

REVIEW OF THE GENUS *PSEUDOCORUNCANIUS* MENG, QIN ET WANG, 2020 (HEMIPTERA: FULGOROMORPHA: ISSIDAE), WITH THE DESCRIPTION OF A NEW SPECIES FROM VIETNAM

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Pseudocoruncanius Meng, Qin et Wang, 2020 (in ZHANG *et al.* 2020) is placed in the tribe Sarimini and reviewed with its relationships discussed. *Pseudocoruncanius nigrifrons* sp. n. is described from Tam Dao forest in northern Vietnam, which is the first record of the genus from mainland Asia. A key to species of the genus *Pseudocoruncanius* is given.

Key words: Issinae, key, morphology, new species, Sarimini, taxonomy.

INTRODUCTION

The genus *Pseudocoruncanius* Meng, Qin et Wang, 2020 was erected for a single species, *P. flavostriatus* Meng, Qin et Wang, 2020, described from Hainan Island of China (ZHANG *et al.* 2020). The genus was described in the subfamily Issinae Spinola, 1839 of the family Issidae Spinola, 1839 without tribal affiliation.

In the original description *Pseudocoruncanius* was considered as monotypic endemic genus of Hainan Island and similar to the monotypic genus *Coruncanius* Distant, 1916, with the type species *Coruncanius fascialis* Distant, 1916, known from southern India (DISTANT 1916, ZHANG *et al.* 2020). However, *C. fascialis* has peculiar two-lobed hind wings with rudimentary vannus and apparently belongs to another tribe (GNEZDILOV, unpublished). In fact, the only feature these two genera have in common is the wide metope (frons) which may be treated as a convergence.

In this paper, a new species of the genus *Pseudocoruncanius* from Tam Dao in northern Vietnam is described, which represents the first record of this genus from mainland Asia.

MATERIAL AND METHODS

Morphological terminology follows ANUFRIEV and EMELJANOV (1988) for head, thorax and wing venation, with clarification by GNEZDILOV and BARTLETT (2018) for forewings, and GNEZDILOV *et al.* (2014) for male genitalia. Taxonomy of the family Issidae follows GNEZDILOV *et al.* (2020, 2022).

Photographs were taken using a Canon EOS 5D Mark IV camera with Canon-MP-E-65 mm f/2,8 1-5× Macro lens and Canon Macro Twin-Lite MT-26EX-RT flash. Images were produced using Helicon Focus v. 7.6.4 and Adobe Photoshop CC 2019 software. The

genital segments of the male specimen examined were macerated in 10% KOH and placed in glycerine jelly (Brunel Micro Ltd, UK) and illustrated using a Leica MZ9.5 stereomicroscope with a camera lucida attached.

The type specimens of the species described below are deposited in the collection of the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia (ZIN).

TAXONOMY

Family Issidae Spinola, 1839

Subfamily Issinae Spinola, 1839

Tribe Sarimini Wang, Zhang et Bourgoïn, 2016

Genus *Pseudocoruncanius* Meng, Qin et Wang, 2020

Pseudocoruncanius Meng, Qin et Wang, 2020 (in ZHANG *et al.* 2020): 433.

Type species: *Pseudocoruncanius flavostriatus* Meng, Qin et Wang, 2020.

Diagnosis. Metope (frons) wide, 1.6 times wider between the eyes than long medially, with distinct median carina running from its upper margin but not reaching metopoclypeal suture and with weak sublateral carinae. Forewings elongate, slightly narrowing apically, brown to dark brown with wide white or white yellowish stripes. Hind wings with CuA_2 (posterior branch of cubitus anterior) and CuP fused apically with flattening and Pcu (postcubitus) and $A_{1,1}$ (anterior branch of first anal vein) fused medially. Aedeagus with a pair of long ventral hooks arising in its apical part and crossing over behind the phallobase within a peculiar slit-like hole of its proximal part. Female anal tube long and very narrow.

Composition. Two endemic species known from Hainan Island of China and northern Vietnam.

Note. In the original description of *Pseudocoruncanius* in Chinese, on page 433 (ZHANG *et al.* 2020) the name of the type species was erroneously given as "*Pseudocoruncanius fascialis*" insofar as the genus *Pseudocoruncanius* was confused by the authors with the genus *Coruncanius* Distant, 1916, with its type species *C. fascialis* Distant, 1916. However, already in the English translation of the Chinese description (page 603 in the same publication), the type species was listed correctly as *Pseudocoruncanius flavostriatus* Meng, Qin et Wang, 2020, which is in agreement with the illustrations and species description in the Chinese and English texts.

KEY TO SPECIES OF *PSEUDOCORUNCANIUS*

- 1 Metope (frons) yellow above clypeus. Forewings with white yellowish costal margin, without transverse yellowish white stripe between M and CuA (ZHANG *et al.* 2020, Pl. 26 a–c). Anterior margin of coryphe (vertex)

angularly produced (ZHANG *et al.* 2020, Fig. 181a, Pl. 26c). Male anal tube distinctly narrowing apically into a pointed apex (in dorsal view) (ZHANG *et al.* 2020, Fig. 181e). Total length: 7.5–8.1 mm. China (Hainan Island)

P. flavostriatus Meng, Qin et Wang, 2020

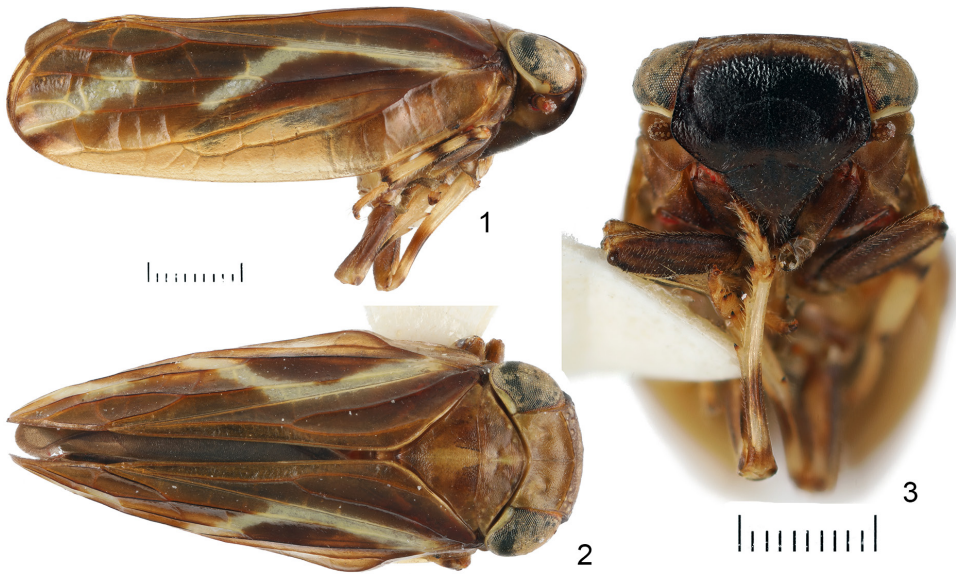
- Metope almost entirely dark brown to black (Fig. 3). Forewings with a light brown costal margin and with transverse white yellowish stripe between M and CuA (Figs 1, 2). Anterior margin of coryphe (vertex) weakly convex (Fig. 2). Male anal tube slightly narrowing apically into a wide rounded apex (in dorsal view) (Fig. 10). Total length: 6.0 mm. Northern Vietnam
P. nigrifrons sp. n.

Pseudocoruncanius nigrifrons sp. n.

(Figs 1–13)

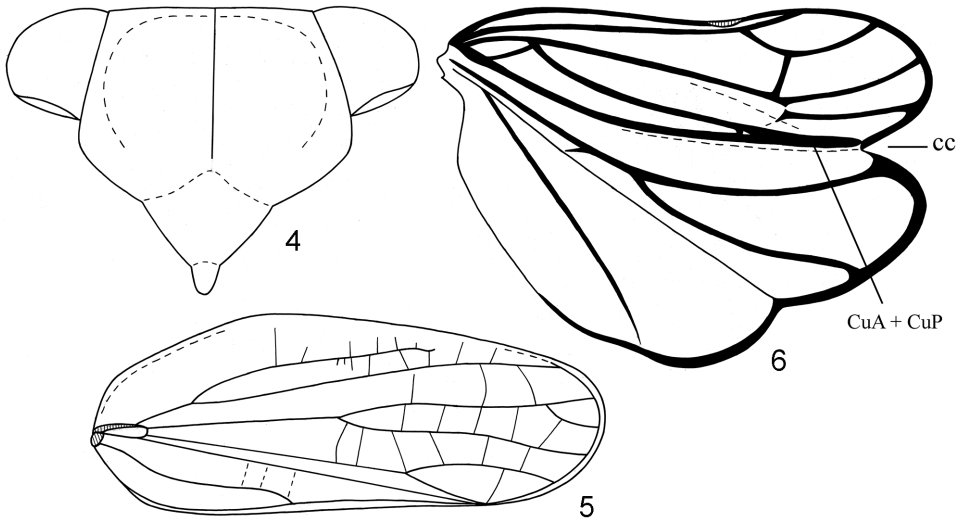
Diagnosis. Metope almost entirely dark brown to black. Anterior margin of coryphe convex. Forewings with light brown costal margin and with transverse white yellowish stripe between M and CuA. Male anal tube slightly narrowing into a wide rounded apex (in dorsal view).

Description. Structure. Metope convex, its upper part visible from above, wide, 1.6 times wider between eyes than long medially, with distinct fine median carina arising from its upper margin but not reaching metopoclypeal suture and weak sublateral carinae fused below its upper margin, strongly curved but not reaching metopoclypeal suture (Figs 2–4). Lateral margins of metope visor-shaped above the pedicels. Coryphe twice as wide as long medially, flat, without carinae, its anterior margin convex and posterior margin obtusely angularly concave (Fig. 2). Metopoclypeal suture weakly convex. Postclypeus large, flattened frontally, without carinae. Antennal pedicel elongate. Ocelli small. Rostrum reaching hind coxae, with 3rd segment nearly equal in length to 2nd segment, distinctly narrowing apically. Pronotum as long as coryphe, with weak median carina, anterior margin strongly convex, posterior margin slightly concave. Paradiscal fields of pronotum narrow, not visible behind the eyes. Mesonotum slightly longer than pronotum, with smooth median carina. Forewings narrowly oval, three times as long as wide medially (in lateral view), slightly tapering to rounded apices, with wide hypocostal plate and distinct knee prominence; basal cell narrowly oval; clavus long, $\frac{3}{4}$ of wing length (Figs 1, 5). Tegulae small. Forewing vein sequence: R 2, forked basad of knee prominence, R₁ not reaching wing margin; M 3, firstly forked near to wing middle and M₁ forked apically; CuA 2, forked before apex of clavus. Hind wings three-lobed, with coupling lobe and rudimentary membrane; remigiovannal and anal lobes equal in width, remigial lobe slightly narrower (Fig. 6). Hind wing vein sequence: R 2, forked right after coupling lobe; r-m 1; M 1; m-cua 1; CuA 2, forked in its apical third; CuP 1; Pcu 1; A₁ 2; A₂ 1. CuA₂ and CuP fused apically with flattening. Pcu and A_{1,1} fused medially. Fore and middle femora slightly flattened. Hind tibia with two lateral spines in its distal half and with eight apical spines. First and second metatarsomeres nearly equal in length, first one widest. First metatarsomere with two lateroapical and seven intermediate spines arranged in an arc. Arolium of pretarsus almost straight, nearly reaching claw apices (in dorsal view), dorsolateral plates wide.



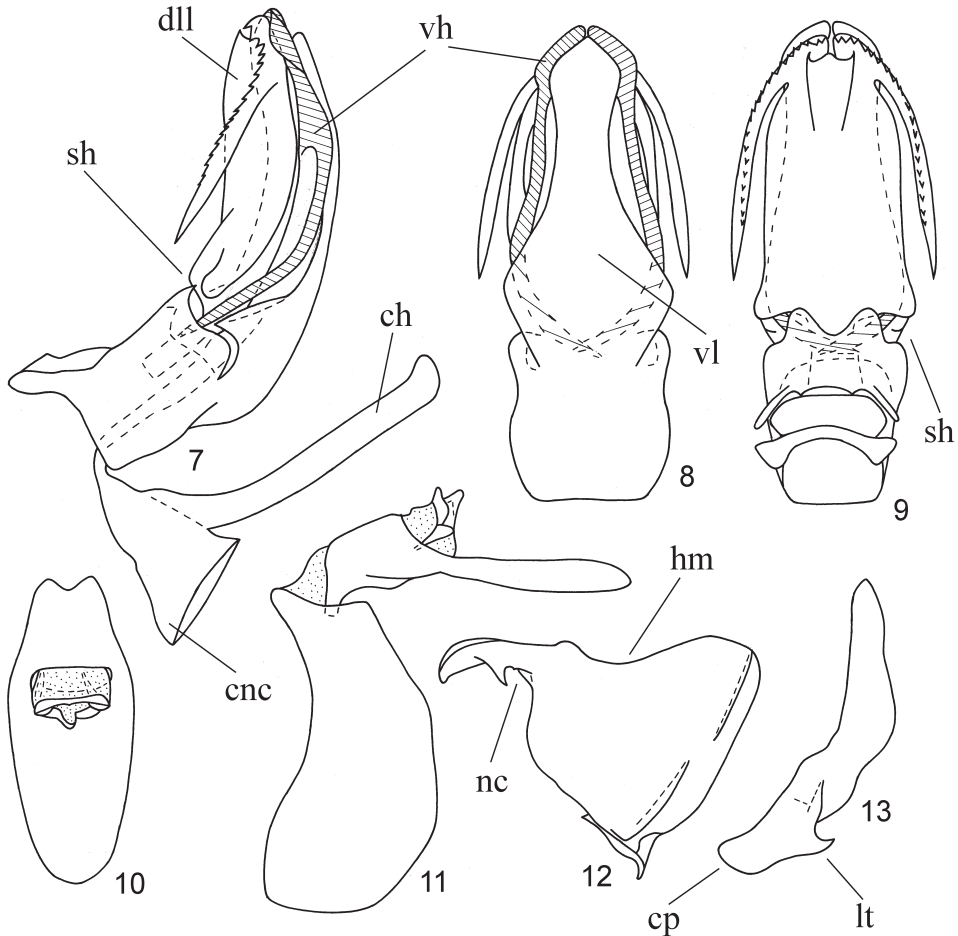
Figs 1–3. *Pseudocoruncanius nigrifrons* sp. n., holotype, external view: 1 = lateral; 2 = dorsal; 3 = frontal. Scale bar: 1 mm

Colouration. Metope dark brown to black except for narrow brown area below its upper margin, with yellow traces of larval sensory pits. Post- and anteclypeus dark brown to black. Coryphe light brown. Genae bright yellow. Postocular fields light yellow. Rostrum brown yellowish, with apex of 3rd segment black. Antennae with scapus dark brown;



Figs 4–6. *Pseudocoruncanius nigrifrons* sp. n. (4, 5 = holotype, 6 = paratype). 4 = face; 5 = forewing; 6 = hind wing. Abbreviation: cc = cubital cleft. Out of scale

pedicel brownish yellow, with light sensory organs. Pro- and mesonotum brown, with light brown yellowish median line. Pronotum with yellow traces of larval sensory pits on its anterior margin. Paranotal lobes brown to pale yellowish. Tegulae dark brown. Forewings light brown in precostal area to dark brown on main parts of corium and clavus, with a white yellowish stripe running from the basal cell along the claval suture, crossing first median fork and terminating on M_1 . Another white yellowish stripe running between M_1 and M_2 and terminating at wing apex, with $M_{1,1}$ and $M_{1,2}$ almost entirely pale yellowish. Hind wings brown to black on CuA + CuP flattening, longitudinal veins lined with dark



Figs 7–13. *Pseudocoruncanius nigrifrons* sp. n., paratype, male genitalia: 7 = penis and connective, lateral view; 8 = penis, ventral view; 9 = penis, dorsal view; 10 = anal tube, dorsal view; 11 = pygofer and anal tube, lateral view; 12 = style, lateral view; 13 = style, dorsal view. Abbreviations: ch = connective handle; cnc = connective cup; cp = capitulum of style; dll = dorsolateral phallobase lobe; hm = hind margin of style; lt = lateral tooth of capitulum of style; nc = neck of capitulum of style; sh = dorsolateral slit-like hole of proximal part of phallobase; vh = ventral aedeagal hooks; vl = ventral phallobase lobe. Out of scale

brown. Fore and middle coxae, trochanters, and femora dark brown to black. Fore and middle tibiae yellowish, with three dark brown bands – basally, medially and apically. Hind coxae and trochanters yellowish. Hind femora yellowish brown to dark brown. Hind tibiae light yellow, with a wide dark brown band above its basal part. Claws and apices of 3rd tarsomeres dark brown to black. Apices of leg spines black. Abdominal sternites and pygofer dark brown. Plates of styles predominantly light yellow, with dark brown angles.

Male genitalia (Figs 7–13). Pygofer vertically elongate, with convex hind margins (Fig. 11). Anal tube long, 2.5 times as long as wide medially, slightly narrowing to widely rounded apex (in dorsal view) (Fig. 10). Anal tube flat, without processes (in lateral view) (Fig. 11). Anal column (paraproct) short. Genital style with wide plate and concave hind margin, anterior margin strongly convex proximal to the neck of capitulum (Fig. 12, *hm*, *nc*). Capitulum wide, not narrowing apically (in dorsal view), on distinct neck, with large lateral tooth (Figs 12, 13, *cp*, *lt*). Phallobase rather narrow, slightly curved (in lateral view) (Fig. 7). Ventral phallobase lobe wide basally and distinctly narrowing apically – hastate (Fig. 8, *vl*). Dorsolateral phallobase lobes each with a long and narrow serrate subapical process directed basally (Figs 7, 9, *dll*). Phallobase proximally with a peculiar dorsolateral slit-like hole (Figs 7, 9, *sh*). Aedeagus with a pair of long and narrow ventral hooks arising in its apical part and crossing behind the phallobase within a slit-like hole (Figs 7, 8, *vh*). Apical aedeagal processus each with a semicircular lobi. Connective with wide cup and long handle (Fig. 7, *ch*, *cnc*).

Female. Unknown.

Total length: 6.0 mm.

Type material. Holotype, male, Vietnam, Vinh Phu Province, Tam Dao, 100 km NW Hanoi, 1000 m, forest, 10.XI.1990, S. A. Belokobylskij leg. (ZIN). Paratype: 1 male, same data as holotype (ZIN).

Etymology. The species is named after the black metope.

DISCUSSION

According to the hind wing structure and venation, the genus *Pseudocoruncanius* belongs to the tribe Sarimini Wang, Zhang et Bourgoïn, 2016. This tribe is distinguished by the hindwings, which are tri-lobed with the lobes nearly equal in width, by the deep cubital cleft and often with CuA (cubitus anterior) and CuP (cubitus posterior) fusing apically with flattening (Fig. 6) (WANG *et al.* 2016, GNEZDILOV *et al.* 2020). Within the tribe Sarimini *Pseudocoruncanius* is similar to *Tempsa* Stål, 1866 (GNEZDILOV 2016, Fig. 18), *Tempsarima* Chang et Chen, 2020 (in CHANG *et al.* 2020, Fig. 15), and *Parallelissus* Meng, Qin et Wang, 2020 (in ZHANG *et al.* 2020, Figs 182i, 183g) regarding the presence of long and narrow subapical processes of the dorsolateral phallobase lobes that are directed basally (Figs 7, 9, *dll*), but differ considerably by having a wide metope and simple Pcu of the hind wings (Figs 3, 4, 6). Furthermore, the unique structure of the phallobase with a peculiar dorsolateral slit-like hole in its proximal part (Figs 7, 9, *sh*), clearly separates *Pseudocoruncanius* from other Sarimini taxa.

The current description of a new species of *Pseudocoruncanius* from Vietnam is another example of the wider Oriental distribution of some issid genera originally assumed to be island endemics, such as the genus *Eusarima* Yang, 1994 (Sarimini), erected for long series of Taiwanese species and later found also in continental China, Japan, Nepal, Pakistan, and Iran (CHAN & YANG 1994, GNEZDILOV 2013, 2016), and the genera *Pseudochoutagus* Che, Zhang et Wang, 2011 (Parahiraciini) and *Neogergithoides* Sun, Meng et Wang, 2012 (Hemisphaeriini) originally described from Hainan Island and also later found in Vietnam (CHE *et al.* 2011, GNEZDILOV & CONSTANT 2012, SUN *et al.* 2012, CONSTANT & PHAM 2015).

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