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SHORT COMMUNICATIONS

PROTONEURA ROMANAE SPEC. NOV. FROM GUADELOUPE, FRENCH WEST INDIES (ZYGOPERA: PROTONEURIDAE)

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The new sp. is described and compared with its closest relative, *P. ailsa* Donnelly. Holotype ♂ and allotype ♀: Guadeloupe, Basse-Terre, Rivière Salee, Source Sulfureuse de Sofaïa, 1-II-2006; both deposited in Museum of Natural History, Nantes, France.

INTRODUCTION

Previously, they were six species of *Protoneura* known to the West Indies: *P. viridis* Westfall, *P. sanguinipes* Westfall, *P. dunklei* Daigle, *P. corculum* Calvert, *P. capillaris* (Rambur) from the Greater Antilles, and *P. ailsa* Donnelly from the Lesser Antilles (NEEDHAM et al., 2000). *P. ailsa*, first described by DONNELLY (1961) from St. Lucia, has also been recorded from Dominica (DONNELLY, 1970), Martinique (STARMÜHLNER & THEREZIEN, 1982), and Guadeloupe (GOYAUD, 1994). Recent studies revealed that this species is absent from Guadeloupe and replaced by *Protoneura romanae* sp. n. The new Guadeloupe endemic brings the total number of *Protoneura* species found in the West Indies to seven. *P. romanae* differs from *P. ailsa* by structural differences in the male caudal appendages and the female mesostigmal plate. The larva is unknown.

PROTONEURA ROMANAE SP. NOV.

Figures 1-9

M a t e r i a l. – **Holotype** ♂ and **allotype** ♀: Guadeloupe, Basse-Terre, Rivière Salee, Source Sulfureuse de Sofaïa, 1-II-2006, F. Meurgey leg. Paratypes (7 ♂, 9 ♀): – Guadeloupe, Basse-Terre, Grand-

Etang, 12-III-2004, 4 ♂, 1 ♀, F. Meurgey leg.; Guadeloupe, Grande-Terre, Petit-Canal, Beautiran, 12-II-2006, 3 ♂, 8 ♀, R. Bouanchaud leg. The holotype and allotype are deposited in Museum of Natural History, Nantes, France. Two paratypes are deposited in the Institut National de la Recherche Agronomique (INRA), station Duclos, Petit-Bourg, Guadeloupe. The remaining paratypes are in the collection of François Meurgey and the National Museum of Natural History, Paris, France. Other material examined: *Protoneura ailsa* – Martinique, Rivière Lézarde, 3-IV-2005, 11 ♂, 8 ♀, F. Meurgey leg.

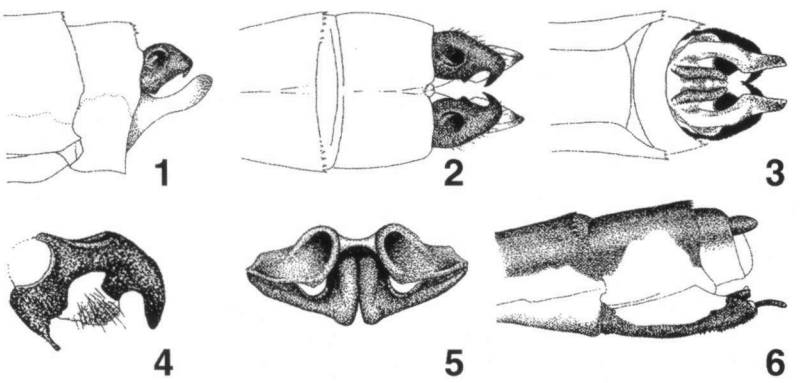
Etymology. – The species is dedicated to my daughter Romane.

MALE (**holotype**): Head. – Eyes in life brilliant red dorsally, yellowish to orangish-red ventrally. Labium and mandibles yellow, labrum black with metallic reddish-copper reflections and with a broad yellow anterior margin. Anteclypeus yellow with reddish tinges and with a small median process. Postclypeus, frons, postfrons, and vertex black with metallic reddish-copper reflections. Postfrons with a black spot anterior to black antenna. Rear of head black with copper reflections.

Thorax. – Pronotum mostly black with metallic red reflections, posterior margin of hind lobe entire, almost straight. Propleuron mostly brown. Mesepisternum entirely deep metallic red, thoracic carina black. Mesinfraepisternum black. Mesepimeron bronze with iridescent red reflections, metepisternum similar but with lighter coloration. Brown metapleural suture complete and entire. Venter of prothorax with a black spot between procoxae and mesocoxae. Metepisternum and metepimeron yellow. Coxae and venter bright yellow.

Legs. – Pale yellow with faint banded pattern. Distal end of femora and armature black.

Wings. – Hyaline, pterostigma and venation black. 11 postnodal crossveins in forewings, 9 in hindwings.



Figs 1-6. *Protoneura romanae* sp. n. holotype male and allotype female: (1-4) caudal appendages in lateral, dorsal, posterior (dorso-lateral angle), and ventral views; – (5) female mesostigmal plates in dorsal view; – (6) ovipositor in lateral view.

A b d o m e n. – Black with light red reflections most noticeable on segment 7. Obscure pale basal ring on segments 3-7. Ventral side of segments 7-9 dusky yellow. Viewed laterally, black cercus about as long as segment 10, and shorter than paraproct (Fig. 1). Cercus broad at base and with a deep, dorsal sinus. In dorsal view, cercus strongly constricted at about the third of its length with a median triangular tooth-like process; then curved inwardly and downwardly, ending as a bold hooked apex (Fig. 2). Viewed posteriorly, cercus with an acute basal process (Fig. 3). In ventral view, epiproct rudimentary represented by a bilobed basomesal tubercle (Fig. 4). Pale yellow paraproct curved longitudinally with an erect tooth-like median process, broad at the base and rounded at black apex. In lateral view, paraproct strongly directed upward, almost reaching cercus.

M e a s u r e m e n t s (mm). – Total length including cerci 37.0, abdomen 31.0, forewing 19.0 and hindwing 17.0.

FEMALE (**allotype**): H e a d. – Similar to male, but with copper reflections. Eyes in life dark brownish-red dorsally, light brown ventrally. Postclypeus black with purplish reflections.

T h o r a x. – Similar to holotype, but with metallic green reflections on mesepisternum and mesinfraepisternum. Hind lobe mostly dull yellow. Upper half of mesepimeron metallic bronze. Metapleural suture darker. Mesostigmal plates (Fig. 5) with a prominent bifid rounded mesal process flanked by two rounded lateral ear-shaped lobes; entirely black except a semi-circular white patch under each lateral ear-shaped lobe.

Legs. – Similar to male.

Wings. – Hyaline, pterostigma and venation black. 11 postnodal crossveins in forewings, 9 in hindwings.

A b d o m e n. – Black dorsally. Whitish or yellowish anterior ring on segments 2-9. Sterna of abdominal segments 6-7 distended ventrally. Segments 7-10 yellow ventrally with dark ventral area on segment 8. Light yellow ovipositor margined with black ventrally, dentition finely crenate (Fig. 6). Black cercus twice the length of segment 10. Stylus black.

M e a s u r e m e n t s (mm). – Total length 34.0, abdomen 28.0, forewing 21.0 and hindwing 19.0.

VARIATION AMONG PARATYPES. – Paratypes similar to holotype and allotype. Total length (mm) ♂ ranges from 35.0-36.0, total length ♀ 33.0-35.0; abdomen ♂ 28.0-33.0, ♀ abdomen 28.0-32.0; forewings ♂ 18.0-19.0, ♀ forewings 19.0-22.0; ♂ hindwings 17.0-18.0, ♀ hindwings 18.0-20.0. Postnodal crossveins in forewing ♂ 11-13, ♀ 9-11 and hindwing ♂ 11-13, ♀ 9-11.

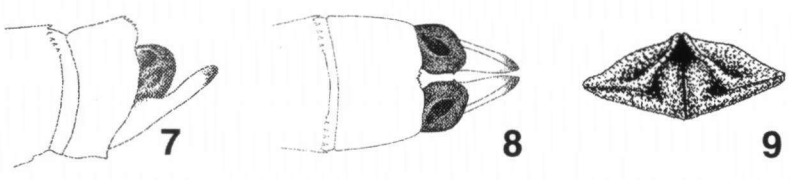
DISCUSSION

Protoneura romanae is distinguished from *P. ailsa* Donnelly by the following set of characters: (1) cercus in *romanae* almost as long as the paraproct, while in *ailsa* (Fig. 7) it is the half of the paraproct length; (2) cercus in *romanae* elongat-

ed, hook-shaped with a basal, a median, and an apical tooth, while in *ailsa* (Fig. 8) it is short, rounded, without any tooth; (3) mesostigmal plate in *romanae* with basal lobe ear-shaped, margin circular, while in *ailsa* (Fig. 9), basal lobe margin straight, not circular; (4) ovipositor and segment 9 mostly pale in *romanae*, not with a black ovipositor and with segment 9 black with a pale spot as in *ailsa*; (5) *P. romanae* found only on Guadeloupe while *P. ailsa* is found only on Dominica, Martinique, and St. Lucia.

P. ailsa was recorded from Guadeloupe from several localities on Basse-Terre and Grand-Terre (STARMÜHLNER & THEREZIEN, 1982; HOFMANN, 1999; MEURGEY & WILLIAMSON, 2002). Discussions with Jerrell J. Daigle and T.W. Donnelly caused doubt that the recorded *P. ailsa* specimens from Guadeloupe were the same species as those collected from Dominica, Martinique, and St. Lucia. Further laboratory examination of 35 specimens from several localities on Guadeloupe revealed that recorded *P. ailsa* specimens from Guadeloupe are not that species and belong to the new species, *P. romanae*. The comparison of some *P. ailsa* specimens published by HOFMANN (1999) and preserved in the National Museum of Natural History (Paris, France) reveal that they belong to *P. romanae*.

P. romanae is typically found in the small montane rainforest streams of Basse-Terre at elevations from 300-1000 m in suitable habitat (HOFMANN, 1999; MEURGEY & WILLIAMSON, 2002), such as Sofaïa, Grand-Etang, and Vauchelet. Males were observed patrolling low over shaded pools, not over the main current itself. It is interesting to notice that the description of the *P. ailsa* habitat in Guadeloupe by HOFMANN (1999) is based on the observation of adults. No larvae or exuviae were collected at these sites or at any other sites. Oviposition has not been observed at any site. In 2006, *P. romanae* was also found in a shaded flooded forest with bloodwood (*Pterocarpus officinalis)* at the edge of the Port-Louis mangrove swamp in Grande-Terre. The discovery of a small lowland population in Grande-Terre may not to be considered an exception, but more surely proves that little is known about the real ecological requirements for this species. In its mountainous habitats, *P. romanae* can be seen with *Argia concinna* (Rambur). At the lowland Grande-Terre site, it was seen with *Lestes tenuatus* Rambur, *Micrathyria didyma* Selys, and *Dythemis sterilis* Hagen.



Figs 7-9. *Protoneura ailsa* Donnelly from Martinique: (7-8) caudal appendages in lateral and dorsal views; – (9) female mesostigmal plates, dorsal view.

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