PROVINCE OF QUEBEC

FOREST INSECT SURVEY

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INTRODUCTION

The Forest Insect Survey in Quebec followed the same procedures that have been in effect in recent years; it restricted its activities to specific problems in particular areas. Aerial and ground surveys were made of the spruce budworm infestation in the Gaspe region and investigations of jack-pine sawflies were continued and extended to include the Manicouagan and Lower St. Lawrence regions. Information on the distribution and abundance of the European spruce sawfly, European pine shoot moth, larch sawfly, and eastern hemlock looper was obtained during special studies of these forest insects.

IMPORTANT INSECTS

Spruce Budworm, *Choristoneura fumiferana* (Clem.)—The spruce budworm remained the most serious insect problem in the forests of Quebec in 1957. Although the insect is present in coniferous stands over the entire Province, it is currently abundant only in the Lower St. Lawrence and Gaspe regions. The insect has been active in these regions since 1948 with severe defoliation occurring over large areas and tree mortality in some localities. In 1957 approximately 1.2 million acres of severely infested balsam fir were sprayed from the air with satisfactory results.

On the basis of aerial and ground surveys the Lower St. Lawrence and Gaspe regions could be divided into two zones based on budworm abundance. The first, where numbers are small, included Matane and Gaspe Nord counties. In Matane the population has decreased considerably in the last two years; in Gaspe Nord it had never reached a high level except in small areas. The second zone consisted of the remaining part of the two regions in which, although variations occurred, the initial population in 1957 generally exceeded that of 1956. This was evident from both population counts and defoliation records. In addition to the normal decline, the population was sharply reduced near the end of the larval period from the action of a disease which was favoured by the unusually wet season.

As in previous years, an egg survey was conducted in late August and early September; samples were taken in 619 localities. This survey indicated that pupae and egg-masses generally were less abundant than in 1956. Only 30 per cent of the localities were classified as severe compared with 61 per cent in 1956. Most of these localities were in the southeastern section of Bonaventure County, and throughout Gaspe Sud County where spraying is contemplated for 1958.

Swaine Jack-pine Sawfly, *Neodiprion swainei* Midd.—In 1957, the survey for this sawfly was extended to include the western section of the Manicouagan and the Lower St. Lawrence regions. Only old cocoons originating from previous infestations were found in the first area but recent evidence of these sawflies was seen at St. Fabien, Rimouski, and about 14 miles south of Riviere du Loup.

Sampling within the area surveyed in previous years, revealed a general decrease in population west of the St. Maurice River, although some centers of infestation are still active. Moderate infestations were located in the upper section of the Barriere Road and in the Pine Lake area on the Lievre River. On the St. Maurice River, the heavy infestation recorded at Alice Lake in 1956, was classified as moderate in 1957; a virus disease caused significant larval mortality.

Forest insect and disease survey. Annual report 1957.

In the Lake St. John and Saguenay regions populations were not affected by the early fall frosts of 1956, and they remained high in 1957.

Red-headed Jack-pine Sawfly, *Neodiprion virginianus* complex—Sawfly collections from jack pine trees in previous years revealed small numbers of this species along with *N. swainei.* In 1957, a light to moderate infestation was found at St. Hilarion in Charlevoix County and larvae were collected commonly in Settrington Township and in the du Gouffre watershed.

Black-headed Jack-pine Sawfly, *Neodiprion pratti banksianae* Roh.—Small pockets of infestation of this sawfly have been recorded for the past two years at the Ottawa Rapids on the Barriere Road and on the Notawissi River, a tributary of the Gatineau. Observations made in the same stands at the end of this season failed to show any trace of current defoliation.

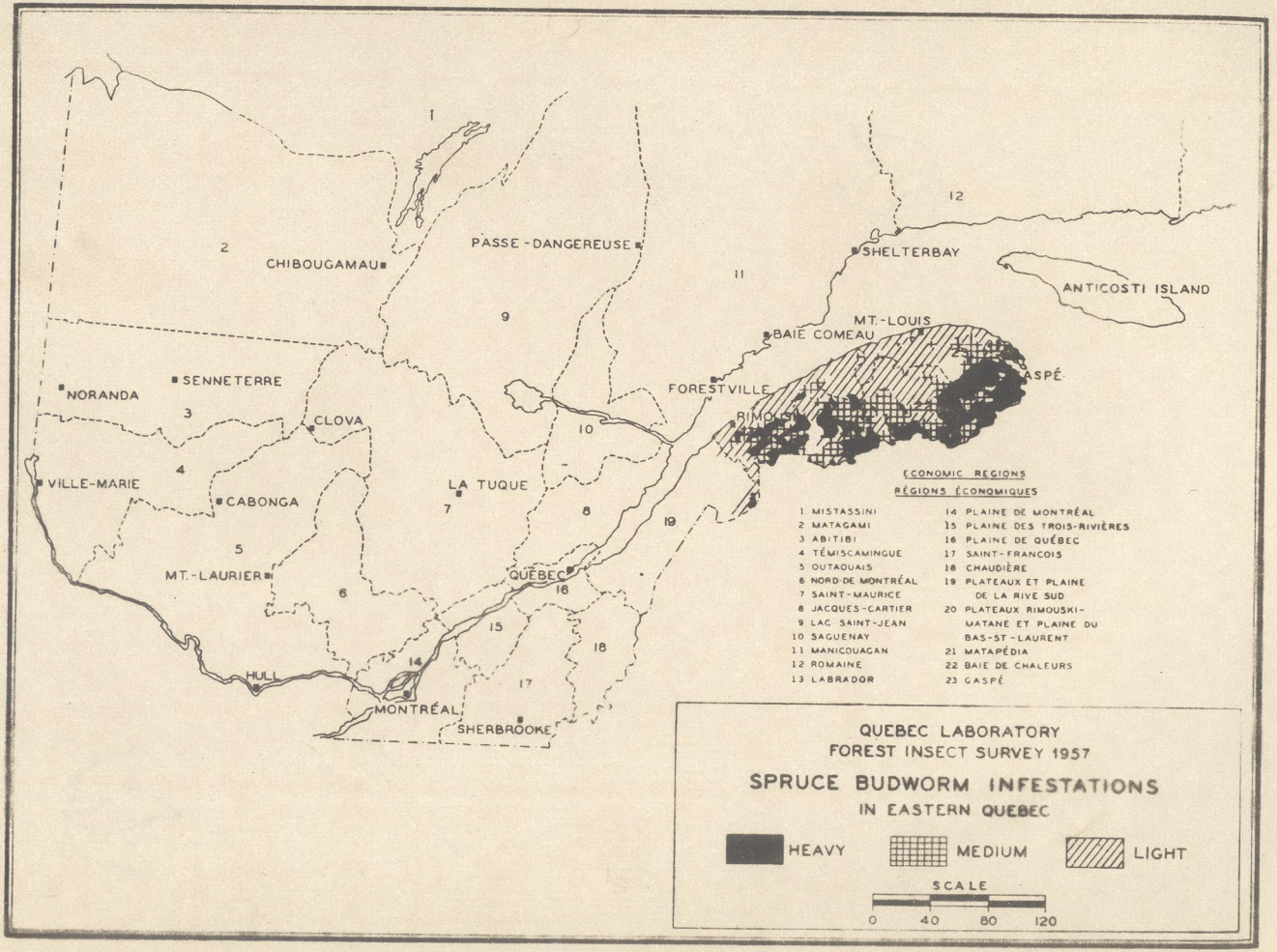
European Spruce Sawfly, *Diprion hercyniae* (Htg.)—Populations of this insect are still low although the reports received in 1957 indicated that it is somewhat more abundant than in previous years throughout the Province, notably in the Gaspe. There was no change in the population in the Quebec-Three Rivers-Megantic area where two generations occur and where special investigations have been conducted since 1955. Approximately 88 per cent of the 572 spruce trees sampled showed evidence of this insect. An average of approximately nine larvae per tree was obtained in 1957 which is close to the average for 1956.

In 1957, beating collections again revealed the presence of diseased and dead larvae in most of the localities sampled. The virus disease was also an important mortality factor in laboratory rearings, although 68 per cent of 2,200 larvae reared spun cocoons. Only one species of parasite, *Drino bohemica* Mesn. was recovered from similar material reared in 1956 and incubated in the spring of 1957.

European Pine Shoot Moth, *Rhyacionia buoliana* (Schiff.)—A survey for the European pine shoot moth was conducted on ornamental pines in the main cities of the Montreal, Quebec, and Sherbrooke area. A marked reduction in populations occurred this year, attributable to the low temperatures recorded during the previous winter. The infestation now varies from light to moderate in Quebec City; only a few specimens were found in Sherbrooke and Montreal. No evidence of this insect was found in other localities visited. In addition to the severe weather, parasites played an important part in control; 33 per cent of the larvae in the 757 shoots examined were parasitized.

Larch Sawfly, *Pristiphora erichsonii* (Htg.)—Sampling in 1957 revealed high numbers in western Quebec. Although the infestation appears to be moving south and east there was little change in the area infested in 1957. The main infestation now extends from the Rouyn-Senneterre area in Abitibi-Est County through Laverendrye Park south to Lacoste and L'Ascension in Labelle County. Throughout this territory the infestation was classified as medium to heavy, except for a small area of severe attack near Senneterre and an area of light to medium attack in Labelle County. Cocoon collections revealed that small mammal predators were important in control; parasitism was generally low.

Eastern Hemlock Looper, *Lambdina fiscellaria fiscellaria* (Guen.)—An infestation of this insect that occasionally develops to epidemic proportions in stands of balsam fir, was reported on the North Shore of the St. Lawrence River in 1956. According to observations made both from the air and the ground, this infestation, centered in the Vachon and May Islands watersheds, covered an area of approximately 56,000 acres of which 768 were severely damaged. Surveys conducted during the summer of 1957 showed that the infestation virtually disappeared in 1957. Practically no eggs could be found in the spring and early summer, and larvae were scarce; about one-half of the larvae collected were parasitized.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CHIBOUGAMAU
PASSE-DANGEREUSE
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SHELTERBAY
ANTICOSTI ISLAND
MT.-LOUIS
BAIE COMEAU
ASPÉ
FORESTVILLE
RIMOUSKI
NORANDA
SENNETERRE
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CLOVA
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4
VILLE-MARIE
CABONGA
LA TUQUE
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8
19
5
MT.-LAURIER
6
QUÉBEC
16
15
18
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HULL
17
MONTRÉAL
SHERBROOKE
ECONOMIC REGIONS
RÉGIONS ÉCONOMIQUES
1 MISTASSINI
2 MATAGAMI
3 ABITIBI
4 TÉMISCAMINGUE
5 OUTAOUAIS
6 NORD-DE MONTRÉAL
7 SAINT-MAURICE
8 JACQUES-CARTIER
9 LAC SAINT-JEAN
10 SAGUENAY
11 MANICOUAGAN
12 ROMAINE
13 LABRADOR
14 PLAINE DE MONTRÉAL
15 PLAINE DES TROIS-RIVIÈRES
16 PLAINE DE QUÉBEC
17 SAINT-FRANCOIS
18 CHAUDIÈRE
19 PLATEAUX ET PLAINE DE LA RIVE SUD
20 PLATEAUX RIMOUSKI-MATANE ET PLAINE DU BAS-ST-LAURENT
21 MATAPÉDIA
22 BAIE DE CHALEURS
23 GASPÉ
QUEBEC LABORATORY
FOREST INSECT SURVEY 1957
SPRUCE BUDWORM INFESTATIONS
IN EASTERN QUEBEC
HEAVY
MEDIUM
LIGHT
SCALE
0 40 80 120