SUMMARY OF FOREST INSECT AND DISEASE CONDITIONS NEWFOUNDLAND LATE SUMMER AND FALL, 1967

FOREST RESEARCH LABORATORY
ST. JOHN'S, NEWFOUNDLAND

INFORMATION REPORT N-X-14

FORESTRY BRANCH
~~APRIL, 1967~~

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DEPARTMENT OF FORESTRY
1967

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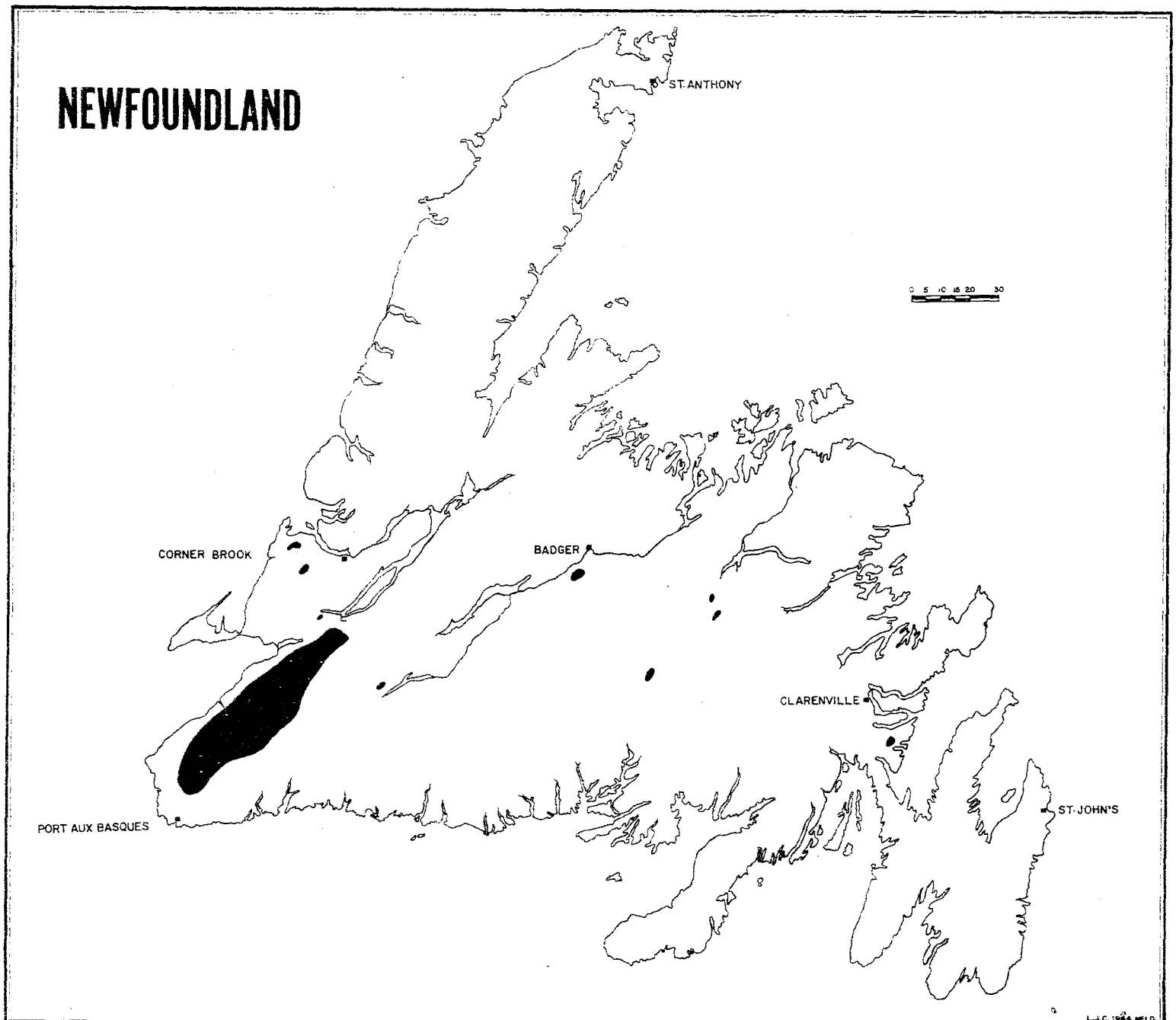
INTRODUCTION

This is the last of three seasonal reports for 1967 on forest insect and disease conditions in Newfoundland. Weather conditions were normal throughout the province during September and above normal temperatures were recorded in October. Field technicians collected 1,530 insect and 43 disease samples during the season, approximately 300 more than in 1966. Four insect species caused conspicuous damage to the forests of Newfoundland in 1967. The balsam woolly aphid advanced in the central and eastern regions. The hemlock looper increased to outbreak numbers in several major watersheds of western Newfoundland with separate isolated outbreaks in central and eastern regions. Boundaries of outbreaks of the larch sawfly were greatly expanded in central Newfoundland and the birch casebearer caused heavy browning to white and yellow birch in many stands in the Humber and St. Georges areas of the west coast. Population levels of other defoliating insects remained low throughout the Province. The incidence of common tree foliage diseases was reduced from last year. Special surveys were conducted on the deterioration of balsam fir in balsam woolly aphid and hemlock looper infested stands in western Newfoundland.

Forest Insect and Disease Survey

Hemlock Looper Infestations

1967



FOREST INSECTS

Eastern Hemlock Looper, Lambdina fiscellaria fiscellaria (Guen.)

Special hemlock looper surveys were conducted in most forested areas of the Island with emphasis on mature balsam fir stands. Ground crews examined stands accessible to highways and boat crews were utilized in inaccessible stands on the Northern Peninsula. Fixed-wing aircraft were used to spot and map infestations over wide areas and a helicopter was used to transport ground crews to inaccessible areas. Survey crews examined stands to detect and assess looper damage and to estimate the incidence of moths.

Surveys revealed varying degrees of defoliation in many stands on the Island. No infestations were recorded on the Great Northern or Burin peninsulas (see accompanying map).

The largest outbreak and most severe damage occurred in western Newfoundland. Varying degrees of defoliation were recorded in an estimated 151,000 acres of balsam fir in watersheds south of Corner Brook (see accompanying table). Severe defoliation and extensive tree mortality occurred in the infestations at Little Barachois Brook (20,500 acres) and between Robinsons River and Crabbs River (61,250 acres). An estimated 1,000,000 cords of merchantable fir have been severely damaged or killed in the infestations on the west coast and it is expected that

a further 2,000,000 cords will be affected if the outbreak continues unabated in 1968.

A total of approximately 7,290 acres were defoliated at four separate locations in central Newfoundland (see accompanying table). Defoliation was not as severe as in the western areas but many stands in the Lloyd's River and Red Indian Lake watersheds were heavily infested with moths and the hazard potential is high for severe damage in 1968.

Defoliation was reported in only one area in eastern Newfoundland where 3,500 acres at Deer Arm, Trinity Bay, showed light to moderate damage.

Areas Defoliated by Hemlock Looper in 1967

Locations Western Nfld.	Estimated Average Defoliated
Serpentine Lake	6,400
Bottom Brook	10,240
St. Georges River	2,560
Southwest Brook	20,480
Little Barachois Brook	20,500
Birchy Brook	640
Flat Bay Brook	3,200
Journois Brook	640
Fishels Brook	10,750
Northern Feeder and Robinsons River	29,000

Locations Western Nfld.		Estimated Average Defoliated	
Barachois Brook		15,360	
Crabbs River		16,890	
Highlands		640	
Highlands River		5,000	
North Branch		4,500	
Anguille Mountains		1,200	
Cod1 Brook to South Branch		1,800	
Little Codroy Pond		1,200	
	Sub-total		151,000

Locations Central Nfld.		Estimated Average Defoliated	
Badger		3,000	
Gander River		450	
Caribou Lake		2,560	
Conne Pond		1,280	
	Sub-total		7,290

Locations Eastern Nfld.		Estimated Average Defoliated	
Deer Arm (Trinity Bay)		3,500	
	Sub-total		3,500
	Grand Total		161,790

Balsam Woolly Aphid, Adelges piceae (Ratz.)

There were few changes in the boundaries of aphid infestations in Newfoundland in 1967. Aphid surveys were reduced this fall

because of the demands exacted by the looper outbreaks. However, field technicians recorded aphid conditions during the normal ground surveys and special hemlock looper surveys.

Eastern Newfoundland

Numerous spot infestations were discovered between Clarenville and Swift Current. This record indicates that the aphid has spread throughout the Burin Peninsula from Grand Bank to Epworth in the south, to Clarenville in the north.

In Terra Nova National Park, aphid infested trees were observed along the T.C.H. at the eastern entrance of the Park.

Central Newfoundland

New spot outbreaks were discovered along the Trans Canada Highway just east of South Pond, Halls Bay; near Crooked Lake, 10 miles west of Badger; and at Red Cliff, 5 miles west of Grand Falls. The small infestation along the Badger-Buchans Road extended to the opposite side of the road. This area was partly cut by Price (Nfld.) Limited in 1966. The condition of aphid infested stands in the Lloyd's River and Red Indian Lake watersheds remain unchanged from 1966.

Western Newfoundland

The boundaries of the main aphid infestations in western Newfoundland have changed only slightly during the past two years. However, 'gouty' trees have been observed along 5 miles of the

T.C.H. east of the spot outbreak recorded in 1965 at the narrows of Sandy and Birchy Lakes. No change has been noted in the northern boundary of the infestation near Bonne Bay.

The most prominent aphid symptoms now occur in the Snug Harbour-Nicholsville stands on the north shore of Deer Lake and along the Trans Canada Highway between Deer Lake and Corner Brook. The main west coast infestations between Corner Brook and Highlands appear to have subsided. Many of the infested mature stands have been harvested and residual trees have a 'flat top' and little vertical growth, characteristic of earlier severe aphid attack. However, good 'recovery' was observed on many immature and sapling trees.

Larch Sawfly, Kristiphora erichsonii (Htg.)

Larch sawfly infestations continued to increase in central Newfoundland. In 1965 the outbreak around Red Indian Lake was estimated at 35 square miles, in 1966 the area increased to 100 square miles and in 1967 defoliation occurred over an area of some 250 square miles. The Red Indian Lake infestation now extends north from Millertown Junction, throughout the South Brook watershed to Gull Pond.

Only one small outbreak was reported in western Newfoundland, a spot infestation along Robinsons River where defoliation averaged 75% over a 2-square mile area.

FOREST DISEASES

The hemlock looper severely damaged or killed many balsam fir trees in western Newfoundland in 1967. Data was not accumulated during previous outbreaks to determine how long trees remain merchantable after being killed by this insect. Consequently, the Forest Insect and Disease Survey initiated a study of this problem in the infested stands at Serpentine Lake. These stands had varying degrees of defoliation and all categories of balsam woolly aphid damage, a condition common to most mature stands on the west coast. Arbitrary damage classes included various damage categories for both insects, and 600 trees from all classes were tagged for periodic selective stem analysis during the next six years (see accompanying map). The analysis of 100 trees examined in 1967, first year of appreciable looper defoliation has not been completed but cursory examination of tree discs and data indicate that the percentage of defect from decay organisms is low in these stands and any increase will be related primarily to looper damage.

Location of Plots for Study of Tree Deterioration
in Hemlock Looper and Balsam Woolly Aphid Damaged Stands.