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PROTONEURA ROJIZA SPEC. NOV., A NEW DAMSELFLY FROM MEXICO (ZYGOPTERA: PROTONEURIDAE)

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The new sp. is described and illustrated from 3 ♂ and 1 ♀, collected in the states of Guerrero and Oaxaca (holotype ♂, allotype ♀, in cop., Oaxaca, km 56.7 rte 175, (between Valle Nacional-La Esperanza. alt. 580 m, 29-VII-1990; deposited at UNAM, Mexico). The new sp. is very closely related to *P. peramans* Calv. but differs from the latter by structural differences in the ♂ abdominal appendages and in the ♀ mesothoracic processes. The 2 spp. are restricted in their distribution (Mexico to Nicaragua) and seem to constitute a separate group within the Central American and Circum-Caribbean spp. of the genus. A key to the Mexican and northern Central American spp. is provided.

INTRODUCTION

The genus *Protoneura* is represented in Mexico by four species, viz. *P. aurantiaca* Sel., *P. cara* Calv., *P. corculum* Calv. and *P. cupida* Calv. (PAULSON, 1982). A new species, *P. rojiza* sp.n. was recently collected in the states of Guerrero and Oaxaca. By its size, morphology and distribution it is closely related to the more southernly *P. peramans* Calv. It differs from the latter by several structural characters of the male abdominal appendages and of the anterior margin of the mesothorax in females.

PROTONEURA ROJIZA SPEC. NOV.

Figures 1-4

Material. – **Holotype** ♂: OAXACA state, km 56.7 on route 175 (between Valle Nacional-La Esperanza), alt. 580 m, 29-VII-1990, V. Garcia and E. Gonzalez leg. – **Allotype** ♀: in tandem with holotype. – **Paratypes** (2 ♂): 1 ♂ GUERRERO state: Soyatepec, 26-VI-1983, M. Garcia leg.;

– 1 ♂, El Faisanal, Municipio de Paraiso, 4-IX-1983, J. Llorente leg. – All material is deposited at the UNAM, Mexico.

Etymology. – Named from the Spanish adjective "*rojo*", which refers to the blood-red abdomen of male.

MALE (**holotype**). – Head – Black, pale as follows: labium ivory-white, mandibles cream excepting black patch on basal half and brown apices, a yellow transverse band on anterior margin of labrum; anteclypeus, genae and anterior surface of frons reddish-brown.

Thorax. – Black, except for the following pale areas: a narrow red line along most of humeral suture, and same coloration on lateroventral edge of metepimeron, sternum pale. Legs black externally, inner surfaces, coxae and trochanters paler.

Wings (right pair badly damaged). – Membrane slightly yellowish, venation black, pterostigmata subrectangular, surmounting 1.3 cells, two postquadrangular cells in all wings, postnodal crossveins: 11 (LFW) and 10 (LHW) respectively, the 10th not continuing to RP1. IR2 arising at subnodus, RP 3+4 proximal to subnodus by a distance almost equal to 0.5 the length of postquadrangular cell below (FW) or slightly more than 0.5 in HW; RP2 arising at the fifth postnodal in both LFW and LHW, RP 3+4 ending distal of pterostigma. MP ending from less than 0.5 of a cell to 0.5 of the cell beyond crossvein descending from subnodus.

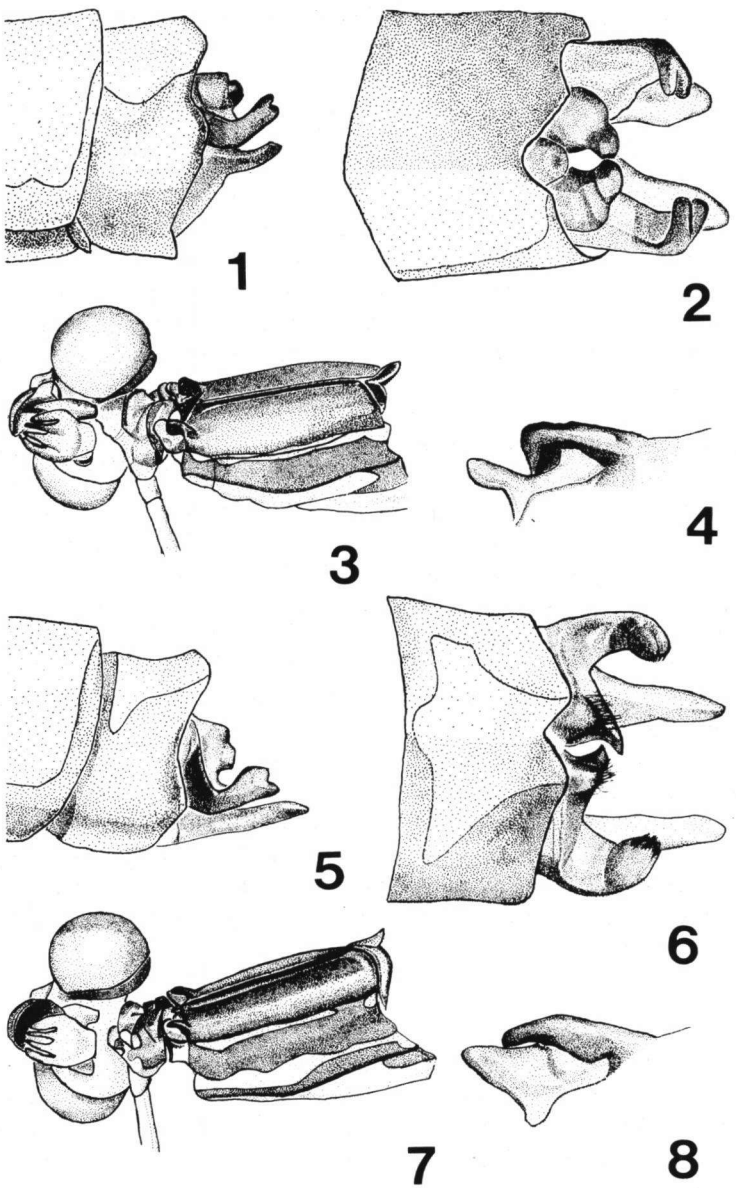
Abdomen. – Blood red, with dark markings as follows: dorsum of 1 excepting pale lateroventral margin; dorsum of 2 mostly black, sides with oblique red stripes; 3 with basal and apical black areas connected by postbasal black stripe; 4-6 black apically; 7 with apical 0.5 black; 8 mostly black on dorsum, basally red; 9 and 10 red on dorsum with lateral black stripes.

Appendages. – Dark brown, in dorsal view, cerci transversely bifid, inner branch rudimentary, represented only by a slightly bilobed basomesal tubercle; outer branch long, curved inwardly with bifid tips, in lateral view the tips curved slightly upward and occupying a lower level than inner branch; paraprocts straight, longer than cerci (Figs 1-2).

Measurements (mm). – Abdomen (excl. app.) 39.3; – hind wing 21.6; – cerci 0.49; – paraprocts 0.49.

FEMALE (**allotype**). – Head. – Coloration as in male but pale areas brown to yellowish-brown and more extensive than in male.

Thorax. – Prothorax black dorsally, reddish-brown laterally with a transverse reddish-brown band on anterior lobe; hind margin of posterior lobe greatly expanded, directed forward and lying on median lobe; anterior margin of mesothorax with two wide laterally compressed prominences projecting over mesostigmal laminae (Figs 3-4); synthorax with pale stripe on humeral suture wider than in male, metepisternum pale yellow with black, posterior part with a black stripe on upper half of metapleural suture; metepimeron pale. Legs with pale areas more extensive than in male.



Figs 1-8. *Protoneura rojiza* sp.n. (Figs 1-4) and *P. peramans* Calv. (Figs 5-8; Guatemala, Izabal, Las Escobas, 24/25-VIII-1968, T.W. Donnelly leg. & det.): (1-2, 5-6) abdominal appendages in lateral and dorsal views; – (3, 7) female thorax, dorsolateral view; – (4, 8) detail of the right female mesostigmal lamina and the metathoracic process.

Wings. – Postnodals 13 (FW) and 11 (LHW) and 10 (RHW), RP2 arising at 6 (FW) and 5 (HW).

Abdomen. – Maculation as in male but lateral stripes on 1-2 yellow, remainder of abdomen reddish-brown with black on dorsum of segments 7-10.

Measurements (mm). – Abdomen (excl. app.) 33.5; – hind wing 24; – cerci 0.35.

PARATYPES. – The two paratype males have a second but ill-defined reddish stripe on the metepisternum behind the metathoracic spiracle. The Soyatepec male has the metepimeron dark brown and membrane of wings hyaline. Postnodals 12-13 (FW) and 10-11 (HW) in both paratypes, RP2 arising between 5-6 (FW) and 4-5 (HW).

Measurements (mm), 2 ♂. – Abdomen 38.9-42.0; – hind wing 23.9-25.5; – cerci 0.44--0.50; – paraprocts 0.44-0.52.

DISCUSSION

The new species is closely related to *P. peramans* Calv. Both are distinguished from all other Central American and Circum-Caribbean members of the genus by their large size (e.g. ♂ abdomen 39-42 mm in *P. rojiza* and 42-43 mm in *P. peramans*) and by the unusually large hind margin of the posterior lobe of the prothorax in females, which is also forwardly directed and compressed against the middle lobe. Both species also have greatly developed, conspicuous processes on the anterior margin of the mesothorax. *P. rojiza* is distinguished from *P. peramans* by the following set of characters: (1) the internal branch of the male cercus in *rojiza* is only a rounded tubercle whereas in *peramans* the same structure is acute; – (2) the male paraproct in *rojiza* is only slightly longer than the cercus while in *peramans* it extends far beyond the tip of the cercus (Figs 5-6); – (3) females of *rojiza* have a pair of subquadrate processes in mesothorax whereas in *peramans* the same structures are spine-like (Figs 7-8; also CALVERT, 1903, pl. 5, fig. 48). DONNELLY (1989) discussed the possible relationships of the Circum-Caribbean species of the genus, recognizing three groups. Donnelly's third group (*corculum* Calv., *peramans, sanguinipes* Westfall and the newly described *P. dunklei* DAIGLE, 1990) are apparently more related to each other than to other species in the area. He commented that the above species share a reduction of the male cerci. They also share (at least for *corculum* and *peramans*) flared anterior rims of the female mesostigmal laminae and prominences on the anterior margin of mesothorax. However, in my opinion, the male cerci of *peramans, sanguinipes* and *dunklei* are not as reduced as in *corculum*. The anterior edge of the mesostigmal lamina in *peramans* is slightly elevated, though not as pronounced as in *corculum*. The great development of the prominences on the anterior margin of the mesothorax in females of *P. peramans* is not equalled by any other species, although females of *corculum* (and in a lesser degree also those of *sulfurata*) have less developed prominences. For the above reasons it seems justified to exclude *P. peramans* from Donnelly's third group and erect a

new group for both *peramans* and *rojiza*.

KEY TO MEXICAN AND NORTHERN CENTRAL AMERICAN SPECIES OF *PROTONEURA*

1 MP ending against or a little beyond the crossvein descending from the subnodus, in the latter case extending no more than 0.20 the length of the corresponding marginal cell; male paraprocts extremely long, two times the dorsal length of abdominal segment 10 ..... ***corculum***

1' MP ending beyond the crossvein descending from the subnodus at least 0.25 the length of correspondent marginal cell; male paraprocts of variable length but never more than two times the length of abdominal segment 10 2

2(1') Pale coloration of head and thorax in both sexes blue ..... ***cupida***

2' Pale coloration of head and thorax red or reddish-brown 3

3(2') Male paraprocts with an acute superior tooth ..... ***aurantiaca***

3' Male paraprocts without an acute superior tooth 4

4(3') Size larger (abd. (mm): 33.5-42, hind wing 31.5-34) male cerci transversely bifid, females with hind margin of posterior lobe of prothorax forwardly directed and compressed against middle lobe and with conspicuous processes on anterior margin of mesothorax 5

4' Size smaller (abd. 29-33, hind wing 26-28.5), male cerci not transversely bifid; female with hind margin of prothorax normal, with or without conspicuous processes on anterior margin of mesothorax 6

5(4) In dorsal view male cerci with internal branch rounded; females with subquadrate processes on anterior margin of mesothorax ..... ***rojiza*** sp.n.

5' In dorsal view, male cerci with internal branch acute; females with spine-like processes on anterior margin of mesothorax ..... ***peramans***

6(4') In dorsal view, male cerci excavated in the interior margin, females with an acute process on anterior margin of mesothorax, mesostigmal lamina normal ..... ***amatoria***

6' In dorsal view, male cerci not excavated interiorly, females without a process on anterior margin of mesothorax, mesostigmal lamina vertically erected ..... ***cara***

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