

**NOTES ON *PHYLLOGOMPHOIDES PUGNIFER* DONNELLY, 1979,  
WITH A DESCRIPTION OF THE FEMALE (ANISOPTERA:  
GOMPHIDAE)**

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The allotype is described from southeastern Veracruz, Mexico. Notes on the habitat, and some observations on the reproductive behavior are provided.

**INTRODUCTION**

*Phyllogomphoides pugnifer* was described by DONNELLY (1979) from a series of males collected in southern Veracruz and other localities of Mexico, Guatemala and Costa Rica. To date, the female of this interesting species had remained undescribed.

During a study of the reproductive behavior of *Palaemnema desiderata* Sel. in Los Tuxtlas, Veracruz region (cf. GONZÁLEZ, NOVELO & VERDUGO, 1982), we collected other species of Odonata which inhabited the stream where the observations were made. Among the Gomphidae we collected *Agriogomphus tumens* (Calv.), *Phyllocycla volsella* Calv. *Erpetogomphus ophibolus* Calv. and particularly a large series of *P. pugnifer*. Our series of *P. pugnifer* contained a pair in copula and several females which permitted us to describe the unknown sex of this species. The female of the copula pair has been selected as the allotype. Additional females were also collected at nearby localities.

## DESCRIPTION OF THE FEMALE

**Material examined.** — **Allotype female:** Mexico, Veracruz State, stream near Jicacal Beach, 30 km NE of Catemaco, "Los Tuxtlas región", E. González, 7 Aug. 1982. Additional specimens (all from "Los Tuxtlas región"): stream near Jicacal Beach, G. Jiménez, 11 Jun. 1979, 1 ♀; E. González, 13 Jul. 1979, 1 ♂; E. González, 25 May 1980, 1 ♀; E. González, 3-6 Aug. 1980, 2 ♀; E. González, 10 Aug. 1980, 1 ♀; E. González, 18-24 Jun. 1981, 2 ♀, 9 ♂; E. González, 16-30 Jul. 1981, 4 ♂; E. González, 1-7 Aug. 1982, 3 ♀, 4 ♂; stream near Laguna Escondida, R. Novelo, 23-24 May 1980, 1 ♀, 1 ♂; E. González, 7 Aug. 1982, 2 ♂; Sontecomapan, G. Jiménez, 7 Jul. 1979, 1 ♀; Río La Palma, E. González, 4 Aug. 1982, 1 ♂.

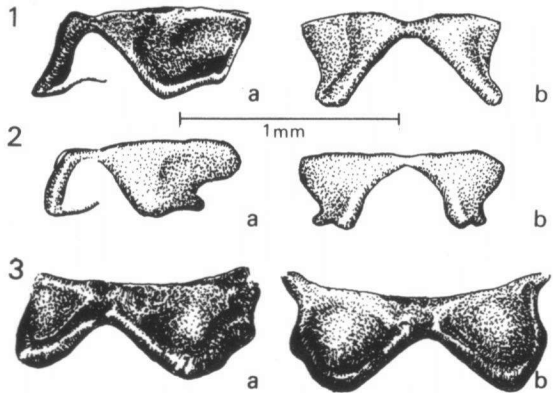
All material is deposited in the IBUNAM (Colección Entomológica del Instituto de Biología de la Universidad Nacional Autónoma de México).

**Head.** — Labium pale with apical margin brown, mandibles pale with apical half brown, labrum dark with a pair of pale lateral spots and another dark pale oval spot occupying middle concavity, anteclypeus pale with lateral margins light brown, postclypeus light brown with supralateral corners pale, most of frons light brown but yellow along frontal ridge, vertex fuscous with a yellow central spot between posterior ocelli, occiput light brown.

**Prothorax.** — Frontal lobe light brown with anterior margin pale, median lobe with pair of twin pale mesal spots fused at their middle portion, pale spots on posterolateral corners; posterior lobe light brown.

**Pterothorax.** — Dark brown with following areas yellow: antehumeral thoracic stripe very narrow, parallel sided and not joined to mesothoracic collar, humeral stripe narrow, barely joined to the small antealar pale spot, midlateral stripe narrow, complete and expanded at upper end (this expansion preceded by a constriction), femoral complete, inflated ventrally beyond spiracle, with no constriction at its upper third as in humeral stripe but followed by a subspherical expansion, metepimeral stripe occupies most of the lower part of metepimeron, metinfraepisternum yellow, metasternum entirely yellow-brown.

Nodal formula: FW: 14:24/21:15; HW: 16:17/17:16.



Figs 1-3. Ventrolateral (a) and ventral (b) views of vulvar lamina in: (1) *P. pugnifer*; — (2) *P. duodentatus*; — (3) *P. suasus*.

**Abdomen.** — Predominantly dark brown with yellow markings. Segment 1 pale brown, on dorsum with a very narrow middorsal yellow line, lower 1/2 of tergum yellow; Seg. 2 light brown, sides yellow but with two lateroventral brown stripes separated at base of segment by a narrow middorsal line; Seg. 3 dark brown with a basal transverse yellow stripe occupying 1/4 length of the segment and barely joining its fellow on opposite side (almost forming a ring), a middorsal yellow stripe tapering apically and reaching transverse carina; Seg. 4-6 dark brown with lateral basal yellow spots and pale basal dorsal spots not reaching transverse carina of those segments; Seg. 7 with definite basal ring occupying area between base of segment and transverse carina; Seg. 8-10 dark brown.

Vulvar lamina with its posterior margin with a deep v-shaped excision, its lobes appearing pointed and narrow when viewed ventrally (Fig. 1b).

Markings of the female are similar to those of the male but with more extensive pale coloration on abdominal segments 2-6. Females have the antehumeral thoracic stripe narrower than males and not joined to the mesothoracic collar.

Measurements (allotype). — Abdominal length: 44.5 mm; — hindwing: 39.5 mm; — costal edge of pterostigma (HW): 5 mm; — abd. app. 2.3 mm (0.8 mm dark; 1.5 mm pale); — length of vulvar lamina: 0.4 mm.

Variation in additional specimens: Abd. length: 42.7-48.8 mm; — hind wing: 37.3-42.6 mm; — costal edge of pterostigma: 4.4-5.4 mm; — abd. app. 2.1-2.3 mm; — vulvar lamina length: 0.4-0.6 mm.

The female of *P. pugnifer* can be distinguished from the other two sympatric species of *Phyllogomphoides* which occur at Los Tuxtlas region (*P. duodentatus* Donnelly and *P. suasus* Selys) by the following characters: The female of *P. pugnifer* lacks lateroapical flaps (Fig. 2) characteristic of *P. duodentatus*. The lamina of *P. pugnifer* is more erect than in *P. suasus*. In the latter species the lamina is more compressed and with wider lobes than that of *P. pugnifer*, when viewed ventrally (Figs 1, 3).

#### HABITAT AND HABITS

DONNELLY (1979) mentioned that the series of *P. pugnifer* from Santiago Tuxtla were collected at a shady stream and additional specimens were taken in smaller streams in hilly country. A few of our specimens were collected at the shadiest part of a small rocky-bottomed stream, but the majority were collected in the most exposed section of the stream. Some specimens were also taken far from water, at nearby vegetation (*Solanum* sp.).

Males followed the course of the stream and hovered frequently in backwaters, where they remained for brief periods. Females were also seen hovering at these sites so that the activity of the males seemed to be an activity directed to intercept receptive females. Other males perched on twigs or grasses at the stream edge and made pursuit flights when conspecifics passed near their perches.

Copulation was observed to take place on vegetation approximately 4 m above

the ground and lasted more than one hour.

Oviposition was observed once. A female hovered ca 1 m above the stream and dropped the eggs from the air individually. This method of oviposition is rare in Odonata and is in accordance with EDA's (1960) classification of his VI category: "non-contact flying oviposition". This group also includes the gomphid *Davidius* (EDA, 1960) the libellulids *Micrathyria* (PAULSON, 1969) and *Sympetrum* (GARDNER, 1953; ROBERT, 1958; EDA, 1965, 1975). The ovipositing behavior of *P. pugnifer* is probably identical to that in the other members of the genus. One of us (E.G.) observed a female *P. suasus* ovipositing in the same way as *P. pugnifer* at a stream at "El Chorreadero" in Chiapas State.

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