

A New Looper Infestation in Sugar Maple Stands in Quebec.—A new looper infestation was reported in sugar maple stands (*Acer saccharum* Marsh.) in southern Quebec in the spring of 1961. According to the Forest Insect Survey records, similar infestations were recorded in the same territory during the past 25 years. In 1942 and 1943, the basswood looper, *Erannis tiliaria* Harris, and the spring cankerworm, *Paleacrita vernata* Peck, caused very severe defoliation on sugar maple and associated tree species. In 1953 and 1954, the sugar maple stands in the same region were again seriously affected by these two insects in Beauce, Mégantic, and Frontenac counties. Unfortunately, none of these past infestations were followed closely; it is only known that they appeared suddenly and collapsed very abruptly after one or two years. The first signs of this new infestation were recorded in mid-May at Laurierville, 30 miles southwest of Quebec City, when unusual numbers of loopers were collected on sugar maple. Following this discovery a general survey was conducted on hardwoods in an area of approximately 5000 square miles including the watersheds of the Etchemin, Chaudière, Beauvillage, and upper Saint-Francois rivers, and the north shore of the St. Lawrence River in Portneuf and Montmorency counties. All hardwood tree species were sampled but only populations found on sugar maple were used as a basis of comparison between the 75 localities sampled throughout the area surveyed. Only one looper species, the basswood looper, was found to be very abundant. The insect was generally present on all hardwoods throughout the area surveyed but basswood, ash, beech, and sugar maple were preferred. No specimens of the spring cankerworm, often associated with the previous insect, were found.

The degree of infestation for each locality was based on the number of larvae collected per hour, and on the number of larvae present per 100 leaves of sugar maple, at the time of peak larval abundance. The infestation classes adopted were as follows:

Number of larvae collected	Infestation Classes		
	Light	Moderate	Severe
Per hour.....	100 or less	100-500	500 or more
Per 100 leaves.....	10 or less	10-20	20 or more
Expected Defoliation.....	0-20%	20-60%	60-100%

On the basis of the results obtained, two zones of infestation were delineated: (a) a moderate-severe infestation zone, ellipsoidal in form, approximately 50 miles long by a maximum width of 30 miles, and extending from Plessisville to Saint-Georges, Beauce County; (b) a light infestation zone covering the remainder of the surveyed territory. A defoliation survey performed when feeding was completed revealed that defoliation was lower than anticipated, particularly in the moderate-severe zone. The reduction was attributable to the action of a virus disease which killed many of the larvae.

The first diseased larvae were obtained in the laboratory at the end of May from mass rearings of larvae collected at Saint-Benoit, Beauce County, in the midst of the moderate-severe zone. The first disease symptoms appeared as a light browning of the abdominal segments, and after a few days the pigmentation gradually increased. The diseased larvae ceased feeding and wandered about on the foliage; their bodies soon became flaccid and slight pressure caused the abdomen to exude a brown liquid; this liquid was also exuded through the anus and finally caused the body to be cemented to the substratum. The disease spread rapidly through the rearings so that it became impossible to rear the insect by the usual laboratory methods. Analyses of the dead larvae performed by Dr. Smirnov of the Quebec Laboratory, revealed the presence of an extremely virulent virus of the haemolymph.

By June 15, the first signs of the disease were recorded in the maple stands of Saint-Benoit, Beauce County. The disease increased so rapidly that within a period of 20 days, from June 8 to June 28, the number of larvae collected per hour fell gradually from 600 to 100. By this time, none of the insects had yet completed larval development and the partially mummified cadavers could easily be located either on the leaves, branches, stems, or on the ground. All the larvae reared in cages in the forest were dead by July 4, 19 days after the appearance of the disease in the field. Unfortunately, no definite record was obtained of the proportion of the larvae that died from the disease under natural conditions.

The disease was also followed in a moderate infestation at Saint-Sylvestre, Lotbinière County, 20 miles north of Saint-Benoit, where it behaved differently. First signs of the disease appeared two weeks later than in the first area, and a greater proportion of the larvae survived. However, in this locality all larvae reared in cages also died. In the light infestation zone, no signs of disease were found in spite of intensive sampling.

As above mentioned the damage to the trees was less important than expected. In the pockets of severe infestation, most hardwood trees were affected and approximately 25 per cent of the foliage was destroyed. In the moderate zone, defoliation was less serious, and elsewhere it was negligible.—
René Martineau.