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FIFTH INSTAR PARASITOIDS OF ANAEA RYPHEA (NYMPHALIDAE): THE MISSING DATA

Additional key words: population ecology, pupal mortality, Tachinidae.

In two previous articles, I described the life cycle of *Anaea ryphea* Cramer (Caldas 1994) and the population ecology of its immatures (Caldas 1995). These studies were conducted at Campinas, Brazil (22°54'S, 47°05'W, 650 m elevation) and included results on larval and egg parasitoids. However, I failed to identify mortality factors acting on fifth instar larvae and pupae, because preventing fifth instar larvae from leaving the foodplant for pupation might have influenced the number of future adults within that population, and therefore the study that was being carried out (see Caldas 1995 for details). To remedy this situation, after finishing the population studies, I decided to look for pupal and fifth instar parasitoids.

I collected 15 fifth-instar larvae of *A. ryphea* on plants of *Croton floribundus* Spreng (Euphorbiaceae) in late May 1994 at Itatiaia National Park in Rio de Janeiro state, Brazil (22°27'S, 44°37'W, 800 m elevation), a reserve about 300 km east of Campinas. I kept larvae in large plastic vials, and fed them until pupation. Eight individuals, immediately after pupation (less than 24 hours), started turning dark, eventually turning into a deep brown, whereas the other seven kept their typical bright green color. After 10–12 days, maggots emerged from four of the dark pupae (one maggot from each pupa), and immediately tried to pupate on the vial bottom. Only two pupated successfully. Adults were identified as a female of *Winthemia* Robineau-Desvoidy (Diptera: Tachinidae) and a female of *Jurinella* Brauer & Bergenstamm (Diptera: Tachinidae). Unfortunately, no males

emerged, which made specific identification impossible. The parasitoids inside the four other *A. ryphea* pupae also failed to pupate.

Although a sample size of 15 larvae is not large enough for definitive conclusions, the rate of parasitism reported here on fifth instar larvae of *A. ryphea* (53%) is as high as the rate of egg parasitism by trichogrammatid wasps (55%) and the rate of mortality in first instar larvae (49%, on average). Larval behaviors, such as leaf rolling and nocturnal feeding in fourth and fifth instar larvae, may decrease the incidence of parasitism, but it would appear that mortality due to parasitism during fifth larval instar may affect the population size of *A. ryphea* just as much as that during the earlier life history stages.

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VARTIAN COLLECTION TO THE MUSEUM OF NATURAL HISTORY, VIENNA

Additional key words: Noctuidae, type specimens, palaearctic.

The Museum of Natural History in Vienna recently received the Eva Vartian collection of western and southern Palaearctic Macrolepidoptera. The value of the collection is extraordinary, and its strength results from the extensive entomological field work conducted by Mrs. Vartian in the Near and Middle East. The collection contains all groups of Macrolepidoptera, and is dominated by Noctuidae and Geometridae. The breadth of the collection is unusual: among the Noctuidae, for example, are more than 2,500 type specimens, with rich representation in the subfamilies Noctuinae, Hadeninae, Cuculliinae and Amphipyriinae. Overall, the collection is estimated to contain a total of 4,400 type specimens, some hundreds of which are holotypes.

About 95 percent of the 140,000 specimens are set and housed in more than 900 drawers. The entire collection is presented in its own room, the "Vartian Hall," situated on the top floor of the building. A large part of the material was collected by Mrs. Vartian during dozens of expeditions to Turkey, Iraq, Iran, Afghanistan and Pakistan. In combination with the rich western Palaearctic material already extant in the main collection, and the collections of Rudolf Pinker (Northern Africa, Turkey), the Museum of Natural History in Vienna now has one of the largest Macrolepidoptera and especially Noctuidae collections for the Near and Middle East in the world.