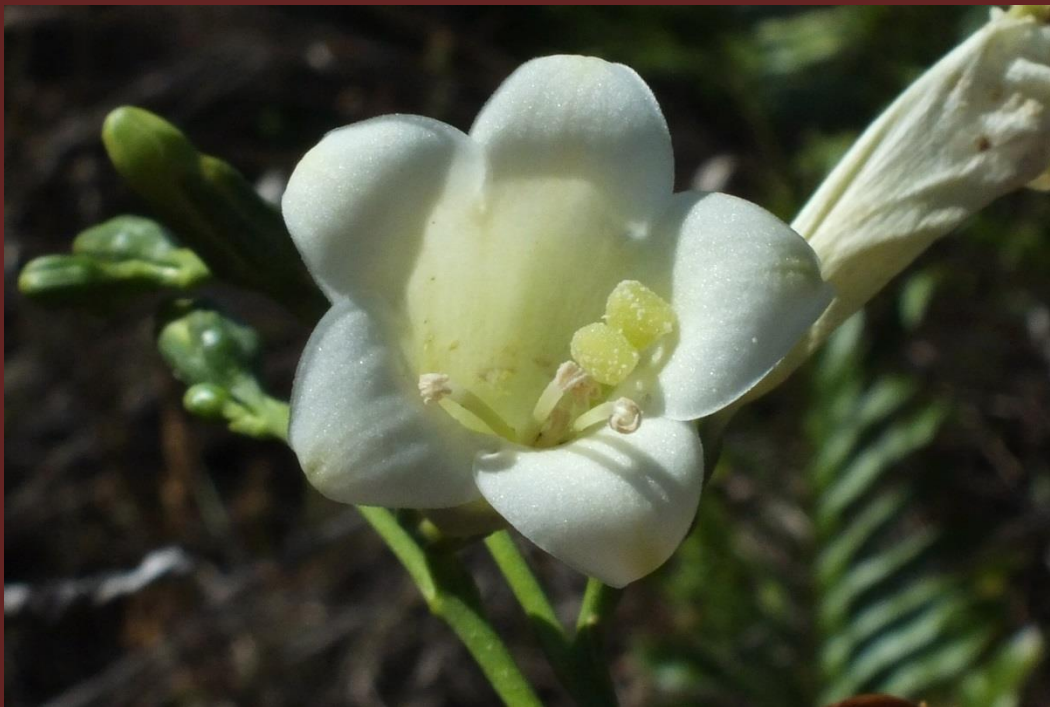


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Chelonanthus viridiflorus (Mart.) Gilg

foto: U. Drechsel

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The early stages of *Aellopos clavipes* (Rothschild & Jordan, 1903) (Sphingidae: Macroglossinae)

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Abstract: The early stages of *Aellopos clavipes* (Rothschild & Jordan, 1903) are described. In the wild, a single ovum was found in the department of San Pedro. In the laboratory, the larvae were fed with leaves and from the fourth instar with artificial food. Generation (oviposition to imago) lasted 41 days. Ovum, larval instars, pupa and imago are illustrated.

Resumen: Se describen los estadios inmaduros de *Aellopos clavipes* (Rothschild & Jordan, 1903). En la naturaleza, se encontró un huevo en el departamento de San Pedro. En laboratorio, las larvas fueron alimentadas con hojas y desde el cuarto estadio con comida artificial. Generación (oviposición a imago) duró 41 días. Huevo, estadios larvales, pupa e imago se ilustran.

Zusammenfassung: Die Entwicklungsstadien von *Aellopos clavipes* (Rothschild & Jordan, 1903) werden beschrieben. In freier Wildbahn wurde ein Ei im Departament von San Pedro gefunden. Im Labor wurden die Larven zuerst mit Blättern und ab viertem Stadium mit künstlicher Nahrung gefüttert. Generation (Eiablage bis Imago) dauerte 41 Tage. Ei, Larvenstadien, Puppe und Imago werden abgebildet.

Key words: Paraguay, Sphingidae, Macroglossinae, *Aellopos*, early stages.

Introduction

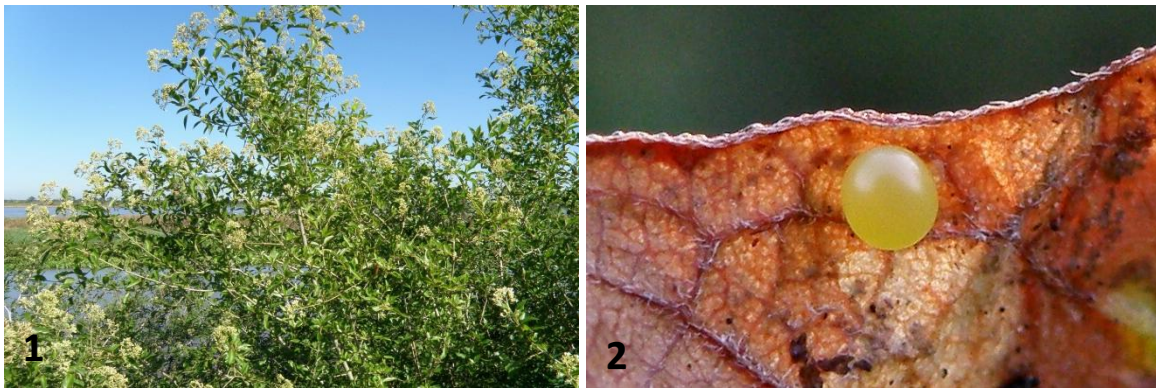
Four species of the genus *Aellopos* Hübner 1819 have been recorded from Paraguay: *A. tantalus* (Linnaeus, 1758), *A. clavipes* (Rothschild & Jordan, 1903), *A. titan* (Cramer, 1777) and *A. fadus* (Cramer, 1776). *A. clavipes* has a distribution that extends from southern North America over the whole of Central and South America to Argentina, it is widespread in Paraguay, as well in the Eastern Region as in the Chaco. The determination of the species can be carried out only in the laboratory, it is therefore necessary to collect the moths.

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Material and methods

A female of *Aellopos clavipes* was observed as it inspected a bush of *Machaonia brasiliensis* (Hoffmanns, ex. Humb) Chamb & Schltld. Of the Rubiaceae family (fig. 1), flying back and forth, apparently laying eggs. In examining the leaves, which the moth had approached, a single egg could be found. The egg was adhered to a dry and brown leaf (fig. 2). It was transported to the laboratory and repeatedly sprayed with water during the five days until hatching of larva. Leaves of *M. brasiliensis* were collected, dried and powdered. The larvae were fed during the first three instars with fresh leaves of the hostplant, after molting to fourth instar with an artificial diet, modified after Bergomaz & Boppré (1986) and Harbich (1994), mixed with leaf powder.

Ovum: The egg is round, hardly noticeable oval and flattened dorsoventral (fig. 2). The largest diameter is 1.8 mm.



Figs: 1-2: *Aellopos clavipes*; 1) hostplant *Machaonia brasiliensis*; 2) ovum

First instar: The first instar larva hatched after 4 days since oviposition. Head body and legs are whitish yellow, the dorsal horn on the last segment is black and longer than half the body (fig. 3). Duration of the first instar 4 days.

Second instar: Head, body and legs green, second and third thoracic segment with a lateral lengthwise white stripe. Abdominal segments have lateral oblique white stripes, the stripe of the thoracic segments is vaguely continuous on the abdomen. The body is covered with tiny white dots, with the exception of a green longitudinally dorsal stripe. The horn is reddish brown (fig. 4). Duration of the second instar 5 days.

Third instar: The whole body, including head, legs and horn is now reddish brown and covered with tiny warts. A white stripe runs obliquely backwards from the third thoracic leg to the back and another from the last proleg to the horn. The diagonal stripes of abdominal segments unclear

visible and abdominal spiracles are noticeable as dark spots (fig. 5). Duration of the third instar 4 days.



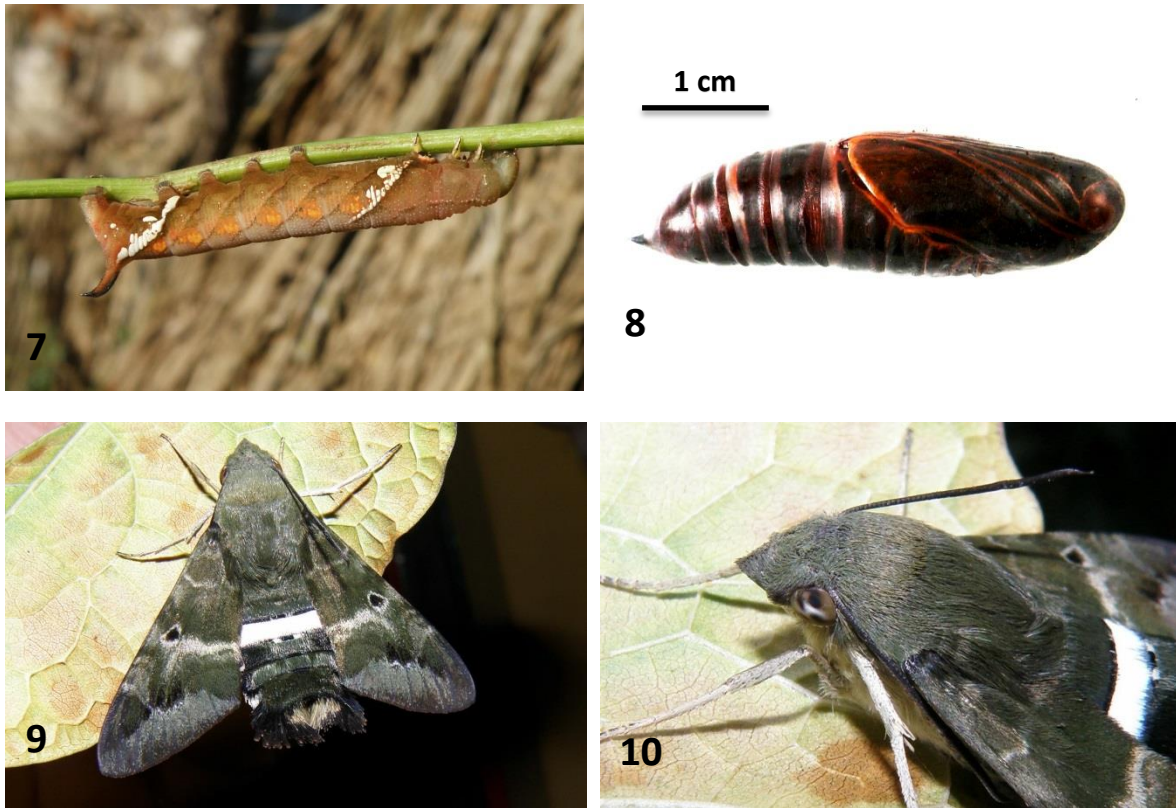
Figs: 3-6: *Aellopos clavipes* larvae; 3) first instar; 4) second instar; 5) third instar; 6) fourth instar

Fourth instar: Coloration similar to the previous stage, but the third thoracic segment and last abdominal segment laterally has an additional white spot. The dorsum has got a gray violet color, in the form of transversal diamonds. Spiracles are noticeable as dark spots with two tiny white spots (fig. 6). Duration of the fourth instar 4 days.

Fifth instar: Coloration largely as before, laterally between the oblique stripes blurred orange spots (fig. 7). The horn is now strongly curved and black dorsally and at the tip. Duration of the fifth instar 5 days.

Pupa: The basic color of the pupa is dark brown, the dividing lines between the different body parts such as abdominal segments, head, wings, legs and antennae marked with orange-brown lines (fig. 8). Pupation takes place in an unfixed underground chamber.

Imago: The adult moth (figs. 9 and 10) appears after 15 days of pupal development. Hatching occurs in the early morning hours, the curing of the wings takes only about two hours to complete, then the moth is ready to fly.



Figs: 7-10: *Aellopos clavipes*; 7) fifth instar; 8) pupa; 9-10) imago

Discussion

B. Trott (in Oehlke, 2014) reported a breeding of *A. clavipes* with seven instars. The caterpillars pictured on the photographs were green in all stages, in contrast to the red-brown caterpillar in this report.

I would like to report on a phenomenon that took place in the summer 1999/2000: In December enormous quantities of *A. clavipes* suddenly appeared everywhere in the country. The moths were flying literally everywhere. Propagation in Paraguay can be excluded since no reports of finds of caterpillars exist. It is possible that this species undertakes periodic migrations.

Acknowledgements

I wish to thank my daughter Sigrid Drechsel, who accompanied me on the field trip and discovered the egg after a long and arduous search.

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