

**STUDIES ON NEOTROPICAL PROTONEURIDAE. 5. REDESCRIPTION
OF THE TYPES
OF *PHASMONEURA EPHIPPIGERA* (SELYS, 1886) (ZYGOPTERA)**

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The Selysian types of *Protoneura ephippigera*, 2 males from the Amazon region, are redescribed and illustrated. The generic position of the species is discussed and a lectotype is designated.

INTRODUCTION

Identification of most of the species of neotropical Protoneuridae referred by SELYS (1886) to his sub-genus *Protoneura* has always been very difficult because of the deficiency of the original description and, mainly, due to the lack of illustrations. In 1981 I visited Selys' collection in Brussels with the aim of studying the types of *Protoneura*, some of which were brought to Belo Horizonte for detailed analysis and redescription. Results of the study of *Epipleoneura humeralis* and those of *E. capilliformis*, *Phasmoneura exigua* and *Psaironeura tenuissima* were published recently (MACHADO, 1984, 1985). I report now the results of studies on the types of *Phasmoneura ephippigera* in which a lectotype was designated and redescribed.

THE TYPE SERIES

Pinned in the right upper corner of box 27 of Selys' collection, I found under the label of *Protoneura ephippigera* two male specimens bearing the following pin labels:

Specimen 1:

- (1) "Peba" (above) "Teffe" (below). Handwritten in ink; green label.
- (2) "P. ephippigera S." Handwritten in ink; green label.
- (3) "Protonevra". Handwritten in ink; white label.
- (4) "Coll. Selys". Handwritten in ink, with no. "94" in red pencil; white label.
- (5) "bei Förster". Handwritten in ink, with no. "94" in red pencil; white label.
- (6) "Dessiné par Santos — 3-X-64". Handwritten in ink; white label.

Specimen 2:

- (1) "Peba" (above) "Teffe" (below). Handwritten in ink; green label.
- (2) "P. ephippigera S." Handwritten in ink; green label.

These data are in good agreement with those contained in Selys' description of *ephippigera*, where one reads "Patrie: Pebas, Teffé. Coll. Selys". Specimen 1 is now designated as the lectotype and has been labeled as such. Specimen 2 becomes the paralectotype. Although damaged the lectotype is complete. The detached last 3 abdominal segments, head and prothorax are contained in a small envelope pinned under the specimen. The paralectotype lacks the head and prothorax. The abdomen is reduced to the first three segments, out of which the penis was dissected out for study, being placed in a vial pinned under the insect. As to the possible meaning of the locality-labels of Peba-Teffé see the comments under *P. tenuissima* in MACHADO (1985).

REDESCRIPTION OF THE TYPES

Head. — Labium yellowish; labrum dark metallic green bordered with brown inferiorly; lateral part of mandibles, anteclypeus, genae and antennae brown. Remaining parts of the head dark metallic green.

Prothorax. — Dark metallic green with whitish pruinescence. Posterior lobe (Fig. 1) slightly narrower than median lobe with the margin regular, convex. Postero-lateral corner of the median prothoracic lobe (Fig. 1) slightly prominent.

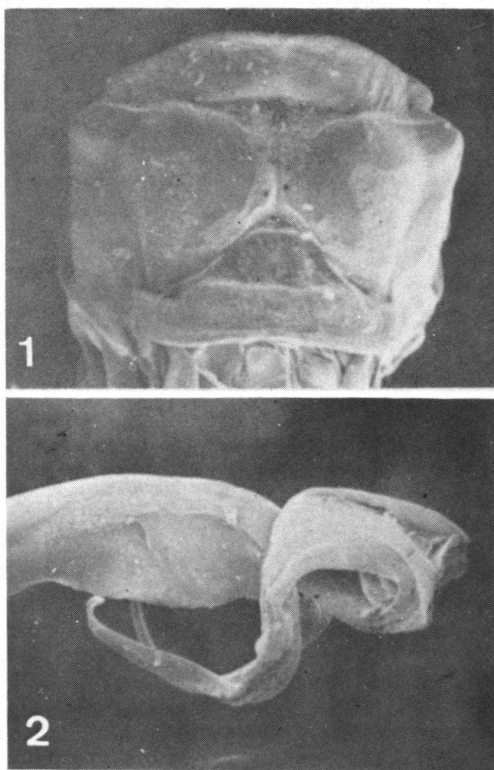
Pterothorax. — Mesopleura dark metallic green with some bluish areas, darker on the mesepimeron and some whitish pruinescence in the lower part of the mesepisternum. Metapleura dark brown, except for the upper half of the metepimeron which is yellow. The dark brown metepimeral area is ventrally confluent with that of the opposite side behind the hind trochanters. Legs yellow except for a brown band on the posterior part of the femora and fore tibiae and for a brown area on the distal part of the tarsi. Claws with a well developed tooth.

Wings. — Hyaline. Pterostigma brown, surrounded by a yellow line, occupying one cell or slightly less, its costal side smaller than the radial one, the inner side oblique and the outer side convex. Postnodals: in fore wing, 14; in hindwing 11 (25%), 12 (75%). R3 in front wing originating at the 6th (75%) or 7th (25%) postnodals; in hindwing at the 4th (100%) postnodals. IR2 in forewing originating at the level of the 8th (25%), 9th (50%) or 10th (25%) postnodals; in hindwing at the level of the 6th (25%) or 7th (75%) postnodals. CUP in forewing terminating at

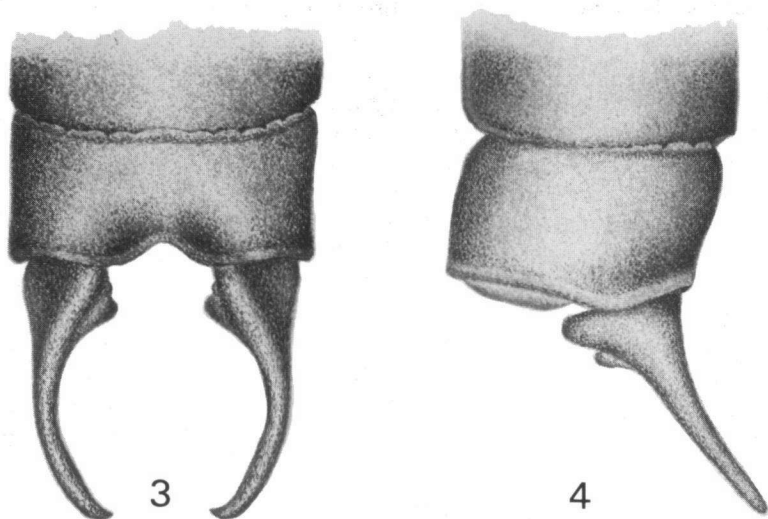
one third to one half of the distance between the crossvein descending from the subnodus and that descending from the first postnodal, in hindwing terminating at half or slightly more than half of this distance. Arculus coinciding with the second antenodal (75%) or slightly distal to it (25%). Upper limb of the arculus about one third of the lower limb in length. CuA situated in the middle of the distance between the 1st and 2nd antenodal or slightly beyond. In fore and hindwings IR3 arising at the subnodus (75%) or slightly distal to it (25%), R4 + R5 proximal. In all the wings IR3 is distinctly separated from R4 + R5 by a small crossvein. First antenodal costal space longer than the second and much longer than the third.

Abdomen. — Segment 1 yellow with a dark ring distally. Segments 2-10 dark brown dorsally becoming darker on 8-10 with bluish metallic tinges on 2 and 8. Segments 3-7 with a basal yellow and a distal dark ring. Ventrally segments 1-6 yellowish, 7-9 brownish and 10 dark brown with a yellow mid-ventral spot. Distal border of the 10th segment with an excavation (Fig. 3). Superior appendages (Figs 3-4) dark, longer than 10th segment, very slender and directed upward, in dorsal view (Fig. 3) strongly forcipated. Each appendage bears at its base a short and stout vertical branch (Fig. 4) directed ventrally and a tubercle (Fig. 3) directed medially and ventrally, provided with two small teeth, the tip of which can be seen in lateral view. Inferior appendages absent. Penis (Fig. 2) with a well developed internal fold and apical lobe with two long filaments.

Measurements (lectotype): — abdomen with appendages 37 mm; appendages 0.8 mm; length of forewings 22.7 mm, of hindwings 21.8 mm; length of forewings 22.7 mm, of hindwings 21.8 mm; maximum width of forewing 4.3 mm, of



Figs 1-2. Scanning electron micrographs of *Phasmoneura ephippigera*: (1) prothorax in antero-dorsal view; (2) penis in lateral view.



Figs 3-4. *Phasmoneura ehippigeri*, apex of the abdomen showing the anal appendages: (2) dorsal view; — (3) lateral view.

hindwing 4.1 mm; length of the antenodal costal spaces in forewing 2.3-2.1-1.8, in hindwing 2.4-2.2-1.8 mm. Costal side of pterostigma 0.6 mm, radial side 0.7 mm.

DISCUSSION

According to WILLIAMSON (1915), Selys' *Protoneura ehippigeri* might be a *Protoneura* (s. str.) or, more probably, an *Epipleoneura*. This latter view was followed by COWLEY (1941), SCHMIDT (1942), RACENIS (1954, 1960) and more recently by DAVIES & TOBIN (1984). Selys himself pointed out that in its size and venation characters the species was close to *humeralis* now known to be an *Epipleoneura* (MACHADO, 1984). The present study shows that these views about the generic position of *ehippigeri* are not correct and the species cannot be placed either in *Protoneura* or *Epipleoneura*. The proportion of the antenodal costal spaces and the wide wings rule out the possibility that it is a *Protoneura* as defined by WILLIAMSON (1915) and redefined by COWLEY (1941). By the morphological pattern of its anal appendages and by having the first antenodal costal space distinctly longer than the third, *ehippigeri* does not fit either in the genera *Epipleoneura*, *Psaironeura* and *Epipotoneura*. From *Epipleoneura* it differs also by lack of a supra-anal plate. Thus one arrives by exclusion in the genus *Phasmoneura*, where I place *ehippigeri*, at least provisionally. Created by

WILLIAMSON (1916) for his *Phasmoneura olmyra*, now *P. exigua* (Selys, 1886), the genus *Phasmoneura* contains two other species, *P. ciganae* Santos, 1968 and *P. itatiaiae* Santos, 1970. The affinity of these two species with *ephippigera* is revealed not only by their venation characters but also by the morphological pattern of the penes and appendages. The latter are arranged as a typical forceps, from the bases of which stem a medially directed tubercle (lacking in *exigua*) and a vertically directed branch which, in *ephippigera*, is smaller than in the other *Phasmoneura*. In addition to this difference, *ephippigera* can be readily separated from the other species of *Phasmoneura* by the very characteristic dark brown metepimeral stripe, ventrally confluent with that of the opposite side. *P. ephippigera*, *P. ciganae* and *P. itatiaiae* form an homogeneous group of species, whose differences with *P. exigua* might justify erection of a new genus. I refrain from doing this now, pending the description of at least two new species in my collection, the study of which would make more consistent a splitting of the genus *Phasmoneura*. The finding of species from the upper Amazon region so similar to species from the Atlantic forest poses an interesting zoogeographical problem.

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