

## Parasitism in a Population of the Bagworm (*Thyridopteryx ephemeraeformis*)

GERTRUDE L. WARD, Earlham College

In October, 1962, 484 bags of the bagworm, *Thyridopteryx ephemeraeformis* (Haworth) (Lepidoptera: Psychidae) were collected from a white pine (*Pinus strobus*) plantation near Metamora, Franklin County, Indiana. As a larva, this moth is a serious pest of ornamental evergreen trees and shrubs, and occurs to some small extent on deciduous trees. Various controls have been used against it.<sup>1</sup> Predation by birds is probably slight after the bag has been constructed.

Some of the bags showed empty pupal cases of the escaped males, and others exhibited small holes of the kind often made by hymenopteran parasites. The 484 bags were opened and their contents were analyzed.

### Observations

It was obvious that bagworms had reached adulthood in 404 bags, while larvae were found in 80 bags. Males had emerged from 11 (2.3%) bags, 19 (3.9%) contained eggs, and 454 (93.8%) bags contained either dead bagworms or evidence of parasitism. Of the adults, 305 were females and only 99 were males, a 3:1 ratio.

A total of 255 females (52.7%) had been parasitized, 31 (6.4%) were dead with no visible parasitism, and 19 (3.9%) contained eggs. Of the males, 77 (15.9%) had been parasitized, 11 (2.3%) had emerged from their pupal cases and flown off, and 11 (2.3%) were dead with no visible parasitism. Parasitism was evident in 32 (6.6%) of the larvae, and 48 (9.9%) were dead without visible parasitism.

One of the unusual features of this population is the high percentage of females. At other locations, usually with smaller samples, there is a ratio much closer to 1:1. Also, the number of eggs per bag averaged close to 300, which is somewhat less than I have counted in bags from other host trees. For example, from arbor vitae (*Thuja occidentalis*) a count of eggs from 27 bags averaged 533.

In addition to parasites, one of which was identifiable as *Itopectis conquisitor* (Say), there appeared to be several hyperparasites.

### Conclusions

Although at least 75.2% of the population was lost by parasitization, the 19 bags which contained eggs were apparently enough to ensure a carryover to the following year, when 26 bags were collected. All of these contained adults, of which 24 were female and 2 were male. No males had emerged, and 22 of the adults were dead, leaving 4 with eggs. The number of eggs averaged 348, and totaled 1391. Parasitized females totaled 15, with 5 dead with no visible parasites. The two males had been parasitized.

### Literature Cited

1. SCHUDER, DONALD. 1951. The bagworm in Indiana. Proc. Indiana Acad. Sci. 61:159-164.