Taxonomic studies on the cricket subfamilies Pteroplistinae, Phaloriinae and Cacoplistinae (Orthoptera: Gryllidae) from the Old World

Таксономические исследования по сверчкам подсемейств Pteroplistinae, Phaloriinae и Cacoplistinae (Orthoptera: Gryllidae) из Старого Света

A.V. Gorochov

А.В. Горохов

A.V. Gorochov, Zoological Institute, Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia. E-mail: orthopt@zin.ru

A new material on the subfamilies Pteroplistinae, Phaloriinae and Cacoplistinae from the Indo-Malayan and Afrotropical regions of the Old World is considered. Nineteen new taxa of these subfamilies are described: *Pteroplistes malaccanus* **sp. nov.** from Malacca, *P. borneoensis sabahi* **subsp. nov.** from Borneo, *Tramlapiola? bugiamap* **sp. nov.** from Vietnam [Pteroplistinae]; *Trellius (Zatrellius) kinabalu* **sp. nov.**, *T. (Z.) crocker* **sp. nov.** and *T. (Z.) tawau* **sp. nov.** from Borneo, *T. (Neotrellius) logunovi* **sp. nov.** and *T. (N.) simulator* **sp. nov.** from Vietnam, *Borneloria spinosa* **gen. et sp. nov.** and *B. moorei occidentalis* **subsp. nov.** from Borneo, *Phaloria (Papuloria) multa* **sp. nov.** from Sulawesi and a nearest island [Phaloriinae: Phaloriini]; *Subtiloria semota* **sp. nov.** and *S. succinea korup* **subsp. nov.** from Cameroon, *Schizotrypus conradti nigericus* **subsp. nov.** from Nigeria, *Afrophaloria malawi* **sp. nov.** from Malawi, *A. dja* **sp. nov.** from Cameroon [Phaloriinae: Subtiloriini]; *Homoeogryllus ambo* **sp. nov.** from Ethiopia, *H. reticulatus limbe* **subsp. nov.** from Cameroon [Cacoplistinae: Homoeogryllini]. New data on distribution of some other species are also given.

Рассмотрен новый материал по подсемействам Pteroplistinae, Phaloriinae и Cacoplistinae из Индо-Малайской и Афротропической областей Старого Света. Описаны девятнадцать новых таксонов, относящихся к этим подсемействам: *Pteroplistes malaccanus* **sp. nov.** из Малакки, *P. borneoensis sabahi* **subsp. nov.** с Борнео, *Tramlapiola? bugiamap* **sp. nov.** из Вьетнама [Pteroplistinae]; *Trellius (Zatrellius) kinabalu* **sp. nov.**, *T. (Z.) crocker* **sp. nov.** и *T. (Z.) tawau* **sp. nov.** с Борнео, *T. (Neotrellius) logunovi* **sp. nov.** и *T. (N.) simulator* **sp. nov.** из Вьетнама, *Borneloria spinosa* **gen. et sp. nov.** и *B. moorei occidentalis* **subsp. nov.** с Борнео, *Phaloria (Papuloria) multa* **sp. nov.** с Сулавеси и соседнего острова [Phaloriinae: Phaloriini]; *Subtiloria semota* **sp. nov.** and *S. succinea korup* **subsp. nov.** из Камеруна, *Schizotrypus conradti nigericus* **subsp. nov.** из Нигерии, *Afrophaloria malawi* **sp. nov.** из Малави, *A. dja* **sp. nov.** из Камеруна [Phaloriinae: Subtiloriini]; *Homoeogryllus ambo* **sp. nov.** из Эфиопии, *H. reticulatus limbe* **subsp. nov.** из Камеруна [Cacoplistinae: Homoeogryllini]. Приведены также новые данные по распространению некоторых других видов.

Key words: crickets, taxonomy, Old World, Orthoptera, Gryllidae, Pteroplistinae, Phaloriinae, Cacoplistinae, new taxa, new localities

Ключевые слова: сверчки, таксономия, Старый Свет, Orthoptera, Gryllidae, Pteroplistinae, Phaloriinae, Cacoplistinae, новые таксоны, новые местонахождения

INTRODUCTION

This paper is devoted to three cricket subfamilies (Pteroplistinae, Phaloriinae and Cacoplistinae) from the Phalangopsinae subfamily group of Gryllidae. It is a continuation of some my previous papers containing information on new and little known representatives of these taxa (Gorochov, 1985, 1986, 1988a, b, 1990, 1992, 1996, 1999, 2001,

2003, 2004a, b, c, 2005, 2010, 2011a, b, 2014; Gorochov & Kostia, 1999; Gorochov & Tan, 2012). The latter taxa are distributed in the Old World and unknown in the New World, but the Phalangopsinae, a fourth subfamily of this group, is distributed in the both Old World and New World. Representatives of this subfamily from the Old World are now considered by me in a special series of papers (Gorochov, 2015a, b, 2017a, b, 2018).

The subfamilies studied are distributed mainly in tropical regions. All species of Pteroplistinae live on and under the bark of forest trees. Most representatives of Phaloriinae also live in forests (but usually near water) and may be found on leaves of trees and shrubs, on tree trunks or on rocks near brooks; species of Cacoplistinae have been found on leaves and branches of bushes in forests and savannahs or in some more specialized conditions (on walls of termitaries; Bhargava, 1982). Oviposition in Pteroplistinae is produced in the fissures of bark or wood, in Phaloriinae, in the bark but sometimes possibly in the soil (some African genera), and in Cacoplistinae, probably in the soil.

The material used in this paper is mainly deposited at the Zoological Institute, Russian Academy of Sciences, St Petersburg (ZIN). However, two paratypes of one new species are at the Museum of Natural History, London (BMNH). All the specimens are dry and pinned; photographs of their morphological structures were made with a Leica M216 stereomicroscope.

TAXONOMIC PART

Subfamily **PTEROPLISTINAE** Chopard, 1936

Pteroplistes malaccanus sp. nov. (Figs 1–6, 10–12)

Holotype. Male, **Malaysia**, Pahang State (Malacca = Malay Peninsula), Taman Negara National Park on Tembeling River, ~100 m, primary forest, on bark of living tree under table attached to its trunck (at daytime), 28.XI–5.XII.2014, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Paratype. Female, same data as for holotype (ZIN).

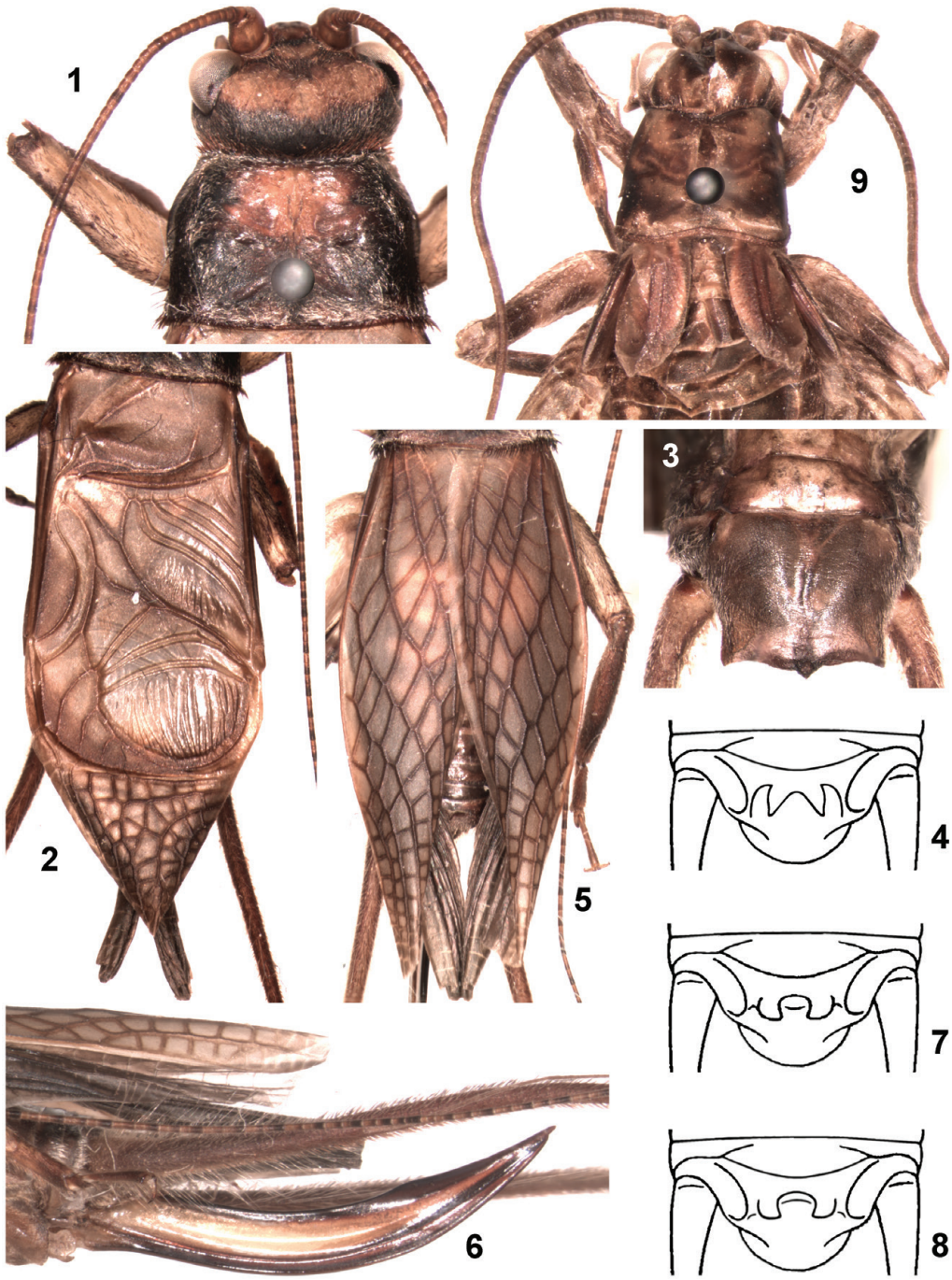
Description. Male (holotype). Body rather large for this subfamily, clearly dorsoventrally flattened and with following colouration (Figs 1–3): epicranium dark brown with grey eyes, yellowish ocelli, light brown spot on rostral apex and spot near (under) median ocellus (these spots connected with each other by light brown median line), light yellowish brown transverse stripe between middle parts of eyes (this stripe located slightly behind median ocellus and crossing lateral ocelli) and much wider transverse band between distal parts of eyes (this band somewhat arcuate and with posterior edge convex), and these light parts separated from each other and from clypeus by brown transverse stripes (stripe crossing median ocellus almost dark brown); antennae brown with almost dark brown numerous and small spots on flagellum (but these spots on proximal part of flagellum indistinct); mouthparts brown with light brown lateral parts of upper clypeal half as well as small areas on maxillae and on labium, and with dark brown apical segment of each maxillary palpus; pronotum also dark brown but with rather large (wide) light brown median area on anterior half of disc; tegmina greyish brown with barely darker venation in apical area of dorsal field and in lateral field; hind wings with distal parts rather dark, greyish brown; legs with light greyish brown femora having dark brown distal part of hind femur and intensively greyish brown reticular oblique pattern on dorsal half of rest part of this femur, with reddish brown tibiae having dorsal surface of hind tibia as well as distal parts of its outer and inner surfaces dark, and with brown tarsi having proximal two thirds of hind basitarsus lighter (light greyish brown); venter of body light brown but with greyish brown genital plate; distal part of abdominal dorsal half dark brown with greyish brown cerci and dorsal areas on tergites, whitish spot in central part of anal plate and brown distal and lateral parts

of this plate. Structure of head typical of this genus, but median ocellus much smaller than lateral ones, and space between antennal cavities approximately 1.1 times as wide as scape; pronotum distinctly wider than long, somewhat widening to pterothorax, with slightly concave anterior and almost straight posterior edges of disc (Fig. 1), and with lateral lobes low (anterior half of these lobes widely convex ventrally, but posterior one very low, with oblique ventral edge and narrowly rounded posteroventral corner). Tegmina long and rather wide, with venation of dorsal field as in Fig. 2; lateral tegminal field with slightly widened *R-M* area (having regular crossveins) and lancet-like cell, with narrow *Sc-R* area lacking crossveins, and with numerous (24–26) moderately long and strongly oblique branches of *Sc* (crossveins between these branches absent); hind wings distinctly protruding beyond tegminal apices. Legs rather short and stout; fore tibia with inner and outer tympana moderately small and not immersed (inner tympanum oval, but outer one somewhat narrowed); hind femur almost 1.45 times as long as hind tibia; latter tibia with six apical spurs, three short and articulated distal spines on outer dorsal keel, two such spines on inner dorsal keel, and numerous small and unarticulated denticles on both these keels in more proximal parts of this tibia; hind basitarsus with six outer and five inner dorsal denticles (except for a pair of apical spurs). Anal plate with a pair of rather large teeth on anterior part of its dorsum and with rather deep and roundly angular notch between them (Fig. 4); genital plate rather large, somewhat wider than long, with three short angular projections at apex and very shallow and rather wide notches between them (Fig. 3); cerci very long. Genitalia most similar to that of *P. sumatranus* Gor., but basal part of rachis with dorsomedian process (spine) clearly bifurcated at apex and with a pair of small tubercles around this process (Figs 10–12).

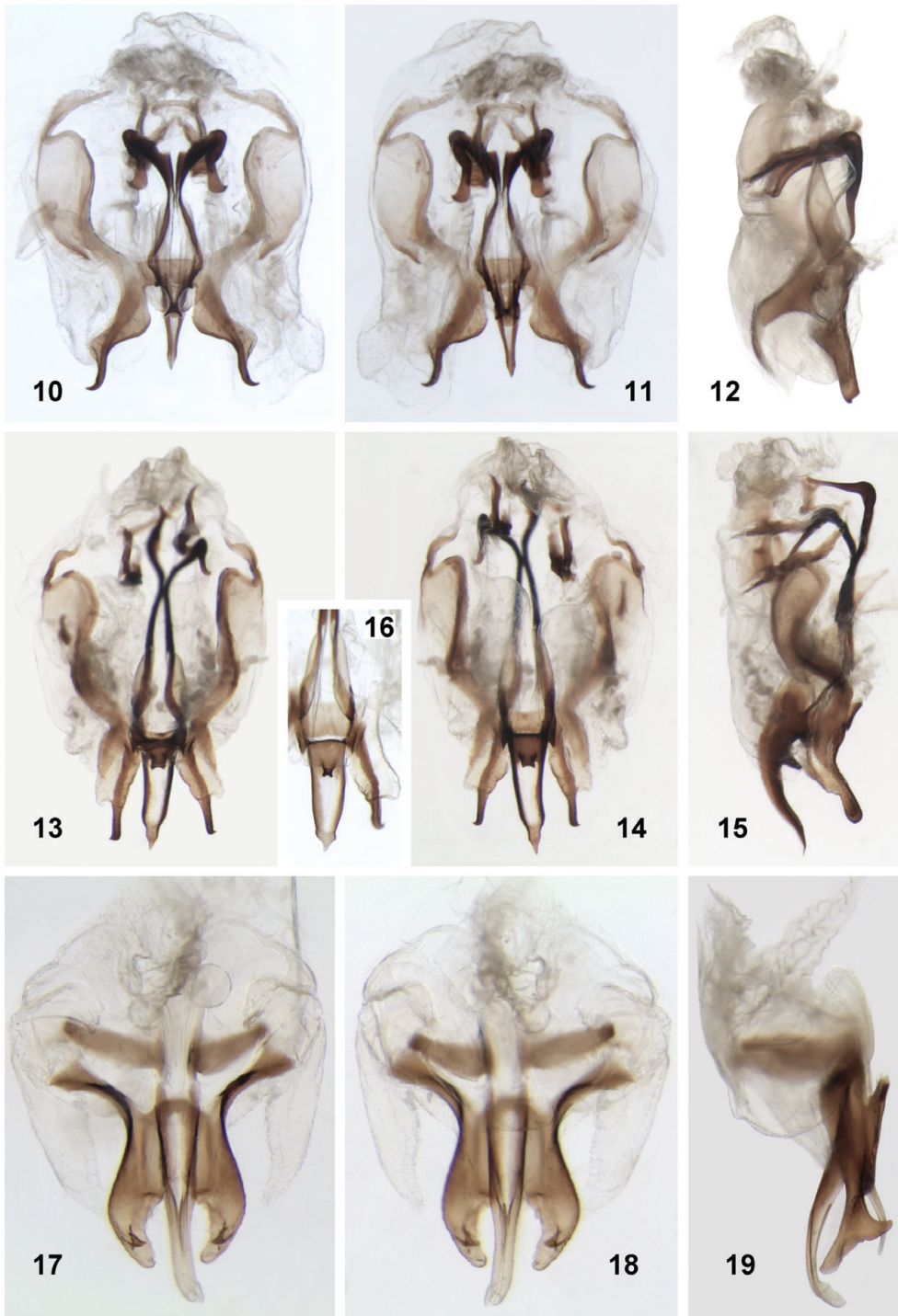
Female. General appearance similar to that of male, but most part of both clypeus and labrum almost yellowish, pronotum with almost parallel lateral sides, tegmina with narrower dorsal field having nine longitudinal veins (these veins shallowly S-shaped, i.e. with more or less longitudinal proximal and distal parts, and with slightly oblique and arcuate middle parts) and regular crossveins between them (Fig. 5), lateral tegminal field with moderately narrow *Sc-R* and *R-M* areas having regular crossveins as well as with 13–14 *Sc* branches (these branches obliquely longitudinal and with sparse crossveins), hind wings insignificantly protruding beyond tegminal apices, colouraton of wings as in male but with dark brown venation and darkened *Sc-R* area (however, veins of dorsal field situated along its lateral edge lighter, almost as membranes of this field), fore and middle tibiae barely darker, and anal plate brown and unspecialized. Genital plate light brown, small and more or less triangular but with distinct rounded posteromedian notch; ovipositor as in Fig. 6.

Length in mm. Body: male 15.5, female 15; body with wings: male 22, female 20; pronotum: male 3.3, female 3.4; tegmina: male 15, female 14; hind femora: male 12.4, female 12.3; ovipositor 9.5.

Comparison. The new species is most related to *P. sumatranus* from Sumatra, but it differs from the latter species in the teeth of male anal plate distinctly larger, and in the characters of male genitalia listed above, in the description. From *P. acinaceus* Sauss., described from the same peninsula (Saussure, 1877: "Malacca"), *P. malaccanus* is distinguished by the teeth of male anal plate located on the anterior (not posterior) half of this plate and having an almost angular (not round) notch between them, distal epiphallic lobes with the apical parts almost hook-like and directed aside as well as with the proximal parts lacking very large ventral lobes reaching the median part of anterior epiphallic edge, and rachis with the distal part strongly curved forwards-upwards and with the proximal part having a dorsomedian process bifurcated at



Figs 1–9. Pteroplistinae: 1–6, *Pteroplistes malaccanus* **sp. nov.**; 7, *P. borneoensis borneoensis* Gor.; 8, *P. b. sabahi* **subsp. nov.**; 9, *Tramlapiola? bugiamap* **sp. nov.** Head and pronotum with visible part of left fore leg from above (1); male (2) and female (5) tegmina in rest position with visible parts of hind wings from above; male genital plate from below (3); male anal plate with last tergite and bases of cerci from above (schematically) (4, 7, 8); ovipositor with some distal parts of body from side (6). [7, after Gorochov (2004), modified].



Figs 10–19. Pteroplistinae, male: 10–12, *Pteroplistes malaccanus* **sp. nov.**; 13–15, *P. borneoensis sabahi* **subsp. nov.**; 16, *P. b. borneoensis* Gor.; 17–19, *Tramlapiola? bugiamap* **sp. nov.** (deutonymph collected during imaginal moulting). Genitalia from above (10, 13, 17), from below (11, 14, 18), and from side (12, 15, 19); rachis, left part of epiphallus and posterior parts of endoparameres from above (16).

the apex. From *P. lagrecai* Gor. and *P. borneoensis* Gor. (both from Borneo), the new species differs in the rachis of male genitalia more strongly curved in the profile, and in the endoparameral sclerites having length of these sclerites and width of their anterior parts intermediate between those of the latter congeners; and from Indian representatives, in the female tegmina and ovipositor clearly longer (from *P.? platycleis* Bol.), or in the posterolateral epiphallic lobes distinctly different in the shape (from *P. kervasae* Jaiswara and *P. masinagudi* Jaiswara; see Jaiswara & Desutter-Grandcolas, 2014).

Etymology. The new species is named after the Malacca Peninsula.

Pteroplistes borneoensis borneoensis Gorochov, 2004
(Figs 7, 16)

New material. **Malaysia**: male and 3 females, Sarawak State (Borneo), environs of Kuching City, Kubah National Park on Matang Mt, 200–500 m, primary forest, on trunks of living trees at night, 10–17.III.2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Note. This subspecies was originally described as a species from Sarawak but without any more exact locality (Gorochov, 2004). The male studied here is in accordance to the original description of this species (including all the characters of male genitalia) but has the anal plate with a barely wider notch between its dorsal teeth (this notch is almost as in Fig. 8; in holotype, this notch is as in Fig. 7). Now this subspecies is recorded from the above-mentioned locality (situated in the western part of this state) for the first time.

Pteroplistes borneoensis sabahi **subsp. nov.**
(Figs 8, 13–15)

Holotype. Male, **Malaysia**, Sabah State (Borneo), Sandakan Distr., environs of Sukau Vill. on Kinabatangan River (~35 km from sea), almost sea level, secondary / primary forest, on trunk of living tree at night, 8–13.V.2013, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Paratypes. Two males, same data as for holotype (ZIN); male and female, same state, Tawau Hills National Park near Tawau City, 200–400 m, primary-secondary forest, on trunks of living trees at night (female, 14–20.V.2013, A. Gorochov, M. Berezin, E. Tkatsheva; male, 6–14.III.2014, M. Berezin) (ZIN).

Description. Male (holotype). Size, colouration and structure of body similar to those of *P. malaccanus* but with following differences: epicranium light yellowish brown with blackish eyes, a pair of small brown spots on rostrum near medial edges of antennal cavities, three brown transverse stripes on more posterior parts of dorsum (one narrow stripe crossing median ocellus, one more posterior stripe widened in median two thirds and located immediately behind lateral ocelli, and one band between posterior parts of eyes running along posterior edge of epicranial dorsum), slightly darkened posterior parts of genae and areas under eyes, and greyish stripe along clypeal suture forming low triangle in median part; antennae light brown with almost yellowish scape, numerous (dense) small greyish brown spots on proximal half of flagellum, and greyish brown rest of flagellum; mouthparts also light yellowish brown but with dark brown margins of clypeus (including a pair of stripes along transverse folds between upper and lower clypeal halves), small spot in median part of labrum as well as marks on distal and lateral parts of mandibles; pronotum brown with almost reddish brown disc; wings distinguished from those of *P. malaccanus* by dorsal tegminal field with mirror slightly longer than chords (*vs.* slightly shorter than chords), lateral tegminal field with 21–23 *Sc* branches, and hind wings slightly shorter (insignificantly projected behind tegminal apices); legs somewhat lighter than in this species; hind basitarsus with seven outer and six inner dorsal denticles; teeth of anal plate shorter, with shallower (roundly transverse) notch between them (Fig. 8); genitalia almost as in Figs 13–15, very similar to those of nominotypical subspecies in structure (see Gorochov, 2004: figs 28–30) but slightly distinguished

from them by narrow sclerotized posterior parts of distal epiphallic lobes somewhat longer, and rachis with wider dorsoproximal process and narrower subapical part (this part of rachis clearly narrower than its nearest but more proximal part).

Variations. In male from Tawau Hills National Park, colouration of head less contrasting, and pronotum almost uniformly brown; number of *Sc* branches in tegmina and number of denticles on hind basitarsi insignificantly varied; subapical part of rachis sometimes barely wider or barely narrower.

Female. General appearance practically as in female of *P. malaccanus*, but colouration of head with slightly lighter rostral part, and all sternites more darkened (genital plate damaged).

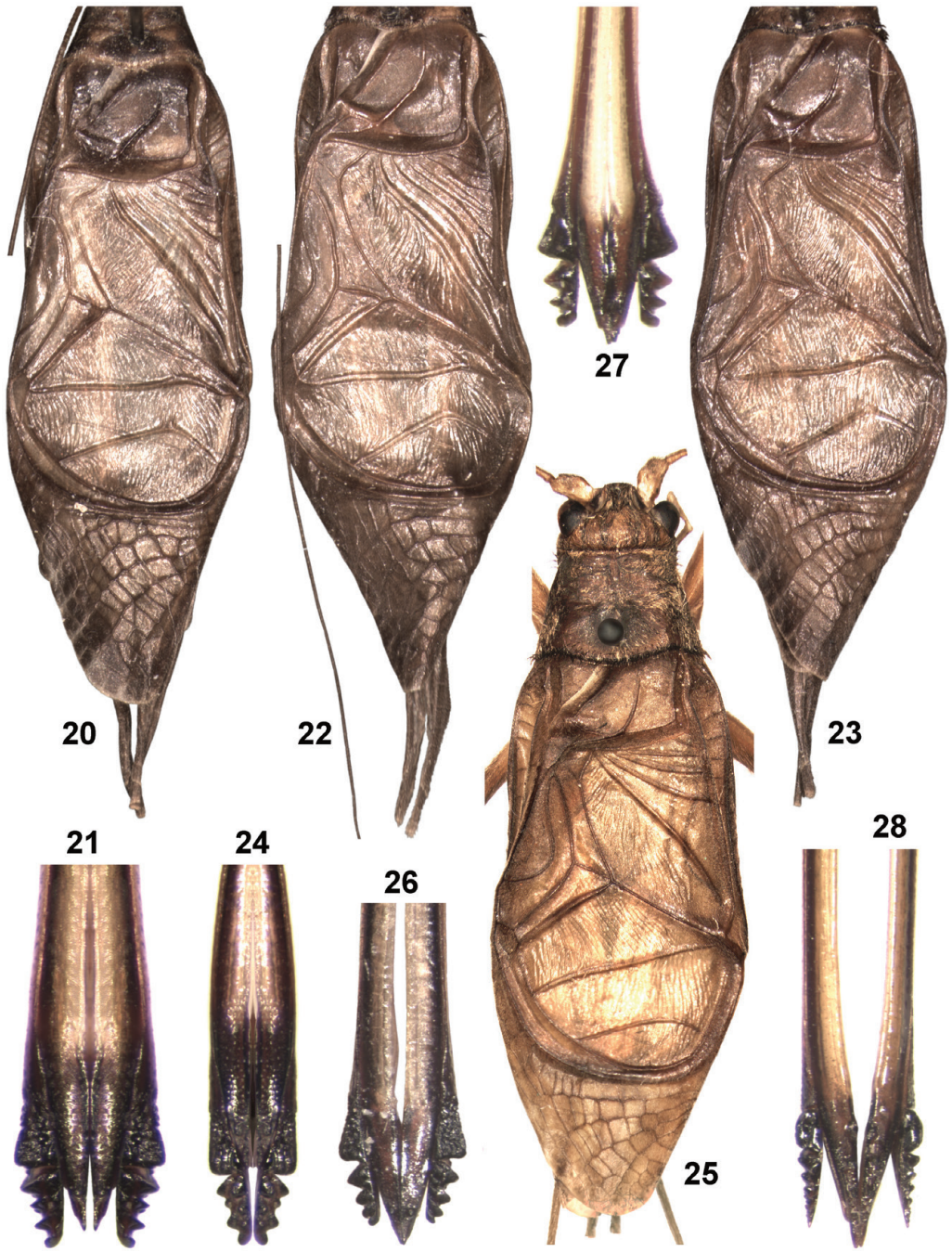
Length in mm. Body: male 14.5–15; female 14.3; body with wings: male 20–21, female 20; pronotum: male 2.9–3.1, female 3.2; tegmina: male 13.4–13.8, female 14.3; hind femora: male 11.5–12, female 12; ovipositor 9.

Comparison. The new subspecies from the Sabah State of Borneo is distinguished from *P. b. borneoensis*, distributed in the Sarawak State of this island, by the posterior (narrow) sclerotized parts of distal epiphallic lobes longer, and by the rachis of male genitalia with the subapical part narrower and with the dorsoproximal process wider.

Tramlapiola? bugiamap sp. nov.
(Figs 9, 17–19)

Holotype. Male deutonymph collected during imaginal moulting, **Vietnam**, Binh Phuoc Prov., 13 km NE of Bu Gia Map Vill., Bu Gia Map National Park on Dak A River, 12°12'20''N, 107°12'15''E, 350 m, 18–31.V.2011, L. Anisyutkin, A. Anichkin (ZIN).

Description. Male deutonymph (holotype). Body rather small for this subfamily and clearly dorsoventrally flattened. Colouration following: epicranium dark brown with light greyish eyes and ocelli, and with seven light yellowish brown longitudinal stripes on dorsum behind lateral ocelli; antennae more or less uniformly brown; clypeus and labrum as well as most part of maxillae and labium (including their palpi) light greyish brown; rest mouthparts greyish brown with dark apices of mandibles; pronotum with brown disc having rather large light yellowish brown spots (Fig. 9) and with dark brown lateral lobes; wing pads brown with almost light brown "dorsal tegminal field" (Fig. 9); legs greyish brown with a few lighter but blurred spots on fore and middle femora as well as on all tibiae, and with light greyish brown hind femur having a few dark brown distal areas, numerous brown oblique lines on dorsolateral surface of rest part of this femur and less regular brown marks on dorsomedial surface of this part; venter of body light brown with almost brown posterior abdominal sternites and genital plate; thoracic tergites light greyish brown, but abdominal ones brown with rather numerous light brown spots; other structures of abdominal apex (including cerci) more or less light brown. Head slightly deformed, but most of its structures kept in good condition: median ocellus much smaller than lateral ones; width of scape almost equal to distance between antennal cavities. Pronotum slightly wider than long, somewhat narrowing to head (Fig. 9), and with lateral lobes similar to those of *P. malaccanus* but having more widely rounded posteroventral corners; wing pads reaching middle part of third abdominal tergite, approximately equal to each other in length, with visible rudiments of stridulatory apparatus on tegminal pads (Fig. 9); legs similar to those of *P. malaccanus* in structure, but tympana undeveloped, hind femur almost 1.9 times as long as hind tibia, and hind basitarsus with 6–7 outer and 4–6 inner dorsal denticles. Anal plate small, roundly triangular and unspecialized (i.e. without rudiments of teeth or spines); genital plate short (almost twice as wide as long) and with strongly convex posterior edge (this plate also unspecialized: without rudiments of spines). Genitalia completely formed, except for rami and formula (or these sclerotized structures absent): epiphallus divided into left and right



Figs 20–28. Phaloriinae (Phaloriini): 20, 21, *Trellius (Zatrellius) kinabalu* **sp. nov.**; 22, *T. (Z.) crocker* **sp. nov.**; 23, 24, *T. (Z.) tawau* **sp. nov.**; 25, *T. (Neotrellius) logunovi* **sp. nov.**; 26, *T. (N.) simulator* **sp. nov.**; 27, *Borneloria* sp.; 28, *Phaloria (Papuloria) multa* **sp. nov.** Male tegmina in rest position with visible parts of hind wings from above (20, 22, 23); same structures but with head and pronotum from above (25); distal part of ovipositor from below, reconstructed (21, 24) and original (26–28) views.

Figs 29–43. Phaloriinae (Phaloriini), male: 29–31, *Trellius (Zatrellius) kinabalu* **sp. nov.**; 32–34, *T. (Z.) crocker* **sp. nov.**; 35–37, *T. (Z.) tawau* **sp. nov.**; 38, 39, *T. (Neotrellius) logunovi* **sp. nov.**; 40, 41, *T. (N.) tonkinensis* (Chop.); 42, 43, *T. (N.) simulator* **sp. nov.** Genitalia from above (29, 32, 35, 39, 41), from below (30, 33, 36) and from side (31, 34, 37, 38, 40), as well as their distal half from side (42) and from above (43).

sclerotized plates by narrow median membranous stripe (as in *Tramlapiola* Gorochov, 1990 and *Crockeriola* Gorochov et Kostia, 1999), but these plates without distinct posteroventral processes, and their anterior parts connected with each other by very narrow arcuate ribbon (as in *Crockeriola*); each distal lobe of these epiphallic plates not very long, slightly curved and with angular projection on dorsal surface; endoparameres presented by a pair of rather wide transverse ribbons; rachis long, rather narrow and with thin dorsal process which somewhat shorter than ventral rachial lobe (i.e. rachis more similar to that of *Tramlapiola* than to that of *Crockeriola*) (Figs 17–19).

Imago unknown.

Length in mm. Body 10.5; pronotum 2.4; tegminal pads 2.8; hind femora 8.5.

Comparison. The new species is probably most related to the representatives of *Tramlapiola* and *Crockeriola* (each of these genera is with one species) but clearly distinguished from them by the male genital characters listed in the description. From all the other representatives of Pteroplistinae, the new species also distinctly differs in the structure of male copulatory device: male anal and genital plates evidently lack teeth and spines; genitalia are symmetrical, epiphallus is almost divided into two halves by a rather long median membranous stripe; rachis is long and rather narrow and with thin dorsal process; ectoparameres are undeveloped. Thus, this species may belong to a new genus, but for a more correct decision, it is necessary to study additional material.

Etymology. The new species is named after the Bu Gia Map National Park.

Subfamily **PHALORIINAE**
Gorochov, 1985

Tribe **PHALORIINI** Gorochov, 1985

***Trellius* (*Zatrellius*) *kinabalu* sp. nov.**
(Figs 20, 21, 29–31)

Holotype. Male, **Malaysia**, Sabah State (Borneo), southern part of Kinabalu National Park on Kinabalu Mt, 1500–2000 m, primary forest, on leaf of bush at night, 26.IV–1.V.2013, A. Gorochov, M. Berezin, V. Gorochova, E. Tkatsheva (ZIN).

Paratypes. Male and 2 females, same data as for holotype.

Description. Male (holotype). Body medium-sized for this genus. Colouration brownish grey with following pattern: epicranium (including eyes) almost uniformly greyish brown with somewhat lighter ocelli; antennae uniformly light brown but with slightly darker area on medial surface of scapes; mouthparts light brown with upper half of clypeus and proximal part of mandibles brown, and with more or less whitish palpi having darkened areas on proximal half of third and fourth segments of maxillary palpus as well as on distal part of fifth segment of this palpus; pronotum with almost uniformly dark brown lateral lobes and spotted (brown with a few light brown marks) disc; tegmina brownish grey, rather light and semitransparent but with somewhat darker venation in basal and apical areas of dorsal field as well as in lateral field; hind wings with almost grey distal part; legs spotted, i.e. with numerous light brown, brown and dark brown marks; rest of body more or less uniformly brownish grey. Structure of head and pronotum typical of genus *Trellius* Gor. Tegmina strongly protruding beyond abdominal apex, rather wide, with venation of dorsal field almost as in Fig. 20, and with lateral field having most part of costal area very wide and containing 21–22 branches of *Sc* (these branches oblique in proximal part and almost transverse in rest parts), *Sc-R* area very narrow, and *R-M* area moderately wide and crossed by rather sparse and regular crossveins; hind wings strongly projected behind tegminal apices. Legs rather long and thin, but hind femur with distinctly thickened proximal half; fore tibia somewhat widened near base, with rather large, elongated and barely immersed inner tympanum, and with slightly smaller, oval and not immersed outer tympanum; hind tibia with rather long and movable dorsal spines, very long

inner dorsal spur reaching apex of second tarsal segment, comparatively short inner ventral and outer middle spurs, and very short inner dorsal and inner ventral spurs; hind basitarsus without distinct denticles but with a pair of spurs (outer spur short; inner spur almost twice as long as outer one). Abdominal apex also typical of genus *Trellius*; genitalia similar to those of *T. (Z.) communis* Gor. and *T. (Z.) andamanensis* Gor. in development of a pair of long and characteristically widened distal epiphallic lobes (Figs 29, 30), but widened part of these lobes with widely rounded (not angular) proxilateral projection and without any distomedial hook, ectoparameres much longer, rachis (= guiding rod) less deeply bifurcated, endoparameres larger and with much longer apodemes, and rami not fused with each other in anterior part of genitalia (Figs 29–31).

Variations. Second male with barely lighter epicranium having slightly darker spot on rostrum and a pair of longitudinal lines on posterior half of dorsum, and with less distinctly spotted maxillary palpi.

Female. General appearance similar to that of male paratype, but: pronotum less widened in posterior part; tegmina with much narrower dorsal field having 12–13 longitudinal but partly oblique veins (these veins barely arcuate in proximal half of this field) and regular and numerous (but not very dense) crossveins, with costal area having 17–19 branches of *Sc* (these branches somewhat more oblique than in male), and with widened *Sc-R* area which almost twice as wide as *R-M* area; colouration of dorsal tegminal field somewhat darker than in males (intensively greyish brown with dark venation). Genital plate large, slightly longer than wide, somewhat narrowing to apex, with widely concave posterior edge; ovipositor moderately short (hind femur approximately 2.3 times as long as ovipositor), with apical part as in Fig. 21.

Length in mm. Body: male 10–11.5, female 10.5–11; body with wings: male 24–25, female 23.5–25; pronotum: male 2.3–2.5, female 2.3–2.6; tegmina: male 17–17.5, female 16.5–17; hind femora: male 11–11.7, female 11.4–11.7; ovipositor 4.9–5.1.

Comparison. The new species clearly differs from *T. (Z.) communis* (Thailand and Cambodia) and *T. (Z.) andamanensis* (Andaman Islands) in the characters of male genitalia listed above, in the description.

Etymology. The new species is named after the Kinabalu Mount.

Trellius (*Zatrellius*) *crocker* sp. nov.
(Figs 22, 32–34)

Holotype. Male, **Malaysia**, Sabah State (Borneo), Crocker Range National Park not far from Keningau Town, 1000–1300 m, secondary/primary forest, 2–6.V.2013, A.Gorochov, M. Berezin, V. Gorochova, E. Tkatsheva (ZIN).

Description. Male (holotype). Size, colouration and structure of body similar to those of males of *T. (Z.) kinabalu* but with following differences: epicranium with dark brown dorsal half (including rostral apex) having brownish grey eyes and middle parts of genae, and with light greyish brown ventral half having a pair of dark stripes along medial edges of antennal cavities and one rather small dark area under each eye; antennae and mouthparts light brown with yellowish labrum and almost whitish palpi (but apex of apical segment of maxillary palpus slightly darkened); pronotum dark brown with a pair of rather large light brown spots on distal half of disc; tegmina without darkened marks on basal area of dorsal field and with lighter venation (all veins of dorsal field not darker than its membranes, and veins of lateral field only barely darker than membranes); venation of dorsal tegminal field as in Fig. 22; tegminal *Sc* with 23–24 branches; inner dorsal spur of hind tibia slightly protruding beyond apex of second tarsal segment; genitalia in dorsal view with distal epiphallic lobes more arcuate in proximal half and narrower in distal half, with much smaller (shorter) ectoparameres lacking distinct processes projected behind bases of above-mentioned epiphallic lobes, with larger rachis which more deeply bi-

furcated and strongly curved upwards, and with somewhat longer rami (Figs 32–34).

Female unknown.

Length in mm. Body 11.3; body with wings 23; pronotum 2.1; tegmina 11; hind femora 10.5.

Comparison. The new species is distinguished from *T. (Z.) kinabalu* by the male genital characters listed in the description. From *T. (Z.) communis* and *T. (Z.) andamanensis*, the new species differs in the epiphallic distal lobes less widened in the distal half, ectoparameres lacking distinct processes projected behind the bases of these epiphallic lobes, rachis strongly curved upwards, endoparameres larger and with longer apodemes, and rami not fused with each other in the anterior part.

Etymology. The new species is named after the Crocker Range.

Trellius (*Zatrellius*) *tawau* sp. nov.
(Figs 23, 24, 35–37)

Holotype. Male, **Malaysia**, Sabah State (Borneo), Tawau Hills National Park near Tawau City, 200–400 m, secondary/primary forest, on leaf of tree near brook at night, 14–20.V.2013, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Paratype. Female, same locality as in holotype, 6–14.III.2014, M. Berezin.

Description. Male (holotype). Size, colouration and structure of body very similar to those of male of *T. (Z.) crocker* but with following differences: dorsum of epicranium behind lateral ocelli slightly lighter (brown) but with four dark longitudinal lines; lower part of epicranium crossed by a pair of dark brown stripes, running from medial halves of antennal cavities to clypeal suture, and with dark transverse band dividing lighter median part of lower rostral surface into two areas (small dorsal area and longer ventral one); venation of dorsal tegminal field as in Fig. 23; genitalia with distal epiphallic lobes slightly different in shape (Figs 35, 36), with rachis having distal processes distinctly wider in middle part, and with notch between proximal parts of these processes much wider (almost round) (Figs 35–37).

Female. General appearance similar to that of female of *T. (Z.) kinabalu*, but head dorsum and pronotal disc almost uniformly brown, tegmina light brown with brown venation, tegminal venation with 14–15 branches of *Sc*, legs with slightly less contrasting colouration, ovipositor somewhat shorter (hind femur almost 2.6 times as long as ovipositor) and with apical part as in Fig. 24.

Length in mm. Body: male 12.5, female 11; body with wings: male 22, female 21.5; pronotum: male 2.1, female 2.2; tegmina: male 16, female 15.5; hind femora: male 10, female 10.5; ovipositor 4.

Comparison. The new species is most similar to *T. (Z.) crocker* in the rachis of male genitalia strongly curved upwards, but it is distinguished from the latter species by the characters of these genitalia listed in the description. From *T. (Z.) kinabalu*, *T. (Z.) communis* and *T. (Z.) andamanensis*, the new species differs in the same characters as *T. (Z.) crocker*.

Etymology. The new species is named after the Tawau Hills National Park.

Trellius (*Neotrellius*) *logunovi* sp. nov.
(Figs 25, 38, 39)

Holotype. Male, **Vietnam**, Tuyen Quang Prov., 5 km E of Na Hang, 22°20'59''N, 105°25'36''E, 290 m, 4–13. XI.2015, D. Logunov (ZIN).

Description. Male (holotype). Body medium-sized for this genus and with following colouration: head light greyish brown with a few greyish brown marks on rostrum, four longitudinal brown stripes on dorsum behind rostrum, two pairs of brown areas behind eyes and on lower parts of genae, four vertical greyish brown stripes on epicranium under eyes and antennal cavities, a few small darkened spots on mouthparts (including somewhat darkened apical parts of maxillary palpi), and almost greyish brown distal part of antennal flagellum; pronotum almost completely dark brown but with poorly visible barely lighter marks on disc and lateral lobes; tegmina light brown with brown venation; legs and visible dis-

tal parts of hind wings also light brown, but legs with barely darker spots; venter of body light brown with partly darkened genital plate; rest part of abdominal apex with more or less darkened areas (including slightly darkened cerci). Rostrum of head between antennal cavities almost equal to scape in width; all ocelli rather small (median ocellus almost equal to lateral ones in size); pronotum similar to that of above-mentioned congeners in structure; venation of tegminal dorsal field as in Fig. 25; tegminal lateral field with wide costal area having 21–22 almost transverse *Sc* branches, with very narrow *Sc*-*R* area (these areas without crossveins), and with rather widened *R*-*M* area having regular crossveins; hind wings barely projected behind tegminal apices; legs with medium-sized and elongately oval inner and outer tympana (inner tympanum slightly longer than outer one), with dorsal surface of hind tibia having four pairs of rather long and movable articulated spines as well as moderately numerous and very small unarticulated denticles mainly on dorsolateral edge, and with inner dorsoapical spur of this tibia reaching apex of second segment of hind tarsus. Abdominal apex similar to that of other congeners; genitalia most similar to those of *T. (N.) tonkinensis* (Chop.), but distal epiphallic lobes more arcuate in posterior half, dorsoproximal lobules of these lobes narrower and thinner in profile, posteromedial sclerites of epiphallus (ectoparameres?) between bases of above-mentioned epiphallic lobes clearly narrower in posterior part, endoparameres (which located almost as in this species, i.e. much before all posteromedial sclerotized parts of genitalia) with larger plate-like lateral parts, formula with distinctly shorter and narrower apodeme, and rami clearly longer than rest structures of genitalia but much shorter that those of *T. (N.) tonkinensis* (for comparison see Figs 38, 39 and 40, 41).

Female unknown.

Length in mm. Body 15.3; body with wings 21; pronotum 3.2; tegmina 15.7; hind femora 14.5.

Comparison. The new species is most related to *T. (N.) tonkinensis* described from another province of Vietnam and belongs to the same subgenus; *T. (N.) logunovi* differs from this species (previously only a single species of this subgenus) in the characters of male genitalia listed in the description.

Etymology. The new species is named after its collector.

Trellius (*Neotrellius*) simulator sp. nov.

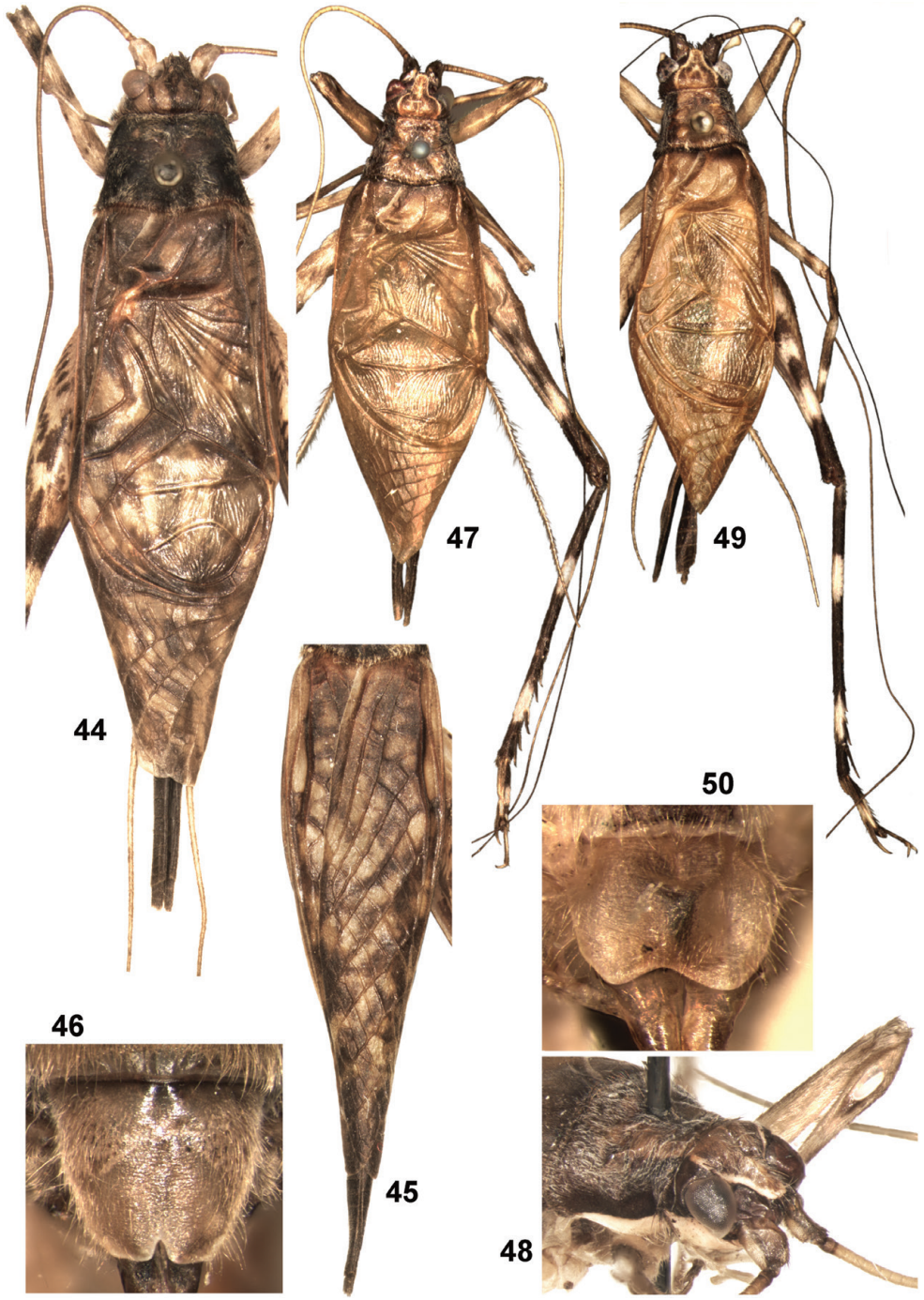
(Figs 26, 42, 43)

Holotype. Male, **Vietnam**, Ha Bac Prov., environs of Chi Linh Vill., X.1997, N. Orlov (ZIN).

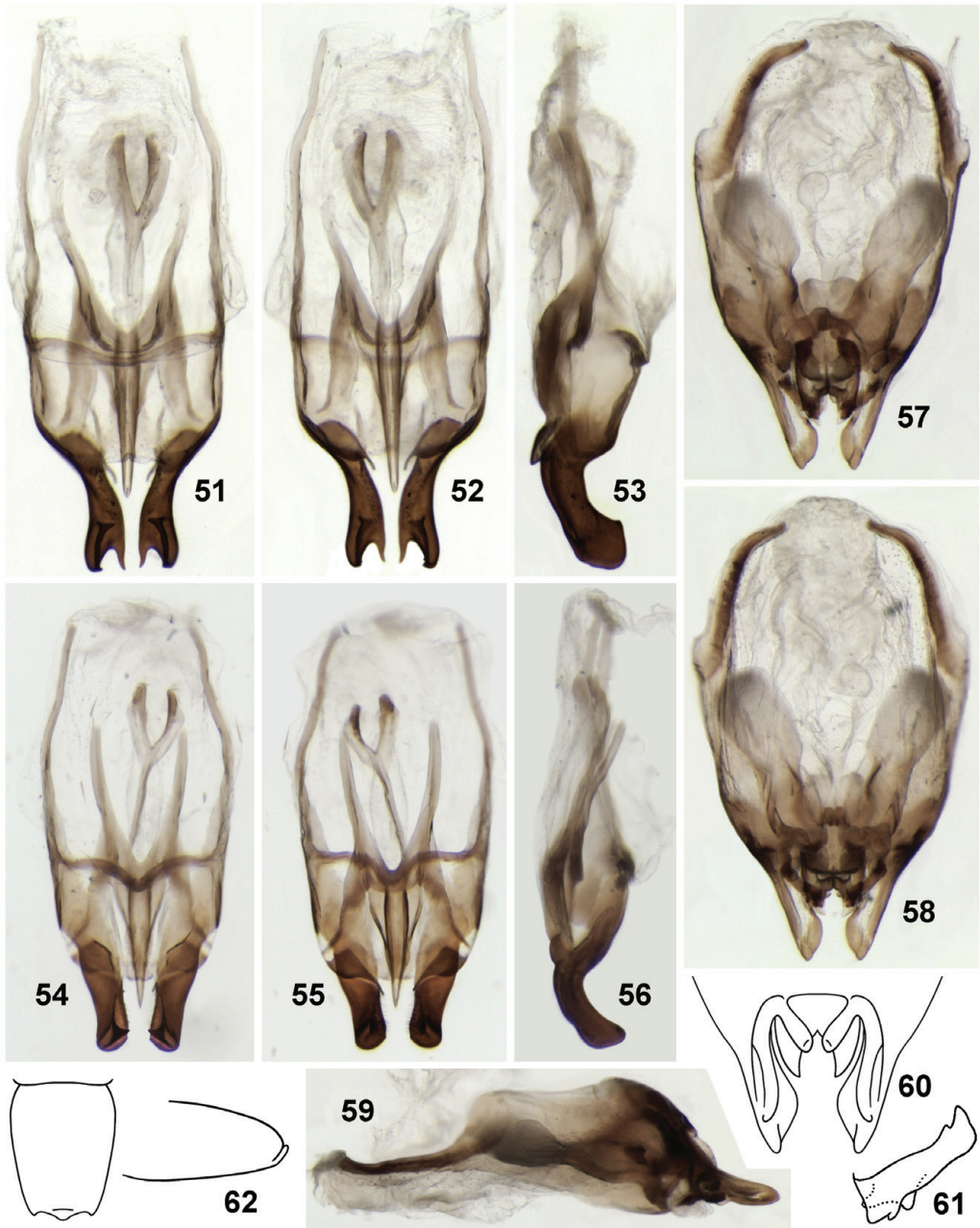
Paratype. Female, same data as for holotype (ZIN).

Description. Male (holotype). General appearance very similar to that of *T. (N.) logunovi* but with following small differences: head with more distinct (wider) light vertical median stripe near rostral apex, with 18–19 branches of tegminal *Sc*, and with slightly less transverse mirror in dorsal tegminal field. Genitalia most similar to those of *T. (N.) tonkinensis*; however, posterolateral epiphallic lobes (processes) almost straight in profile, and posteromedial epiphallic lobules distinctly shorter as well as rounded (not almost rectangularly projected) posteriorly (for comparison see Figs 40, 41 and 42, 43).

Female. Size, colouration and structure of body similar to those of male, but: pronotum slightly less widening to prothorax; wings somewhat shorter, but hind wings slightly more protruding beyond tegminal apices; dorsal tegminal field darker (almost greyish brown), with convex longitudinal vein parallel to lateral edge and located near this edge (area between these vein and edge without crossveins), with 7–8 slightly oblique longitudinal branches, and with rather numerous (but more or less oblique) crossveins between these branches; lateral tegminal field light greyish brown with brown venation, with *Sc*–*R* area moderately wide and having rather sparse crossveins, and with 10–11 oblique branches of *Sc* (crossveins between these branches ab-



Figs 44–50. Phaloriinae (Phaloriini): 44–46, *Phaloria (Papuloria) multa* **sp. nov.**; 47, 48, *Borneloria spinosa* **sp. nov.**; 49, *B. moorei occidentalis* **subsp. nov.**; 50, *B.* sp. Male head, pronotum and tegmina with one or some legs, as well as with distal parts of hind wings and cerci in rest position from above (44, 47, 49); female tegmina with distal parts of hind wings in rest position from above (45); female genital plate from below (46, 50); male head with pronotum and fore leg from side as well as slightly in front and slightly from above (48).



Figs 51–62. Phaloriinae (Phaloriini), male: 51–53, *Borneloria spinosa* **sp. nov.**; 54–56, *B. moorei occidentalis* **subsp. nov.**; 57–61, *Phaloria (Papuloria) multa* **sp. nov.** ; 62, *B. spinosa*. Genitalia from above (51, 54, 57), from below (52, 55, 58) and from side (53, 56, 59); distal part of genitalia from above, schematically (60); left ectoparamere from below (61); genital plate, ventral and lateral views (62).

sent). Genital plate almost square but with narrowing distal part and rather shallow and widely rounded apical notch; distal part of ovipositor as in Fig. 26.

Length in mm. Body: male 12.5, female 11; body with wings: male 22, female 21.5; pronotum: male 2.1, female 2.2; tegmina: male 16, female 15.5; hind femora: male 10,

female 10.5; ovipositor 4.

Comparison. The new species is most similar to *T. (N.) tonkinensis* in the structure and length of its male genitalia but distinguished from the latter species by the characters of these genitalia listed in the description. From *T. (N.) logunovi*, *T. (N.) simulator* differs in the same characters as well as in the male genitalia longer and having the epiphallus less distinctly narrowed near the bases of posterolateral epiphallic lobes (see Figs 39 and 43).

Etymology. This species name is the Latin word "simulator" (imitator, shammer).

Trellius (*Trellius*) *vitalisi* (Chopard, 1925)

New material. **Vietnam**: male, Vinh Phu Prov., environs of Tam Dao Vill., 800–900 m, primary/secondary forest, on leaf of tree near small river at night, 1–11.VI.1995, A. Gorochov (ZIN); 2 male and female, Cao Bang Prov., Nguen Binh Distr., Quang Thanh Vill., 4–13.V.1998, N. Orlov (ZIN); male, Ha Tinh Prov., Huong Son Vill. on Rao An River, 18°21'N, 105°13'E, primary forest, IV.2000, N. Orlov (ZIN).

Note. These specimens are very similar to each other and to the original description of this species, but they have very small differences in the body colouration and shape of some male genital structures. I cannot exclude that they may be divided into a few subspecies; however, this question is in need of additional data. This North Vietnamese species was described from "Hoa Binh" (Chopard, 1925) and recorded from the Bak Thai Province (Gorochov, 1988a). Here, it is indicated for three other localities of the North Vietnam.

Trellius (*Protrellius*) *siveci* Gorochov, 1996

New material. **Malaysia**: male, Penang I. between Malacca and Sumatra, Penang Mt, 800 m, secondary forest, on leaf of bush near brook at night, 20–24.XI.2014, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Note. This species originally described from Malacca (Perak State) is here recorded from the Penang Island for the first time.

Trellius (*Protrellius*) *perbonus* Gorochov, 1999

New material. **Indonesia**: male, Western Java, Cinumpang in environs of Sukabumi City, 800 m, forest, 28.III.2003, M. Berezin (ZIN).

Note. This species originally described from one male with the label "Java" (Gorochov, 1999) is here indicated for a more exact locality.

Trellius (*Protrellius*) *duplicatus* Gorochov, 1999

New material. **Indonesia**: 2 males, Western Java, 20–25 km SE of Bogor City, environs of Cemande Vill. in Pangrango Mts, 1000 m, secondary forest, on leaves of trees near small river, 27.XI–7.XII.1999, A. Gorochov (ZIN).

Note. This species originally described also from Java without other data (Gorochov, 1999) is here recorded from a more exact locality.

Genus *Borneloria* gen. nov.

Type species *Borneloria spinosa* **sp. nov.**

Diagnosis. Body rather small and slender. Colouration characteristic, contrasting: dorsum of head, pronotal disc and tegmina more or less greyish brown, but head with almost yellowish line separating this greyish brown part from nearest parts; lower half of head and band on pronotal lateral lobe along its ventral edge very light; areas on both head and pronotum situated between greyish brown and very light parts dark brown or blackish; hind tibiae and tarsi also dark or very dark but with three whitish transverse bands (two of them on tibia, and one band on basitarsus). Rostrum of head rather long (longer than in most genera of this tribe), in profile with more or less angular apex and oblique anterior edge between rostral apex and lower part of epicranium (Figs 47–49); pronotum distinctly widening to pterothorax, with sinuate ventral edges of lateral lobes (Fig. 48); wings completely developed, typical of this tribe (Figs 47, 49); legs long and very thin but with somewhat thickened proximal two thirds of hind femur; fore tibia

with two oval tympana on both sides; hind tibia with four pairs of rather short and movable dorsal spines, more numerous and very small dorsal denticles, and six apical spurs very inequal in length; abdominal apex also typical of Phaloriini, but male genital plate elongate and with almost truncated apex having one small median angular lobule curved upwards/forwards (almost hook-like; Fig. 62), and female genital plate moderately large and slightly wider than long as well as with shallow rounded posteromedian notch and short rounded lobes around it (Fig. 50). Male genitalia peculiar: epiphallus almost plate-like and semimembranous but with a pair of moderately long and sclerotized distal lobes somewhat curved upwards and having slightly widened (in profile) distal parts; ectoparameres small, plate-like and almost not separated from bases of epiphallic distal lobes; endoparameres fused with each other, with rather long posterior arms and anterior apodemes; rachis rather large (long), gradually narrowing to almost spine-like apex and more or less fused with endoparameral median lobe near rachial base; formula deeply notched in anterior part and with rather thin unpaired apodeme directed backwards; rami long and thin (Figs 51–56). Ovipositor moderately long (but distinctly shorter than hind femur) and with clearly drilling apex (Fig. 27).

Included species. Type species and *Heterotrypus moorei* Chopard, 1940 (Borneo).

Comparison. The new genus is most similar to the genus *Sumatloria* Gor. in the general appearance, but it is distinguished from the latter by the epiphallus larger (longer), ectoparameres much shorter, distal half of rachis distinctly narrower, median endoparameral part clearly larger, formula different in the shape, and its unpaired apodeme much lower. From *Pseudotrigonidium* Chop., the new genus differs in the presence of both tympana (not only inner one) and in the formula of male genitalia having the unpaired apodeme directed backwards but not forwards or upwards; from *Phaloria* Stål and *Strophiola* Uv., in the endoparameres fused with each other; from *Trellius* and *Ceyloria* Gor., in the epiphallus undivided into two or more isolated sclerites; from *Vescelia* Stål and *Tremellia* Stål, in the ectoparameres much shorter and in the formula of male genitalia more strongly notched; and from all these genera, in the head rostrum more or less longer and with the anteroventral edge more oblique in the profile.

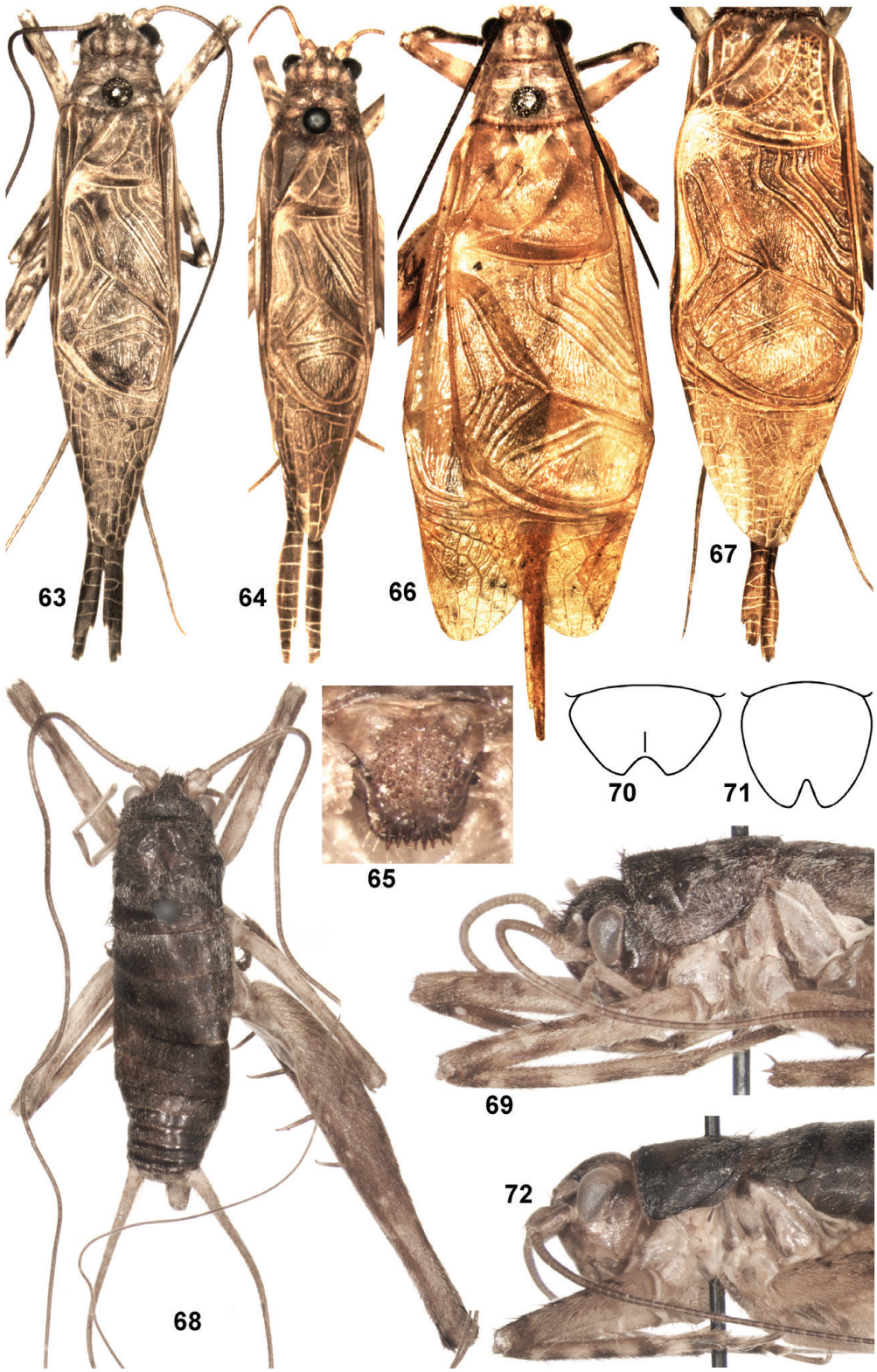
Etymology. The new generic name consists of parts of the following names: Borneo (geographic name) and *Phaloria* (generic name).

Borneloria spinosa sp. nov.
(Figs 47, 48, 51–53, 62)

Holotype. Male, **Malaysia**, Sabah State (Borneo), Tawau Hills National Park near Tawau City, 200–400 m, secondary/primary forest, on leaf of bush near brook at night, 14–20.V.2013, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Description. Male (holotype). Antennae with scape light greyish but having large greyish brown dorsomedial area, with pedicel also greyish brown, and with flagellum uniformly light yellowish grey (Figs 47, 48). Tegmina distinctly longer than body; their dorsal field light greyish brown but semitransparent, with venation as in Fig. 47; tegminal lateral field with band along dorsal edge from intensively brown at base to light brownish grey in distal part, with rest areas of this field whitish, and with venation similar to that of *T. (Z.) kinabalu*; hind wings distinctly protruding beyond tegmi-

Figs 63–72. Phaloriinae (Subtiloriini): 63, *Subtiloria semota* **sp. nov.**; 64, 65, *S. succinea korup* **subsp. nov.**; 66, *Schizotrypus conradti nigericus* **subsp. nov.**; 67, *Sch. c. conradti* (Gor.); 68–70, *Afrophaloria malawi* **sp. nov.**; 71, 72, *A. dja* **sp. nov.** Male body in rest position from above, without some legs (63, 64, 66, 68) and without head, pronotum and all legs (67); male anal plate without lateral parts from behind (65); anterior half of body from side, male (69) and female (72); female genital plate from below (70, 71).


63
64
66
67
70
71
65
69
72
68


73
74
75
78
79
80
82
83
84
76
77
81
85

nal apices and with almost dark grey distal parts (Fig. 47). Fore and middle legs light yellowish grey but with slightly darkened rings around tympana and two elongate dorsal spots on tibiae (on their middle and distal parts), with greyish ventral mark on distal part of middle femur and dorsal mark on proximal part of middle tibia, and with barely darkened distal two thirds of fore and middle tarsi; hind femur yellowish with two darkish areas in middle third and almost dark brown distal femoral portion (Fig. 47); outer tympanum oval but not very long; inner tympanum slightly larger (longer) and almost not immersed. Cerci and venter of body yellowish grey, light; distal part of abdominal dorsum somewhat darkened. Genitalia with anterior edge of epiphallus having shallow and rounded median notch, with distal epiphallic lobes rather high and having distinctly widened (in profile) distal parts, and with one distinct spine on ventromedial edge of distal part of each distal epiphalic lobe (Figs 51–53).

Female unknown.

Length in mm. Body 10; body with wings 17; pronotum 2.1; tegmina 12; hind femora 9.5.

Etymology. This new species is named by the Latin word "spinosa" (spinose, spiked) in connection with the presence of characteristic spines on the distal epiphallic lobes in male.

Borneloria moorei occidentalis **subsp. nov.**

(Figs 49, 54–56)

Holotype. Male, **Malaysia**, Sarawak State (Borneo), environs of Kuching City, Kubah National Park on Matang Mt, 200–500 m, primary forest, on leaf of bush near brook, 27.XI–1.XII.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Description. Male (holotype). General appearance very similar to that of *B. spinosa*, but with following differences: greyish brown areas on dorsal parts of both head and pronotum slightly lighter and with barely wider yellowish line separating such area on head from darker parts (Fig. 49); antennal scape completely brown; distal half of antennal flagellum somewhat darkened; middle femur with almost complete brownish grey ring near apex; tegmina with dorsal field yellowish grey and venation as in Fig. 49; genitalia with anterior edge of epiphallus having slightly deeper and almost angular median notch, with distal epiphallic lobes lower and having less widened distal part, and without spine on ventromedial edge of each distal epiphallic lobe (however, apodemes of endoparameres and of formula almost as long as in *B. spinosa*, and apex of rachis not bifurcated, similar to that of this species) (Figs 54–56).

Female unknown.

Length in mm. Body 10; body with wings 17; pronotum 2.1; tegmina 12; hind femora 9.5.

Comparison. The new subspecies is described from the western part of Sarawak and differs from the nominotypical subspecies, known only from the eastern part of Sarawak (Dulit Mt), in the apical area of male tegminal dorsal field somewhat longer [in *B. m. occidentalis*, this area is approximately 1.1 times as long as the mirror, but in *B. m. moorei* (Chop.), such ratio is about 0.8], distal epiphallic lobes more strongly curved upwards, apodemes of endoparameres and of formula longer, and apex of rachis acute, spine-like (in *B. m. moorei*, this apex is barely bifurcated; see Gorochov, 1999: figs 39–45). From *B. spinosa*, the new subspecies is distinguished by the characters listed in the description.

Figs 73–85. Phaloriinae (Subtiloriini): 73–77, *Subtiloria semota* **sp. nov.**; 78–81, *S. succinea korup* **subsp. nov.**; 82–84, *S. subtilis* (Gor.); 85, *Schizotrypus conradti nigericus* **subsp. nov.** Male genitalia from above (73, 78, 82), from below (74, 79, 83) and from side (75, 80, 84); male (76, 81, 85) and female (77) genital plates from below.

Etymology. The new subspecies name is the Latin word "occidentalis" (western).

Borneloria sp.
(Figs 27, 50)

New material. **Indonesia**: female, East Kalimantan (Borneo), ~20 km N of Balikpapan City, Bukit Bangkirai Park, 1°1'43"S, 116°51'49"E, secondary forest on hills, on leaf of bush at night, 4–8.X.2015, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva (ZIN).

Note. This female is very similar to the other congeners, described only from males, and cannot be determined more exactly. It is the first record of this genus from the Indonesian part of Borneo.

Phaloria (*Papuloria*) *tristis*
Gorochov, 2014

New material. **Malaysia**: 3 males and female, Sabah State (Borneo), Tawau Hills National Park near Tawau City, 200–400 m, primary/secondary forest, on leaves of bushes at night, 14–20.V.2013, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Note. This species, originally described from two localities in Sarawak and one locality in Sabah (Gorochov, 2014), is here recorded from another locality of the Sabah State.

Phaloria (*Papuloria*) *paratristis*
Gorochov, 2014

New material. **Malaysia**: male, Sarawak State (Borneo), 80–90 km WWN of Kuching City, Gunung Gading National Park, 100–300 m, primary/secondary forest, on leaves of bushes at night, 22–26.X.2016, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Note. The species was originally described from three localities in Sarawak (Gorochov, 2014). Now it is indicated for another locality of the same state.

Phaloria (*Papuloria*) *multa* sp. nov.
(Figs 28, 44–46, 57–61)

Holotype. Male, **Indonesia**, Southeast Sulawesi, environs of Kendari City, 3°57'28"S, 122°34'12"E, secondary/primary forest on hills, on leaf of bush near brook at night, 21.IX–2.X.2015, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva (ZIN).

Paratypes. **Indonesia**: 6 males and 4 females, same data as for holotype (ZIN); 2 males, Southeast Sulawesi, ~30 km SE of Kendari City, environs of Moramo Waterfall, 4°13'33"S, 122°44'9"E, primary forest on hill, on leaves of bushes at night, 29.IX.2015, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva (ZIN); 2 males and 2 females, Buton I. near Southeast Sulawesi, environs of Baubau Town, 5°28'55"S, 122°38'18"E, secondary forest on hills, on leaves of bushes near water at night, 25–26.XI.2015, A. Gorochov, M. Berezin, I. Kamskov, E. Tkatsheva (ZIN).

Description. Male (holotype). General appearance more or less similar to that of *Trellius* representatives previously discussed here: colouration of body light greyish brown with characteristic brown marks on head dorsum (Fig. 44), a pair of brown spots behind eyes, six greyish brown vertical stripes on lower part of epicranium (a pair of medial stripes running to rostral apex), two pairs of slightly darkened spots on upper half of clypeus and on subgenae, greyish lateral parts of labrum, small brown mark on outer surface of third segment of maxillary palpus, greyish brown distal two thirds of antennal flagellum, dark brown pronotum having three small lighter spots on each lateral lobe, distinctly spotted (with brown and yellowish spots) dorsal tegminal field (Fig. 44), almost transparent lateral tegminal field having brown to light brown venation, brownish grey distal parts of hind wings visible behind tegminal apices, distinctly spotted legs, and barely darkened dorsum of abdominal apex (but cerci light); scape approximately as wide as rostrum between antennal cavities; mediam ocellus much smaller than lateral ones; pronotum less widening to pterothorax (Fig. 44); tegmina with somewhat narrower dorsal field (its venation as in Fig. 44) and with lateral field having 25–26 *Sc* branches; hind wings distinctly protruding beyond tegminal apices; tympana oval, but outer tympanum distinctly shorter than inner one, i.e. less

elongated than in above-mentioned representatives of *Trellius*; armament of hind tibia similar to that of *T. (N.) logunovi*. Genitalia characteristic of this subgenus of *Phaloria* but with following features: epiphallus narrowing to apex, with long and rather wide (high) anterolateral parts, with short (but not very short) median part, with moderately short posterolateral (distal) lobes having slightly concave proximedial edges and convex distomedial edges as well as almost straight (oblique) lateral edges and more or less angular apical parts; each ectoparamere rather small and in shape of oblique ribbon having four small distal tubercles (two apical tubercles situated very near each other, and two subapical ones slightly larger than apical tubercles and located dorsally; Fig. 61); each endoparamere with two rather short and curved posterior arms connected with base of ectoparamere and with base of rachis (but not with analogous arms of opposite endoparamere), and with wide but not very long anterior apodeme; rachis moderately large, slightly elongated (almost subsquare in shape), with rather deep and moderately wide posteromedian notch, with slightly longer and wider anteromedian notch, and with lamellar and almost acute apical lobules; formula rather large, in shape of roundly square semisclerotized plate having posteromedian part more sclerotized; rami fused with epiphallus (but not with each other) and distinctly shorter than this structure (Figs 57–61).

Variations. Dark marks on head sometimes barely larger or smaller; pronotal disc in some males with traces of small lightish spots; size of tegminal mirror, number of *Sc* branches in tegmina and armament of hind legs insignificantly varied.

Female. Size, colouration and structure of body similar to those of male, but structure of tegmina more similar to that of females of *T. (Z.) kinabalu* and *T. (Z.) tawau* (*Sc* having 15–17 branches, and dorsal field with 10–12 longitudinal veins; Fig. 45); genital plate moderately large, almost as long as wide, distinctly narrowing to rather widely truncated apex and having very small (narrow) posteromedian notch (Fig. 46); ovipositor rather short (hind femur approximately twice as long as ovipositor) and with distal part as in Fig. 28.

Length in mm. Body: male 16–17, female 13.5–15; body with wings: male 21–23, female 19–22; pronotum: male 3.2–3.4, female 3–3.2; tegmina: male 18–19, female 17.5–18.5; hind femora: male 14.5–15.5, female 13–14; ovipositor 6.5–7.

Comparison. The new species is most similar to *Ph. (P.) aspersa* Gor. widely distributed in the Papuan Region (New Gunea and nearest islands), but it differs from the latter species in the distal epiphallic lobes shorter, rachis smaller, and ectoparameres almost straight (not slightly S-shaped). From some other species of this subgenus having similar shape of the ectoparameres, *Ph. (P.) multa* is distinguished by the absence of large apical spine on the ectoparamere (from *Ph. solita* Gor. distributed in the same region), by the presence of apical ectoparameral tubercles (from *Ph. vulgata* Gor. with similar distribution), by the distal epiphallic lobes shorter (from *Ph. tariku* Gor.; New Guinea) and not bilobate (from *Ph. verecunda* Gor.; New Guinea), by the apical lobules of rachis not very long and not curved (from *Ph. pulchra* Gor., *Ph. rava* Gor., *Ph. pararava* Gor., *Ph. neorava* Gor. and *Ph. gilva* Gor.; New Guinea), and by the apical area of male dorsal tegminal field long (from *Ph. curta* Gor. having this area significantly shortened; New Guinea). From *Ph. sulawesi* Gor. (Northeast Sulawesi) with unclear subgeneric position, the new species differs in the pronotum darker, tegmina with the dorsal field spotted (not unicolorous) and with the venation of lateral field darker, female genital plate truncated and with a small (narrow) posteromedian notch (*vs.* this plate strongly and widely concave at the apex), and ovipositor longer. From the other similar congeners, *Ph. (P.) multa* is distinguished by the following combination of characters: ectoparameres ribbon-like and obliquely situated, distal epiphal-

lic lobes not very long and not bifurcated, endoparameral apodemes not very wide and not very long.

Etymology. The new species name is the Latin word "multa" (numerous).

Phaloria (*Papuloria*) *vulgata* Gorochov, 1996

New material. **Indonesia**, Papua Prov. (New Guinea): male and female, Bagusa Vill. near mouth of Mamberamo River, lowlying forest, 22–24.I.2012, A. Gorochov (ZIN); 2 males and female, Kasonaweja Vill. on Mamberamo River near Van Rees Range, forest on hills, 25–27.I.2012, A. Gorochov (ZIN); 3 males and 7 females, environs of Fawi [= Faowi] Vill. in upper part of Tariku River (tributary of Mamberamo River), partly lowlying forest / partly forest on hills, 29.I–17.II.2012, A. Gorochov (ZIN).

Note. This species, widely distributed in Papuan Region (New Guinea, Solomon Islands and some other nearest islands; Gorochov, 1996, 1999, 2005), is here recorded from three new localities. These specimens have very small differences in the body colouration as well as in the shape of rachial apex; possibly this species may be divided into a few subspecies, but their description is now premature due to the presence of specimens with intermediate characters.

Phaloria (*Papuloria*) *aspersa* Gorochov, 1996

New material. **Indonesia**, Papua Prov. (New Guinea): 9 males and 6 females, environs of Fawi [= Faowi] Vill. in upper part of Tariku River (tributary of Mamberamo River), partly lowlying forest, on walls of small cave among rocks along river at daytime, 29.I–17.II.2012, A. Gorochov (ZIN); 1 male and 1 female, environs of Nabire Town, secondary forest on hill, on rocks along brook at night, 28.II–2.III.2012, A. Gorochov (ZIN).

Note. This species is here recorded from two localities different from those indicated previously (Gorochov, 1996, 2005: "Hol. N. Guinea, Pauwi-Samberi"; "D.N. Guinea i. Lager 29 km unterh. d. Mäanderberges a. Sepik"; "Supiori I. not far from northern coast of New Guinea, environs of vill. Korido").

Phaloria (*Papuloria*) *ostensa* Gorochov, 1999

New material. **Indonesia**: 8 males and 5 females, Papua Prov. (New Guinea), environs of Fawi [= Faowi] Vill. in upper part of Tariku River (tributary of Mamberamo River), partly lowlying forest / partly forest on hills, on leaves of bushes and trees at night, 29.I–17.II.2012, A. Gorochov (ZIN).

Note. This species, originally described from "Torecella Mt., Afua" in New Guinea (Gorochov, 1999), is here recorded from another locality.

Phaloria (*Papuloria*) *harzi* Gorochov, 1999

New material. **Indonesia**: male and 2 females, Papua Prov. (New Guinea), Waena Vill. near Jayapura City, 9–13.VIII.2012, N. Kluge, L. Sheyko (ZIN).

Note. Here, this species is recorded from a new locality situated not far from its type locality (Gorochov, 1999: "Kyklop Be. [= Cyclops Mts]"). The male studied has its genitalia also barely distinguished from those of *Ph. (P.) harzi* holotype, but possibly these differences are connected with insufficient sclerotization of the first genitalia.

Tribe **SUBTILORIINI** Gorochov, 2003 (2011)

Subtiloria semota sp. nov. (Figs 63, 73–77, 102, 103)

Holotype. Male, **Cameroon**, Southwest Region, Korup National Park not far from Nigeria, ~300 m, primary forest, on leaf of bush at night, 1–8.II.2016, A. Gorochov (ZIN).

Paratypes. **Cameroon**: male and 2 females, same data as for holotype (ZIN); female, border of South and East Regions, Dja Reserve on Dja River, ~600 m, primary / secondary forest, on leaves of bushes at night, 15–22.II.2016, A. Gorochov (ZIN).

Description. Male (holotype). Body rather large for this genus. Colouration following: head light yellowish (almost whitish) with light yellowish grey dorsum having slightly darker (brownish grey) dorsal part of rostrum and four longitudinal stripes on dorsum behind rostrum, with a pair of greyish stripes on anterior surface of rostrum (these stripes running from median ocellus to almost clypeal suture), with a few light greyish marks under eye and antennal cavity, with brownish grey antennal flagellum (except for its small basal part), as well as with dark brown eyes and whitish ocelli; pronotum brownish grey (but rather light) with very light (yellowish) band on each lateral lobe along its ventral edge and with several very light marks on disc; tegmina almost brownish grey with yellowish venation, slightly darker spots on some membranes of dorsal field, and almost transparent membranes of lateral field; distal parts of hind wings darker (greyish brown) with whitish venation; legs light with brownish grey spots and stripes; rest of body light brown with yellowish thoracic sternites and distal part of genital plate, as well as with greyish tinge on anal plate and cerci. Structure of body more or less similar to that of other congeners, but: scape almost 1.2 times as wide as space between antennal cavities; ocelli large and almost equal to each other in size; eyes very large (high); pronotum transverse and moderately widening to pterothorax; tegmina long and with venation as in Fig. 63; hind wings strongly protruding beyond tegminal apices; legs very slender but with hind femora somewhat thickened in proximal half; inner tympanum distinct (shortly oval, opened); outer tympanum larger (longer) and partly covered with large and inflated lobe of fore tibia; hind tibia with four pairs of long movable spines, six apical spurs (inner spines and spurs clearly longer than outer ones; inner dorsal spur longest, protruding slightly beyond second tarsal segment), and 4–5 small dorsolateral denticles more proximal than spines; hind basitarsus with 6–7 dorsolateral denticles only (except for a pair of apical spurs); anal plate without spines but with posterior part almost roundly truncated at apex; genital plate almost rectangular but somewhat semitubular and with slightly concave posterior edge (Fig. 76). Genitalia characteristic: epiphallus short, transverse, partly membranous (with weakly sclerotized anterior, median and posterior parts) and with small angular posteromedian notch; ectoparameres absent; endoparameres rather short (their posterolateral arms distinctly not reaching posterior edge of epiphallus), widely separated from each other but having short medial arms fused with rachis, and having small anterolateral apodemes; rachis very large, having a pair of long posterolateral processes (located not near each other) and much shorter posteromedian lobe (this lobe clearly wider than these processes) as well as low longitudinal ventromedian keel, and fused with rather short formula (anterior part of formula barely bilobated); rami similar to those of other congeners but distinctly shorter than in *S. stena* Gor. (Figs 73–75).

Variations. One male paratype with darkened parts of body slightly darker, but second one with light marks larger; dorsum of both pterothorax and abdomen partly or almost completely darkened.

Female. General appearance as in males, but tegmina barely darker and without stridulatory apparatus (dorsal field with 9–10 longitudinal but slightly arcuate and oblique veins, and with rather sparse crossveins), tegminal areas located near dorsal edge of lateral field moderately narrow and with sparse crossveins, tegminal *Sc* with 10–11 oblique veins (crossveins between them absent), spots on legs slightly more distinct, and anal plate shorter; genital plate longer than wide, slightly narrowing to apex, and with rather wide and moderately deep apical notch (Fig. 77); ovipositor with distal part as in Figs 102 and 103.

Length in mm. Body: male 10–12, female 10–11; body with wings: male 17–20.5, female 17–19; pronotum: male 1.9–2.1, fe-

male 2–2.1; tegmina: male 13–14, female 12–12.5; hind femora: male 8.5–9.3, female 8.5–8.8; ovipositor 7–7.5.

Comparison. The new species is clearly distinguished from all the congeners by the absence of spines on the male anal plate, and by the rachis of male genitalia rather wide and having posterolateral processes located not near each other.

Etymology. The new species is named by the Latin word "semota" (distant, dissimilar).

Subtiloria succinea korup subsp. nov.
(Figs 64, 65, 78–81)

Holotype. Male, **Cameroon**, Southwest Region, Korup National Park not far from Nigeria, ~300 m, primary forest, on leaf of bush at night, 1–8.II.2016, A. Gorochov (ZIN).

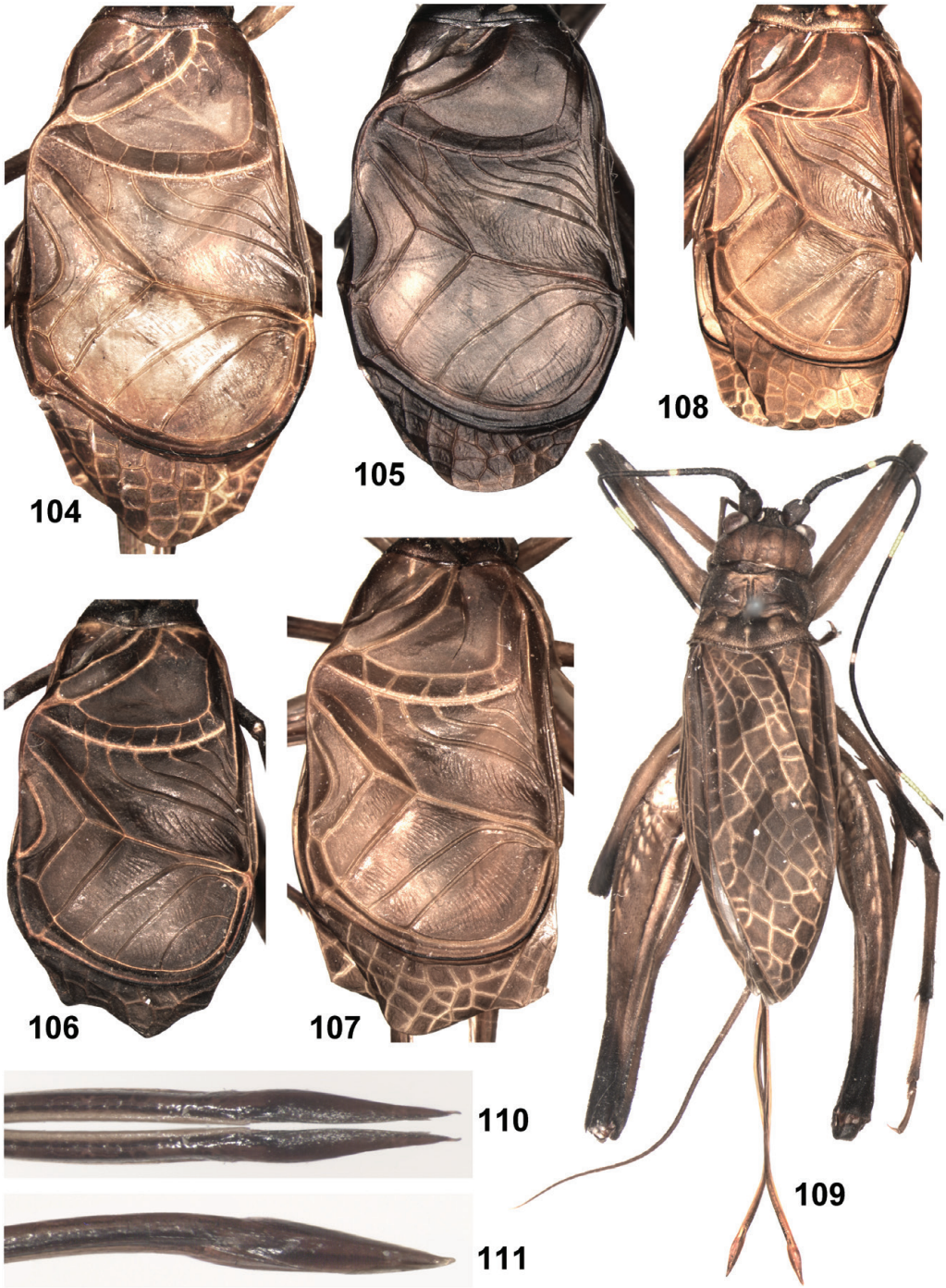
Description. Male (holotype). Body rather small for this genus, slender. Colouration following: head yellowish with greyish brown eyes, thin transverse stripe along upper edge of median ocellus, and small spot on upper part of membrane of each antennal cavity, with barely darkened dorsal surface of rostrum, four short longitudinal stripes on posterior part of epicranial dorsum, and a pair of oblique bands running from lower parts of eyes to middle part of clypeus, and with light greyish brown to greyish brown most part of antennal flagellum (short basal part of this flagellum lighter); pronotum also barely darkened (greyish), but longitudinal ventral band on each lateral lobe as well as a few marks on disc and between disc and lateral lobes lighter (yellowish); tegmina greyish with light yellowish (almost whitish) venation and almost transparent areas between *Sc* branches; hind wings with distal parts almost brownish grey and having whitish venation (Fig. 64); venter of body (including genital plate) and cerci yellowish; posterior part of abdominal dorsum barely darkened and with apical part of anal plate greyish brown. Structure of body typical of *Subtiloria*, but: all ocelli almost equal in size and rather large (distances between them almost equal their diameters); scape more or less equal to space between antennal cavities in width; venation of dorsal tegminal field as in Fig. 64; lateral tegminal field with very narrow *Sc*-*R* area lacking crossveins, and with 19–20 oblique branches of *Sc* (areas between these branches also without crossveins); hind wings strongly protruding beyond tegminal apices; inner tympanum opened, rather small and round; outer tympanum with membrane larger and oval as well as with strongly inflated lobe near this membrane (this tympanum partly opened and with strongly immersed membrane); hind tibia with four pairs of rather long and movable spines, six apical spurs, a few very small dorsolateral and dorsomedial denticles proximal in relation to these spines, and inner dorsal (longest) spur reaching base of second tarsal segment; hind tarsus with 4–5 dorsal denticles located almost on median line of basitarsus and with a pair of moderately long apical spurs on this basitarsus (inner spur almost twice as long as outer one); anal plate weakly elongate, slightly narrowing to widely truncated apex, and with one row of small and densely situated spinules at this apex (Fig. 65); genital plate slightly elongate, barely narrowing to widely notched apex (apical notch very wide, roundly trapezoidal and moderately deep; Fig. 81). Genitalia most similar to those of nominotypical subspecies, but posterior part of epiphallus somewhat narrower, ectoparameral sclerotizations clearly not reaching apices of posterolateral membranous lobes, and posteroventral processes of rachis slightly S-shaped (not almost straight) in profile (Figs 78–80).

Female unknown.

Length in mm. Body 10.5; body with wings 16.5; pronotum 1.6; tegmina 11; hind femora 8.

Comparison. The new subspecies is distinguished from *S. s. succinea* (Bol.) (Equatorial Guinea) by the mirror of male tegmina slightly larger (longer), and by the male

Figs 86–103. Phaloriini (Subtiloriini): 86–89, *Schizotrypus conradti nigericus* **subsp. nov.**; 90–93, *Sch. c. conradti* (Gor.); 94–98, *Afrophaloria malawi* **sp. nov.**; 99–101, *A. dja* **sp. nov.**; 102, 103, *Subtiloria semota* **sp. nov.** Male genitalia from above (86, 90, 94), from below (87, 91, 95) and from side (88, 92, 96); posteromedian projection of rachis from side and slightly above (89, 93); distal part of ovipositor from above (97, 100, 102) and from side (98, 101, 103); distal half of female copulatory papilla from below, schematically (99).



Figs 104–111. Cacoplistinae (Homoeogryllini): 104, *Homoeogryllus xanthographus* Guér.-Mén.; 105, *H. ambo* **sp. nov.**; 106, *H. reticulatus limbe* **subsp. nov.**; 107, *H. r. reticulatus* (F.); 108–111, *H. gabonensis* Des. Dorsal field of right male tegmen (104–108); female body from above (109); distal part of ovipositor, reconstructed view from above (110) and original view from side (111).

genital characters listed above (in its description). From the other congeners with the male genitalia similar, *S. s. korup* differs in the ocelli larger, ectoparameral sclerotizations shorter, and rachis longer [from *S. subtilis* (Gor.), Nigeria and Cameroon; see Figs 78–80 and 82–84], in the posterolateral lobes of male genitalia clearly shorter [from *S. villosa* (Chop.), Congo], and in the apical notch of male genital plate less shallow, proximal part of tegminal mirror (before dividing veins) shorter, and distal part of this mirror (behind dividing veins) longer [from *S. angusta* (Chop.), San Tome I.].

Etymology. This subspecies is named after the Korup National Park.

Schizotrypus conradti nigericus **subsp. nov.**

(Figs 66, 85, 86–89)

Holotype. Male, **Nigeria**, Cross River State, "900–1100 km Bueoro", 8.XI.1983 (ZIN).

Paratypes. **Nigeria**, same state: male, "2000, 27 km NE Calabar", 22.XI.1983 (BMNH); female, "80 km E of Calabar", 3.V.1982 (BMNH).

Description. Male (holotype). General appearance very similar to that of nominotypical subspecies. Body medium-sized; colouration yellowish with brown eyes, four slightly brownish longitudinal lines on posterior half of head dorsum, light brown median longitudinal stripe on rostral dorsum and small area between lateral ocelli, a few barely distinct darkish marks on lower half of anterior part of epicranium, greyish brown antennal flagellum, almost transparent membranes in tegminal mirror and between tegminal branches of *Sc*, barely distinct darkish spots on femora and hind tibia (but on hind leg, some of these spots slightly more distinct), brownish grey distal half of fore and middle tibiae as well as dorsal part of rest half of fore tibia (except for small basal part which light) and distal half of fore and middle tarsi (middle tibia also with slightly darkened spot on dorsal surface of its proximal half), and barely darkened posterolateral edges of anal plate. Structure of body also similar to that of nominotypical subspecies, but: tegminal mirror somewhat shorter (for comparison see Figs 66 and 67); anal plate with very shallow and asymmetrical apical notch and without any armament; genital plate with somewhat deeper apical notch (Fig. 85); and genitalia with anteromedian epiphallic plate having posteromedian part very narrow, with lateral epiphallic plates (located around latter part) having lateral arms narrow (short), and with posteromedian angular process of rachis almost acute in profile and slightly shorter (Figs 86–89).

Variations and female. Differences of all above-mentioned males in external structure from holotype of nominotypical subspecies as well as description of female paratype given in one of previous publications (Gorochov, 1999: *Sch. conradti*).

Length in mm. Body: male 13.5–16.5, female 15; body with wings: male 23–24, female 25; pronotum: male 2.2–2.3, female 2.6; tegmina: male 17–18, female 17.7; hind femora: male 11–11.3, female 11.2; ovipositor 11.

Comparison. The new subspecies differs from nominotypical one in the male tegminal mirror shorter, male anal plate without any armament, and male genitalia with the differences listed above (especially in the posteromedian rachial projection more acute; see Figs 86–89 and 90–93).

Etymology. This subspecies is named after the Nigeria Country where it was collected.

Schizotrypus conradti conradti (Gorochov, 1996)

(Figs 67, 90–93)

New material. **Cameroon**: male and 2 females, Southwest Region, Korup National Park not far from Nigeria, ~300 m, primary forest, at light, 1–8.II.2016, A. Gorochov (ZIN).

Note. This subspecies originally described as a species from "N. Kamerun, Job-Albrechtshöhe" (Gorochov, 1996: "*Heterotrypus conradti*") is here recorded from another locality of this country.

Schizotrypus planus Gorochov, 1999

New material. **Cameroon**: male, Southwest Region, Korup National Park not far from Nigeria, ~300 m, primary forest, on leaf of bush at night, 1–8.II.2016, A. Gorochov (ZIN).

Note. This male is very similar to the holotype of *Sch. planus* from Nigeria, but its rostrum has less contrasting spots, and its male genitalia are slightly narrower. However, there are only two males of this species from different localities, i.e. this material is insufficient for understanding their subspecies position.

Heterotrypus laqueatus Karsch, 1893

New material. **Cameroon**: male, Southwest Region, Korup National Park not far from Nigeria, ~300 m, primary forest, on leaf of bush at night, 1–8.II.2016, A. Gorochov (ZIN); 2 females, border of South and East Regions, Dja Reserve on Dja River, ~600 m, primary / secondary forest, on leaves of bushes at night, 15–22. II.2016, A. Gorochov (ZIN).

Note. This species is here recorded from two new localities (it was previously known from Ghana, Equatorial Guinea and "Barombi-Stat." of Cameroon; Gorochov, 1996).

Afrophaloria malawi **sp. nov.**
(Figs 68–70, 94–98)

Holotype. Male, **Malawi**, northern part, "Mughese FR", 28–29.XII.2010, A. Sochivko (ZIN).

Paratype. Female, same data as for holotype (ZIN).

Desription. Male (holotype). Body completely apterous, slightly robust. Upper half of head, entire pronotum and all other tergites uniformly brown (almost dark brown); eyes and ocelli greyish; rest of head yellowish with a pair of brown vertical stripes on anterior surface of rostrum running from median ocellus to almost clypeal suture, with brown genae having lower parts yellowish, with light brown to greyish brown antennal flagellum (but its short proximal part yellowish), and with darkened distal parts of mandibles; legs light brown with slightly darker spots on distal half of fore and middle femora as well as on fore and middle tibiae, with dense and barely distinct darkish oblique stripes on dorsal and outer surfaces of hind femur, with slightly darkened distal part of this femur, with more spotted hind tibia having distal part darkened (proximal two thirds of its spines also darkened), and with all basitarsi partly darkened; pleurites and sternites yellowish to light brown; anal and genital plates as well as cerci almost greyish brown but with light cercal bases (Figs 68, 69). Head typical of Subtiloriini, with scape slightly wider than space between antennal cavities, with ocelli medium-sized and almost equal in size, and with maxillary palpus rather long and thin (its fifth segment with oblique subapical part and almost transversally truncated apical part; these palpi more or less similar to those of *A. hempae* Des.-Grand.). Pronotum barely narrowing to head, with almost square disc and moderately low lateral lobes; these lobes with ventral edge weakly oblique and having posterior corner distinctly more widely rounded than anterior one (Figs 68, 69). Legs moderately long, with inner tympanum small and rounded, without outer tympanum, with distinctly thickened proximal half of hind femur, with four pairs of moderately long and movable spines on hind tibia, with a few spinule-like denticles on this tibia before above-mentioned spines, with longest (inner dorsal) spur of this tibia distinctly not reaching second tarsal segment, with six spinule-like dorsolateral and one similar dorsomedial denticle on hind basitarsus (latter denticle located near apical spurs of this basitarsus), and with second segment of all tarsi almost not widened (approximately as in genus *Kameruloria* Gor.). Anal plate simple, rather small and with rounded apex; genital plate elongate (almost twice as long as previous plate), semitubular, somewhat narrowing to almost truncated apex; genitalia as in Figs 94–96.

Female. General appearance very similar to that of male, but vertical stripes on anterior surface of epicranium less distinct;

genital plate short (transverse), narrowing to rounded distal part having moderately wide and rather deep apical notch (Fig. 70); ovipositor slightly shorter than hind femur, thin but with distal part as in Figs 97 and 98.

Length in mm. Body: male 13.5, female 15.5; pronotum: male 2.9, female 3.6; hind femora: male 13.4, female 13.6; ovipositor 12.5.

Comparison. The male genitalia of *A. malawi* are similar to those of *A. hempae* and *A. amani* Des.-Grand. from Tanzania but distinguished by the presence of inner tympanum, by the bases of hook-like parts of posterior epiphallic lobes (processes) located less far from the anteromedian epiphallic sclerite, by these hook-like parts longer, by the distal half of rachis clearly wider in its distal part or distinctly narrower in its subdistal part in the profile (in *A. amani*, this half is narrower in its distal part, and in *A. hempae*, it is wider in its subdistal part), and by the formula of male genitalia having a pair of acute-angled anterior projections (in *A. hempae*, structure of this formula is unknown). From *A. apiariensis* Des.-Grand. (Gabon), the new species differs in the epiphallic lobes and rachis very different in the shape (see Desutter-Grandcolas, 2015).

Etymology. The new species is named after the Malawi Country.

Afrophaloria dja sp. nov.
(Figs 71, 72, 99–101)

Holotype. Female, **Cameroon**, border of South and East Regions, Dja Reserve on Dja River, ~600 m, primary/secondary forest, on leaves of bushes at night, 15–22.II.2016, A. Gorochov (ZIN).

Paratype. Female, same data as for holotype (ZIN).

Description. Female (holotype). General appearance similar to that of *A. malawi* but with following differences: body slightly smaller; head light brown with brown dorsal area between eyes (anterior edge of this area situated near lateral ocelli) and a pair of spots behind eyes, with rostral apex (under median ocellus) and mouthparts almost yellowish but having a pair of darkish dots in lateral corners of clypeus and darkened apical parts of mandibles, and with middle and distal parts of antennal flagellum greyish brown; pronotum dark brown with a pair of reddish brown marks on disc; other tergites also dark brown but with lightish areas on anterolateral parts of metanotum and on lateral parts of ninth abdominal tergite; legs with more contrasting spots on fore and middle femora as well as on all tibiae (hind tibia with spotted but not completely darkened distal part and with light bases of spines), and with lightish basal parts of all basitarsi; sternites more or less light greyish brown; pleurites and genital plate almost yellowish but with a few small darkened marks on pterothoracic pleurites; ocelli distinctly smaller; scape and space between antennal cavities approximately equal in width; maxillary palpus obliquely truncated at apex (similar to those of *A. apiariensis*); pronotum somewhat shorter and slightly lower (Fig. 72), with almost parallel lateral sides; legs also somewhat shorter, without both inner and outer tympana, with longest (inner dorsal) spur of hind tibia almost reaching base of second tarsal segment, and with 3–4 dorsolateral denticles of hind basitarsus. Genital plate also similar to that of female of *A. malawi*, but almost as long as wide and with distinctly narrower apical notch (Fig. 71); ovipositor somewhat longer than hind femur, with distal part as in Figs 100 and 101; copulatory papilla with a pair of rather long lobules at apex and deep notch between them (as in Fig. 99).

Variations. Second female with slightly darker head having less distinct pattern, with darker anal and genital plates (almost dark brown and light brown, respectively), and with pronotal disc barely widening to pterothorax.

Male unknown.

Length in mm. Body 13.5–14; pronotum 2.5–2.7; hind femora 10.8–11.2; ovipositor 12–12.5.

Comparison. The new species is similar to *A. hempae*, *A. amani* and *A. apiariensis*

in the absence of all tympana, but it is distinguished from *A. amani* and *A. hempae* by the female genital plate less transverse and having a distinctly narrower apical notch, and from *A. apiariensis*, by the female copulatory papilla having a pair of clearly longer apical lobules. From *A. malawi*, *A. dja* differs in the absence of all tympana and in the characters listed in its description.

Etymology. This new species is named after the Dja Reserve.

Subfamily **CACOPLISTINAE**
Saussure, 1877

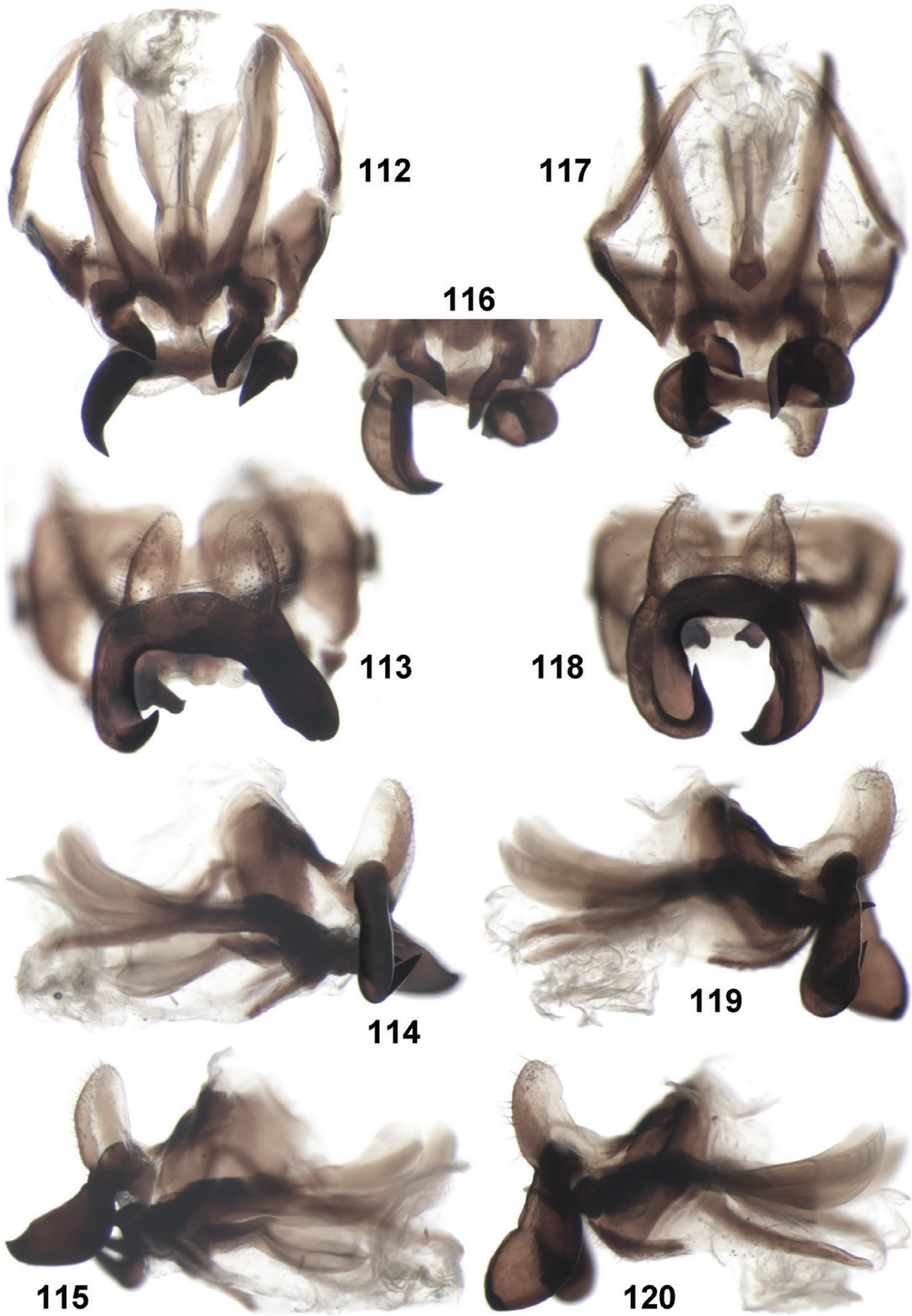
Tribe **HOMOEOGRYLLINI**
Gorochov, 1986

***Homoeogryllus ambo* sp. nov.**
(Figs 105, 112–115)

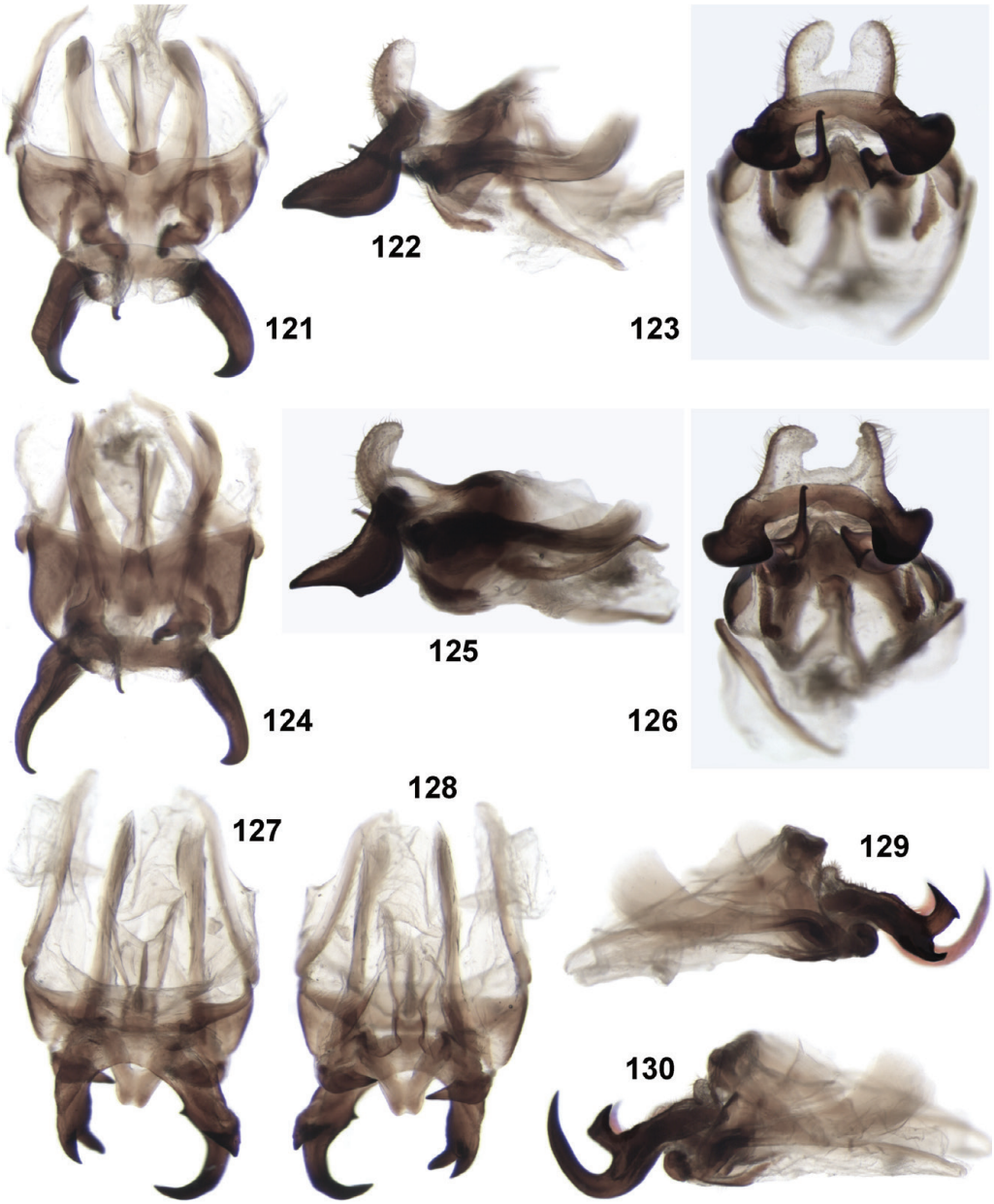
Holotype. Male, **Ethiopia**, ~100 km W of Addis Ababa City, environs of Ambo Town, XI.2011, A. Zagorinskij (ZIN).

Description. Male (holotype). Body moderately large for this genus. Colouration mostly very dark: head light brown with black eyes, rostral dorsum, transverse stripe between middle parts of eyes running along posterior edges of antennal cavities and crossing lateral ocelli, a pair of large spots behind eyes, a pair of narrow longitudinal stripes on dorsum behind lateral ocelli, and most part of antennae (scape with light brown dorsomedian area and brown ventromedian area; proximal half of flagellum with sparse whitish and yellowish spots; and rest of flagellum probably greyish brown), as well as with brown spot under each eye and dark brown to greyish brown palpi; pronotum black with a few brown and light brown marks on disc as well as with brown anteroventral part of each lateral lobe; tegmina dark greyish brown with some veins reddish brown (Fig. 105); legs also dark brown but with greyish brown coxae and bases of femora, with blackish tibiae and basitarsi, and with light brown movable spines and spurs of hind tibia; rest of body from brown to dark brown and with blackish genital plate and cerci (but cercal bases greyish brown). Body structure typical of this genus: scape approximately 2.5 times as wide as rostrum between antennal cavities; ocelli almost indistinct; head dorsum with distinct transverse and fold-like concavity behind (near) antennal cavities; pronotum strongly widening to pterothorax, with disc having almost angularly concave anterior edge and straight posterior edge as well as distinct transverse fold (concavity) in middle part, and with lateral lobe not very flat but rather high and with rounded antero- and posteroventral corners; tegmina with dorsal field as in Fig. 105; lateral tegminal field with *Sc-R* and *R-M* areas weakly widened and more or less equal in width as well as having moderately sparse crossveins, and with 16–17 partly S-shaped branches of *Sc* (crossveins between these branches absent); hind wings invisible in rest position; fore leg with inner and outer tympana narrowly oval, not large and with acute-angled distal parts; fore and middle tibiae with a pair of ventral spurs only; hind tibia with three inner and two outer movable dorsal spines in distal third as well as with six apical spurs (middle inner spur longest and reaching middle part of basitarsus); anal plate widely rounded at apex; genital plate rather large, somewhat elongated and with rather narrowly rounded apex. Genitalia most similar to those of *H. xanthographus* Guér.-Mén. but with posteromedian (ventromedian) edge of epiphallus more oblique in caudal view, with right posterolateral epiphallic lobe directed more aside and having apical part more curved upwards, with left posterolateral epiphallic lobe barely shorter and less inflated in distal half as well as having apical hook strongly curved upwards/backwards (anterior surface of this lobe almost without longitudinal keel-like ridge near this hook), and with left (longer) ectoparamere having apical part truncated (not almost acute) (for comparison see Figs 112–115 and 116–120).

Female unknown.



Figs 112–120. Cacoplistinae (Homoeogryllini), male: 112–115, *Homoeogryllus ambo* **sp. nov.**; 116–120, *H. xanthographus* Guér.-Mén. Genitalia from below, but their movable distal part in somewhat different positions (112, 117); genitalia from behind (113, 118) and from side (114, 115, 119, 120); distal part of genitalia from below and slightly in front (116), i.e. in same position as in Fig. 112.



Figs 121–130. Cacoplistinae (Homoeogryllini), male: 121–123, *Homoeogryllus reticulatus limbe* **subsp. nov.**; 124–126, *H. r. retuculatus* (F.); 127–130, *H. gabonensis* Des. Genitalia from below (121, 124, 127), from side (122, 125, 129, 130), from behind and slightly below (123, 126), and from below (128).

Length in mm. Body 19; body with wings 21; pronotum 3.2; tegmina 17; hind femora 11.7.

Comparison. The new species is most similar to *H. xanthographus* (see below) in the male genitalia, but it differs from the latter species in the body colouration darker, mirror of male tegmina less transverse (see Figs 104 and 105), and male genital characters listed in the description (in *H. xanthographus*, left posterolateral lobe has the apical hook curved mainly upwards, and an-

terior surface of this lobe is with a distinct keel-like ridge near this hook; Figs 118, 119). From all the other congeners, *H. ambo* is distinguished by the same characters of male genitalia as *H. xanthographus*.

Homoeogryllus xanthographus
Guérin-Méneville, 1847
(Figs 104, 116–120)

New material. **Ethiopia**: male, Illubabor Prov., 25 km W of Abobo Vill. (near Alwero River), at light, 10.XII.1986, L. Rybalov (ZIN).

Note. This species was originally described from Ethiopia, but later, its type locality was changed by Desutter (1985) in connection with the loss of type material and the designation of a male from Kenya as a neotype of *H. xanthographus*. This author and Gorochov (1988b) recorded this species also from Sudan, Chad, Egypt and some other localities of Ethiopia. Here, this species is indicated for a new locality in Ethiopia. Also it is necessary to note that *H. lyristes* Gor. (Sudan) might be described from a young male of *H. xanthographus* having insufficiently coloured tegmina and not fully sclerotized genitalia.

Homoeogryllus reticulatus limbe
subsp. nov.
(Figs 106, 121–123)

Holotype. Male, **Cameroon**, Southwest Region, environs of Limbe Town on sea coast, edge of field, on leaf of bush at night, 13–14.II.2016, A. Gorochov (ZIN).

Desciption. Male (holotype). General appearance very similar to that of *H. ambo*, but body somewhat smaller (medium-sized), colouration slightly lighter (lower part of head with rather large yellowish areas; light brown marks on pronotal disc larger; each lateral lobe of pronotum with whitish grey anterior half of lower third; majority of tegminal veins light yellowish to intensively yellow; cercal bases light brown), longest spur of hind tibia slightly not reaching middle part of basitarsus, tegminal mirror with three dividing veins (Fig. 106), and tegminal *Sc* with 14–15 branches. Genitalia most similar to those of nominotypical subspecies of *H. reticulatus* (F.), but distance between bases of posterolateral lobes of epiphallus clearly smaller (shorter) than in *H. r. reticulatus*, right posterolateral epiphallic lobe with wider distal part in profile (i.e. without shallow ventrodistal notch), and left posterolateral epiphallic lobe having low dorsolateral convexity in middle part (this convexity almost conical and looking as angular projection in dorsal and ventral views; see Figs 121–123 and 124–126).

Female unknown.

Length in mm. Body 15; body with wings 18.5; pronotum 2.7; tegmina 15.5; hind femora 10.9.

Comparison. The new subspecies is distinguished from nominotypical one (distributed probably in more western countries of Africa: from Senegal to Burkina Faso) by the male genital characters listed above and possibly by more numerous dividing veins in the male tegminal mirror (see Figs 106 and 107).

Etymology. The new subspecies is named after the Limbe Town situated near its type locality.

Remark. My understanding of *H. reticulatus* is in accordance to the proposal by Desutter (1985) based on several specimens from different African countries. However, its type is a female from Senegal. It is a reason that my understanding of *H. reticulatus* nominotypical subspecies is based on a male from Burkina Faso located near Senegal (Gorochov, 1988b) but not on Desutter's "neoallotype" from Congo located very far from Senegal, because the latter specimen may belong to a new subspecies of this species.

Homoeogryllus gabonensis Desutter, 1985
(Figs 108–111, 127–130)

New material. **Cameroon**: male and 2 females, border of South and East Regions, Dja Reserve on Dja River, ~600 m, primary/secondary forest, on forest floor at night, 15–22.II.2016, A. Gorochov (ZIN).

Description. Female (nov.). General appearance (Fig. 109) similar to that of male, but: pronotum somewhat less widening to pterothorax and with roundly angular posterior edge of disc; tegmina without blackish veins, insignificantly protruding beyond abdominal apex, with 7–8 slightly oblique longitudinal veins in dorsal field and rather regular and moderately numerous crossveins between them, with 10–11 oblique branches of *Sc* and sparse crossveins between them, with *Sc*-*R* area moderately narrow, with *R*-*M* area clearly narrower than previous area in proximal half and approximately equal to it (in width) in distal half, and with rather numerous crossveins in both these areas. Genital plate short, clearly narrowing to widely truncated or widely notched apex (in latter case, this notch very shallow); ovipositor with distal part as in Figs 110, 111.

Male almost completely in accordance to very brief original description of this species, i.e. similar to all congeners described here but with following characteristic features: body medium-sized; colouration slightly lighter and less spotted (head brown with dark brown marks on head similar to those of these congeners in shape, and with blackish antenna having sparse whitish and yellowish spots on flagellum; pronotum also brown but with a few rather large light brown spots on disc and almost dark brown anterior two thirds of each lateral lobe; tegmina brown to light brown, with vein along distolateral part of mirror blackish, and other venation from yellow to yellowish; legs brown with dark brown distal parts of femora, tibiae and basitarsi, as well as with darkened bases of tibiae; rest of body from brown to light brown, but bases of cerci almost yellowish); pronotum with anterior edge of disc roundly concave and with its posterior edge hardly angularly convex; tegminal dorsal field as in Fig. 108; tegminal lateral field with 17–18 branches of *Sc* and with *R*-*M* area almost twice as wide as *Sc*-*R* area; hind wings invisible, legs as in *H. r. limbe*, but inner tympana distinctly (but not strongly) smaller than outer ones; genitalia very similar to those pictured by Desutter (1985: figs 48–52) but with posterodorsal semimembranous lobules of epiphallus smaller (Figs 127, 129, 130), left posterolateral epiphallic lobe slightly different in shape (Figs 129), and sclerotized part of rachis having small notch at apex (Fig. 127, 128).

Length in mm. Body: male 16, female 15–17; body with wings: male 19, female 18–19.5; pronotum: male 2.7, female 3–3.3; tegmina: male 14.5, female 13–13.5; hind femora: male 14, female 15–16; ovipositor 15.5–16.

Remark. This species was indicated for several other African countries (Gabon, Congo, Zaire, Central African Republic) as well as for some other localities of Cameroon (Desutter, 1985). However, the abovementioned very small differences in the male genitalia suppose that this species may be represented on this enormous territory by a few subspecies.

Meloimorpha albicornis (Walker, 1869)

New material. **India**: male, Himachal Pradesh State, environs of Nagar [= Naggar ?] Vill., 1800 m, 10.X.2011, A. Lvovsky (ZIN).

Note. This species was originally described from North India, synonymized with *M. japonica* (Haan) by Chopard (1968), incorrectly indicated for Vietnam (as a subspecies of *M. japonica*; Gorochov, 1996), and restored as a distinct species on the base of its holotype study (Gorochov, 2003). In the latter publication, *M. albicornis* was recorded from another locality of India (Delhi City); here, it is indicated for a more concrete locality in North India.

AKCNOWLEDGEMENTS

I thank all my coleagues and friends helping me during my trips in tropical regions and collecting some useful specimens for this study: M.V. Berezin, E.Ju. Tkatsheva, L.N. Anisyutkin, D.V. Logunov, G.S. Irisov and others. This study was performed in the frames of the state research

project No. AAAA-A17-117030310210-3 (Russian Federation) and supported by the Russian Foundation for Basic Research (grant No. 16-04-01143).

REFERENCES

Bhargava R.N. 1982. A note on the ecology of the cricket, *Homeogryllus cincticornis* (Walker) with extension of its range. *Geobios New Reports*, 1: 42–43.

Chopard L. 1925. Descriptions de Gryllides nouveaux [Orthoptères]. *Annales de la Société entomologique de France*, **94**: 291–332.

Chopard L. 1968. Gryllides. *Orthopterorum catalogus*, **12**: 213–500.

Desutter L. 1985. Etude préliminaire des espèces africaines du genre *Homoeogryllus* Guérin-Méneville (Grylloidea, Phalangopsidae). *Annales de la Société entomologique de France (Nouvelle Série)*, **21**(2): 189–206.

Desutter-Grandcolas L. 2015. Phalangopsidae crickets from Tropical Africa (Orthoptera, Grylloidea), with descriptions of new taxa and an identification key for African genera. *Zootaxa*, 3948(3): 451–496.

Gorochov A.V. 1985. To the fauna of the cricket subfamilies Itarinae, Podoscirtinae, and Nemobiinae (Orthoptera, Gryllidae) from Eastern Indochina. *In*: **Medvedev L.N.** (Ed.). *Nasekomye Vietnama* [Insects of Vietnam]: 17–25. Moscow: Nauka. (In Russian).

Gorochov A.V. 1986. On system and morphological evolution of the cricket family Gryllidae (Orthoptera) with description of new taxa. Communication 2. *Zoologicheskii zhurnal*, **65**(6): 851–858. (In Russian).

Gorochov A.V. 1988a. New and little known crickets of the subfamilies Landrevinae and Podoscirtinae (Orthoptera, Gryllidae) from Vietnam and some other territories. *In*: **Medvedev L.N. & Striganova B.R.** (Eds). *Fauna i ekologiya nasekomykh Vietnama* [Fauna and ecology of Vietnamese insects]: 5–21. Moscow: Nauka. (In Russian).

Gorochov A.V. 1988b. New and little known tropical Grylloidea (Orthoptera). *Proceedings of the Zoological Institute, USSR Academy of Sciences*, **178**: 3–31. (In Russian).

Gorochov A.V. 1990. New and little known crickets (Orthoptera, Gryllidae) from Vietnam and some other territories. *Proceedings of the Zoological Institute, USSR Academy of Sciences*, **209**: 3–28. (In Russian).

Gorochov A.V. 1992. On some new and little known crickets (Orthoptera, Gryllidae) from Vietnam. *Proceedings of the Zoological Institute RAS*, **245**: 3–16. (In Russian).

Gorochov A.V. 1996. New and little known crickets from the collection of the Humboldt University and some other collections (Orthoptera: Grylloidea). Part 2. *Zoosystematica rossica*, **5**(1): 29–90.

Gorochov A.V. 1999. New and little known Phaloriinae (Orthoptera: Gryllidae). *Zoosystematica rossica*, **8**(1): 27–60.

Gorochov A.V. 2001. Preliminary notes on the history of South American Ensifera (Orthoptera). *Acta geologica leopoldensia*, **24**(52/53): 81–86.

Gorochov A.V. 2003. New and little known Cachoplistinae and Phaloriinae (Orthoptera: Gryllidae). *Zoosystematica rossica*, **12**(1): 79–92.

Gorochov A.V. 2004a. Review of the subfamily Pteroplistinae (Orthoptera Gryllidae). *Memorie della Societa entomologica italiana*, **82**(2): 379–396.

Gorochov A.V. 2004b. A new species of *Trellius* from the Philippines (Orthoptera: Gryllidae: Phaloriinae). *Zoosystematica rossica*, **13**(1): 22.

Gorochov A.V. 2004c. New data on *Tremellia* (Orthoptera: Gryllidae: Phaloriinae). *Zoosystematica rossica*, **13**(1): 46.

Gorochov A.V. 2005. New and little known crickets of the subfamilies Phaloriinae, Phalangopsinae and Landrevinae (Orthoptera, Gryllidae) from Indonesia and South Africa. *Proceedings of the Russian Entomological Society*, **76**: 25–46. (In Russian).

Gorochov A.V. 2010. New cricket taxa of the subfamilies Phaloriinae and Pteroplistinae (Orthoptera: Gryllidae) from South-East Asia. *Proceedings of the Zoological Institute RAS*, **314**(2): 184–190.

Gorochov A.V. 2011a. Crickets of the subfamily Pteroplistinae (Orthoptera: Gryllidae) from Malacca. *Proceedings of the Zoological Institute RAS*, **315**(2): 176–180.

Gorochov A.V. 2011b. Crickets of the subfamily Phaloriinae (Orthoptera: Gryllidae) from Malacca, Sulawesi and Moluccas. *Proceedings of the Zoological Institute RAS*, **315**(3): 227–241.

Gorochov A.V. 2014. Classification of the Phalangopsinae subfamily group, and new taxa from the subfamilies Phalangopsinae and

Phaloriinae (Orthoptera: Gryllidae). *Zoosystematica rossica*, **23**(1): 7–88.

Gorochov A.V. 2015a. New and little-known crickets of the subfamily Phalangopsinae (Orthoptera, Gryllidae). 8. The genus *Paragryllodes* and notes on the subfamily classification. *Zoologicheskii zhurnal*, **94**(8): 905–916. (In Russian).

Gorochov A.V. 2015b. New and little-known crickets of the subfamily Phalangopsinae (Orthoptera, Gryllidae). 9. The genus *Phaeophilacris*. *Zoologicheskii zhurnal*, **94**(12): 1387–1399. (In Russian).

Gorochov A.V. 2017a. New and little-known crickets of the subfamily Phalangopsinae (Orthoptera, Gryllidae). 10. The genus *Parendacustes* (part 1). *Zoologicheskii zhurnal*, **96**(9): 1035–1047. (In Russian).

Gorochov A.V. 2017b. New and little-known crickets of the subfamily Phalangopsinae (Orthoptera, Gryllidae). 11. The genus *Parendacustes* (part 2). *Zoologicheskii zhurnal*, **96**(12): 1433–1445. (In Russian).

Gorochov A.V. 2018. New and little-known crickets of the subfamily Phalangopsinae (Orthoptera, Gryllidae). 12. The genus *Parendacustes* (part 3) and other taxa. *Zoologicheskii zhurnal*, **97**(1): 3–16. (In Russian).

Gorochov A.V. & Kostia D. 1999. New crickets (Orthoptera: Gryllidae) from Indo-Malayan region. *Acta zoologica cracoviensia*, **42**(2): 271–273.

Gorochov A.V. & Tan M.K. 2012. New crickets of the subfamilies Phaloriinae and Pteroplistinae (Orthoptera: Gryllidae) from Singapore. *Zootaxa*, 3525: 18–34.

Jaiswara R. & Desutter-Grandcolas L. 2014. Revision of the genus *Pteroplistes* in India, with the description of two new species *Pteroplistes kervasae* Jaiswara, n. sp. and *Pteroplistes masinagudi* Jaiswara, n. sp. (Orthoptera, Grylloidea, Pteroplistinae). *Zootaxa*, 3814(1): 96–108.

Saussure H. 1877. Gryllides. *Mémoires de la Société de Physique et d'Histoire naturelle de Genève*, **25**(1): 1–352 + pls 11–15.

Received 16 January 2018 / Accepted 23 March 2018