

Defoliating Insects on Field Spruce in Quebec.—In the course of studies on the bionomics of a number of microlepidoptera found on field spruce in the Baie des Chaleurs area of the Gaspé Peninsula in 1959 and in southwestern Quebec, records were kept on some associated defoliating insects. In the Gaspé, population data were obtained on 13 defoliators feeding on white spruce in four plots located at New Carlisle (Plot 1), New Richmond (Plots 2 and 3), and at Nouvelle (Plot 4). These plots were sampled at regular intervals from May to September. Full-length branches were obtained from the mid-crown of each of ten trees at each visit to the plots and were brought to a field laboratory for careful examination. The same trees were used for the successive samples. The length and width of the foliated portion of each branch was measured and populations of each insect species were determined on a foliage-area basis.

Table I shows in decreasing order of abundance, the average population per 10 square feet of foliage for each of the 13 defoliators in each plot taken approximately at the peak of the early larval feeding stage.

Table I: Populations (of defoliating insects) per 10 square feet of foliage at the time of maximum level of abundance of feeding larvae in the Gaspé Peninsula, 1959.

Species	Time of peak larval abundance	Plot 1	Plot 2	Plot 3	Plot 4
<i>Zeiraphera ratzeburgiana</i> Ratz...	Early June	133.0	227.3	222.9	126.2
<i>Zeiraphera</i> sp.	Early June	22.5	14.5	29.0	35.0
<i>Griselda radicans</i> (Wlshm.)	Early June	16.4	20.3	28.2	14.4
<i>Evagora piceella</i> Kft.	Early September	45.4	4.2	5.4	14.9
<i>Evagora</i> sp. ¹	Mid June	13.9	11.2	10.1	11.4
<i>Choristoneura fumiferana</i> (Clem.)	Early June	6.9	3.3	4.6	6.5
<i>Dioryctria reniculella</i> (Grote)	Early June	5.0	2.3	1.1	1.0
<i>Archippus</i> sp. ²	Early September	6.5	0.5	0.3	0.5
<i>Diprion hercyniae</i> (Htg.)	Early July	2.3	1.4	1.4	0.3
<i>Acleris variaria</i> (Fern.)	Mid June	1.4	1.4	1.1	1.8
<i>Eucordylea atrupictella</i> Dietz.	Mid June	1.2	1.7	0.4	2.0
<i>Cephalcia</i> sp.	Mid June	0.3	0.9	1.1	0.0
<i>Epinotia nanana</i> (Tr.)	Early September	1.5	0.0	0.0	0

(¹) see text above.

(²) A complex, probably *Archippus packardianus*.

Zeiraphera ratzeburgiana and *Zeiraphera* sp., were the two most abundant species present in these stands; the former is an introduced pest from Europe whereas the latter is a native insect. In 1952, *Z. ratzeburgiana* occurred in outbreak proportions in field spruce stands in the Gaspé Peninsula. All the other species recorded were probably at, or near the endemic level. *Choristoneura fumiferana*, now a rare insect, occurred in outbreak proportion in these stands in the years preceding 1959. There is no doubt that during these years the presence of the spruce budworm in such large numbers affected the abundance of at least some of the other species considered here. It is possible that this influence was still being felt at the time of these studies. Populations of *Dioryctria reniculella* had also been considerably higher prior to 1959.

Populations of some species showed considerable interplot variability. Most notable was the spruce needleminer, *Evagora piceaella*. Others, such as *Zeiraphera ratzeburgiana*, *Eucordylea atrupictella*, and *Evagora* sp. (A new and undescribed species whose larvae are very similar in habit and appearance to *E. atrupictella*) were more uniform in distribution.

The relative abundance of defoliators on field spruce in the Gaspé Peninsula differed quite markedly from that observed in southwestern Quebec. During the summer of 1959 defoliating insects were collected periodically from field spruce in each of 12 widely separated localities between Montreal, Three Rivers, and Drummondville. The two *Zeiraphera* species were recovered in small numbers from only four of the 12 localities. *Griselda radicana*, *Eucordylea atrupictella*, and *Evagora* sp., fairly common in the Gaspé, were not found in southwestern Quebec. *Epinotia nanana* and *Evagora piceaella* on the other hand were fairly consistently the most abundant species in the 12 southwestern Quebec localities. Population records which were obtained for these two species on a foliage area basis in six of the 12 localities in late summer of 1959 showed that they were considerably more abundant in this area than in the Gaspé Peninsula. Populations of *Epinotia nanana* in southwestern Quebec showed extreme inter-plot variability, ranging from 0 to 697 per 10 square feet of foliage. Populations of *Evagora piceaella* varied less, ranging from 25 to 167 per 10 square feet of foliage.

A number of species, including *Taniva albolineana*, *Epinotia normanana* and *Pikonema alaskensis* which were present in the southwestern part of the province were not found in the Gaspé Peninsula.—J. M. McLeod and J. R. Blais.