# PROVINCE OF QUEBEC

## FOREST INSECT SURVEY

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### INTRODUCTION

Early in 1955, arrangements were made with the Quebec Bureau of Entomology for the conduct of forest insect surveys in Quebec. The Bureau of Entomology will continue its province-wide general survey and the Forest Biology Division will restrict its activities to major insect problems under detailed study by its Quebec Laboratory and to specific problems of particular interest. In 1955, the surveys conducted by the Forest Biology Division concerned the spruce budworm in the Gaspe and adjacent areas, jack-pine sawflies in the central part of the Province, the European spruce sawfly in certain areas, and the European pine shoot moth in and around Quebec City. The results of these restricted surveys are presented below and it should be appreciated that the maps presented with this Report do not necessarily represent conditions for the Province as a whole, but only for those areas studied. It is expected that results of surveys carried out by the Quebec Bureau of Entomology will be published elsewhere.

### IMPORTANT INSECTS

***Spruce Budworm,*** *Choristoneura fumiferana* (Clem.).—This insect is a serious problem in the Lower St. Lawrence and Gaspe regions, where large-scale aerial spraying operations were carried out in 1954 and again in 1955 in an attempt to lower the insect population level in the most seriously threatened balsam fir stands. In 1954, approximately 318,000 acres of coniferous forests were treated in the regions of Rimouski, Mistigougeche, Mitis and Patapedia. In 1955, the operations were much more extensive and covered 1,040,000 acres, 91,000 of which were in the Rimouski River Watershed, 173,000 in the Matane and Cap Chat watersheds and 776,000 in the Baie des Chaleurs District.

Additional to the above, a few centers of heavy infestation, limited in area, still persist in the Lake St. John Region and on the North Shore of the St. Lawrence River. In the old infestations in the St. Maurice and Jacques Cartier regions, balsam fir mortality continues and at an increasing rate. The salvage of this timber constitutes a serious problem to limit holders.

Early spring observations in the lower St. Lawrence and Gaspe areas indicated that larval population levels varied considerably from one area to another, being generally higher in the Rimouski and Matane regions, where between 25 and 50 larvae could be found per 18-inch balsam fir branch-tip, compared with only six in the Baie des Chaleurs District. This last figure was considerably lower than expected from the egg survey conducted in 1954. No definite explanation can be furnished for this decline, but it is suspected that it might be due to the exceptionally adverse weather conditions which prevailed

during the late summer and fall of 1954. However, during the spring and summer 1955, climatic conditions were very favorable to insect development, so that a high proportion of the larvae reached maturity. The defoliation of the current year's growth in the Lower St. Lawrence and Gaspe regions is shown on the accompanying map. Defoliation was light in all regions sprayed in 1954 and 1955, except for relatively small areas of moderate attack in the Baie des Chaleurs District.

Outside the sprayed areas, severe defoliation was general being particularly noticeable in the following locations: (1) North of the sprayed area on the Rimouski and Mitis watersheds; (2) In the Cap Chat River watershed; (3) On the Matapedia Seigniory and the lower section of Assemetquagan and Escuminac rivers watersheds; (4) On a stretch of land approximately 15 miles wide, in central Gaspe, extending from the head of Petite Matane River to the Bonaventure Burn; (5) In all forest areas located between Grande Riviere and St. John rivers watersheds. Defoliation was light, however, in the lower section of Petite and Grande Pabos rivers, where severe feeding had occurred in previous years. Defoliation was also light in Gaspe North County.

Results of the 1955 egg-mass survey indicate that egg deposition was generally light to moderate in all areas sprayed in 1954, and light in most areas sprayed in 1955. Exceptions were approximately 20 square miles in the Matane River watershed and 45 square miles in the Cascapedia River watershed where counts were unusually high. These high counts may be attributed to an invasion of moths from surrounding unsprayed areas.

In unsprayed areas, egg counts were high and barring unforeseen developments, severe defoliation may be expected in 1956.

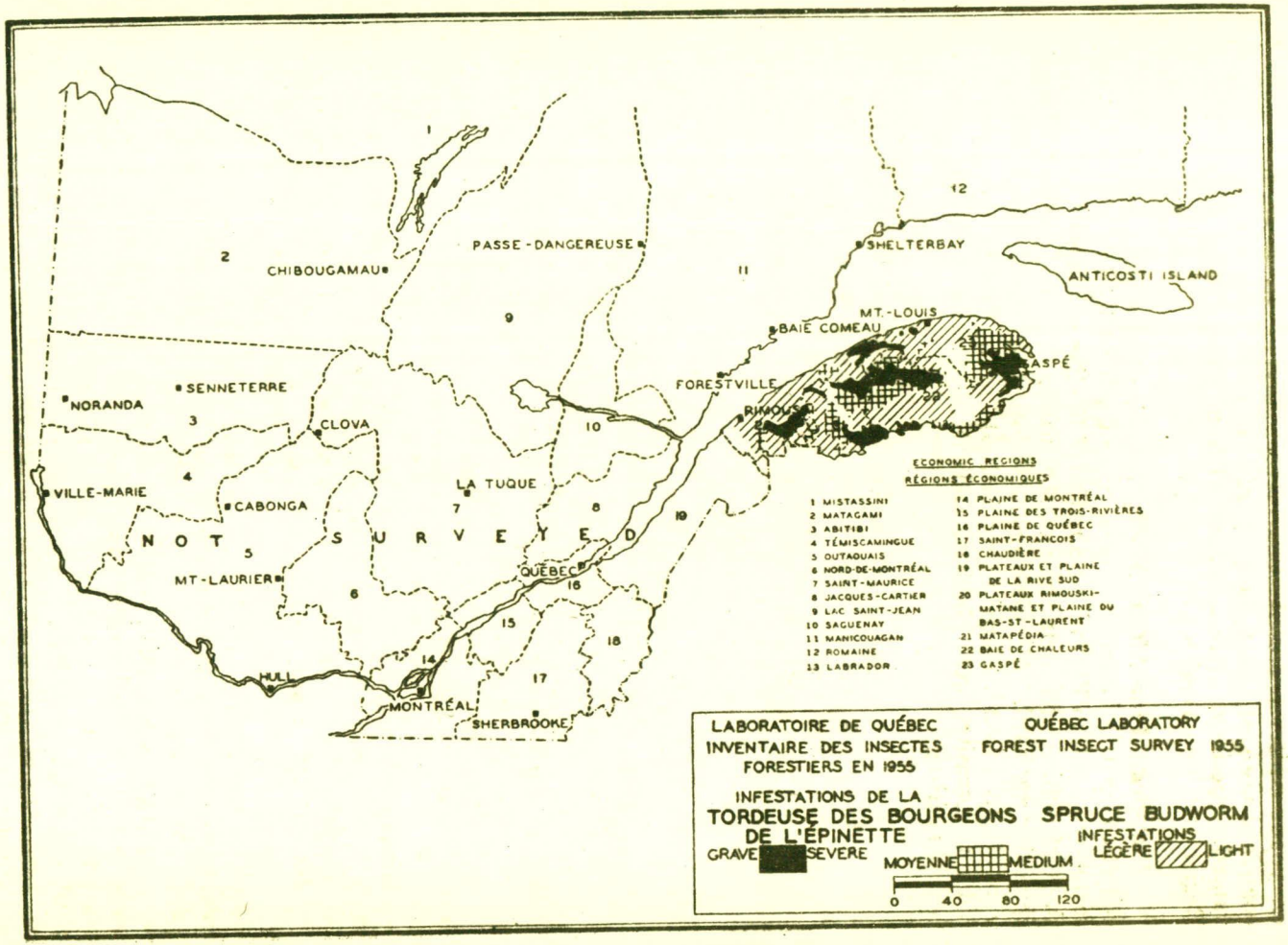
***Jack-pine Sawfly,*** *Neodiprion swainei* Midd.—The extensive collecting program for jack-pine sawflies initiated in 1954 in co-operation with the limit holders, was continued in 1955. The territory covered included the area south and west of the St. Maurice watershed. Collections were made of overwintering cocoons and mature larvae. Cocoon samples were made by counting the number found in two 1-square-foot samples of forest soil at each sampling point. Larval samples were obtained at approximately the same locations by beating the foliage over a standard sized sheet. All samples were sent to the temporary field station at Clova (Abitibi) for analysis and rearing. The collection program was supplemented by an aerial reconnaissance at the end of the feeding season. The intensity of sawfly infestations was recorded according to color variations of the crown canopy as seen from the air.

Larval and cocoon collections received in 1955 totalled 422 and contained only *N. swainei.* The data showed that the insect was present in approximately the same general region as in 1954. There was an apparent decrease in population level over the area as a whole, so that only small patches of heavy infestation remain as shown on the accompanying map. These heavily infested areas occurred at Lake Tourbis, Lake à la Carpe, Lake Gagnon, and in Landry and Buies townships and were surrounded by areas of medium infestation. Other patches of medium infestation were also located at Lake Barriere, and Lake des Isles on the Trenche River. The insect was also reported near Lake Bouchette, and on Rat River in the Lake St. John Region.

***European Spruce Sawfly,*** *Diprion hercyniae* (Htg.).—In 1954, there were indications of increased abundance of this insect in the Abitibi and St.

Maurice regions. To confirm these reports, a special reconnaissance trip was made early in 1955 through these regions and the Eastern Townships. The results indicated low population levels in all areas. Larvae were most numerous on young white spruce plantations near Lake Megantic. Most collections contained diseased larvae the proportion of which increased as the season advanced. Specimens were also received from Lake Dubois in the St. Maurice Region and from Temiscouata County.

***European Pine Shoot Moth,*** *Rhyacionia buoliana* (Schiff.). - The first collections of this insect were made near Quebec City in 1954. An intensive search was made in 1955 within a radius of 15 miles of Quebec City to determine the distribution and abundance of the insect. The infestation is apparently spreading eastward. All collections have been from mugho pine. No parasites were obtained from material reared in 1954, but in 1955, four species of hymenopterous parasites were obtained and accounted for approximately 12 per cent parasitism.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BAIE COMEAU
GASPÉ
FORESTVILLE
RIMOUSKI
SENNETERRE
NORANDA
CLOVA
LA TUQUE
VILLE-MARIE
CABONGA
MT-LAURIER
QUÉBEC
HULL
MONTRÉAL
SHERBROOKE
N O T S U R V E Y E D
ECONOMIC REGIONS
RÉGIONS ÉCONOMIQUES
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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
LABORATOIRE DE QUÉBEC
INVENTAIRE DES INSECTES FORESTIERS EN 1955
QUÉBEC LABORATORY
FOREST INSECT SURVEY 1955
INFESTATIONS DE LA
TORDEUSE DES BOURGEONS DE L'ÉPINETTE
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INFESTATIONS
GRAVE SEVERE
MOYENNE MEDIUM
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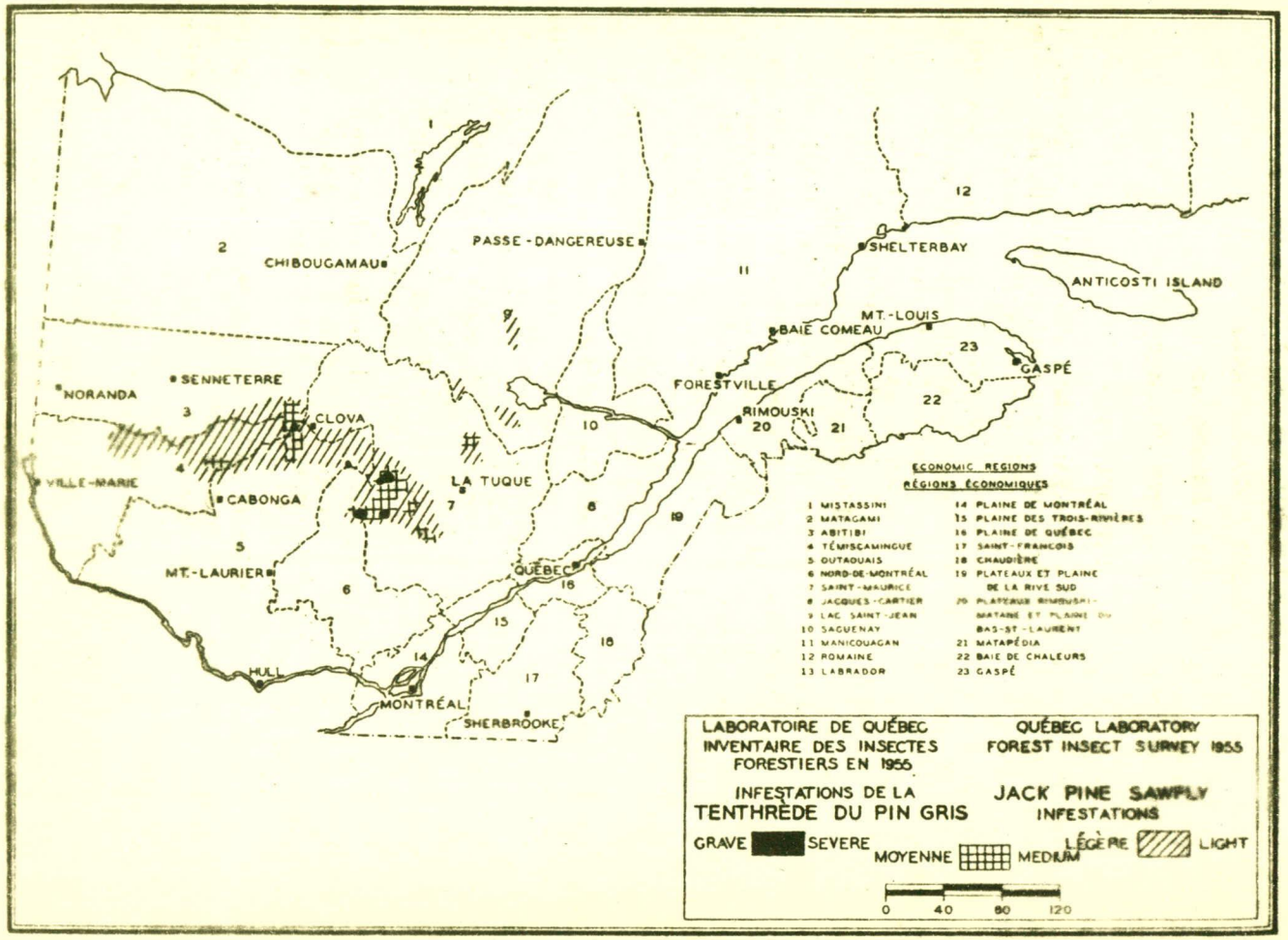
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QUÉBEC LABORATORY
FOREST INSECT SURVEY 1956
JACK PINE SAWFLY INFESTATIONS
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