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**AN OUTBREAK OF THE SADDLED PROMINENT CATERPILLAR,
HETEROCAMPA GUTTIVITTA (LEPIDOPTERA: NOTODONTIDAE)
ON BEAVER ISLAND, MICHIGAN**

Alice Loesch¹ and Jeffry Foran²

In 1975 and 1976 an outbreak of the saddled prominent caterpillar, *Heterocampa guttivitta* (Walker) was observed in Beech-Maple climax forests on Beaver Island, Michigan. The adult *guttivitta* moths emerge in late May and early June, mate, and lay small (1 mm) eggs on the underside of leaves. One female lays about 500 of the green spheres. In 9-10 days the eggs hatch, and the larvae go through characteristic changes in form and markings through the following five instars (Allen, 1972).

METHODS

Beech and maple branches were collected from a forest with an infestation of *guttivitta* on 4 June and 11 June, 1977. Branches 9 to 10 cm in diameter at the trunk, approximately 5 m long, were selected and sawed from the tree at the lower- and mid-crown levels. Nine branches from each tree type were sampled. The branches were taken to the laboratory where leaf clusters were removed and stored in plastic garbage bags. No loss of larvae in transport was expected due to the tendency of the larvae to cling tightly to the leaf (Grimble and Newell, 1972). Leaves were counted and the number of leaves with eggs or first instar larvae were recorded. Grimble and Newell (1972) suggested that the leaf cluster is the most suitable sampling unit for work with maple trees, but total leaf counts per branch are reported here to facilitate comparison of maple with beech, which has fewer leaves per cluster. Counts were converted to percent infestation per branch and to average percent infestation per species of tree.

RESULTS

Table 1 shows the actual counts of infested leaves per branch and percentages for eggs and larvae. The overall infestation of maple was 11%, compared with the lower infestation of beech at 7%. Present investigations by the Michigan Department of Natural Resources on Drummond Island indicate a heavier infestation of beech.³ In previous studies of maple alone, infestation levels were reported as follows: New York, 1969, 15%; Vermont and New York, 1970, 10%; Vermont and New York, 1970, 26%. By comparison, the Beaver Island infestation was less severe. Grimble and Newell (1972), however, give as a criterion for severe defoliation potential 2-2.5 eggs/10 leaf clusters (approximately 5% infestation). By this standard the Beaver Island population was at a severe defoliation potential level.

Records of infestations of *guttivitta* are not extensive for North America, though it has been reported in the northeastern U.S., Canada and Michigan. Most reports have indicated infestation levels similar to those reported here, and include observations of natural control mechanisms in the population. The third year of an observed outbreak, as the one in this report, is commonly marked by a population crash. In some cases (Allen, 1972), an increase in parasitoid populations had a marked affect. In others (Fisher, 1970; Grimble and Newell, 1972; Patch, 1908), a viral disease seemed to be the primary controlling factor. In the Beaver Island infestation both parasitoids and virus were

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Table 1. *H. guttivitta* egg and larva infestation of beech and maple, Beaver Island, Michigan, 1977.

Date	Branch	Number of leaves (per branch)		Number of leaves with eggs		% leaves with eggs		Number of leaves with larvae		% leaves with larvae		% leaves per branch with larvae or eggs	
		Maple	Beech	Maple	Beech	Maple	Beech	Maple	Beech	Maple	Beech	Maple	Beech
4/6	1	308	294	52	9	17	3	7	0	2	0	19	3
	2	478	174	89	9	19	5	12	3	31	1	22	6
	3	245	174	58	7	27	4	4	1	2	0.6	29	4.6
11/6	4	299	650	1	28	0.3	4	0	4	0	0.6	0.3	4.6
	5	607	737	56	63	9	8	5	7	0.8	0.9	9.8	8.9
	6	796	647	86	39	10	6	8	7	1	1	11	7
	7	707	708	87	71	12	10	9	7	1	0.9	11	10.9
	8	693	774	3	79	0.4	10	2	16	0.2	2	0.6	12
	9	617	815	6	95	0.9	11.6	0	3	0	0.3	0.9	11.9
	Totals	4750	4799	438	400	10.5	6.8	47	48	1.1	.7	11	7

observed. The population levels may have been lower in this report because of the activity of parasitoids in 1976, or because of the effect of the viral disease observed in 1976. A great number of larvae were seen with symptoms of this viral disease in August, 1976 and 1977. Grimble and Newell (1972) included a photograph of larvae dead from this disease showing withered bodies hanging in an inverted V from nearly stripped maple leaves and petioles. This was a typical sight in the population on Beaver Island. Further investigation of the nature of this viral disease and its mode of transmission might yield useful knowledge for the control of this forest defoliator and other related ones.

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