

Classification of the Phalangopsinae subfamily group, and new taxa from the subfamilies Phalangopsinae and Phaloriinae (Orthoptera: Gryllidae)

Классификация группы подсемейств, родственных подсемейству Phalangopsinae, и новые таксоны из подсемейств Phalangopsinae и Phaloriinae (Orthoptera: Gryllidae)

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Preliminary classification of the Phalangopsinae subfamily group (= group “Phalangopsidae”: Phalangopsinae, Cacoplistinae, Phaloriinae and Pteroplistinae) are given. Some problems of evolution and taxonomy of this group are discussed. The former tribe Luzarini (= Luzarinae auct.) is synonymized with the tribe Phalangopsini divided into several subtribes (including the subtribe Luzarina). Sixty eight new taxa from Neotropical, Indo-Malayan and Papuan regions are described: *Palpigera aluzara* sp. nov., *Asymmetracla* subgen. nov. and *Glandulacla* subgen. nov. (in the genus *Ochraperites* Desutter-Grandcolas, 1993), *O. (A.) asymmetricus* sp. nov., *O. (O.) cuyabeno* sp. nov., *O. (G.) aguarico* sp. nov., *Laozcla* gen. nov., *L. furca* sp. nov., *Eidmanacris longa* sp. nov., *Caribacusta* gen. nov., *C. antiqua* sp. nov., *Noctivox orizaba* sp. nov., *Modestozarina* subtrib. nov., *Modestozara* gen. nov., *M. modesta* sp. nov., *M. trogliphila* sp. nov., *M. satipo* sp. nov., *Notendecous* subgen. nov. and *Pedroecous* subgen. nov. (in the genus *Endecous* Saussure, 1878), *Daedalonotum* gen. nov., *D. daedalum* sp. nov., *Nemozarina* subtrib. nov., *Nemozara* gen. nov., *N. rio* sp. nov., *N. riorio* sp. nov., *N. pastaza* sp. nov., *N. vulcanica* sp. nov., *Anemozara* gen. nov., *Zacmozara* subgen. nov. (in the genus *Anemozara*), *A. (A.) vera* sp. nov., *A. (A.) propria* sp. nov., *A. (A.) umbrosa* sp. nov., *A. (Z.) eximia* sp. nov., *Lernecina* subtrib. nov.; *Lerneca sylvestris* sp. nov., *L. inalata amboro* subsp. nov., *L. inalata pantanal* subsp. nov., *Parendacustina* subtrib. nov., *?Uvaroviella problematica* sp. nov., *Bolivacla* gen. nov., *B. boliviana* sp. nov., *Brevizaclina* subtrib. nov., *Stridulacla* subgen. nov. (in the genus *Mikluchomaklaia* Gorochov, 1986), *M. (M.) enarotali* sp. nov., *Papuzacla* subgen. nov. and *Lobulacla* subgen. nov. (in the genus *Brevizacla* Gorochov, 2003), *B. (P.) fawi* sp. nov., *B. (L.) nabire* sp. nov., *B. (L.) halmahera* sp. nov., *Terrozacla* gen. nov., *T. jambi* sp. nov., *T. harau* sp. nov., *T. trusmadi* sp. nov., *T. borneo* sp. nov., *T. kubah* sp. nov., *T. gading* sp. nov., *Vescelia mulu* sp. nov., *Phaloria (Papuloria) latiuscula* sp. nov., *Ph. (P.) tristis* sp. nov., *Ph. (P.) paratristis* sp. nov., *Ph. (P.) tariku* sp. nov., *Ph. (P.) manifesta* sp. nov., *Ph. (P.) waena* sp. nov., *Ph. (P.) neorava* sp. nov.; *Ph. sulawesi* sp. nov.; *Tremellia timah orientalis* subsp. nov.; *Pseudotrigonidium borneo* sp. nov.; *P. gaponi* sp. nov. One former genus is included in the genus *Longuripes* Desutter-Grandcolas et Hubbell, 1993 as its subgenus *Prolonguripes* Desutter-Grandcolas, 1993, **stat. nov.** *Prosthacusta beliza* (Otte et Perez-Gelabert, 2009), **comb. nov.** is transferred from the synonymic genus *Doposia* Otte et Perez-Gelabert, 2009 (= *Lerneca* Walker, 1869) to *Prosthacusta* Saussure, 1874. The genus *Otteus* Koçak et Kemal, 2009, **gen. dist.** is restored from synonymy with *Cubacophus* Ruiz-Baliú et Otte, 1997. *Phaloria galoa* Otte et Cowper, 2007, **syn. nov.** is synonymized with *Ph. heterotrypoides* Gorochov, 1999, and this species as well as *Ph. insularis* Bolivar, 1912 are transferred from the nominotypical subgenus to the subgenus *Papuloria* Gorochov, 1996.

Дана предварительная классификация группы подсемейств, родственных Phalangopsinae (группа "Phalangopsidae": Phalangopsinae, Sacoplantinae, Phaloriinae and Pteroplistinae). Рассмотрены некоторые проблемы эволюции и таксономии этой группы. Бывшая триба Luzarini (= Luzarinae auct.) синонимизирована с трибой Phalangopsini, разделенной на несколько подтриб (включая подтрибу Luzarina). Шестьдесят восемь новых таксонов описаны из неотропической, индо-малайской и папуасской областей: *Palpiger auzara* sp. nov., *Asymmetracla* subgen. nov. и *Glandulacla* subgen. nov. (в составе рода *Ochraperites* Desutter-Grandcolas, 1993), *O. (A.) asymmetricus* sp. nov., *O. (O.) cuyabeno* sp. nov., *O. (G.) aguarico* sp. nov., *Laozacla* gen. nov., *L. furca* sp. nov., *Eidmanacris longa* sp. nov., *Caribacusta* gen. nov., *C. antiqua* sp. nov., *Noctivox orizaba* sp. nov., *Modestozarina* subtrib. nov., *Modestozara* gen. nov., *M. modesta* sp. nov., *M. trogliphila* sp. nov., *M. satipo* sp. nov., *Notendecous* subgen. nov. и *Pedroecous* subgen. nov. (в составе рода *Endecous* Saussure, 1878), *Daedalonotum* gen. nov., *D. daedalum* sp. nov., *Nemozarina* subtrib. nov., *Nemozara* gen. nov., *N. rio* sp. nov., *N. riorio* sp. nov., *N. pastaza* sp. nov., *N. vulcanica* sp. nov., *Anemozara* gen. nov., *Zacmozara* subgen. nov. (в составе рода *Anemozara*), *A. (A.) vera* sp. nov., *A. (A.) propria* sp. nov., *A. (A.) umbrosa* sp. nov., *A. (Z.) eximia* sp. nov., *Lernecina* subtrib. nov.; *Lerneca sylvestris* sp. nov., *L. inalata amboro* subsp. nov., *L. inalata pantanal* subsp. nov., *Parendacustina* subtrib. nov., *?Uvaroviella problematica* sp. nov., *Bolivacla* gen. nov., *B. boliviana* sp. nov., *Brevizaclina* subtrib. nov., *Stridulacla* subgen. nov. (в составе рода *Mikluchomaklaia* Gorochov, 1986), *M. (M.) enarotali* sp. nov., *Papuzacla* subgen. nov. и *Lobulacla* subgen. nov. (в составе рода *Brevizacla* Gorochov, 2003), *B. (P.) fawi* sp. nov., *B. (L.) nabire* sp. nov., *B. (L.) halmahera* sp. nov., *Terrozacla* gen. nov., *T. jambi* sp. nov., *T. harau* sp. nov., *T. trusmadi* sp. nov., *T. borneo* sp. nov., *T. kubah* sp. nov., *T. gading* sp. nov., *Vescelia mulu* sp. nov., *Phaloria (Papuloria) latiuscula* sp. nov., *Ph. (P.) tristis* sp. nov., *Ph. (P.) paratristsis* sp. nov., *Ph. (P.) tariku* sp. nov., *Ph. (P.) manifesta* sp. nov., *Ph. (P.) waena* sp. nov., *Ph. (P.) neorava* sp. nov.; *Ph. sulawesi* sp. nov.; *Tremellia timah orientalis* subsp. nov.; *Pseudotrigonidium borneo* sp. nov.; *P. gaponi* sp. nov. Один бывший род включен в состав рода *Longuripes* Desutter-Grandcolas et Hubbell, 1993 как его подрод *Prolonguripes* Desutter-Grandcolas, 1993, stat. nov. *Prosthacusta beliza* (Otte et Perez-Gelabert, 2009), comb. nov. перенесена из синонимического рода *Doposia* Otte et Perez-Gelabert, 2009 (= *Lerneca* Walker, 1869) в *Prosthacusta* Saussure, 1874. Род *Otteus* Koçak et Kemal, 2009, gen. dist. восстановлен из синонимии с *Cubacophus* Ruiz-Baliú et Otte, 1997. *Phaloria galoa* Otte et Cowper, 2007, syn. nov. сведена в синонимы к *Ph. heterotrypoides* Gorochov, 1999, и этот вид вместе с *Ph. insularis* Bolivar, 1912 перенесены из номинативного подрода в подрод *Papuloria* Gorochov, 1996.

Key words: crickets, taxonomy, evolution, America, Indo-Malayan and Papuan regions, Orthoptera, Gryllidae, Phalangopsinae, Phaloriinae, new taxa

Ключевые слова: сверчки, таксономия, эволюция, Америка, индо-малайская и папуасская области, Orthoptera, Gryllidae, Phalangopsinae, Phaloriinae, новые таксоны

INTRODUCTION

Classification of the Phalangopsinae subfamily group (= the group "Phalangopsidae"; Gorochov, 2001) is in need of an additional study, including revisions of numerous insufficiently described taxa (with unclear taxonomical position) as well as discoveries of new taxa and of other new data (on morphology, mode of life and so on). At present, this group looks as holophyletic one and allows us to ground the following

provisional hypotheses on its evolution and divergence:

1) Branching of the Phalangopsinae subfamily group from a main stock of the family Gryllidae might be caused by a specialization of its general ancestor to life on the forest floor in warm forests or in ecotones of such forests. Its mode of life might be similar to that of the genus *Lerneca* Walker, 1869: many representatives of this genus have completely developed wings and live among dry leaves on the forest floor, among the

grass in forest glades, or even on the ground in shrubby areas (with sparse groups of low trees) such as the Pantanal in Paraguay.

Early differentiation of this group might be connected with specializations to life in the bark crevices of tree trunks (Pteroplistinae) or on the leaves of living bushes (Phaloriinae); origin of Cacoplistinae and Phalangopsinae previously been associated by me (Gorochov, 1995) with adaptation to life on the tree trunks, because almost all the genera with completely developed wings from different tribes of Phalangopsinae have such or similar mode of life. Now, this opinion is changed, as many of the phalangopsines live on the forest floor and preserve a rather primitive habitus (semi-globular head with a wide and almost not projected rostrum, rather short legs). If it is correct, some adaptive characters for life on the tree trunks (angular shape of head in the profile, narrow and projected head rostrum, long legs) might be independently developed in different tribes (Phalangopsini, Paragryllini).

An opposite hypothesis (for example admitting that origin of this group was associated with a certain adaptation to life in caves or in similar stations) is much less probable. One of the important attributes of the latter adaptation is a partial (as minimum) reduction of the both pairs of wings, including diminution or loss of the stridulatory apparatus. But in all subfamilies of this group, there are recent taxa with a primitive (not reduced) condition of wings: *Paragryllus* Guérin-Méneville, 1844 and many other genera in Phalangopsinae; all or almost all genera in Pteroplistinae, Cacoplistinae and Phaloriinae. All these primitive genera do not live in caves or in similar stations, but many of them live on the bark of tree trunks or on the forest floor. Transition to life in the caves might be independent in different groups of Phalangopsini from life on the forest floor or/and on the tree trunk (through intermediate stages connected with the cavities among stones, with the rock crevices or with the tree hollows).

2) Neotropical fauna of the Phalangopsinae subfamily group is richest but seems to me less morphologically diverse than the Old World fauna. Possibly, evolution of this group in the Old World was more rapid (in connection with largest territory) and/or longer (paleontological data on this group, formed probably before Caenozoic, are known only since Middle Eocene; Gorochov, 2012). In the both cases, extinction inside this group in the Old World might be more significant than in the New World. Thus, it is reasonable to consider the Old World fauna more morphologically diverse (divided into a few distinct subfamilies) but somewhat impoverished, and to include the New World representatives in only a single very rich subfamily (Phalangopsinae).

3) Tribal composition of Phalangopsinae in the Old World is also richer than in the New World: Luzaropsini and Endacustini are known only in the Old World; Phalangopsini and Paragryllini are known in the Old World as well as in the New World. The former tribe Luzarini, often considered as a unique endemic American tribe (subfamily in some authors: Desutter, 1990; Mello, 1992; Mews et al., 2009), is probably a synonym of Phalangopsini (see below). In this connection, I can assume that the Phalangopsinae penetrated America from the Old World, and that two such penetrations (as minimum) might have place. Richness of the recent Neotropical fauna of phalangopsines may be a result of rapid adaptive radiation on the new enormous territory practically lacking competitors and/or very dangerous enemies.

These hypotheses are supported by the material on this subfamily group studied by me. Most part of this material containing numerous new (unpublished) data is collected by the Russian collectors and deposited at the Zoological Institute, Russian Academy of Sciences, St Petersburg (ZIN). But some specimens is from the Natural History Museum (former British Museum of Natural History), London (NHM).

STATUS OF THE FORMER TRIBE LUZARINI AND PRELIMINARY CLASSIFICATION OF THE PHALANGOPSINAE SUBFAMILY GROUP

The former tribe Luzarini was originally established by Hebard (1928) as the group Luzarae. He described this group on the base of external morphology only (without study of stridulatory apparatus and genitalia in male). The characters found by him for distinguishing of "Luzarae" from the other groups of Phalangopsinae are mainly connected with different modes of life: in "Luzarae" living mainly on the forest floor (among dry leaves, among grass-like plants, and so on), body is not dorsoventrally depressed, rostrum of head is short and rather wide as well as obtuse in the profile, ocelli are situated in the shape of transverse triangle, pronotum is with weakly projected anteroventral corners, legs are rather short (or moderately long) and more or less slender, hind basitarsus is with two distinct rows of denticles on its dorsum; *Uvaroviella* Chopard, 1923, *Parendacustes* Chopard, 1924 and many other phalangopsines, living mainly on tree trunks, have opposite or partly opposite characters. The subsequent authors erected rank of "Luzarae" up to tribal (Chopard, 1968) and even subfamily (Desutter, 1990) level. The latter author (contra Hebard and Chopard) included *Amphiacusta* Saussure, 1874 and some other genera (for example, *Eidmanacris* Chopard, 1956) in her subfamily Luzarinae (Desutter-Grandcolas, 1993, 1995). These actions violated Hebard's understanding of differences between the relatives of *Luzara* Walker, 1869 (type genus of "Luzarae") and the relatives of *Phalangopsis* Audinet-Serville, 1831.

Desutter (1990) proposed a new list of differences between her Luzarinae and her Phalangopsinae; she included in this list some new characters of external morphology as well as some data on male genitalia:

1) In "Luzarinae", apical segment of maxillary palpi is very obliquely truncate

(and slightly curved in the profile, judging by her figures 207 and 208); in "Phalangopsinae", this segment is ostensibly apically (almost transversally) truncate (see her figure 206 for "*Aclodes*", possibly genus *Uvaroviella*). However, this segment in *Phalangopsis* (type genus of "Phalangopsinae") is clearly obliquely truncate and curved (Fig. I: 1), more similar to that of her Luzarinae than to that of her "*Aclodes*".

2) According to Desutter, "first" inner apical spur of hind tibiae is longer than "first" outer one in "Luzarinae" and shorter than latter spur in "Phalangopsinae" (p. 49). But in *Phalangopsis*, all the inner apical spurs of hind tibiae are longer than the respective outer spurs.

3) In "Luzarinae", hind basitarsus is with two rows of denticles (Hebard's character), and hind tibia is with four inner and four outer movable spines (excepting six apical spurs). But in *Uvaroviella* included by Desutter in her Phalangopsinae, hind basitarsus is similar in the structure; moreover, hind tibia in this genus and in *Phalangopsis* is usually with four inner and four outer movable spines also.

4) Reduction of stridulatory apparatus in the male tegmina is usual phenomenon for some representatives of her Luzarinae as well as for some species of *Uvaroviella* (her Phalangopsinae), therefore this reduction as well as preservation of normal hind wings only in some genera of her Luzarinae do not provide us any possibility for distinguishing of these "subfamilies" from each other on the base of wing morphology.

5) Male genitalia in "Luzarinae", according to Desutter, have a tendency to regress of "lophi médians" (a pair of posteromedial lobes of epiphallus) accompanied by lengthening of the posterolateral lobes of epiphallus. But in "Phalangopsinae" including *Uvaroviella*, these posteromedial lobes are ostensibly preserved. In reality, there is only one pair of sclerotized posterior epiphallic lobes in *Phalangopsis*, in *Uvaroviella*, and in "Luzarinae" (see Figs II: 1–3, 6–8, 13–15). Posteromedian part of their epiphallus is

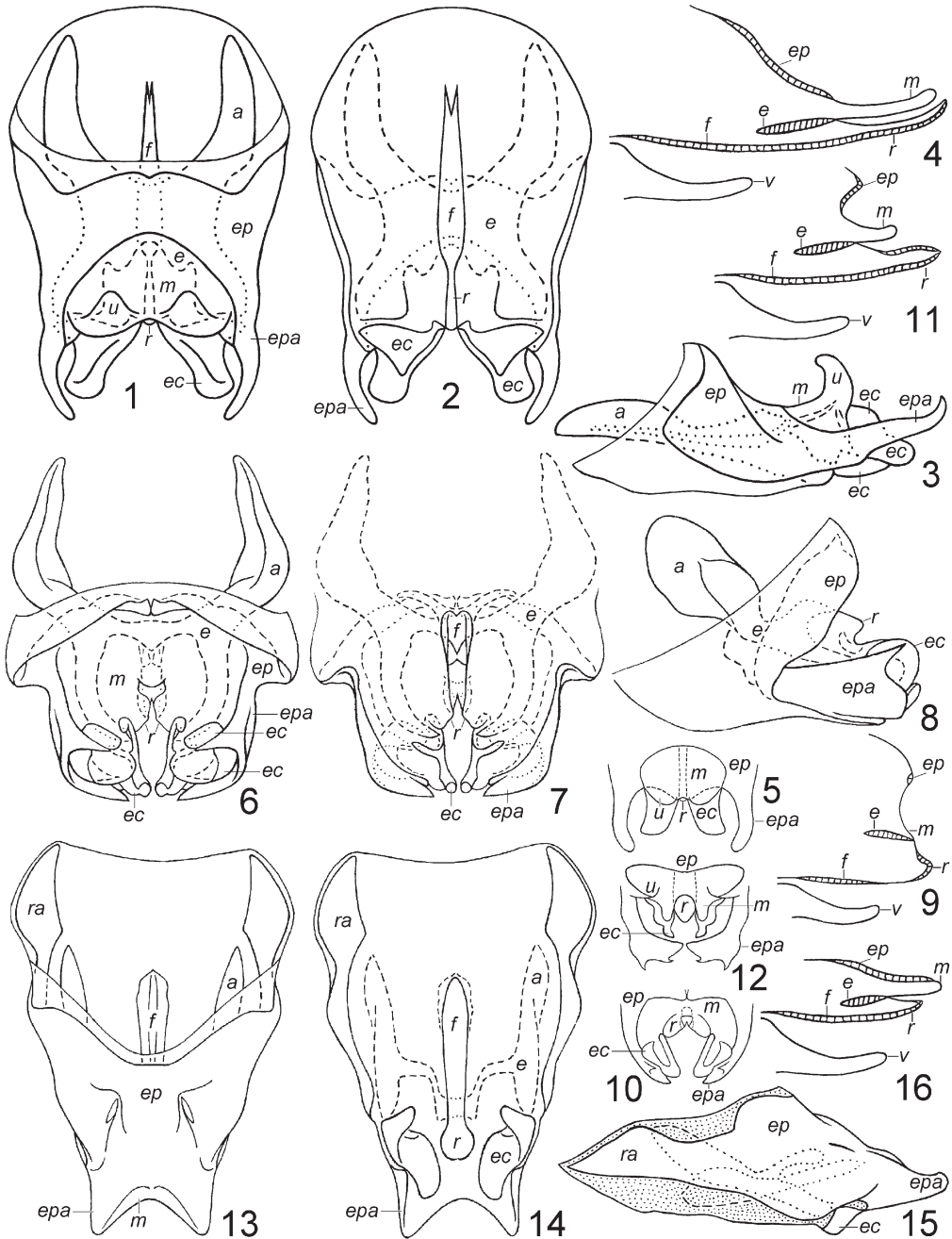


Figs I (1–6). Maxillary palpus from side: 1, *Phalangopsis longipes* A.-Serv.; 2, *Eidmanacris longa* sp. nov.; 3, *Uvaroviella parantennalis* Gor.; 4, *Ochraperites cuabeno* sp. nov.; 5, *Luzara venado* Gor.; 6, *Daedalnotum daedalum* sp. nov.

membranous: in *Phalangopsis* and *Luzara*, this part is large; in *Uvaroviella*, it is very small (narrow) or practically absent. Thus, the structure of epiphallus in *Phalangopsis* and in *Luzara* is probably characterized by the synapomorphic features: median part of epiphallus is short and bridge-like, posterolateral epiphallic arms are large (long), and membranous posteromedian epiphallic part is very large (Figs II: 1–3, 6–8). However, epiphallus in *Uvaroviella* is more primitive: its median epiphallic part is rather long, posterolateral epiphallic arms are rather small, and membranous part between these arms is very small or absent (Figs II: 13–16). Moreover, epiphallus in *Eidmanacris* (included by Desutter in “Luzarinae”) is similar to that of *Phalangopsis* in the presence of a characteristic membranous fold between the rachis (= guiding rod) and sclerotized median epiphallic part (Figs II: 4, 5, 11, 12) and in the presence of a pair of upper lobes (*u*) on the membranous posteromedian epiphallic part (these lobes are situated near each other and along hind edge of this epiphallic part in

Phalangopsis, but they are located rather far from each other and from hind edge of this part in *Eidmanacris*; Figs II: 5, 12); epiphallus of *Luzara* (Figs II: 9, 10) is practically without membranous fold between epiphallic sclerite and rachis (possible autopomorphy of *Luzara* and its close-relatives), and without distinct upper lobes on the membranous posteromedian epiphallic part (plesiomorphy). So, the presence of characteristic “lophi médians” (*u*) in the epiphallus of *Phalangopsis* is probably a unique specialization but not primitive character; *Eidmanacris* shows an intermediate condition of these lobes between *Luzara* and *Phalangopsis* and may be a close relative of *Phalangopsis* (one subtribe); *Luzara* is also more or less related to this subtribe (the same tribe but another subtribe); and *Uvaroviella* is somewhat less related to these subtribes (another tribe or third subtribe).

6) Desutter also mentions a tendency to the development of “l’apodème endopallique” (apodeme of formula = apodeme of mold of spermatophore attachment plate)



Figs II (1–16). Male genitalia: 1–5, *Phalangopsis longipes* A.-Serv.; 6–10, *Luzara venado* Gor.; 11, 12, *Eidmanacris longa* sp. nov.; 13–16, *Uvaroviella antennalis* Gor. Genitalia from above (1, 6, 13), from below (2, 7, 14) and from side (3, 8, 15); sagittal section of genitalia, schematically (4, 9, 11, 16); distal half of genitalia from above, scheme (5, 10, 12). Abbreviations: *a*, apodeme of endoparamere; *e*, endoparamere fused with opposite endoparamere by median bridge; *ec*, ectoparamere; *ep*, epiphallus; *epa*, posterolateral epiphallic arm (lobe); *f*, formula (mold of spermatophore attachment plate); *m*, membranous posteromedian epiphallic part; *r*, rachis (guiding rod); *ra*, ramus; *u*, upper lobe of *m*; *v*, valvae.

in male genitalia of her Luzarinae. However, such apodeme is independently developed or lost in numerous genera from different subfamilies of Gryllidae; for example, this apodeme is indistinct in *Phalangopsis* and low but distinct in *Uvaroviella*. Thus, this character also cannot be used for clear distinguishing of these “subfamilies”.

So, *Phalangopsis* and *Luzara* are related genera and must be included in one tribe; and Luzarinae and Luzarini are junior synonyms to Phalangopsinae and Phalangopsini, respectively. The genus *Uvaroviella* is somewhat more separated from majority of the studied American representatives of Phalangopsini (including *Phalangopsis* and *Luzara*) than these representatives from each other, and this genus may be included in a special tribe. However, such inclusion must be grounded by an additional study of Phalangopsini from the New World as well as from the Old World. At present, it is reasonable to divide this rich and rather diverse tribe into several subtribes only.

Classification of the Phalangopsinae subfamily group from the Orthoptera Species File (Eades et al., 2014) is somewhat eclectic: some parts of this classification are given in accordance to different views of different authors or has not any published ground. It is a reason that I put here (see below) a preliminary classification of this group in accordance to my views (however, the taxa of Phalangopsinae from Africa and adjacent islands are not included, as they are in need of a special study):

PHALANGOPSINAE subfamily group
(= group “PHALANGOPSIDAE”)

I. Subfamily PHALANGOPSINAE Blanchard, 1845

1) Tribe PHALANGOPSINI Blanchard, 1845: subtribe **Luzarina** Hebard, 1928 [*Luzara* Walker, 1869; *Luzarida* Hebard, 1928; *Palpiger* Hebard, 1928; *Niquirana* Hebard, 1928; *Acantoluzarida* Desutter-Grandcolas, 1992; *Luzaridella* Desutter-Grandcolas, 1992; *Melanotes* Desutter-Grandcolas, 1993; *Ochraperites* Desutter-Grandcolas, 1993; *Allochrates* Desutter-

Grandcolas, 1993; *Koilenoma* Desutter-Grandcolas, 1993; *Leptopsis* Desutter-Grandcolas, 1996; *Peru* Koçak et Kemal, 2008; *Peruzara* Gorochov, 2011; *Amazonacla* Gorochov, 2011; *Ucayacla* Gorochov, 2011; *Lecticusta* Cadena-Castañeda et Garcia, 2012; possibly *Gryllosoma* Hebard, 1928, *Tairona* Hebard, 1928, *Rehniella* Hebard, 1928, *Amusodes* Hebard, 1928, *Amusina* Hebard, 1928, *Megalamusus* Hebard, 1928 and *Laozacla* **gen. nov.**]; subtribe **Phalangopsina** Blanchard, 1845 [*Phalangopsis* Audinet-Serville, 1831; *Eidmanacris* Chopard, 1956; *Philippopsis* Desutter-Grandcolas, 1992; possibly *Dyscophogryllus* Rehn, 1901 and *Strinatia* Chopard, 1970]; subtribe **Amphiacustina** Hubbell, 1938 [*Amphiacusta* Saussure, 1878; *Noctivox* Desutter-Grandcolas et Hubbell, 1993; *Longuripes* Desutter-Grandcolas et Hubbell, 1993 (including subgenus *Prolonguripes* Desutter-Grandcolas, 1993, **stat. nov.**); *Nemoricantor* Desutter-Grandcolas et Hubbell, 1993; *Mayagryllus* Desutter-Grandcolas et Hubbell, 1993; *Arachnopsita* Desutter-Grandcolas et Hubbell, 1993; *Cantrallia* Desutter-Grandcolas, 1994; *Leptopedetes* Desutter-Grandcolas, 1994; *Caribacusta* **gen. nov.**; possibly fossil *Araneagryllus* Heads, 2010]; subtribe **Modestozarina** subtrib. nov. [*Endecous* Saussure, 1878; *Modestozara* **gen. nov.**; possibly *Daedalonotum* **gen. nov.**]; subtribe **Nemozarina** subtrib. nov. [*Lernecella* Hebard, 1928; *Nemozara* **gen. nov.**; *Anemozara* **gen. nov.**]; subtribe **Lernecina** subtrib. nov. (= “**Lernecae**” Desutter, 1987, unavailable name published without description or diagnosis) [*Lerneca* Walker, 1869; *Prosthacusta* Saussure, 1874; possibly *Microlerneca* Mello, 1995]; subtribe **Parendacustina** subtrib. nov. [*Arachnomimus* Saussure, 1897; *Parendacustes* Chopard, 1924; *Luzonogryllus* Yamasaki, 1978; *Longizacla* Gorochov, 2003]; subtribe ? **Heterogryllina** Hebard, 1928 (?= “**Acloidae**” Desutter-Grandcolas, 1992) [*Uvaroviella* Chopard, 1923; possibly *Heterogryllus* Saussure, 1874]; **Phalangopsini incertae sedis** (subtribal position unclear) [*Miogyllodes* Hebard, 1928; *Prosthama* Hebard, 1928; *Anacusta* Hebard, 1928; *Cophella* Hebard, 1928; *Paracophella* Hebard, 1928; *Phalangopsina* Chopard, 1933; *Kempiola* Uvarov, 1940; *Endophallusia* Mello, 1990; *Guabamima* Mello, 1993; *Aracamby* Mello, 1993; *Cacruzia* Mello, 1993; *Izecksohniella* Mello, 1993; *Vanzoliniella* Mello et Cezar dos Reis, 1994; *Lernecopsis* Mello, 1995; *Anophthalmotes* Desutter-Grandcolas, 1995; *Zacla* Gorochov, 2003; *Ottedana* Mello et Andrade, 2003; *Saopaloa* Koçak

et Kemal, 2008; *Marhiella* Mews et Mol, 2009; *Joadis* Mews et Sperber, 2009; *Grandcolasia* Koçak & Kemal, 2010; *Mellopsis* Mews et Sperber, 2010; *Adenopygus* Bolfarini et Mello, 2012; *Opiliosina* Desutter-Grandcolas, 2012; *Speluncasina* Desutter-Grandcolas, 2012; *Bambuina* Mello, Horta et Bolfarini, 2013]

2) Tribe PARAGRYLLINI Desutter, 1988: subtribe **Paragryllina** Desutter, 1988 [*Paragryllus* Guérin-Méneville, 1844; *Benoistella* Uvarov, 1939; *Rumea* Desutter, 1988; *Silvastella* Desutter-Grandcolas, 1992; *Bolivacla* **gen. nov.**]; subtribe **Neoaclina** Desutter, 1988 [*Neoacla* Desutter, 1988; *Kevanacla* Desutter-Grandcolas, 1992; *Yoyuteris* Ruiz-Baliú et Otte, 1997; *Aclella* Desutter-Grandcolas, 2000; *Selvacla* Otte, 2006; possibly *Escondacla* Nischk et Otte, 2000 and *Pe-ruacla* Gorochov, 2011]; subtribe **Strogulomor-phina** Desutter, 1988 [*Strogulomorpha* Desutter, 1988; *Loretana* Desutter, 1991; possibly *Eugryllina* Hebard, 1928, *Nigrothema* Desutter-Grandcolas, 1991, *Unithema* Desutter-Grandcolas, 1991, *Anomaloterga* Mello et Bolfarini, 2010 and *Ecuadoracla* Gorochov, 2011]; subtribe **Mexi-aclina** **subtrib. nov.** [*Mexiaccla* Gorochov, 2007; *Oaxacla* Gorochov, 2007]; subtribe **Brevizaclina** **subtrib. nov.** [*Mikluchomaklaia* Gorochov, 1986; *Brevizacla* Gorochov, 2003]; **Paragryllini incertae sedis** (subtribal position unclear) [*Laranda* Walker, 1869; *Ectecous* Saussure, 1878; *Caltathra* Otte, 1987; *Adelosgryllus* Mesa et Zefa, 2004; *Apteracla* Gorochov, 2009]

3) Tribe ENDACUSTINI Gorochov, 1986 [*Endacusta* Brunner-Wattenwyl, 1873; *Endotaria* Chopard, 1951; *Tathra* Otte et Alexander, 1983; *Nesitathra* Otte et Rentz, 1985; *Lucienia* Gorochov, 1986; *Anendacusta* Gorochov, 2003; *Itarotathra* Gorochov, 2003; *Pseudendacusta* Gorochov, 2003; *Zaclotathra* Gorochov, 2003; possibly *Discotathra* Gorochov, 2003]

4) Tribe LUZAROPSINI Gorochov, 1986 [*Luzaropsis* Chopard, 1925; *Terrozacla* **gen. nov.**; possibly *Larandopsis* Chopard, 1924]

5) Tribe OTTEINI Koçak et Kemal, 2009 [*Cubacophus* Ruiz-Baliú et Otte, 1997; *Otteus* Koçak et Kemal, 2009, **gen. dist.**]

6) PHALANGOPSINAE INCERTAE SEDIS (tribal position unclear) [*Hemicophus* Saussure, 1878; *Aspidogryllus* Chopard, 1933; *Protathra* Desutter-Grandcolas, 1997; *Dambachia* Nischk et Otte, 2000; *Antilliclodes* Otte et Perez-Gelabert, 2009; *Megacris* Desutter-Grandcolas, 2012; fossil *Eozacla* Gorochov, 2012; possibly fossil *Eotrella* Gorochov, 2012]

II. Subfamily CACOPLISTINAE Saussure, 1877 (it is originally described as Cachoplistites, but this name is based on unjustified emendation of generic name and must be corrected with preservation of the same author and date; see The Code, 1999: article 35.4.1 and example in it)

1) Tribe CACOPLISTINI Saussure, 1877 [*Cacoplistes* Brunner-Wattenwyl, 1873]

2) Tribe HOMOEOGRYLLINI Gorochov, 1986 [*Homoeogryllus* Guérin-Méneville, 1847; *Meloimorpha* Walker, 1879]

III. Subfamily PHALORIINAE Gorochov, 1985

1) Tribe PHALORIINI Gorochov, 1985 [*Phaloria* Stål, 1877; *Vescelia* Stål, 1877; *Tremellia* Stål, 1877; *Pseudotrigonidium* Chopard, 1915; *Strophiola* Uvarov, 1940; *Trellius* Gorochov, 1988; *Ceyloria* Gorochov, 1996; *Sumatloria* Gorochov, 2003; *Gorochovius* Xie et al., 2004; possibly fossil *Electrogryllus* Gorochov, 1992 (it contains one species only, because “*E. electrum* Gorochov, 1992” does not exist: it is a lapse probably based on incorrect translation of my sentence about etymology of the generic name; see Eades et al., 2014)]

2) Tribe SUBTILORIINI Gorochov, 2003 (2011) [*Heterotrypus* Saussure, 1878; *Schizotrypus* Chopard, 1954; *Subtiloria* Gorochov, 1999; *Kameruloria* Gorochov, 2003]

IV. Subfamily PTEROPLISTINAE Chopard, 1951 (Pteroplistinae Chopard, 1936 is unavailable name published without description or diagnosis; see The Code, 1999: article 13.1)

[*Pteroplistes* Brunner-Wattenwyl, 1873; *Tramlapiola* Gorochov, 1990; *Crockeriolo* Gorochov et Kostia, 1999; *Kerinciolo* Gorochov, 2004; *Changiolo* Gorochov, 2004; *Tembelingiolo* Gorochov, 2004; *Pangrangiolo* Gorochov, 2004; *Asymmetriolo* Gorochov, 2010; *Singapuriolo* Gorochov et Tan, 2012; possibly fossil *Trichogryllus* Chopard, 1936 and *Eneopterotrypus* Zeuner, 1937]

DESCRIPTIONS OF NEW TAXA

Subfamily PHALANGOPSINAE

Tribe PHALANGOPSINI

Subtribe LUZARINA

Note. The subtribe is characterized by an almost semiglobular head (its rostrum is widely rounded in the profile, more or less wide, not very projected forwards, and not

separated from the rest of vertex by a dorsal concavity), the median ocellus located at the rostral apex or near it, lateral ocelli situated on lateral parts of rostral base or near rostrum and eyes (but not on rostral dorsum), maxillary palpi with a moderately long and clearly widened apical segment having an oblique cutting and slightly arcuately curved distal part in the profile (Figs I: 4, 5; Fig. III: 5), legs usually not very long and not very thin, hind tibiae with the dorsal inner apical spur longest, and rachis of male genitalia usually more or less membranous and very small but sometimes almost absent (Figs II: 6–10) or rather short and with the apical lobe directed upwards (Figs III: 6–8). However, distribution of these characters among many included genera is partly studied only, and the genera listed above as members of *Luzarina* may belong to more than one subtribe. Majority of the *Luzarina* representatives live on forest floor; often they may be collected on soil or low grass-like plants but sometimes on tree trunks near ground during stridulation.

***Palpigera aluzara* sp. nov.**

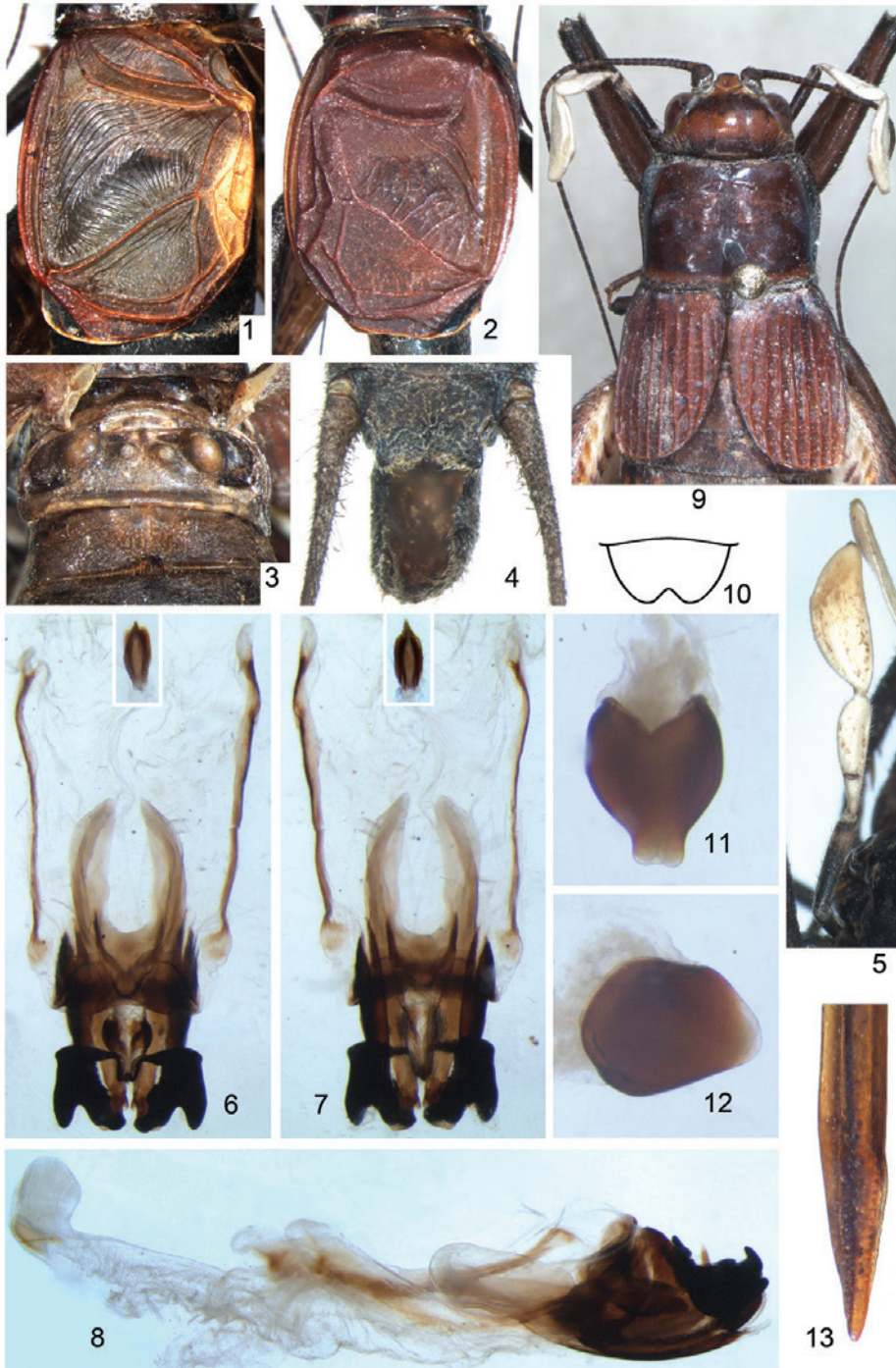
(Figs III: 1–13)

Holotype. Male; **Bolivia**, Santa Cruz Department, 23 km SW of Santa Cruz City, El Soc Natural Park (small private area with secondary forest), about 600 m, on bark of lower part of living tree trunk at night, 14–16 Feb. 2014, A. Gorochov (ZIN).

Paratypes. Five males and 4 females, same data as for holotype, but some females collected on small forest road at night (ZIN).

Description. Male (holotype). Colouration dark brown, rather uniform but with white apical and subapical segments of maxillary palpi, reddish brown both small area between ocelli and transverse band on dorsum between hind halves of eyes, dark reddish brown disc and almost blackish lateral lobes in pronotum, brown tegmina having dorsal field of right tegmen barely lighter and that of left tegmen almost transparent with light brown apical area and with very light narrow areas along other

edges of latter field, greyish brown to almost light brown areas on metanotum and on first abdominal tergite, moderately dark reddish brown area on middle tibiae, light brown most part of spines and spurs of legs, and light brown small marks on basal part of outer surface of hind femora as well as larger areas on proximal half of inner surface of these femora. Head with apical segment of maxillary palpi strongly widened in profile (almost semicircular in shape; Fig. III: 5) and lamellar, with rostral apex barely narrower than scape, and without concavity on epicranial dorsum in profile. Pronotum slightly wider than head and with widely rounded (not distinctly projected) anteroventral corners. Notal gland developed, consisting of rather wide and rounded median lobe of hind part of mesonotum (this lobe curved upwards) as well as of two pairs of rounded tubercles on metanotum (lateral tubercles distinctly larger than medial ones; Fig. III: 3). Tegmina rather wide but distinctly shortened (reaching apex of fifth abdominal tergite); tegminal lateral field with six almost straight and parallel longitudinal veins (including vein separating lateral field from dorsal one) and a few small additional branches (crossveins almost lost); tegminal dorsal field with developed stridulatory apparatus having numerous oblique veins (sinuate in shape) and not large obliquely triangular mirror; dorsal field of right (upper) tegmen slightly more thickened than that of left (lower) tegmen (Figs III: 1, 2). Hind wings absent. Legs not very long and not very thin, with only inner medium-sized open tympana and moderately thickened (for jumping) hind femora. Anal plate almost square, with barely notched hind edge and tubercle-like posterolateral corners; genital plate distinctly longer than previous plate and with barely concave apex (Fig. III: 4). Genitalia with epiphallus typical of *Luzarina* and having membranous lobules on apices of posterolateral epiphallic arms, very characteristic rachis having rather large sac-like process directed upwards and apical spine curved



Figs III (1–13). *Palpiger a luzara* sp. nov.: 1, 2, dorsal field of lower (1) and upper (2) male tegmina; 3, male metanotal gland from above; 4, male abdominal apex from above; 5, maxillary palpus from side; 6–8, male genitalia from above (6), from below (7) and from side (8); 9, head, pronotum and tegmina of female from above; 10, female genital plate from below; 11, 12, female copulatory papilla from above (11) and from side (12); 13, distal part of ovipositor from side.

upwards also, most part of ectoparameres heavily sclerotized and compact but situated near distal part of above-mentioned arms and partly fused with them (medial part of ectoparameres with strongly S-shaped thin process having apex directed to apex of rachis), endoparameres H-shaped and rather long (their posterior arms very long, reaching distal half of ectoparameres), rami very long, and formula located distinctly before rami and with rather large apodeme (Figs III: 6–8).

Variations. Some males with uniformly dark brown middle tibiae, slightly darker or lighter tegmina, or somewhat more concave hind edge of anal plate.

Female. General appearance as in males, but tegmina different (both tegmina practically identical in structure, somewhat smaller but not very short, slightly overlapping each other, with thickened dorsal field, with 8–9 convex and parallel longitudinal veins in dorsal field as well as with 5–6 almost parallel ones in lateral field, with weakly developed crossveins, and with colouration of dorsal field in both tegmina similar to that of right male tegmen; Fig. III: 9), notal gland absent, and anal plate slightly narrowing to rather widely rounded apex; genital plate rather short and with small rounded posteromedian notch (Fig. III: 10); ovipositor normal and with simple apex (Fig. III: 13); copulatory papilla as in Figs III: 11, 12.

Length in mm. Body: male 19–22, female 18–21; pronotum: male 3–3.3, female 3.2–3.4; tegmina: male 9–10, female 5.5–6; hind femora: male 15–16, female 15.5–16.5; ovipositor 11.5–12.

Comparison. Maxillary palpi of the new species are with the apical segment intermediate between those of *P. borellii* (Giglio-Tos, 1897) and *P. boliviana* (Bruner, 1916) in the shape; it is slightly narrower than in the first species and clearly wider than in *P. boliviana*. From *P. borellii*, the new species is also distinguished by more angular posterolateral projections of the male anal plate; from *P. boliviana*, by these projections

shorter; and from *P. fratercula* Hebard, 1928, by a much wider apical segment of the maxillary palpi and distinctly concave (not convex) hind edge of the male anal plate.

Etymology. Name of this species consists of the Greek prefix meaning “not” and generic name *Luzara*.

Genus *Ochraperites* Desutter-Grandcolas, 1993

Note. This genus includes crickets with a medium-sized to rather small body, almost semiglobular and moderately high head having the rostrum almost as wide as scape, almost square pronotum with a slightly narrowing anterior part (Figs IV: 1, 5, 9) and widely rounded anteroventral corners, the presence of metanotal gland in male, significantly shortened male tegmina having a widely rounded distal part of the dorsal field and very asymmetrical structure of the upper tegmen in comparison to lower one (dorsal field in the upper tegmen is semi-sclerotized and almost without venation, but such field in the lower tegmen is almost completely or partly membranous and with a thin stridulatory vein dividing the membranous space into two parts almost equal to each other in the size; Figs IV: 2, 3, 6, 7, 10, 11), almost scale-like female tegmina (hind wings are absent in both sexes), moderately short and thin legs (but the hind femora are distinctly thickened, adapted to jumping) having inner (oval) tympana only and numerous denticles between and before four outer and four inner dorsal articulated spines of the hind tibiae, a short male anal plate having a widely truncate hind part and slightly projected posterolateral corners (Figs IV: 4, 8, 12), the male genital plate approximately twice longer than anal plate, and the male genitalia rather diverse. These genitalia are with only a few general characters: the epiphallus strongly curved in the profile and with a pair of posterolateral arms fused or partly fused with the ectoparameres; each ectoparamere is with an angular or lobule-like short anterodorsal

projection situated very near such projection of the opposite ectoparamere (possibly this character is one of the unique synapomorphies of the genus *Ochraperites*); the endoparameres are H-shaped and with rather long posterior arms; formula is semitubular and without long apodeme; rami are well developed (Figs V: 1–9).

This genus includes a few species with somewhat different structure of the male tegmina and male genitalia. These differences allow me to divide it into three subgenera. I cannot exclude that these subgenera may be considered as separate genera, or that some other genera described previously (*Allochrates* and *Peru*) may be included in the genus *Ochraperites* as its subgenera (see a key for subgenera of this genus and for close-related genera below).

1. Male genitalia moderately wide; epiphallus with anterior part comparatively small and curved upwards and partly backwards, as well as with distal half of posterolateral arms membranous; endoparameral apodemes long and narrow (Figs V: 4–6) 2
 - Male genitalia wide or narrow; epiphallus with anterior part diverse and with distal half of posterolateral arms sclerotized or partly sclerotized; endoparameral apodemes diverse (Figs V: 1–3, 7–9) 3
2. Anterior part of epiphallus without any median tubercle; lateral part of ectoparameres in male genitalia sclerotized and almost spine-like; endoparameral apodemes very long, projected before anterior part of rami
 - gen. *Allochrates* Desutter-Grandcolas, 1993
 - Anterior part of epiphallus with distinct median tubercle; lateral part of ectoparameres in male genitalia membranous and lobe-like; endoparameral apodemes not very long, not projected before anterior part of rami (Figs V: 4–6) subgen. *Ochraperites* s. str. [Included species: *Ochraperites ottei* Desutter-Grandcolas, 1993 (type species); *O. (O.) cuyabeno* sp. nov.]
3. Male genitalia wide; epiphallus with anterior part strongly widened and curved backwards, as well as with posterolateral arms short and sclerotized; ectoparameres large; endoparameral apodemes wide (Figs V: 1–3) subgen. *Asymmetracla* subgen. nov.
 - [Included species: *O. (A.) asymmetricus* sp. nov. (type species) only. *Etymology*: the subgeneric name originates from the Latin word of Greek origin “asymmetricus” (asymmetrical) and genus *Acla*.]
 - Male genitalia narrow; epiphallus with anterior part weakly widened and curved upwards, as well as with posterolateral arms long and sclerotized or partly sclerotized; ectoparameres small; endoparameral apodemes narrow (Figs V: 7–9) 4
4. Epiphallus with long anterior (curved) part, with narrowed middle part (between anterior and posterior parts), and with comparatively wide basal part of posterolateral arms (near middle part of ectoparameres); rachis of male genitalia not protruding upwards; endoparameral apodemes much shorter than rami (Figs V: 7–9, 11). Male tegmina with distinct tegminal gland in distal part of lateral field and without mirror in stridulatory apparatus (Figs IV: 10; V: 10)
 - subgen. *Glandulacla* subgen. nov. [Included species: *O. (G.) aguarico* sp. nov. (type species) only. *Etymology*: the subgeneric name originates from the Latin word “glandulosus” (glandular) and genus *Acla*.]
 - Epiphallus with short anterior (curved) part, with middle part not narrower than more distal parts, and with rather narrow basal part of posterolateral arms (near middle part of ectoparameres); rachis of male genitalia distinctly protruding upwards (clearly visible above dorsal edge of middle part of epiphallus in profile); endoparameral apodemes slightly shorter than rami. Structure of lateral field of male tegmina unknown; mirror in tegminal stridulatory apparatus of male developed ... gen. *Peru* Koçak et Kemal, 2008

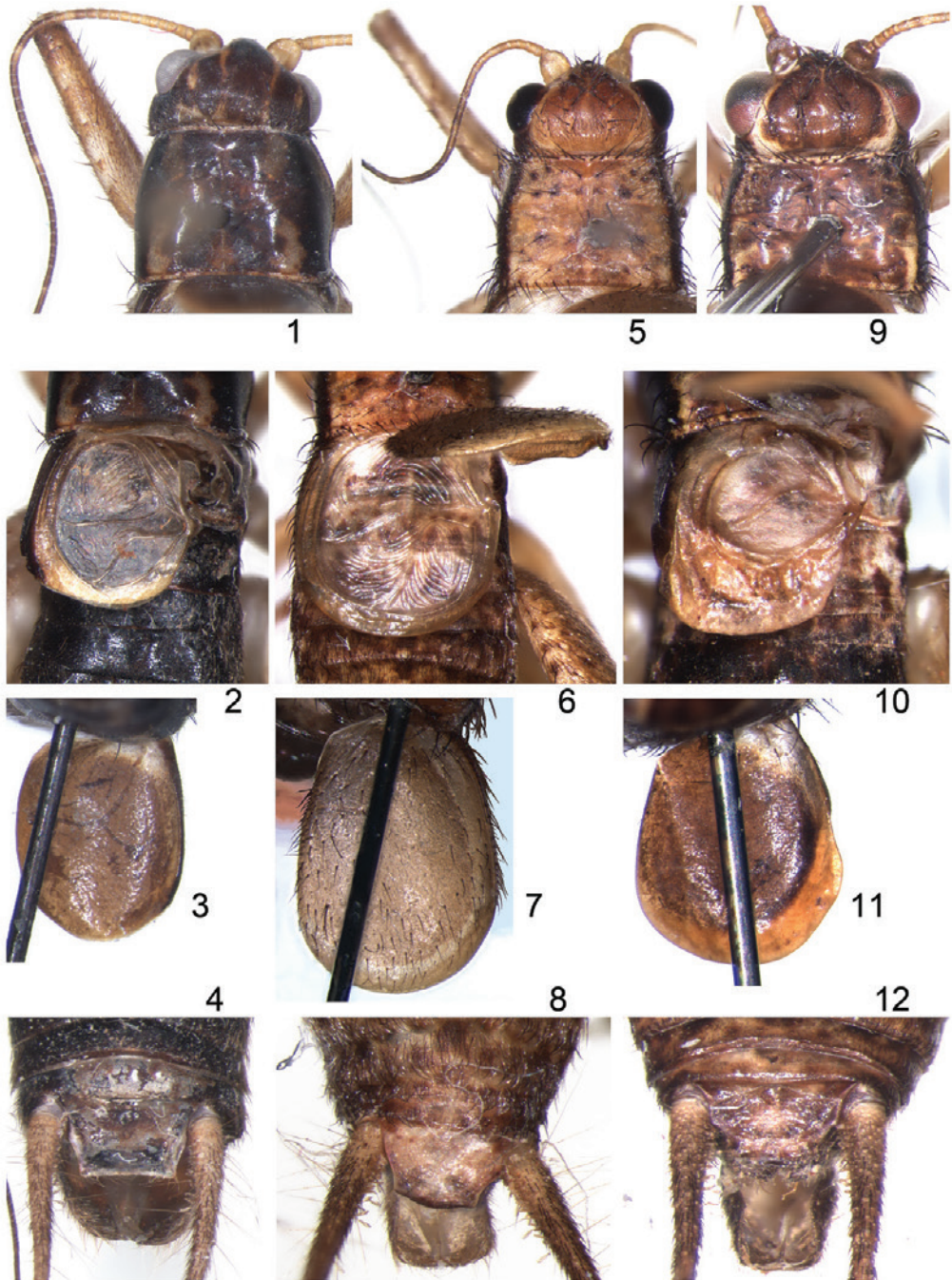
Ochraperites (Asymmetracla)

asymmetricus sp. nov.

(Figs IV: 1–4; V: 1–3)

Holotype. Male; **Ecuador**, western slopes of Andes not far from Pacific Coast, 10 km E of Agua Blanca Vill. (environs of Puerto Lopez Town), San Sebastian Camp, about 700 m, misty primary forest, among dry leaves on forest floor at night, 26–29 Oct. 2005, A. Gorochov, A. Ovtshinnikov (ZIN).

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



Figs IV (1–12). *Ochraperites*, male: 1–4, *O. asymmetricus* sp. nov.; 5–8, *O. cuyabeno* sp. nov.; 9–12, *O. अगरिको* sp. nov. Head and pronotum from above (1, 5, 9); dorsal field of lower (2, 6, 10) and upper (3, 7, 11) tegmina; abdominal apex from above (4, 8, 12).



Figs V (1–11). *Ochraperites*, male: 1–3, *O. asymmetricus* sp. nov.; 4–6, *O. cuyabeno* sp. nov.; 7–11, *O. aguarico* sp. nov. Genitalia from above (1, 4, 7), from below (2, 5, 8) and from side (3, 6, 9); lateral field of upper tegmen (10); scheme of sagittal section of formula (coloured area) with membranous rachis, and schematic picture of genitalia from side (11). Abbreviations: *a*, anterodorsal projection of ectoparamere; *ec*, main body of ectoparamere; *en*, endoparamere with apodeme; *f*, formula; *paep*, posterolateral arm of epiphallus; *ra*, rachis.

Description. Male (holotype). Body rather large for this genus. Coloration dark brown with four yellowish longitudinal lines on dorsum of head, light brown labrum, brown antennae having yellowish proximal part and a few light brown small spots near this part, whitish palpi having darkened (almost brown) three proximal segments of maxillary palpi and areas on two proximal segments of labial palpi, pronotum having a pair of short light brown longitudinal stripes on hind half of disc (Fig. IV: 1) and small yellow spot in anteroventral corner of lateral lobes, tegmina having lateral field dark brown and dorsal field differently coloured in upper and lower tegmina (in upper tegmen, latter field brown with light brown stripes along lateral and posterior edges; in lower tegmen, it light greyish, semitransparent, having light brown stripe along lateral edge and yellowish one along posterior edge; Figs IV: 2, 3), pterothoracic tergites partly and abdominal ones completely (excepting cerci) dark brown to blackish, legs and venter of thorax light brown but having numerous oblique brown stripes on outer surface of hind femora, and cerci brown to light brown. Head and pronotum shining; tegmina reaching distal third of second abdominal tergite, with long and thin stridulatory vein of upper tegmen clearly visible on ventral surface and arcuate in shape, with almost completely membranous dorsal field of lower tegmen having small but distinct mirror (Figs IV: 2), and with narrow lateral field (in both tegmina) having three longitudinal and almost parallel veins only; hind basitarsus with two rows of dorsal denticles; genital plate with rounded and slightly bilobate apex; anal plate and genitalia as in figures (Figs IV: 4; V: 1–3).

Variations. Second male with a pair of additional light brown spots on anterior part of disc and weakly distinct brown areas on femora (brown oblique stripes on hind femora also developed).

Female. General appearance as in male but with following differences: tegmina shorter, reaching middle part of first ab-

dominal tergite and almost contacted with each other (dorsal field in both tegmina semisclerotized and lacking both venation and light stripe along posterior edge); metanotal gland absent; dorsum of abdominal tergites more or less spotted, consisting of brown and light brown marks; anal plate simple and slightly narrowing to obtusely angular apex. Genital plate almost as long as wide and with rounded but slightly concave apex; hind femur approximately 1.5 times as long as ovipositor; apical part of ovipositor narrow and acute.

Length in mm. Body: male 11–11.5, female 13.5–14; pronotum: male 2.2–2.4, female 2.9–3.1; tegmina: male 2.9–3.2, female 2–2.2; hind femora: male 8.6–9, female 10–10.5; ovipositor 6.5–6.9.

Etymology. The species name is the Latin word of Greek origin “asymmetricus” (asymmetrical) given in connection with a strong asymmetry of the male tegmina.

Ochraperites (Ochraperites) cuyabeno
sp. nov.

(Figs I: 4; IV: 5–8; V: 4–6)

Holotype. Male; **Ecuador**, eastern plain, 80–85 km E of Lago Agrio Town, environs of Lago Grande Lake on Rio Cuyabeno, very lowlying primary forest, among dry leaves on forest floor at night, 2–9 Nov. 2005, A. Gorochov, A. Ovtshinnikov (ZIN).

Paratypes. Three females, same data as for holotype (ZIN).

Description. Male (holotype). Body medium-sized for this genus. Colouration (Figs IV: 5–8) light brown with slightly darker dorsum of head, a pair of large almost dark brown areas on face contacting with ventral parts of eyes and antennal cavities, brown both spot behind each eye and most part of antennae (only their small proximal part light), whitish maxillary palpi having brownish areas on proximal half, dark brown upper half of pronotal lateral lobes, rather small brown spots on pronotal disc, greyish brown lateral field of tegmina, greyish light brown dorsal field of upper

tegmen having yellowish stripes along lateral and posterior edges, almost completely transparent most part of dorsal field of lower tegmen, spotted (with light brown and slightly darker small marks) abdominal tergites, and rather numerous brown marks on legs. Structure of body similar to that of *O. asymmetricus*, but tegmina longer and with narrower lateral field having one longitudinal vein only, upper tegmen with straight and short stridulatory vein (situated in medial half of dorsal field) on ventral surface, lower tegmen with distinctly larger mirror (Figs IV: 6, 7), hind basitarsus with inner row of dorsal denticles consisting of one apical denticle only, anal plate with slightly convex hind edge between posterolateral corners, genital plate with roundly truncate apex (Fig. IV: 8), and genitalia as in Figs V: 4–6.

Female. General appearance similar to that of male, however dorsum of head with more or less distinct light longitudinal stripes, colouration of legs and abdominal tergites sometimes slightly darker (with more contrast spots and marks), tegmina similar to those of females of *O. asymmetricus* but somewhat shorter and not contacting with each other (their colouration with light part of dorsal field larger, occupying third or half of this field), other bodyparts also similar to those of these females but with ovipositor slightly longer (hind femur 1.3–1.4 times as long as ovipositor).

Length in mm. Body: male 10, female 9–11; pronotum: male 1.8, female 1.9–2.2; tegmina: male 3.5–3.8, female 1.5–2; hind femora: male 7.2, female 7.5–8.7; ovipositor 5.3–6.7.

Comparison. The new species differs from *O. ottei* (another species of this subgenus) in the male genitalia with somewhat longer membranous parts of the posterolateral epiphallic arms, with shorter ectoparameres and with much wider membranous lateral lobes of the ectoparameres.

Etymology. The new species is named after the Cuyabeno River.

Ochraperites (Glandulacla) aguarico
sp. nov.

(Figs IV: 9–12; V: 7–11)

Holotype. Male; **Ecuador**, eastern plain, about 70 km SE of Lago Agrio Town, environs of San Pablo de Kantesiya Vill. on Rio Aguarico, lowlying partly primary / partly secondary forest, on forest floor at night, 10–17 Nov. 2005, A. Gorochov, A. Ovtshinnikov (ZIN).

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

Description. Male (holotype). Body rather small for this genus. Colouration (Figs IV: 9–12) dark brown with head dorsum and pronotal disc brown, yellowish line along dorsal edge of each eye, a pair of small yellowish marks on rostral apex, antennae and maxillary palpi as in *O. asymmetricus* but with slightly darker scape, pronotum with a pair of light brown longitudinal lateral stripes on disc (these stripes distinct in posterior half and less distinct in anterior one), dorsal field of upper tegmen with yellowish grey lateral band and wider yellow band along posterior edge (Fig. IV: 11), dorsal field of lower tegmen yellowish with semitransparent membranous part (Fig. IV: 10), colouration of legs and abdomen approximately as in holotype of *O. cuyabeno* but slightly darker, venter of thorax and pleurites light brown. Structure of body similar to that of *O. asymmetricus*, but tegmina somewhat different in size and with lateral field modified (only one short longitudinal vein in proximal half of this field preserved, and tegminal gland with hairs on ventral surface of special fold in distal half of this field developed; Fig. V: 10), dorsal field of upper tegmen distinctly widened in distal half (Fig. IV: 11) and with less distinct stridulatory vein on ventral surface, dorsal field of lower tegmen with membranous part occupying about half of surface of this field (this part slightly immersed and without mirror) and with almost semi-sclerotized rest part lacking distinct venation (Fig. IV: 10), hind basitarsus and genital plate as in *O. cuyabeno*, anal plate with

slightly less angular posterolateral corners, and genitalia as in Figs V: 7–9, 11.

Female. General appearance as in male, however body clearly larger, colouration of pronotal disc less contrast, colouration of abdominal tergites more contrast, other bodyparts similar to those of females of *O. cuyabeno* but with ovipositor insignificantly longer (hind femur approximately 1.2 times as long as ovipositor).

Length in mm. Body: male 8.5, female 11; pronotum: male 1.6, female 2; male upper tegmen 2.8; male lower tegmen 2; female tegmina 1.4; hind femora: male 6, female 7.5; ovipositor 6.3.

Etymology. The new species is named after the Aguarico River.

Genus *Laozacla* gen. nov.

Type species *L. furca* sp. nov.

Diagnosis. Body medium-sized. Head almost semiglobular, distinctly (in male) or slightly (in female) narrower than pronotum and with rather thin apical segment of maxillary palpi (its shape intermediate between those of *Luzara* and *Uvaroviella*; see Figs I: 3, 5). Pronotum transverse, distinctly (in male) or slightly (in female) narrowing to head and having rather widely rounded anteroventral corners; male metanotal gland developed (Figs XVI: 1, 4). Male tegmina rather wide but somewhat shortened (practically without apical area), with stridulatory apparatus distinct, with venation similar in both tegmina, and with large and almost rounded mirror crossed by two dividing veins (Fig. XVI: 1); hind wings in male and all wings in female absent. Legs thin (but hind femora thickened in proximal half, adapted for jumping) and moderately long; fore tibiae with only inner tympana; hind tibiae with denticles (excepting four pairs of articulated spines) situated mainly on outer dorsal edge and with inner dorsal apical spur longer than all other apical spurs. Male anal plate with a pair of rather long and thin posterolateral processes (Fig. XVI: 2); female anal plate

simple, with rounded apex. Male genital plate short and with three small angular apical lobules located rather far from each other (Fig. XVI: 3); female genital plate distinctly smaller, almost triangular but with widely rounded and slightly notched apex (Fig. XVI: 8). Male genitalia: epiphallus strongly curved in profile; posterolateral epiphallic arms long and distally bifurcate; ectoparameres also long, partly fused with epiphallus and articulated with endoparameres (distal part of ectoparameres well visible above posterolateral epiphallic arms in profile); endoparameres short, connected with each other by narrow sclerotized ribbon; endoparameral apodemes short; posterior endoparameral arms practically absent; formula small and with not large anterior apodeme (Figs XVI: 5–7). Ovipositor normal, with slightly higher subapical part as well as with narrower and acute apical part (Fig. XVI: 9).

Included species. Type species only.

Comparison. The new genus is more or less similar to *Luzarina* in the structure of head and of male genitalia (including size of rachis), but it is distinguished by the following combination of characters: both male tegmina with normal membranes in the stridulatory apparatus, with a rounded mirror having two distinct dividing veins, and practically without apical area of the dorsal field; male anal plate with a pair of rather long and thin posterolateral processes, and male genitalia with long ectoparameres situated mainly above (not under) the posterolateral epiphallic arms and with strongly reduced posterior endoparameral arms.

Etymology. The generic name originates from the Laos Country and genus *Zacla*.

Laozacla furca sp. nov. (Figs XVI: 1–10)

Holotype. Male; Laos, Champasak Prov., “Bolvien Plateau, 14 km SE of Muang Paxong, Ban Houayteuay”, 15°4.655'N, 106°16.848'E, 1200 m, disturbed mountain forest, “pitfall traps”, 6 Dec. 2007 – 6 May 2008, S. Tarasov (ZIN).

Paratypes. Thirty two males and 38 females, same data as for holotype (ZIN); 2 males, same data but “carrion trap”, 6 May – 14 June 2008 (ZIN).

Description. Male (holotype). Colouration light brown but with following marks: head with areas behind eyes dark brown, with apical segment of maxillary palpi mainly greyish brown, and with spots on mandibles and under eyes as well as not very distinct longitudinal stripes on dorsum and mark on third segment of maxillary palpi brown; pronotum brown with almost light brown posterior part of disc and small lightish spot on anteroventral part of each lateral lobe; tegmina with brown upper half of lateral field, slightly lighter (greyish brown) lower half of this field, yellowish venation in this field, and almost whitish veins in dorsal field of lower tegmen; legs with not very distinct darkish spots on fore and middle femora as well as somewhat more distinct brown spots on tibiae and tarsi; abdomen with dark brown tergites as well as with greyish brown genital plate and nearest sternites; anal plate with brown processes and a pair of small spots near cercal bases (Figs XVI: 1–3). Ocelli well developed, not large; rostrum between antennal cavities approximately twice wider than scape; general shape of head and pronotum (dorsal view) as well as structure of dorsal field of tegmina as in Fig. XVI: 1. Metanotal gland as in Fig. XVI: 4. Tegmina reaching hind part of ninth abdominal tergite (Fig. XVI: 1), with lateral area having moderately widened *R-M* area and rather narrow (low) area of *Sc* branches (this area almost equal to *Sc-M* area in width) as well as almost lacking crossveins. Anal and genital plates as in Figs XVI: 2, 3. Genitalia as in Figs XVI: 5–7, 10.

Variations. Some males with dorsal field of upper tegmen somewhat darker (almost greyish brown) as well as with lateral tegminal field having *R-M* area and large spot before this area dark brown.

Female. General appearance more or less similar to male, but dorsum of head and of

pronotum somewhat lighter (almost light brown in head, and with light brown median and hind parts in pronotal disc), pterothoracic and abdominal tergites light brown with numerous darkish marks, abdominal venter also somewhat lighter than in male, anal plate uniformly light brown, and metanotum without gland; structure of genital plate and of ovipositor as in Figs XVI: 8, 9.

Length in mm. Body: male 10–11, female 10.5; pronotum: male 1.9–2.2, female 2.3; tegmina, male 6–7; hind femora: male 7.5–8.5, female 8; ovipositor 7.5.

Etymology. The species name is the Latin word “furca” (fork).

Subtribe PHALANGOPSINA

Note. This subtribe has a characteristic shape of the head: it is with a rather narrow, distinctly projected and more or less angular (in the profile) rostrum separated from the rest of vertex by a dorsal concavity (sometimes almost indistinct) and having the ocelli located almost on the rostral dorsum (near its apex and base); and maxillary palpi with a very long and thin apical segment having the distal part more or less similar to that of Luzarina (Figs I: 1, 2; VI: 1, 2). Also this subtribe has long and relatively thin legs (such structure of the head and legs are usual for representatives of Phalangopsinae living on tree trunks), the hind tibiae with the middle inner apical spur distinctly longest, and rachis of the male genitalia elongate but thin or almost finger-like (Figs II: 1–5, 11, 12; VI: 5–8).

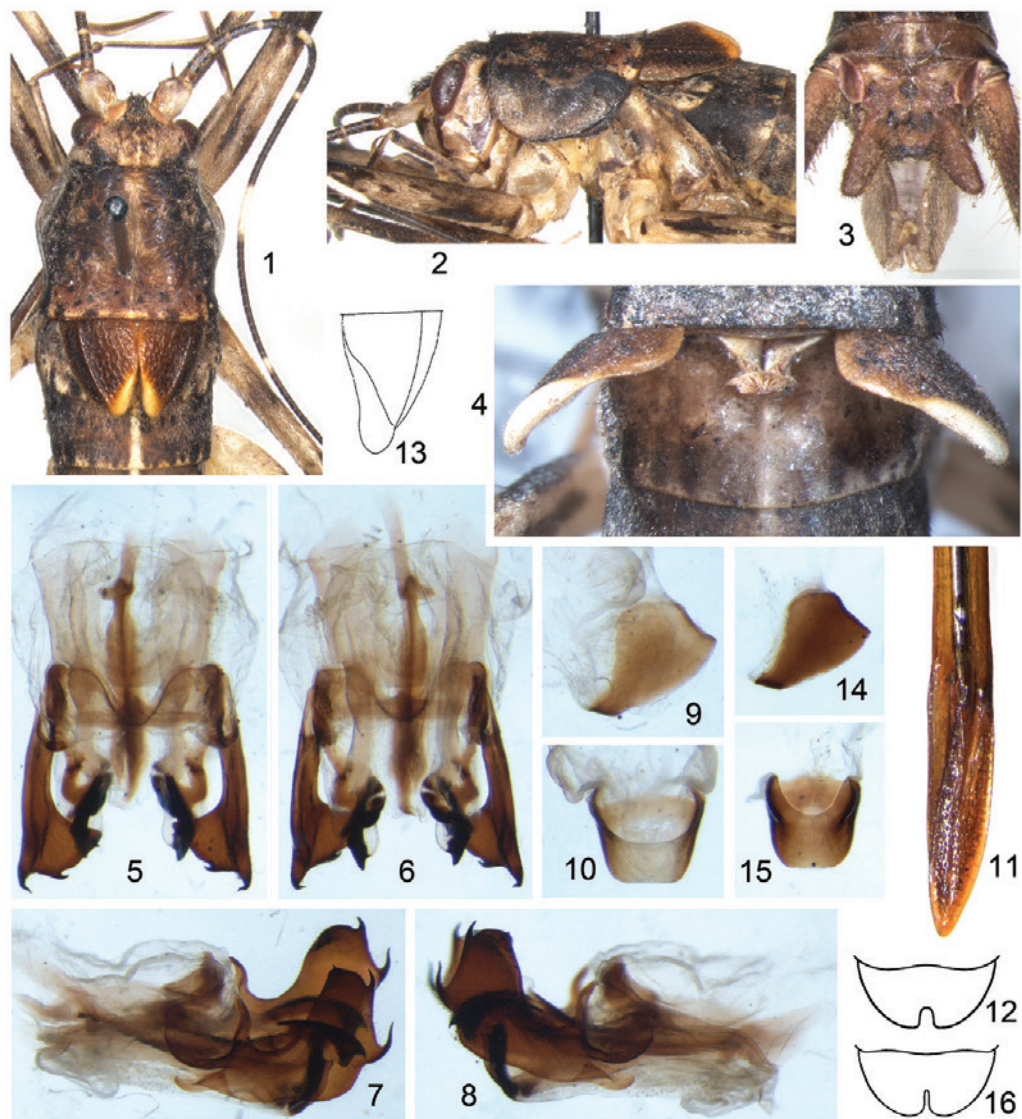
Eidmanacris longa sp. nov.

(Figs I: 2; VI: 1–12)

Holotype. Male; **Bolivia**, Santa Cruz Department, 23 km SW of Santa Cruz City, El Soc Natural Park (small private area with secondary forest), about 600 m, on wet soil in dry brook at night, 14–16 Feb. 2014, A. Gorochov (ZIN).

Paratypes. Three males and 2 females, same data as for holotype (ZIN).

Description. Male (holotype). Body rather large for this genus. Colouration



Figs VI (1–16). *Eidmanacris*: 1–12, *E. longa* sp. nov.; 13–16, *E. ?marmorata* (Bruner). Head, pronotum and tegmina of male from above (1) and from side (2); male abdominal apex from above (3); male metanotal gland from above (4); male genitalia from above (5), from below (6), from side and slightly above (7), and from side (8); female copulatory papilla from side (9, 14) and from above (10, 15); distal part of ovipositor from side (11); female genital plate from below (12, 16); dorsal field of male tegmen (13), after Desutter-Grandcolas (1995).

(Figs VI: 1–4) greyish brown with dark brown, light brown and yellowish spots: head (without antennae) yellowish with more or less dark dorsum, rostrum, three vertical stripes on lower half of head, a pair of spots on genae, and darkish areas on pal-

pi; antennae dark brown with light brown scape (having a few darkish marks), rather sparse and small whitish spots on proximal part of flagellum, moderately long whitish spot on flagellum near this part, and very sparse and small whitish spots on rest of

flagellum; pronotum dark brown with numerous small and not very distinct lighter marks; tegmina brown (rather dark) but with yellow stripe in distolateral part; legs with dark and light spots more or less equal to each other in size; abdomen less distinctly spotted (darkish) but with long median yellowish line on dorsum, yellowish venter, and light greyish brown anal plate and cerci; other parts of body yellowish with more or less distinct darkish marks on pleurites and tergites. Head typical of *Eidmanacris*, however its dorsum in profile with shallow but distinct concavity near lateral ocelli (Fig. VI: 2). Thorax, wings and legs also similar to those of other congeners (legs very long, tympana and hind wings absent) but with some peculiarities: metanotum with gland consisting of characteristically curved anteromedian process having apical part widened and with hairs (Fig. VI: 4); tegmina semisclerotized, short (reaching base of first abdominal tergite), narrowing to almost angular apex, almost without distinct venation excepting one longitudinal vein between dorsal and lateral fields (Figs VI: 1, 2); longest (middle inner) apical spur of hind tibiae slightly longer than half of hind basitarsus. Anal plate with a pair of elongate posterolateral processes and very short, rounded and slightly bilobate median projection (Fig. VI: 3); genital plate moderately elongate and with roundly bilobate apex (Fig. VI: 3); genitalia similar to those of *E. marmorata* (Bruner, 1916) but with posterolateral lobes of epiphallus somewhat different in shape (their hook-like apical spines thinner and longer), dorsal sclerite of rachis longer and more deeply notched, and anteromedian notch of epiphallus distinctly deeper and narrower (Figs VI: 5–8).

Variations. Dorsal sclerite of rachis well sclerotized in one male (paratype) and semimembranous in all other males.

Female. General appearance similar to that of male, but tegmina and metanotal gland absent, anal plate rounded (without processes), genital plate with not very narrow posteromedian notch (Fig. VI: 12).

Ovipositor rather long (hind femur 1.2 times as long as ovipositor) and with apex as in Fig. VI: 11; copulatory papilla as in Fig. VI: 9, 10.

Length in mm. Body: male 19–22, female 18–20; pronotum: male 4.5–4.7, female 4.4–4.6; tegmina, male 3.5–3.8; hind femora: male 20–22, female 20–21; ovipositor 17–17.5.

Comparison. The new species is most similar to *E. marmorata* from Sara Province of Bolivia and to *E. corumbatai* Garcia, 1998 from Brazil (“Cerrado de Corumbatai”). It differs from *E. marmorata* in the dorsum of head with a slightly concave rostral base in the profile (this part of rostrum is practically straight in *E. marmorata*), male tegminal apex less narrow (for comparison see Figs VI: 1, 13), male anal plate with less thin and not curved posterolateral processes as well as with a shorter posteromedian projection, the characters of male genitalia mentioned above, female genital plate with a somewhat wider notch (see Figs VI: 12, 16), female copulatory papilla larger and with a clearly wider proximal notch (see Figs VI: 9, 10, 14, 15), as well as in a distinctly longer ovipositor (in *E. marmorata*, hind femur is 1.45 times as long as ovipositor). From *E. corumbatai*, the new species differs in the median edge of the tegminal proximal half lacking any light stripe, and lateral epiphallic lobes without long finger-like distal processes; and from all the other congeners, in the shape of some structures: epiphallus, male anal plate, male tegmina, or female copulatory papilla.

Etymology. The species name is the Latin word “*longa*” (long).

Eidmanacris ?marmorata (Bruner, 1916) (Figs VI: 13–16)

Material examined. Female; **Bolivia**, Santa Cruz Department, near 80 km NWW of Santa Cruz City, Amboro National Park, Mataracu Camp, about 800 m, primary forest, on leaf of very low bush at night, 8–19 Feb. 2014, A. Gorochov (ZIN).

Note. This specimen is in accordance to the original description and redescription by Desutter-Grandcolas (1995) including length of its ovipositor, but its copulatory papilla slightly higher (it is a reason that my determination of this female is under question). Possibly it was collected in a locality situated less far from the type locality of *E. marmorata* than from that of *E. longa*, and I cannot exclude that these species may be two geographical subspecies of the same species only.

Subtribe AMPHIACUSTINA

Note. The subtribe is similar to Phalangopsina in the general appearance (including shape of head, length of legs, and structure of tibial spurs) and structure of the male genitalia (its rachis may be rather large and partly sclerotized). However often this rachis is short and directed upwards (almost as in Luzarina) but distinctly sclerotized. From Phalangopsina (as well as from Luzarina and Lernecina), this subtribe is not very clearly distinguished by the presence of inner and outer ectoparameres (outer ectoparameres are formed by articulated or partly articulated distal parts of the posterolateral epiphallic arms, and inner ectoparameres sometimes may be partly fused with lateral ones or deeply divided into two sclerotized lobes; Figs XIII: 13, 14; XV: 5–7).

Genus *Caribacusta* gen.nov.

Type species: *C. antiqua* sp. nov.

Diagnosis. Scape approximately 1.5 times as wide as head rostrum between antennal cavities. Ocelli distinct: median ocellus situated almost at apex of rostrum; lateral ocelli located on head dorsum near base of rostrum, not very near each other. Pronotal lateral lobes with anteroventral corner strongly projected downwards but rounded. Tegmina in male distinctly (but not very strongly) shortened and with normal stridulatory apparatus having 1–2 di-

viding veins in mirror; tegmina in female and hind wings in both sexes absent. Legs with open oval inner tympanum only, and longest apical spur (middle inner) of hind tibia clearly longer than half of hind basitarsus. Metanotal gland absent: only traces of it (looking as a pair of slight convexities on metanotum) visible. Male anal plate with a pair of rather long and thin posterolateral processes (Fig. XV: 1); male genital plate slightly longer and with roundly truncate apex. Male genitalia rather long and distinctly narrowed before distal part; epiphallus elongate; inner ectoparameres (articulated with endoparameres) long and narrow; outer ectoparameres (articulated with posterolateral epiphalluc arms) more or less ovaly widened and almost horizontally situated; rachis large (long) and directed backwards; formula small; endoparameral apodeme rather short and directed laterally and forwards; rami very narrow (almost indistinct; Figs XIII: 13, 14).

Included species. Type species; *Amphiacustes carai-bea* Saussure, 1897; *Amphiacusta saba* Desutter-Grandcolas et Otte, 1997; *A. dominica* Otte et Perez-Gelabert, 2009; *A. iviei* Otte et Perez-Gelabert, 2009; *A. renodis* Otte et Perez-Gelabert, 2009; *A. kittsia* Otte et Perez-Gelabert, 2009; *A. cacosensis* Otte et Perez-Gelabert, 2009; *A. cavicola* Otte et Perez-Gelabert, 2009.

Comparison. The new genus is distinguished from *Amphiacusta* and *Noctivox* by a strong reduction of the male abdominal gland and a few characters of the male genitalia: epiphallus elongate; lateral ectoparameres almost oval and partly horizontal; rachis large and straight. From all the other genera of *Amphiacusta*, it differs in the male genitalia distinctly narrowed before distal part and some additional characters: from *Longuripes* (including the subgenus *Prolonguripes* Desutter-Grandcolas, 1993, **stat. nov.**) by not bifurcated outer ectoparameres, from *Nemoricantor* by the medial ectoparameres not divided into two separate sclerites, from *Mayagryllus* by a much longer anterior part of epiphallus (curved

upwards and backwards), from *Cantrallia* by a distinctly longer epiphallus, and from *Arachnopsita* and *Leptopedetes* by the presence of tympana and male tegmina (in *Leptopedetes*, tegmina are developed but very small, scale-like; however in the new genus, male tegmina are much larger and with a normal stridulatory apparatus).

Etymology. The generic name originates from the Caribbean Sea (Mare Caribaeum in Latin) and genus *Amphiacusta*.

***Caribacusta antigua* sp. nov.**

(Figs XIII: 13, 14; XV: 1)

Holotype. Male; **The Lesser Antilles**, Antigua I., "W. Indies: Antigua, 1932, A.D. Torlesse, B.M. 1932-148" (NHM).

Description. Male (holotype). Body colouration brown (rather dark) with following marks: head with yellowish face (from median ocellus to labrum) having four brown vertical bands on epicranium and two such bands on mouthparts, with light stripe along hind edge of each eye, with light brown transverse band on dorsum between hind part of eyes, with more or less yellowish longitudinal stripes on palpi, and with almost light brown scapes; pronotum with yellowish stripe along all edges and a pair of light brown spots on disc; tegmina light greyish brown; legs almost reddish brown but slightly lighter than most part of body and with weakly distinct darkish and lightish spots on distal half of fore and middle femora as well as on middle tibiae; meso- and metanotum as well as venter of body almost light brown. Tibia with oval open tympanum on inner side of both fore legs and with smaller one on outer side of only left fore leg; hind tibiae with four inner and four outer articulated dorsal spines situated not near each other. Tegmina reaching middle of abdomen as minimum (their distal part missing). Anal plate and genitalia as in figures (Figs XIII: 13, 14; XV: 1).

Female unknown.

Length in mm. Body 14.5; pronotum 2.8; hind femora 14.5.

Comparison. The new species is most similar to *C. iviei* **comb. nov.** in the head colouration and structure of the male genitalia, however its head dorsum is with a narrower transverse band (not reaching the lateral ocelli), and its outer ectoparameres are with a more angular apical part. From *C. renodis* **comb. nov.**, the new species differs in somewhat narrower outer ectoparameres having a more angular apical part; and from *C. caraibea* **comb. nov.**, *C. saba* **comb. nov.**, *C. dominica* **comb. nov.**, *C. kittsia* **comb. nov.**, *C. caicosensis* **comb. nov.** and *C. cavicola* **comb. nov.**, in significantly less protruding lateroproximal edges of the lateral ectoparameres.

Etymology. This species is named after the Antigua Island.

***Noctivox orizaba* sp. nov.**

(Figs XV: 2–7)

Holotype. Male; **Mexico**, Veracruz State, "Magdalena, Orizaba", 18°48.2'N, 97°03.7'W, 1198 m, 9 Aug 2011, V. Sinjaev (ZIN).

Description. Male (holotype). Body rather small for this genus and more or less dark. Head with black dorsum having light brown transverse line between lateral ocellus and eye as well as very short longitudinal lines on hind part, with dark brown face having light brown transverse stripe on rostral apex (including median ocellus) and three short vertical stripes near clypeus as well as a few light spots on mouthparts, with greyish brown genae having light brown lower parts and lateral surfaces of mandibles as well as yellowish subgenae, with greyish brown palpi and antennae having slightly lighter apical segment of palpi as well as partly yellowish scape and small sparse light brown spots on antennal flagellum; pronotum black with small barely lighter (dark reddish brown) mark on each anterolateral corner; legs dark brown with rather small and not numerous light brown spots on fore and middle legs as well as with light greyish brown proximal half of hind femora having longitudinal dark median

stripe on lateral surface (this stripe fused with dark distal half); tegmina greyish brown with somewhat lighter (almost light greyish brown) dorsal field; venter of body and rest of thorax greyish brown; abdominal tergites and anal plate dark brown; cerci brown. Rostrum of head between antennal cavities almost as wide as scape; maxillary palpi approximately intermediate between those of *Luzara* (Fig. I: 5) and *Uvaroviella* (Fig. I: 3). Structure of metanotal gland and dorsal field of tegmina as in figures (Figs XV: 3, 4); stridulatory vein of upper tegmen with 114 teeth; hind wings absent. Legs with inner tympanum open and oval, with outer tympanum almost twice smaller, and with longest (inner median) apical spur of hind tibiae slightly longer than half of hind basitarsus. Anal plate with characteristic lateroproximal tubercles (Fig. XV: 2); genitalia as in Figs XV: 5–7.

Female unknown.

Length in mm. Body 13.5; pronotum 2.3; tegmina 7.8; hind femora 13.

Comparison. The new species is similar to *N. bolivari* (Chopard, 1947) described also from Veracruz State (Atoyac) but distinguished by the male genitalia having a wider lateral ectoparameres in the profile, higher (longer) arcuate sclerites articulated with the posterolateral epiphallic arms as well as with the median ectoparameres, a longer (wider) proximal part of these sclerites, and somewhat different shape of the median ectoparameres in the profile (they have a distinctly narrower distal part and are situated very near the proximal epiphallic part; Fig. XV: 7). From *N. chopardi* Desutter-Grandcolas, 1995 poorly described from environs of Cordoba City (another locality in Veracruz State), the new species differs in the epiphallus not longer than in *N. bolivari*, endoparameral apodemes (their proximal part as minimum) not larger than in this species, and stridulatory vein with 114 (not 253–291) teeth.

Etymology. The new species is named after its type locality.

Subtribe **MODESTOZARINA** subtrib. nov.

Type genus *Modestozara* gen. nov. (gender feminine)

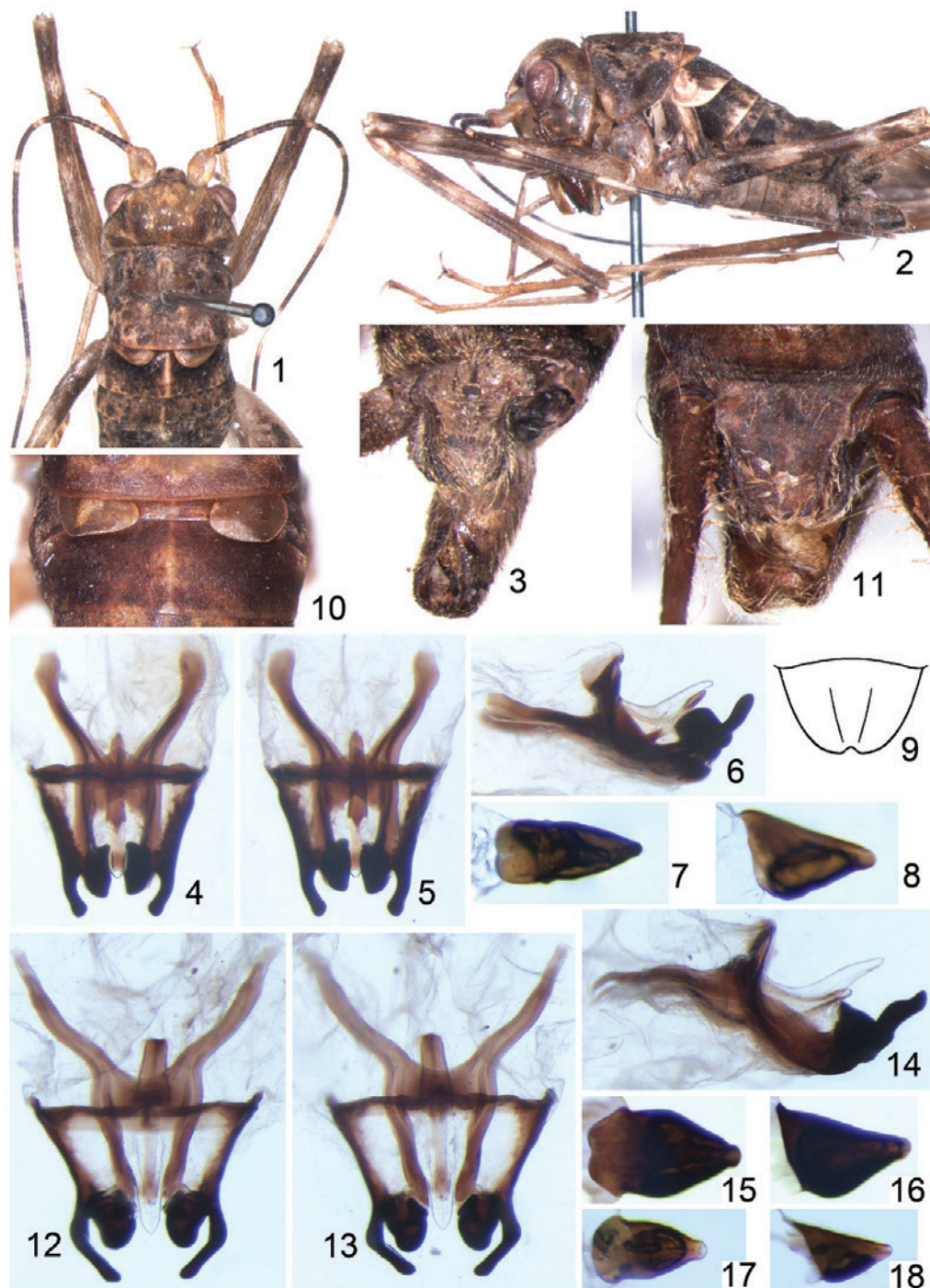
Diagnosis. Structure of head similar to that of *Luzarina*, but maxillary palpi thinner and longer, intermediate between those of *Phalangopsina* and *Luzarina* (sometimes possibly more or less similar to that of *Luzara*; Fig. I: 6). Hind tibia with dorsal inner apical spur longest. Rachis of male genitalia long or moderately long and having finger-like or angular apex (Figs VII: 4–6, 12–14; VIII: 2–4, 6–8, 10–12; IX: 5–7).

Note. Included genera are listed in the classification of *Phalangopsinae* subfamily group given above. From the other subtribes of *Phalangopsini*, the new subtribe differs in the head outlines and apical spurs of hind tibiae as in *Luzarina* and *Lernecina*, and in the rachis of male genitalia as in *Phalangopsina* (from *Amphiacustina*, the new subtribe additionally differs in the same characters of ectoparameres as *Phalangopsina*; see the notes on *Amphiacustina* above).

Genus *Modestozara* gen. nov.

Type species *M. modesta* sp. nov.

Diagnosis. Body medium-sized, with short pubescence, with very small (scale-like) male tegmina lacking venation and stridulatory apparatus, without tegmina in female, and with very long thin legs (Figs VII: 1, 2, 10) lacking tympana and having only a few very small dorsal denticles on distal part of hind basitarsus (excepting a pair of larger apical spurs). Anal plate simple: somewhat elongate, with flat or slightly concave dorsum, and with rounded apex (Figs VII: 3, 11); male genital plate distinctly longer, with truncate or slightly bilobate but more or less rounded apex (Figs VII: 3, 11); female genital plate short, weakly and roundly bilobate at apex (Fig. VII: 9). Male genitalia (Figs VII: 4–6, 12–14) similar to those of *Endecous* but distinguished by posterolateral epiphallic arms rather thin and



Figs VII (1–18). *Modestozara*: 1–9, *M. modesta* sp. nov.; 10–16, *M. trogliphila* sp. nov.; 17, 18, *M. satipo* sp. nov. Head and thorax of male from above (1) and from side (2); male abdominal apex from above (3, 11); male genitalia from above (4, 12), from below (5, 13) and from side (6, 14); female copulatory papilla from above (7, 15, 17) and from side (8, 16, 18); female genital plate from below (9); male pterothorax from above (10).

not bifurcate, rachis moderately long (approximately finger-like) and almost completely membranous (not semisclerotized dorsally) as well as with small semisclerotized ventral lobule (absent in *Endecous*), and ectoparameres wide (not elongate) and distinctly not reaching apices of posterolateral epiphallic arms (in *Endecous*, ectoparameres narrower, more or less elongate and reaching or almost reaching apices of the latter arms).

Included species. Type species; *M. trogliphila* sp. nov.; *M. satipo* sp. nov.

Comparison. The new genus is distinguished from *Endecous* by the above-mentioned characters of hind tarsi and of male genitalia.

Etymology. The generic name originates from the Latin word “modestus” (modest) and a part of the generic name *Luzara*.

***Modestozara modesta* sp. nov.**

(Figs VII: 1–9)

Holotype. Male; **Ecuador**, western slopes of Andes not far from Pacific Coast, 10 km E of Agua Blanca Vill. (environs of Puerto Lopez Town), San Sebastian Camp, about 700 m, misty primary forest, on wall of small and widely open cavity between stones very near brook, at night, 26–29 Oct. 2005, A. Gorochov, A. Ovtshinnikov (ZIN).

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

Description. Male (holotype). Body rather large for this genus. Coloration greyish brown (more or less light) but with numerous and usually not very contrast lighter and darker spots (Figs VII: 1, 2): head almost yellowish with three brown vertical stripe on face, brown areas along dorsal edges of antennal cavities, light brown to brown mandibles and marks on hind half of dorsum, light brown palpi, and dark brown antennae (but scape, pedicel and distinct spots on flagellum light, yellowish to whitish); pronotum with somewhat darker (almost uniformly brown) lateral lobes; tegmina almost uniformly light brown; metanotum dark brown (almost blackish) with

yellow median line, yellowish lateral parts, and brown to light brown marks along hind edge of dorsum; abdominal tergites similar to it in colouration but with very dark lateral parts and without light median line in hind half of abdomen; venter of body light brown to yellowish, but genital plate as well as anal plate darker (greyish brown); cerci light greyish brown. Head large, high, with rostrum slightly narrower than scape; lateral lobes of pronotum with anteroventral corner distinctly angularly projected downwards; metanotum without distinct traces of gland; scale-like tegmina partly covered by pronotum, not contacted with each other, and having rounded posterior edge (Fig. VII: 1, 2); hind wings absent; anal plate with rather strongly widened base and slightly concave dorsum; genital plate with roundly truncate apex (Fig. VII: 3); genitalia as in Figs VII: 4–6.

Female. General appearance similar to that of male, but dorsum of head and rostrum almost completely darkened, tegmina absent, and anal plate slightly shorter and gradually narrowing to apex; genital plate short and weakly roundly bilobate (Fig. VII: 9); hind femur approximately 1.5 times as long as ovipositor; copulatory papilla as in Figs VII: 7, 8.

Length in mm. Body: male 10.5, female 11; pronotum: male 2.5, female 3.1; exposed part of tegmina, male 0.5; hind femora: male 13, female 14.5; ovipositor 9.5.

Etymology. Name of the new species is the Latin word “modesta” (modest).

***Modestozara trogliphila* sp. nov.**

(Figs VII: 10–16)

Holotype. Male; **Ecuador**, Los Tayos, 3°10'S, 78°12'W, “on wall of main cave at bottom of second shaft”, 12 July 1976, Edinburg University Expedition “B.M. 1977-243” (NHM).

Paratypes. Male, same data as for holotype but “in main cave silty ledge above climb down to stream passage” (ZIN); 2 females, one of them with data as for male paratype, and second female with same data but having label “main shaft, on wall of N. E. passage” (NHM, ZIN).

Description. Male (holotype). Size, colouration and structure of body similar to those of *M. modesta* but with following differences: colouration almost uniformly light brown with brown lower half of head (but labrum and palpi yellowish, and mandibles dark brown), light greyish brown antennae having yellowish scape and whitish spots on flagellum, brown pronotum having disc slightly lighter and anteroventral corners lightish, brown to light brown other tergites (proximal ones darker), legs with barely spotted femora, and venter of body (excepting genital plate) almost yellowish; tegmina with almost truncate distal part (Fig. VII: 10); anal plate more gradually narrowing to apex (Fig. VII: 11); genital plate with slightly roundly bilobate apex (Fig. VII: 11); genitalia slightly wider and with distinctly more curved (sinuate in profile) posterolateral epiphallic arms (Figs VII: 12–14).

Variations. Paratype with scape and rostrum somewhat darker (almost brown) and tibiae barely spotted (almost as femora).

Female. General appearance similar to that of male, but structure of tegmina and of anal and genital plates as in female of *M. modesta*; hind femur approximately 1.8 times as long as ovipositor; copulatory papilla distinctly wider than in this species (Figs VII: 15, 16).

Length in mm. Body: male 11.5–12, female 12–14.5; pronotum: male 2.3–2.5, female 2.6–3; exposed part of tegmina, male 0.4–0.6; hind femora: male 15–16, female 16–17.8; ovipositor 9–9.6.

Comparison. The new species differs from *M. modesta* in a less spotted colouration, dark most part of lower half of head, more curved posterolateral epiphallic arms in the male genitalia, and shorter ovipositor.

Etymology. The species name originates from the Greek roots meaning “cave-lover”.

***Modestozara satipo* sp. nov.**
(Figs VII: 17, 18)

Holotype. Female, **Peru**, Junin Department, Satipo Prov., environs of Satipo Town, about

800 m, partly primary / partly secondary forest near waterfall, among stones on bank of brook at night, 4–5 Nov. 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

Paratypes. Three females, same data as for holotype (ZIN).

Description. Female (holotype). Body distinctly smaller than in both previous congeners. Colouration similar to that of *M. modesta* but lighter: head (including mandibles) yellowish with three brown vertical stripes on lower half, a pair of brown marks on genae, and brown antennal flagellum having rather sparse and very small whitish spots; pronotum with light brown disc and brown lateral lobes having light stripe along lower half of anterior edge; metanotum and legs approximately as in *M. modesta* in colouration; abdomen light brown (almost yellowish) with brown areas on lateral parts of first, fourth, fifth and tenth tergites, as well as with brown and brownish dots on rest of tergites. Structure of body also similar to that of female of *M. modesta*, but copulatory papilla (Figs VII: 17, 18) and ovipositor somewhat shorter (hind femur approximately 1.7 times as long as ovipositor).

Variations. Sometimes colouration slightly darker (general colour light brown) and with almost blackish spots on metanotum and hind femora.

Male unknown.

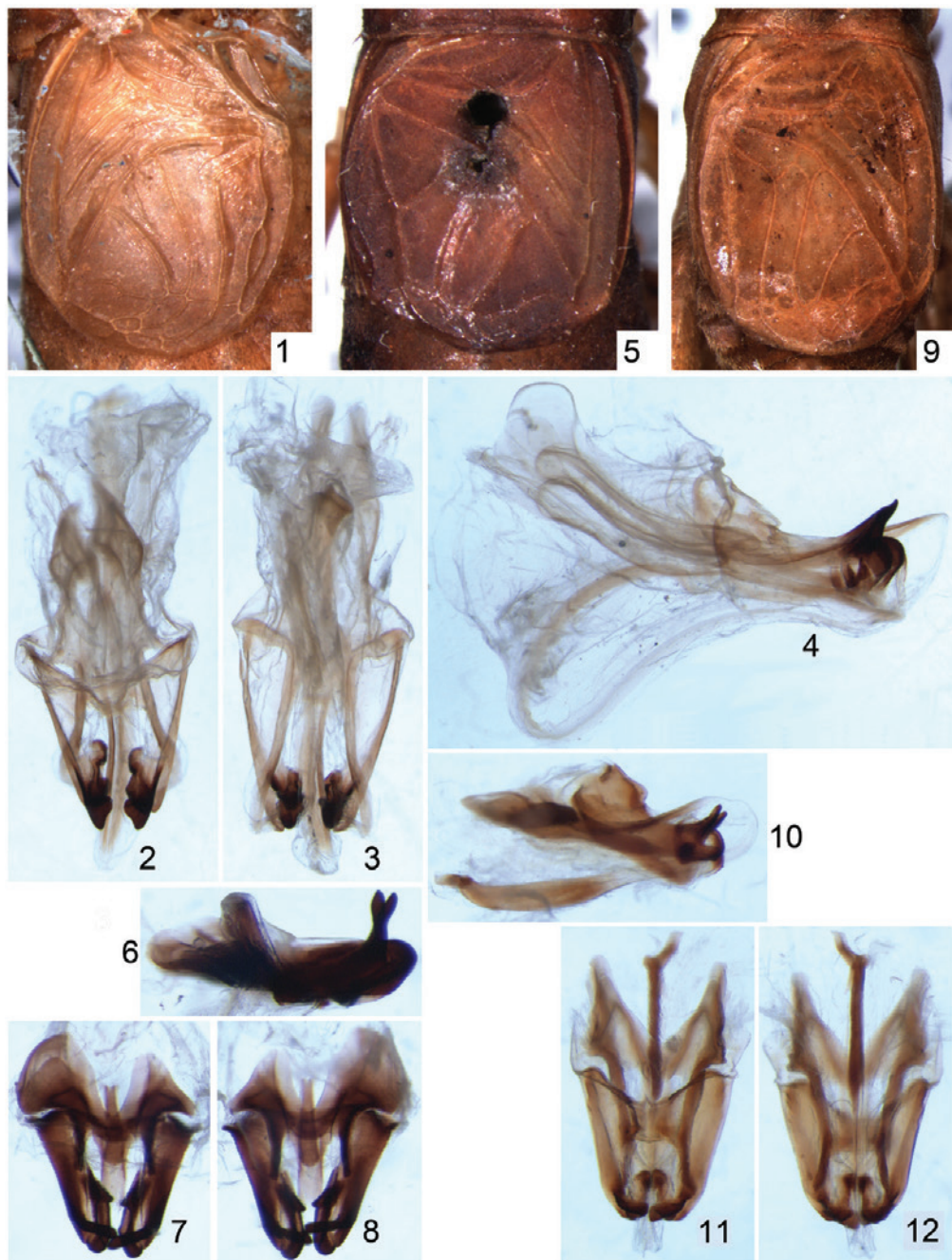
Length in mm. Body 9–11; pronotum 2–2.2; hind femora 10.5–11.5; ovipositor 6.2–6.7.

Comparison. The new species differs from all the other congeners in a smaller body size; from *M. trogliphila*, in a more spotted colouration, less convex ventral part of the female copulatory papilla (see in the profile), and barely longer ovipositor; and from *M. modesta*, in the characters listed above (in the description).

Etymology. The species is named after Satipo Province.

Genus *Endecous* Saussure, 1878

Note. This genus is rather diverse in the structure of body and male genitalia and



Figs VIII (1–12). *Endecous*, male: 1–4, *E. lizeri* Rehn; 5–8, *E. arachnopsis* Sauss.; 9–12, *E. onthophagus* (Berg). Dorsal field of lower (1) and upper (5, 9) tegmina; genitalia from above (2, 7, 11), from below (3, 8, 12) and from side (4, 6, 10).

must be divided into three subgenera as minimum. Descriptions of these subgenera are given below, in a key for subgenera of the genus *Endecous*:

1. Male genitalia: rachis very large (significantly protruding behind epiphallic posterolateral arms), lamellar (strongly laterally compressed), and almost completely membranous; formula very long, forming dorsal part of distinctly elongate membranous cavity sometimes looking as sacculus of Gryllinae (Figs VIII: 2–4, 10–12) subgen. **Notendecous subgen. nov.** [Included species: *Dyscophus onthophagus* Berg, 1891 (type species) from Uruguay (Figs VIII: 9–12; *E. lizeri* Rehn, 1918 from Argentina (Figs VIII: 1–4); possibly *E. hubbelli* Liebermann, 1965 from Argentina. *Etymology*: the subgeneric name originates from the Greek prefix meaning “southern” and the generic name *Endecous*.]
 - Male genitalia: rachis not very large (not protruding behind epiphallic posterolateral arms), more or less finger-like but not lamellar, and partly membranous or semi-sclerotized; formula moderately long or short (elongate membranous cavity weakly developed and not looking as sacculus, or undeveloped; Figs VIII: 6–8) 2
2. Body apterous in both sexes; fore tibiae without tympana. Epiphallus in male genitalia short (its width much greater than its length), with posterolateral arms divided into lateral and medial processes or projections (but lacking distinct ventral projection or even tubercle; see Souza-Dias et al., 2014: figs 3, A–D) subgen. **Pedroecous subgen. nov.** [Included species: *E. apterus* Bolfarini et Souza-Dias, 2014 (type species) from Brazil only. *Etymology*: the subgeneric name includes the first name of Pedro G.B. Souza-Dias (one of the authors of *E. apterus*) and a part of the generic name *Endecous*.]
 - Male tegmina well developed, with normal stridulatory apparatus having distinct mirror (Fig. VIII: 5); fore tibiae with rather small inner tympana. Epiphallus in male genitalia elongate (its width slightly greater than its length), with posterolateral arms divided into dorsal and ventral processes or projections (ventral one from rather large and roundly lobe-like to small, almost tubercle-like; Figs VIII: 6–8; see also Mews &

Sperber, 2008: fig. 5, C) subgen. **Endecous** s. str. [Included species: *E. arachnopsis* Saussure, 1878 (type species) from Brazil (Figs VIII: 5–8) and some of the other congeners from Brazil and possibly from Bolivia listed as belonging to the genus *Endecous* in the Orthoptera Species File (Eades et al., 2014).]

Genus *Daedalonotum* gen. nov.

Type species *D. daedalum* sp. nov.

Diagnosis. Body medium-sized for Phalangopsini. Head not large, almost equal to pronotum in width, with apical segment of maxillary palpi having oblique distal part rather short and barely arcuate (Fig. I: 6); pronotum with anteroventral corners rather widely rounded (not distinctly projected downwards); male metanotum with gland consisting of very large transverse inflation having additional transverse lobe with hairs, transverse lamellar fold situated behind (near) this inflation and provided with vertical median process, and second transverse lamellar fold formed by hind part of metanotum curved upwards (Fig. IX: 2). Male tegmina distinctly shortened (reaching middle part of abdomen), semi-sclerotized, lacking stridulatory apparatus, without venation in somewhat inflate dorsal field of upper tegmen, and with traces of venation in less inflate dorsal field of lower tegmen (Figs IX: 1, 3); female tegmina almost scale-like; hind wings absent. Legs not very long, moderately thin but with clearly thickened (for jumping) hind femora; tympana absent; dorsal inner apical spur of hind tibiae longest; hind basitarsus with two rows of dorsal denticles (excepting a pair of apical spurs). Male anal plate short but with a pair of rather long and narrow posterolateral lobes; male genital plate moderately elongate (Fig. IX: 4); female genital plate approximately as long as wide and with posteromedian notch (Fig. IX: 9). Epiphallus in male genitalia very strongly transversally curved (“anterolateral” epiphallic lobes directed backwards, although in taxa with less curved epiphallus, latter lobes directed

forwards or upwards), having posterolateral (lower) arms distally articulated with thin stick-like sclerites (directed more or less medially) as well as basal parts of these arms partly fused with two pairs of long and more or less narrow ectoparameres (lateral ectoparameres possibly formed by separated parts of posterolateral epiphallic arms); rachis long, membranous (not with small and narrow ventral sclerite), and having almost lamellar distal part; formula long, anteriorly bifurcate, with high characteristic apodeme situated near middle of formula and directed upwards; rami developed (Figs IX: 5–7). Ovipositor rather long and with simple, acute apex.

Included species. Type species only.

Comparison. The new genus differs from all the other genera of Phalangopsini in a very large and rather highly projected male metanotal gland, the absence of tegminal stridulatory apparatus, a somewhat inflated semisclerotized dorsal field in the upper male tegmen, very strongly curved epiphallus, the presence of two pairs of long ectoparameres, and a very large formula in the male genitalia (this formula has a very characteristic vertical apodeme dissimilar to that of all the other congeners of this tribe).

Etymology. The generic name originates from the Latin word of Greek origin “daedalus” (intricate) and morphological term “notum” (dorsum of thorax).

Remarks. Belonging of this genus to Modestozarina is not evident, as its tegmina are more similar to those of Luzarina, its male anal plate similar to that of Amphiacustina and Phalangopsina (but more or less projected lateroproximal corners of this plate may be developed in some Luzarina also), and its male genitalia are rather different from all the other genera of Modestozarina.

***Daedalonotum daedalum* sp. nov.**
(Figs I: 6; IX: 1–9)

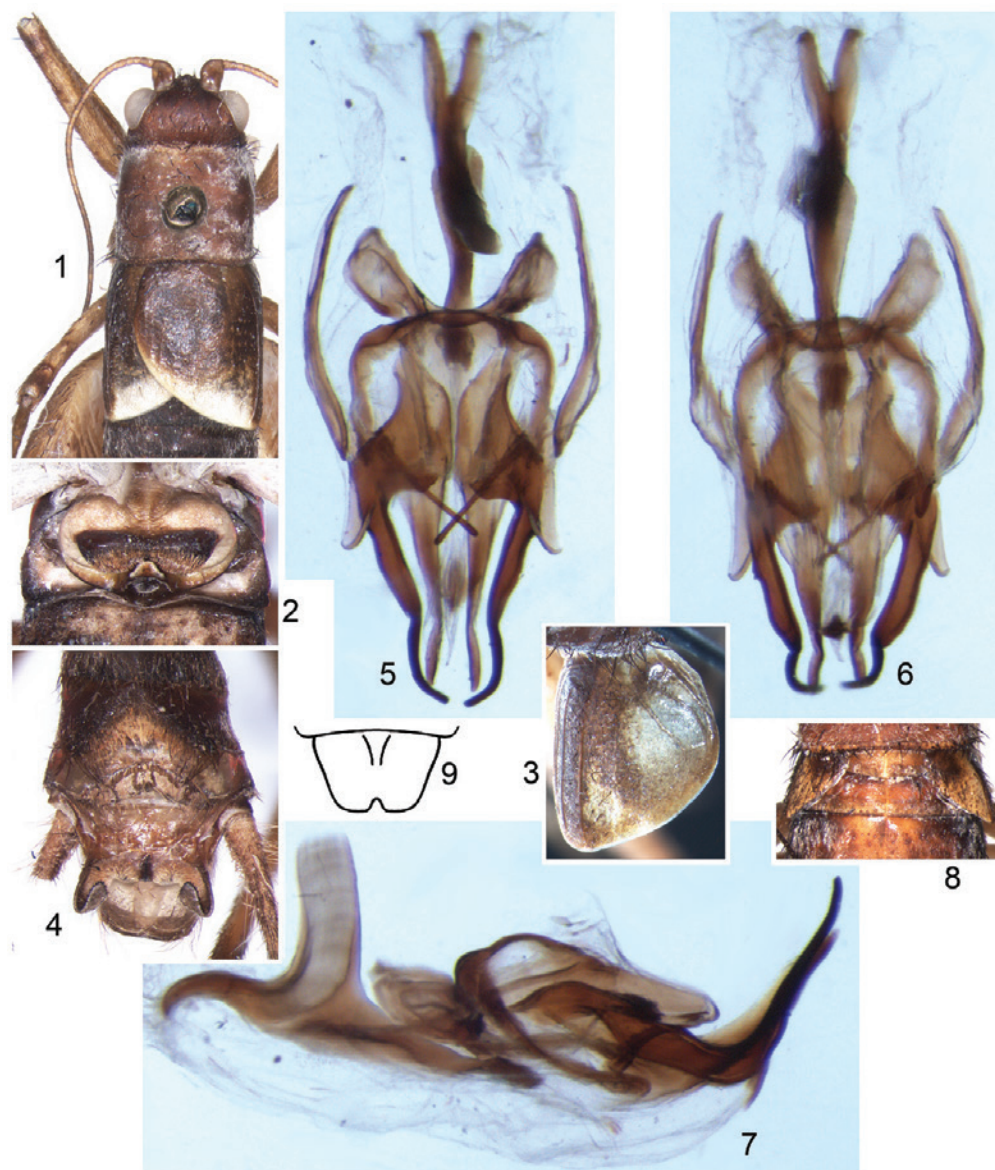
Holotype. Male; **Peru**, Ucayali Department, Atalaya Prov., about 35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill.,

approximately 300 m, primary forest, among dry leaves on forest floor at night, 26–31 Oct. 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

Paratypes. Five males and 4 females, same data as for holotype (ZIN).

Description. Male (holotype). Body coloration uniformly brown but with barely lighter antennae and pronotum, yellowish white distal half of maxillary palpi and distal part of tegminal dorsal field (this field in upper tegmen with lightish medial area covered by upper tegmen, and ventral surface of both tegmina greyish white), contrast colouration of metanotal gland (Fig. IX: 1, 2, 3), light brown legs with darkish apical part of hind femora and sparse and weakly darkened (almost indistinct) spots on rest of legs, almost dark brown and distinctly pubescent abdominal tergites having large lightish areas on first and ninth tergites as well as light brown anal plate (with a few small darker marks; Fig. IX: 4), and yellowish to light brown cerci and venter of body (including abdominal sternites and genital plate). Dorsum of head convex in profile; head rostrum almost equal to scape in width; pronotum almost square in dorsal view; metanotal gland as in Fig. IX: 2. Tegmina reaching base of fourth additional tergite; tegminal dorsal field with obliquely and roundly truncate hind edge (Figs IX: 1); tegminal lateral field with three parallel longitudinal veins and without crossveins. Eight and ninth abdominal tergites with wide concavity in hind part covered with dense yellowish hairs (additional gland?); anal plate with strongly curved lobule on apex of each posterolateral lobe and with small median keel (between bases of latter lobes) having one row of almost spine-like but very small denticles (Fig. IX: 4); genital plate with rounded and very slightly bilobate apex (Fig. IX: 4); genitalia as in Figs IX: 5–7.

Variations. Sometimes hind femora with more distinct (darker) spots, and colouration of pubescence on most part of abdominal tergites varied: from dark brown to whitish grey.



Figs IX (1–9). *Daedalonotum daedalum* sp. nov.: 1, head, pronotum and tegmina of male from above; 2, male metanotal gland from above; 3, dorsal field of male lower tegmen; 4, male abdominal apex from above; 5–7, male genitalia from above (5), from below (6) and from side (7); 8, female pterothorax from above; 9, female genital plate from below.

Female. General appearance similar to that of male, but tegmina reaching base or middle part of first abdominal tergite and with roundly angular apex, distance between medial tegminal edges rather wide, metanotum without gland (Fig. IX: 8), and

anal plate more simple in shape (almost square with very short angular posteromedian projection); genital plate as in Fig. IX: 9.

Length in mm. Body: male 11–12, female 10–11.5; pronotum: male 2–2.3, female 2.2–2.5; tegmina: male 3–3.4, female

1.3–1.5; hind femora: male 8–9, female 8.2–8.8; ovipositor 6.2–6.5.

Etymology. Name of the new species is the Latin word of Greek origin “*daedalum*” (intricate).

Subtribe **NEMOZARINA** subtrib. nov.

Type genus *Nemozara* **gen. nov.** (gender feminine)

Diagnosis. Head more or less semi-globular (rostrum rather weakly projected forwards and almost not separated from other parts of head by a pair of anterolateral concavities between eyes); maxillary palpi with apical segment short and distally wide (length of this segment 2–3 times as great as its width; XII: 2). Legs rather short but not thick (excepting hind femora); hind tibia with dorsal inner apical spur longest. Epiphallus not transversally curved or weakly transversally curved, with differently developed ectoparameres, and with rather diverse rachis (Figs X: 2–4, 6–8; XI: 2–4, 6–8; XIII: 1–3, 9–11).

Note. Included genera are listed in the classification of Phalangopsinae subfamily group given above. From the other subtribes of Phalangopsini, this subtribe differs in the general appearance more or less similar to that of Nemobiinae, a short and wide apical segment of the maxillary palpi, and rather primitive (not distinctly curved in the profile) male genitalia.

Genus **Nemozara** **gen. nov.**

Type species *N. rio* **sp. nov.**

Diagnosis. General appearance more or less similar to that of Nemobiinae: body small and with rather large setae (especially distinct on legs), legs short and thin (as compared with other bodyparts) but with significantly thickened hind femora. Head almost semiglobular (almost roundly triangular in front), as wide as pronotum and with rostrum barely wider than scape; pronotum transverse and with more or less parallel sides; notal gland, wings and tympana

absent in both sexes. Hind tibiae with four inner and four outer moderately long and articulated dorsal spines, without distinct denticles between them (only more proximal denticles well developed), and with inner dorsal apical spur longest (as compared with five other apical spurs). Median part of third and fourth tergites of abdomen in male with abdominal gland (Figs X: 1, 5, 9; XI: 1, 5); anal plate simple, looking as not large and not long (in male) or somewhat elongate (in female) lobe with more or less rounded or almost truncate apex; genital plate of male slightly longer than its anal plate; genital plate of female approximately twice shorter than its anal plate and widely truncate (but very shallowly concave) at apex (Fig. XI: 9). Structure of male genitalia rather primitive: epiphallus not curved, with a pair of large posterolateral lobes directed backwards; ectoparameres not large, elongate, partly or almost completely separated from epiphallus and articulated with posterior arms of endoparameres; rachis rather large (elongate or moderately short), partly or almost completely membranous; formula small but with rather long unpaired apodeme directed forwards; rami developed (Figs X: 2–4, 6–8; XI: 2–4, 6–8). Ovipositor rather short, barely curved upwards, and with acute apical part and slightly higher (than nearest parts) subapical part (Figs XI: 10); width of ovipositor (without distal part) more or less greater than its height.

Included species. Type species; *N. riorio* **sp. nov.**; *N. pastaza* **sp. nov.**; *N. vulcanica* **sp. nov.**

Comparison. The new genus is distinguished from all the other genera of Phalangopsini by the characters given in the diagnosis of Nemozarina as well as by some additional features: the size and shape of body more similar to those of Nemobiinae than to those of the other taxa of Phalangopsini; the absence of wings, tympana and male notal gland; the presence of abdominal gland on third and/or fourth tergites of the male abdomen; a rather primitive structure of the male genitalia but with an elongate

and membranous rachis; and a comparatively short ovipositor with the subapical part slightly higher than nearest parts.

***Nemozara rio* sp. nov.**

(Figs X: 1–4; XI: 9, 10)

Holotype. Male; **Peru**, Junin Department, Satipo Prov., about 25 km SE of Satipo Town, environs of Rio Venado Vill., approximately 1200 m, partly primary / partly secondary forest, on large leaf of grass-like plant near brook at night, 20–23 Oct. 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky (ZIN).

Paratypes. Two males and 6 females, same data as for holotype, but some specimens collected among dry leaves on forest floor (ZIN).

Description. Male (holotype). Body rather small for this genus; colouration uniformly brown but with almost dark brown epicranium, upper parts of mandibles, pronotum, dorsum and pleurites of both mesothorax and metathorax, abdomen (excepting rather large whitish area of abdominal gland on fourth tergite) and apical segments of maxillary palpi, as well as with almost light brown ventral parts of hind femora and small areas on all tarsi. Dorsum of head convex in profile; ocelli small but distinct; pronotum approximately 1.4 times as wide as long and with widely rounded (not projected) anteroventral corners. Abdomen with weak median concavity on third tergite and flat whitish median area on fourth tergite (this area outlined by low and thin keel along anterior and lateral edges; Fig. X: 1); genital plate with roundly truncate and very slightly concave apex; genitalia with distal part of posterolateral epiphallic arms more or less membranous, straight in profile and divided into very small dorsal lobe (almost indistinct in profile) and larger ventral lobe, as well as with almost straight rachis (Figs X: 2–4).

Variations. Other males with mesonotum having a pair of small lightish spots or with antennal flagellum almost light brown.

Female. General appearance as in male, but head sometimes with weakly distinct lighter (brown) longitudinal stripes on dorsum, pterothoracic and abdominal dorsum

usually with several or numerous brown to light brown marks, and anal plate somewhat different (see generic diagnosis); genital plate and distal part of ovipositor as in Figs XI: 9, 10.

Length in mm. Body: male 6.5–7, female 7.5–8; pronotum: male 1.2–1.4, female 1.3–1.5; hind femora: male 4.7–5.2, female 5.5–6; ovipositor 3.2–3.4.

Etymology. The species name originates from the Spanish word “rio” meaning one river (Rio Venado).

***Nemozara riorio* sp. nov.**

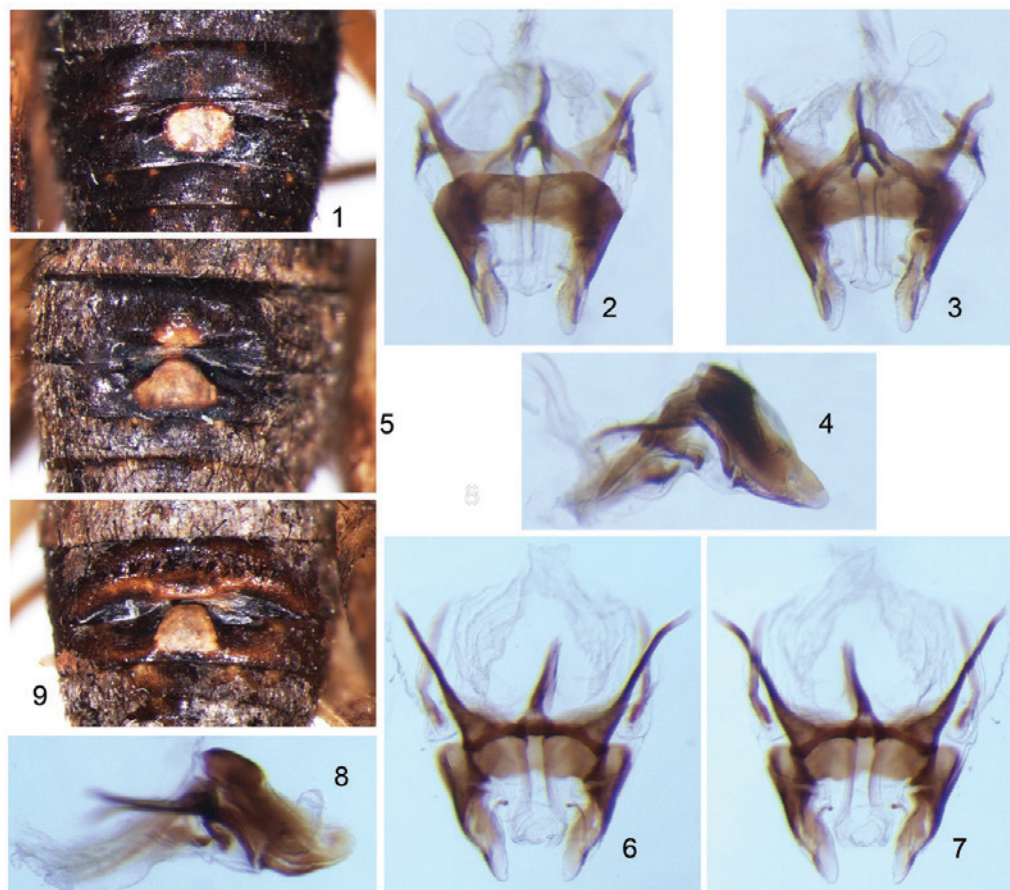
(Figs X: 5–9)

Holotype. Male; **Ecuador**, eastern slopes of Andes, about 95 km E of Quito City, environs of San Rafael Waterfall on Rio Coca, approximately 1300 m, primary forest, on large leaf of grass-like plant near river at night, 23–26 Nov. 2005, A. Gorochov, A. Ovtshinnikov (ZIN).

Paratypes. Male, same data as for holotype (ZIN); male and female, same data but about 75 km SEE of Quito City, environs of El Chaco Vill. on Rio Quijos, approximately 1500 m, secondary forest, 18–22 Nov. 2005, A. Gorochov, A. Ovtshinnikov (ZIN).

Description. Male (holotype). Colouration and structure of body very similar to those of holotype of *N. rio*, but maxillary palpi almost completely light (greyish white), scape light brown, third abdominal tergite with small (low and rather weakly distinct) transverse keel situated behind median concavity of this tergite (this keel light, yellowish; Fig. X: 5), genital plate without distinct apical concavity, and genitalia distinguished from those of *N. rio* by distal part of posterolateral epiphallic arms somewhat curved upwards in profile and not bifurcate as well as by strongly curved rachis with distal part directed upwards and well visible above dorsal surface of epiphallus in profile (Figs X: 6–8).

Variations. Second male from Rio Coca with third abdominal tergite having transverse keel behind median concavity slightly more distinct, and male from Rio Quijos with this tergite having a pair of additional



Figs X (1–7). *Nemozara*, male: 1–4, *N. rio* sp. nov.; 5–9, *N. riorio* sp. nov., holotype (5–8) and paratype (9). Abdominal gland from above (1, 5, 9); genitalia from above (2, 6), from below (3, 7) and from side (4, 8).

yellowish stripes running laterally from above-mentioned keel (these stripes and keel together forming sinuate and rather long transverse yellowish line; Fig. X: 9).

Female. General appearance as in male, but with weakly distinct lightish longitudinal lines on hind part of head dorsum and marks on pronotal disc, with somewhat more distinct small lightish spots on pterothoracic and abdominal tergites, and with anal and genital plates as well as with ovipositor similar to those of female of *N. rio*.

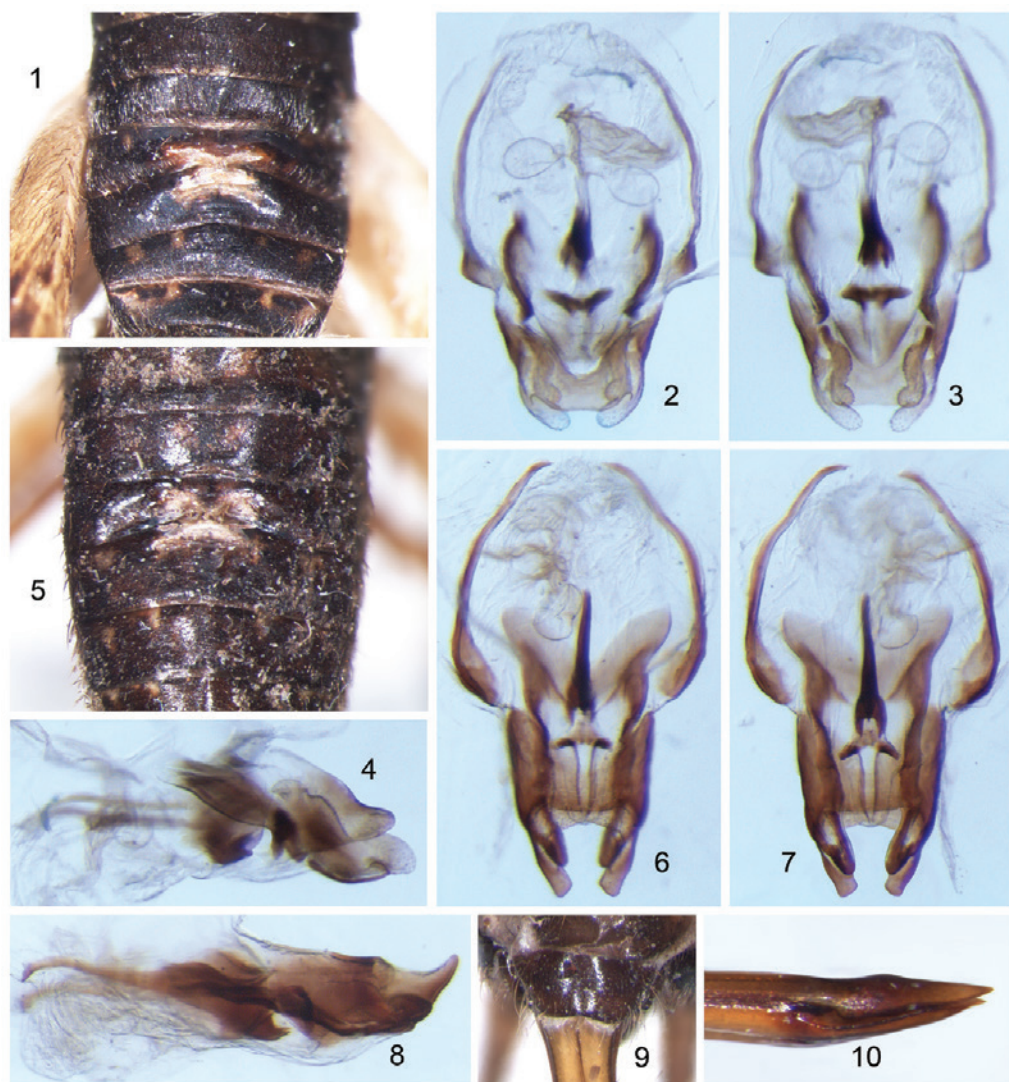
Length in mm. Body: male 7–8, female 8.5; pronotum: male 1.3–1.5, female 1.5; hind femora: male 5.5–6, female 6.5; ovipositor 3.8.

Comparison. The new species differs from *N. rio* in the presence of a weak light transverse keel on the third abdominal tergite (behind median concavity of abdominal gland) and the above-mentioned (in description) characters of male genitalia.

Etymology. The species name originates from the Spanish word “rio” twice repeated and meaning two rivers (Rio Coca and Rio Quijos).

***Nemozara pastaza* sp. nov.**
(Figs XI: 1–4)

Holotype. Male; **Ecuador**, Pastaza Prov., about 10 km W of Puyo City, environs of Shell



Figs XI (1–10). *Nemozara*: 1–4, *N. pastaza* sp. nov.; 5–8, *N. vulcanica* sp. nov.; 9, 10, *N. rio* sp. nov. Male abdominal gland from above (1, 5); male genitalia from above (2, 6), from below (3, 7) and from side (4, 8); female genital plate from below (9); distal part of ovipositor from side (10).

Town, 1000–1500 m, secondary forest, on bark of tree near soil, 1–3 Jan. 2010, A. Gorochov (ZIN).

Paratypes. Three females, same data as for holotype (ZIN).

Description. Male (holotype). Body medium-sized for this genus. Colouration brown with light brown areas on epicranium near dorsal edge of eyes, yellowish palpi having darkish marks on proximal half,

yellowish labrum, greyish brown antennae having light brown proximal part as well as sparse and very small lightish spots on rest of flagellum, dark brown pronotum and other tergites but having a few small light brown spots on pronotal disc and pterothoracic dorsum as well as whitish grey abdominal gland and very small lightish marks on fifth and sixth abdominal tergites, yellow-

ish legs with distinct brown spots on femora and tibiae as well as on hind tarsi, yellowish thoracic venter and pleurites, and light brown cerci. Structure of body similar to that of both previous species, but abdominal gland consisting of two small obtusely angled median keels (one of them located on third abdominal tergite and directed somewhat backwards, but second keel located on fourth abdominal tergite and directed almost upwards; Fig. XI: 1), male genital plate rounded but with very small posteromedian notch, and male genitalia with clear anterolateral epiphallic lobes and posteromedian lobe of epiphallus as well as with rather short rachis and posterolateral epiphallic arms (Figs XI: 2–4).

Female. General appearance as in male, but head somewhat lighter (with larger light parts) or sometimes almost completely light brown, abdomen without gland, anal and genital plates as well as ovipositor similar to those of female of *N. rio*.

Length in mm. Body: male 8, female 8.5–9.5; pronotum: male 1.5, female 1.5–1.6; hind femora: male 7.5, female 6.5–7.5; ovipositor 3.5–4.

Comparison. The new species is distinguished from *N. rio* and *N. riorio* by the absence of wide flat and whitish area on fourth abdominal tergite in male and the characters of male genitalia listed above (in description).

Etymology. The species is named after the Pastaza Province.

***Nemozara vulcanica* sp. nov.**
(Figs XI: 5–8)

Holotype. Male; **Ecuador**, eastern slopes of Andes, about 85 km E of Quito City, Remantador Volcano, primary forest, 1800–2000 m, 2 Dec. 2005, A. Ovtshinnikov (ZIN).

Description. Male (holotype). Body rather large for this genus. Colouration dark brown with light brown antennae (having small sparse yellowish spots on flagellum), most part of legs, cerci, and thoracic venter, with yellowish palpi (having slight greyish

marks on proximal half of maxillary palpi), labrum, coxae, and proximal part of femora, with brown lower half of mandibles, thoracic pleurites, hind tibiae (excepting lighter spines and spurs), abdominal sternites, and genital plate, as well as with whitish grey abdominal gland (Fig. XI: 5). Structure of body very similar to that of *N. pastaza* (including abdominal gland: Fig. XI: 5), however genital plate distinctly but not deeply notched at apex and with small posteromedian lobule, and genitalia with epiphallus lacking posteromedian lobe and having longer posterolateral arms as well as with somewhat longer and basally narrower rachis (Figs XI: 6–8).

Female unknown.

Length in mm. Body 10.5; pronotum 2; hind femora 9.

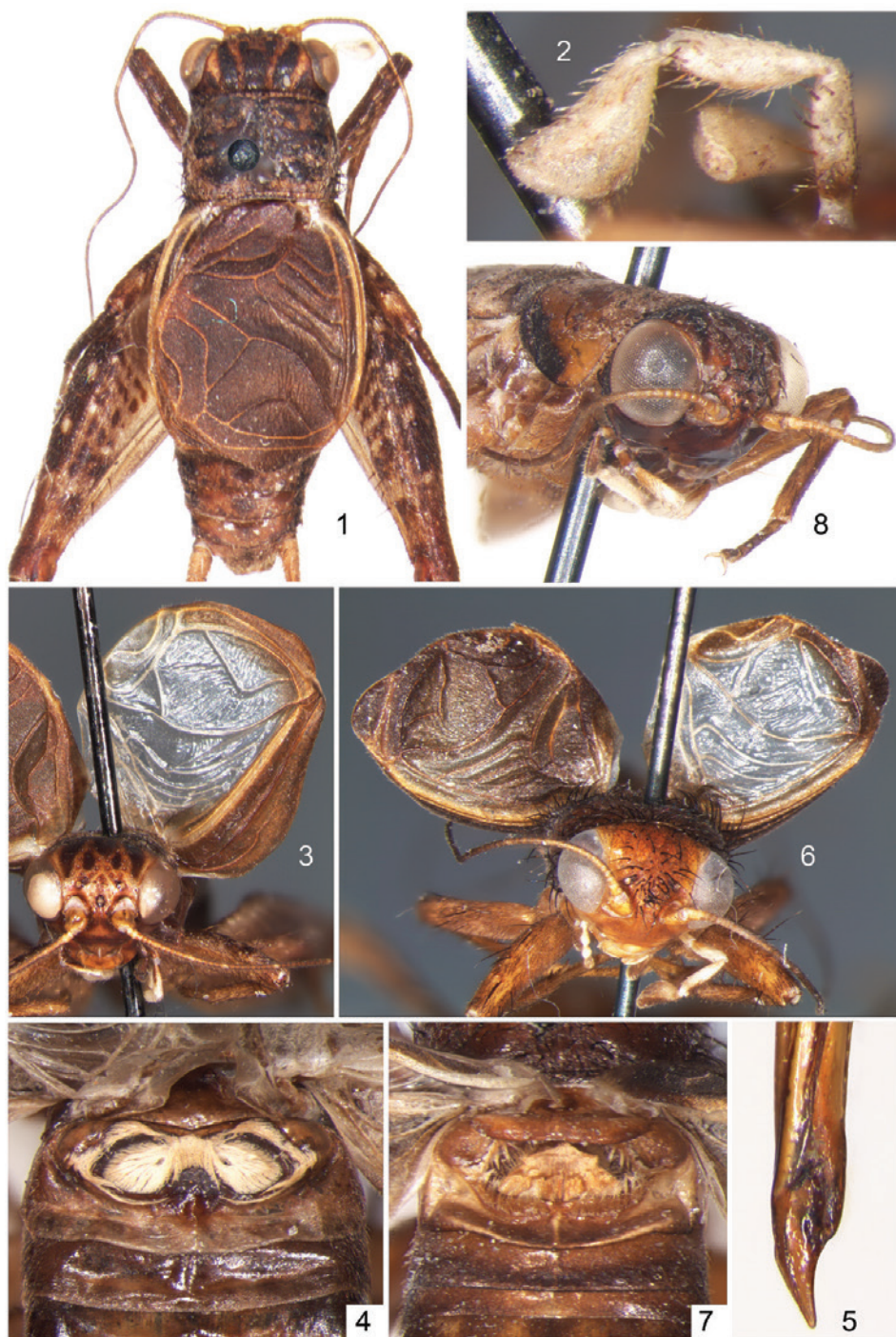
Comparison. From *N. pastaza*, the new species differs in a larger body size and the characters of male genitalia listed in its description; from *N. rio* and *N. riorio*, the new species differs in a much shorter (narrower) part of gland located on the fourth abdominal segment, clearly longer epiphallus having distinct anterolateral lobes, and the endoparameres with distinctly wider apodemes.

Etymology. This species name is the Latin word “vulcanica” (volcanic) given in connection with the type locality (Remantador Volcano).

***Anemozara* gen. nov.**

Type species *A. vera* sp. nov.

Diagnosis. General appearance similar to that of *Nemozara*. Body small, with rather large setae on head, pronotum and legs; head with slightly oblique face in profile; legs with fore tibiae having open oval inner tympanum only and with hind tibiae having middle inner apical spur longest (barely longer than dorsal inner apical spur) and slightly thickened; male tegmina (Figs XII: 1, 3, 6) extending behind middle of abdomen, with normal stridulatory apparatus having short stridulatory vein, with rath-



Figs XII (1–8). *Anemozara*: 1–5, *A. vera* sp. nov.; 6, 7, *A. eximia* sp. nov.; 8, *A. propria* sp. nov. Male body without cerci and distal half of hind legs from above (1); distal half of maxillary palpi from side (2); head in front and dorsal field of lower tegmen in male (3); male metanotal gland from above (4, 7); distal part of ovipositor from side (5); head in front and dorsal fields of both tegmina in male (6); head and pronotum from side and somewhat in front (8).

er numerous and almost straight oblique veins, with short and somewhat arcuate diagonal vein (its proximal part almost parallel to that of lateral chord), with more or less triangular mirror having one more or less angularly curved dividing vein, with very short apical area, with a few approximately parallel longitudinal veins in lateral field, and without crossveins between them; tegmina in female and hind wings in both sexes absent; male metanotal gland clearly developed (Figs XII: 4, 7); ninth abdominal tergite of male with very short median lobe; anal plate in both sexes almost equal in size and shape (rather short, with narrowed and rounded hind part); male genital plate longer than anal plate; female genital plate with widely rounded apex having barely distinct posteromedian concavity. Male genitalia more or less similar to those of *Nemozara* but: they with a pair of partly membranous posterolateral epiphallic lobes (these lobes modified and more or less looking as containing rather long posterior projections of rami articulated at base with anterolateral parts of epiphallus) and with larger posteromedian epiphallic lobe articulated with ectoparameres (in one subgenus, ectoparameres short and looking as separated lateroproximal parts of this lobe, but in second subgenus, ectoparameres elongate and divided into two isolated sclerites); endoparameres articulated with ectoparameres and with long apodemes; rachis membranous, short or elongate; formula rather long but without distinct apodeme (Figs XIII: 1–5, 9–11). Ovipositor with distal part narrow (not dorsoventrally flattened) and having movable structure of upper valvae (Fig. XII: 5).

Comparison. The new genus differs from *Nemozara* in the presence of inner tympana and of male tegmina; from *Lernecella* probably also belonging to *Nemozarina* and having approximately similar shape of dividing veins in the male tegminal mirror, in a somewhat wider apical segment of maxillary palpi and the presence of one (not two) dividing veins in the male mirror; and from both

these genera, in the posteromedian lobe of epiphallus longer than its posterolateral lobes as well as in the sclerotized epiphallic lateral parts fused with the rami and more or less isolated from the median epiphallic sclerite.

Composition. Four species grouped in two subgenera (see list of species in key for subgenera of this genus below).

Etymology. Name of this genus consists of the Greek prefix meaning “not” and generic name *Nemozara*.

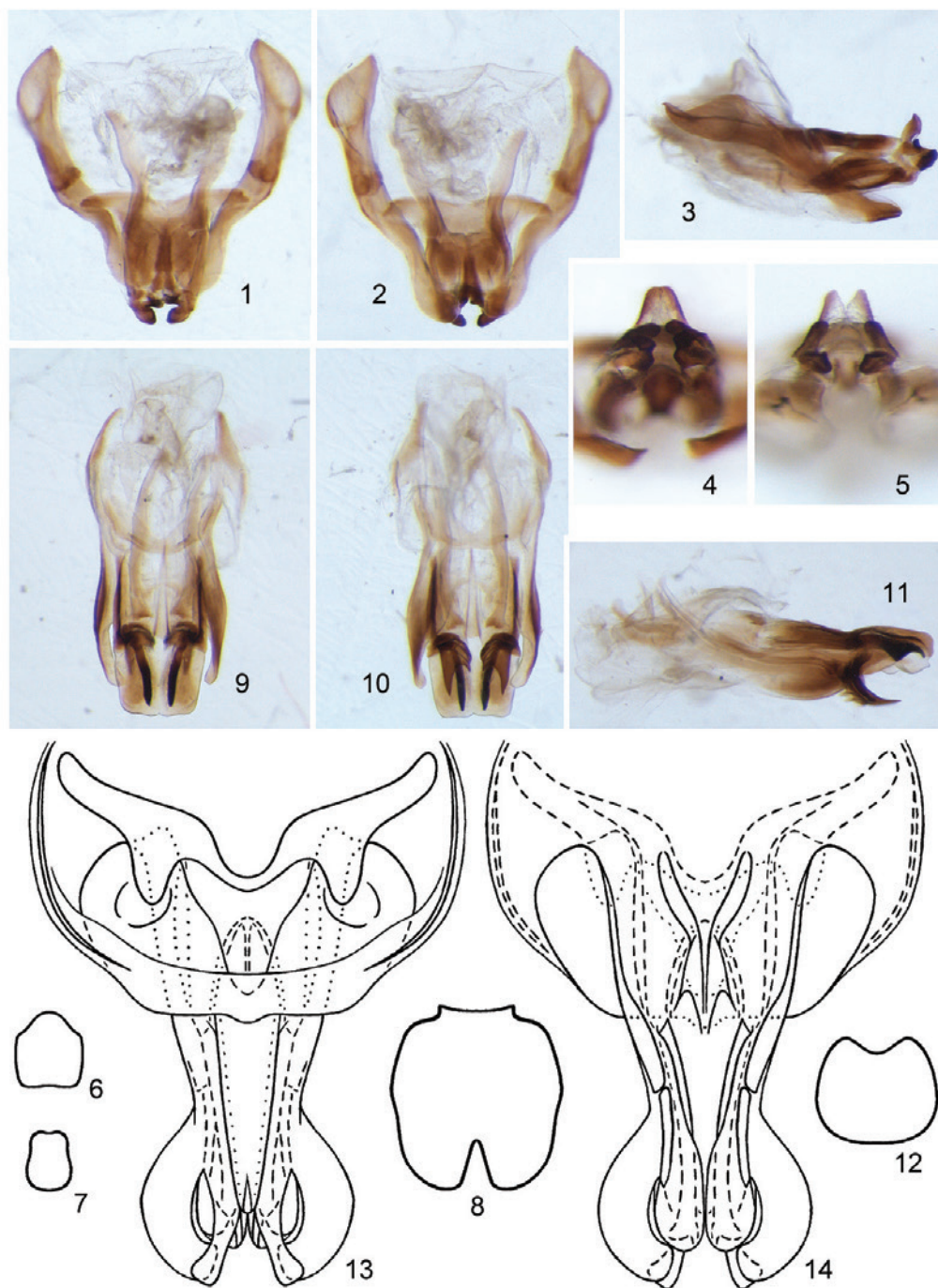
1. Apical segment of maxillary palpi whitish. Concavity of male metanotal gland (covered with hairs) partly divided into a pair of almost round lateral concavities by low posteromedian convexity (Fig. XII: 4). Male genitalia with rather short and wide epiphallus having moderately narrow and bilobate apical lobule of posteromedian lobe directed upwards, with short and more or less simple ectoparameres, and with short rachis; Figs XIII: 1–3) subgen. **Anemozara** s. str. [Included species: type species; *A. propria* sp. nov.; *A. umbrosa* sp. nov.]
- Apical segment of maxillary palpi darkened or partly darkened. Concavity of male metanotal gland (covered with hairs) not divided into a pair of lateral concavities (Fig. XII: 7). Male genitalia with rather long and narrow epiphallus having simple posteromedian lobe widely truncated at apex, with elongate ectoparameres divided into two sclerites, and with elongate rachis (Figs XIII: 9–11) subgen. **Zacmozara** subgen. nov. [Included species: *A. eximia* sp. nov. (type species). **Etymology:** the generic name consists of parts of the generic names *Zacla* and *Nemozara*.]

***Anemozara (Anemozara) vera* sp. nov.**
(Figs XII: 1–5; XIII: 1–6)

Holotype. Male; **Malaysia**, Borneo I., Sabah State, Trus Madi Mount, about 1000 m, partly primary / partly secondary forest, among dry leaves on forest floor at night, 13–25 May 2007, A. Gorochov (ZIN).

Paratypes. Five males and 3 female, same data as for holotype (ZIN).

Description. Male (holotype). Colouration (Figs XII: 1–4) light brown, but head



Figs XIII (1–14). *Anemozara* and *Caribacusta*: 1–6, *A. vera* **sp. nov.**; 7, *A. umbrosa* **sp. nov.**; 8, *A. propria* **sp. nov.**; 9–12, *A. eximia* **sp. nov.**; 13, 14, *C. antiqua* **sp. nov.** Male genitalia from above (1, 9, 13), from below (2, 10, 14) and from side (3, 11); posteromedian epiphallal lobe with ectoparameres from behind (4, 5); outlines of female copulatory papilla from above (6–8, 12).

dorsum with a few brown spots and stripes, face (excepting labrum, areas on mandibles, and median spot on frons near clypeus) and genae brown, antennal flagellum greyish brown with a few small and very sparse lightish spots, distal half of maxillary palpi whitish, pronotum with dark brown most part of lateral lobes and large area on disc, both tegmina with almost dark brown lateral tegminal field and yellowish humeral stripe, dorsal tegminal field brown in upper tegmen and transparent in lower tegmen (but its apical area also brown), other bodyparts with yellowish white hairs of metanotal gland and weakly distinct darkish marks and lines on legs as well as distinct dark brown spots on lateral parts of abdominal tergites and brown venter of body (including genital plate and fore coxae but not including other coxae). Scape almost 1.3 times as wide as head rostrum between antennal cavities; pronotum and metanotal gland as in Figs XII: 1, 4. Tegmina reaching base of seventh abdominal tergite, with 3–4 longitudinal veins in lateral field, and with venation of dorsal field as in Figs XII: 1, 3. Ninth abdominal tergite with rounded and not very wide posteromedian lobe; genital plate approximately twice longer than anal plate, almost square but with slightly narrowed and roundly truncate hind part; genitalia as in Figs XIII: 1–4.

Variations. Sometimes face of head, pronotal disc and/or dorsal tegminal field almost completely dark brown; apical lobule (directed upwards) of epiphallic posteromedian lobe somewhat varied in width and size of apical notch (Figs XIII: 4, 5).

Female. General appearance similar to that of males, but metanotal gland absent, and ninth abdominal tergite simple; genital plate distinctly transverse, almost twice shorter than male genital plate; copulatory papilla and ovipositor as in figures (Figs XII: 5; XIII: 6).

Length in mm. Body: male 9–9.5, female 8.5–9; pronotum: male 1.8–1.9, female 1.8–1.9; tegmina, male 5–5.2; hind femora: male 6.4–6.6, female 6.5–6.7; ovipositor 5–5.2.

Etymology. The species name is the Latin word “vera” (true).

***Anemozara (Anemozara) propria* sp. nov.**
(Figs XII: 8; XIII: 8)

Holotype. Female; **Malaysia**, Borneo I., Sarawak State, environs of Miri Town, Lambir Hills National Park, 100–300 m, primary forest, among dry leaves on forest floor at daytime, 29 March – 1 Apr. 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Description. Female (holotype). General appearance (Fig. XII: 8) similar to that of female of *A. vera*, but colouration and structure of body somewhat different: epicranium almost uniformly brown (with only barely distinct lightish marks on dorsum); labrum and proximal part of antennae light brown with probably somewhat darker middle part of antennae (most part of antennae missing); other mouthparts from brown to almost light brown but with whitish distal half of palpi; pronotum light greyish brown with dark brown posterior two thirds of lateral lobes; legs and venter of body light brown (but not very light) with brown spots on upper half of hind femora and slightly darkish proximal areas on abdominal sternites; other parts of thorax and abdomen light greyish brown with a pair of dark spots on lateral parts of mesonotum, large greyish brown area on metanotum, and several small dark and darkish marks on abdominal tergites and on anal plate; scape approximately 1.2 times as wide as rostrum between antennal cavities; genital plate weakly transverse; and copulatory papilla rather large, strongly sclerotized, and distinctly bilobate (Fig. XIII: 8).

Male unknown.

Length in mm. Body 9; pronotum 1.9; hind femora 6.4; ovipositor 5.3.

Comparison. The new species differs from *A. vera* in a distinctly wider head rostrum, larger and strongly bilobate female copulatory papilla, and some peculiarities of body colouration named above.

Etymology. The species name is the Latin word “propria” (separate, isolate).

Anemozara (Anemozara) umbrosa**sp. nov.**

(Figs XIII: 7)

Holotype. Female; **Malaysia**, Borneo I., Sarawak State, environs of Kuching City, Kubah National Park, Matang Mount, 200–500 m, primary forest, among dry leaves on forest floor at night, 10–17 March 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Paratype. Two females, same data as for holotype (ZIN).

Description. Female (holotype). General appearance similar to that of female of *A. propria*, but colouration and shape of some structures somewhat different: body practically uniformly brown but with almost dark brown hind half of head dorsum, pronotal disc, upper part of pronotal lateral lobes, and abdominal tergites, with greyish white distal half of maxillary palpi, with lightish stripe along hind edge of metanotum and several small marks on other parts of pterothoracic and abdominal tergites, and with dark brown dorsal surface of hind femora (having a few small lightish marks); scape approximately 1.3 times as wide as head rostrum between antennal cavities; and copulatory papilla very small, rather narrow, and practically not bilobate (Fig. XIII: 7).

Variations. Second female with slightly lighter both posterior part of pronotal lateral lobes (greyish brown) and hind femur (reddish brown).

Male unknown.

Length in mm. Body 8.5–9.5; pronotum 1.8–1.9; hind femora 6–6.5; ovipositor 5–5.2.

Comparison. The new species differs from *A. vera* and *A. propria* in a distinctly smaller female copulatory papilla as well as darker body colouration.

Etymology. The species name is the Latin word “umbrosa” (dark, shady).

***Anemozara (Zacmozara) eximia* sp. nov.**

(Figs XII: 6, 7; XIII: 9–12)

Holotype. Male; **Malaysia**, Borneo I., Sarawak State, environs of Miri Town, Lambir

Hills National Park, 100–300 m, primary forest, among dry leaves on forest floor at daytime, 29 March – 1 Apr. 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

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

Description. Male (holotype). General appearance similar to that of male of *A. vera*. Body colouration (Fig. XII: 6, 7) light brown but with following marks: head rostrum slightly darker; genae and mouthparts (excepting upper half of clypeus) yellowish; palpi whitish with greyish brown apex of subapical segment and distal half of apical segment; pronotum brown with barely lighter disc; lateral tegminal field brown with yellowish humeral stripe; dorsal field in upper tegmen and distal part of this field in lower tegmen greyish brown (slightly lighter than lateral field); rest of latter field transparent; pterothoracic and abdominal tergites brown with light brown areas on metanotum and not very distinct spots on abdominal tergites as well as yellowish hairs on metanotal gland; abdominal sternites, genital plate and hind tibiae slightly darkened; and base of cerci yellowish. Scape approximately 1.4 times as wide as head rostrum between antennal cavities; metanotal gland as in Figs XII: 7. Tegmina similar to those of *A. vera* but somewhat smaller, with comparatively larger mirror, shorter chords, and distinctly longer and narrower apical area of dorsal field (Figs XII: 6). Ninth abdominal tergite with clearly wider and truncate posteromedian lobe; genital plate elongate, almost thrice longer than anal plate, with almost rounded apex having small median part semimembranous and slightly folded in rest position; genitalia as in Figs XIII: 9–11.

Female. Body colouration similar to that of male, but metanotum with darker (almost dark brown) anterior part and lighter (almost yellowish) stripe along posterior edge, tergites of abdomen brown with slightly darker lateral parts and narrow median stripe, hind femora with slightly darkened dorsal surface, and genital plate light brown. Structure of body similar to that of

female of *A. umbrosa*, but copulatory papilla larger, almost round but with slightly truncate one edge and concave opposite one (Fig. XIII: 12).

Length in mm. Body: male 9.5, female 9; pronotum: male 1.8, female 1.9; tegmina, male 4; hind femora: male 6.2, female 6.4; ovipositor 5.1.

Etymology. The species name is the Latin word “eximia” (peculiar, particular).

Subtribe **LERNECINA subtrib. nov.**

= *Lernecae* Desutter, 1987 (unavailable name published without description or diagnosis)

Type genus *Lerneca* Walker, 1869 (gender feminine).

Diagnosis. This subtribe is similar to the subtribe *Luzarina* in the structure of palpi, hind tibial spurs and male genitalia (having small rachis) but distinguished from it by the presence of additional sclerites connecting semisclerotized ectoparameres with bases of the posterolateral epiphallic arms (Figs XIV: 3–5, 10, 12).

Included species. *Lernecina* includes two or three genera listed above (see a preliminary classification of the Phalangopsinae subfamily group).

Comparison. Differences from *Luzarina* are given above. From all the other subtribes of Phalangopsini, it differs in the same characters as *Luzarina*.

Prosthacusta beliza

(Otte et Perez-Gelabert, 2009), **comb. nov.**

= *Doposia beliza* Otte et Perez-Gelabert, 2009

Note. Judging by the photographs published by Otte & Perez-Gelabert (2009: fig. 608), this almost undescribed species from Belize was erroneously included by its authors in the related genus *Lerneca* (= *Doposia*). In reality *P. beliza* is close-related and very similar to the Mexican species *P. circumcincta* (Scudder, 1869) (type species of the genus *Prosthacusta*), but differs from the latter in the posterolateral epiphallic arms (lobes) gradually narrowing to the spine-

like apical part and slightly curved subapically (in *P. circumcincta*, these epiphallic arms are somewhat widened distally, provided with a rather wide and rounded subapical lobe, and having a medial apical spine separated from the latter lobe by a small but distinct notch; see Figs XIV: 13, 14).

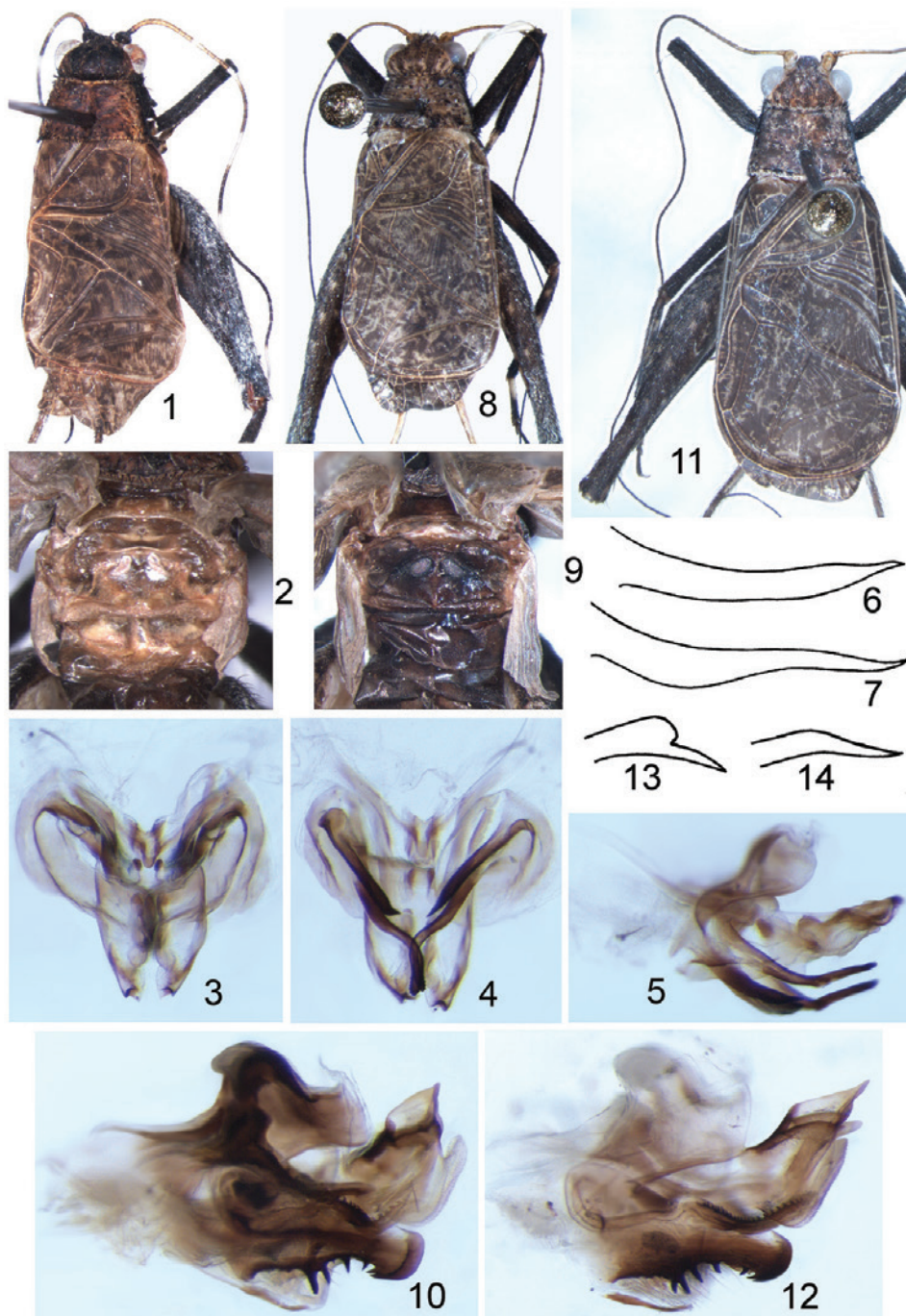
***Lerneca sylvestris* sp. nov.**

(Figs XIV: 1–6)

Holotype. Male; **Bolivia**, northern part of Santa Cruz Department (near Brazil), Noel Kempff Mercado National Park, Los Fierros Camp, about 300 m, primary forest, among dry leaves on forest floor at daytime, 23–28 Jan. 2014, A. Gorochov (ZIN).

Paratypes. Male and 3 females, same data as for holotype (ZIN).

Description. Male (holotype). General appearance typical of this genus. Colouration (Fig. XIV: 1, 2) dark brown (almost blackish) but with proximal part of antennal flagellum light brown and having two small whitish spots, other parts of this flagellum having longer whitish spots, pronotal disc and tegmina greyish brown (tegmina membranes with small barely lighter spots; tegmina veins slightly lighter, almost light greyish brown), dorsum of pterothorax and of first abdominal tergite almost yellowish, venter of body from greyish brown to light brown, and cerci greyish brown in distal half. Metanotal gland consisting of a pair of rather small inflations situated near each other (Fig. XIV: 2). Tegmina insignificantly extending behind abdominal apex, with dorsal field as in Fig. XIV: 1. Hind wings strongly shortened (Fig. XIV: 2). Fore tibiae with outer and inner tympana open, oval. Anal plate not long and somewhat narrowing to widely rounded apex; genital plate approximately twice longer and with notched apex. Genitalia similar to those of *L. ornata* Desutter-Grandcolas, 1992 but with inner (upper) posterolateral epiphallic arms thinner and having denticles on rounded apical part only as well as with outer (lower) posterolateral epiphallic arms narrower in proximal part and wider in distal part: these



Figs XIV (1–14). *Lerneca* and *Prosthacusta*, male: 1–6, *L. sylvestris* sp. nov.; 7, *L. ornata* Desutter-Grandcolas; 8–10, *L. inalata amboro* subsp. nov.; 11, 12, *L. inalata pantanal* subsp. nov.; 13, *P. circumcincta* (Scud.), Mexico; 14, *P. beliza* (Otte et Perez-Gelabert), **comb. nov.**, after Otte & Perez-Gelabert (2009). Body (with upper tegmen) from above (1, 8, 11); metanotal gland from above (2, 9); genitalia from above (3), from below (4) and from side (5, 10, 12); lower posterolateral arm of epiphallus from side (6, 7); distal part of posterolateral epiphallic arm (lobe) from below (13, 14).

parts almost equal to each other in width (height), but distal part with clearly shorter apical spine (see Figs XIV: 3–7).

Variations. Second male with dorsum of head having weakly distinct lightish lines along dorsomedial edges of eyes and with light brown areas on pronotal disc along its lateral edges.

Female. Colouration and structure of body similar to those of males, but tegmina slightly not reaching abdominal apex and with rather narrow dorsal and lateral fields having five almost parallel longitudinal veins in both fields (crossvenation well developed in dorsal field and strongly reduced in lateral one), colouration of tegmina dark brown to black with brown venation of dorsal field and light brown humeral stripe, metanotal gland absent, and anal plate smaller and with somewhat narrower apex; genital plate short (not longer than anal plate) and with widely truncate hind part.

Length in mm. Body: male 8.5–9.5, female 8–10; body with wings, male 10–11; pronotum: male 1.5–1.7, female 1.6–1.8; tegmina: male 7.5–8, female 5.5–6; hind femora: male 7–7.5, female 6.5–7; ovipositor 6–6.5.

Comparison. The new species is most similar to *L. ornata* but distinguished from it by a less contrast body colouration, clearly less transverse mirror in the male tegmina, and the above-mentioned features of male genitalia (see description).

Etymology. The species name is the Latin word “*sylvestris*” (applying to forest).

Lerneca ornata Desutter-Grandcolas, 1992 (Fig. XIV: 7)

Material examined. Five males and 5 females; **Ecuador**, eastern plain, 80–85 km E of Lago Agrio Town, environs of Lago Grande Lake on Rio Cuyabeno, very lowlying primary forest, among dry leaves on forest floor at night, 2–9 Nov. 2005, A. Gorochov, A. Ovtshinnikov (ZIN). Male; **Guyana**, “British Guiana: New River, 750 ft”, 4–7 March 1938, C. Hudson (NHM).

Note. The specimens from Ecuador have a contrast colouration almost as in some

specimens of *L. sylvestris* (head and pronotum are blackish with yellowish lines along dorsomedial edges of the eyes and with light brown stripes along lateral edges of the pronotal disc). Male from Guyana is lighter, with the pronotal disc and tegmina uniformly light brown, and with the mirror of upper tegmen having one dividing vein only (aberration?). Genitalia in all the males studied are practically identical to those pictured by Desutter-Grandcolas (1992a) for *L. ornata* from French Guiana (type locality).

***Lerneca inalata amboro* subsp. nov.**
(Figs XIV: 8–10)

Holotype. Male; **Bolivia**, Santa Cruz Department, about 70 km NWW of Santa Cruz City, Amboro National Park, Mataracu Camp, approximately 800 m, on grass near small house in primary forest, at daytime, 8–13 Feb. 2014, A. Gorochov (ZIN).

Paratypes. Male and female, same data as for holotype (ZIN).

Description. Male (holotype). General appearance similar to that of *L. sylvestris*, but epicranium with light greyish brown dorsum having darkish longitudinal stripes, antennae greyish brown (almost uniformly dark) and with light brown proximal part, maxillary palpi with two distal segments white, pronotum with light greyish brown disc having small darker marks, tegmina slightly lighter and with venation practically of same colour as tegminal membranes, tergites of both pterothorax and abdomen completely dark brown, anal plate moderately brown, cerci light brown, head smaller, and structure of tegminal dorsal field somewhat different (Fig. XIV: 8, 9). All these features as well as structure of genitalia very similar to those of *L. inalata* (Saussure, 1874), but this new subspecies distinguished from all other subspecies of latter species (*L. i. inalata* distributed from Surinam to Panama; *L. i. mexicana* Gorochov, 2007 from Chiapas State in Mexico; *Doposia tobago* Otte et Perez-Gelabert, 2009 originally described as species from

Tobago I. but possibly belonging to *L. inalata* as separate subspecies or synonym of its nominotypical subspecies) by slightly narrower or smaller tegmina with clearly smaller mirror (Fig. XIV: 8) and distinctly longer ventral spines in middle part of lower posterolateral arms of epiphallus as well as almost truncate (not round) apical part of these arms in profile (Fig. XIV: 10).

Variations. Tibiae and tarsi of paratype with more distinct lightish spots, and dark marks on its pronotal disc more numerous.

Female. General appearance very similar to that of male paratype, but colouration of pronotal disc as in holotype; structure and colouration of tegmina, of pterothorax and of abdomen almost as in female of *L. sylvestris*.

Length in mm. Body: male 8–9.5, female 10; body with wings, male 9–11; pronotum: male 1.5–1.7, female 1.9; tegmina: male 7–8, female 7; hind femora: male 7–8, female 8; ovipositor 6.8.

Comparison. Differences from the other subspecies (or possible subspecies) of this species are given above. *Lerneca digrediens* (Otte, 2006), originally described from Costa Rica as a member of the genus *Amphiacusta*, and *L. occidentalis* Gorochov, 2007 (Oaxaca State in Mexico) are close-related to *L. inalata* and differ from the new subspecies in a distinctly less concave middle part of ventral edge of lower posterolateral epiphallic arms (having also much shorter spines) or clearly greater length of these arms (especially their distal part), respectively.

Etymology. The species is named after the Amboro National Park.

***Lerneca inalata pantanal* subsp. nov.**

(Figs XIV: 11, 12)

Holotype. Male; **Paraguay**, “Reserva Pantanal Raraguayo” near Bolivia, Los Tres Gigantes Biological Station on Rio Negro (basin of Parana River), open landscape (without forest) with bushes and high grass, on road at night, 31 Jan. – 4 Feb. 2014, A. Gorochov (ZIN).

Paratypes. Six males and 4 females, same data as for holotype (ZIN).

Description. Male (holotype). Size, colouration and structure of body very similar to those of *L. i. amboro*, but tegmina (Fig. XIV: 11) with somewhat longer mirror (mirror of upper tegmen almost as wide as long, but in *L. i. amboro*, it is clearly transverse) and with apical area of dorsal field distinctly shorter (mirror of upper tegmen approximately 3.5 times as long as this area, but in *L. i. amboro*, this ratio 2.1–2.4); genitalia also very similar to those of this subspecies, but semimembranous ectoparameres somewhat longer and directed backwards more than upwards (Fig. XIV: 12).

Variations. Lower posterolateral epiphallic arms in male genitalia with somewhat different length of distal part (from apex to most distal denticle of these arms): from rather short (as in Fig. XIV: 12) to almost as in *L. i. amboro* (Fig. XIV: 10)

Female. General appearance very similar to that of male; structure and colouration of tegmina, of pterothorax and of abdomen almost as in female of *L. sylvestris*.

Length in mm. Body: male 8–10, female 9–11; body with wings, male 9.5–11.5; pronotum: male 1.6–1.8, female 1.8–2.2; tegmina: male 7.5–8.5, female 7–8; hind femora: male 7.5–8.5, female 8–9; ovipositor 6.5–7.

Comparison. Differences of the new subspecies from *L. i. amboro* are given above. From all the other subspecies of this species, the new subspecies differs in clearly longer ventral spines in middle part of the lower posterolateral epiphallic arms; and from close-related *L. digrediens* and *L. occidentalis*, in the same characters as *L. i. amboro* (see its comparison above).

Etymology. The species is named after “Reserva Pantanal Raraguayo”.

Subtribe **PARENDACUSTINA**

subtrib. nov.

Type genus *Parendacustes* Chopard, 1924 (gender masculine).

Diagnosis. General appearance as in Phalangopsina, Amphiacustina and *Uvaroviella* (? Heterogryllina), but head rostrum usu-

ally somewhat less projected and slightly less angular (but more projected and angular than in other subtribes of Phalangopsini). Hind tibiae with middle inner apical spur longest (as in Phalangopsina and Amphiacustina) or with middle and dorsal inner apical spurs longest but almost equal to each other in length (as in *Uvaroviella*). Male genitalia: epiphallus with very short (almost transversally ribbon-like) proximal part divided into two lateral halves by small membranous median area (sometimes these halves almost contacting with each other), with large posterolateral arms (almost as in *Luzara*; Fig. II: 6), and with posteromedian part shorter and membranous but usually with a pair of isolated sclerites (these sclerites sometimes more numerous or fused with each other, very small or rather large, semimembranous and almost indistinct or heavily sclerotized); rachis membranous, more or less short; ectoparameres developed but sometimes not very distinctly separated from epiphallus [see Gorochov, 1996 (figs 113–128), 2003a (figs 2 and 3), 2003b (fig. 3), 2006 (figs 1–3)].

Note. This subtribe is distinguished from Phalangopsina, Amphiacustina and *Uvaroviella* by a *Luzara*-like epiphallus but with the membranous posteromedian epiphallic part having one or a few sclerites. From the other subtribes of Phalangopsini, Parendacustina differs in not semiglobular head and in the presence of posteromedian membranous epiphallic part with isolated sclerites. Generic composition of this subtribe are given above, in the classification of Phalangopsinae subfamily group.

? Subtribe **HETEROGRYLLINA**

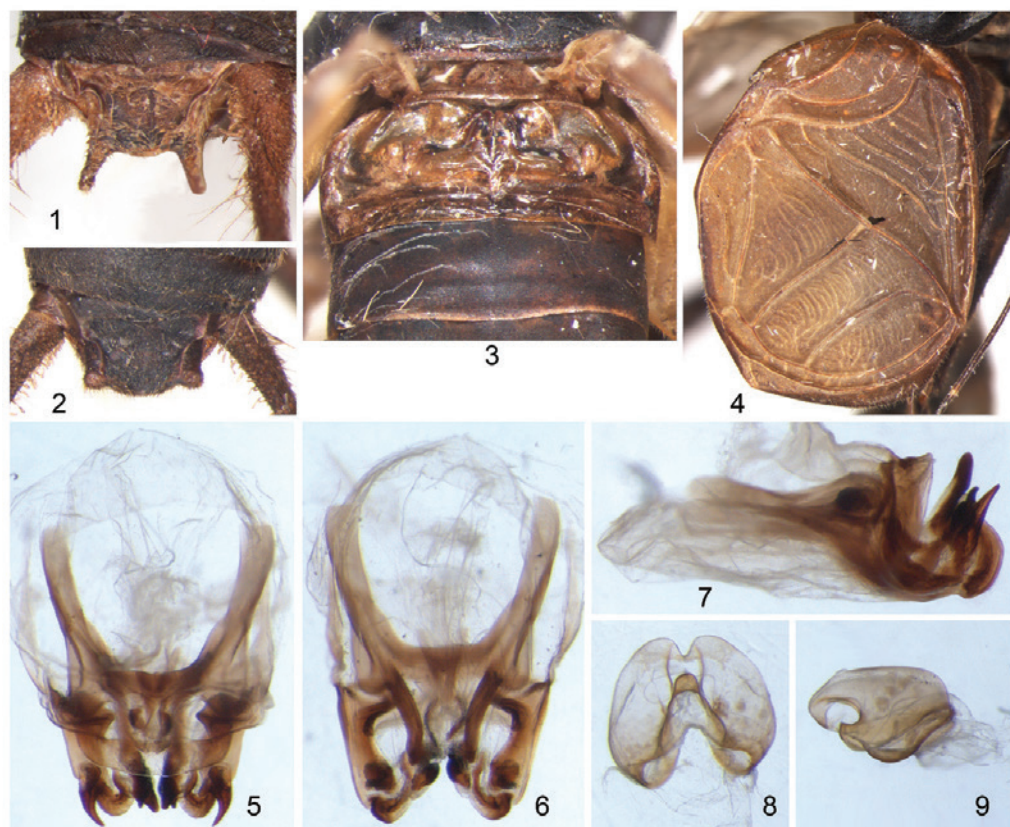
Note. This subtribe possibly includes two genera. The genus *Heterogryllus* is insufficiently studied but may be close-related to *Uvaroviella*. Judging by Saussure (1874), it is more or less similar to *Uvaroviella* species lacking wings in female but distinguished by somewhat longer legs. The genus *Uvaroviella* is equal to the group Aclodae es-

tablished for a few “genera” by Desutter-Grandcolas (1992b); but the latter taxa are considered as subgenera of *Uvaroviella* by me (Gorochov, 2007). Thus, this group may be a synonym of *Heterogryllina*. It is characterized by the shape of head and general appearance more or less similar to those of Phalangopsina, by a rather long and moderately thin apical segment of the maxillary palpi slightly widened to the apex and having a rather short oblique apical truncation (Fig. I: 3), by two (dorsal and median) inner apical spurs of the hind tibiae longest and almost equal to each other in the length, by the inner ventral apical spur of these tibiae strongly reduced or absent, and by the following characters of male genitalia: epiphallus is almost not curved in the profile and with a not very large posteromedian notch; ectoparameres are not moved to the apical or subapical epiphallic parts; and rachis is more or less small and not protruding or almost not protruding behind the median epiphallic part (Figs II: 13–16).

? *Uvaroviella problematica* sp. nov. (Figs XV: 8, 9)

Holotype. Female; **Ecuador**, Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill., about 300 m, primary forest, 5–15 Jan. 2010, A. Gorochov (ZIN).

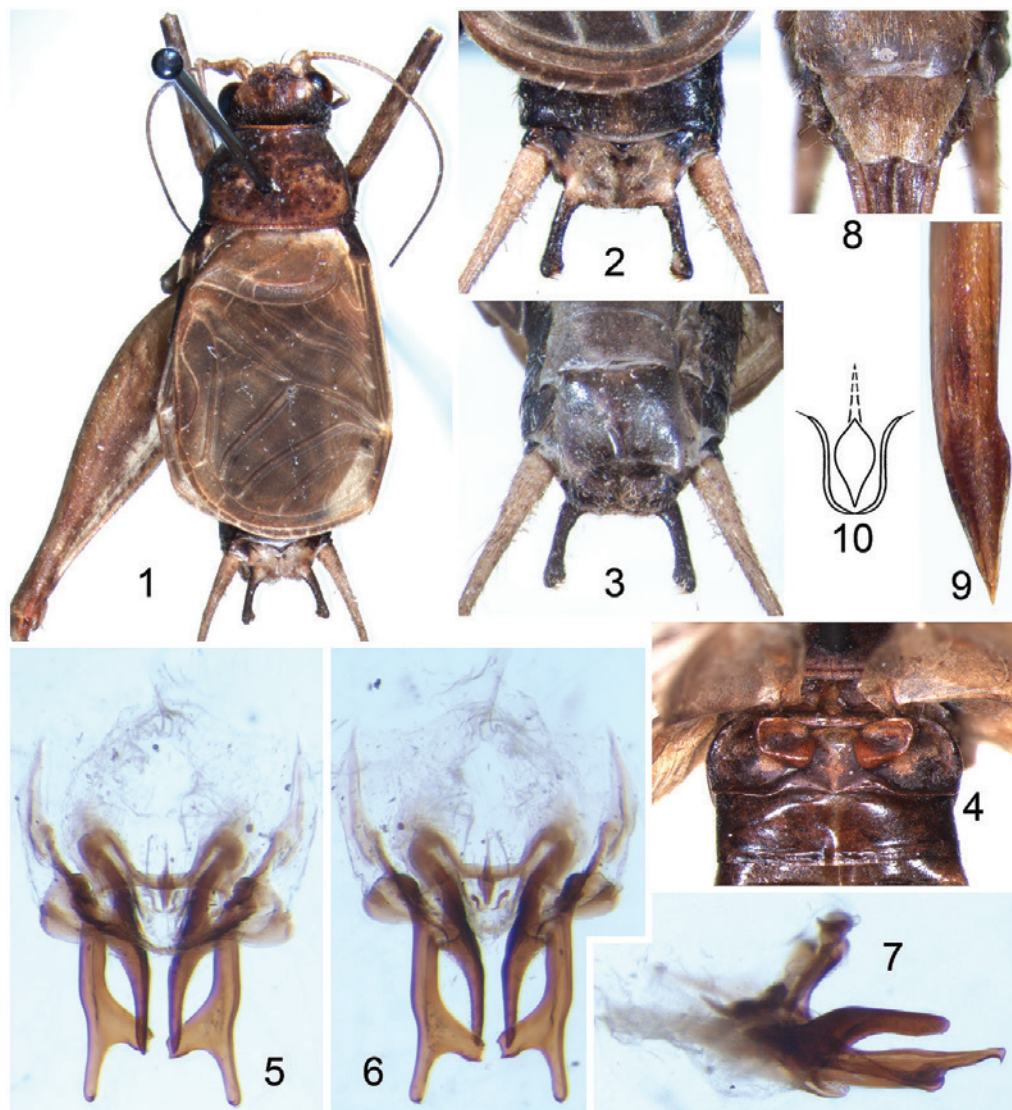
Description. Female (holotype). Body medium-sized and spotted. Head light greyish with a pair of brown areas between antennal cavities under median ocellus (these areas separated from each other by narrow light triangle but almost contacting with each other ventrally), small median brown spot on epicranium near clypeus, a pair of similar spots on genae behind eyes, brown most part of mandibles (excepting proximal parts), and greyish brown (slightly lighter) antennal flagellum and marks on scape; pronotum also light greyish brown but with brown upper halves of lateral lobes and most part of disc (excepting light stripes along all edges of disc); tegmina greyish brown with lighter humeral part; legs light



Figs XV (1–9). *Caribacusta*, *Noctivox* and ?*Uvaroviella*: 1, *C. antigua* sp. nov.; 2–7, *N. orizaba* sp. nov.; 8, 9, ?*U. problematica* sp. nov. Male anal plate from above (1, 2); male metanotal gland from above (3); dorsal field of male upper tegmen (4); male genitalia from above (5), from below (6) and from side (7); female copulatory papilla from above (8) and from side (9).

greyish brown with dark spots on fore and middle legs as well as on hind tibiae and tarsi, and with dark two transverse bands on distal part of hind femora and numerous oblique stripes on rest of these femora; other thoracic parts light greyish brown with slightly darker sternites and most part of metanotum; abdomen greyish brown with slightly darker and slightly lighter small marks on tergites as well as with moderately light greyish brown cerci and ovipositor. Scape almost 1.5 times as wide as head rostrum between antennal cavities; maxillary palpi similar to those pictured in Fig. I: 3. Pronotum with anterior part slightly narrowing to head; disc almost 1.25 times as wide as long; pronotal lobes with

strongly oblique ventral edge (their anteroventral corner protruding downwards, roundly angular; their posterior part low) and slightly oblique anterior edge. Tegmina reaching posterior third of first abdominal tergite, with oblique and slightly rounded posterior edge of dorsal field (lateral part of this field distinctly longer than medial one) having 5–6 short and more or less oblique longitudinal veins as well as numerous irregular crossveins between them, and with 3–4 longitudinal veins and not numerous (and less distinct) crossveins in lateral field. Legs with rather small and moderately narrow inner tympana only as well as with two inner apical spurs of hind tibiae practically equal to each other in length (ventral inner



Figs XVI (1–10). *Laozacla furca* sp. nov.: 1, body of male from above; 2, 3, male abdominal apex from above (2) and from below (3); 4, male metanotal gland from above; 5–7, male genitalia from above (5), from below (6) and from side (7); 8, female abdominal apex from below; 9, distal part of ovipositor from side; 10, scheme of rachis with formula (formula looking as median sclerite located on ventral surface of rachis) from below.

apical spur of hind tibiae almost lost). Genital plate slightly transverse, narrowing to widely truncate apex; ovipositor with narrow apical part typical of genus *Uvaroviella* in structure; copulatory papilla large, almost round but dorsoventrally depressed, with small but distinct median notch, and

with much larger opposite notch (distinct but short hook-like process located between these notches; Fig. XV: 8, 9).

Male unknown.

Length in mm. Body 10.5; pronotum 2.5; tegmina 2; hind femora 11.5; ovipositor 10.5.

Comparison. The new species is distinguished from all the other congeners by more oblique ventral edges of the pronotal lateral lobes and a very characteristic shape of the female copulatory papilla (this papilla has a short hook-like process distinct in the profile). I cannot exclude that this species may belong to a close-related genus of the same subtribe. From the congeners with an unknown copulatory papilla, the new species differs also in the female tegmina short (approximately 2 mm in the length) but slightly covering each other, and hind femur approximately 1.1 times as long as ovipositor.

Tribe PARAGRYLLINI

Subtribe PARAGRYLLINA

Genus *Bolivacla* gen. nov.

Type species *B. boliviana* sp. nov.

Diagnosis. General appearance similar to that of genus *Paragryllus*. Head depressed in front (face with rather wide but not deep concavity between eyes), with narrow and projected rostrum having small median ocellus on dorsal surface near apex and similar (in size) lateral ocelli situated at base of this surface very near each other, and with rather short maxillary palpi (Fig. XVIII: 2). Pronotum clearly narrowing to head, weakly transverse (its width slightly greater than its length), with rather low pronotal lobes having rounded and not projected anteroventral corners. Tegmina long, distinctly protruding behind abdominal apex; male tegmina (Fig. XVIII: 1) with wide dorsal field having large stridulatory apparatus (this apparatus characterized by long and somewhat arcuate stridulatory vein, numerous and partly transverse oblique veins, and large oval mirror with numerous and strongly curved dividing veins), with rather long apical area, and with distinctly widened middle part of *R-M* area; hind wings slightly protruding behind tegmina. Fore tibiae with small oval tympana on both sides; middle tibiae barely inflate in middle and proximal thirds (ex-

cepting short basal part); hind femora somewhat thickened; hind tibiae with apical spurs not inflate and with middle inner apical spur longest but distinctly not reaching middle of hind basitarsus. Male metanotum with weakly developed gland (Fig. XVIII: 3); anal plate simple, almost triangular and with rounded apex; male genital plate somewhat longer and narrowing to narrowly rounded apex; female genital plate slightly smaller and with distinctly angular and rather wide posteromedian notch. Male genitalia similar to those of *Benoistella*, but epiphallus fused with rami and having posterolateral lobes separated from main epiphallic body by rather deep transverse fold (distinctly visible in profile), and rachis with clearly wider apical part (Figs XVIII: 4–6). Ovipositor with ventral part of subapical lobule of dorsal valve truncate (as in *Paragryllus*; in *Benoistella*, this part rounded) and with ventral edge of apical part of ventral valve lacking denticles (as in *Benoistella*; in *Paragryllus*, this edge denticulate) (Fig. XVIII: 7).

Included species. Type species only.

Comparison. The new genus differs from *Paragryllus* and *Rumea* in the male genitalia more similar to those of *Benoistella* (epiphallus is less curved in profile, with a clearly longer median part, or rachis is distinctly shorter), and from *Benoistella* and *Silvastella*, in the male tegmina more similar to those of *Paragryllus* (mirror is larger and with much more numerous dividing veins).

Etymology. The generic name originates from the Bolivia Country and genus *Acla*.

Bolivacla boliviana sp. nov.

(Figs XVIII: 1–7)

Holotype. Male; **Bolivia**, northern part of Santa Cruz Department (not far from Brazil), environs of Florida Vill. on Rio Paragua (Amazon Basin), almost 300 m, secondary forest, on trunk of large tree rather high above ground at night, 22–29 Jan. 2014, A. Gorochov (ZIN).

Paratypes. Male and female, same data as for holotype (ZIN).

Description. Male (holotype). Body rather large. Colouration dark brown with

light greyish spots on lateral sides of labrum, brown antennae and maxillary palpi, brown hind half of pronotum and dorsal part of pterothorax as well as areas on tibiae and tarsi of middle and hind legs, light grey large areas on dorsal field of upper tegmen (Fig. XVIII: 1) and most part of lateral field in both tegmina (but *Sc-R* area dark brown, and most part of *R-M* area greyish brown), greyish brown apical area of both tegmina and some marks on other parts of dorsal field in upper tegmen, almost transparent membranes of stridulatory apparatus in lower tegmen, greyish hind wings, and brown coxae and venter of body (but genital plate almost dark brown). Scape almost twice wider than head rostrum between antennal cavities; metanotal gland consisting of anterior fold widened laterally and partly covered with short hairs, and darker (blackish) posterior convexity (Fig. XVIII: 3); tegmina with dorsal field having 6–7 dividing veins in mirror (Fig. XVIII: 1) and with lateral field having 19–20 branches of *Sc* and without crossveins between these branches. Genitalia as in Figs XVIII: 4–6.

Variations. Second male with completely dark brown labrum and reddish brown antennal flagellum.

Female. General appearance (including colouration of labrum) similar to that of holotype, but antennal flagellum as in second male, tegmina dark greyish brown with light brown marks on proximal half of dorsal field and with greyish brown to light brown ventroproximal part of lateral field, dorsal tegminal field narrower than in male and with 9–10 not very regular longitudinal veins and comparatively numerous crossveins, and lateral tegminal field with distinctly narrower *R-M* area and wider *Sc-R* area as well as with 10–12 branches of *Sc* and not very numerous crossveins between these branches; genital plate almost dark brown, and ovipositor with distal part as in Fig. XVIII: 7.

Length in mm. Body: male 17–23, female 18; body with wings: male 24–27, female 26; pronotum: male 4, female 4.2; teg-

mina: male 18–19, female 19.5; hind femora: male 12–14, female 13; ovipositor 11.5.

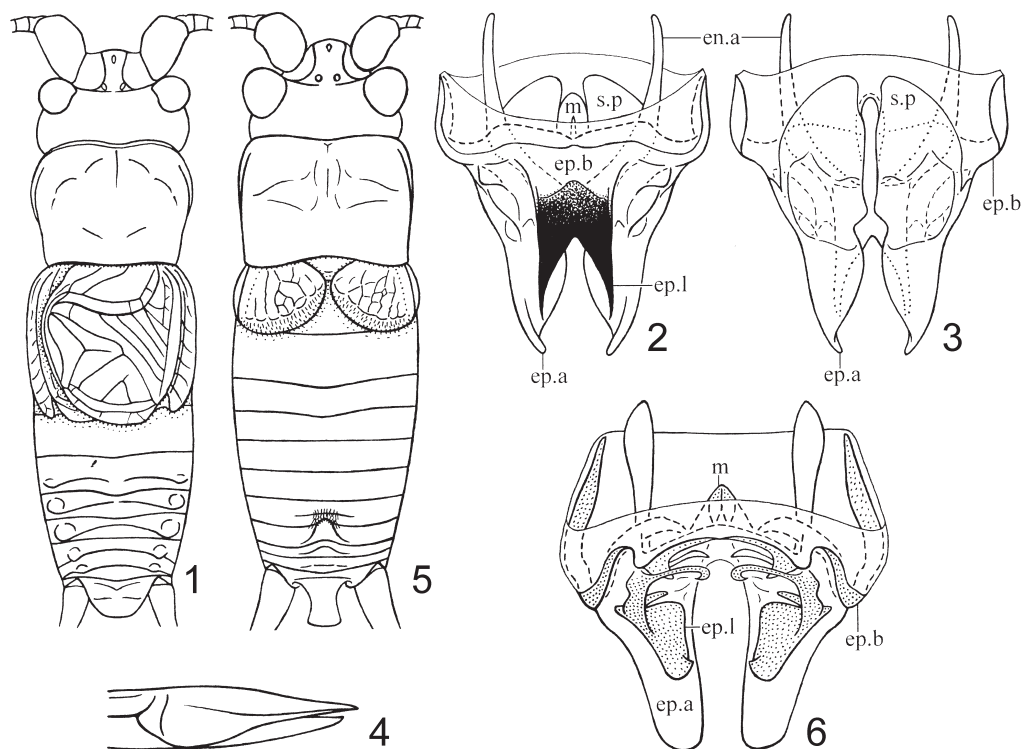
Etymology. The species is named after the Bolivia Country.

Subtribe **MEXIACLINA** subtrib. nov.

Type genus *Mexiacla* Gorochov, 2007 (gender feminine)

Diagnosis. General appearance (including structure of both head and pronotum as well as length of legs) similar to that in Phalangopsina, Amphiacustina and Neoaclina (probable convergence caused by similar adaptation to life on bark of living trees; Figs XVII: 1, 5). Maxillary palpi similar to those of *Uvaroviella* (see Fig. I: 3). Tegmina strongly shortened in male and absent in female; hind wings absent in both sexes. Hind tibiae with inner middle apical spur longest. Male abdomen (Figs XVII: 1, 5) with specialized tubercles on dorsum (abdominal gland); male genitalia (Figs XVII: 2, 3, 6) with rather small epiphallus having transverse anterior part and strongly or very strongly bifurcate posteromedian part (sometimes epiphallus divided into a few isolated sclerites; Fig. 6), with large (longer than epiphallus or not shorter than it) and partly membranous or semisclerotized ectoparameres originating from posterolateral epiphallic lobes (arms) and separated from epiphallus near proximal epiphallic part, and endoparameres articulated mainly with ectoparameres. Ovipositor with rather primitive structure of distal part (Fig. XVII: 4).

Note. This subtribe is most similar to Neoaclina, but it differs from the latter in a strongly bifurcate posteromedian epiphallic part, larger and more distinctly articulated posterolateral epiphallic lobes separated from the epiphallus near its proximal part (but not near its distal or middle parts), and the endoparameres connected mainly with the ectoparameres (but not with rachis). From Paragryllina, the new subtribe differs in a more primitive structure of the ovipositor: its apical part is non-denticulate, and



Figs XVII (1–6). *Mexiacla* and *Oaxacla*, after Gorochov (2007): 1–4, *M. ecosuri* Gor.; 5, 6, *O. squamiptera* Gor. Male body from above (1, 5); male genitalia from above (2, 6) and from below (3); distal part of ovipositor from side (4). Abbreviations: *en.a*, endoparameral apodemes; *ep.a*, ectoparameres (almost articulated posterolateral epiphallic arms); *ep.b*, anterior (basal) epiphallic parts; *ep.l*, partly or very strongly bifurcate posteromedian lobe of epiphallus; *m*, formula (mold of spermatophore attachment plate); *s.p*, semisclerotized part of ectoparameres (thickened areas of membranes around formula fused with ectoparameres).

ventral edge of the subapical part of dorsal valves is rounded (but not angular) in the profile; and from Strogulomorphina, in a much larger body as well as in the male genitalia with the median part of epiphallus clearly shorter than its posterolateral lobes (ectoparameres) and with the formula distinctly smaller. Composition of this subtribe is given above, in the classification of Phalangopsinae subfamily group.

Subtribe **BREVIZACLINA** subtrib. nov.

Type genus *Brevizacla* Gorochov, 2003 (gender feminine)

Diagnosis. General appearance similar to that of Phalangopsina, Amphiacustina, Neoaclina and Mexiaclina. Male tegmina from distinctly shortened to scale-like; female apterous. Male genitalia consisting of more or less short epiphallus having diverse but narrower posteromedian process, a pair of distinctly sclerotized ectoparameres clearly separated from epiphallus and strongly projected behind its posterolateral parts, and endoparameres articulated with ectoparameres.

Note. Included genera are listed in the classification of Phalangopsinae subfamily group given above. From the similar subtribes Neoaclina and Mexiaclina, this



Figs XVIII (1–7). *Bolivacla boliviana* sp. nov.: 1, dorsal field of male upper tegmen with distal parts of hind wings and parts of cerci from above; 2, distal half of maxillary palpus from side; 3, male metanotal gland from above; 4–6, male genitalia from side (4), from above (5) and from below (6); 7, distal part of ovipositor from side.

subtribe differs in the following characters: from *Neoaclina*, in the male genitalia without membranous, semimembranous or sclerotized lobules around the posteromedian epiphallic process and with clearly developed sclerotized ectoparameres (in *Neoaclina*, these lobules are often almost not separated from this process, or sometimes they are more or less turned into ectoparamere-like

sclerotized structures); from *Mexiaclina*, in a not or almost not bifurcate posteromedian epiphallic part and the presence of distinctly sclerotized and clearly articulated ectoparameres (instead less sclerotized and less articulated posterolateral epiphallic lobes). In *Brevizaclina*, formation of ectoparameres is probably finished, but in *Neoaclina* and *Mexiaclina*, convergent formation of ecto-

parameres is in initial stage. From the other subtribes of Paragryllini, *Brevizaclina* differs in a characteristic general appearance, the presence of strongly shortened tegmina in male, a short epiphallus lacking deep posteromedian notch, and usually rather small formula in the male genitalia.

Genus *Mikluchomaklaia* Gorochov, 1986

Note. This genus is characterized by the male tegmina strongly shortened but not scale-like, dorsal field membranous (with strongly reduced venation) in the lower tegmen and sclerotized (changed or partly changed into an attractive gland) in the upper tegmen or with a more or less normally developed stridulatory apparatus, and male genitalia with the endoparameres lacking any ribbon or plate-like structure connected the left endoparamere with right one or having such ribbon interrupted in the median part (these endoparameres are also with long apodemes directed forwards; Figs XIX: 2–4; Gorochov, 1996: figs 100–105; Gorochov, 2003: figs 1, 1–3, 11–13). The genus is known from New Guinea and nearest islands and divided into three subgenera diagnosed below, in a key for subgenera of the genus *Mikluchomaklaia*.

1. Male head with deep concavity having hairs (attractive gland) on dorsum between eyes. Tympana very small. Male upper tegmen sclerotized, with rather large concavity in dorsal field lacking hairs, and without venation in lateral field (see Gorochov, 2003b: figs 1, 4, 5, 7) subgen. *Phantazacla* Gorochov, 2003 [Included species: *M. phantastica* Gorochov, 1996 (type species); *M. mystica* Gorochov, 2003.]
- Male head without any concavity on dorsum. Tympana developed or absent. Male upper tegmen diverse: sclerotized but with hairs, or not sclerotized and with more or less normally developed stridulatory apparatus . . . 2
2. Tympana absent. Dorsal tegminal field of upper tegmen in male sclerotized, with group of distinct hairs at centre (Fig. XIX: 1) subgen. *Mikluchomaklaia* s. str.

[Included species: *M. papuana* Gorochov, 1986 (type species); *M. buergeri* Gorochov, 1996; *M. enarotali* sp. nov.]

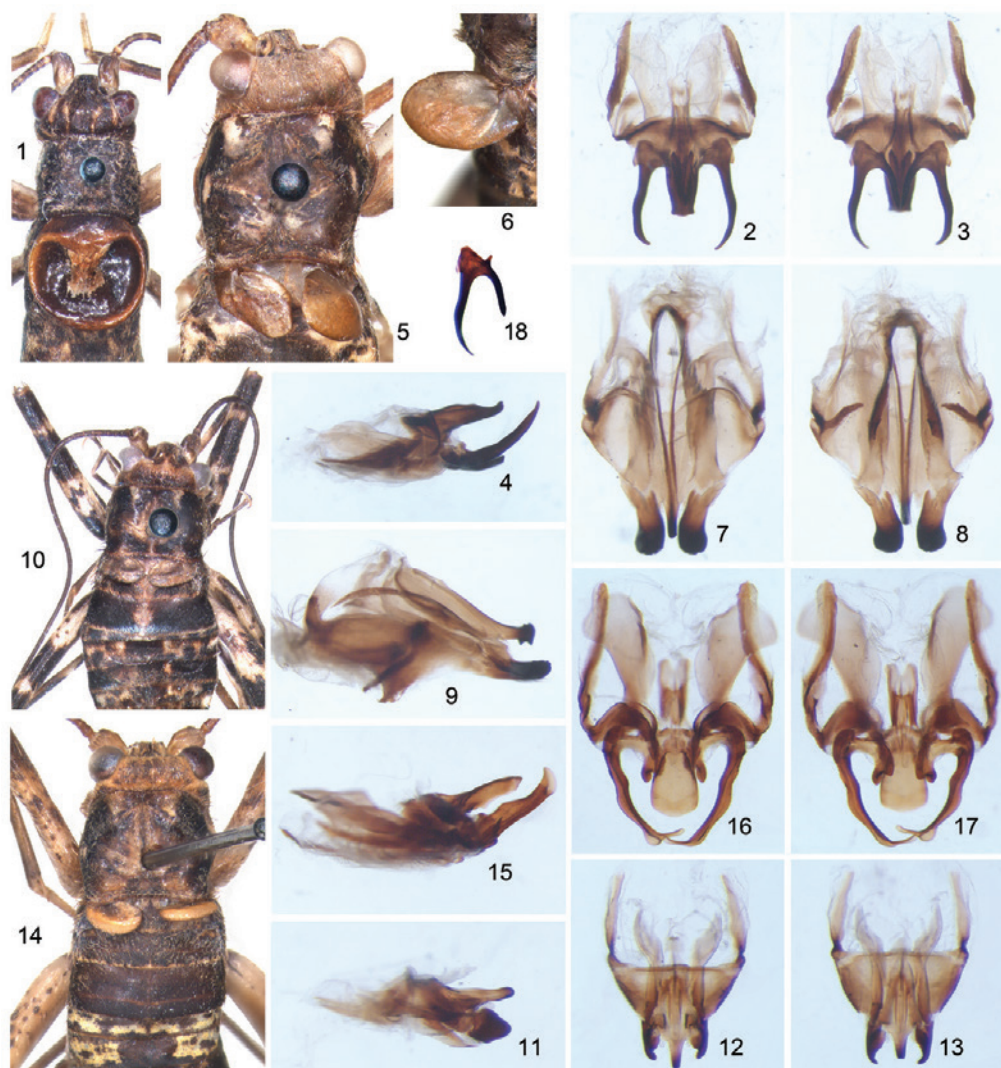
- Tympana developed. Both tegmina in male with more or less normally developed stridulatory apparatus (see Otte, 2007: figs 65–67) subgen. *Stridulacla* subgen. nov. [Included species: *M. gorochovi* Otte, 2007 (type species); *M. biaru* Otte, 2007; *M. chuaye* Otte, 2007; possibly *M. longicerca* Gorochov, 1986 and *M. korido* Gorochov, 2006. *Etymology:* the subgeneric name originates from the Latin word “stridulus” (stridulatory) and genus *Acla*.]

Mikluchomaklaia (*Mikluchomaklaia*) *enarotali* sp. nov. (Figs XIX: 1–4, 18)

Holotype. Male; **Indonesia**, New Guinea I., Papua Prov., about 120 km SEE of Nabire Town, Central Range, environs of Enarotali [Enarotali] Vill. on Paniai Lake, approximately 2000 m, mountain primary forest, on tree trunk near soil at night, 22–27 Feb. 2012, A. Gorochov (ZIN).

Paratype. Male and 3 females, same data as for holotype, but male collected on rock in forest at night (ZIN).

Description. Male (holotype). Body comparatively small. Colouration dark brown with lightish spots on mouthparts, very sparse and small lightish marks on antennal flagellum, a few light brown longitudinal lines on dorsum of head, brown both keel around tegminal dorsal field and anterior widening of this keel, light brown spots on legs, weakly distinct lightish marks on pterothoracic dorsum and on abdominal tergites, and light greyish brown venter of body (excepting dark genital plate). External structure of body typical of this subgenus: scape approximately 1.5 times as wide as head rostrum between antennal cavities; pronotum slightly transverse, not wider than head, with almost parallel lateral sides, and with anteroventral corners roundly projected downwards; upper tegmen with almost round dorsal field reaching middle part of second abdominal tergite, with narrow and low keel around this field having almost angular widening in anterior part, with



Figs XIX (1–18). *Mikluhomaklaia* and *Brevizacla*, male: 1–4, *M. enarotali* sp. nov.; 5–9, *B. fawi* sp. nov.; 10–13, *B. nabire* sp. nov.; 14–17, *B. halmahera* sp. nov.; 18, *M. enarotali*. Anterior part of body from above (1, 10) and same but with right tegmen erected (5, 14); genitalia from above (2, 7, 12, 16), from below (3, 8, 13, 17) and from side (4, 9, 11, 15); 6, right tegmen; 18, ectoparamere from below.

not large convexity at centre of very large but not deep concavity of this field, and with group of distinct light brown hairs on these widening and convexity (Fig. XIX: 1); middle and dorsal inner apical spurs of hind tibiae almost equal to each other in length, clearly longer than other apical spurs, and slightly not reaching middle of hind basitarsus; anal plate short, distinctly narrowed to

widely and roundly truncate apex; genital plate distinctly larger, slightly elongate, and with widely rounded apex having weakly distinct shallow median notch. Genitalia with ectoparameres having two long and narrow posterior processes; both medial ectoparameral processes covered by postero-medial epiphallic process (in dorsal view; Figs XIX: 2–4, 18).

Variations. Second male with colouration of head lighter (brown to light brown) and having less distinct marks on dorsum and mouthparts.

Female. General appearance similar to that of males of this species, but body colouration as in second male, wings absent, and anal plate only barely smaller (shape of this plate almost indistinguishable from that of male); genital plate almost equal to anal plate in length, slightly transverse, somewhat narrowing to widely and roundly truncate apex having barely concave median edge; ovipositor with distal part typical of this genus.

Length in mm. Body: male 11–12.5, female 10–11.5; pronotum: male 1.8–2, female 2–2.2; upper tegmen, male 2.6–2.8; hind femora: male 9.5–10.8, female 10–11; ovipositor 7.3–7.7.

Comparison. The new species differs from *M. papuana* and *M. buergersi* (see Gorochov, 1996: figs 100–105) in the male genitalia having long and strongly bifurcate ectoparameres.

Etymology. The species is named after the Enarotali Village.

Genus *Brevizacla* Gorochov, 2003

Note. This genus contains several rather diverse species characterized by scale-like or almost scale-like tegmina lacking stridulatory apparatus in male; probably ventral membranes of these tegmina are glandular, but sometimes tegmina are with a small attractive gland (looking as a concavity with short hairs) on the dorsal surface of each tegmen (see Gorochov, 2003b: figs 2, 13, 17). Male genitalia in *Brevizacla* are rather diverse, and this genus must be divided into a few subgenera or related genera (see a key for subgenera of the genus *Brevizacla* below).

1. Tympana absent. Male tegmina scale-like (i.e. rounded, with dorsal fields not transversally elongate and not contacting with each other; see Gorochov, 2003b: fig. 2, 4). Male abdomen with attractive gland on third and fourth abdominal tergites (see Gorochov,

2003b: fig. 2, 4). Male genitalia with very long ectoparameres, with wide plate connected left and right endoparameres, and with short endoparameral apodemes (see Gorochov, 2003b: figs 2, 1–3).....

..... subgen. *Brevizacla* s. str. [Included species: *Mikluhomaklaia curta* Gorochov, 2003 (type species) only.]

– Tympana absent or very small. Male tegmina lobule-like (i.e. with dorsal fields transversally elongate, directed more or less medially or somewhat overlapping each other; Figs XIX: 5, 6, 10, 14). Male abdomen without attractive gland. Male genitalia with short or moderately long ectoparameres as well as with diverse endoparameres and their apodemes (Figs XIX: 7–9, 11–13, 15–17)..... 2

2. Fore tibiae with very small inner tympanum only. Male tegmina partly overlapping each other; lower tegmen somewhat smaller than upper one and slightly different in shape (Figs XIX: 5, 6). Male genitalia with distinct sacculus (spermatophore sac) between formula and rachis (Figs XIX: 7–9).....

..... subgen. *Papuzacla* subgen. nov. [Included species: *B. fawi* sp. nov. (type species) only. *Etymology:* the subgeneric name originates from the Papua Province and genus *Zacla*.]

– Tympana absent. Male tegmina not overlapping each other (i.e. contacting or not contacting with each other), equal in shape and size (Figs XIX: 10, 14). Male genitalia more primitive, without distinct sacculus between formula and rachis (Figs XIX: 11–13, 15–17)..... subgen. *Lobulacla* subgen. nov.

[Included species: *B. nabire* sp. nov. (type species); *Opilionacris chandani* Bhowmik, 1982; *Arachnomimus ranjani* Bhowmik, 1982; *M. discoptila* Gorochov, 1996; *B. speranda* Gorochov, 2006; possibly *B. halmahera* sp. nov. *Etymology:* the subgeneric name originates from the Latin word “lobulus” (lobule) and genus *Acla*.]

Brevizacla (Papuzacla) fawi sp. nov. (Figs XIX: 5–9)

Holotype. Male; **Indonesia**, New Guinea I., Papua Prov., Fawi [Faowi] Vill. in upper part of Tariku River (tributary of Mamberamo River), primary forest on low hill, on tree trunk not far from soil at night, 29 Jan. – 17 Feb. 2012, A. Gorochov (ZIN).

Description. Male (holotype). Body rather large. Colouration variegate (Fig. XIX: 5): head yellow with light greyish brown dorsum, three dark brown vertical stripes on face (from brown rostrum to labrum and from eyes to mandibles), a pair of dark brown spots near dorsal edges of antennal cavities, two small dark marks on membrane of each this cavity, brown areas and small marks on genae, light brown palpi and antennae having darkened distal part of apical segment of maxillary palpi and darkish spot on scape; pronotum dark brown with greyish brown disc, two yellowish spots on anterior half of pronotal lobes, and lightish mark on each anterolateral corner of these lobes; tegmina almost uniformly light brown; legs, pterothorax and abdomen dark brown with light brown venter (including genital plate), brown cerci having lighter basal part, and numerous yellowish to light brown marks on rest parts. Scape almost twice as wide as head rostrum between antennal cavities; ocelli small and situated near apex and at base of rostral dorsum. Pronotum approximately as wide as head, narrowing to head and to pterothorax (Fig. XIX: 5), with low hind part of lateral lobes, and with roundly angular anteroventral corners directed downwards. Tegmina (Figs XIX: 5, 6) reaching middle third of metanotum; upper tegmen semisclerotized, almost oval, with very transversally elongate dorsal field lacking dorsal gland and venation; lower tegmen similar to upper one but slightly smaller, with less rounded medial part and almost membranous basal area of dorsal field. Hind tibiae with middle inner apical spur longest but slightly not reaching middle of hind basitarsus. Anal and genital plates more or less similar to those of *M. enarotali*; genitalia with rather long epiphallus and comparatively short ectoparameres, with a pair of narrow ventral additional ribbons fused with base of rami (also fused with epiphallus), with long endoparameres connected with each other by narrow transverse ribbon as well as having rather short and strongly laterally curved apodemes,

with a pair of long and very narrow ribbons running from apex of rachis to anterior part of sacculus, and with very large formula situated around lateral and anterior sides of ventral part of sacculus (Figs XIX: 7–9).

Female unknown.

Length in mm. Body 17.5; pronotum 3.5; upper tegmen 1.9; lower tegmen 1.6; hind femora 17.3.

Etymology. The species is named after the Fawi Village.

***Brevizacla (Lobulacla) nabire* sp. nov.**
(Figs XIX: 10–13)

Holotype. Male; **Indonesia**, New Guinea I., Papua Prov., environs of Nabire Town, secondary forest on hill not far from sea, on tree trunk near soil at night, 28 Feb. – 2 March 2012, A. Gorochov (ZIN).

Description. Male (holotype). Body rather small. Colouration variegate but somewhat darker than in *B. fawi* (Fig. XIX: 10): head yellowish with three vertical dark brown bands on face (almost as in *B. fawi*), with a few dark brown spots on dorsum and behind eyes, with brown areas on maxillary palpi, and with dark brown antennae having yellowish scape marked by brown medial spot; pronotum dark brown with a few yellowish and light brown marks on disc; other bodyparts more or less similar in colouration to those of *B. fawi* but with abdominal tergites darker and genital plate slightly darkened. Scape approximately 1.5 times as wide as head rostrum between antennal cavities; ocelli approximately as in *B. fawi*. Pronotum also similar to that of this species but with somewhat less distinct anterior and posterior narrowings (Fig. XIX: 10). Tegmina reaching middle of metanotum, weakly transversally elongate (almost oval), contacting with each other, and without distinct gland on dorsal surface (Fig. XIX: 10). Hind tibiae with middle and dorsal inner apical spurs equal to each other in length, longer than all other apical spurs, and practically reaching middle of hind basitarsus. Anal and genital plate somewhat similar to those of *B. fawi* but with rounded

apices; genitalia more or less similar to those of *M. ranjani* (see Gorochov, 2003b: figs 2, 10–12) but with distinctly larger (higher) ectoparameres (Figs XIX: 11–13).

Female unknown.

Length in mm. Body 7.5; pronotum 1.7; tegmina 0.7; hind femora 8.2.

Comparison. The new species differs from *B. discoptila* and *B. speranda* in larger male tegmina contacting with each other and in the posteromedian process of epiphallus lacking ventrolateral teeth or denticles; and from *B. chandani* and *B. ranjani*, in the absence of dorsal tegminal gland as well as much shorter (only from *B. chandani*) or higher (only from *B. ranjani*) ectoparameres.

Etymology. The species is named after the Nabire Town.

***Brevizacla (Lobulacla) halmahera*
sp. nov.**

(Figs XIX: 14–17)

Holotype. Male; **Indonesia**, Maluku Utara Prov., Halmahera I., environs of Subaim Vill. (not far from Lolobata Vill.) near Wasile Bay, disturbed primary forest, on tree trunk not far from ground at night, 27 Jan. – 1 Feb. 2011, A. Gorochov (ZIN).

Description. Male (holotype). Body medium-sized. Colouration (Fig. XIX: 14) and structure of bodyparts more or less similar to those of *B. nabire*, however dorsum of head with two narrow dark brown transverse stripes between eyes above antennal cavities and greyish brown area behind these stripes, labrum almost completely dark brown, palpi yellowish, scape and proximal part of antennal flagellum light brown, tegmina yellow with light brown proximal area, cerci and genital plate almost completely light greyish brown, tegmina reaching middle third of metanotum and not contacting with each other, apical spurs of hind tibiae more similar to those of *B. fawi*, anal plate with clearly truncate hind part, genital plate with narrowly rounded apex, and genitalia similar to those of *M. papuana* (see Gorochov, 1996: figs 100–102) but with

longer and more bifurcate ectoparameres as well as with larger posteromedian process of epiphallus and endoparameres not connected with each other (Figs XIX: 15–17).

Female unknown.

Length in mm. Body 11; pronotum 2.5; tegmina 0.8; hind femora 14.

Comparison. The new species is distinguished from all the other species of *Lobulacla* by the ectoparameres of male genitalia having two posterior processes, by lateral one of these processes long and rather thin (in the other species, ectoparameres shorter or wider), and by male tegmina without distinct dorsal gland. It is necessary to note that male genitalia of the new species are most similar to those of *M. papuana* belonging to another genus (*Mikluchomaklaia*); it is a reason that inclusion of the new species in *Lobulacla* and *Brevizacla* is problematic, as this species may have convergent similarity to *M. papuana* in the genital structure or to *L. nabire* in the tegminal shape.

Etymology. The species is named after the Halmahera Island.

Tribe **LUZAROPSINI**

Note. This tribe is characterized by an almost semiglobular head, the development of a moderately large sacculus (= spermophore sac) in the male genitalia, and absence of characteristic folds before the formula of these genitalia (the latter character distinguishes this tribe from the Otteini which has a similar sacculus in one of its genera; this partial similarity shows that such sacculus is convergently developed in these tribes). Generic composition of Luzaropsini is given above, in the classification of Phalangopsinae subfamily group.

***Luzaropsis ferruginea* (Walker, 1869)**

Note. Gorochov (2003) supposed that *L. confusa* Chopard, 1969 from Sri Lanka may be a synonym of *L. ferruginea* (also described from Sri Lanka); he led some arguments showing that the male genitalia

lia, pictured by Chopard (1969: fig. 157) as belonging to *L. confusa*, may belong to another species (i.e. genitalia of Chopard's specimens or pictures of these genitalia may be confused). Desutter-Grandcolas (2014) did not agree with this synonymy; however, she did not publish any explanation for her opinion or comments for Gorochov's arguments. Thus, it is reasonable to consider these species names as probable synonyms up to checking of the above-mentioned arguments.

Genus *Terrozacla* gen. nov.

Type species *T. jambi* sp. nov.

Diagnosis. Body medium-sized. Head almost semiglobular but rather high (its height slightly greater than width) and barely narrower than pronotum; apical segment of maxillary palpi distinctly (but not strongly) widened to apex (similar to that of *Luzara* but with less oblique apical truncation). Pronotum almost square, with anterior part barely narrower than middle or posterior parts (Figs XX: 1, 4), and with anteroventral corners widely rounded; metanotum with clearly developed gland consisting of rather deep transverse concavity and median lobe located behind this concavity and directed forwards (Figs XX: 2, 5). Tegmina strongly shortened but contacting with each other or barely overlapping, without stridulatory apparatus or with traces of it in male, and with partly reduced venation (Figs XX: 1, 4; XXI); hind wings looking as very small lateral lobules reaching hind edge of metanotum (Figs XX: 2, 5). Legs not long and moderately thin (but hind femora clearly thickened, well adapted to jumping); fore tibiae without tympana or with inner tympanum only; hind tibiae with denticles (except for four pair of articulated spines) situated mainly on outer dorsal edge as well as with dorsal and middle inner apical spurs almost equal in length and longer than all other apical spurs or with dorsal inner apical spur slightly longer than middle inner apical spur (these longest spurs distinctly

shorter than hind basitarsus). Anal plate in both sexes almost equal in size; its hind part widely truncate, concave or notched in male (Figs XX: 3, 6–10), as well as slightly narrower and rounded in female; male genital plate rather large, not long (its width and length almost equal), and with widely truncate, slightly concave or notched hind part. Male genitalia: epiphallus fused with rami, having transverse fold (distinct in profile), and divided into two H-shaped sclerites (proximal and distal ones) articulated with each other in two points; endoparameres connected with ectoparameres but not with each other, lacking medial projections, and having rather long apodemes; rachis moderately large and with large elongate sclerite not connected with other sclerites; membrane between rachis and formula forming distinct but not large sacculus (Figs XXII: 1–3, 6–11, 13–18). Ovipositor with acute movable distal structure of upper valves (Fig. XXII: 4).

Included species. Type species; *T. harau* sp. nov.; *T. trusmadi* sp. nov.; *T. borneo* sp. nov.; *T. kubah* sp. nov.; *T. gading* sp. nov.; possibly *Luzaropsis mjobergi* Chopard, 1930 and *L. omissa* Gorochov, 2003.

Comparison. The new genus is most similar to the genus *Luzaropsis* from Sri Lanka but distinguished by the epiphallus divided into two sclerites (in majority of *Luzaropsis* species, it is undeveloped; see illustrations in Gorochov, 2003b: figs 3, 4–16), its proximal (anterior) sclerite H-shaped and with posterolateral parts supporting a pair of large membranous lobes situated around the distal (posterior) epiphallic sclerite, and rachis distinctly projected backwards behind the posteromedian epiphallic part. One of species of *Luzaropsis* (*L. omissa*) has similar structure of the epiphallus (but without deep posteromedian notch and with the rachis invisible from above) and may belong to this new genus or to a separate group of *Luzaropsis* having a parallel evolution of the male genitalia. From *Larandopsis* (India) known from a few nymphs of the same species only, the new genus differs in

a clearly shorter inner dorsal apical spur of the hind tibiae (it is distinctly shorter than hind basitarsus in the new genus and not shorter than this basitarsus in *Larandopsis*; Chopard, 1969).

Etymology. This generic name originates from the Latin word "terra" (ground) and genus *Zacla*.

***Terrozacla jambi* sp. nov.**

(Figs XX: 1–3, XXI: 1, 2; XXII: 1–5)

Holotype. Male; **Indonesia**, Sumatra I., Jambi Prov., about 35 km N of Sungaipenuh Town, environs of Kerinci-Seblat National Park, Kerinci Mount, 1500–2000 m, primary forest, among dry leaves on forest floor, 18–22 Nov. 1999, A. Gorochov (ZIN).

Paratypes. Five males and 8 females, same data as for holotype (ZIN).

Description. Male (holotype). Colouration of body (Figs XX: 1–3) greyish brown with dark brown lower part of head (excepting whitish labrum), areas on head behind eyes, pronotal lateral lobes, and tegminal lateral field, with a pair of yellowish narrow stripes on dorsum of head (from lateral parts of rostrum to hind part of vertex and along dorsomedial edges of eyes), with light brown small spots on proximal part of antennae, stripes on pronotal disc (along lateral edges) and on dorsal tegminal fields (along lateral edge of each dorsal field), and weakly distinct spots on legs, as well as with light greyish brown anal plate and cercal bases. Scape approximately 1.5 times as wide as rostrum between antennal cavities; median ocellus well developed but distinctly smaller than lateral ocelli. Pronotum and metanotal gland as in Figs XX: 1, 2. Tegmina reaching base of third abdominal tergite, with rounded apex, 4–5 irregular longitudinal veins in dorsal field (i. e. without traces of stridulatory apparatus), four longitudinal veins in lateral field, and without distinct crossveins (Figs XX: 1; XXI: 1, 2). Fore tibiae without tympana. Anal and genital plates with barely concave hind part (Fig. XX: 3). Genitalia as in Figs XXII: 1–3 (ectoparameres very characteris-

tic: elongate, distally widened, with apical lobule curved upwards and forwards and with small apical hook directed downwards and laterally).

Variations. Sometimes short basal part of antennae and most part of pronotal disc light brown, as well as lighter spots on legs somewhat more distinct.

Female. General appearance as in males, but metanotal gland absent, tegmina with four longitudinal veins in dorsal field and 3–4 ones in lateral field, and anal plate brown or greyish brown; genital plate and distal part of ovipositor as in Figs XXII: 4, 5.

Length in mm. Body: male 10–12, female 11–14; pronotum: male 2–2.3, female 2.3–2.7; tegmina: male 2.7–2.9, female 2.8–3.2; hind femora: male 9–10, female 10–11.5; ovipositor 10.5–11.5.

Comparison. The new species differs from *L. mjobergi* and *L. omissa* (which may be members of this genus) in the absence of tympana (from the both species), a smaller body size and not very transverse female genital plate (from *L. mjobergi*), as well as shorter male tegmina, a deeply bifurcate posterior sclerite of the epiphallus, and more protruding rachis clearly visible behind the median epiphallic part (from *L. omissa*).

Etymology. The species is named after the Jambi Province.

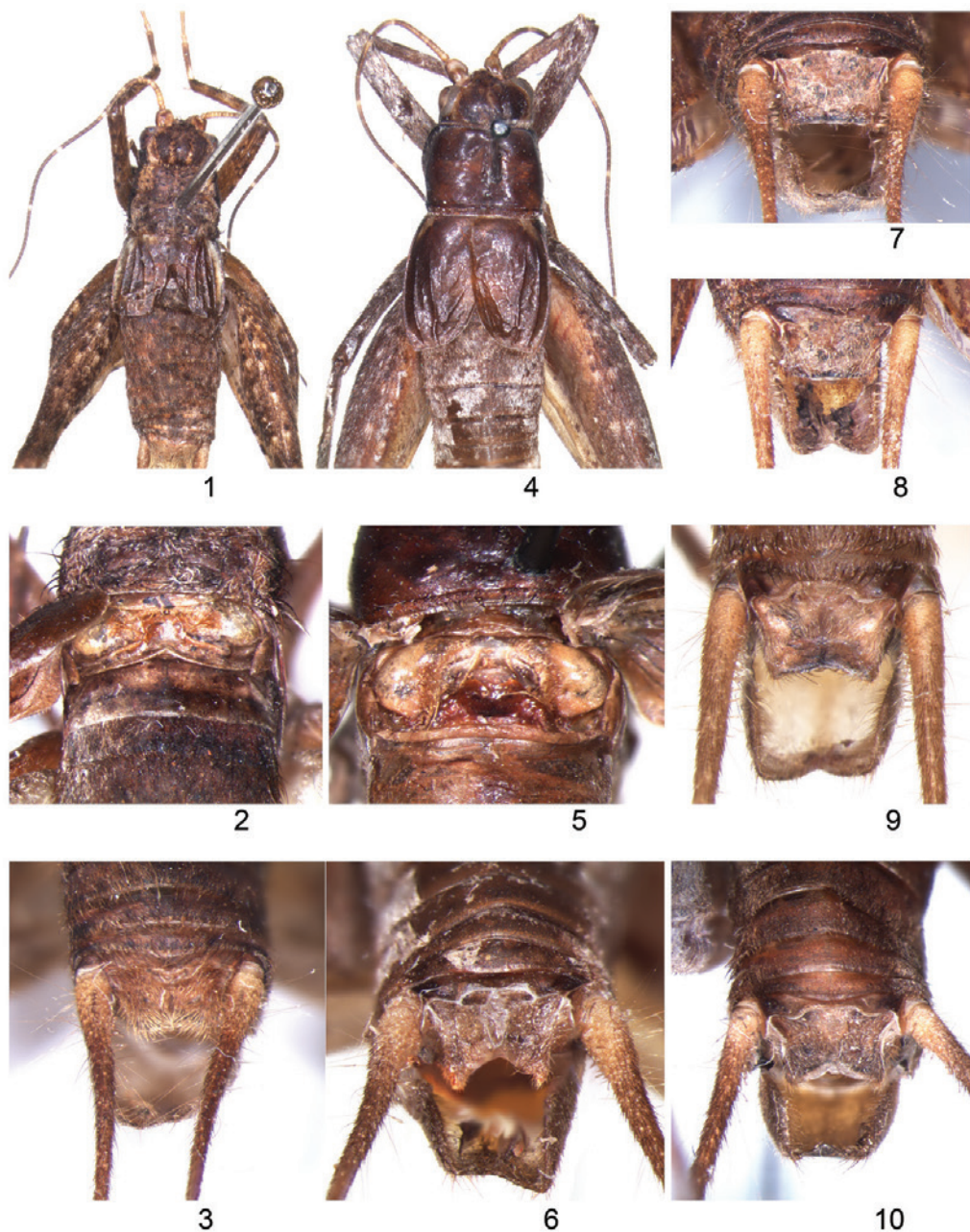
***Terrozacla harau* sp. nov.**

(Figs XXI: 3, 4; XXII: 6–8)

Holotype. Male; **Indonesia**, Sumatra I., West Sumatra Prov., about 20 km E of Sasak Town, environs of Harau Valley National Park, equator, approximately 600 m, partly primary / partly secondary forest, among dry leaves on forest floor at daytime, 24–26 Nov. 1999, A. Gorochov (ZIN).

Paratypes. Two females, same data as for holotype (ZIN).

Description. Male (holotype). General appearance very similar to that of *T. jambi* but tegmina slightly larger (reaching middle part of third abdominal tergite) as well as with weakly distinct traces of stridulatory apparatus in both dorsal fields (Figs



Figs XX (1–10). *Terrozacla*, male: 1–3, *T. jambi* sp. nov.; 4–6, *T. trusmadi* sp. nov.; 7, 8, *T. borneo* sp. nov.; 9, *T. kubah* sp. nov.; 10, *T. gading* sp. nov. Body of male without distal part from above (1, 4); metanotal gland from above (2, 5); abdominal apex from above (3, 6, 8–10) and from above/behind (7).

XXI: 3, 4) and five longitudinal veins in lateral fields, fore tibiae with small and oval inner tympanum only, metanotal gland with slightly larger hind median lobe directed forwards, and anal plate roundly truncate in hind part. Genitalia also very similar to those of *T. jambi*, but posterolateral projections of distal H-shaped epiphallic sclerite with ventrolateral lobules more laterally projected and with distal part (behind these lobules) narrower, posteromedian projection of this epiphallic sclerite distinctly smaller, ectoparameres more strongly widened in distal part (almost laterally angular), rachis with somewhat narrower apical part as well as with longer median sclerite having proximal (narrower) part distinctly longer, and formula with more distinct and longer apodeme (Figs XXII: 6–8).

Female. Colouration and structure of body similar to those of male, but tegmina reaching base of third abdominal tergite and with 5–6 parallel longitudinal veins in dorsal field, latter field almost completely light greyish brown, metanotum slightly lighter and without gland, and rest parts of abdomen approximately as in female of *T. jambi*.

Length in mm. Body: male 13, female 14–16; pronotum: male 2.5, female 2.9–3.1; tegmina: male 3.5, female 4–4.2; hind femora: male 10.7, female 12–12.5; ovipositor 13.5–14.3.

Comparison. Differences of the new species from *T. jambi* are given above. From *L. mjobergi*, the new species differs in a less transverse female genital plate; and from *L. omissa*, in a very different shape of the distal epiphallic sclerite (see the *Terrozacla* comparison above).

Etymology. The species is named after the Harau Valley.

Terrozacla trusmadi sp. nov.

(Figs XX: 4–6; XXI: 5, 6; XXII: 9–12)

Holotype. Male; **Malaysia**, Borneo I., Sabah State, Trus Madi Mount, about 1000 m, partly primary / partly secondary forest, among dry leaves on forest floor at night, 13–25 May 2007, A. Gorochov (ZIN).

Paratypes. Three males and 2 females, same data as for holotype (ZIN).

Description. Male (holotype). General appearance similar to that of *T. jambi* (Fig. XX: 4) but colouration of head with less distinct yellowish stripes on dorsum as well as slightly lighter (almost light brown) lower part of clypeus and area on mandibles, pronotum and tegmina almost uniformly greyish brown (with only lighter small basal humeral spot on tegmina), lightish spots on fore and middle legs indistinct and on hind legs almost absent, lateral ocelli less distinct and barely larger than median ocellus, metanotal gland with clearly larger hind median lobe directed forwards (Fig. XX: 5), tegminal venation with very weak traces of stridulatory apparatus in both dorsal fields (Fig. XXI: 5, 6) and with five longitudinal veins in lateral field, fore tibiae with small and oval inner tympanum only, anal plate with rather deep angular posteromedian notch and strongly angularly projected posterolateral lobes, and genital plate distinctly (but not deeply) notched at apex (Fig. XX: 6). Genitalia: distal H-shaped epiphallic sclerite longer (especially its median part) and narrower, with somewhat shorter posterolateral projections, with much narrower notch between them, and with long and narrowly angular ventral processes directed backwards and slightly downwards; ectoparameres semisclerotized and with apical part not bifurcate; rachis with somewhat narrower apical part; formula distinctly longer (Figs XXII: 9–11).

Variations. Sometimes dorsum of head with more distinct yellowish stripes (almost as in *T. jambi*), and anal plate with somewhat less deep and more rounded posteromedian notch.

Female. Colouration and structure of body as in holotype, but dorsal tegminal field with 4–5 more or less distinct longitudinal veins, metanotal gland absent, and abdomen similar to that of female of *T. jambi* and *T. harau* but with more transverse genital plate having distinct posteromedian notch (this notch slightly varied in size; Fig. XXII: 12).



Figs XXI (1–12). *Terrozacla*, male: 1, 2, *T. jambi* sp. nov.; 3, 4, *T. harau* sp. nov.; 5, 6, *T. trusmadi* sp. nov.; 7, 8, *T. borneo* sp. nov.; 9, 10, *T. kubah* sp. nov.; 11, 12, *T. gading* sp. nov. Left tegmen (1); dorsal field of right (2, 4, 6, 8, 10, 12) and left (3, 5, 7, 9, 11) tegmina.

Length in mm. Body: male 13–15, female 16–18; pronotum: male 2.6–3, female 3–3.2; tegmina: male 4–4.5, female 5.3–5.5; hind femora: male 12–13, female 13–14; ovipositor 15–16.

Comparison. The new species differs from *T. jambi* and *T. harau* in the characters of male genitalia listed above. From *L. mjobergi*, the new species differs in a notched (not straight) hind edge of the female genital plate; and from *L. omissa*, in a strongly bifurcate distal epiphallic sclerite.

Etymology. The species is named after the Trus Madi Mount.

***Terrozacla borneo* sp. nov.**

(Figs XX: 7, 8; XXI: 7, 8; XXII: 13, 14)

Holotype. Male; **Malaysia**, Borneo I., Sabah State, Trus Madi Mount, about 1000 m, partly primary / partly secondary forest, among dry leaves on forest floor at night, 13–25 May 2007, A. Gorochov (ZIN).

Paratypes. **Malaysia**, Borneo I.: male and 3 females, same data as for holotype (ZIN); 2 males, Sarawak State, environs of Miri Town, Lambir Hills National Park, 200–300 m, primary forest, on forest road among dry leaves at daytime, 29 March – 1 Apr. 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Description. Male (holotype). Colouration and structure of body very similar to those of holotype of *T. trusmadi*, but tegmina with dorsal field distinctly wider and having more distinct traces of stridulatory apparatus (Figs XXI: 7, 8), stripe along lateral edge of this field yellowish, some veins of basal area of dorsal field in upper tegmen almost yellowish, medial half of this field behind basal area in lower tegmen light greyish (semitransparent), lateral tegminal field with 5–6 longitudinal veins, hind part of anal plate almost not concave (rather sharply truncate; Fig. XX: 7, 8), and genitalia with narrower and distinctly longer posterolateral projections of distal epiphallic sclerite (Figs XXII: 13, 14).

Variations. Males from Sarawak slightly lighter: almost light greyish brown with brown areas on face and behind eyes, brown

upper half of pronotal lobes and spots on fore and middle legs, and greyish brown small marks on inner surface of hind femora.

Female. General appearance as in holotype, but tegmina with slightly narrower distal half and without traces of stridulatory apparatus in dorsal field (this field somewhat wider than in female of *T. trusmadi*, with brown medial and light brown lateral halves), metanotum and abdomen practically identical to those of female of *T. trusmadi*.

Length in mm. Body: male 14–15, female 15–17; pronotum: male 2.6–3, female 3–3.2; tegmina: male 4.8–5.2, female 5.4–5.7; hind femora: male 12–12.5, female 13–14; ovipositor 15–16.

Comparison. Differences from *T. trusmadi* are given above. From all the other true and possible congeners, the new species differs in the same characters as *T. trusmadi*.

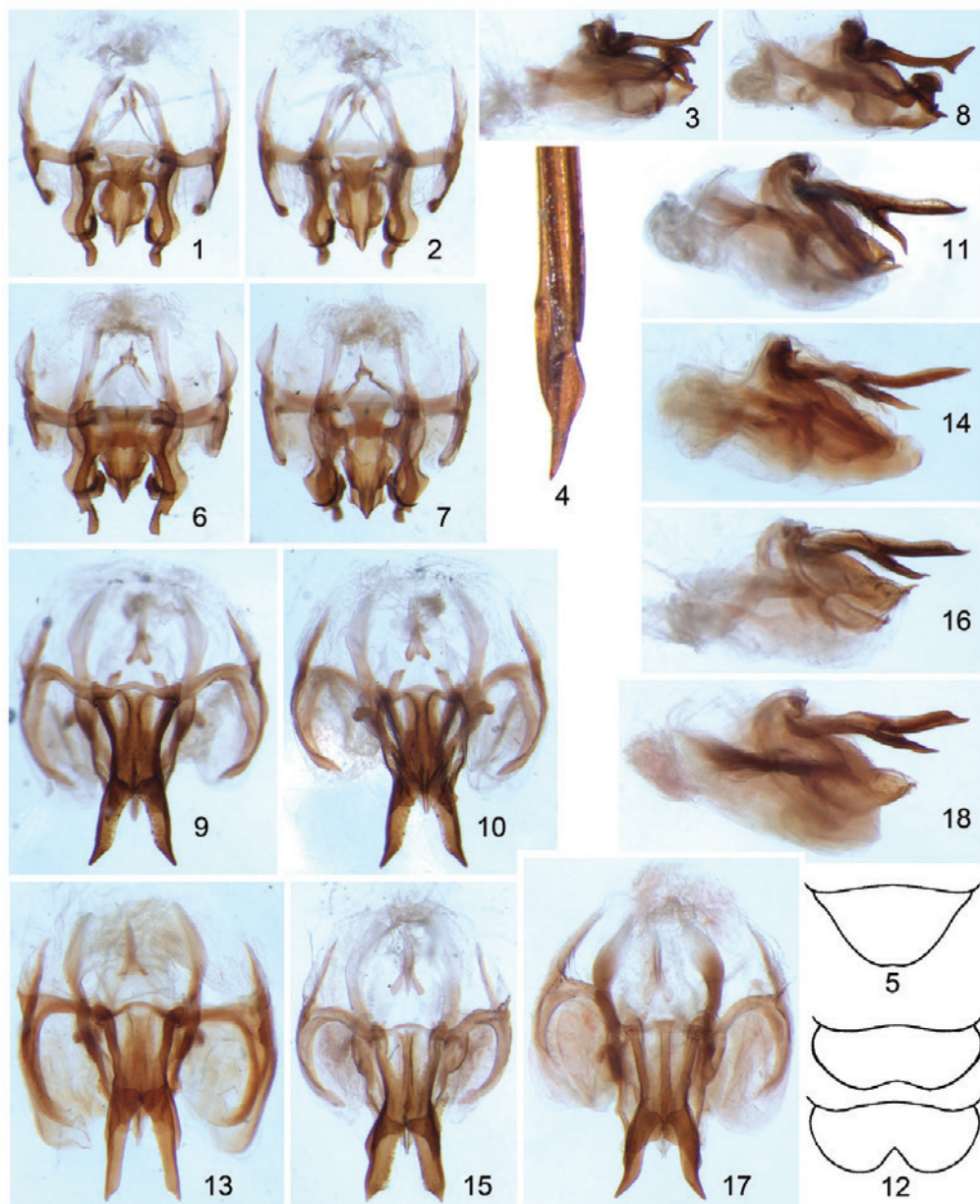
Etymology. The species is named after the Borneo Island.

***Terrozacla kubah* sp. nov.**

(Figs XX: 9; XXI: 9, 10; XXII: 15, 16)

Holotype. Male; **Malaysia**, Borneo I., Sarawak State, environs of Kuching City, Kubah National Park on Matang Mount, 200–500 m, primary forest, among dry leaves on forest floor at night, 10–17 March 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Description. Male (holotype). Colouration and structure of body similar to those of holotypes of *T. trusmadi* and *T. borneo*, however head dorsum and pronotal disc light greyish brown with barely distinct darkish marks, antennae light brown with almost yellowish proximal part and small sparse whitish spots on rest of flagellum, lateral lobes of pronotum with light brown stripe along ventral edge, tegmina intermediate in structure between those of *T. trusmadi* and *T. borneo* (Figs XXI: 9, 10) as well as almost light brown with yellowish stripe on dorsal field along its lateral edge (lateral tegminal field with 5–6 longitudinal veins), rest of thorax and abdominal tergites also almost light brown, anal plate intermediate in shape



Figs XXII (1–12). *Terrozacla*: 1–5, *T. jambi* sp. nov.; 6–8, *T. harau* sp. nov.; 9–12, *T. trusmadi* sp. nov.; 13, 14, *T. borneo* sp. nov.; 15, 16, *T. kubah* sp. nov.; 17, 18, *T. gading* sp. nov. Male genitalia from above (1, 6, 9, 13, 15, 17), from below (2, 7, 10) and from side (3, 8, 11, 14, 16, 18); distal part of ovipositor from side (4); female genital plate from below (5, 12).

between those of above-mentioned representatives (Fig. XX: 9), and genitalia with posterolateral epiphallic projections similar to those of *T. trusmadi* but distinguished

by angularly narrowed apical part slightly shorter and directed mainly backwards (not partly laterally; Figs XXII: 15, 16).

Female unknown.

Length in mm. Body 16; pronotum 2.6; tegmina 4.7; hind femora 12.

Comparison. The new species differs from *T. trusmadi* in the characters of male genitalia listed above; from *T. borneo*, in a narrower dorsal field of the male tegmina and wider and shorter posterolateral epiphalllic projections in the male genitalia; from *T. jambi* and *T. harau*, in a much narrower notch between the above-mentioned epiphalllic projections; and from *L. omissa*, in the same characters as *T. trusmadi*. The differences of the new species from *L. mjobergi* (described from the same mount) are unclear, as these species are known from one male and one female, respectively; however, the male is significantly smaller (length of its pronotum 2.6 mm; *vs.* 3.5 mm) and with an almost uniformly light (not distinctly banded) head dorsum; I cannot exclude that these specimens may be two colour variants of the same species.

Etymology. The species is named after the Kubah National Park.

***Terrozacla gading* sp. nov.**

(Figs XX: 10; XXI: 11, 12; XXII: 17, 18)

Holotype. Male; **Malaysia**, Borneo I., Sarawak State, 80–90 km WNW of Kuching City, Gunung Gading National Park, 100–300 m, primary forest, among dry leaves on forest floor at daytime, 8–9 March 2012, A. Gorochov, M. Berезin, E. Tkatsheva, I. Kamskov (ZIN).

Description. Male (holotype). Colouration and structure of body similar to those of holotype of *T. trusmadi*, but tegmina and anal plate more similar to those of *T. kubah* in structure (Figs XX: 10; XXI: 11, 12), and genitalia distinguished from those of *T. trusmadi* by wider both proximal part of posteromedian epiphalllic notch and basal part of ventral processes of posterolateral epiphalllic projections (medial parts of these ventral processes clearly visible from above between bases of dorsal processes of posterolateral epiphalllic projections; *vs.* these parts invisible from above in *T. trusmadi*, *T. borneo* and *T. kubah*; Figs XXII: 17, 18).

Female unknown.

Length in mm. Body 15; pronotum 2.8; tegmina 5; hind femora 12.5.

Comparison. Differences from *T. trusmadi*, *T. borneo* and *T. kubah* in the male genitalia are given above, and differences from *L. mjobergi* are also unclear. From all the other true and possible congeners, the new species differs in the same characters as *T. trusmadi*.

Etymology. The species is named after the Gading Mount (Gunung Gading in Malay language).

Tribe **OTTEINI** Koçak et Kemal, 2009

Note. This tribe includes a few apterous, troglophilous crickets with an almost semi-globular head, long and thin apical segment of maxillary palpi, long and rather thin legs lacking tympana, and characteristic male genitalia having a series of folds before the formula. Ruiz-Baliú & Otte (1997) consider that these folds belong to “spermatophore tube mold”, but spermatophore tube is formed by a sacculus (= spermatophore sac) behind the formula (=mold of spermatophore ancora, = mold of spermatophore attachment plate), i. e. between formula and rachis. Probably in Otteini, spermatophore is with a rather long collum (= neck, narrow part between ampulla and ancora or attachment plate of spermatophore) which is formed in these folds. If it is correct, this character is unique for Phalangopsinae and other cricket taxa.

This tribe was originally described as Cophusini for the genera *Cophus* Saussure, 1874 and *Cubacophus* Ruiz-Baliú et Otte, 1997. But the name of its type genus (*Cophus*) is twice preoccupied: in Coleoptera and in Hymenoptera (Koçak & Kemal, 2009; Eades et al., 2014). Thus, the names *Cophus* and Cophusini are unavailable, and the names *Otteus* Koçak et Kemal, 2009 and Otteini were proposed instead them. At the same year, Otte & Perez-Gelabert (2009) synonymized *Cophus* and *Cubacophus*. All these data were summarized in the Orthoptera Species File (Eades et al., 2014), and its

authors supposed: if the name *Otteus* (= *Cophus*) is a junior synonym of *Cubacophus*, the new name *Cubacophusini* must be proposed instead *Otteini*.

However, these genera are clearly distinguished from each other by the structure of male genitalia: in the genus *Otteus* **nom. dist.** including type species (*Cophus thoracicus* Saussure, 1874) only, epiphallus is short and widely notched at the apex, rami are large (much longer than epiphallus), ectoparameres are moderately wide (ventral view), rachis is rather short (not protruding behind median part of epiphallus) and not strongly arcuate in the profile, formula is rather simple (consisting of a pair of sclerotized stripes posteriorly fused with the base of rachis), and endoparameral apodemes are rather large and normal in the structure; in *Cubacophus* including four other species (type species: *Cubacophus gibaraensis* Ruiz-Baliú et Otte, 1997), epiphallus is long and with a deep and narrow notch at the apex, rami are small (not longer or almost not longer than epiphallus), ectoparameres are very narrow (ventral view), rachis is very long (strongly protruding behind median part of epiphallus) and strongly arcuate in the profile, structure of the formula and endoparameres is not very clear but possibly somewhat complicated (see pictures in: Ruiz-Baliú & Otte, 1997; Otte & Perez-Gelabert, 2009).

Subfamily PHALORIINAE

Tribe PHALORIINI

Vescelia mulu sp. nov.

(Figs XXIII: 1; XXIV: 1–3; XXVII: 4)

Holotype. Male; **Malaysia**, Borneo I., Sarawak State, Mulu National Park (not far from borders with Brunei and Indonesia), 100–300 m, primary forest, on leaf of small tree at night, 24–27 March 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Paratype. Male and female, same data as for holotype (ZIN).

Description. Male (holotype). General appearance typical of this genus. Body rather small. Colouration greyish brown (rather

dark) with following marks: dorsum of head and face under median ocellus with a few small and slightly lighter spots; mouthparts and antennae light brown with greyish brown most part of antennal flagellum; pronotum with a pair of barely lighter spots on disc; tegmina brown with semitransparent membranes between *Sc* branches; exposed parts of hind wings somewhat darker; legs light greyish brown with dark distal half of femora as well as dark tibiae and tarsi (proximal half of fore and middle femora with somewhat darkened area in basal part; this half in hind femora with numerous greyish brown oblique stripes on dorsal surface; dark parts with a few almost whitish transverse bands: one band on femora, 2–3 bands on fore and middle tibiae, 4–5 bands on hind tibiae, and one band at base of basitarsus); venter of body greyish brown (but not dark); cerci slightly lighter. Rostrum of head between antennal cavities barely wider than scape; pronotum 1.8 times as wide as long, distinctly narrowing to head; dorsal field of tegmina moderately wide, with slightly shortened apical area and barely transverse mirror (Fig. XXIII: 1); lateral field of tegmina with 25–27 branches of *Sc* situated more or less transversally (vertically) and with moderately wide *R-M* area; hind wings significantly longer than tegmina; legs with distinct subproximal widening of fore tibiae having large oval inner tympanum and slightly smaller (but similar in shape) outer tympanum (both tympana open), with rather long spines of hind tibiae, and with longest (inner dorsal) apical spur of these tibiae reaching middle of third tarsal segment; anal plate simple, with narrowed but almost truncate distal part; genital plate distinctly larger, almost not narrowed to roundly angular apical part having deep median fold; genitalia as in Figs XXIV: 1–3.

Variations. Second male with somewhat lighter *R-M* area in tegmina.

Female. General appearance similar to that of male but with following differences: pronotum less strongly narrowing to head,

approximately 1.4 times as wide as long; tegmina typical of female of Phaloriinae, with 9–10 more or less oblique longitudinal veins in dorsal field and rather sparse crossveins between them, with 11–12 oblique branches of *Sc* and almost without crossveins between them, and with *Sc-R* area much wider than *R-M* area (in male, latter area much wider than *Sc-R* area) and with sparse crossveins. Genital plate weakly elongate, almost triangular but with rather deep and rounded posteromedian notch; ovipositor not long, with drilling apical part typical of *Vescelia* (Fig. XXVII: 4).

Length in mm. Body: male 9–10, female 8.5; body with wings: male 19–19.7, female 19.5; pronotum: male 1.9–2, female 2.2; tegmina: male 13–13.5, female 13; hind femora: male 8.7–9, female 9; ovipositor 4.

Comparison. The new species differs from *V. variegata* (Chopard, 1937) in the rachis of male genitalia lacking strong curvature (visible in the profile) near the base and in much longer ectoparameres; from *V. picta* (Chopard, 1931), in much longer male genitalia and ectoparameres as well as in the rachis having a rather deep posteromedian notch; from *V. pieli* (Chopard, 1939), in much wider both rachis and posteromedian epiphallic notch as well as a much narrower apical part of the posterolateral epiphallic lobes; from *V. moorei* Chopard, 1940, in much longer ectoparameres and narrower posterolateral epiphallic lobes; and from *V. infumata* Stål, 1877 known only from a female (Philippines), in distinctly spotted hind femora.

Etymology. This species is named after the Mulu National Park.

***Phaloria (Papuloria) latiuscula* sp. nov.**

(Figs XXIII: 2; XXIV: 4–6; XXV: 1; XXVII: 1)

Holotype. Male; **Malaysia**, Borneo I., Sarawak State, environs of Kuching City, Kubah National Park, Matang Mount, 200–500 m, primary forest, on leaf of bush at night, 10–17 March 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Paratype. Two males and female, same data as for holotype (ZIN).

Description. Male (holotype). Body medium-sized. Colouration yellowish with following marks: head dorsum with a few narrow longitudinal stripes and a pair of distinctly wider bands behind eyes brown; face of head with a pair of narrow brown vertical stripes running from rostral apex (and fused with medial stripes of head dorsum) to clypeus and with a pair of similar stripes under lateral parts of antennal cavities as well as with small brownish spot on upper part of mandibles; each gena with rather small brownish spot near subgena; antennae with small light brown marks on scape and numerous brownish spots on flagellum; pronotum with dark brown disc having a few light brown spots, with dark brown upper part of lateral lobes (lower edge of this part oblique, running from anterodorsal corner of this lobe to its posteroventral corner), and with brownish area in anteroventral corner of these lobes; tegmina semitransparent with yellowish tinge as well as with rather large light brown areas and brown marks on dorsal field (Fig. XXIII: 2); legs with rather small brown spots on distal half of fore and middle femora, brown and brownish ventral keels of these femora, numerous brown oblique stripes on hind femora (excepting distal part of these femora having three brownish transverse bands), and rather wide brown transverse bands on tibiae and tarsi; abdominal sternites with large light greyish brown area on median part. Scape almost 1.2 times as wide as rostrum between antennal cavities; pronotum 1.45 times as wide as long, clearly narrowing to head; tegmina rather wide, with strongly shortened apical area, strongly transverse mirror (Fig. XXIII: 2), 26–28 *Sc* branches similar to those of *V. mulu* in shape, and *R-M* area also similar to those of this species but with distinctly less numerous crossveins; hind wings shortened, reaching distal quarter of tegmina; structure of legs distinguished from that of *V. mulu* only by somewhat less widened fore tibiae having inner



Figs XXIII (1–8). *Vescelia* and *Phaloria*, dorsal field of male upper tegmen: 1, *V. mulu* sp. nov.; 2, *Ph. latiuscula* sp. nov.; 3, *Ph. paratristis* sp. nov.; 4, *Ph. tristis* sp. nov.; 5, *Ph. tariku* sp. nov.; 6, *Ph. waena* sp. nov.; 7, *Ph. manifesta* sp. nov.; 8, *Ph. neorava* sp. nov.

and outer tympana medium-sized and oval (but outer tympanum open, and inner one barely immersed), by rather short spines of hind tibiae, and by longest (inner dorsal) apical spur of these tibiae reaching base of second tarsal segment; abdomen more or less similar to that of *V. mulu* but with genital plate roundly truncate at apex and having less distinct posteromedian fold as well as with genitalia as in figures (Figs XXIV: 4–6; XXV: 1).

Variations. Sometimes upper tegmen with slightly lighter dorsal field and genitalia with somewhat less deep posteromedian notch of rachis.

Female. General appearance similar to that of male, but structure of pronotum and of tegmina more similar to that of female of *V. mulu* excepting a few differences: pronotum approximately 1.3 times as wide as long; tegmina and hind wings reaching abdominal apex (tegmen clearly shorter than



Figs XXIV (1–14). *Vescelia* and *Phaloria*, male: 1–3, *V. mulu* **sp. nov.**; 4–6, *Ph. latiuscula* **sp. nov.**; 7–10, *Ph. paratristis* **sp. nov.**; 11–14, *Ph. tristis* **sp. nov.** Genitalia from above (1, 4, 7, 11), from below (2, 5, 8, 12) and from side (3, 6, 9, 13); ectoparamere from below (10, 14).

in male); dorsal tegminal field with 6–7 longitudinal veins; lateral tegminal field with 12–13 branches of *Sc*. Genital plate almost as in *V. mulu* but slightly shorter (its length and width almost equal) and with slightly less deep posteromedian notch; ovipositor rather long, with apical part as in Fig. XXVII: 1.

Length in mm. Body: male 10.5–11, female 11; body with wings: male 14–14.7, female 11.5; pronotum: male 2.1–2.3, female 2.3; tegmina: male 10.5–11, female 8.3; hind femora: male 10.7–11.3, female 10.5; ovipositor 9.

Comparison. The new species is similar in the general appearance to *Ph. hobbyi* (Chopard, 1940) described also from Sarawak State (male genitalia of the latter species is unknown; Gorochov, 1999); *Ph. latiuscula* is distinguished from it by a distinctly wider mirror in the male tegmina.

Etymology. Name of this species is the Latin word “latiuscula” (widish).

***Phaloria (Papuloria) tristis* sp. nov.**
(Figs XXIII: 4; XXIV: 11–14; XXV: 2)

Holotype. Male; **Malaysia**, Borneo I., Sarawak State, Mulu National Park (not far from borders with Brunei and Indonesia), 100–300 m, primary forest, on leaf of small tree at night, 24–27 March 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

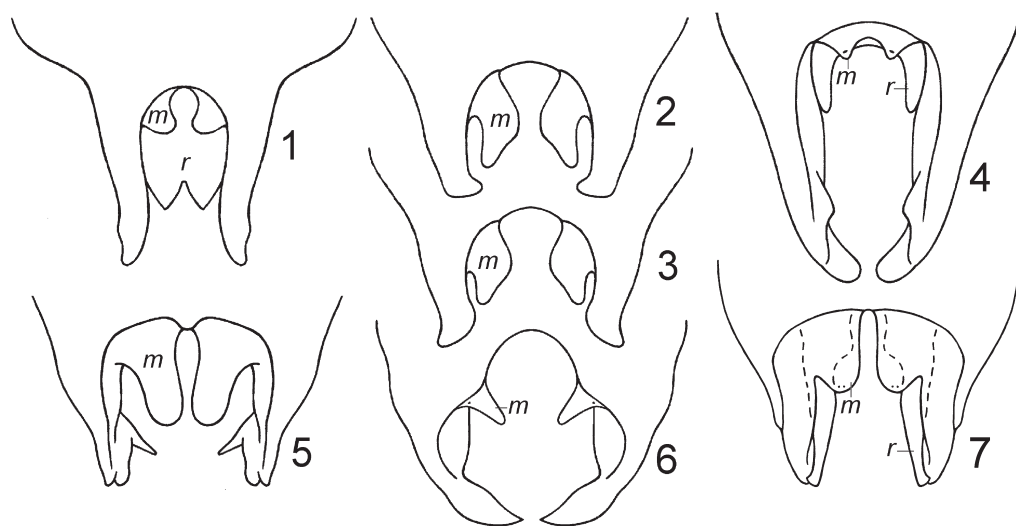
Paratypes. Three males and female, same data as for holotype (ZIN); male, same state but environs of Miri Town, Lambir Hills National Park, 100–300 m, primary forest, on leaf of bush at night, 29 March – 1 Apr. 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN); 3 males and 3 females, same country and island, Sabah State, Sandakan Division, environs of Sukau Vill. on Kinabatangan River (about 35 km from sea), almost sea level, partly secondary / partly primary forest, on leaves of bushes at night; 8–13 May 2013, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Description. Male (holotype). Body medium-sized. Colouration light brown with following pattern: head with slightly darker (intermediate between light brown and brown) dorsum having a few barely

darker longitudinal marks on dorsum and brown spot behind each eye, four very small brownish spots under antennal cavities, and numerous small and very slightly darkened spots on middle and distal parts of antennal flagellum; pronotum with colouration as in *Ph. latiuscula*, but disc almost uniformly brown and lateral lobes with slightly lighter brownish area in each anteroventral corner; tegmina with brown dorsal field and yellowish (semitransparent) membranes in lateral field; legs with pattern similar to that of *Ph. latiuscula*, but darkened marks smaller and less distinct (upper half of proximal two thirds of outer side of hind femora without darkenings); abdominal sternites also similar to those of *Ph. latiuscula* in colouration. Rostrum of head between antennal cavities approximately 1.2 times as wide as scape; pronotum almost 1.6 times as wide as long, distinctly narrowing to head; dorsal tegminal field similar to that of *Ph. latiuscula* but somewhat narrower and with less transverse mirror (Fig. XXIII: 4); lateral tegminal field and legs also similar to those of this species, but with 28–29 *Sc* branches, with both tympana open (not immersed), and with outer tympanum somewhat longitudinally narrowed (clearly narrower than oval inner one); abdomen similar to that of *Ph. latiuscula* but with genitalia having posteromedian epiphallic notch wider, transparent lobules located in this notch longer, rachis with truncate apex, medial arms of endoparameres longer, formula clearly developed (Figs XXIV: 11–13; XXV: 2), and ectoparameres as in Fig. XXIV: 14.

Variations. Sometimes dorsum of head lighter (light brown with brown marks), pronotal disc with light brown spots, and genitalia with rachis and formula slightly varied in width.

Female. General appearance as in male, but head dorsum as in lighter males, tegmina with brown dorsal field having light brown elongate spot near middle of lateral edge and with almost yellowish lateral field having semitransparent membranes in *Sc-R* area and between *Sc* branches, and structure



Figs XXV (1–7). *Phaloria*, male (schematically): 1, *Ph. latiuscula* sp. nov.; 2, *Ph. tristis* sp. nov.; 3, *Ph. paratristis* sp. nov.; 4, *Ph. tariku* sp. nov.; 5, *Ph. manifesta* sp. nov.; 6, *Ph. waena* sp. nov.; 7, *Ph. neorava* sp. nov. Epiphallus (proximal part not pictured) with posterior part of rachis (1, 4, 7) and without it (2, 3, 5, 6) from above. Abbreviations: *m*, membranous medial epiphallic lobules; *r*, rachis.

of tegmina and hind wings similar to that of *Ph. latiuscula*. Genital plate and ovipositor also similar to those of female of this species, but ovipositor distinctly shorter.

Length in mm. Body: male 10–11.5, female 8–10; body with wings: male 13.5–14, female 10.5–11.5; pronotum: male 2–2.2, female 2–2.3; tegmina: male 10–10.7, female 7.3–8; hind femora: male 10–10.5, female 9.5–11; ovipositor 6.6–7.

Comparison. The new species is most similar to *Ph. hobbyi* and *Ph. latiuscula* but distinguished from them by a somewhat wider mirror in the male tegmina (from *Ph. hobbyi*) and by narrower both dorsal tegminal field and its mirror as well as by the characters of male genitalia listed above (from *Ph. latiuscula*).

Etymology. Name of this species is the Latin word “tristis” (gloomy).

***Phaloria (Papuloria) paratristis* sp. nov.**
(Figs XXIII: 3; XXIV: 7–10; XXV: 3)

Holotype. Male; **Malaysia**, Borneo I., Sarawak State, environs of Miri Town, Lambir Hills

National Park, 100–300 m, primary forest, on leaf of bush at night, 29 March – 1 Apr. 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Paratypes. Two males and 2 females, same data as for holotype (ZIN); female, same state but Mulu National Park (not far from borders with Brunei and Indonesia), 100–300 m, primary forest, on leaf of small tree at night, 24–27 March 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN); 3 males, same state but environs of Kuching City, Kubah National Park, Matang Mount, 200–500 m, primary forest, among dry leaves on forest floor at night, 10–17 March 2012, A. Gorochov, M. Berezin, E. Tkatsheva, I. Kamskov (ZIN).

Description. Male (holotype). Structure of body and colouration very similar to those of *Ph. tristis*, but dorsum of head and pronotal disc uniformly dark brown, face under rostral apex very light brown but with a pair of anterolateral brownish dots on clypeus, lower part of pronotal lateral lobes yellowish, tegmina with somewhat smaller dorsal field and 26–27 *Sc* branches in lateral field (Fig. XXIII: 3), and genitalia with somewhat different shape of postero-

lateral epiphallal lobes (Figs XXIV: 7–9; XXV: 3) and with more massive distal half of ectoparameres undivided into two medial lobes by deep notch (Fig. XXIV: 10).

Variations. Head dorsum and pronotal disc sometimes barely lighter and with traces of lighter spots, respectively; shape of ectoparameres in genitalia insignificantly varied.

Female. General appearance similar to that of male and very similar to that of female of *Ph. tristis* but distinguished from latter female in head dorsum without distinct pattern and in pronotal disc uniformly brown or with slight traces of lighter spots.

Length in mm. Body: male 9–10.5, female 8.5–10; body with wings: male 12–13, female 10–10.5; pronotum: male 1.8–2, female 1.9–2.1; tegmina: male 9.5–10.5, female 6.8–7.2; hind femora: male 9–10, female 9–9.5; ovipositor 6.3–6.6.

Comparison. The new species is distinguished from *Ph. hobbyi* by practically uniformly brown both head dorsum and pronotal disc. From *Ph. tristis*, the new species differs in the characters listed above (in the description); and from *Ph. latiuscula*, in distinctly narrower both dorsal field of the male tegmen and its mirror, as well as in the same characters of male genitalia as *Ph. tristis*.

Etymology. Name of this species consists of the Greek prefix “para” (near) and species name *Ph. tristis*.

***Phaloria (Papuloria) tariku* sp. nov.**

(Figs XXIII: 5; XXV: 4; XXVI: 1–4; XXVII: 2)

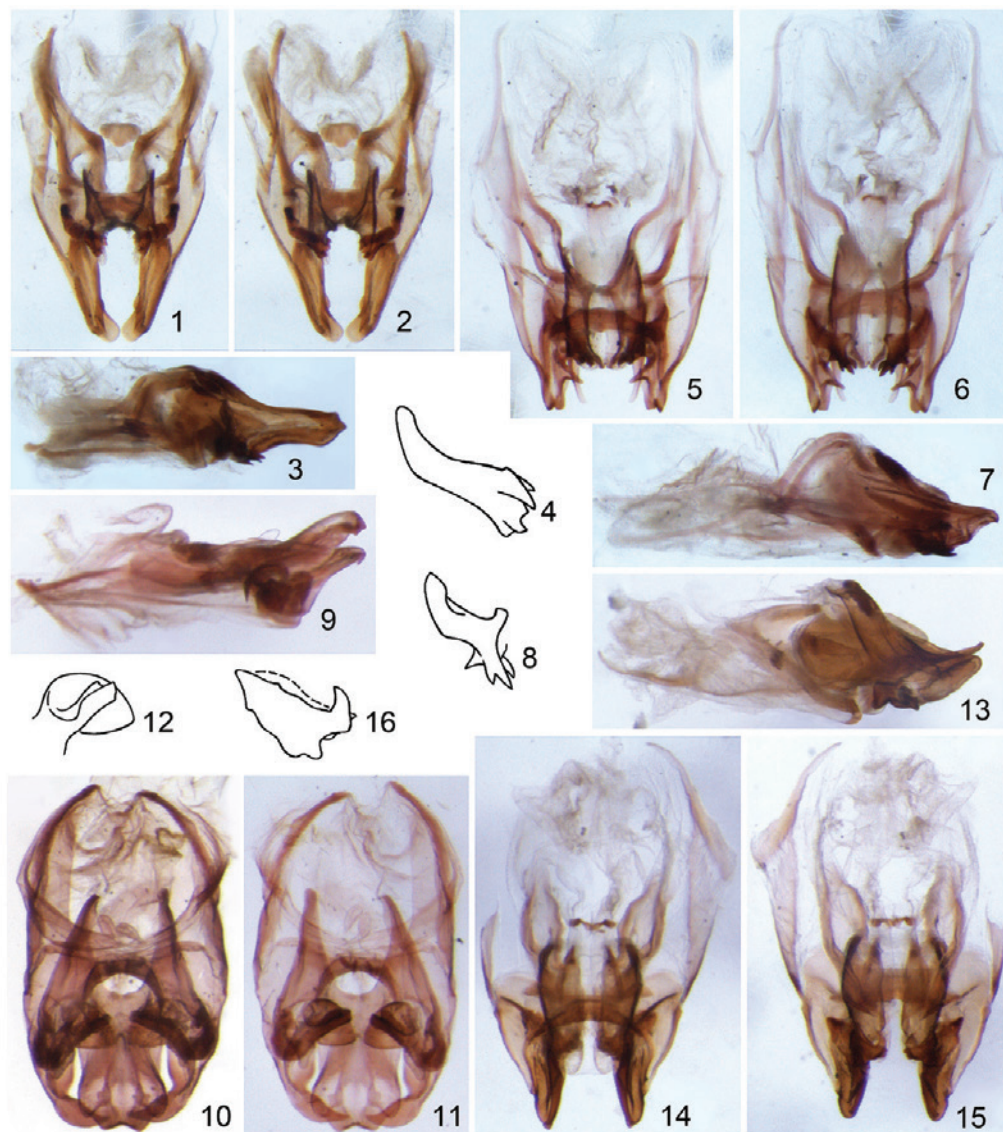
Holotype. Male; **Indonesia**, New Guinea I., Papua Prov., Fawi [Faowi] Vill. in upper part of Tariku River (tributary of Mamberamo River), lowlying secondary forest near river, on leaf of bush at night, 29 Jan. – 17 Feb. 2012, A. Gorochov (ZIN).

Paratypes. Male and four females, same data as for holotype (ZIN); male, same island and province but environs of Kasonaweja Vill. on Mamberamo River near Van Rees Range, secondary forest on not high hill, on leaf of small tree at night, 25–27 Jan. 2012, A. Gorochov (ZIN).

Description. Male (holotype). Body medium-sized. Colouration uniformly yellowish but with two basal segments of antennal flagellum light brown, 14–15 nearest segments of this flagellum dark brown, its rest part brown to light brown and having numerous small dark brown spots, pronotum having light brown narrow stripes along ventral edges as well as along anterior and posterior edges, tegmina with almost light brownish dorsal field, fore and middle femora with a few short brownish grey longitudinal lines on outer surface and along both ventral keels, hind femora with numerous oblique brownish grey lines on outer surface and a few irregular marks on inner surface as well as with a pair of brownish longitudinal lines between ventral keels, fore tibiae with greyish stripe along dorsal surface, middle tibiae with two brownish spots on distal half, hind tibiae with six barely darker (light brown) spots, all tarsi with two darkish spots. Scape almost 1.3 times as wide as rostrum between antennal cavities; pronotum approximately 1.4 times as wide as long, distinctly narrowing to head; structure of dorsal tegminal field as in figure (Fig. XXIII: 5); lateral tegminal field having 25–26 *Sc* branches and distinctly widened *R-M* area (crossveins absent between *Sc* branches and sparse in *R-M* area); hind wings slightly not reaching tegminal apex; inner and outer tympana not very large, open, oval and almost equal to each other in size; spines of hind tibiae not very long; longest (inner dorsal) apical spur reaching base of second tarsal segment; abdomen similar to that of *Ph. latiuscula* but with shallow angular notch at apex of genital plate and with characteristic genitalia (see Figs XXV: 4; XXVI: 1–4).

Variations. Sometimes antennal flagellum somewhat lighter, darkened marks on femora less distinct, and darkish stripe on fore tibiae divided into a few shorter parts.

Female. Geneal appearance as in male but stripes along edges of pronotum almost brown, pronotum less distinctly narrowing to head, dorsal tegminal field yellowish



Figs XXVI (1–16). *Phaloria*, male: 1–4, *Ph. tariku* sp. nov.; 5–8, *Ph. manifesta* sp. nov.; 9–12, *Ph. waena* sp. nov.; 13–16, *Ph. neorava* sp. nov. Genitalia from above (1, 5, 10, 14), from below (2, 6, 11, 15) and from side (3, 7, 9, 13); ectoparamere from below (4, 8, 12, 16).

and with 10–11 oblique longitudinal veins (crossveins between them very sparse), lateral tegminal field similar to that of previous representatives of Phaloriinae but with 15–16 *Sc* branches (wings slightly shorter than in male). Abdominal apex more or less similar to that of *Ph. latiuscula* but with distal part of ovipositor as in Fig. XXVII: 2.

Length in mm. Body: male 11.5–13, female 11–13; body with wings: male 15–16, female 14.5–16; pronotum: male 2.6–2.8, female 2.6–2.9; tegmina: male 12–12.5, female 11–12.5; hind femora: male 11.5–12, female 11–12.5; ovipositor 7.7–8.3.

Comparison. The new species is similar to *Ph. solomonica* Gorochov, 1996, *Ph. vul-*

gata Gorochov, 1996, *Ph. solita* Gorochov, 1996, *Ph. gilva* Gorochov, 1996, *Ph. aphana* Gorochov, 1999 and *Ph. verecunda* Gorochov, 2005 in the general appearance including colouration, but it is distinguished from all these species by the male genitalia with rather long and almost straight posterolateral epiphallal lobes and with small oblique ectoparameres situated near base of these lobes and having distomedial part with five distinct denticles (Fig. XXVI: 4). The differences from some other more or less similar species, known only from females or insufficiently described, are less clear; the new species may differ from them in a smaller body and/or longer ovipositor.

Etymology. The new species is named after the Tariku River.

***Phaloria (Papuloria) manifesta* sp. nov.**
(Figs XXIII: 7; XXV: 5; XXVI: 5–8)

Holotype. Male; **Indonesia**, New Guinea I., Papua Prov., Fawi [Faowi] Vill. in upper part of Tariku River (tributary of Mamberamo River), lowlying secondary forest near river, on leaf of bush at night, 29 Jan. – 17 Feb. 2012, A. Gorochov (ZIN).

Description. Male (holotype). Body rather large. Colouration almost uniformly light: head light brown with slightly darker dorsum and antennal flagellum as well as with a pair of brown stripes along medial edges of antennal cavities and greyish brown medial part of scape; pronotum with light brown lower half of lateral lobes and slightly darker all other parts; tegmina yellowish with greyish brown *Sc* branches and light brownish rest venation; legs light brown with yellowish coxae, a pair of longitudinal greyish brown lines on outer surface of hind femora, and a few barely darkened spots on hind tibiae; other body parts yellowish with light brown middle and distal parts of cerci. Scape 1.15 times as wide as rostrum between antennal cavities; pronotum approximately 1.3 times as wide as long, distinctly narrowing to head; dorsal field of tegmina with moderately long apical area

and slightly transverse mirror (Fig. XXIII: 7); lateral field of tegmina with 24–25 more or less vertical (transverse) branches of *Sc* and with clearly widened *R-M* area having several crossveins; hind wings reaching tegminal apex; outer and inner tympana not very large, almost equal to each other, and oval (outer tympanum open; inner one barely immersed); dorsal spines of hind tibiae not very long; longest (inner dorsal) apical spur of hind tibiae reaching base of second tarsal segment; abdomen as in *Ph. tariku*, but genitalia (Figs XXV: 5; XXVI: 5–7) with posterolateral lobes of epiphallus apically bilobate and having oblique medial spine, with rachis having a pair of long and thin posterolateral lobules, and with ectoparameres as in Fig. XXVI: 8.

Female unknown.

Length in mm. Body 15.5; body with wings: 20; pronotum 3.7; tegmina 15.5; hind femora 14.3.

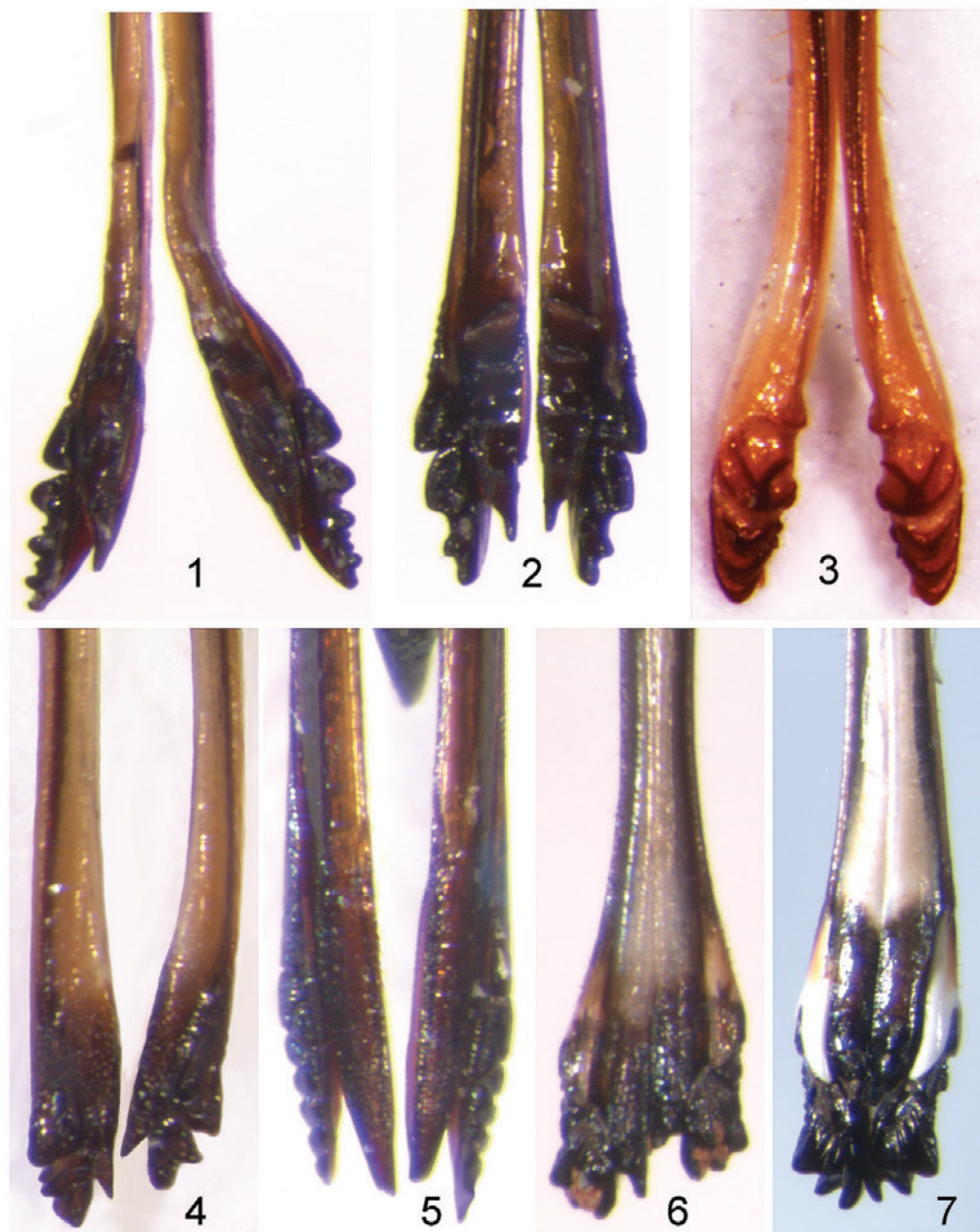
Comparison. The new species is more or less similar to *Ph. tariku* and to the congeners listed above (see comparison for *Ph. tariku*). However, the new species differs from them in the male genitalia having slightly bilobate posterolateral epiphallal lobes and a medial oblique spine on each of these lobes, in the rachis with long and thin posterolateral lobules, and a characteristic shape of the ectoparameres. From some other similar species, it may differ in a larger body and/or longer tegmina.

Etymology. Name of this species is the Latin word “manifesta” (obvious).

***Phaloria (Papuloria) waena* sp. nov.**
(Figs XXIII: 6; XXV: 6; XXVI: 9–12)

Holotype. Male; **Indonesia**, New Guinea I., Papua Prov., Waena Vill. not far from Jayapura City, 9–13 Aug. 2012, N. Kluge, L. Sheyko (ZIN).

Description. Male (holotype). Body medium-sized. Colouration yellowish with following marks: head with a few longitudinal stripes on dorsum, spot behind each eye, marks on rostral apex and on membranes



Figs XXVII (1–7). *Phaloria*, *Vescelia*, *Tremellia* and *Pseudotrignidium*, distal part of ovipositor from below: 1, *Ph. latiuscula* sp. nov.; 2, *Ph. tariku* sp. nov.; 3, *Ph. sulawesi* sp. nov. (in dry specimen, left and right distal parts of ovipositor slightly twisted: their lateral surfaces directed downwards but not aside); 4, *V. mulu* sp. nov.; 5, *T. timah orientalis* subsp. nov.; 6, *P. borneo* sp. nov.; 7, *P. gaponi* sp. nov.

of antennal cavities, stripes along dorsal edges of antennal cavities, vertical stripes under these cavities, and middle and distal parts of antennal flagellum greyish brown

(genae with small and lighter, greyish spot; clypeus with a pair of very small brownish marks); pronotum greyish brown with distinct yellowish spots on disc and on lateral

lobes as well as with light brown distal part of disc; tegmina with light greyish brown dorsal field having whitish area on basal part, with whitish *R-M* area having brown crossveins, and with semitransparent (light greyish) membranes between light brown *Sc* branches; exposed part of hind wings greyish brown; legs spotted. Scape approximately 1.2 times as wide as rostrum between antennal cavities; pronotum almost 1.9 times as wide as long, clearly narrowing to head; dorsal tegminal field rather narrow and with rather long apical area as well as with almost round mirror (Fig. XXIII: 6); lateral tegminal field with 20–21 almost vertical (transverse) *Sc* branches and with *R-M* area similar to that of *Ph. manifesta* but insignificantly narrower; hind wings strongly protruding behind tegminal apex; tympana also similar to those of *Ph. manifesta* but with slightly longer and moderately narrow inner tympanum; dorsal spines of hind tibiae long; longest (inner dorsal) apical spur of these tibiae reaching base of third tarsal segment; abdomen more or less similar to that of *Ph. tariku* and *Ph. manifesta*, but genital plate with truncately concave hind edge and genitalia with following peculiarities: posterolateral epiphallallic lobes lancet-like and medially curved; rachis large, with narrowed and slightly bilobate apical part reaching apex of above-mentioned lobes; and ectoparameres consisting of plate-like dorsal lobe and semitubular ventral lobe directed medially and partly forwards (Figs XXV: 6; XXVI: 9–12).

Female unknown.

Length in mm. Body 11.8; body with wings 22; pronotum 2.1; tegmina 14; hind femora 9.8.

Comparison. The new species differs from all the other similar congeners in medially curved and acute posterolateral epiphallallic lobes as well as in a characteristic shape of the rachis and in the ectoparameres divided into two lobes.

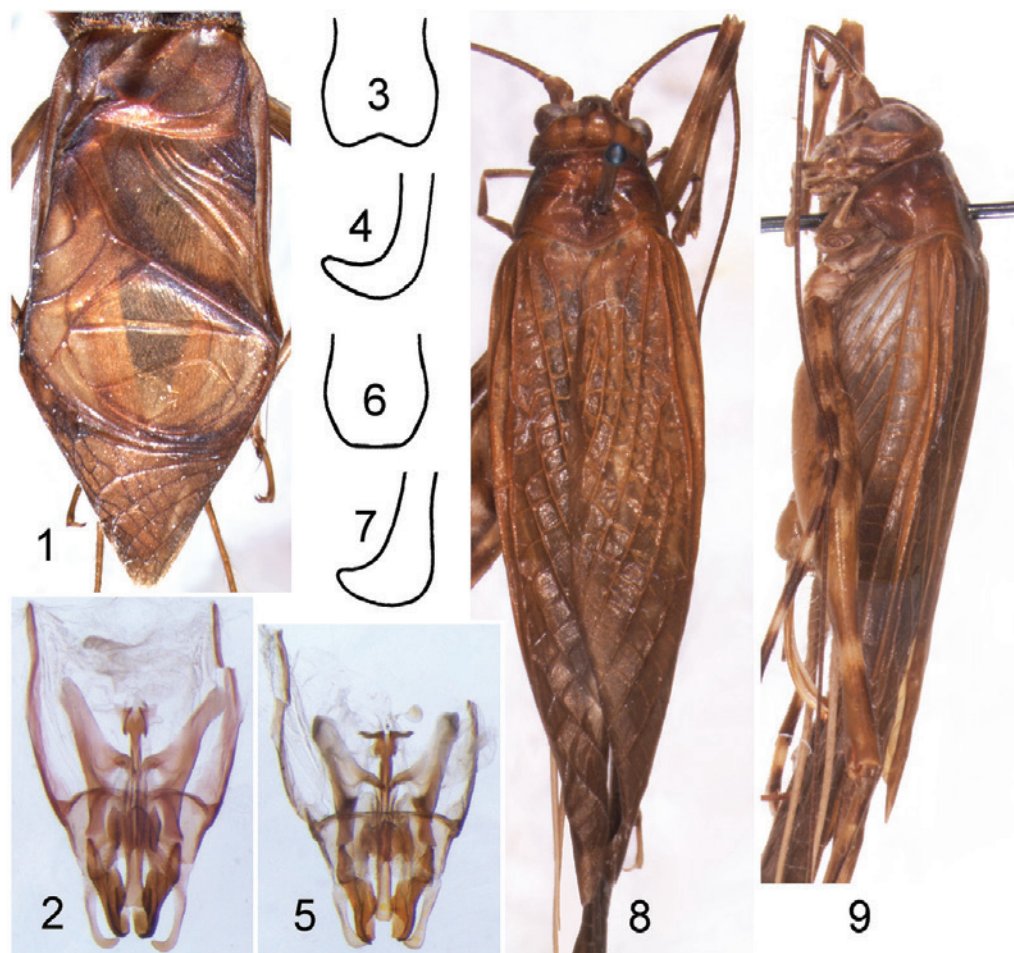
Etymology. This species is named after the Waena Village.

***Phaloria (Papuloria) neorava* sp. nov.**

(Figs XXIII: 8; XXV: 7; XXVI: 13–16)

Holotype. Male; **Indonesia**, New Guinea I., Papua Prov., Fawi [Faowi] Vill. in upper part of Tariku River (tributary of Mamberamo River), lowlying secondary forest near river, on leaf of small tree at night, 29 Jan. – 17 Feb. 2012, A. Gorochov (ZIN).

Description. Male (holotype). Body moderately large. Colouration light greyish brown with following marks: head with barely darker dorsum, a pair of brown dots on superolateral parts of clypeus, very light mouthparts (but apical part of mandibles and maxillary palpi darkened) and proximal part of antennae (other antennal parts missing); pronotum with light greyish brown lower half of lateral lobes and slightly darker (insignificantly darker than head dorsum) rest parts; tegmina with very light membranes between *Sc* branches; exposed part of hind wings similar to pronotal disc in colouration; fore and middle femora with several small darkish spots; hind femora with two larger darkish spots on distal half of inner surface only; hind tibiae slightly spotted; middle part of all tarsi darkened; venter of body (including genital plate and cerci) very light, yellowish. Scape approximately 1.6 times as wide as rostrum between antennal cavities; pronotum 1.15 times as wide as long, weakly narrowing to head; tegmina long, not wide, with almost round mirror, with long apical area (Fig. XXIII: 8), with 24–25 almost vertical (transverse) branches of *Sc*, and with *R-M* area similar to that of *Ph. manifesta*; inner tympana slightly immersed, oval, medium-sized; outer tympana open, almost round and approximately twice smaller (shorter) than inner ones; longest (inner dorsal) apical spur of hind tibiae reaching middle of second tarsal segment. Abdomen similar to that of *Ph. tariku* and *Ph. manifesta*, but genitalia with ectoparameres of characteristic shape (Fig. XXVI: 16) and with rachis having long and thin posterolateral lobules not protruding behind posterolateral epiphallallic lobes (Figs XXV: 7; XXVI: 13–15).



Figs XXVIII (1–9). *Tremellia* and *Phaloria*: 1–4, *T. timah orientalis* subsp. nov.; 5–7, *T. t. timah* Gor. et Tan; 8, 9, *Ph. sulawesi* sp. nov. Dorsal field of male upper tegmen (1); male genitalia from above (2, 5); distal part of rachis (3, 6) and of epiphallalic posterolateral lobes (4, 7) from below; female body from above (8) and from side (9).

Female unknown.

Length in mm. Body 15.8; body with wings 24.5; pronotum 3.5; tegmina 16; hind femora 14.

Comparison. The new species is similar to *Ph. rava* Gorochov, 1996, *Ph. pararava* Gorochov, 1999, *Ph. gilva* Gorochov, 1996 and *Ph. chopardi* (Willemse, 1950) in the rachis of male genitalia with long and thin posterolateral lobules. But it differs from them in these lobules not protruding behind the posterolateral epiphallalic lobes.

Phaloria neorava is additionally distinguished from *Ph. rava* and *Ph. pararava* by wider ectoparameres of somewhat different shape (Fig. XXVI: 16); from *Ph. gilva*, by shorter posterolateral lobules of the rachis and also another shape of the ectoparameres; and from *Ph. chopardi*, by the posterolateral epiphallalic lobes not curved medially.

Etymology. The new species name consists of the Greek prefix meaning “new” and species *Ph. rava*.

Phaloria (Papuloria) heterotrypoides

Gorochov, 1999

= *Phaloria galoa* Otte et Cowper, 2007, **syn. nov.**

Note. The species was described from Fiji (Vity Levu I.) as a member of the nominotypical subgenus (Gorochov, 1999). Later this species was repeatedly described as *Ph. galoa* from the same island: judging by its description and photographs (Otte & Cowper, 2007), *Ph. galoa* is a junior synonym of *Ph. heterotrypoides*. Male genitalia of *Ph. heterotrypoides* have distinct elongate medial membranous lobules on the posterior epiphallic edge (presence of a pair of membranous lobules or one membranous lobe in the posterior epiphallic notch is a distinct diagnostic character of the subgenus *Papuloria* Gorochov, 1996); thus, this species must be transferred from the subgenus *Phaloria* to *Papuloria*.

Phaloria (Papuloria) insularis

(Bolivar, 1912)

Note. This species, consisting of two subspecies [*Ph. i. insularis* from Seychelles; *Ph. i. karnyi* (Chopard, 1929) from Java and Sumatra], was previously placed by me in the nominotypical subgenus (Gorochov, 1996). However, its epiphallus has a pair of membranous lobules in the posterior notch (a diagnostic character for the subgenus *Papuloria*; see above); thus, *Ph. insularis* must be also transferred from the subgenus *Phaloria* to *Papuloria*.

***Phaloria sulawesi* sp. nov.**

(Figs XXVII: 3; XXVIII: 8, 9)

Holotype. Female: **Indonesia**, Sulawesi I., Sulawesi Utara Prov., about 40 km NE of Manado City, Tangkoko National Park on eastern coast of Minahassa Peninsula, environs of Tangkoko Lodge, partly primary / partly secondary forest, on leaf of bush near brook at night, 3–6 Feb. 2011, A. Gorochov (ZIN).

Description. Female (holotype). General appearance typical of genus *Phaloria*. Body medium-sized. Colouration light brown with

following pattern: epicranium with slightly darker most part of genae and a pair of spots under eyes, with distinctly darker (brown) rostrum and four longitudinal lines on dorsum, and with almost yellowish lower part of face; mouthparts also yellowish but with whitish labrum; antennae with light brown proximal part and brown middle part (distal part missing); pronotum brown with slightly lighter posterior part and a pair of spots on disc before this part; tegmina with semi-transparent membranes in lateral field (Figs XXVIII: 8, 9); exposed parts of hind wings slightly darker than tegmina (almost greyish brown); legs with brown, light brown and yellowish spots (but on femora, these spots not very contrast); cerci and ovipositor almost yellowish but with reddish brown marks in drilling part of ovipositor (Fig. XXVII: 3). Rostrum of head between antennal cavities almost equal to scape in width; pronotum 1.35 times as wide as long, moderately narrowing to head; tegmina (Figs XXVIII: 8, 9) long, distinctly protruding behind abdominal apex, with 11–12 weakly oblique longitudinal veins in dorsal field and rather numerous crossveins between them, and with 14–15 oblique branches of *Sc* and rather numerous crossveins in *Sc-R* area (this area much wider than *R-M* area); hind wings significantly protruding behind tegminal apex; fore tibiae with clearly widened part near their base, with large, oval and moderately immersed inner tympana, and with distinctly smaller, oval and open outer tympana (inner tympanum approximately 1.7 times as long as outer one); hind tibiae with not very long dorsal spines and longest (inner dorsal) apical spur reaching apex of second tarsal segment; genital plate approximately as long as wide, weakly narrowing backwards, and with rather large (but not very deep) apical notch and short rounded lobes around it; ovipositor short, with apical (drilling) part as in Fig. XXVII: 3.

Male unknown.

Length in mm. Body 12.5; body with wings 24.5; pronotum 2.8; tegmina 17.2; hind femora 12.7; ovipositor 4.5.

Comparison. The new species is most similar to *Ph. doloduo* Gorochov, 2011 (Sulawesi) in the structure of inner tympana but distinguished from it by a smaller and lighter body with more uniformly coloured tegmina as well as with less contrast spots on the legs and with a somewhat shorter ovipositor. From *Ph. lindu* Gorochov, 2011 (also from Sulawesi), the new species differs in the same characters as *Ph. doloduo* (except for the ovipositor structure, as female of the latter species is unknown), in more uniformly coloured genae and lateral pronotal lobes, and in the hind wings more protruding behind the tegminal apex. Sub-generic position of *Ph. sulawesi* is unclear.

Etymology. The new species is named after the Sulawesi Island.

***Tremellia timah orientalis* subsp. nov.**

(Figs XXVII: 5; XXVIII: 1–4)

Holotype. Male; **Malaysia**, Borneo I., Sabah State, Sandakan Division, environs of Sukau Vill. on Kinabatangan River (about 35 km from sea), almost sea level, partly secondary / partly primary forest, on leaves of bushes at night; 8–13 May 2013, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Description. Male (holotype). Size, colouration and structure of body very similar to those of less spotted males of nominotypical subspecies (see Gorochov & Tan, 2012), but head and pronotum with slightly darker upper half (dorsum of head greyish brown, most part of pronotal disc and upper part of lateral lobes almost dark greyish brown), tegmina with somewhat more arcuate stridulatory vein and narrower area between proximal parts of 1A and 2A (Fig. XXVIII: 1), genital plate with slightly concave apical edge, and genitalia with thinner (narrower) subapical part of long posterolateral epiphallic lobes and with slightly notched apex of rachis (in *T. t. timah*, this epiphallic part clearly widened, and rachis with truncate apex; for comparison see Figs XXVIII: 2–4 and 5–7).

Variations. One male with genital plate having barely convex apical edge (practically as in nominotypical subspecies).

Female. General appearance as in male, but dorsal tegminal field and genital plate as in female of nominotypical subspecies (Gorochov & Tan, 2012), lateral tegminal field with 14–16 *Sc* branches (*vs.* 11 in *T. t. timah*), and apical part of ovipositor as in Fig. XXVII: 5.

Length in mm. Body: male 11–13.5, female 11–13; body with wings: male 16–18.5, female 17–18.5; pronotum: male 2.4–3.1, female 2.8–3.2; tegmina: male 11–13.5, female 11–13; hind femora: male 11–13, female 13–13.5; ovipositor 5.6–6.

Comparison. Differences of the new subspecies from nominotypical one are given above, in the description.

Etymology. The subspecies name is the Latin word “orientalis” (eastern).

***Pseudotrigonidium borneo* sp. nov.**

(Figs XXVII: 6; XXIX: 1, 2)

Holotype. Female; **Malaysia**, Borneo I., Sabah State, Sandakan Division, environs of Sukau Vill. on Kinabatangan River (about 35 km from sea), almost sea level, partly secondary / partly primary forest, on leaves of bushes at night; 8–13 May 2013, A. Gorochov, M. Berezin, E. Tkatsheva (ZIN).

Description. Female (holotype). Body small and thin, with long and thin legs. Colouration variegate: head yellowish with greyish brown both large area on dorsum and short longitudinal band behind each eye, X-shaped dark brown spot on face, a pair of brownish oblique stripes under eyes, a pair of darkish dots near superolateral corners of clypeus, small darkened marks on scape, light brown proximal part of antennal flagellum, and brown rest of flagellum (but with rather numerous small lightish spots); pronotum greyish brown with several light spots on disc (Fig. XXIX: 1) and two yellowish longitudinal stripes on lateral lobes (Fig. XXIX: 2); tegmina light greyish brown with brown to dark brown (almost black) venation; exposed part of hind wings greyish brown; legs rather contrastingly spotted but with almost uniformly light greyish brown hind tibiae (having darkened apical part); venter of thorax and abdominal



Figs XXIX (1–4). *Pseudotriginidium*, female: 1, 2, *P. borneo* sp. nov.; 3, 4, *P. gaponi* sp. nov. Body from above (1, 3) and from side (2, 4).

sternites light greyish brown; genital plate lighter; and cerci also light greyish brown with greyish brown dorsal and lateral surfaces of proximal part. Head rather low (somewhat dorsoventrally compressed) and with shallow dorsal concavity in region of rostral base; scape approximately 1.7 times as wide as rostrum between antennal cavities. Pronotum almost 1.4 times as wide as long, with more or less parallel lateral sides and low lateral lobes (Figs XXIX: 1, 2). Tegmina weakly protruding behind abdominal apex, with 8–9 longitudinal veins in dorsal field (these veins slightly oblique and somewhat irregular, curved), with 13–14 oblique branches of *Sc*, with *R-M* area much narrower than *Sc-R* area, and with not numerous crossveins in *Sc-R* area and in dorsal field (Figs XXIX: 1, 2); hind wings slightly protruding behind tegminal apex. Fore tibiae slightly widened near base, having rather long (almost oval) and slightly immersed inner tympanum only; hind tibiae with four pairs of rather short dorsal spines and longest (inner dorsal) apical spur reaching middle part of hind basitarsus. Genital plate transverse, with rounded hind part having small shallow posteromedian notch; ovipositor with apex as in Fig. XXVII: 6.

Male unknown.

Length in mm. Body 9.5; body with wings 11.2; pronotum 1.9; tegmina 8; hind femora 11.6; ovipositor 5.7.

Comparison. The new species is most similar to *P. javanicum* (Chopard, 1954) in the colouration and shape of lateral pronotal lobes, but it is distinguished from the latter species by a lower head and a characteristic pattern on the face of head (with a dark X-shaped spot and a pair of the darkened oblique stripes under eyes, and without any dark stripe along clypeal suture). From all the other congeners, *P. borneo* differs in the presence of two light longitudinal stripes on the pronotal lobes and in the above-mentioned pattern of face. Subgeneric position of the new species is unclear.

Etymology. This species is named after the Borneo Island.

***Pseudotrigonidium gaponi* sp. nov.**

(Figs XXVII: 7; XXIX: 3, 4)

Holotype. Female; **Indonesia**, Sulawesi I., Sulawesi Tenggara Prov. (Southeast Sulawesi), environs of Kendari City, 9–12 Nov. 2011, D. Gapon (ZIN).

Description. Female (holotype). General appearance somewhat similar to that of *P. borneo*, but body clearly larger, lighter and with different pattern. Head whitish with a pair of greyish brown spots on dorsum, a few oblique greyish stripes on gena and behind eye, almost X-shaped greyish brown median spot on face, a pair of greyish curved lines around it, sparse darkish marks along subgenae and between antennal cavities as well as on clypeus and maxillary palpi, and light brown antennal flagellum having numerous lightish dots in middle part (distal part missing); pronotum with brown disc having a few light brown and yellowish spots as well as with whitish lateral lobes having greyish brown both upper half (with small light brown to yellowish anterior and posterior areas) and longitudinal stripe in lower half (this stripe posteriorly fused with previous darkened half); tegmina whitish with greyish medial two thirds of dorsal field and distal part of lateral field, with greyish brown venation and a few spots in dorsal field, with two blackish areas in lateral field and almost transparent membranes between distal halves of proximal *Sc* branches, and with whitish and greyish brown as well as blackish venation in lateral field (Figs XXIX: 3, 4); exposed parts of hind wings greyish brown; legs contrastingly spotted, but hind tibiae with light and weakly spotted proximal and middle parts and with brown distal part; rest of body yellowish to whitish with greyish most part of sternites (genital plate lighter) and partly darkened ovipositor (Fig. XXVII: 7). Scape approximately 1.2 times as wide as rostrum between antennal cavities; pronotum almost 1.3 times as wide as long; tegmina with 9–10 not very regular longitudinal veins in dorsal field as well as with irregular and not very numerous crossveins between them,

with 15–16 *Sc* branches and rather numerous crossveins in *Sc-R* area (Figs XXIX: 3, 4); hind wings barely protruding behind tegminal apex; inner tympanum distinguished from that of *P. borneo* by narrower distal part (outer tympanum absent); hind tibiae with spines and spurs also similar to those of *P. borneo*; genital plate with widely truncate apex; ovipositor with apex as in Fig. XXVII: 7.

Male unknown.

Length in mm. Body 13; body with wings 15.8; pronotum 2.7; tegmina 11.7; hind femora 14.5; ovipositor 6.5.

Comparison. The new species is similar to *P. javanicum* and *P. borneo* in the colouration and shape of lateral pronotal lobes. It differs from *P. javanicum* in a more spotted dorsum of the head, lighter pronotal disc, and all the ocelli obliterated (in *P. javanicum*, the median ocellus is developed); from *P. borneo*, in a larger and lighter body as well as almost truncate apex of the genital plate; and from all the other congeners, in the presence of two light longitudinal stripes on the pronotal lobes and in the above-mentioned pattern of face. Subgeneric position of this new species is also unclear.

Etymology. The new species is named in honor of its collector.

ACKNOWLEDGEMENTS

The author is thankful to the collectors of these insects as well as to Dr. J. Beccaloni and Mrs. J. Marshall (NHM) for supplying the additional material. The study is supported by the Presidium of the Russian Academy of Sciences (Program “Biosphere Origin and Evolution of Geo-biological Systems”).

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Received April 4, 2014 / Accepted May 15, 2014