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NOTES ON THE LIFE CYCLE OF *NEMORIA RUBRIFRONTARIA* (LEPIDOPTERA: GEOMETRIDAE)

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While surveying for insect pests of sweet fern, *Myrica aspleniifolia* L., two unidentified eggs were detected on foliage samples collected in June 1972 near Barton City, Alcona County, Michigan. The eggs were transferred to petri dishes with sweet fern foliage for rearing. Subsequently, one of the larvae that emerged was reared to adulthood and identified[2] as *Nemoria rubrifrontaria* Packard. This note describes the life cycle of this insect.

The egg is salmon colored and, under the microscope, resembles a slightly elongated aspirin tablet. The surface of the chorion is covered with a raised honeycomb pattern. Mean measurements of the two eggs were: 0.68 mm long, 0.50 mm wide, and 0.35 mm high.

The eggs were collected on June 15 and two first instar larvae appeared 2 days later. Eclosion occurred through the flattened "end" of the eggs. Each larva passed through five instars. Mean head capsule width measurements (in mm) were: I, 0.28; II, 0.41; III, 0.60;

Fig. 1. Last instar larva of *Nemoria rubrifrontaria* on sweet fern leaf.

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[2]Specimen identified by John H. Newman, Department of Entomology, Michigan State University, East Lansing, Michigan.

IV, 0.88; and V, 1.15. Second instars were present on June 25 and third instars by July 5. The fourth instars appeared on July 18 and 21, and the fifth instars on July 30 and August 3. The fully developed larva is brown or greenish with squarish flaps along the sides (Fig. 1). Forbes (1948) remarks that it is an excellent mimic of the small young leaves of sweet fern.

Feeding ceased and web spinning commenced in mid-August. Pupation occurred on August 20 and 22.

The pupae were placed in a garage in November for overwintering and brought inside on February 22. One adult emerged on March 8, 1973. Field emergence normally occurs in May and June according to Forbes (1948). Darlington (1949) states this insect is probably two-brooded in New Jersey because he obtained adults by the end of July. We were able to find only one brood in Michigan, but the population may not have been large enough to detect a second brood. However, the life cycle described, although determined indoors, should be nearly comparable to the field because the rearing room was similar to field conditions. The adult reared out in this study emerged only after overwintering occurred, suggesting that it is single-brooded.

LITERATURE CITED

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