

# NOTES ON THE LIFE HISTORY OF *ANETIA JAEGERI* FROM HISPANIOLA (LEPIDOPTERA: NYMPHALIDAE: DANAINAE)

ANDREI SOURAKOV<sup>1</sup> AND THOMAS C. EMMEL<sup>2</sup>

<sup>1</sup>Dept. of Entomology and Nematology, University of Florida, Gainesville, Florida 32611; and

<sup>2</sup>Dept. of Zoology, University of Florida, Gainesville, Florida 32611, USA

**ABSTRACT.**— Early stages of the endemic Hispaniolan danaid butterfly *Anetia jaegeri* (Ménétrières) (Lepidoptera: Nymphalidae), are described, and *Asclepias nivea* L. (Asclepiadaceae) is reported as being its food plant. Morphology of the last instar larva is examined for systematic implications, utilizing characters previously developed by Kitching (1985) for other danaines. *Anetia jaegeri* is found to be the most primitive of the 16 analyzed species of Danainae.

**KEY WORDS:** Asclepiadaceae, biology, Caribbean, cladistic analysis, *Danaus*, Dominican Republic, immature stages, Ithomiinae, larvae, life history, *Lycorea*, *Methona*, Neotropical, pupae, West Indies.

There are eight species of Danainae known from the island of Hispaniola: *Danaus plexippus megalippe* (Hübner), *D. gilippus cleothera* (Godart), *D. eresimus tethys* (Forbes), *D. cleophile* (Godart), *Lycorea cleobaea cleobaea* (Godart), *Anetia briarea briarea* (Godart), *A. pantherata pantherata* (Martyn), and *A. jaegeri* (Ménétrières) (Schwartz, 1988). This is the highest diversity for this subfamily in the New World (8 of 14 species). Part of this diversity could result from the high diversity of potential hostplants on this island: 31 endemic species in 9 genera of Asclepiadaceae (Brower *et al.*, 1992).

Until very recently, information on the biology of the genus *Anetia* was absent. Ackery and Vane-Wright (1984) wrote:

"Virtually no reliable data have been published on any aspect of their biology, and a thorough investigation of these butterflies would be of considerable scientific value. . . . *Anetia* is the only genus within Danainae for which reliable early stage information is lacking. Food-plant data and larval tubercle configuration would be valuable — the latter particularly in view of Forbes' 1939 assertion that *Anetia* should be treated as the sister of all other Danainae on the basis of supposed (but we think unlikely) total lack of larval tubercles."

Brower *et al.* (1992) illustrated the life history of *Anetia briarea*, whose larvae were raised on a substitute hostplant of Florida milkweed vine, *Cynanchum angustifolium* (Asclepiadaceae), from eggs obtained in captivity. On Hispaniola, the natural hostplant for this species is *Cynanchum* sp. (Sourakov, unpublished). In 1993, the life history of *Anetia thirza thirza* (Geyer) from Mexico was described, and its food plant was reported as being a vine: *Metastelma pedunculane* (Asclepiadaceae) (Lorente-Bosquets *et al.*, 1993). That confirmed earlier observations on *A. thirza insignis* (Salvin) in Costa Rica (DeVries, 1987). John E. Rawlins (pers. com.) raised *A. jaegeri* on *Asclepias* (Asclepiadaceae) and David K. Wetherbee (pers. com.) observed females ovipositing on the vine *Cynanchum*. In the present work, the first published native hostplant record for *Anetia jaegeri* is provided. We also compare its immature stages to those of *A. briarea*. The larva and pupa of *A. thirza* seem to be very similar to those of *A. jaegeri*,

which, probably, reflects their taxonomic closeness.

Detailed study of the morphology of the immature stages of other Danainae previously had proved to be useful for reconstruction of the evolutionary history of this subfamily. Kitching (1985) recreated the evolutionary history of Danainae primarily on the basis of the larval morphology. His data set for the subfamily's larvae with the addition of the same characters from *Anetia jaegeri* was analyzed using the PAUP computer program. In Table 1, the complete data set for 77 larval characters utilized by Kitching is provided. We were able to score 62 of them in *Anetia jaegeri*. Missing characters are marked as "?". Our data are incomplete due to the lack of material: a single head capsule left after pupation of our sole larva was used to obtain characters for the cladistic analysis. We do not elaborate here on the characters utilized for the cladogram construction: they are discussed thoroughly in Kitching's work. We do, however, provide micrographs of larval organs, illustrating some of the characters utilized (Fig. 3). All characters listed in Table 1 are in the same sequence as Kitching's 77 binary/multistate larval characters, L1-L77.

## DESCRIPTION OF LIFE HISTORY

In September 1995, the senior author collected danaine eggs on *Asclepias nivea* L. (Asclepiadaceae) host plants above Mata Grande, Santiago Province, at the elevation of 1500m in the Cordillera Central of the Dominican Republic, Hispaniola. Most hatched into larvae of *Danaus cleophile* or *Danaus plexippus*, with yellow-and-black striping and two pairs of tubercles. One of the eggs hatched into a larva with black-and-white striated dorsum and only one pair of black mesothoracic tubercles; this larva later metamorphosed into a female adult (Fig. 1: bottom left) of *Anetia jaegeri*.

The larva of *A. jaegeri* maintains the same pattern throughout the whole development period. In its early instars, it resembles fourth instars of *A. briarea*, illustrated by Brower *et al.* (1992). However, *A. jaegeri*'s larva has uniform fine black-and-white