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Abstract

A new species of the genus *Paricanoides* Liang, 2003 (Tropiduchidae), *Paricanoides bresseeli* **sp. nov.** is described from Tam Dao National Park, North Vietnam and compared with the two species hitherto described in the genus, *Paricanoides orientalis* Liang, 2003 and *Paricanoides dalatensis* Liang, 2003. A key to the species of the genus is given. *Habitus*, details and male genitalia are illustrated. A distribution map for the three species of the genus is provided.

Keywords: Global Taxonomic Initiative, Tonkin, Planthopper, Fulgoroidea, Malaise trap.

Introduction

LIANG (2003) described the genus *Paricanoides* in the tribe Paricanini Melichar, 1914 (Tropiduchidae) to accommodate two new species: *P. orientalis* Liang, 2003 from Hainan Island (South China) and Northern Vietnam and *P. dalatensis* Liang, 2003 from Central Vietnam.

The placement of the genus in the tribe Paricanini defined by MELICHAR (1914) was based on characters of the venation of the tegmina, the shape of the head and antennae and the number of lateral spines of the metatibiae, following the tribal classification of the Tropiduchidae proposed by FENNAH (1982). The tribe Paricanini comprises 4 genera distributed in the Oriental region: *Pericana* Walker, 1857, *Leusaba* Walker, 1857, *Stacota* Stål, 1859 and *Paricanoides* Liang, 2003.

Study of material collected in 2011 in Tam Dao National Park during fieldwork in the frame of the Global Taxonomic Initiative project “A step further in the Entomodiversity of Vietnam (Part II)” by the authors revealed a third *Paricanoides* species, which is here described.

The current nomenclature of the different mentioned taxa are documented in FLOW (BOURGOIN, 2014).

Materials and methods

The measurements were taken as in CONSTANT (2004) and the following acronyms are used: BF—breadth of the frons, BTg—breadth of the tegmen, BV—breadth of the vertex, LF—length of the frons, LT—total length, LTg—length of the tegmen, LV—length of the vertex.

Photographs were taken with a Canon EOS 300D camera equipped with a Tamron DI SP 90 mm Macro lens, and processed in Adobe Photoshop CS3 software. Observations were done with a Leica MZ8 stereo microscope.

The type of the new species is deposited in the collections of the Royal Belgian Institute of Natural Sciences, Brussels, Belgium (RBINS).

Taxonomy

Family **Tropiduchidae** Melichar, 1898

Tribe **Paricanini** Melichar, 1914

Genus *Paricanoides* Liang, 2003

Paricanoides LIANG, 2003: 362. Type species: *Paricanoides orientalis* Liang, 2003 (by original designation).

We follow here the definition of the genus and the tribal placement in the Paricanini Melichar, 1914 given by LIANG (2003).

The genus shows also similarities with the tribe Isporisini Fennah, 1982 not only in the shape of the antennae and the number of lateral spines on the metatibiae as mentioned by LIANG (2003), but also in the shape of the male genitalia (see also LIANG & WANG, 2008; WANG *et al.*, 2008; CONSTANT, 2010; CONSTANT & PHAM, 2013). However, the current lack of any phylogenetic analysis of the Tropiduchidae does not allow us to propose any well-supported change in the tribal attribution (see also WANG *et al.*, 2013).

Identification key to the species of *Paricanoides*

- 1 No strong basal process on periandrium on right side 2
- Strong basal process on periandrium curved dorsoposterad on right side (Fig. 2 D)
..... *P. bresseeli* sp. nov.
- 2 Processes of periandrium projecting dorsally (see LIANG, 2003: Figs 23-24)
..... *P. orientalis* Liang, 2003
- Processes of periandrium strongly curved anterodorsally (see LIANG, 2003: Figs 32-33)
..... *P. dalatensis* Liang, 2003

Paricanoides bresseeli sp. nov.

Figs 1 A–E, 2 A–E, 3

ETYMOLOGY. The species epithet refers to our colleague and friend Mr Joachim Bresseel (collaborator, RBINS), specialist of *wandelende takken* (Phasmatodea).

TYPE MATERIAL. Holotype ♂ (dissected, right hind wing mounted): Vietnam: [Coll. I.R.Sc.N.B., Vietnam, Tam Dao N.P., 21°31'N 105°33'E, 25-30.VII.2011, Malaise trap, Leg. J. Constant & J. Bresseel, I.G.: 31.933, GTI project] (RBINS)

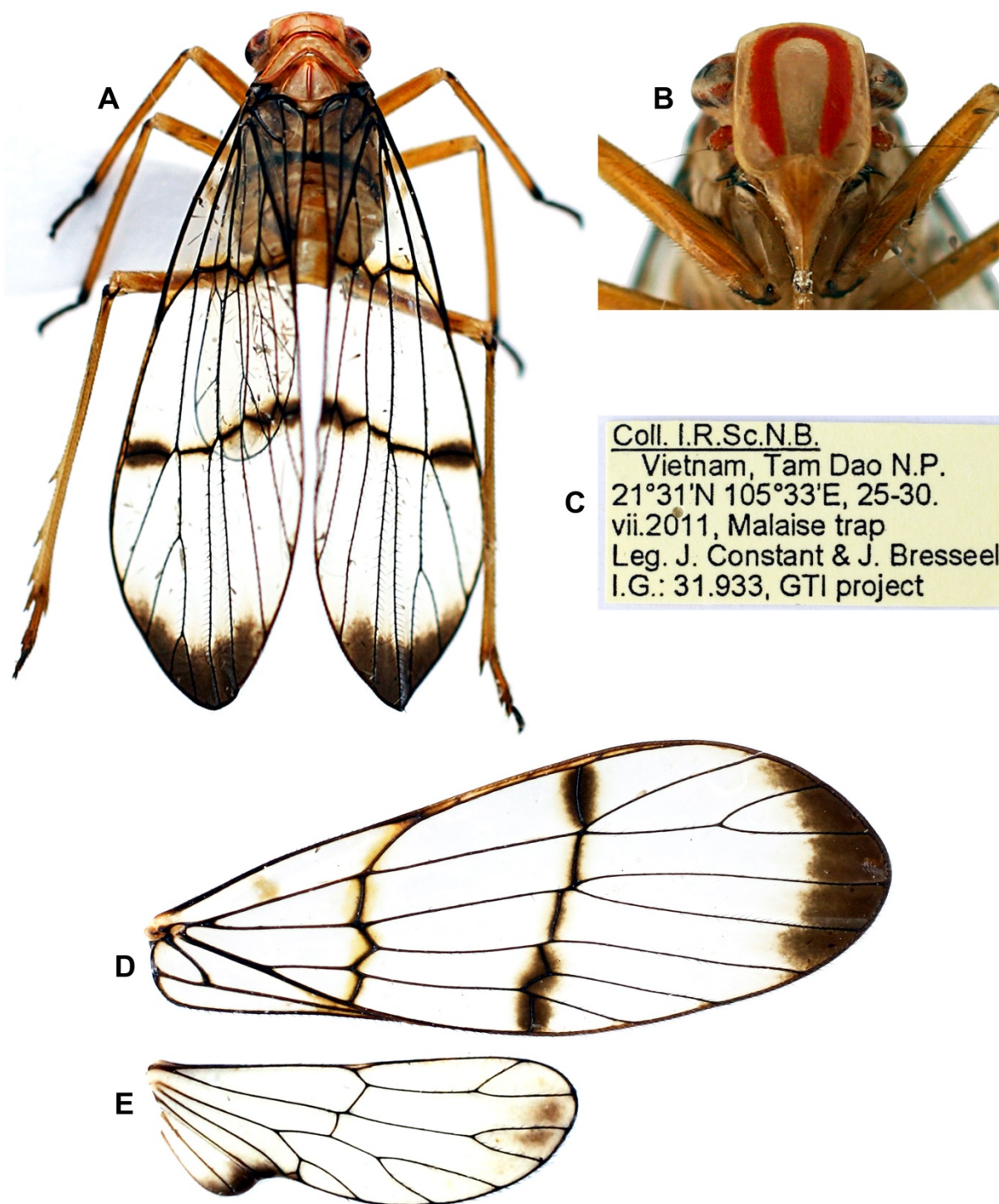


Fig. 1 A-E. *Paricanoides bresseeli* sp. nov., holotype, total length: 13.3 mm. A, habitus, dorsal view. B, head, normal view of frons. C, labels. D, right tegmen. E, right posterior wing (photographs J. Constant).

DIAGNOSIS. The species is easily separated from *P. orientalis* and *P. dalatensis* by the shape of the male genitalia, especially by the presence of a strong basal process on the periandrium in right lateral view. It is also different from *P. orientalis* by the darker infuscation of the lines of cross-veinlets on the tegmina and by the stronger emargination of the sutural margin of the hind wing.

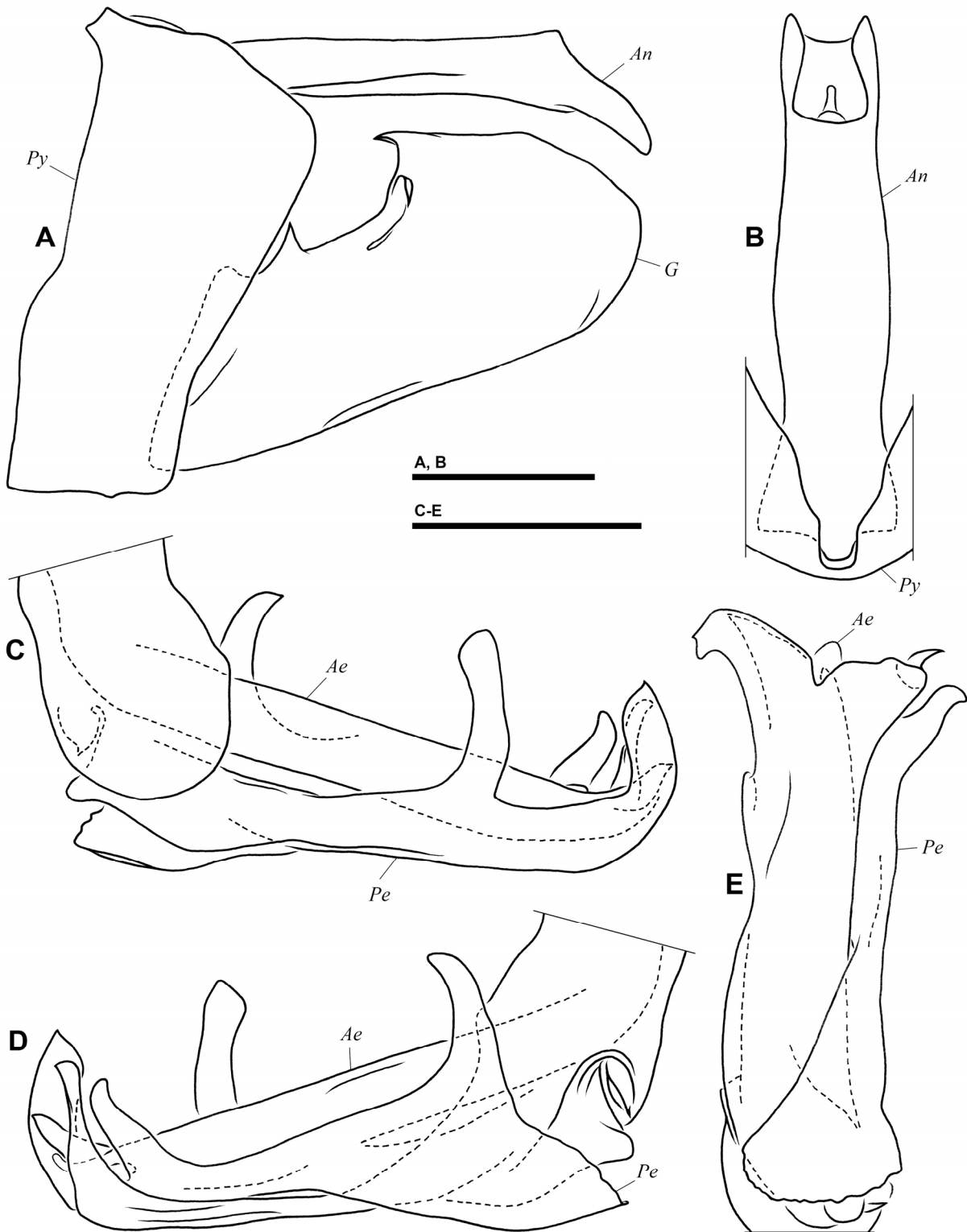


Fig. 2 A-E. *Paricanoides bresseli* sp. nov., holotype, male genitalia. A, pygofer, anal tube and gonostylus, left lateral view. B, anal tube and pygofer, dorsal view. C, phallic complex, left lateral view. D, phallic complex, right lateral view. E, phallic complex, ventral view. *An*: anal tube; *Ae*: aedeagus; *G*: gonostyli; *Pe*: periandrium; *Py*: pygofer. Scale 1 mm.

DESCRIPTION.

Measurements and ratios (σ ; n = 1): LT = 13.3 mm; LTg/BTg = 2.5; BV/LV = 5.63; BF/LF = 1.03.

Head. (Fig. 1 A-B) pale yellow-brown with horseshoe-shaped red marking on disc of frons, antennae pale red and brown markings along sides of clypeus and postclypeus. Vertex concave and transverse, much wider than long in median line; anterior margin rounded, posterior margin excavate; all margins carinate, posterior slightly laminate. Frons slightly convex in lateral view, smooth, subquadrate. Clypeus about as long as frons, slightly carinate apically. Labium reaching mesotrochanters shorter than clypeus with apical segment 2/3 as long as penultimate. antennae with scape very short and pedicel cylindrical, 1.5 times longer than broad.

Thorax. (Fig. 1 A) pronotum pale yellow-brown with anterior margin rounded, narrowly ridged and black; peridiscal carina red, disc smooth and concave without median carina; posterior margin strongly concave, elevated and broadly red-brown; lateral lobes brown near tegulae and narrowly black-brown along ventral margin. Mesonotum with lateral carinae joining anteriorly and median carina not joining the latter and not surpassing scutellar suture; lateral and median carinae reddish; scutellar suture slightly carinate; lateral angles infuscate; tegulae black brown, narrowly yellow-brown along ventral margin; sides of mesothorax pale yellow-brown with black-brown line. Metanotum pale yellow-brown with posterior margin black; lateral pleura of metathorax with oblique black-brown marking.

Tegmina. (Fig. 1 D) elongate, hyaline with black veins; pale brown marking in middle of basocostal cell; anterior line of cross-veinlets bordered with pale brown; posterior line of cross-veinlets bordered with black-brown, more broadly so close to costal and sutural margins; posterior margin broadly bordered with black-brown in apical cells 2-7. Cross-veinlets of posterior line aligned. 5 subapical and 9-10 apical cells.

Hind wings. (Fig. 1 E) hyaline with veins black; sutural margin strongly emarginate near anal lobe; apical cells 2-3 infuscate along apical margin; sutural margin broadly marked with black brown on anal lobe and emargination.

Legs. (Fig. 1 A) very elongate, narrow, pale yellow-brown. All trochanters marked with brown. Metafemora brown ventrally. All tibiae with basolateral black spot; pro- and mesotibiae black-brown apically. Pro- and mesotarsi and last metatarsomere dark brown. Metatibiae with 3 lateral spines on posterior half and 6 apical spines; spines black apically. First metatarsomere elongate, ventrally with 6 apical spines black at apex.

Male genitalia. pygofer narrow, slightly broader on dorsal 2/3 and with posterior margin sinuate in lateral view (Fig. 2 A); posterior margin strongly emarginate dorsally (Fig. 2 B). Anal tube elongate and narrow, slightly curved ventrad on apical half in lateral view (Fig. 2 A); apical margin strongly emarginate and lateral margins slightly bisinuate in dorsal view (Fig. 2 B). Gonostyli (Fig. 2 A) elongate with apex rounded; dorsal margin strongly excavate on basal half, excavation marked posteriorly by hooked process directed anteriorly, and showing subbasal tooth pointing dorsally; small lateral hook pointing ventrally under median hooked process. Aedeagus elongate and narrow, membranous apically and with apical sclerotized process projecting posterodorsally (Fig. 2 A-C). Periandrium strongly asymmetrical with laminate processes; two processes on right side (Fig. 2 D), basal one curved dorsoposterad and subapical one projecting posterodorsad; on right side (Fig. 2 D-E), additional apical process coming from left part of periandrium and projecting dorsolaterad; on left side (Fig. 2 C) two processes on apical half, curved anterodorsad, apical one slightly pointed apically.

BIOLOGY. The holotype was collected with a Malaise trap in moist evergreen mountain forest (ca 1000 m asl.).

DISTRIBUTION. Recorded from Northern Vietnam (Fig. 3).

Discussion

All recorded specimens of the genus *Paricanoides* have been collected at an altitude between 500 and 1500 m asl. (see LIANG, 2003 for data of *P. orientalis* and *P. dalatensis*) in tropical mountain evergreen forest.

As we recently mentioned (CONSTANT & PHAM, 2014), Malaise traps are an efficient way to collect Fulgoromorphs and should be more intensively used by hemipterists. They often allow the collecting of very interesting species.

The new species described in the present paper has been found in Tam Dao National Park, Vietnam. LIANG (2003) described *P. orientalis* from Hainan Island and Mt Bavi (Vietnam). Tam Dao is just about 50 km away from Mt Bavi and it is unclear from the original description if the male genitalia of the Vietnamese paratypes of *P. orientalis* were verified. The illustrations of a Hainan and a Bavi specimen of *P. orientalis* (LIANG, 2003: Figs 2 and 3 respectively) in the same paper also showed that the Bavi specimen has more extended and darker infuscation along the cross-veinlets. Those two paratypes would probably deserve verification. Another female specimen from Blao (Balao) Vietnam was also mentioned and illustrated (LIANG, 2003: Fig. 4). It is paler in colour and shows differences in the venation of the tegmina. It was wisely not listed as a paratype and may represent another undescribed species. The location is not shown on the map Fig. 3 because of the uncertainty of its placement: LIANG (2003) states that it is in Tonkin (Northern Vietnam) but it seems that it could actually be in Lam Dong province, not far from Da Lat.

Considering the currently known distribution of the genus (Fig. 3), it seems probable that several new species of *Paricanoides* still await discovery. More sampling effort is necessary to provide additional material and also improve our knowledge on the ecological needs of those insects.

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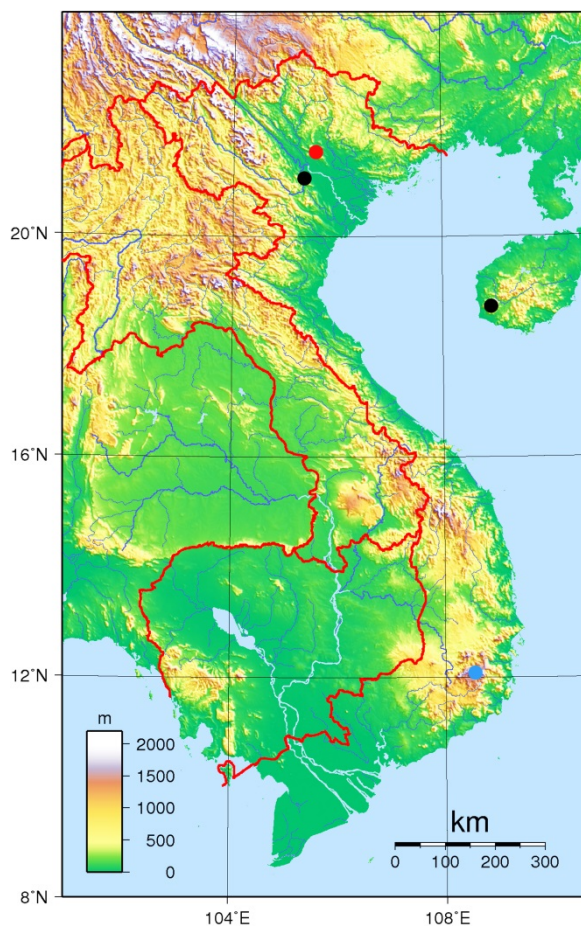


Fig. 3. Distribution map of the species of *Paricanoides*.

●: *Paricanoides bresseeli* sp. nov. ●: *Paricanoides dalatensis* Liang, 2003. ●: *Paricanoides orientalis* Liang, 2003

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