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A new species of Tessaratomidae from Borneo (Hemiptera, Heteroptera, Pentatomoidea)

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Abstract. – *Pseudopycanum dusoulieri* n. sp. (Heteroptera, Tessaratomidae) is described and illustrated from the Indonesian part of the island of Borneo. It is compared to *P. nigromarginatum* (Stål, 1863).

Résumé. – **Une nouvelle espèce de Tessaratomidae de Bornéo (Hemiptera, Heteroptera, Pentatomoidea)**. *Pseudopycanum dusoulieri* n. sp. (Heteroptera, Tessaratomidae) est décrit et illustré de la partie indonésienne de l'île de Bornéo. Cette nouvelle espèce est comparée à *P. nigromarginatum* (Stål, 1863).

Keywords. – Taxonomy, Oriental region, *Pseudopycanum*.

Tessaratomidae is a family of tropical and subtropical Pentatomoidea including large and colorful true bugs. The main characters of the family are the exposed spiracle of the second abdominal segment, the antennae with four articles (five in some genera, but in this case the third one is smaller than the first) and the generally small size of the head. The group comprises 249 species classified into 57 genera (Rolston *et al.*, 1994; Magnien, 2016). *Pseudopycanum* Bergroth, 1891, is a replacement name for the genus *Oxylobus* Stål, 1863, which Stål (1863) created for the species *Oxylobus nigromarginatum*. Later, Stål (1870) added a second species to this genus, *Dalcantha westwoodii* Snellen van Vollenhoven, 1866. Eventually this second species was transferred to *Sanganus* by Distant (1909), and since then the genus *Pseudopycanum* has been considered as monospecific. The purpose of this work is to describe a new species belonging to this genus from the Indonesian part of the island of Borneo.

Material and methods

This study is based upon a series of 20 specimens (3 ♂, 17 ♀). Pygophore and female abdomen were dissected in water after clearing in cold 10 % potassium hydroxide solution for about one day. The phallus was inflated with the use of forceps. To avoid osmotic crushing, genitalia has been transferred to a 10 % glycerol/water solution, left to evaporate at ambient temperature. Examination of genitalia was conducted in glycerol using a semi-covered cavity slide. Pictures of habitus were taken with an Olympus OM D camera, using focus bracketing. Pictures of genitalia were made with a Tucsen IHS 1000 on a Paralux microscope. Macro- and micrographies have been assembled with the sofware CombineZP (Hadley, 2016).

For citation of the label data of type material, a single slash is used to indicate data on different labels, and the author's comments are given in square brackets.

The specimens are deposited in the following collections:

FDC, François Dusoulier's private collection, Toulon; **JPMC**, Jean-Philippe Maurel's private collection, Ramonville-Saint-Agne; **MNHN**, Muséum national d'Histoire naturelle, Paris; **PHMC**, Philippe Magnien's private collection, Paris.

Results

***Pseudopycanum dusoulieri* n. sp.** (fig. 1-2)

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Holotype: ♂, M[t] Bawang West Kalimantan via Chris Nock [printed] / *Pseudopycanum dusoulieri* Holotype Maurel & Magnien des. 2016 (MNHN) [printed] [dissected, genitalia in microvial on the same pin].

Paratypes: 1 ♀, same data (MNHN); 2 ♂, 9 ♀, same data (PHMC); 7 ♀, same data (JPMC); 1 ♀, same data (FDC).

Description. – General hue varying from light ochraceous to dark purplish brown. Lighter specimens have a dark purplish brown longitudinal stripe across the pronotum and scutellum. Underside and legs yellowish, except some irregular stripes on sides of meso- and metafemora, and the foretibiae, which vary from dark ochraceous to almost black in the darker specimens. Antennae with the fourth segment dark brown to black, except at its basis, other segments varying from light ochraceous to almost black. Dorsum more or less flattened, venter strongly convex.

Head small, length almost equal to diatone, anteocular region subtriangular, flattened, moderately declivous, coarsely rugulose; lateral margin reflexed, emarginate anterior to the eyes, carinate; clypeus completely enclosed by jugae; eyes protruding forwards; ocelli rather nearer to eyes than to each other; antennae short, four-segmented, segment I reaching apex of head, segment II twice as long as I, segment III

Fig. 1-2. – *Pseudopycanum dusoulieri* n. sp., dorsal view. – 1, ♂, holotype. – 2, ♀, paratype. Scale: 5 mm.

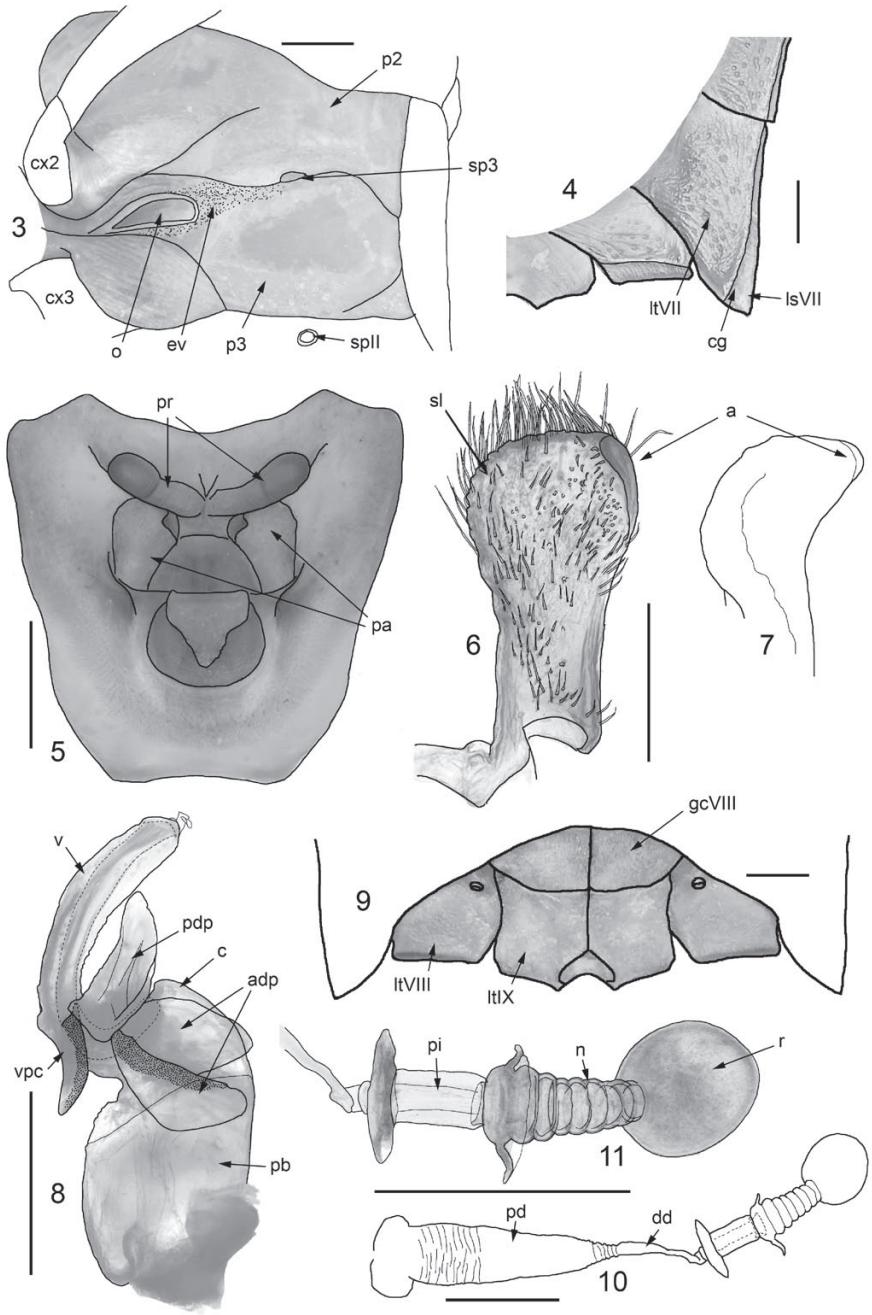

Fig. 3-10. – *Pseudopycanum dusoulieri* n. sp. – 3, Evaporatoria. – 4, Last laterotergites. – 5, Pygophore. – 6-7, Left paramere: 6, dorsal view; 7, lateral view. – 8, Penis. – 9, Female external genitalia. – 10, Spermatheca. – 11, Receptacle. Abbreviations: *a*, apophysis; *adp*, anterior dorsal conjunctival process; *c*, conjunctiva; *cg*, connexival groove; *cx2*, mesocoxa; *cx3*, metacoxa; *dd*, distal ductus; *ev*, evaporatorial field (dotted area); *gcVII*, gonocoxite VIII; *lsVII*, ventral laterotergite VII; *ltIX*, ventral laterotergite IX; *ltVII*, dorsal laterotergite VII; *ltVIII*, ventral laterotergite VIII; *n*, neck; *o*, ostiole; *p2*, mesopleuron; *p3*, metapleuron; *pa*, parameres; *pb*, phallobase; *pd*, proximal ductus; *pdp*, posterior dorsal conjunctival process; *pi*, intermediate part; *pr*, posterior ridge; *r*, receptacle; *sl*, sensorial lobe; *sp3*, metathoracic spiracle; *spII*, second abdominal spiracle; *v*, vesica; *vpc*, ventral conjunctival process. All scales 1 mm, except fig. 6-7 (0.5 mm).

slightly shorter than II, gradually widening towards apex, segment IV fusiform and slightly longer than II, pilosity very short, semi-erect, dense; labium short, 4-segmented, extending to about the middle of the mesosternum; segment I surpassing bucculae posteriorly, segment II about as long as III+IV.

Pronotum about twice as wide as long; anterior margin deeply concave, emarginate below head, shorter than posterior margin; lateral margin almost straight, narrowly carinate; lateral angles anteriorly produced, their apices level with the middle of the head; cicatrices distinct; posterior margin convex; pronotal disc highest along its posterior margin, declivous towards anterior margin; numerous transverse wrinkles on the disc becoming longitudinal on the anterior lobes, coarse punctures in the bottom of wrinkles.

Scutellum triangular, wider than long, elevated basally, disc not or scarcely wrinkled, punctuation variable, dense and coarse on the most punctate specimens, with smooth areas on the lighter punctate specimens.

Hemelytra almost reaching or slightly surpassing apex of the abdomen, finely punctate, membrane with about 12-20 longitudinal veins originating from four to six basal cells, subdivided in some specimens.

Ventral side of thorax. Prosternum anteriorly deeply emarginated, medially longitudinally sulcate. Mesosternum for half its length centrally grooved between two elevated keels. Metasternal process elevated, surface wrinkled and punctate, narrowed and rounded anteriorly, straight posteriorly, with margins curved from center to base. Metathoracic scent gland ostiole (fig. 3) with a somewhat elongated, straight, curved peritreme, extending on one fourth of the metapleural width, evaporatoria small, restricted to metasternum, elongate, extended from the apex of peritreme to the metasternal spiracle.

Legs pilosity short, dense and semi-erected; femora thick, unarmed; tibiae prismatic, furrowed above, protibiae 3-carinate, continuously widening towards the apex; tarsi three-jointed, arolia rounded, first segment with a brush of adhesive hairs on the ventral side.

Abdomen. Third abdominal segment centrally elevated and reaching the base of the metasternum; spiracles of the basal ventral segment exposed; venter with a distinct central ridge. Connexivum (fig. 4) sinuous, laterotergites partially visible from above from third abdominal segment, posterior angle of segments sharply marked but very slightly prominent; 7th ventral and dorsal laterotergites almost of the same size, connexival groove visible from above, but very close to abdomen margin, apex acuminate, surpassing the end of the abdomen.

Male genitalia. Pygophore (fig. 5) widening posteriorly, posterior margin polygonal, with a rounded shallow medial indentation, with an elevated ridge posterad to the parameres; apophysis of parameres (fig. 6-7) regularly curved inwards, but small, sensorial lobe small, rounded, fitted with long setae, about half long as the width of the stem of the parameres; phallosoma (fig. 8) fitted with two sclerotized plates, conjunctiva fitted with three pairs of processes, one sclerotized in ventral position, another pair in antero-ventral position, bilobate, the anterior lobe sclerotized on its dorsal side, the other membranous, closely applied on the conjunctiva surface, the third one membranous, in postero-dorsal position; vesica long, ejaculatory reservoir strongly curved at base.

Female genitalia. External genitalia as in fig. 9; spermatheca (fig. 10) of the common tessaratomine type, ductus proximal gradually tapering forward, somewhat longer than the distal ductus, intermediate part (fig. 11) fitted with two well-developed flanges, receptacle ovoid, connected to the intermediate part by a conical multi-swelled neck, slightly longer than the intermediate part.

Measurements (mm). – Males (3 specimens), mean (min-max): length 17.4 (16.7-18.6); width 10.4 (10.2-10.8); pronotum length 4.8 (4.6-4.9); pronotum width 9.9 (9.4-10.5); scutellum length 3.9 (3.8-4.3); antenna length 5.8 (5.5-6.3); mean length of antennomeres A1 0.65, A2 1.7, A3 1.41, A4 2.1; ocular index 2.3 (2.1-2.4); interocellar index 4.3 (3.6-5.1); ocellar index 3.3 (2.4-4).

Females (8 specimens), mean (min-max): length 22.4 (21.0-23.1); width 12.9 (12.6-13.2); pronotum length 6.9 (6.4-7.0); pronotum width 11.5 (11.2-11.9); scutellum length 5.0 (4.5-5.4); antenna length 6.7 (6.5-7.0); mean length of antennomeres A1 0.9, A2 1.9, A3 1.85, A4 2.05; ocular index 3.9 (2.2-5.6); interocellar index 6.7 (4.7-9.0); ocellar index 3.9 (2.2-5.6).

Derivatio nominis. – The new species is named in honor of our colleague and friend François Dusoulier, in recognition of the work he has done to improve the knowledge of Pentatomoidea.

Distribution. – *Pseudopycanum dusoulieri* n. sp. is known only from its type locality: Indonesia, Borneo, West Kalimantan province, Mount Bawang, 245 m, 0°53.5'N - 109°22.2'E.

Biology. – Host plant unknown. The various specimens have been captured from May to November.

Discussion

At a first look, the placement of this species has been somewhat problematic. The only existing key (Kumar & Ghauri, 1970) for the subtribe Eusthenina, to which it evidently belongs, leads to a dead end. With the combined length of head, pronotum and scutellum being slightly longer than pronotum width, the new species should belong to a group of genera comprising *Eusthenes* Laporte, 1833, *Mattiphus* Amyot & Serville, 1843, and *Origanaus* Distant, 1893. Apart from the general shape of the new species which does not look like any of those, the small length of legs, shape of male parameres and of proximal ductus of the spermatheca are really different from those of *Eusthenes* and *Mattiphus*. On the other hand, the penis, fitted with three conjunctival processes, versus only two for *Origanaus* as well as the shape of the proximal ductus of the spermatheca, do not allow the placement of this species in any of these genera.

A closer look at Kumar & Ghauri's key makes it clear that they have had some problems to make a real dichotomy; they had to make some exception to the compared length criteria to include *Pseudopycanum* and *Sanganus* in their first group of genera. A rapid comparison of the external look leads to three possibilities in this group, *Carpona* Dohrn, 1863, *Sanganus* and *Pseudopycanum*. Because of the length of its legs, its curved posterior tibiae, the lack of prosternal carina, the shape of the parameres as well as of the proximal ductus of the spermatheca, *Carpona* has to be discarded. *Sanganus* displays, on the external aspect, apart from the general shape, some differences as the position of the connexival groove on the 7th laterotergites (H. Kallenborn, pers. comm.), the greater slenderness of antennae, the lack of prosternal carina and the presence of a small evaporatorial field on the mesosternum. In the genitalia, the presence of a fourth (ventral) conjunctival process, the shape of the parameres and the swollen proximal ductus of the spermatheca also forbid the placement of the new species. That leaves only *Pseudopycanum* as a possibility.

On the contrary, apart from the development of the pronotal lobes in *P. dusoulieri* and of the laterotergites in *P. nigromarginatum*, there are more similitudes than differences between the two species. Peculiarly the limitation of evaporatorial fields to the metasternum, the unarmed femora, the shape of the conjunctival processes of the penis or the shape of the parameres are characters of generic significance shared by both species. These are the ascertainments which lead us to attribute the new species to the genus *Pseudopycanum*.

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