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Paratropes elegans (Burmeister, 1838)

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The immature stages of *Paracles contraria* Walker, 1855 (Lepidoptera: Erebidae: Arctiinae)

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Abstract: The immature stages of *Paracles contraria* Walker, 1855 are described. A female was found in Paraguay in the department of Alto Paraguay, which laid some eggs. In the laboratory the larvae were fed with leaves of *Lactuca sativa* L. (Asteraceae). Generation (oviposition to imago) lasted 46 days. Ova, larval instars, cocoon, pupa and adults are illustrated.

Resumen: Se describen los estadios inmaduros de *Paracles contraria* Walker, 1855. En la naturaleza una hembra fue encontrada en Paraguay en el departamento de Alto Paraguay, que puso algunos huevos. En el laboratorio se alimentaron las larvas con hojas de *Lactuca sativa* L. (Asteraceae). Una generación (oviposición a imago) duró 46 días. Huevos, estadios larvales, capullo, pupa y adultos se ilustran.

Zusammenfassung: Die Entwicklungsstadien von *Paracles contraria* Walker, 1855 werden beschrieben. In freier Wildbahn wurde ein Weibchen im paraguayischen Departament von Alto Paraguay gefunden, welches einige Eier ablegte. Im Labor wurden die Larven mit Blättern von *Lactuca sativa* L. (Asteraceae) gefüttert. Eine Generation (Eiablage bis Imago) dauerte 46 Tage. Eier, Larvenstadien, Kokon, Puppe und Imagos werden abgebildet.

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

Introduction

The genus *Paracles* Walker, 1855 is represented in the Neotropic with 77 described species (Vincent & Laguerre, 2014) and many still undescribed. At least 13 of these taxa are also found in Paraguay: *Paracles quadrata* (Rothschild, 1910), *P. phaeocera* (Hampson, 1905), *P. palustris* (Jørgensen, 1935), *P. emerita* (Schaus, 1933), *P. fusca* (Walker, 1856), *P. burmeisteri* (Berg, 1877), *P. contraria* Walker, 1855, *P. fosteri* (Hampson, 1905), *P. aurantiaca* (Rothschild, 1910), *P. reversa*

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(Jones, 1908), *P. deserticola* (Berg, 1875), *P. fosterana* Watson & Goodger, 1986 and *P. variegata* (Schaus, 1896). The species *P. contraria* presented here has a widespread distribution in South America from French Guiana to Bolivia and Argentina. In Paraguay it could be found both in the eastern region and in the Chaco (see map, fig. 16)

Material and methods

The starting material for the breeding were ova originated from a female (fig. 13) which was found in the Paraguayan part of the Pantanal in the department of Alto Paraguay. Ova were transported to the laboratory and repeatedly sprayed with water until the hatching of larvae. Leaves of *Lactuca sativa* L. (Asteraceae) were offered as food and adopted without delay. Larvae developed under ambient conditions and were housed in ventilated plastic containers. Frass of the first five instars was collected daily from the bottom of the rearing containers to sort out the head capsules. Measurements of head capsules were taken with a binocular microscope with micrometric eyepiece. Molts occurred almost simultaneously in nearly all larvae in all stages, a few specimens which retarded in their development were sorted out. Voucher specimens of adult moths will be deposited in the *Museo Nacional de Historia Natural del Paraguay*.

Immature stages

Egg: The hemispherical white ova have a diameter of 0.8 mm and a height of 0.55 mm, are deposited in groups and covered with the orange- brown hair from the female's abdomen. They are attached to the substrate with the flat side opposite to the micropyle (figs. 1, 2).

First instar: First instar larvae hatched after five days since oviposition. Body greenish yellow, translucent, legs black, head brown with black ocelli and mouthparts. Each segment has a transverse row of eight black warts, the four middle warts are larger than the two lateral pairs. Each wart carries two or three black bristles, about three times as long as the body diameter and additionally one or two shorter white hair (fig. 3). Average width of head capsule 0.37 mm (n=6). Duration of the first instar three days.

Second instar: Color as in the previous stage, head now completely black. The warts carry only black bristles about the length of the body diameter (fig. 4). Average width of head capsule 0.55 mm (n=6). Duration of the second instar three days.

Third instar: The body is whitish marbled with a central orange longitudinal stripe and deep black large warts. Each wart carries a bunch of short black bristles and additionally two white bristles,

longer than the body diameter (fig. 5). Average width of head capsule 0.87 mm (n=6). Duration of the third instar three days.

Fourth instar: Color and bristles as in the previous stage, the central longitudinal stripe is now white with orange spots in the middle of each segment (fig. 6). Average width of head capsule 1.37 mm (n=6). Duration of the fourth instar three days.

Fifth instar: Bristles as in the previous stage, the warts are blue now. Below the dorsal warts appears a second lateral white longitudinal strip, which has also an orange spot in the middle of each segment, similar to the central stripe (fig. 7). Average width of head capsule 2.12 mm (n=6). Duration of the fifth instar four days.

Sixth instar: The basic color of the body is blue-gray marbled, the lateral white longitudinal strip with the red spots has disappeared again. From the middle warts protrude ocher-yellow tufts of short bristles over the white middle stripe. The middle and lateral warts have short brush-like tufts of black bristles, which are directed caudal (fig. 8). Average width of head capsule 3.25 mm (n=6). Duration of the sixth instar six days.

Cocoon: The brown cocoon is very dense, smooth inside, the spun threads are glued together. The bristles are woven into the cocoon wall (figs. 9, 10).

Pupa: The pupa is light chestnut-brown, eyes, wing sheaths, mouth parts, extremities and the dividing lines between the abdominal segments are dark brown (fig. 10).

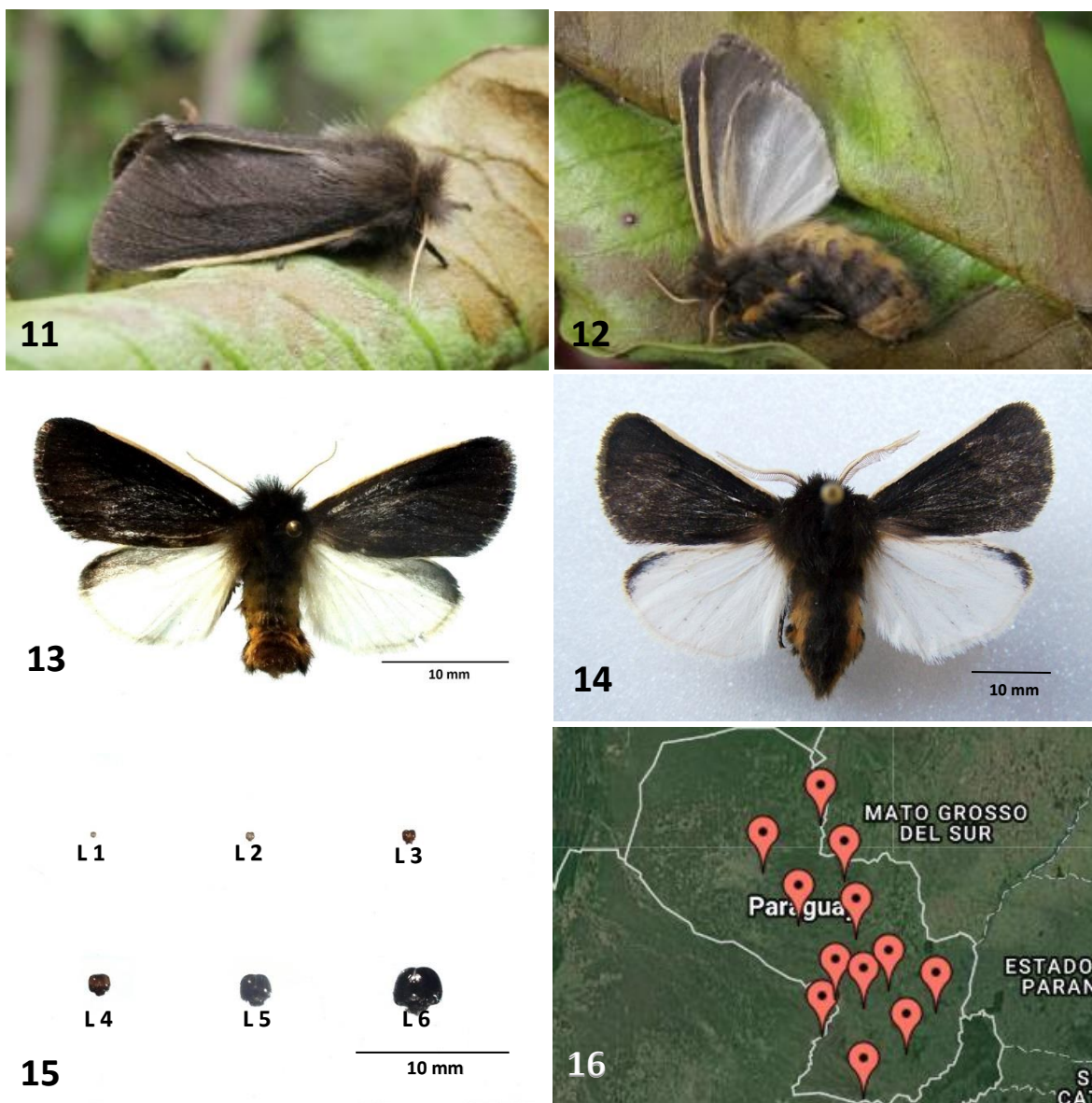
Imago: The first moth, a male (fig. 11, 12), emerged after 18 days since the start of spinning. The first female appeared two days later.



Figs. 1-2: *Paracles contraria*; 1) ova, covered with hair; 2) underside of egg cluster



Figs. 3-10: *P. contraria*; 3) first instar; 4) second instar; 5) third instar; 6) fourth instar; 7) fifth instar; 8) sixth instar; 9) cocoon; 10) cocoon open



Figs. 11-16: *P. contraria*; 11) male; 12) male in thanatosis; 13) female (P); 14) male; 15) head capsules of all six instars; 16) distribution of *P. contraria* in Paraguay

Discussion

Larvae are extremely polyphagous in all instars and feed beside *Lactuca* on other plants of the Asteraceae family as well as species of Urticaceae, Plantaginaceae and Polygonaceae. Cannibalism could not be detected despite high stocking density in the containers.

When the moths are disturbed, they fall to the ground and remain with the wings folded up and the abdomen bent (fig. 12). Thanatosis may take several minutes before they take back normal posture (fig. 11).

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FRONT COVER PHOTO: *Paratropes elegans* (Burmeister, 1838) (Ectobiidae), Paraguay, Dep. Alto Paraná, Estancia Dimas, 6. VI. 2007

