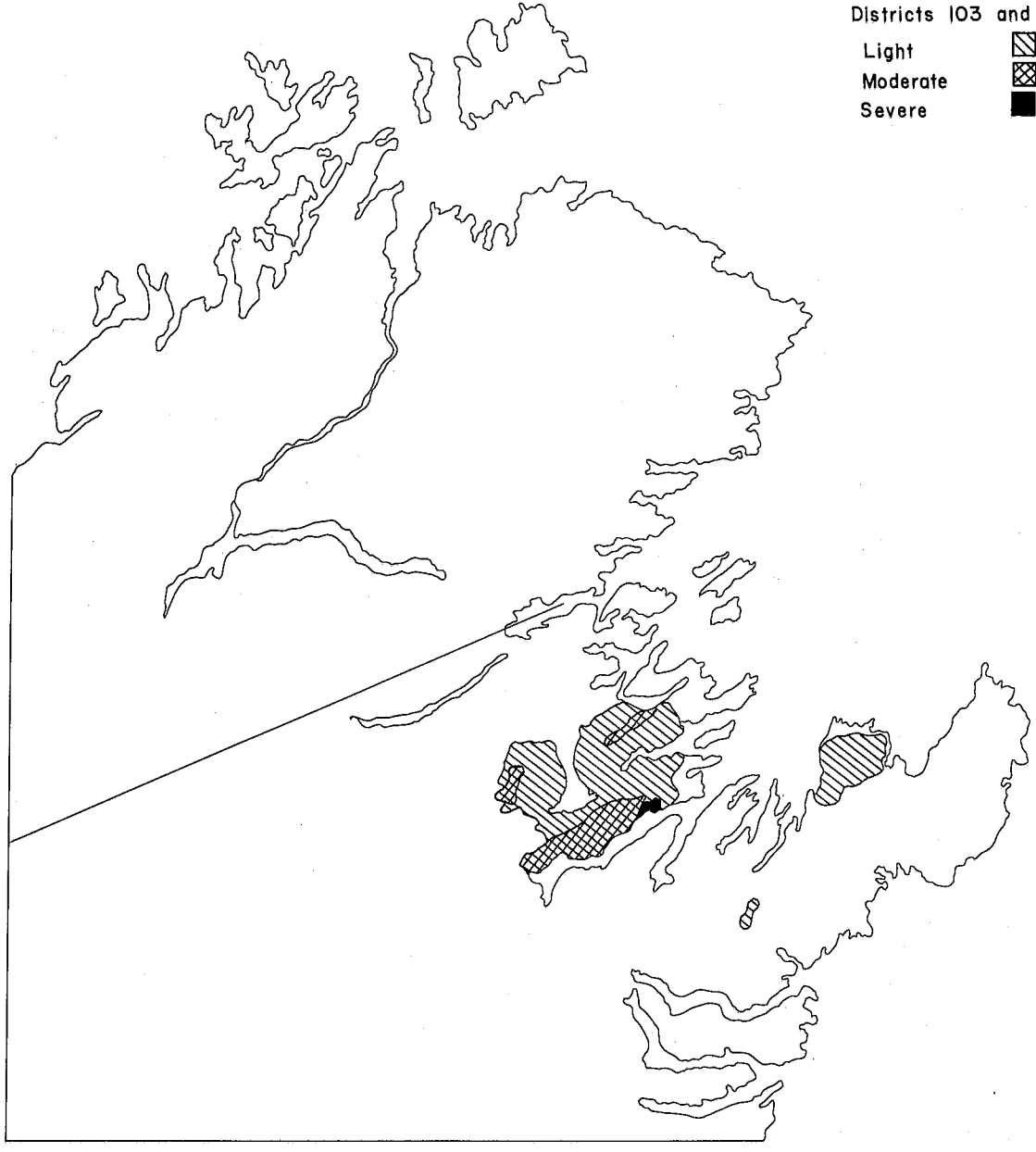


Fig. 8

FOREST RESEARCH CENTRE
ST. JOHN'S, NEWFOUNDLAND
FOREST INSECT AND DISEASE SURVEY
1975

Blackheaded Budworm
Districts 109 and 110

Moderate 

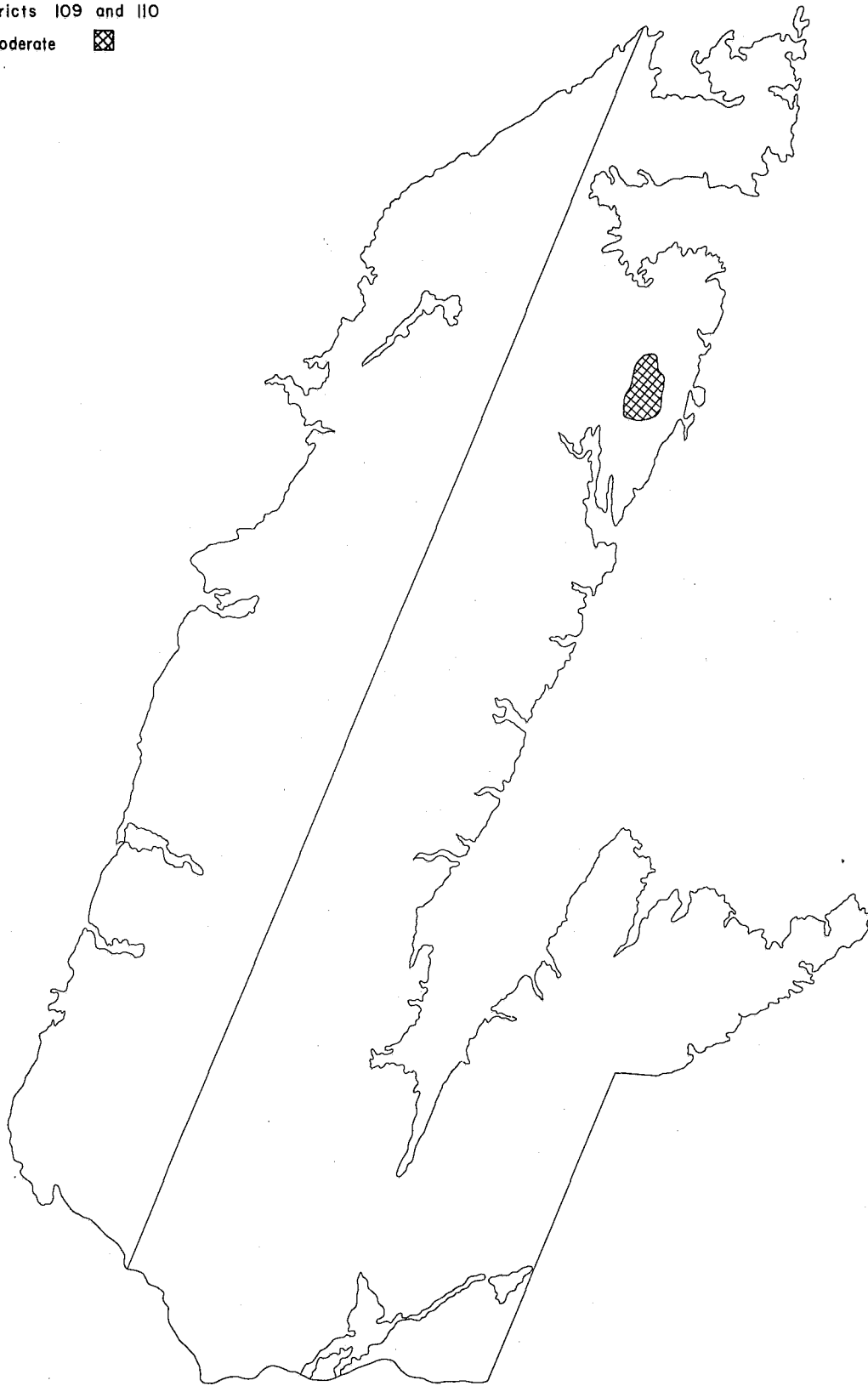


Fig. 9

In Labrador the outbreak continued in approximately the same area as in 1974, along the Churchill River from Gull Lake to Goose Bay, along the Kenamu and White Bear rivers and in the Grand Lake area (Fig. 10). The total area of defoliation was about 141 878 hectares (350,590 acres) including 80 734 hectares (199,499 acres) in the severe defoliation category. Stands in the Kenamu and White Bear river areas have been defoliated for the third consecutive year and approximately 75% of the fir was killed in a 200 hectare (500 acre) area in the White Bear River. Additional tree mortality is expected in both these areas in 1976 if the infestations continue.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	21	0.3	13.1	93


Eastern Hemlock Looper, *Lambdina fiscellaria fiscellaria* (Guen.) - There were no major outbreaks in the Province in 1975 but larval populations and the size of infestations continued to increase.

In eastern Newfoundland infestations were recorded at Whelans Pond in the Salmonier Valley and near Bellevue on the Bellevue Peninsula (Fig. 11). The area at Whelans Pond was approximately 121 hectares (300 acres) of partially cut mature and immature stands. Larval populations in this area averaged 13 per tree and caused 40% defoliation. In the Bellevue area an estimated 2 425 hectares (6000 acres) were infested, with an average of 40 larvae per tree. Defoliation in this area was about 80% except in a few stands where 100% of the current foliage was destroyed. Blackheaded budworm and rusty tussock moth were responsible for part of the damage in these areas but no defoliation estimates were made for these insects because of the difficulty to distinguish between the damage.

FOREST RESEARCH CENTRE
ST. JOHN'S, NEWFOUNDLAND
FOREST INSECT AND DISEASE SURVEY
1975

Blackheaded Budworm
LABRADOR

Light 

Moderate 

Severe 

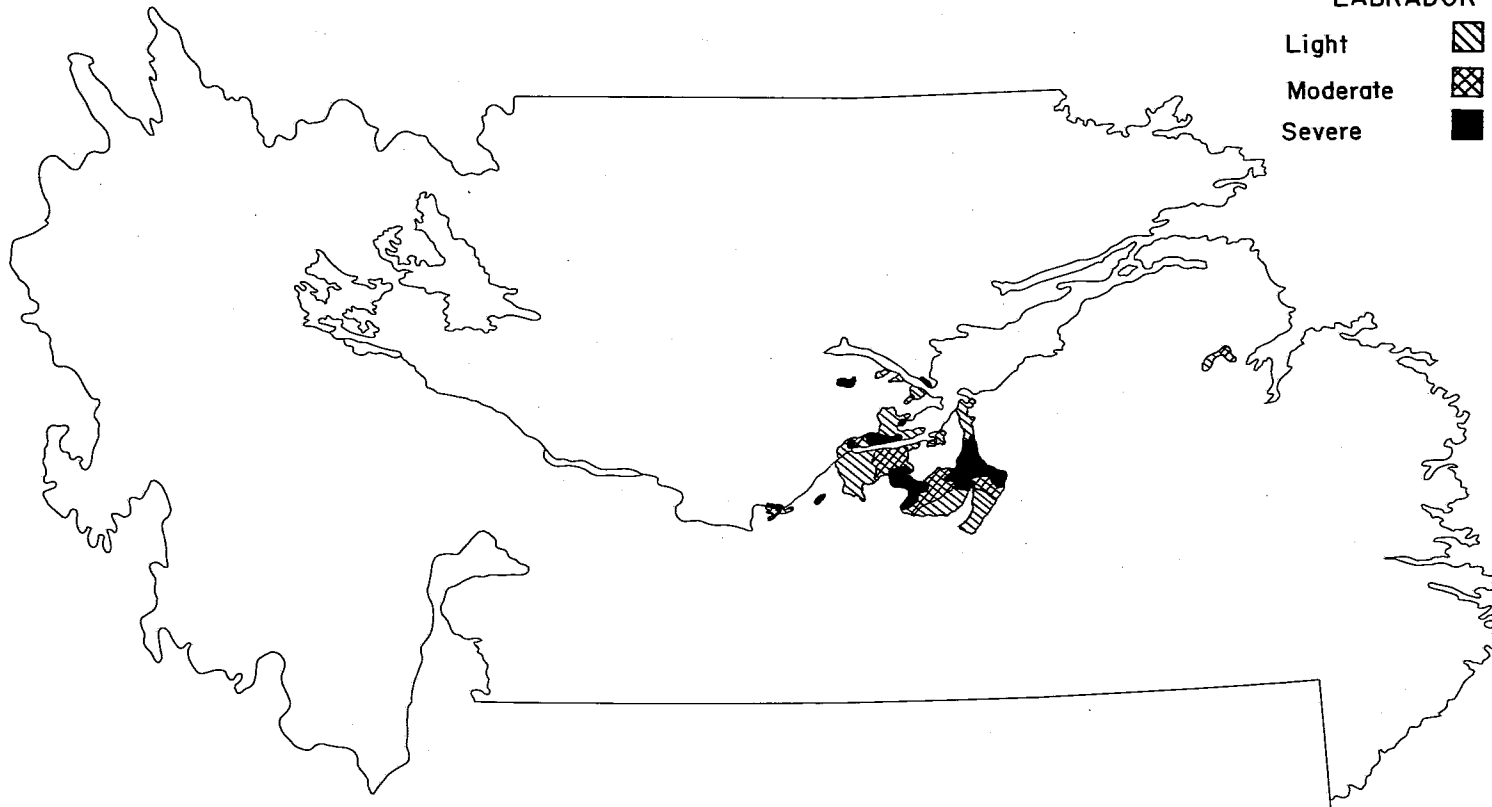


Fig. 10

FOREST RESEARCH CENTRE
ST. JOHN'S, NEWFOUNDLAND
FOREST INSECT AND DISEASE SURVEY
1975

Hemlock Looper Sample Points

Districts 101 and 102

- < 5
- 5 or more

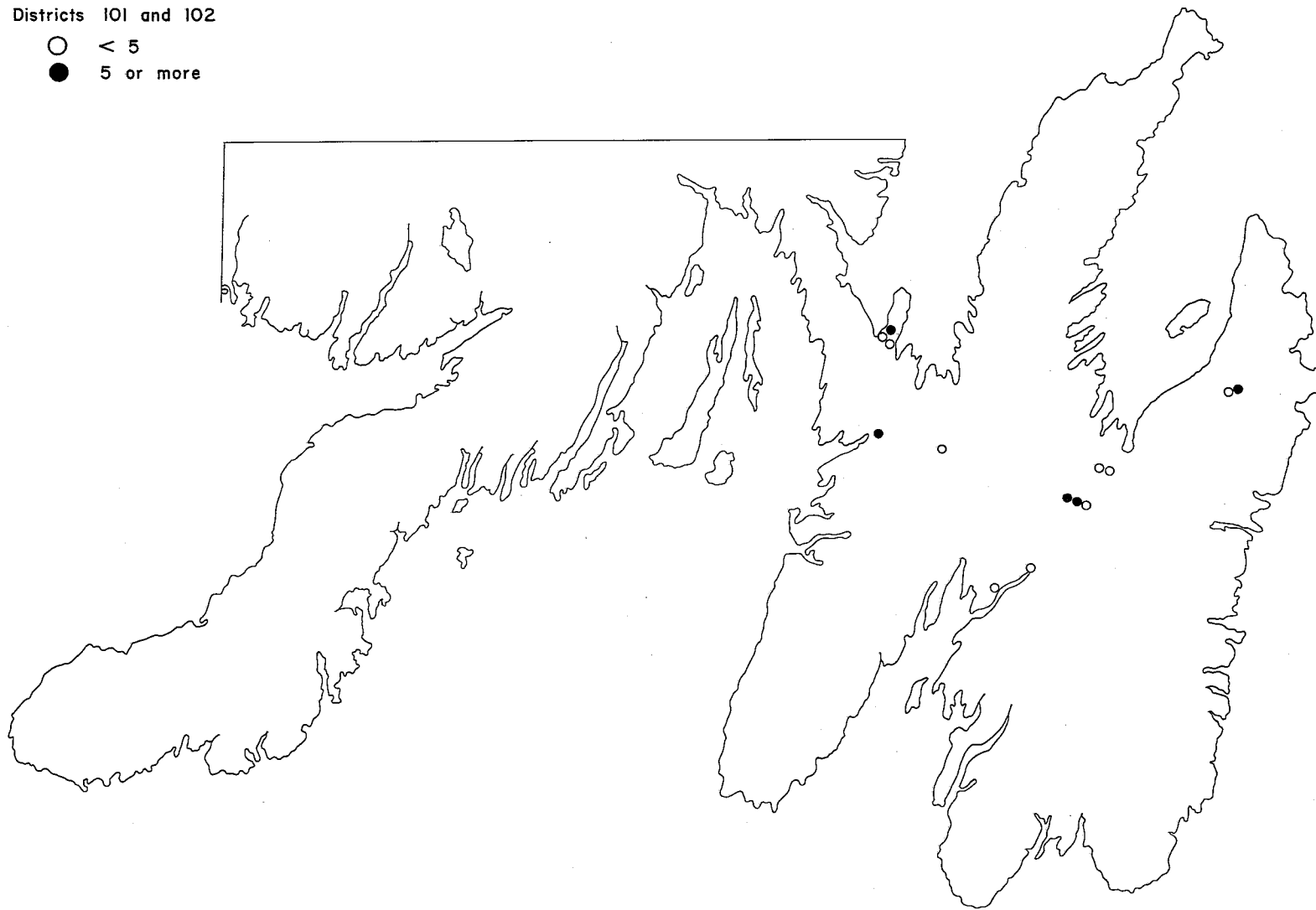


Fig. 11

In October looper moth flights were reported from the Long Harbour-Dunville Road, Red Indian Lake and the Trout Brook area.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	24	0.3	13.8	82.0

In central Newfoundland although no looper defoliation occurred in 1975, larval numbers increased and heavy moth flights were reported in the Red Indian Lake area indicating a possible infestation in 1976 (Fig. 12).

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	9	0.3	1.6	10.0

In western Newfoundland larval sampling in July indicated a slight increase in looper populations between Fischels River and the Codroy Valley. This increase was most noticeable in the Robinsons and St. Fintans areas (Fig. 13). However, later collections from these areas showed a decrease in larval numbers probably due to competition from the spruce budworm.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	64	0.3	1.6	10.0

Balsam Fir Sawfly, Neodiprion abietis complex - Larval sampling showed that population levels of this species decreased in two of the three infestations reported in 1974.

In eastern Newfoundland an infestation near Marystown continued for the sixth consecutive year and extended east and west of Marystown. The total infested area in 1975 was 3 367 hectares (8,320 acres) as compared to 19 020 hectares (47,000 acres) in 1974. Defoliation estimates ranged from 20% in the Southeast Arm area to 70% near Big Salmonier Brook.

FOREST RESEARCH CENTRE
ST. JOHN'S, NEWFOUNDLAND
FOREST INSECT AND DISEASE SURVEY
1975

Hemlock Looper Sampling Points
Districts 105 and 106

- < 5
- 5 or more

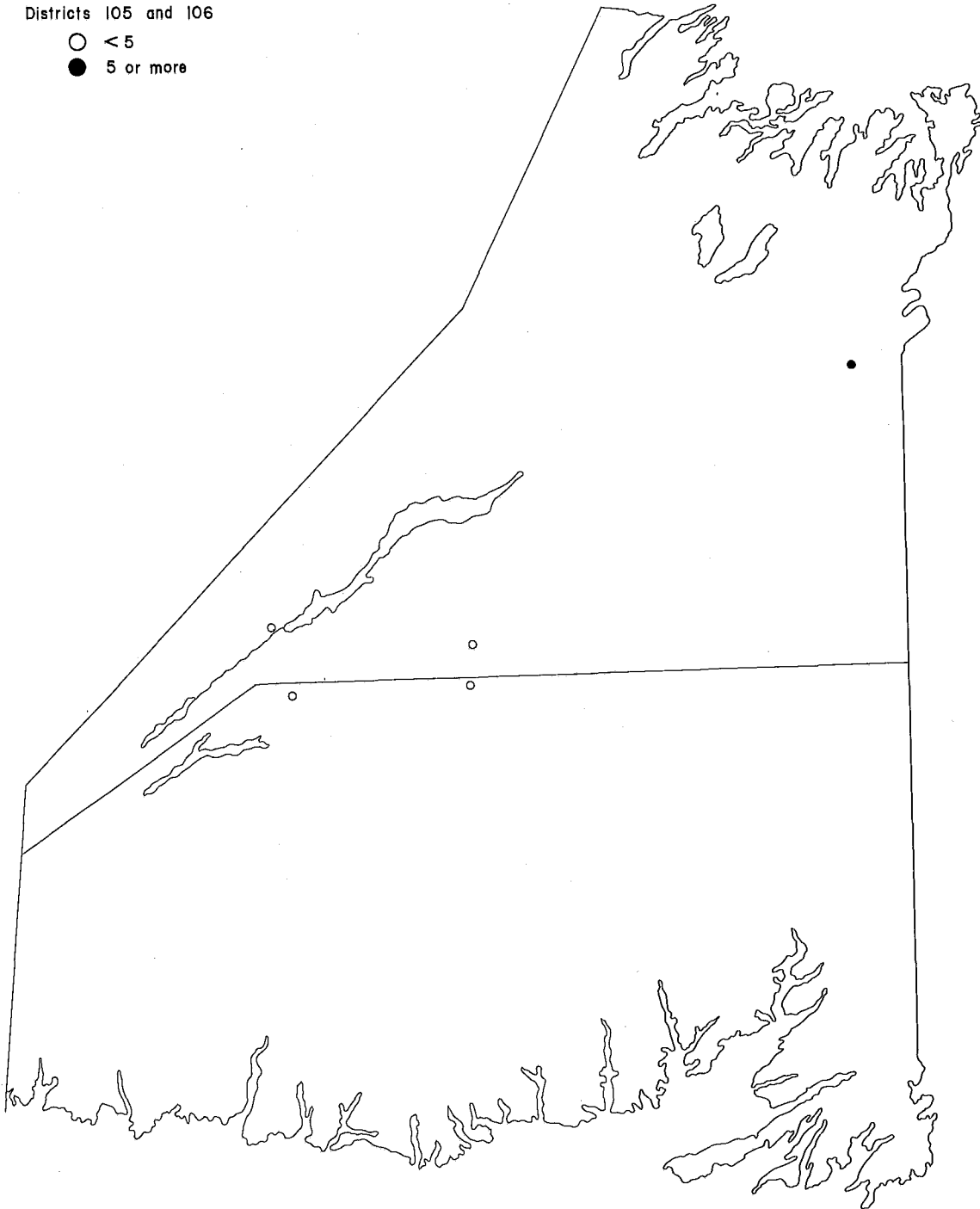


Fig. 12

FOREST RESEARCH CENTRE
ST. JOHN'S, NEWFOUNDLAND
FOREST INSECT AND DISEASE SURVEY
1975

Hemlock Looper Sampling Points
Districts 107 and 108

- < 5
- 5 or more



Fig. 13

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	14	0.3	15.1	102.0

In western Newfoundland population levels were low in the Spruce Brook-Gallants infestation. Defoliation by the sawfly was difficult to estimate due to the severity of defoliation caused by the spruce budworm.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	2	0.7	0.7	0.7

In Labrador population levels were relatively high for the third consecutive year in the White Bear River area. The percentage of defoliation and size of the area infested by the sawfly was undetermined and was masked by the blackheaded budworm defoliation, however, 200 hectares (500 acres) of severe damage and tree mortality was believed to be the area infested by the sawfly.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	11	0.3	0.8	2.3

Balsam Woolly Aphid, *Adelges piceae* (Ratz.) - There was no appreciable change in the aphid conditions in 1975 with population levels low in most districts. The small infestations near Port Blandford and Placentia virtually collapsed in 1975 but a localized high population was reported near St. Fintans.

Larch Casebearer, *Coleophora laricella* (Hbn.) - Larval populations of this casebearer were generally low, less than 1.0 per tree throughout the Island except in a few areas on the Avalon Peninsula. Infestations near St. John's, Torbay, Paradise and New Town reported in 1974 were again active in 1975 and caused 80% defoliation of stands in these areas. The infestations between Clarenville and Neyles Brook including the Terra Nova National Park

collapsed in 1975. Population levels were 4.5 per branch sample along the Victoria Lake Road near Lake Ambrose. Defoliation was 60% in this area as compared to 90% in 1974.

Larval rearings in 1975 showed that parasitism by the introduced parasite Agathis pumila (Ratz.) was about 5% in infested areas on the Avalon Peninsula and 80% in other areas of the Island.

Larch Sawfly, *Pristiphora erichsonii* (Htg.) - Population levels of this sawfly have been low throughout the Province since 1970. However, in 1975 larval numbers increased and caused severe defoliation in western and central districts of the Island and in Labrador.

In western and central Newfoundland severe defoliation was recorded at Sheffield Lake, Indian Pond, Bear Cove, West Pond, Little Sandy Pond, Mary March and Kings brooks. The total area of severe infestation was 10 800 hectares (27,000 acres). Light to moderate defoliation also occurred along the Trans Canada Highway between St. Georges and the Codroy Valley and larval numbers of 300 per tree were recorded in a few locations.

In Labrador infestations were scattered in an area from Goose Bay west to Winokapau Lake and east to Ettagalet Bay and in a small area near Sandwich Bay. Defoliation ranged from 40% to 75%.

The annual trapping of the masked shrew *Sorex cinereus cinereus* Kerr., was conducted in only two sample plots in 1975. Results showed an average of 3.24 shrews per hectare (1.31 per acre) in the Terra Nova National Park plot and 2.15 per hectare (0.87 per acre) in the Paddys Pond plot (Table 7). These population levels were lower than previous years but no reason for their decline could be determined.

Table 7.- Estimated number of shrews per hectare (per acre).

Location	Sept. 1966	Sept. 1967	Sept. 1968	Oct. 1969	Sept. 1970	Sept. 1971	Sept.* 1972	Sept.* 1973	Oct.* 1974	Oct. 1975
Halls Bay	21.52 (8.71)	28.00 (11.33)	8.28 (3.35)	7.09 (2.87)	7.04 (2.85)	6.08 (2.46)	5.39 (2.18)	8.60 (3.48)	9.69 (3.92)	Discont'd
Wiley Brook	-	-	-	-	12.26 (4.96)	8.82 (3.57)	6.45 (2.61)	9.69 (3.92)	6.45 (2.61)	"
Glovertown	0.00 (0.00)	0.00 (0.00)	1.08 (0.44)	3.43 (1.39)	Discontinued					
Terra Nova	0.00 (0.00)	0.00 (0.00)	1.66 (0.67)	7.09 (2.87)	8.40 (3.40)	7.07 (2.86)	7.54 (3.05)	9.69 (3.92)	10.77 (4.36)	3.24 (1.31)
Paddys Pond	-	-	-	-	0.00 (0.00)	1.51 (0.61)	3.24 (1.31)	9.69 (3.92)	4.30 (1.74)	2.15 (0.87)

* Ten day trapping period.

Birch Casebearer, Coleophora fuscedinella (Zell.) - The boundaries of infestation remained about the same in western Newfoundland as in 1974 and light defoliation was recorded along the Trans Canada Highway from the Codroy Valley to Baie Verte Junction and along the Northern Peninsula Highway to Bellburns. Moderate defoliation was reported from Woody Point to Lomond.

Year	No. of collections	No. of larvae per tree		
		Min.	Avg.	Max.
1975	5	1.0	9.6	21.0

Infestations continued to move eastward and extended from Glenwood along Gander Lake, from Bishops Falls to Northern Arm and from Port Blandford as far east as Clarenville.

In eastern Newfoundland moderate to severe defoliation was reported from Gander to Thorburn Lake with the most severe damage recorded at Big Gambo Pond (Fig. 14). Branch and twig mortality was estimated at 5% in 5.2 km² (2 square miles) in the latter area.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	16	5.0	12.1	24.0

In central Newfoundland severe defoliation occurred along the Botwood Highway from Bishops Falls to Northern Arm and along the south shore of Gander Lake. Moderate defoliation occurred along woods roads in the Badger area and in the Catamaran Provincial Park (Fig. 15).

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	30	0.7	13.5	70.3

Rusty Tussock Moth, *Orgyia antiqua* (L.) - Population levels reached outbreak numbers throughout the Avalon and Burin peninsulas in 1975. Severe damage was reported on many species of ornamental trees and shrubs in the St. John's area and nearby communities. Severe damage was also reported on blueberry and raspberry crops on the Avalon Peninsula. This insect also caused some defoliation in the Bellevue and Salmonier Valley areas where the blackheaded budworm and hemlock looper caused damage. Larvae were less than 1 per tree in the western and central areas of the Island.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	62	0.3	2.2	42.0

Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.) - This leafroller of aspen caused severe damage throughout central Newfoundland for the third consecutive year. In 1975 the infestation extended from Kittys Brook to Gambo and

FOREST RESEARCH CENTRE
ST. JOHN'S, NEWFOUNDLAND
FOREST INSECT AND DISEASE SURVEY
1975

Birch Casebearer Defoliation
Districts 103 and 104

▨ Light

■ Moderate and Severe

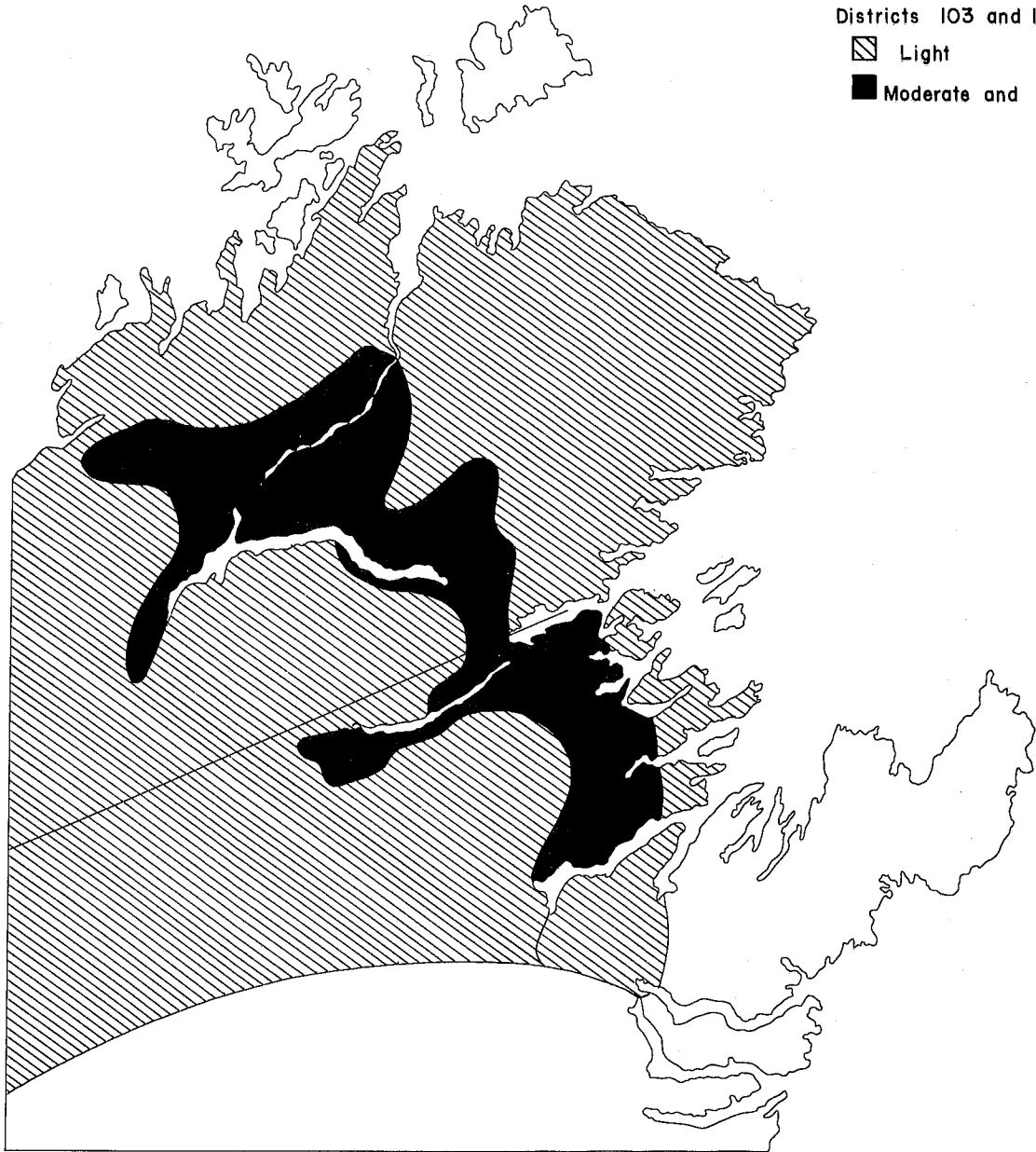


Fig. 14

FOREST RESEARCH CENTRE
ST. JOHN'S, NEWFOUNDLAND
FOREST INSECT AND DISEASE SURVEY
1975

Birch Casebearer Defoliation
Districts 105 and 106

▨	Light
■	Moderate and Severe

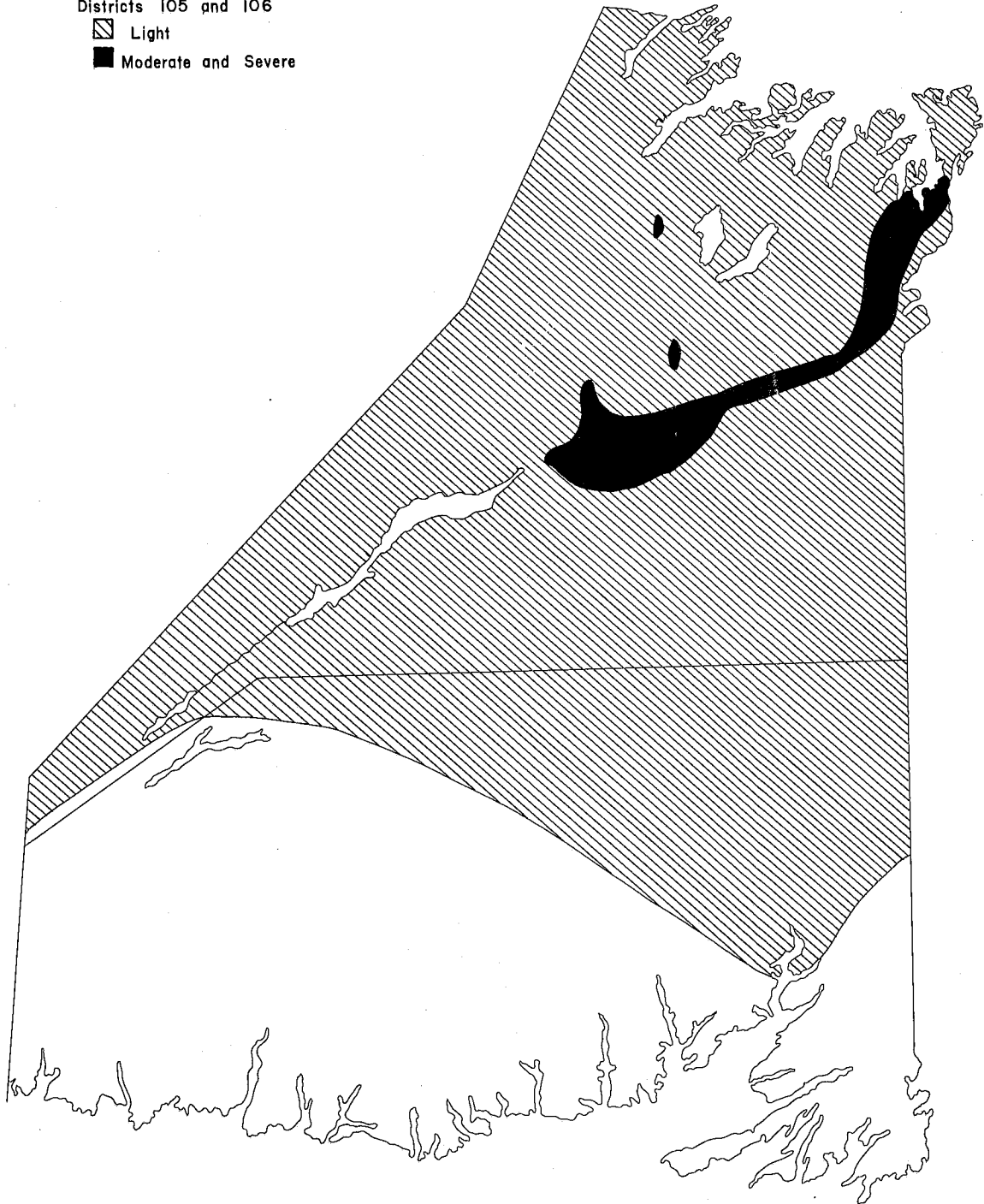


Fig. 15

in separate stands at Bear Cove, Ritters Arm and along the Fortune Harbour Road. Defoliation was estimated at 95% in stands along the Exploits River between Red Indian Lake and Jumpers Brook in late June but trees later recovered and had refoliated by late August. Less than 5-10% branch and twig mortality occurred in these stands.

<u>Year</u>	<u>No. of collections</u>	<u>No. of larvae per tree</u>		
		<u>Min.</u>	<u>Avg.</u>	<u>Max.</u>
1975	17	1.3	13.2	50.0

Forest Tent Caterpillar, Malacosoma disstria Hbn. - Eight male moths were collected in a light trap at Pasadena in July. This insect is not native to Newfoundland and the only other record for the Island was the collection of a moth, also male, at Georges Lake in 1951. It was suspected that these moths were carried from the Mainland by air currents such as up-drafts associated with moving cold fronts. The nearest source would be Nova Scotia or Quebec, approximately 217-241 km (135-150 miles) away.

Plum Webspinning Sawfly, Neurotoma inconspicua (Norton) - This insect caused 90% defoliation and 10% branch mortality of pin cherry throughout the Happy Valley-Goose Bay area of Labrador. This is the third consecutive year of defoliation in this area. A single collection was made at Badger on pin cherry and the host tree was completely defoliated.

Fall Webworm, Hyphantria cunea (Dru.) - The infestation between Stephenville and Black Duck continued in 1975. Due to the late feeding by this insect no collections or percent of damage were made as regular survey duties had concluded for the season.

OTHER NOTEWORTHY INSECTS

Species	Host(s)	Locality	Average per tree	No. of collections
<u>Adelges abietis</u> (Linn.) Eastern spruce gall aphid	bS	Southwest Bk. Rd.	0.5	1
<u>Altica</u> sp.	tA, dogwood	Joe's Lake, New World Island	1.8	2
<u>Anacamptis innocuella</u> Zell. A poplar leaf roller	tA	Badger, Ritters Arm, Northern Arm, Grand Falls, Norris Arm, Miguels Lake, 7.2 km (4.5 mi.) E. of Badger	3.0	7
<u>Anomogyna elimata</u> Gn. Chamelon caterpillar	bF	South Brook (Dist. 108)	0.3	1
<u>Anomogyna perquiritata</u> Morr. Gray spruce cutworm	bF	Codroy Pond, Southern Bay	6.5	2
<u>Anoplodera canadensis</u> (Oliv.) Long-horned beetle	wB	Crabbes River Park	1.0	1
<u>Anoplonyx luteipes</u> (Cress.) Marlatt's larch sawfly	tL	Foxtrap Access & T.C.H., Lawrence Pond, Gushues Pond Prov. Park, Flat Bay Rd., North Brook	1.1	5
<u>Biston cognataria</u> (Gn.) Pepper-and-salt moth	wB	Badger	1.0	1
<u>Brachyrhinus singularis</u> (Linn.) Clay-coloured root weevil	bF	Mount Carmel, 1.6 km (1.0 mi.) S.W. of Deer Park	2.0	2
<u>Campaea perlata</u> (Gn.) Fringed looper	Sal	Swift Current	0.3	1

OTHER NOTEWORTHY INSECTS (Cont'd)

Species	Host(s)	Locality	Average per tree	No. of collections
<u>Caripeta divisata</u> Wlk. Gray spruce looper	bF,bS	9.0 km (5.6 mi.) E. Squires Memorial Park, Churchill Rd., Charlottetown Jct., Southwest Arm, Whelan's Pond Rd., 13.4 km (8.4 mi.) W. of Glenwood, 3.5 km (2.2 mi.) W. of Glenwood	1.7	7
<u>Celerio gallii intermedia</u> Kby. Bedstraw hawk-moth	Pch	11.8 km (7.4 mi.) W. Crabbes River	1.0	1
<u>Choristoneura conflictana</u> (Wlk.) Large aspen tortrix	tA	3.0 km (1.9 mi.) N.E. Birchy Dam	2.0	1
<u>Chrysomela falsa</u> Brown Willow leaf beetle	W	Jct. of T.C.H. & Salmonier Line	74.0	1
<u>Chrysomela mainensis mainensis</u> Bech. Alder leaf beetle	Sal	Bread Cove Brook (T.N.N.P.)	6.3	2
<u>Cimbex americana</u> L. Elm sawfly	Sal	Swift Current	0.3	1
<u>Coccinella trifasciata perplexa</u> Muls	wB	16 km (10 mi.) S.W. of Buchans (Star Lake Rd.)	0.3	1
<u>Coleophora</u> sp. A casebearer	wB	0.8 km (0.5 mi.) N.W. Otter Creek	0.3	1
<u>Corythucha pergandei</u> Heid. Alder lace bug	Sal	Park Headquarters (T.N.N.P.)	999.0	1
<u>Ctenicera resplendens aeraria</u> Rand. A click beetle	bF	1.6 km (1.0 mi.) E. of Port Blandford Causeway	0.1	1
<u>Ctenicera triundulata</u> Rand. A click beetle	bS	28.2 km (17.5 mi.) W. of Grand Falls (Sandy Lake Rd.)	1.0	1

OTHER NOTEWORTHY INSECTS (Cont'd)

<u>Species</u>	<u>Host(s)</u>	<u>Locality</u>	<u>Average per tree</u>	<u>No. of collections</u>
<u>Dimorphopteryx melanognathus</u> Birch-alder sawfly	wB	Piccadilly, Barachois Prov. Park, Tompkins	0.3	3
<u>Dioryctria reniculelloides</u> M. & M. Spruce coneworm	bS,wS,bF	Southwest Arm (T.N.N.P.), Robinsons, Mummichog Prov. Park, Districts 104, 106, 108, 109, 110	1.4	28
<u>Diprion hercyniae</u> (Htg.) European spruce sawfly	bS,wS,bF	Grand Lake Rd., Baie Verte Jct., Loon Bay, N.W. Gander River Rd., 3.5 km (2.2 mi.) & 13.5 km (8.4 mi.) W. of Glenwood, Districts 101, 102, 107, 108, 109 & 110	1.3	54
<u>Elasmotethus cruciatus</u> Say Stink bug	bF	Holyrood	0.3	1
<u>Eucordylea atrupictella</u> Dietz. Spruce micro moth	bF	South Branch	0.7	1
<u>Eupithecia</u> sp. Brown spruce looper	wS,bF,mOM	Grand Lake Rd., Churchill Rd., Avalon & Burin peninsulas, Codroy to Pasadena, 8.7 km (5.6 mi.) E. of Squires Memorial Park, Lomond	6.5	25
<u>Eupithecia transcanadata</u> Mack. Conifer looper	bF	3.5 km (2.2 mi.) W. of Glenwood	1.0	1
<u>Fenusa dohrnii</u> Tischb. European alder leafminer	Sal	St. Albans, Conne River Pond, Deer Arm Bk., Districts 104 & 106	9.6	15
<u>Fenusa pusilla</u> (Lep.) Birch leafminer	wB	Gallants, 0.8 km (0.5 mi.) S.E. Mill Bk., Districts 104, 105, 106, 107	10.0	37

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OTHER NOTEWORTHY INSECTS (Cont'd)

Species	Host(s)	Locality	Average per tree	No. of collections
<u>Feralia jocosa</u> (Guen.) Red-marked caterpillar	bF,bS,wS	Grand Lake Rd., Churchill Rd., Traytown Jct., Lady Cove, Avalon & Burin peninsulas, Westport Rd., N.E. end Birchy Lake, Districts 104, 106, 107 & 108	0.4	26
<u>Griselda radicana</u> Wlshm. Red-striped spruce shoot moth	bF	Charlottetown Jct., Southwest Bk., Holyrood	0.2	3
<u>Herculia thymetusalis</u> Wlk. Spruce needleworm	bS	Logging School Rd., Lake Douglas	0.7	2
<u>Hylobius</u> sp. Root collar weevil	bF	Whelans Pond Rd. 4.5 km (2.8 mi.) from Salmonier Line	0.3	1
<u>Meadorus lateralis</u> Say Stink bug	tL	Lawrence Pond	0.3	1
<u>Melanophila fulvoguttata</u> Harr. Hemlock borer	bF	Jefferys	0.3	1
<u>Mindarus abietinus</u> Koch Balsam twig aphid	bF	Piccadilly, West Lake, St. Albans 19.6 km (12.2 mi.) N. of Head of Bay d'Espoir, Elliott's Cove	10.1	5
<u>Monochamus scutellatus</u> Say White-spotted sawyer	bF,bS	Logging School Rd., 16.1 km (10.0 mi.) S.W. of Buchans Rd. (Star Lake Rd.)	0.8	2
<u>Nadata gibbosa</u> (J.E. Smith) Green oak caterpillar	wB	Flat Bay Rd.	0.3	1
<u>Nematus limbatus</u> (Cress.) Willow sawfly	W	3.2 km (2.0 mi.) W. of Gander, 13.7 km (8.5 mi.) N.E. of Victoria Lake, Holyrood	27.0	3

OTHER NOTEWORTHY INSECTS (Cont'd)

Species	Host(s)	Locality	Average per tree	No. of collections
<u>Neptyia canosaria</u> (Wlk.) False hemlock looper	bF	Goose River Rd., Camp 33 to Crabbes River rds., Jct. Seal Cove & Wild Cove rds., Districts 101, 103, 104 & 106	0.4	24
<u>Nycteola cinereana</u> N. & D. Poplar leaf tier	W,Wb	11.4 km (7.1 mi.) W. of Gander, Jct. Pamehac Bk. Rd. & Sandy Lake Rd., Catamaran Prov. Park, Deep Bight, Southwest Brook	12.9	5
<u>Nyctobia limitaria</u> (Wlk.) Green balsam looper	bF	Cormack, Big Bonne Bay Pond, Paddy's Pond, Goobies, Bellevue, St. Phillips, Districts 104, 105, 106, 107 & 108	0.8	42
<u>Nymphalis antiopa</u> (L.) Mourningcloak butterfly	W	Camp 33 Rd., Holyrood	39.0	2
<u>Papilio glaucus canadensis</u> R. & J. Tiger swallowtail	Pch,wB,tA,Ash	O'Regans, Flat Bay Rd., 7.7 km (4.8 mi.) S.E. Deer Arm Bk., 3.0 km (1.9 mi.) N.E. Birchy Dam	0.7	4
<u>Parasemia parthenos</u> Harr	wB	Badger	1.0	1
<u>Parorgyia plagiata</u> (Wlk.) Pine tussock moth	bF	South Brook, Churchill Rd., Grand Lake Rd.	0.6	3
<u>Phratora purpurea purpurea</u> Brown Aspen leaf beetle	tA	New World Island, 2.4 km (1.5 mi.) W. of Norris Arm Jct.	0.3	2
<u>Pikonema alaskensis</u> (Roh.) Yellowheaded spruce sawfly	bS	St. Fintans, 46.7 km (29.0 mi.) from T.C.H. (on N.W. Gander River Rd.), Ocean Pond, Terra Nova Rd., Hogan's Pond Rd., Charlottetown Jct.	0.6	6
<u>Pikonema dimmockii</u> (Cress.) Greenheaded spruce sawfly	bS,wS	Grand Lake Rd. (Dist. 112), Southwest Bk. Rd., 4.0 km (2.5 mi.) E. Blue Ponds Prov. Park, Districts 103 & 104	0.6	9

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OTHER NOTEWORTHY INSECTS (Cont'd)

Species	Host(s)	Locality	Average per tree	No. of collections
<u>Pissodes dubius</u> Rand. Balsam bark weevil	bF	4.3 km (2.7 mi.) S. of Notre Dame Jct.	0.3	1
<u>Podabrus</u> sp. A soldier beetle	bF	Whelan's Pond Rd., Port Blandford	0.3	2
<u>Polygonia faunus</u> Edw. Green comma	W	Churchill Rd. (Dist. 112)	1.0	1
<u>Pontania</u> sp. A willow sawfly	bPo,W	Northwest River Rd. (Dist.112) 0.8 km (0.5 mi.) N.W. of Otter Creek	1.5	2
<u>Pristiphora geniculata</u> (Htg.) Mountain ash sawfly	Ash	Badger, 22.5 km (14.0 mi.) from T.C.H. (N.W. Gander River Rd.), Holyrood to St. John's	36.1	9
<u>Pristiphora lena</u> K. A spruce sawfly	bS	South Bk. Rd. (Dist. 112), 4.8 km (3.0 mi. W. Baie Verte Jct.), St. Fintans, 4.8 km (3.0 mi. N. Camp 180 Rd.)	0.3	4
<u>Pyrrhalta decora</u> (Say) Gray willow leaf beetle	Sal	Reidsville Rd., 1.6 km (1.0 mi.) W. of Petley	10.0	2
<u>Sciaphila duplex</u> Wlshm. Poplar leaf roller	tA	Horwood Bay, South Brook	2.0	2
<u>Scoliopteryx libatrix</u> Linn. Willow scalloped owlet	W	Crabbes River Rd.	0.3	1
<u>Semiothisa</u> sp. A looper	bS,bF,tL,wS	Gallants Rd., Logging School Rd., Flat Bay Rd., 2.4 km (1.5 mi.) E. Doyles, Michael's Hr., Star Lake Rd., Avalon Peninsula	3.9	11

OTHER NOTEWORTHY INSECTS (Concluded)

Species	Host(s)	Locality	Average per tree	No. of collections
<u>Smerinthus germinatus</u> Say A hawk moth	tA	2.9 km (1.8 mi.) from T.C.H. (Old Hall's Bay Rd.)	0.3	1
<u>Solenobia walshella</u> Clem. A bagworm	bF	Baie Verte Pen., Districts 103 & 104	0.2	9
<u>Syngrapha alias</u> (Ottol.) Spruce climbing cutworm	bF	St. Fintans, Codroy Pond, South Branch, Goose Arm Rd., Districts 102, 103, 104, 105 & 106	0.2	14
<u>Syngrapha rectangula</u> Kby. Angulated cutworm	bS	2.4 km (1.5 mi.) N. of Northern Arm	0.3	1
<u>Syngrapha</u> sp. A cutworm	bF	West Lake	0.1	1
<u>Trichiosoma triangulum</u> Kby. Giant birch sawfly	Sal	Swift Current	0.7	1
<u>Zeiraphera canadensis</u> M. & F. Spruce bud moth	wS	9.6 km (6.0 mi.) S.E. Deer Arm Bk.. 2.4 km (1.5 mi.) E. Glenburnie	1.0	2
<u>Zeiraphera fortunana</u> Kft. Yellow spruce budworm	wS	South Branch, Codroy Pond, St. Fintans, Lake Douglas, Jonathan's Pond Prov. Park, Bellevue Beach Prov. Park	2.5	2

IMPORTANT FOREST DISEASES

Shoot and Leaf Blight of Aspen, *Pollacia radiosa* (Lib.) Bald. and Cif. -

The incidence of this disease was widespread throughout the Province. In eastern Newfoundland 75% of the new shoots were affected in a 1 hectare (2.5 acres) stand of aspen regeneration near Holyrood. A similar size area was affected near Southwest Brook where 90% of the shoots were damaged. In central Newfoundland light damage occurred on scattered immature aspen along the Trans Canada Highway 3.2 km (2 miles) west of Gander. In western Newfoundland light damage of aspen regeneration affected 2.2 hectares (5.4 acres) near McIsaacs Brook. In Labrador moderate to severe damage occurred 4.8 km (3 miles) along the Churchill Road near Spring Gulch, Goose Bay.

Needle Cast of Conifers - Needle cast of balsam fir caused by *Isthmiella faullii* (Darker) Darker, affected up to 55% of the foliage on some trees near the Witless Bay Line. It was less conspicuous than in 1974 but was more common on shoots that were affected by winter drying. Low to moderate incidence of needle cast of tamarack, caused by *Hypodermella laricis* V. Tub., was observed near Deer Lake, Flat Bay and St. Georges.

Yellow Witches Broom - Moderate to high incidence of this disease occurred throughout the Avalon Peninsula for the second consecutive year. It occurred on balsam fir caused by *Melampsorella caryophyllacearum* Schroet. in the St. Phillips, Bauline Line, Mackinsons, Marysvale and in the lower Salmonier Valley from Back Brook to St. Catherines. Approximately 40% of balsam fir regeneration was affected in the latter area.

Dwarf Mistletoe - This disease caused by *Arceuthobium pusillum* Peck., was common along the Little Barachois Brook in western Newfoundland in a moderate incidence.

Disease of Poplars - Moderate to high incidence of a stem and branch canker of ornamental trees of lombardy poplar, caused by Dothichiza populea Sacc. & Briad and Cytospora chrysosperma (Pers.) Fr., and resulting in up to 30% tree mortality, was observed in St. John's, Manuels, Topsail, Grand Falls, Deer Lake and Corner Brook. Tree mortality near the Crabbes River Provincial Park in a natural stand of balsam poplar was also observed during the aerial survey. However, no collections were taken in the area and the disease was not determined.

Winter Drying - The incidence of winter drying occurred on trees and shrubs throughout the Island but was less common and severe than in 1974. In eastern Newfoundland light to moderate damage of balsam fir occurred along the Trans Canada Highway from Long Harbour Junction to Witless Bay Line. In central Newfoundland light damage was recorded on eastern white pine saplings in a 1 hectare (2-3 acre) area along the Northwest Gander River Road. Light damage also occurred on balsam fir in the Bay d'Espoir area and 21 km (13 miles) along the Bay d'Espoir Road. This damage was more prominent in areas where a thinning program was being carried out. In western Newfoundland 10% browning of young balsam fir was reported in the East Arm of Bonne Bay and along the highway from Wiltondale to Rocky Harbour.

Frost Damage - Late frost caused moderate damage to black spruce regeneration along the Trans Canada Highway near Gander. An estimated 10% of the current foliage was damaged on balsam fir regeneration near St. Albans.

OTHER NOTEWORTHY DISEASES

<u>Organism and Disease</u>	<u>Host(s)</u>	<u>Locality</u>	<u>Remarks</u>
<u>Apiosporina collinsii</u> (Schw.) Hoehn	Serviceberry	8.0 km (5.0 mi.) S.W. of Badger	Moderate infection
<u>Apiosporina morbosa</u> (Schw.) Arx Black knot	Cherry, pin	Witless Bay Line	Low incidence
<u>Chrysomyxa empetri</u> Schroet. ex Cummins Needle rust	Spruce, white	3.6 km (2.0 mi.) E. of Barachois Bk. (Carters Rd.)	Low incidence
<u>Coccomyces hiemalis</u> Higgins Shot hole	Cherry, pin	Witless Bay Line	Low incidence
<u>Gleosporium apocryptum</u> Ell. & Ev. Large leaf spot	Maple, mountain	1.6 km (1.0 mi.) W. of Petley, Camp 180 Rd., Steel Mtn. Rd.	Light to moderate infection
Heat injury	Larch	2.4 km (1.5 mi.) E. of Doyles, 4.8 km (3.0 mi.) N. of Charlottetown Jct.	Light to severe infection
Late spring leaf scorch	Dogwood	1.8 km (1.0 mi.) W. of Petley	Low incidence
<u>Phyllosticta minima</u> (Berk. & Curt) Underw. and Earle Purple eye spot	Maple, mountain and red	Piccadilly, Steel Mtn. Rd., Jct. T.C.H. & North Branch River	Low incidence
<u>Rehmiellopsis balsameae</u> Waterman Tip blight	Fir, balsam	Grand Lake Rd. (Dist. 112)	Moderate infection
<u>Taphrina</u> sp. Leaf blister	Aspen, trembling	Radio Tower Rd. (Dist. 112)	Low infection