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Latrodectus antheratus (Badcock, 1932)

foto: U. Drechsel

The immature stages of *Eurata helena* Herrich-Schäffer, [1854] (Lepidoptera: Erebidae: Arctiinae: Arctiini)

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Abstract: The biology and immature stages of *Eurata helena* Herrich-Schäffer, [1854] are described. In the wild a last instar larva was found in the in the Paraguayan department of Cordillera. The resulting female was successfully mated with a wild male. In the laboratory larvae were fed with artificial food. Generation (oviposition to imago) lasted 51 days. Egg, larval instars, cocoon, pupa and adults are illustrated.

Resumen: Se describen los estadios inmaduros de *Eurata helena* Herrich-Schäffer, [1854]. En la naturaleza una larva del último estadio fue encontrada en Paraguay, en el departamento de Cordillera. La hembra resultante se apareó con éxito con un macho salvaje. En el laboratorio se alimentaron las larvas con alimento artificial. Generación (oviposición a imago) duró 51 días. Huevo, estadios larvales, capullo, pupa y adultos se ilustran.

Zusammenfassung: Die Entwicklungsstadien von *Eurata helena* Herrich-Schäffer, [1854] werden beschrieben. In freier Wildbahn wurde eine Raupe im letzten Larvalstadium in Paraguay im Departament Cordillera gefunden. Das daraus resultierende Weibchen wurde erfolgreich von einem Männchen aus dem Freiland begattet. Im Labor wurden die Larven mit künstlicher Nahrung gefüttert. Generation (Eiablage bis Imago) dauerte 51 Tage. Ei, Larvenstadien, Kokon, Puppe und Imagos werden abgebildet.

Key words: Paraguay, Erebidae, Arctiinae, Arctiini, *Eurata*, early stages.

Introduction

Of the genus *Eurata* seven species are yet known from Paraguay: *Eurata helena*, *E. histrio* (Guérin-Méneville [1843]), *E. igniventris* Burmeister, 1878, *E. hermione* Berg, 1878, *E. herricki* (Butler, 1876)

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1876), *E. picta* Herrich-Schäffer, [1853] and *E. nigricincta* Hampson, 1907. *E. helena* is known from Brazil, Bolivia and Argentina (Ferro et al., 2012), in Paraguay it has only been found in the departments of Presidente Hayes, Central, Ñeembucú, Cordillera and Paraguari. The moths were observed diurnal visiting flowers in full sunshine and at night on light sources. It seems that they prefer open terrain, as they were never seen in wooded areas.

Material and methods

The starting material for the breeding was a caterpillar that was found in the low riparian vegetation of a small creek near Piribebuy in the department of Cordillera. It was transferred to a plastic bag with some leaves of a non-identified species of the Asteraceae family. Twenty-six days after pupation emerged a female (fig. 1), which attracted in the second night a wild male and copulated successfully (figs. 2 and 3). She was transferred to a plastic bag in which she put 320 ova during the following three nights. Ova were repeatedly sprayed with water during the nine days until hatching of larvae. The resulting larvae were fed with an artificial diet, modified after Bergomaz & Boppré (1986) and Harbich (1994). Measurements of ova were taken with a binocular microscope with micrometric eyepiece.

Ova: The eggs are yellow with pearl luster, hemispherical and adhered with the flat side on the substrate (fig. 4). The diameter of the hemisphere is 0.9 mm and height 0.5 mm.



Figs. 1-4: *E. helena*; 1) female; 2-3) copula; 4) ova

First instar: The first instar larvae hatched after nine days since oviposition. Head and legs are brown, body is yellow. Each segment bears eight brown warts, arranged in longitudinal rows, two dorsal, subdorsal, lateral and sublateral. Each wart wears a long black hair, one third of the body length (fig. 5 and 6). Duration of the first instar four days.



Figs. 5-8: *E. helena* larvae; 5) first instar; 6) first instar feeding on artificial diet; 7) second instar; 8) third instar

Second instar: Head, legs and body yellowish brown with eight longitudinal rows of warts. The dorsal and subdorsal warts of abdominal segments wear a bunch of black hairs of the length of the segment diameter. The lateral and sublateral warts wear a few yellow hairs, shorter than the dorsal ones (fig. 7). Hairs on thoracic segments and last abdominal segment very long and directed forward and backward respectively. Duration of the second instar five days.

Third instar: Head, legs, body and longitudinal rows of warts as before. The black hairs on dorsal and subdorsal warts of abdominal segments are denser and resemble a paintbrush. The bright hairs on thoracic segments and last abdominal segment are very long, reaching the length of half the body. The ocelli on the head capsule are seen as black dots near the mouthparts (fig. 8). Duration of the third instar four days.

Fourth instar: Head, legs and body yellowish brown, the hair-bearing warts dark brown. The black hair bushels are now much denser and have bright tips, making them appear shiny (fig. 9). Duration of the fourth instar five days.

Fifth instar: Head, legs and body amber, the hair-bearing warts black. The subdorsal rows of warts bear dense tufts of black hair, which are ash gray in apical part. The remaining warts carry less dense gray and white hair (fig. 10). Duration of the fifth instar five days.

Sixth instar: Color and hair as in the fifth instar (figs. 11 and 12). Duration of the sixth instar three days.



Figs. 9-12: *E. helena* larvae; 9) fourth instar; 10) fifth instar; 11-12) sixth instar

Cocoon: The cocoon is made of black-brown silk, the hairs of the caterpillar are inwoven (fig. 13).

Pupa: The basic color of the pupa is orange amber, the dividing lines between the different body parts such as abdominal and thoracic segments, head, wings, legs, antennae marked with dark reddish brown lines. Abdominal spiracles are marked with a white spot and surrounded by a black ring (fig. 14).

Imago: The first adult moths hatched after 16 days of pupal development.



Figs. 13-14: *E. helena*; 13) cocoon; 14) female pupa



Figs. 15-16: *E. helena* spread specimenes; 15) male; 16) female

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