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*Leptodeira annulata pulchriceps* Duellman, 1958

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# The early stages of *Sciopsyche tropica* (Walker, 1854) (Lepidoptera: Erebidae: Arctiinae)

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**Abstract:** The immature stages of *Sciopsyche tropica* (Walker, 1854) are described. The breeding material came from the Paraguayan Chaco from the Alto Paraguay Department. In the laboratory larvae were fed with young leaves of *Tabernaemontana catharinensis* A. DC. (Apocynaceae). One generation (oviposition to imago) lasted 37 days. Ova, larval instars, cocoon, pupa and adults are illustrated.

**Resumen:** Se describen los estadios inmaduros de *Sciopsyche tropica* (Walker, 1854). El material inicial para la cría vino del Chaco paraguayo, del Departamento de Alto Paraguay. En el laboratorio las larvas fueron alimentadas con hojas jóvenes de *Tabernaemontana catharinensis* A. DC. (Apocynaceae). Una generación (oviposición a imago) duró 37 días. Huevos, estadios larvales, capullo, pupa y adultos se ilustran.

**Zusammenfassung:** Die Entwicklungsstadien von *Sciopsyche tropica* (Walker, 1854) werden beschrieben. Das Ausgangsmaterial für die Zucht stammte aus dem paraguayischen Chaco aus dem Departamento Alto Paraguay. Im Labor wurden die Larven mit jungen Blättern von *Tabernaemontana catharinensis* A. DC. (Apocynaceae) gefüttert. Eine Generation (Eiablage bis Imago) dauerte 37 Tage. Eier, Larvenstadien, Kokon, Puppe und Imagos werden abgebildet.

**Key words:** Paraguay, Erebidae, Arctiinae, *Sciopsyche*, early stages.

## Introduction

*Sciopsyche tropica* (Walker, 1854) was assigned by Walker to the genus *Euchromia* Hübner [1819]. Butler (1876) placed it in his newly established genus *Sciopsyche*, together with another species *S. cinerea*, which is now a synonym of *S. tropica*. Distribution of this species is remarkable disjunct.

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There are records from Central America from Mexico (Hernandez-Baz & Grados 2004), Honduras, Costa Rica and Colombia, the state of Pará in Brazil (Zerny 1931) and others from southern Brazil, Paraguay and Argentina (Beccacece & Navarro 2013). In Paraguay *S. tropica* has been detected in the Departments of Alto Paraná, Amambay, Kanindeyú, San Pedro, Cordillera, Paraguari, Caazapá, Presidente Hayes and Alto Paraguay (see map, fig. 17).

### Material and methods

The here treated female specimen came from Departamento Alto Paraguay, Estancia La Soñada, 20° 03' S 61° 28' W, August 2017 (see map). Ova were transported to the laboratory and repeatedly sprayed with water until the hatching of larvae. Larvae were fed with leaves of *Tabernaemontana catharinensis* and developed under ambient conditions housed in ventilated plastic containers. Molts occurred almost simultaneously in nearly all larvae in all stages, a few specimens which retarded in their development were sorted out. Measurements of ova were taken with a binocular microscope with micrometric eyepiece. Voucher specimens of adult moths will be deposited in the *Museo Nacional de Historia Natural del Paraguay*.

### Immature stages

**Ova:** The pearl white ova are deposited individually or in small groups, have an average diameter of 0.77 mm and a height of 0.52 mm (n=7), are semispherical and attached with the flat side to the underside of the leaves (fig. 4).

**First instar:** First instar larvae hatched after seven days since oviposition. The body is whitish-transparent, the chewed leaf material is visible as a green strip within the caterpillar's body. Head and thoracic legs light brown. Each segment has a transverse row of eight warts each of which carries one colorless bristle, such as the length of the body diameter (fig. 5). Duration of the first instar four days.

**Second instar:** The body is now greenish-translucent, the thoracic segments somewhat lighter, the head and thoracic legs yellowish-brown. The number of bristles per wart is now three to five and they are about twice as long as the body diameter (fig. 6). Duration of the second instar five days.

**Third instar:** Coloration of body, head and legs is as in the previous stage. Although the warts are now equipped with more and longer bristles, the body underneath is still visible. The bristles on the first abdominal segment and the two last thoracic segments are clearly longer than the rest. From this stage on can also be seen that the bristles, which now appear white are densely covered with spines directed outwards (fig.7). Duration of the third instar three days.

**Fourth instar:** Coloration of body, head and legs is as in the previous stage. The bristles are now so dense that the body is no longer visible underneath (figs.8,9). Duration of the fourth instar three days.

**Fifth instar:** Coloration of body, head and legs is as in the fourth instar. The bristles are now even more dense and slightly curved at the tips (figs.10,11,12,13). Duration of the fifth instar four days.

**Prepupa:** The caterpillar weaves its hair in the exterior layer of the cocoon and only a few stubbles remain on the warts. Prepupal stage lasts one day.

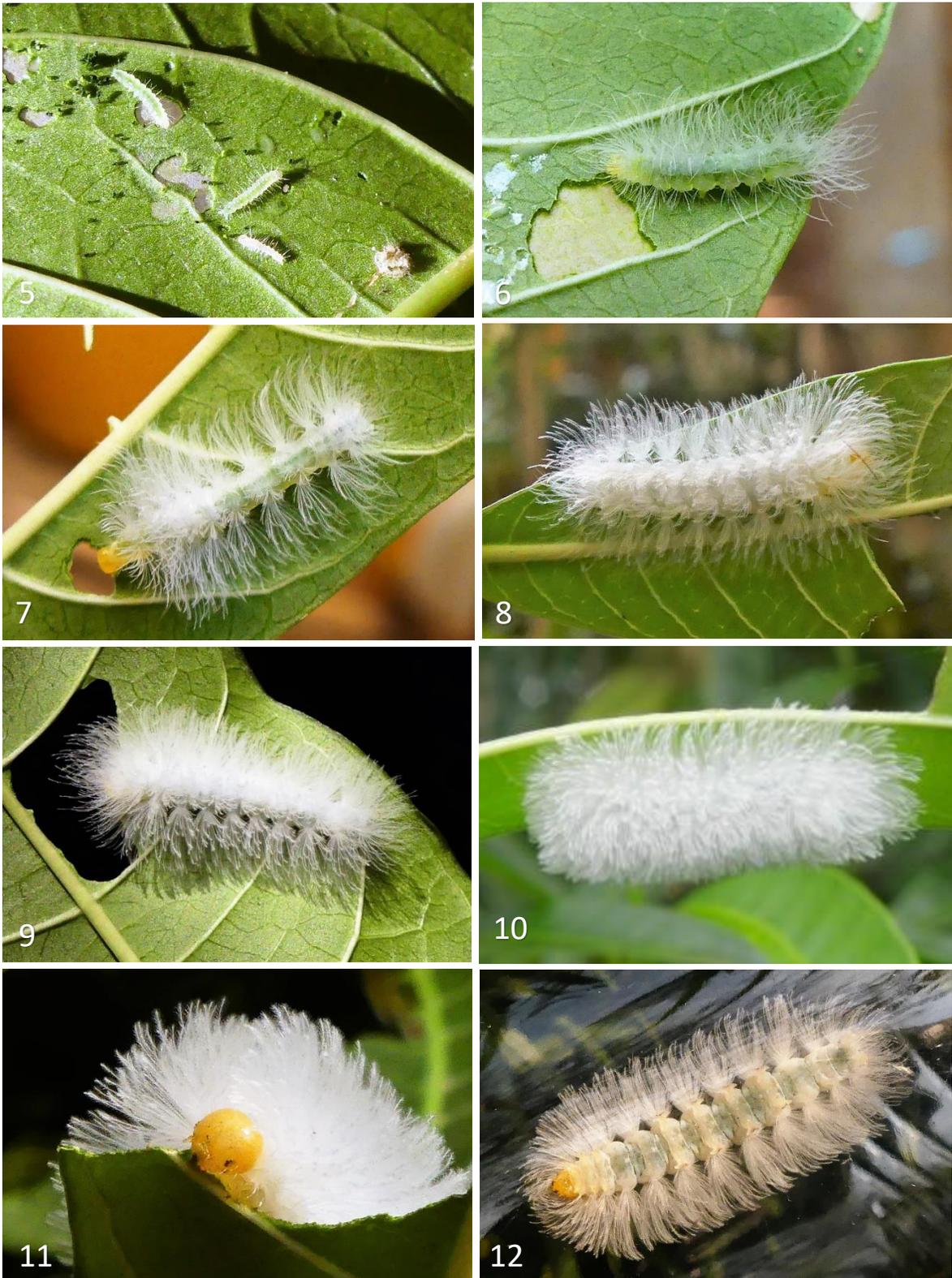
**Cocoon:** The cocoon is made of few spinning threads and the white bristles of the caterpillar are weaved in. The pupa is visible as a dark spot through the thin wall of the cocoon (figs.14, 15).

**Pupa:** The pupa is chestnut brown (fig.16).

**Imago:** The first moths, two females, emerged after ten days since pupation, the first male (figs. 1,2) appeared one day later.



Figs: 1-4: *Sciopsyche tropica*; 1,2) male; 3) female; 4) ovum



Figs. 5-12: *S. tropica*; 5) first instar; 6) second instar; 7) third instar; 8,9) fourth instar; 10) fifth instar; 11) head of fifth instar; 12) fifth instar from underneath



Figs: 13-17: *S. tropica*; 13) fifth instar; 14) cocoon; 15) new pupa, chitin not yet cured; 16) older pupa; 17) distribution in Paraguay

### Discussion

Last instar caterpillars of *S. tropica* were found by the author in Paraguay several times on *T. catharinensis*, a medium-sized tree from the Apocynaceae family. One of these caterpillars found in the department of Alto Paraná developed into an adult moth. Once the host plant was established, it was only a question of the time until a female (fig. 3) was discovered which deposited some ova (fig. 4). The female mentioned in this paper was found far from the hitherto known distribution in the western Chaco near the Bolivian border (see map, fig. 17). Beccacece & Navarro (2013) reported a female specimen found in the past century in Tucuman, Argentina. An occurrence in Bolivia is therefore to be assumed with high probability.

First and second instar larvae feed only on the lower epidermis of the leaf (figs. 5,6), third instar larvae feed on upper and lower epidermis and were chewing holes in the leaf (fig. 7). Larvae of the first instar show a “bungee jumping” behavior (Silva et al. 2014). A larva feeling threatened jumps off its leaf where it has left attached a thread of silk and is suspended in the air from where it hauls itself back again.

### Acknowledgements

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