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Two new species of *Hemisphaerius* from Vietnam (Hemiptera, Fulgoromorpha, Issidae)

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Abstract.– Two new species of *Hemisphaerius* Schaum, 1850 (Hemiptera: Fulgoromorpha: Issidae) are described from Southern Vietnam: *H. cattienensis* and *H. hippocrepis*. The male genitalia are illustrated and photos of habitus, distribution map and biological data are provided.

Résumé.– Deux nouvelles espèces nouvelles d'*Hemisphaerius* Schaum, 1850 (Hemiptera, Fulgoromorpha, Issidae) sont décrites du sud du Vietnam. Les genitalia mâles sont illustrés et des photos d'habitus, une carte de distribution et des données biologiques sont fournis.

Keywords.– Fulgoroidea, Oriental region.

Introduction

Four species of the Issidae genus *Hemisphaerius* Schaum, 1850 are presently reported from Vietnam: *H. bipunctatus* Melichar, 1906, *H. lygaeus* Melichar, 1906, *H. lysanias* Fennah, 1978 and *H. palaemon* Fennah, 1978. Among the Issidae collected by the second author, two species from South Vietnam appear to be undescribed. This paper deals with the description of those species.

Materials and methods

The dissection of the genitalia was done after boiling the abdomen for about one hour in a 10% solution of potassium hydroxide (KOH). The pygofer was then separated from the abdomen and the aedeagus extracted using thin forceps and a needle blade. Contrasting with alcoholic solution of Chlorazol Black was done when necessary. The whole was then placed in glycerin under the specimen. The genitalia of all the males have been checked. Hind wings have been mounted for a number of specimens: they have been glued on transparent plastic rectangles with water-soluble Hoyer's liquid.

The genitalia are figured. A distribution map produced by the software *CFF 2.0* (BARBIER & RASMONT, 2000) and photos of habitus are provided.

All holotypes and paratypes bear red manuscript labels of the following type [Holotype/Paratype ♂/♀ *Hemisphaerius cattienensis* n. sp., Constant & Pham det. 2011].

The few indications about the biology of the species are given.

The following acronyms are used for the measurements (measurements are taken as in CONSTANT, 2004): BF, breadth of the frons – BT, breadth of the thorax – BTg, breadth of the tegmina – BV, breadth of the vertex – LF, length of the frons – LM, length of the mesonotum – LP, length of the pronotum – LT, total length – LTg, length of the tegmina – LV, length of the vertex.

Acronyms used for the collections (names of the curators in parentheses).

IEBR Institute of Ecology and Biological Resources, Hanoi, Vietnam (H.T. Pham).

RBINS Royal Belgian Institute of Natural Sciences, Brussels, Belgium (P. Grootaert).

Abbreviations are as follows

NP (National Park), NR (Natural Reserve).

Taxonomy

***Hemisphaerius cattienensis* n. sp. (**figs. 1-6, 14, 15-18).

Material examined: HOLOTYPE ♂: [Coll. I.R.Sc.N.B., Cat Tien NP, Dong Nai, 13.v.2007, 100-150m, leg H.T. Pham] (RBINS). 2 Paratypes (1 ♂, 1 ♀): 1 ♂: [Cat Tien NP, Dong Nai, 19.v.2007, 100-150m, leg H.T. Pham] (IEBR); 1 ♀: [Coll. I.R.Sc.N.B., Cat Tien NP, Dong Nai, 24.iv.2007, 100-150m, leg H.T. Pham] (RBINS).

Description. LT: ♂ (n = 2): 4.5 mm; ♀ (n = 1): 4.8 mm.

Head: vertex pale yellow, with two brownish black spots along fore margin (fig. 16); frons pale yellow with two longitudinal broad black-brown lines; clypeus dark brown, with sides and narrow median line pale yellow (fig. 18); labium brown; antennae brown; ratio BV/LV = 1.6-1.8; BF/LF = 0.85.

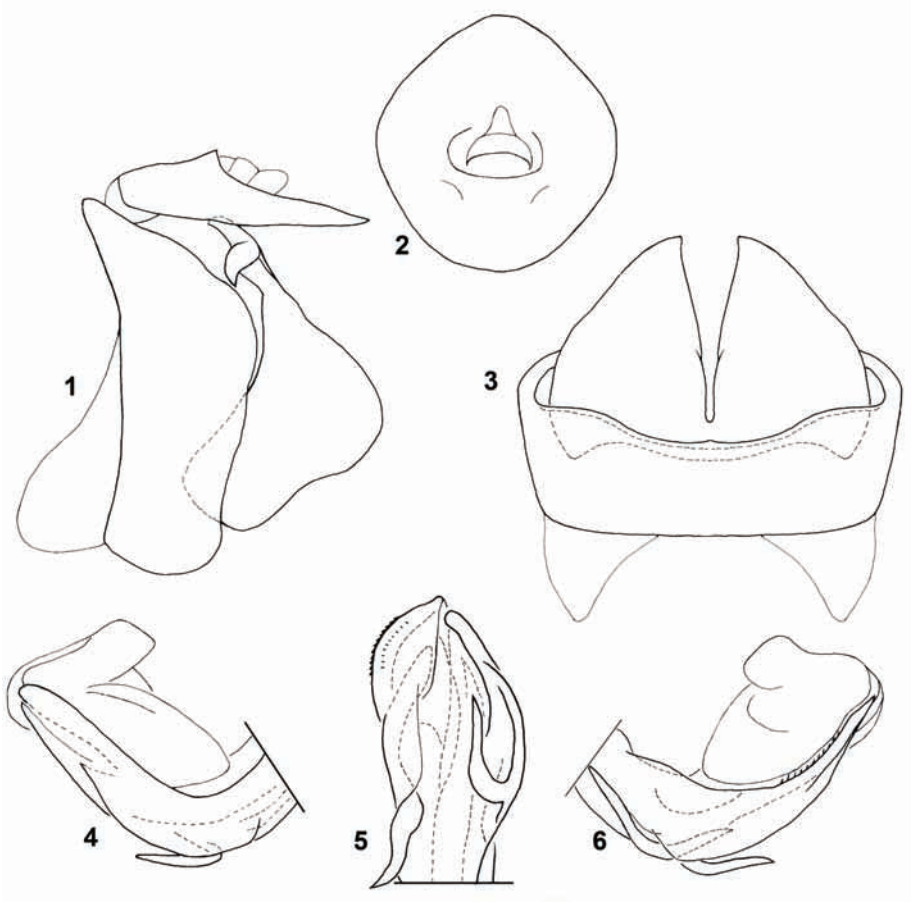
Thorax: pronotum pale yellow, anterior margin black, with two brown spots (fig. 15); sides of prothorax pale yellow with posterior half black (figs. 16, 18); mesonotum pale yellow with three light brown stripes (fig. 15), tegulae black (fig. 15); ratio LP+LM/BT = 0.7.

Tegmina: pale yellow with concentric black lines following veins (fig. 15); external margin with narrow black line which gets broader near apex; large elongate black spot at shoulder parallel to external margin; large yellow spot near base (fig. 16); three irregular black spots on disc, following nodal line; cross veinlets slightly visible as pale brown lines(figs. 15, 16); ratio LTg/BTg = 1.5-1.6.

Hind wings: strongly reduced pale brown, roundly pointed at apex (fig. 17).

Legs: all legs pale yellow with markings as follows: anterior and median tibiae with longitudinal carina black – brown; anterior and median femora ventrally with black-brown lines along lateral

margin; and median suffused brown line, hind femora infuscate with spines black; hind femora ventrally with two broad brown longitudinal lines.



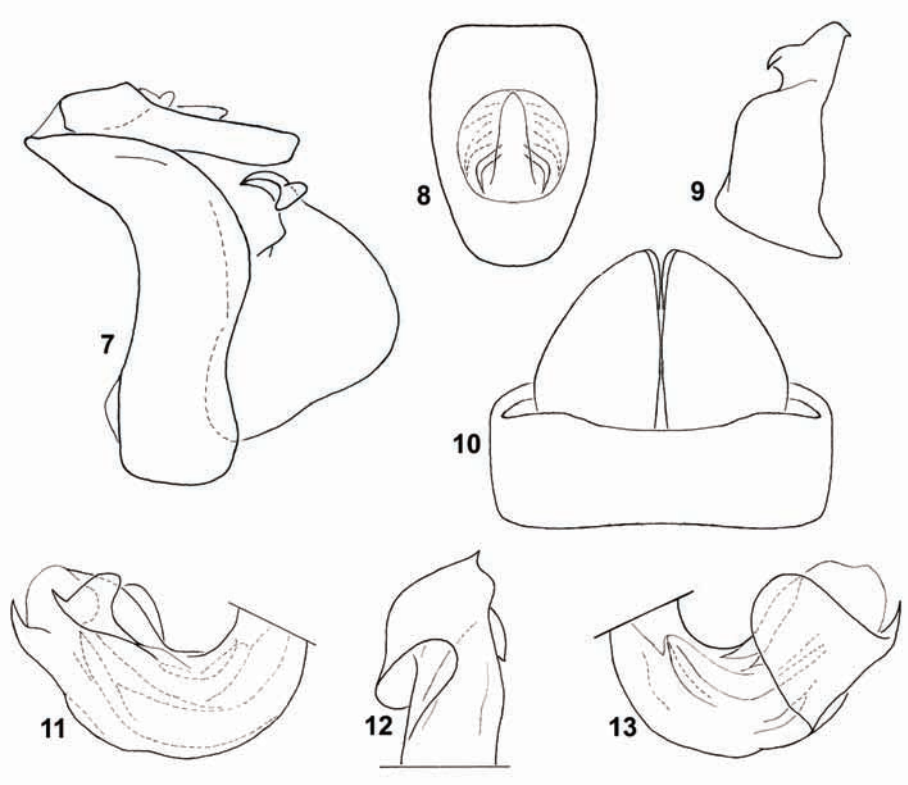
Figs. 1-6.– *Hemisphaerius cattienensis*, genitalia ♂: 1.– pygofer, anal tube and gonostyli, left lateral view; 2.– anal tube, dorsal view; 3.– pygofer and gonostyli, ventral view; 4.– phallic complex, right lateral view; 5.– phallic complex, postero-ventral view; 6.– phallic complex, left lateral view. Scale 1mm.

Abdomen: abdomen pale brown.

Genitalia ♂: pygofer higher than long, narrowing dorsally (fig. 1); anal tube dorso-ventrally flattened, suboval (figs. 1-2); gonostyli fused basally, rounded apically in lateral view, with elongate dorsal process bearing 2 apical teeth, one directed antero-dorsad and one directed laterad (fig. 1); phallic complex (figs. 4-6) showing 2 spines ventrally, one directed forward, the other backward; pre-apical row of spines on left side margin.

Etymology. The species name refers to the locality of origin of the specimens.

Biology. This species has been collected in Southern Vietnam (fig. 14) by sweeping during daytime in the virgin rainforest at altitude between 100 to150 meters.



Figs. 7-13.– *Hemisphaerius hippocrepis*, genitalia ♂: 7.– pygofer, anal tube and gonostyli, left lateral view; 8.– anal tube, dorsal view; 9.– left gonostylus, posterior view; 10.– pygofer and gonostyli, ventral view; 11.– phallic complex, right lateral view; 12.– phallic complex, postero-ventral view; 13.– phallic complex, left lateral view. Scale 1mm.

***Hemisphaerius hippocrepis* n. sp. (**figs. 7-13, 14, 19-22).

Material examined: HOLOTYPE ♂: [Coll. I.R.Sc.N.B., Ma Da-Vinh Cuu NR, Dong Nai, 17.v.2007, 60m, leg. H.T. Pham] (RBINS)

Description. LT: ♂ (n = 1): 4.2 mm.

Head: pale brown, vertex with longitudinal slight carina in middle line (fig. 19), frons pale brown; clypeus black (fig. 22), labium and antennae pale brown; ratio BV/LV = 2.6; BF/LF = 1.08.

Thorax: pronotum pale brown smooth with anterior margin carinate; sides of prothorax black on ventral half; mesonotum pale brown, smooth (fig. 19); ratio LP+LM/BT = 0.9.

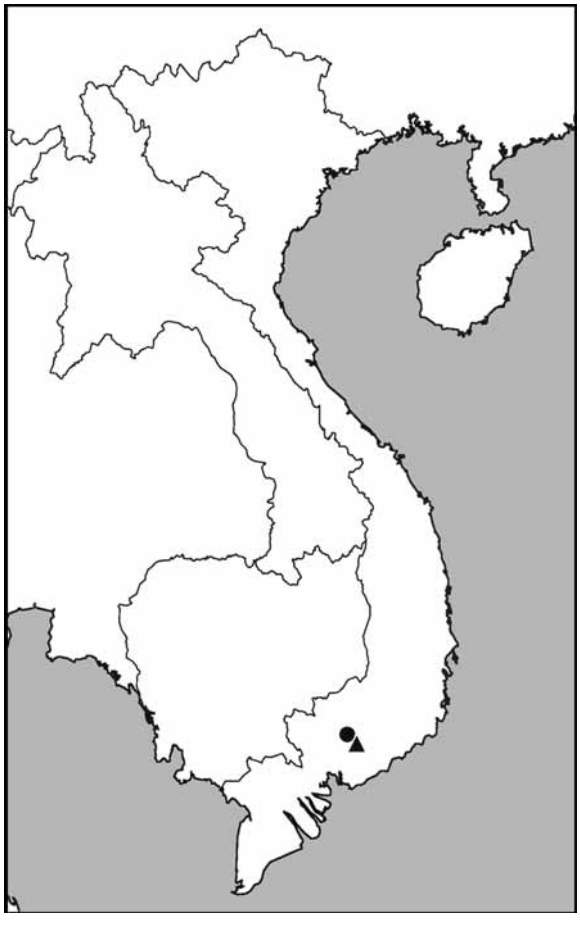


Fig. 14.– Distribution of *Hemisphaerius cattienensis* (●) and *H. hippocrepis* (▲) in Vietnam.

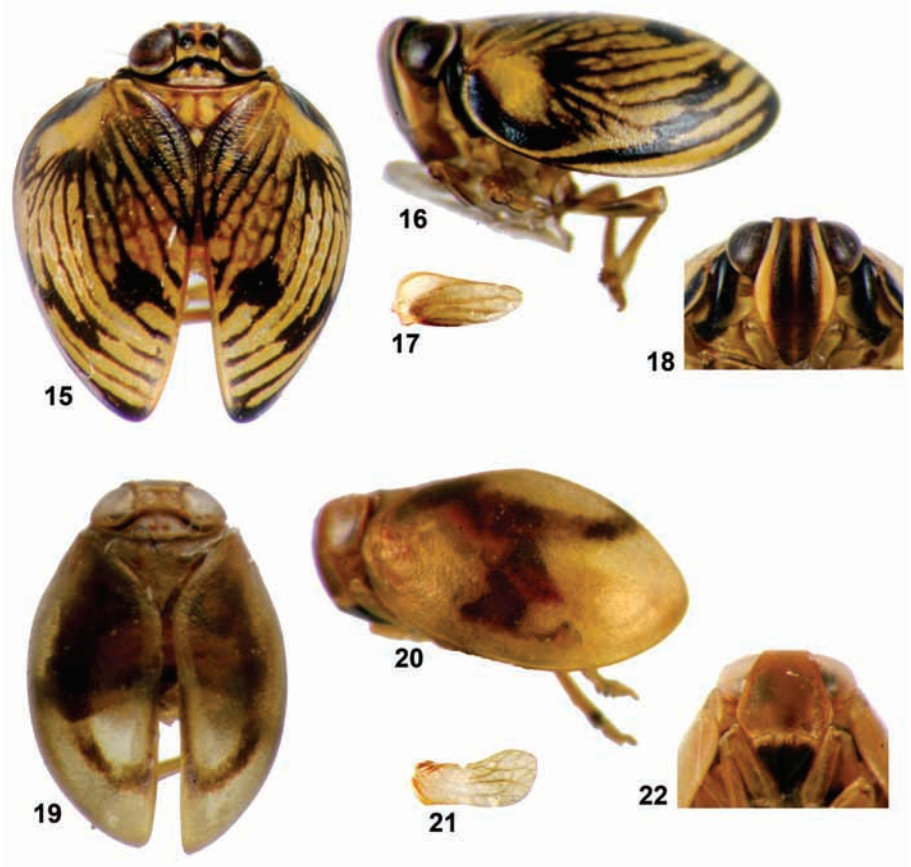
Tegmina: pale brown, with external margin slightly paler; and with curved dark brown line on disc, extending from base of claval area, reaching sutural margin at about 2/3 then narrowly extending cephalad along margin (fig. 19-20); ratio LTg/BTg = 1.8.

Hind wings: strongly reduced, rounded at apex, pale brown (fig. 21).

Legs: pale brown, fore and middle coxae black on apical half, apex of fore and middle tarsi black, hind coxae brown; hind tibia with external margin black brown; lateral and apical spines of hind tibiae with apex black brown, spines hind tarsi black brown.

Abdomen: red brown.

Genitalia ♂: pygofer curved in lateral view, narrowing dorsally (fig. 7); anal tube longer than broad, with apex cut straight, dorso-ventrally flattened (fig. 8); gonostyli rounded apically in lateral view, fused basally, with dorsal process bearing apical spine curved cephalad and lateral laminate process rounded apically (figs. 7, 9-10); phallic complex with folded laminate process ventraly extending on left side and 2 spinose processes near apex on right side (figs. 11-13).



Figs. 15-22.– *Hemisphaerius* spp.: 15-18.– *H. cattienensis*: 15.– habitus, dorsal view; 16.– habitus, left lateral view; 17.– right hind wing; 18.– frons, normal view. 19-22.– *H. hippocrepis*: 19.– habitus, dorsal view; 20.– habitus, left lateral view; 21.– right hind wing; 22.– frons, normal view.

Etymology. *hippocrepis* means "horseshoe". The name refers to the shape of the brown markings on the disc of the tegmina.

Biology. This species has been collected in Southern Vietnam (fig. 14) by sweeping during daytime in the secondary forest at altitude of 60 meters.

Discussion

Most of the 87 known species belonging to the genus *Hemisphaerius* are distributed in the Oriental region, the other ones being reported from Australian region.

The above additions now recognize 6 species of the genus *Hemisphaerius* as occurring in Vietnam: *H. bipunctatus* Melichar, 1906, *H. lygaeus* Melichar, 1906, *H. lysanias*

Fennah, 1978, *H. palaemon* Fennah, 1978 (Metcalf, 1958, Fennah, 1978), *H. cattienensis* n. sp. and *H. hippocrepis* n. sp.

Currently, the two new species *H. cattienensis* and *H. hippocrepis* are known only from South Vietnam. Further collects are necessary to get a better knowledge of their distribution range.

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