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NEW CRICKET TAXA OF THE SUBFAMILIES PHALORIINAE AND PTEROPLISTINAE (ORTHOPTERA: GRYLLIDAE) FROM SOUTH-EAST ASIA

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ABSTRACT

Four new species of Phaloriinae (*Trellius barisan* sp. nov., *T. lampung* sp. nov., *T. curup* sp. nov., and *T. inquisitor* sp. nov.) and a new monobasic genus of Pteroplistinae (*Asymmetriola spinosa* gen. et sp. nov.) are described. *T. inquisitor* is from Central Vietnam and the other crickets are from Southern Sumatra, Indonesia.

Key words: new taxa, Phaloriinae, Pteroplistinae, South-East Asia, Sumatra, Vietnam

НОВЫЕ СВЕРЧКИ ПОДСЕМЕЙСТВ PHALORIINAE И PTEROPLISTINAE (ORTHOPTERA: GRYLLIDAE) ИЗ ЮГО-ВОСТОЧНОЙ АЗИИ

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РЕЗЮМЕ

Описываются 4 новых вида сверчков из подсемейства Phaloriinae (*Trellius barisan* sp. nov., *T. lampung* sp. nov., *T. curup* sp. nov. и *T. inquisitor* sp. nov.) и новый род и вид сверчков подсемейства Pteroplistinae (*Asymmetriola spinosa* gen. et sp. nov.). *T. inquisitor* собран в Центральном Вьетнаме, а остальные сверчки собраны на юге Суматры.

Ключевые слова: новые таксоны, Phaloriinae, Pteroplistinae, Юго-Восточная Азия, Суматра, Вьетнам

INTRODUCTION

The tropical subfamily Phaloriinae Gorochov, 1985 consists of two recent tribes distinguished from each other mainly by the structure of the apical part of the ovipositor (Gorochov 2003) and the genus *Electrogryllus* Gorochov, 1992 from the Paleogene with unclear tribal position (Gorochov 1992). One of these tribes (Phaloriini) is distributed in South-East Asia, north Australia, West Oceania, and Seychelles. The tribe Subtiloriini Gorochov, 2003 includes only the African genera. The Phaloriini contains eight recent genera: *Phaloria* Stål, 1877 (from the Philippines and New Guinea to Fiji and north Australia, and Seychelles); *Tremellia* Stål, 1877 (the Philippines); *Vescelia* Stål, 1877 (the Philippines and Borneo), *Pseudotrigonidium*

Chopard, 1915 (from Java and New Guinea to New Caledonia and north Australia); *Strophiola* Uvarov, 1940 (the Philippines, Sulawesi, and Flores); *Trellius* Gorochov, 1988 (Indochina, Malacca, Sumatra, Java, and Palawan); *Ceyloria* Gorochov, 1996 (Sri Lanka and Indian subcontinent); *Sumatoria* Gorochov, 2003 (Sumatra and nearest small islands); *Gorochovius* Xie et al., 2004 (South China). In my opinion, the genera *Tremellia*, *Pseudotrigonidium*, and *Gorochovius* are mistakenly excluded from Phaloriini in the internet catalogue of Orthopterist's Society (Eades et al. 2010); moreover, an Australian species (*Tremellia australis* Chopard, 1951) should be transferred from *Tremellia* to *Pseudotrigonidium*, the genus *Electrogryllus* Gorochov, 1992 must be included in Phaloriinae out of any tribes, and "*E. electrium* Gorochov, 1992" must be deleted (it is not existing).

The representatives of the tribe Phaloriini considered here belong to the same genus (*Trellius*) consisting of six subgenera (Gorochov 1999). All known species of this genus from Sumatra are members of the subgenus *Protrellius* Gorochov, 1996: *T. kerinci* Gorochov, 2003, *T. aequatorialis* Gorochov, 2003, and three new species described here. They are very similar in general appearance, but distinguished from each other mainly in the shape of male genital structures (Figs. 1–10). The subgenus *Trellius* s. str. is known only from East Indochina, and one species from Central Vietnam described below belongs to a group of close-related species of this subgenus having the characteristic male genitalia (Figs. 11, 12) and distributed in Southern Vietnam and Eastern Cambodia: *T. riparius* Gorochov, 1990, *T. lithophilus* Gorochov, 1990, *T. deterrentus* Gorochov, 1999, and *T. orlovi* Gorochov, 1999.

The subfamily Pteroplistinae Chopard, 1951 was partly revised by Gorochov (2004). Now it is almost exclusively equatorial group, but was possibly present in Europe in the Paleogene (Gorochov 1995). This subfamily has less wide distribution than the subfamily Phaloriinae, and includes eight recent genera: *Pteroplistes* Brunner-Wattenwyl, 1873 (Malacca, Sumatra, Borneo), *Tramlapiola* Gorochov, 1990 (Southern Vietnam), *Crockeriolo* Gorochov et Kostia, 1999 (Borneo), *Kerinciolo* Gorochov, 2004 (Sumatra and possibly Malacca), *Tembelingiolo* Gorochov, 2004 (Malacca), *Changiolo* Gorochov, 2004 (Southern Thailand near Cambodia and possibly Malacca), *Pangrangiolo* Gorochov, 2004 (Java), and a new genus from Sumatra described below. I consider also that in the internet catalogue of Orthopterists' Society (Eades et al. 2010), the Neotropical tribe Odontogryllini de Mello, 1992 is mistakenly included in the subfamily Pteroplistinae, but it probably belongs to the subfamily Landrevinae; and all the above listed genera of Pteroplistinae belong to the same tribe.

MATERIAL AND METHODS

This paper is based on material collected during expedition of the author with his colleagues from the Moscow Zoo in Indonesia and during field trip of N.L. Orlov (Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, ZIN) in Vietnam. *T. kerinci*, *T. aequatorialis*, *T. riparius*, *T. lithophilus*, and *T. deterrentus* were collected by the author at night on leaves of bushes or low tree branches near brooks in

mountain forests. At night time, their nymphs usually walk on stones, rocks, and tree bark near these brooks, and they can jump on the surface of quickly running water. The majority of representatives of the subfamily Pteroplistinae (including a new species) were collected by the author at night on bark of tree trunks or tree branches in tropical forests. In this time, they usually walk on the bark not very far from earth (1–3 m); calling males sit on the bark under leaves or near liana stem.

The whole material studied is deposited in ZIN. The specimens are dry and pinned; the preparations of male genitalia are worked up by KOH solution and deposited in glycerin. The microphotographs were made with Leica M216.

SYSTEMATICS

Subfamily Phaloriinae Gorochov, 1985

Tribe Phaloriini Gorochov, 1985

Genus *Trellius* Gorochov, 1988

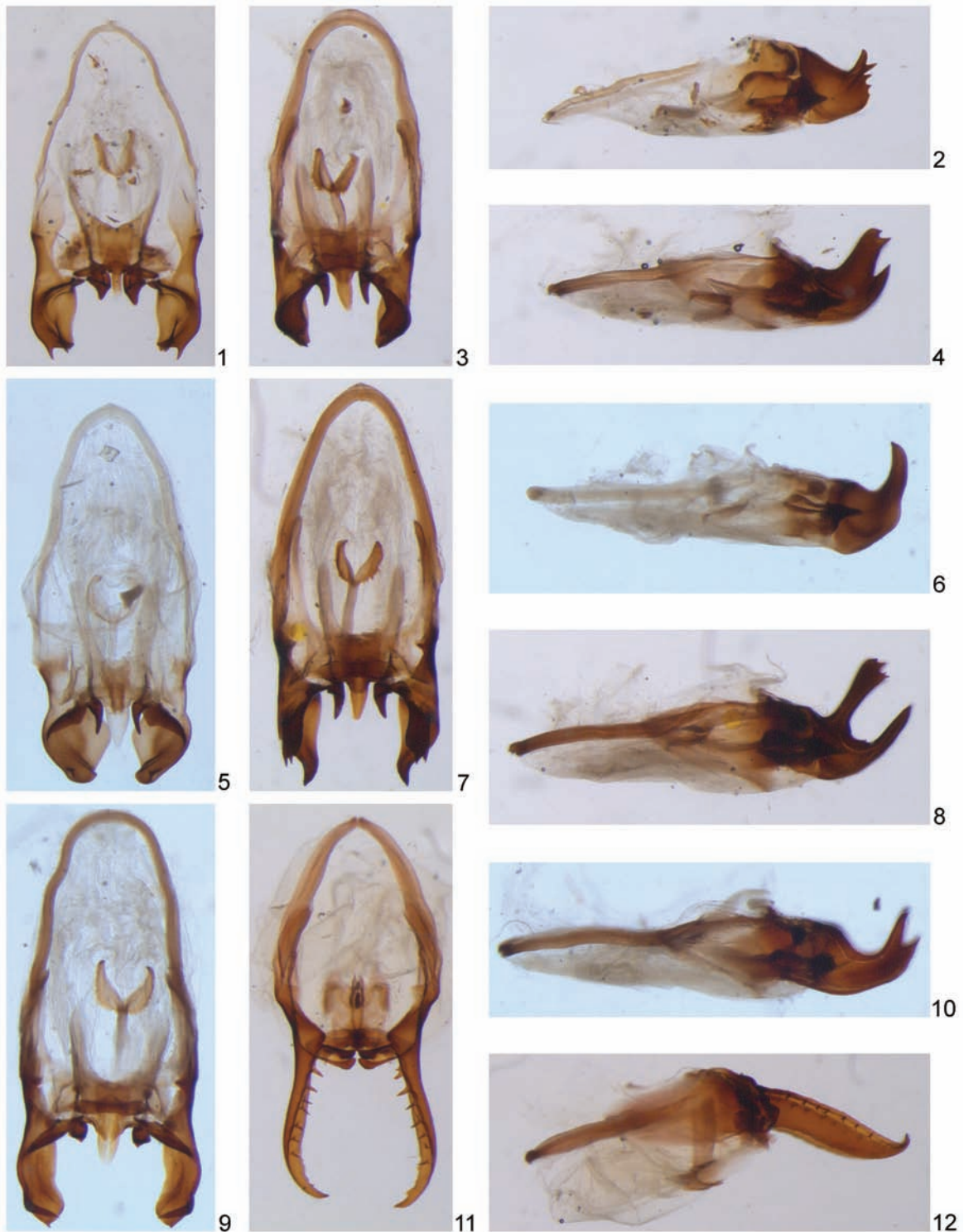
Trellius (Protrellius) barisan sp. nov.

(Figs. 1, 2, 13)

Etymology. This name originates from Bukit Barisan Selatan National Park.

Type material. Holotype male, Indonesia, Southern Sumatra, Lampung Province, Bukit Barisan Selatan National Park, 20–30 km WNW of Kotaagung town, environs of Sukaraja village, 05°30–31'S, 104°25–27'E, ~600 m, primary forest, 14–18 April 2009, coll. A. Gorochov, M. Berezin, E. Tkatsheva (ZIN). Paratypes: 1 male, 2 females, same data as in holotype (ZIN).

Description. *Male* (holotype). General appearance typical of genus (Fig. 13); coloration brownish grey, spotted, but with almost uniform antennae, dorsal part of head (this part with only distinctly lighter ocelli and a few hardly darker longitudinal lines on hind part of vertex), pronotal disc, and wings (tegmina with membranes of dorsal part semitransparent and membranes of lateral part almost completely transparent; exposed part of hind wings slightly darker). Tegminal dorsal part moderately widened, with 5 longer oblique veins radiating almost from one dot, with 5 distinctly shorter oblique veins situated more proximally, with more or less round mirror having 2 dividing veins (transverse proximal vein and curved distal one situated not near each other),



Figs. 1–12. *Trellius* Gorochov, 1988, male genitalia from above (1, 3, 5, 7, 9, 11) and from side (2, 4, 6, 8, 10, 12): 1, 2 – *T. barisan* sp. nov. (holotype); 3, 4 – *T. lampung* sp. nov. (holotype); 5, 6 – *T. aequatorialis* Gorochov, 2003, (holotype); 7, 8 – *T. curup* sp. nov. (holotype); 9, 10 – *T. kerinci* Gorochov, 2003 (holotype); 11, 12 – *T. inquisitor* sp. nov.

and with rather long apical area containing 7 entire branches; tegminal lateral part high, with distinctly widened area between *R* and *M*, and with numerous and almost transverse (vertical) *Sc* branches; hind wings significantly longer than tegmina (Fig. 13). Spines and inner spurs of hind tibiae long, pubescent; longest spur of these tibiae distinctly longer than 2 proximal segments of hind tarsi together. External structure of abdomen normal for the subgenus *Protrellius*; genitalia with hind lateral epiphallic lobes rather short, moderately widened (Fig. 1), and having rather short dorsoapical process and a few denticles near it (Fig. 2); ectoparameres (a pair of small sclerites between these lobes) wide and not shortened; guiding rod between them narrow (Fig. 1).

Variation. Paratype with shining both pronotal disc and hind part of vertex (in holotype, they normal, i.e. with short and slight pubescence).

Female. General appearance as in holotype of same species, but structure of tegmina normal for female of *Protrellius* and their dorsal part slightly darker. Abdominal apex with genital plate hardly narrowing to apex and having short and widely rounded apical notch; ovipositor much shorter than hind femur and with apex typical of genus.

Length (mm). Body: male 12–13.5, female 11.5–14; body with wings: male 25–26, female 24–25; pronotum: male 2.9–3.1, female 2.7–2.9; tegmina: male 18–19, female 17–18; hind femora: male 12–13, female 12.5; ovipositor 4.4.

Comparison. The new species is most similar to the above-mentioned representatives of the genus *Protrellius* from Sumatra: *T. aequatorialis* (Figs. 5, 6) and *T. kerinci* (Figs. 9, 10). It is clearly distinguished from the first of them by the shorter dorso-apical process of the hind lateral epiphallic lobes, the presence of denticles on these lobes near this process, the wider ectoparameres, and the narrower guiding rod. It differs from *T. kerinci* by the same characters excepting the ectoparameres which are similar in width, but distinctly longer than those in *T. kerinci*.

***Trellius (Protrellius) lampung* sp. nov.**

(Figs. 3, 4, 15)

Etymology. This name originates from Lampung Province.

Type material. Holotype male, Indonesia, Southern Sumatra, Lampung Province, 40–45 km SE of Bintuan [= Bintuhan] town, 04°59.974'S,

103°44.994'E, ~50 m (low mountains near sea), secondary forest, 22–23 April 2009, coll. A. Gorochov, M. Berezin, E. Tkatsheva (ZIN). Paratypes: 1 male, 1 female, same data as in holotype (ZIN); 1 male, same province as in holotype, Bukit Barisan Selatan National Park, 15–20 km NE of Krui town, Kubu Prahu camp, 05°04.341'S, 104°03.093'E, ~600 m, secondary forest, 18–19 April 2009, coll. A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Description. *Male* (holotype). Structure of body parts and coloration as in holotype of *T. barisan*, but dorsal part of head and pronotum darker (almost uniformly dark brown; Fig. 15), hind lateral epiphallic lobes somewhat longer and less widened (Fig. 3), their dorsoapical process longer and with 2 teeth at its apex and 1 acute projection at its base (i.e. at apex of hind lateral epiphallic lobe; Fig. 4), ectoparameres longer and distinctly narrower, and guiding rod slightly wider (Fig. 3).

Variation. Paratype from “Kubu Prahu” with coloration practically as in holotype of *T. barisan*.

Female. Coloration as in holotype of same species, but pronotal lateral lobes with weak lightish spot and tegmina as in female of *T. barisan*. Other characters also as in this species.

Length (mm). Body: male 15–17, female 14; body with wings: male 26–29, female 24.5; pronotum: male 3–3.3, female 2.9; tegmina: male 18–21, female 16.5; hind femora: male 12.5–14, female 11.5; ovipositor 4.2.

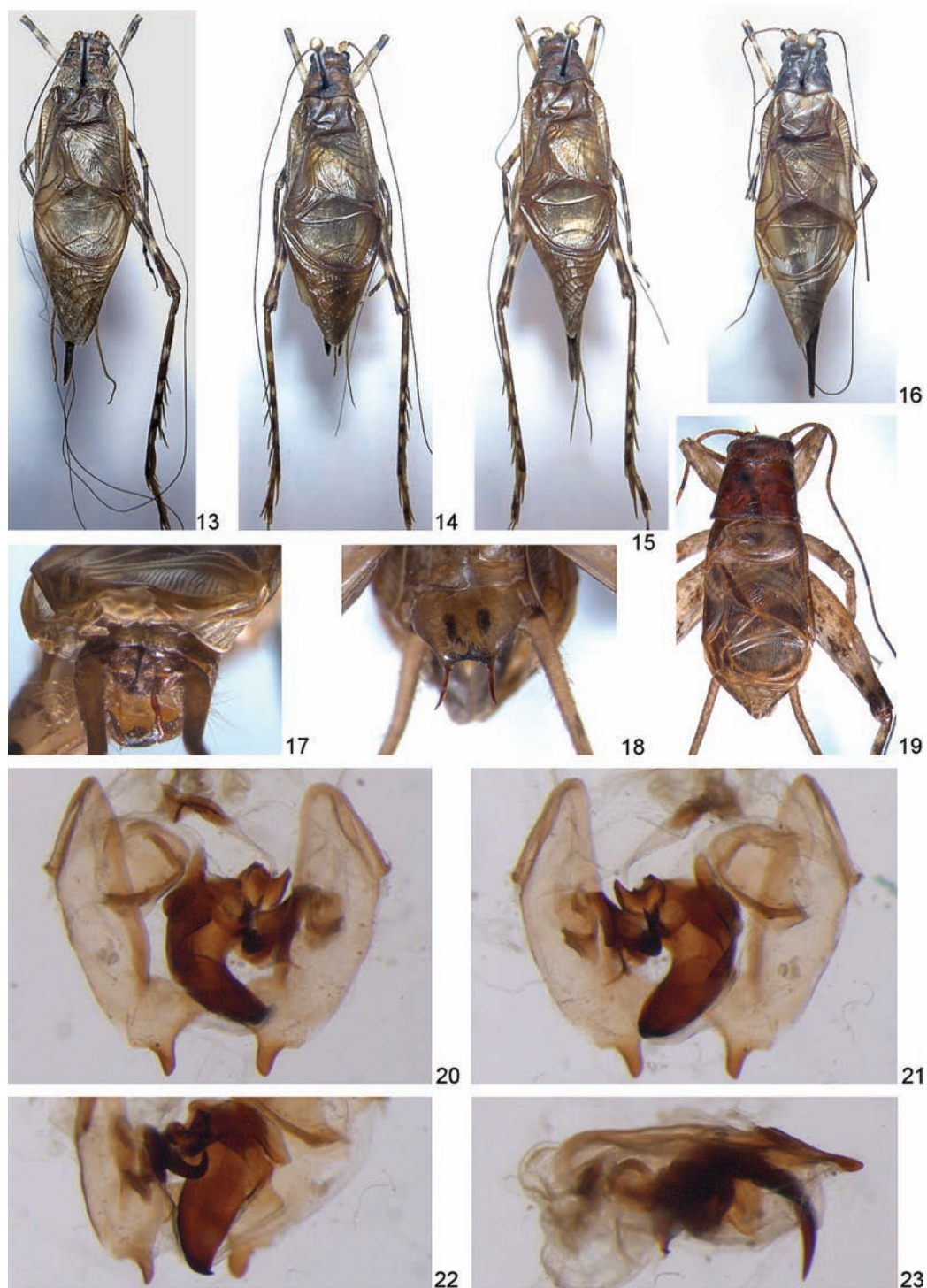
Comparison. The new species differs from the most close-related species in the following features: from *T. aequatorialis* (Figs. 5, 6), by less widened middle part of the hind lateral epiphallic lobes, and by the presence of teeth and acute projection at the distal part of these lobes; from *T. kerinci* (Figs. 9, 10), by the wider distal part of the hind lateral epiphallic lobes, and by the longer and narrower ectoparameres; from *T. barisan*, by characters of male genitalia listed in the description of *T. lampung*.

***Trellius (Protrellius) curup* sp. nov.**

(Figs. 7, 8, 14)

Etymology. This name originates from Curup town.

Type material. Holotype male, Indonesia, Southern Sumatra, Bengkulu Province, environs of Curup town (not very far from Bengkulu city), Bukit Kaba volcano, 03°28–29'S, 102°31–38'E, 1000–1500 m, secondary forest, 24 April – 2 May 2009, coll. A. Goro-



Figs. 13–23. *Trellius* Gorochov, 1988, and *Asymmetriola* gen. nov., male: 13 – *T. barisan* sp. nov. (holotype); 14 – *T. curup* sp. nov. (holotype); 15 – *T. lampung* sp. nov. (holotype); 16 – *T. inquisitor* sp. nov.; 17–23 – *A. spinosa* sp. nov. (holotype): body from above (13–16, 19); abdominal apex from behind and slightly from above (17) and only from below (18); genitalia from above (20), from below (21), and from side (23); genitalia without proximal part from below and slightly from side (22).

chov, M. Berezin, E. Tkatsheva (ZIN). Paratypes: 2 males, 1 female, same data as in holotype (ZIN).

Description. *Male* (holotype). Structure of body parts and coloration as in holotype of *T. lampung*, but pronotum with a pair of slightly lighter large spots on disc and smaller lightish spot on pronotal lobes (coloration of these lobes almost as in *T. barisan* and paratype of *T. lampung* from “Kubu Prahū”), hind wings somewhat shorter (Fig. 14), each hind lateral epiphallic lobes deeply bifurcate (its dorsoapical process narrow, long, slightly widened at apex, and with denticulate apical part; its ventroapical projection long and with acute apex; Figs. 7, 8), and ectoparameres and guiding rod approximately as in *T. lampung* (Fig. 7).

Variation. Paratypes with light spots on pronotal disc more distinct or only hardly visible.

Female. Coloration as in holotype of same species, but tegmina as in female of *T. barisan* and *T. lampung*. Other characters also as in these species (including length of hind wings).

Length (mm). Body: male 15–16, female 14; body with wings: male 24–25, female 24; pronotum: male 2.8–3, female 2.8; tegmina: male 19–21, female 16; hind femora: male 13.3–14, female 13; ovipositor 4.6.

Comparison. The new species is well distinguished from all close-related species (*T. kerinci*, *T. aequatorialis*, *T. barisan*, *T. lampung*) by the deeply bifurcate distal part of hind lateral epiphallic lobes (Fig. 8); in the above-listed species, these lobes are not deeply bifurcate (Figs. 2, 4, 10) or not bifurcate (Fig. 6).

***Trellius (Trellius) inquisitor* sp. nov.**

(Figs. 11, 12, 16)

Etymology. This name originates from *inquisitor* (Lat.) – inquisitor.

Type material. Holotype male, Vietnam, Quang Tri Province, Huong Hoa District, Huong Lap commune, forest, November 2007, coll. N. Orlov (ZIN). Paratypes: 2 females, same data as in holotype (ZIN).

Description. *Male* (holotype). Structure of body parts similar to that of *T. barisan*, *T. lampung*, and *T. curup*, but coloration slightly different (head and pronotum almost uniformly dark brown; antennae and tegmina distinctly lighter, brownish with distinct light spot on basal area of dorsal tegminal part, semitransparent membranes of this part, and transparent membranes of lateral part; exposed parts of hind wings dark grey; mouthparts and other parts

of body more or less spotted), apical area of dorsal tegminal part slightly shorter, hind wings as in *T. barisan* and *T. lampung* (Fig. 16; hind legs missing), and genitalia (Figs. 11, 12) clearly different (hind lateral epiphallic lobes very long, without distinct widenings, with hooked distal part and numerous spine-like denticles on medial surface of these lobes near their dorsal edge; ectoparameres very short and fused with these lobes by narrow sclerotized ribbons; guiding rod indistinct).

Female. Coloration as in male of same species, but dorsal tegminal part with dark brown veins and crossveins (distinctly darker than membranes between them). Other characters as in *T. barisan*, *T. lampung*, and *T. curup* excepting only longest spur of hind tibiae which almost equal in length to 2 proximal segments of hind tarsi together.

Length (mm). Body: male 15, female 16–17; body with wings: male 27, female 28–29; pronotum: male 3, female 3.1–3.2; tegmina: male 18, female 19–20; hind femora, female 14–15; ovipositor 5–6.

Comparison. The new species is most similar to species from Southern Vietnam and Eastern Cambodia: *T. riparius*, *T. lithophilus*, *T. detersus*, and *T. orlovi*. It differs from them in the hind lateral epiphallic lobes having the spine-like denticles on medial surface near their dorsal edge (not at this edge) and lacking characteristic small widening (lobe-like medial projection) in the middle part of these lobes.

Subfamily Pteroplistinae Chopard, 1951

Genus *Asymmetriola* gen. nov.

Etymology. The name originates from *asymmetri-cus* (Lat.) – asymmetrical and the genus *Tramlapiola*.

Type species. *Asymmetriola spinosa* sp. nov.

Diagnosis. Body rather small; its external structure typical of this subfamily, but male tegmina with rather large mirror and comparatively short apical area of their dorsal part, fore tibiae with moderately large inner tympanum and only traces of outer one, male anal plate with spine-like median process in basal part of dorsal surface, and male genital plate with a pair of spine-like processes at apex (Figs. 17–19). Male genitalia with simple shape of epiphallus having a pair of apical tubercles and short median part; ectoparameres, endoparameres, gnidiny rod, and possibly part of mold of spermatophore attachment plate partly fused with each other and forming heavily sclerotized and strongly asymmetrical structure (Figs. 20–23).

Included species. Type species only.

Comparison. The new genus is most similar to *Pangrangiola* in the shape of epiphallus, but it is well distinguished from the latter genus and from all the other genera of Pteroplistinae by the presence of sclerotized spines on the anal and genital plates of male, partial fusion of some genital structures in male (ectoparameres, endoparameres, guiding rod etc.) and strong asymmetry of these structures.

***Asymmetriola spinosa* sp. nov.**
(Figs. 17–23)

Etymology. The name originates from *spinus* (Lat.) – spinose.

Type material. Holotype male, Indonesia, Southern Sumatra, Lampung Province, 25 km S of Bintuan [= Bintuhan] town, environs of Tanjung Baru Maje village, 04°50.279'S, 103°28.071'E, ~100 m, low mountains not far from sea, secondary forest, 2–3 May 2009, coll. A. Gorochov, M. Berezin (ZIN). Paratype male, same province as in holotype, Bukit Barisan Selatan National Park, 20–30 km WNW of Kotaagung town, environs of Sukaraja village, 05°30–31'S, 104°25–27'E, ~600 m, primary forest, 14–18 April 2009, coll. A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Description. *Male* (holotype). Coloration of head and pronotum uniformly reddish brown with dark brown eyes and inferior half of lateral pronotal lobes, light brown antennae and palpi having sparse dark spots on antennal flagellum, and very light lateral ocelli; other parts of body including tegmina light brown with not numerous dark and darkish marks (Figs. 17–19) excepting almost completely light brown lateral tegminal part, cerci, and most part of ventral surface of body. Head with very small ocelli (median one almost indistinct) and wide rostrum between antennal cavities (it approximately 1.5 times as wide as scape). Pronotum hardly widened to hind edge, with slightly concave anterior and almost straight hind edges of disc. Hind tibiae with numerous small denticles, 3 very short articulated spines (these spines situated in distal part of tibiae: two at outer keel, and one at inner keel), and 5 rather short spurs (inner ventral spur absent) which diverse in size (some of these spurs almost not longer than articulated spines, but other spurs distinctly longer). Dorsal tegminal part as in Fig. 19 (its mirror dis-

tinctly transverse, longer than apical area); lateral tegminal part with rather widened area between *R* and *M*; apices of hind wings reaching tegminal apices. Anal and genital plates as in Figs. 17, 18 (proximal spine of anal plate laterally flattened and directed backwards); genitalia (Figs. 20–23) with 3 distinct hooks: two in left (bigger) half of heavily sclerotized part (apical hook larger, and proximal one smaller) and one in right (smaller) half of this part (latter hook situated near proximal of previous hooks).

Variation. Paratype with spine of anal plate almost not flattened laterally.

Length (mm). Body 11–11.7; body with wings 11.5–12; pronotum 2.4–2.6; tegmina 8.5–9; hind femora 7.5–8.

Female. Unknown.

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