



УДК 595.729

NEW TAXA OF THE SUBFAMILY MECONEMATINAE (ORTHOPTERA: TETTIGONIIDAE) FROM AFRICA AND ADJACENT ISLANDS

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ABSTRACT

History of the taxonomic study of Afrotropical and Madagascan Meconematinae is briefly discussed. The subtribe Acilacridina subtrib. nov. is established for a few African genera of Meconematini. Twenty six smaller new taxa of Meconematini [*Kamerula korupi* gen. et sp. nov., *K. kameruni* sp. nov., *Parakamerula irisovi* gen. et sp. nov., *Brachyamytta rapidoaestima speculifera* subsp. nov., *Naskreckia* gen. nov., *Xiphidiola* (*Deinodiola*) *adunca* subgen. et sp. nov., *X. (D.) lobulata* sp. nov., *X. (D.) dja* sp. nov., *X. (D.) quadrimaculata* subsp. nov., *X. (Hemidiola) emarginata* subgen. et sp. nov., *X. (H.) minuta* sp. nov., *Paracilacris* (*Neacilacris*) *latiexcisa* subgen. et sp. nov., *Anaroegas* subgen. nov.] and Phisidini [*Afrophisis* (*Jinkevania*) *parva* subgen. et sp. nov., *Mirabiphisis* subgen. nov., *Longiphisis gracilis* gen. et sp. nov., *L. media* sp. nov., *Breviphisis robusta* gen. et sp. nov.] are described from Cameroon, South Africa and Madagascar. *Amyttosa mutillata bubiana* (Bolivar, 1906), stat. nov. and *Xiphidiola aliquantula nigrospinosa* Bolivar, 1906, stat. nov. are restored from synonymy to *A. mutillata* (Karsch, 1890) and *X. aliquantula* (Karsch, 1893) as subspecies of these species; one former genus is considered as the subgenus *Paradecolya* Jin, 1992, stat. nov. within the genus *Brachyphisis* Chopard, 1957; several morphological, taxonomical and geographical remarks on *A. mutillata* and some other taxa are given.

Key words: Africa, Madagascar, Meconematinae, Meconematini, new taxa, Orthoptera, Phisidini

НОВЫЕ ТАКСОНЫ ПОДСЕМЕЙСТВА МЕСОНЕМАТИНАЕ (ОРТХОПТЕРА: ТЕТТИГОНИИДАЕ) ИЗ АФРИКИ И СОСЕДНИХ ОСТРОВОВ

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РЕЗЮМЕ

Кратко рассмотрена история таксономического изучения афротропических и мадагаскарских Месонематинае. Для нескольких африканских родов Месонематини установлена подтриба Ацилакридина subtrib. nov. Из Камеруна, Южной Африки и Мадагаскара описаны двадцать шесть более мелких новых таксонов Месонематини [*Kamerula korupi* gen. et sp. nov., *K. kameruni* sp. nov., *Parakamerula irisovi* gen. et sp. nov., *Brachyamytta rapidoaestima speculifera* subsp. nov., *Naskreckia* gen. nov., *Xiphidiola* (*Deinodiola*) *adunca* subgen. et sp. nov., *X. (D.) lobulata* sp. nov., *X. (D.) dja* sp. nov., *X. (D.) quadrimaculata* subsp. nov., *X. (Hemidiola) emarginata* subgen. et sp. nov., *X. (H.) minuta* sp. nov., *Paracilacris* (*Neacilacris*) *latiexcisa* subgen. et sp. nov., *Anaroegas* subgen. nov.] и Phisidini [*Afrophisis* (*Jinkevania*) *parva* subgen. et sp. nov., *Mirabiphisis* subgen. nov., *Longiphisis gracilis* gen. et sp. nov., *L. media* sp. nov., *Breviphisis robusta* gen. et sp. nov.]. *Amyttosa mutillata bubiana* (Bolivar, 1906), stat. nov. и *Xiphidiola aliquantula nigrospinosa* Bolivar, 1906, stat. nov. восстановлены из синонимии к *A. mutillata* (Karsch, 1890) и *X. aliquantula* (Karsch, 1893) как подвиды этих видов; один бывший род понижен в ранге до подрода *Paradecolya* Jin, 1992, stat. nov. в составе рода *Brachyphisis* Chopard, 1957; приведен ряд морфологических, таксономических и географических сведений по *A. mutillata* и некоторым другим таксонам.

Ключевые слова: Африка, Мадагаскар, Месонематинае, Месонематини, новые таксоны, Orthoptera, Phisidini.

INTRODUCTION

Description of the Afrotropical fauna of Meconematini and Phisidini was started by Karsch (1888, 1890, 1893, 1896) and Bolivar (1890, 1906). Later, it was continued by Griffini (1908), Karny (1911, 1920), Sjöstedt (1912), Rehn (1914), Péringuey (1916), Chopard (1945, 1954, 1955, 1958), and Beier (1965, 1967). The latter author described most part of Meconematini fauna of Africa and elaborated its generic system (Beier 1965, 1966). During long time after him, only few descriptions of new taxa from this tribe and from Phlugidini and Phisidini have been published: Jin and Kevan (1991, 1992), Kevan and Jin (1993), and Gorochov (1993, 1994). Recently, this work was intensified by Naskrecki (1996, 2008), Naskrecki et al. (2008), and Hemp (2001, 2002, 2013a, b); these authors published descriptions of several species and genera of Meconematini, Phlugidini and Phisidini. However, some of these papers contain or probably contain important morphological mistakes in the terminology of structures of male copulatory apparatus; they are in descriptions attributed by Naskrecki and his coauthors to the genera *Amyttosa* Beier, 1965, *Proamytta* Beier, 1965 and *Amyttacta* Beier, 1965 (for details see the notes on *Amyttosa* and *Proamytta* species as well as the diagnosis of *Naskreckia* gen. nov. below).

In Madagascar and adjacent islands of Indian Ocean, Meconematinae is presented almost exclusively by the tribe Phisidini (Butler 1876; Karny 1907; Bolivar 1912; Chopard 1957; Jin and Kevan 1992; Gorochov 1995; Hugel 2010, 2012). It is interesting because in America, this subfamily is presented by Phisidini and Phlugidini (the tribe Meconematini is here unknown except for the rare cases of introduction). The Phisidini is distinctly separated from the other tribes of Meconematinae, and probably this taxon is an earliest branch of Meconematinae and may be considered as a tribe of Meconematinae as well as a separate subfamily most related to Meconematinae. Moreover, this tribe includes two different groups of genera possibly not related to each other but similar in the general appearance. These groups are here mentioned as the subtribes Phisidina and Arachnoscelidina; however, inclusion of some Madagascan genera (for example *Poecilomerus* Karny, 1907) in the latter subtribe is provisional, and belonging of this tribe to Phisidini is very questionable because I cannot exclude that Arachnoscelidina

may be more related to Hexacentrinae than to Meconematinae (Gorochov 2007, 2013; for details see the notes on Arachnoscelidina below). The “subtribe Beiericolyna”, established by Jin and Kevan (1992) for the genera lacking any spine on the fore coxa, seems to me closely related to Phisidina and possibly not monophyletic (see the notes for Phisidina representatives below); thus, Beiericolyna is not used here because it may be only one of generic groups of Phisidina or a synonym of the latter taxon.

MATERIAL AND METHODS

Majority of the specimens studied were collected in the tropical rainforests mainly by the Russian entomologists. Some of these specimens were collected at light, but others, on leaves of trees and bushes during the night work with a flash-lamp. This material (including types) is deposited at the following institutions: Zoological Institute of the Russian Academy of Sciences, Saint Petersburg (ZIN); Natal Museum, Pietermaritzburg, South Africa (NMU). The specimens are dry and pinned. The photographs of their morphological structures were made with a Leica M216 stereomicroscope. The internet-catalogue “Orthoptera Species File” (Eades et al. 2016) is here mentioned as OSF.

SYSTEMATICS

Tribe Meconematini Burmeister, 1838

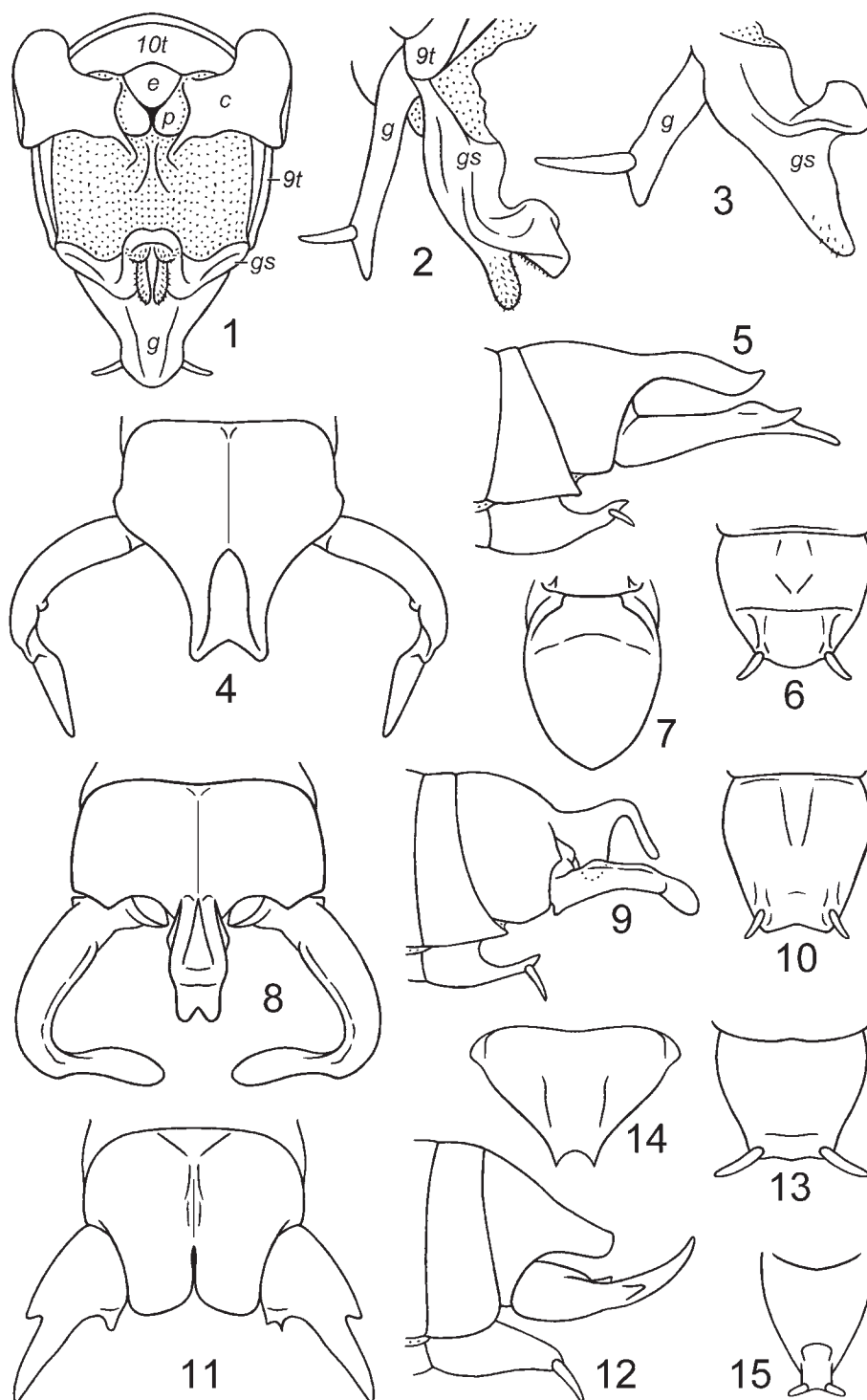
Subtribe Meconematina Burmeister, 1838

Genus *Amyttosa* Beier, 1965

Amyttosa mutillata (Karsch, 1890) (Figs 1–3)

Material studied. CAMEROON: 2 males, Southwest Region not far from Nigeria, Korup National Park, ~300 m, primary forest, on leaf of bush at night, 1–8 February 2016, A. Gorochov (ZIN).

Notes. This species, described from Cameroon, belongs to the genus with a characteristic shape of the ovipositor: this ovipositor is very short but comparatively wide and high, i.e. not adapted to oviposition into the soil or the plant tissue. The male abdominal apex possesses a large genital sclerite having lateral articulations with the posteroventral corners of the last tergites and located between the membrane un-



Figs 1–15. Meconematini: 1, 2 – *Amyttosa mutillata mutillata* (Karsch); 3 – *A. m. bubiana* (Bol.); 4–7 – *Kamerula korupi* sp. nov.; 8–10 – *K. kameruni* sp. nov.; 11–14 – *Parakamerula irisovi* sp. nov.; 15 – *Brachyamytta rapidoaestima speculifera* subsp. nov. Male abdominal apex from behind (1), from above (4, 8, 11) and from side (5, 9, 12); genital plate and sclerite of genitalia in male from side (2, 3); male genital plate from below (6, 10, 13, 15); female genital plate from below (7, 14). Membranous areas dotted; 9t, 10t – 9th and 10th abdominal tergites, c – cercus, e – epiproct, g – genital plate, gs – genital sclerite, p – paraproct. [3, after photograph in OSF].

der paraprocts and the dorsal fold of genitalia (near this fold; Figs 1, 2). Thus, this sclerite does not have any relation to the paraprocts contrary to the opinion by Naskrecki (2008) considering this unpaired sclerite as a specialized part of the paraprocts; it is clearly visible that male paraprocts in *A. mutillata* are small and simple (rounded) in shape, and they distinctly separated from the above-mentioned sclerite by a rather large membranous area (Fig. 1). Unfortunately, Naskrecki (2008: figs 1, I–K) did not spread male cerci of this species (judging by his pictures) and was unable to see this membranous area; it is a reason that I highly recommend to always spread aside the male cerci in Tettigoniidae for the taxonomical study. Further, I mention this sclerite as one of the genital sclerites, because it is located very near the phallus and is analogous to so named “subanal plate” in male of *Alloteratura* Hebard, 1923 (Meconematini), or to “epiphallus” or unpaired “titillator” in male of some other katydids (Phisidini and others), or even to “sclerotized plate” or “epiphallus” in male of Raphidophoridae from the subfamilies Aemodogryllinae, Dolichopodinae and Troglophilinae (articulation of epiphallus with posteroventral corners of 9th and 10th abdominal tergites is also developed in Myrmecophilidae: Myrmecophilinae and Bothriophylacinae); but the formation of the unpaired sclerite from paraprocts is unknown in Ensifera (paraproctal specializations may be developed on each paraproct only separately).

It is necessary to add that synonymy of *Xiphidopsis bubianus* Bolivar, 1906 with *A. mutillata* (Beier 1966; OSF) is questionable; the first name evidently belongs to a separate subspecies as a minimum, because the male genitalia of Bolivar’s taxon are not identical to those of *A. mutillata* (judging by the photographs of Bolivar’s holotype in OSF; for comparison see Figs 2 and 3). Therefore, *A. m. bubiana* stat. nov. is here restored as a separate subspecies from Bioko I. (Equatorial Guinea), but the second synonym of *A. mutillata* (*Amytta angulata* Chopard, 1945 described also from Cameroon) is probably correct. Moreover, photographs of the paralectotype of *X. mitrata* Bolivar, 1906 [species synonymized with *Gonamytta occidentalis* (Krauss, 1890) in the same Beier’s publication], considered by the authors of OSF as pertaining to *A. mutillata*, show that this paralectotype belongs to another genus, as its ovipositor is much longer than in all the species of *Amyttosa* Beier, 1965; another photograph in OSF, illustrating

the abdominal apex from above, is wrongly marked as *A. mutillata* holotype, because this photograph belongs to a male (but *A. mutillata* holotype is female).

Genus *Kamerula* gen. nov.

Type species: *Kamerula korupi* sp. nov.

Etymology. This name consists of parts of the words “Kamerun” (=Cameroon) and “*Cecidophagula*” (generic name).

Diagnosis. Body rather small for this tribe, light green with whitish tinge and rather small darkened marks: antenna with darkish to rather dark numerous spots on flagellum; pronotal disc with darkish stripe or small spots along edges of hind lobe; fore leg with more or less darkened areas on distal part of femur and on proximal part of tibia; all tarsi with third segment darkened (Figs 16–19). General shape of body somewhat similar to that of Indo-Malayan genus *Cecidophagula* Uvarov, 1939, but body structure with following characteristic features: head hypognathous, high, with small and almost conical rostral tubercle, with small and narrow vertical convexity under this tubercle (between antennal cavities), with clearly convex anterior and dorsal surfaces of epicranium under and behind this tubercle; scape approximately three times as wide as minimal space between antennal cavities. Pronotum (Figs 16, 17, 19) moderately long and low, almost without humeral notches but with rather long hind lobe; this lobe almost completely covering tegminal stridulatory apparatus of male (in rest position); anterior edge of disc almost straight, but posterior one round. Tegmina moderately narrow, distinctly shortened, with normal stridulatory apparatus in male and weakly or moderately reduced areas behind this apparatus, and with longitudinal venation of these areas almost parallel (Figs 16, 17, 19); hind wings shorter than tegmina. Legs rather long and thin, but hind femur with normally thickened proximal half (i.e. femur adapted to jump); fore coxa without spine; inner and outer tympana completely opened, oval and rather large; all femora without spines or spurs, but hind femur with a pair of small and almost angular apical lobules; fore and middle tibiae with not numerous, moderately long and articulated ventral spines (including a pair of short apical spurs); hind tibia with numerous short and unarticulated spines on dorsal surface, as well as with a few articulated ventral spines (similar to those of fore and middle tibiae). Last abdominal

tergite of male large (rather wide and long) and with rather long and narrow posteromedian lobe directed more or less backwards (Figs 4, 5, 8, 9); epiproct and paraprocts in both sexes small and roundly lobe-like; cercus of male curved inside, not very long but rather thin and with flattened distal part (Figs 4, 5, 8, 9); male genital plate rather small, with thin and elongate styles as well as with rather wide and short lobe between them (Figs 6, 10). Male genitalia membranous but with one or a few small semimembranous areas having microscopical spinules and/or hairs, and with one or two pairs of additional semisclerotized ribbons at base (Figs 24–29); dorsal membranous fold of these genitalia (= plica dorsalis) compact in rest position, i. e. additionally folded (Figs 26–29); in erected position, plica dorsalis straightening and almost elongately sac-like (Figs 24, 25). Ovipositor typical of this tribe, i. e. moderately long, rather thin, almost straight and acute at apex (Fig. 18).

Included species. Type species; *K. kameruni* sp. nov.

Comparison. The new genus is similar to some African genera of Meconematini in a rather long pronotum lacking humeral notches and in shortened wings, but it is distinguished from them and from similar Asian genera in the following characters: from *Orophilopsis* Chopard, 1945, described after a single female from Cameroon, by much larger wings and a less high ovipositor [Chopard (1945) and OSF wrote that this holotype is male, but this is a mistake apparent from its original description]; from *Brachyamytta* Naskrecki, 2008, by specialized last tergite and cerci in male as well as the male genitalia not completely membranous; from short-winged species belonging to *Amyttosa*, *Anepitacta* Brunner-Wattenwyl, 1891 and *Amytta* Karsch, 1888, by a normal (long) ovipositor, the absence of a pair of large lobes on the male last tergite and the presence of a large unpaired posteromedian lobe on this tergite, respectively; and from *Cecidophagula* and similar Asian genera, by the latter character in combination with the presence of an unpaired median sclerite in the male genitalia.

***Kamerula korupi* sp. nov.**
(Figs 4–7, 16–18, 24–27)

Etymology. This species is named after the Korup National Park (Cameroon).

Type material. *Holotype* – male, CAMEROON: Southwest Region not far from Nigeria, Korup Na-

tional Park, ~300 m, primary forest, on leaf of bush at night, 1–8 February 2016, A. Gorochov (ZIN). *Paratypes*: 3 males, 1 female, same data as for holotype, but some of specimens collected on leaves of small trees (ZIN).

Description. *Male* (holotype). Body very light with light greyish brown eyes, greyish brown stripe on pronotal disc along its posterior edge and a pair of rather small areas (outer and inner) on fore femur near apex and on fore tibia around tympana, light brown to brown spots on antennal flagellum (lighter, smaller and less distinct spots in proximal part; darker, larger and very distinct ones in rest parts), brown line on fore tibia along its dorsolateral carina (this line absent in proximal part of fore tibia), blackish ventral spines of fore and middle tibiae, partly brownish spines of hind tibia, and distinct dark brown spot on each tegmen near its medial edge and not very far from tegminal apex (Fig. 16). Tegmina reaching sixth abdominal tergite, with distal part gradually narrowing to almost acute apex, and with venation as in Fig. 16; hind wings slightly not reaching tegminal apices. Last abdominal tergite with posteromedian lobe almost straight in profile, lacking ventral projection, and with distinct posteromedian notch (Figs 4, 5); cercus moderately curved inside, with three small distinct dorsal tubercles in middle part (middle tubercle lobe-like but shallow), and with flattened and narrowly triangular distal part having slight dorsal longitudinal concavity and almost acute apex (Figs 4, 5); genital plate with roundly convex posterior edge between styles (Figs 5, 6); genitalia with a few small semimembranous areas on dorsal membranous fold, with rather numerous and long hairs on largest of these areas, and with two pairs of additional semisclerotized ribbons at base (Figs 24, 25).

Variations. Eyes and stripe on disc sometimes slightly lighter or distinctly darker (from light greyish to dark brown); depth of apical notch on posteromedian lobe of last tergite somewhat varied; genitalia as in Figs 26, 27.

Female. General appearance as in male, but pronotum slightly shorter (i.e. with slightly shorter hind lobe), tegmina reaching fifth abdominal tergite and lacking traces of stridulatory apparatus (Fig. 17), last abdominal tergite short and unspecialized (i.e. lacking posteromedian lobe), and cercus distinctly smaller and elongately fusiform as well as with thin (spine-like) distal part and without tubercles. Genital plate rather large, elongately oval, and with

almost obtuseangular apex (Fig. 7); ovipositor long, with proximal two thirds almost straight, with distal third somewhat curved upwards, with apex of upper valves acute, and with apex of lower valves having microscopical hook (Fig. 18).

Length (mm). Body: male 8.0–10.5, female 10.5; pronotum: male 3.1–3.3, female 3.0; tegmina: male 4.3–4.7, female 4.7; hind femora: male 11.5–12.0, female 12.5; ovipositor 6.5.

Comparison. Differences of the new species from the second one are given after its description (see the comparison for *K. kameruni* sp. nov.).

***Kamerula kameruni* sp. nov.**

(Figs 8–10, 19, 28, 29)

Etymology. This species is named after the Kamerun (=Cameroon) Mount where it was collected.

Type material. *Holotype* – male, CAMEROON: Southwest Region, Cameroon Mt near Buea Town, ~1500 m, primary/secondary forest, on leaf of bush at night, 9–12 February 2016, A. Gorochoy (ZIN). *Paratype* – male, same data as for holotype (ZIN).

Description. *Male* (holotype). Colouration and structure of body similar to those of *K. korupi* sp. nov. but with following differences: pronotal disc with a pair of barely darkened spots near lateral edges of hind lobe (Fig. 19); legs with darkish marks somewhat lighter and less distinct as well as with almost completely light spines of fore and middle tibiae; tegmina also completely light, reaching fourth abdominal tergite, and with widely and roundly truncate apex (Fig. 19); posteromedian lobe of last abdominal tergite with distal part strongly curved downwards, with large ventral projection near base (this projection almost as wide as this lobe, with rounded apex and distinct median groove on posterior surface) (Figs 8, 9); cercus strongly curved inside, without distinct tubercles but with rather long dorsomedial longitudinal keel; distal part of cercus elongately lamellar and with rounded apex (Figs 8, 9); genital plate with weakly concave posteromedian edge (Fig. 10); genitalia with only one semimembranous median area lacking distinct hairs, and with a pair of semisclerotized ribbons at base (Figs 28, 29).

Variations. Paratype with one of spots on disc somewhat darker, and with posteromedian edge of genital plate practically straight (not concave and not convex).

Female unknown.

Length (mm). Body 10.2–10.8; pronotum 3.4–3.6; tegmina 2.8–3.0; hind femora 9.3–9.7.

Comparison. The new species clearly differs from *K. korupi* sp. nov. in shorter tegmina lacking dark spots and having a widely truncate (not narrowly angular) distal part, a curved posteromedian lobe of the last tergite in male, the presence of a ventral projection at the base of this lobe, absence of dorsal tubercles on the male cercus, presence of a dorsal longitudinal keel on this cercus, and a rounded (not almost acute) apex of this cercus.

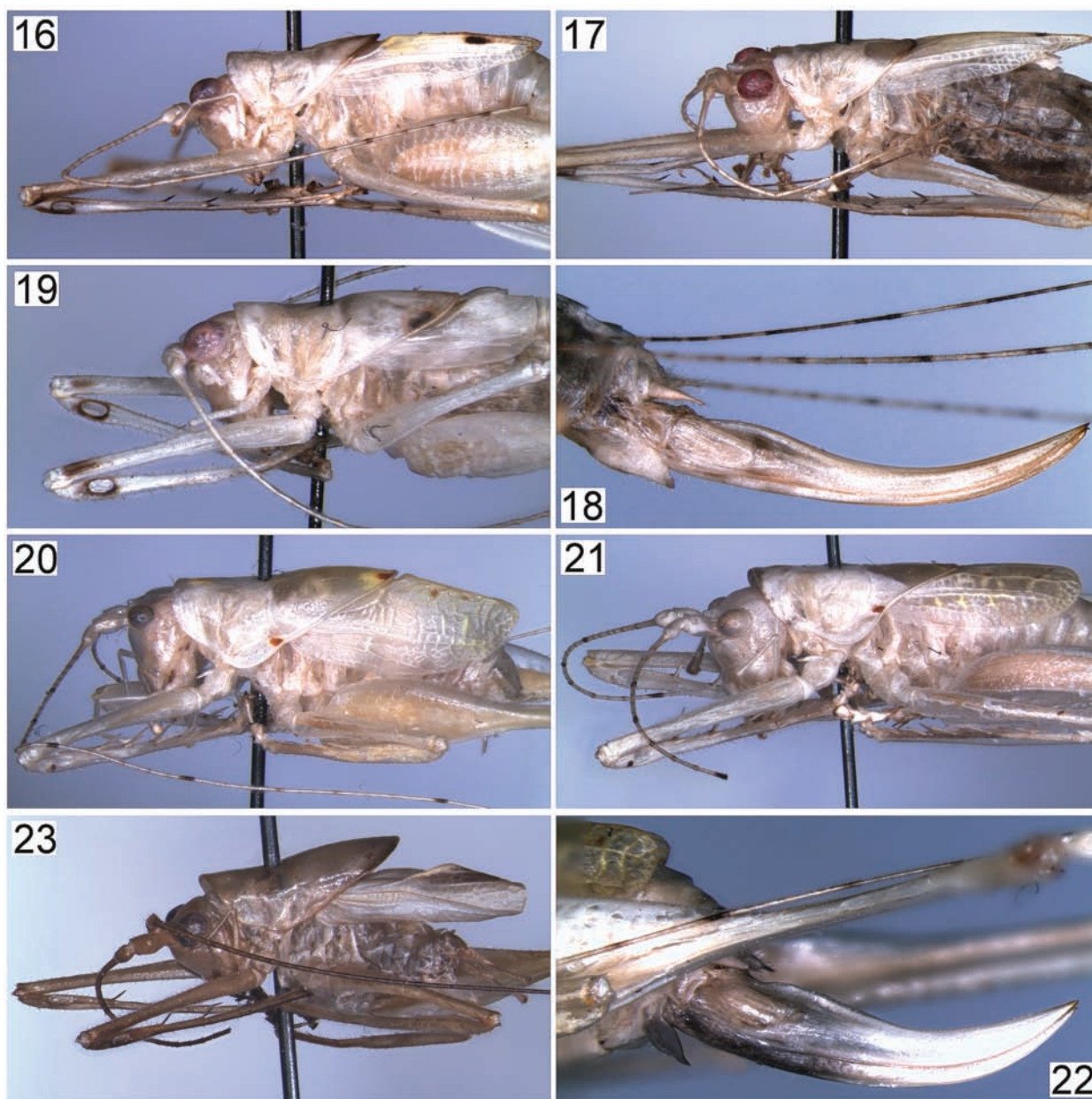
Genus *Parakamerula* gen. nov.

Type species: *Parakamerula irisovi* sp. nov.

Etymology. This name originates from the Latinized Greek prefix “para-” (near) and genus *Kamerula* gen. nov.

Diagnosis. General appearance more or less similar to that of *Kamerula* gen. nov. but with distinct differences: body with more sparse darkened spots on antennal flagellum, a few small marks on anterior and middle parts of pronotum, and almost completely light legs (Figs 20–22); head with scape approximately 1.5 times as wide as minimal space between antennal cavities; pronotum longer, in male with longer and slightly inflated hind lobe protruding somewhat behind tegminal stridulatory apparatus, in female with this lobe not inflated and slightly shorter than in male, and in both sexes with ventral part of lateral lobes more projected downwards (in shape of roundly angular lobe) and with slightly more distinct humeral notches (Figs 20, 21), as well as with roundly angular posterior part of pronotal disc; tegmina rather wide and distinctly (but not strongly) shortened, with partly cellular venation in lateral field (Figs 20, 21); legs with fore coxa having rather long spine, and with much longer ventral spines on fore and middle tibiae; last abdominal tergite in male with shorter and distinctly wider posteromedian lobe (than in *Kamerula* gen. nov.) (Figs 11, 12); male cercus with rather short and wide proximal half, much narrower (almost spine-like) distal half, and a few denticles (medial and lateral) near base of latter half (Figs 11, 12); male genitalia completely membranous, typical of Tettigoniidae in general structure (i.e. more simple than in *Kamerula* gen. nov.); ovipositor somewhat shorter and higher than in *Kamerula* gen. nov. (Fig. 22).

Included species. Type species only.



Figs 16–23. Meconematini: 16–18 – *Kamerula korupi* sp. nov.; 19 – *K. kameruni* sp. nov.; 20–22 – *Parakamerula irisovi* sp. nov.; 23 – *Brachyamytta rapidoaestima speculifera* subsp. nov. Body without distal parts from side, male (16, 19, 20, 23) and female (17, 21); ovipositor from side (18, 22).

Comparison. The new genus differs from *Kamerula* gen. nov. in the characters named above: a wider space between the antennal cavities, wider tegmina, longer ventral spines of the fore and middle tibiae, the male genitalia completely membranous and simple in the structure, shape of male cerci and of ovipositor, and some others. From *Orophilopsis* Chopard, 1945,

described after a single female from Cameroon, it is distinguished by much larger wings and the presence of shallow but distinct humeral notches in the female pronotum; from *Brachyamytta* Naskrecki, 2008, by specialized last tergite and cerci in male; from short-winged species of *Amyttosa*, *Anepitacta* and *Amytta*, by a long and rather high ovipositor, weakly curved

male cerci, the presence of a pair of rather wide lobes on the male last tergite having a very narrow notch between them, and the absence of sclerites in the male genitalia; and from *Cecidophagula* and similar Asian genera, by the same combination of characters as well as a clearly arcuate ovipositor.

***Parakamerula irisovi* sp. nov.**

(Figs 11–14, 20–22)

Etymology. This species is named in honor of G.S. Irisov for his help in organizing the field work in Cameroon.

Type material. *Holotype* – male, CAMEROON: Southwest Region not far from Nigeria, Korup National Park, ~300 m, primary forest, on leaf of bush at night, 1–8 February 2016, A. Gorochoy (ZIN). *Paratypes*: 1 male, 1 female, same data as for holotype (ZIN); same region, Cameroon Mt near Buea Town, ~1500 m, primary/secondary forest, on leaf of bush at night, 9–12 February 2016, A. Gorochoy (ZIN).

Description. *Male* (holotype). Body colouration light green with whitish tinge, greyish eyes, small and sparse greyish brown spots on proximal and middle parts of antennal flagellum, longitudinal median yellow spot on anterior part of pronotal disc, reddish spot on each lateral lobe of pronotum near humeral notch, a pair of reddish brown spots on posterior part of pronotal disc (along its posterior edge), small darkish spot on fore tibia (one near proximal part of outer tympana and others at base of ventral spines), colouration of hind tibial spines as in *K. korupi* sp. nov. and *K. kameruni* sp. nov. (but all tarsi light with small apical parts of third segment somewhat darkened), and one small light brown spot in middle area of exposed part of each tegmen near its medial edge (Fig. 20). Structure of head, pronotum and tegmina as in Fig. 20; tegminal apex reaching base of last abdominal tergite; posteromedian lobe of last tergite bilobated, with roundly truncate lateral parts and rather deep and very narrow notch between them (dorsum of last tergite with median groove running from above-mentioned notch to almost anterior edge of this tergite; Fig. 11); cercus with one lateral denticle near cercal middle and with one or two similar medial denticles located more proximad than lateral one (Figs 11, 12); genital plate as in Fig. 13.

Variations. Sometimes legs and tegmina completely light, spots on pronotum very small, tegmina shorter (in male from Cameroon Mt reaching base

of eighth abdominal tergite), lateral cercal denticle almost spinule-like, and both cerci with one medial denticle only.

Female. Colouration and structure of body as in holotype, but hind lobe of pronotum somewhat shorter and not inflated (Fig. 21), tegmina clearly narrower (Fig. 21) and without traces of stridulatory apparatus, abdominal apex (excepting sexual appendices) similar to that of *Kamerula* gen. nov. but with last tergite having small posteromedian notch and weak median fold; genital plate and ovipositor as in Figs 14, 22.

Length (mm). Body: male 10.0–12.0, female 11.0; pronotum: male 5.2–5.7, female 5.3; tegmina: male 4.8–5.8, female 5.3; hind femora: male 9.0–11.0, female 12.5; ovipositor 6.0.

Genus *Brachyamytta* Naskrecki, 2008

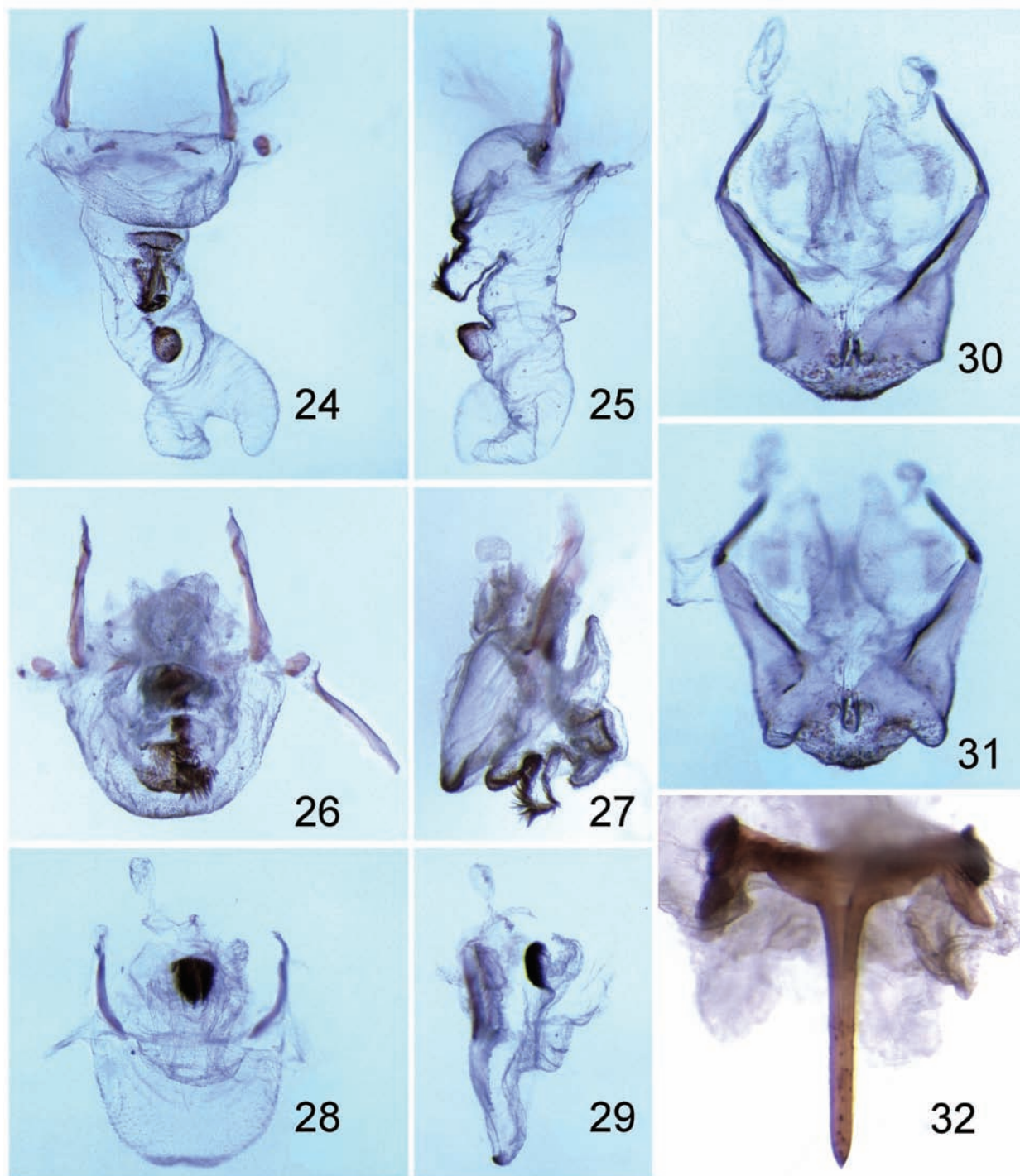
***Brachyamytta rapidoaestima speculifera* subsp. nov.**

(Figs 15, 23, 41)

Etymology. This name originates from the Latin words “speculum” (mirror) and “fero” (carry).

Type material. *Holotype* – male, CAMEROON: Southwest Region not far from Nigeria, Korup National Park, ~300 m, primary forest, on leaf of bush at night, 1–8 February 2016, A. Gorochoy (ZIN).

Description. *Male* (holotype). Body colouration uniformly light brown with whitish tinge on lower half of head, on pleurites and sternites, as well as on genital plate and costal half of tegmina (dorsal tegminal field light greyish, almost completely semi-transparent; inflated vein behind this field yellowish; Fig. 23). Shape of head and pronotum similar to that of *P. irisovi* sp. nov., but scape approximately 2.5 times as wide as minimal space between antennal cavities, rostral tubercle with very thin median groove on dorsum, and pronotum without humeral notches and with somewhat more widely rounded distal part of disc (Figs 23). Legs also similar to those of this species, but fore coxa with very small (almost denticle-like) spinule, ventral spines of fore and middle tibiae clearly shorter (more or less intermediate between those of *Parakamerula* gen. nov. and *Kamerula* gen. nov. in length), apical lobules in fore and middle femora angular but in hind femur with short spines at apices; tegmina somewhat shortened, reaching abdominal apex, with widely rounded apical part, and



Figs 24–32. Meconematini, male: 24–27 – *Kamerula korupi* sp. nov.; 28, 29 – *K. kameruni* sp. nov.; 30, 31 – *Proamytta* (*Archamytta*) *kamerunensis* Beier; 32 – *Paracilacris* (*Paracilacris*) *lateralis* Chop. Genitalia in state of erection from below (24) and from side (25); genitalia at rest (compactly folded) from above (26, 28) and from side (27, 29); genitalia from above (30), and from above and slightly in front (31); genital sclerite from above (32).

with venation as in Fig. 41; hind wings much shorter than tegmina. Last abdominal tergite simple in shape; cerci also simple, long and thin, without specializations; epiproct and paraprocts almost as in *Kamerula* gen. nov. and *Parakamerula* gen. nov.; genital plate not long, almost gradually narrowing to narrow apex having small but somewhat elongate styli directed aside and slightly downwards (Figs 15); genitalia completely membranous and simple in structure.

Female unknown.

Length (mm). Body 8.5; pronotum 4.5; tegmina 4.6; hind femora 10.4.

Comparison. The new species is most similar to *B. rapidoaestima* Naskrecki, 2008 from Guinea and Ghana but clearly distinguished by distinctly longer and more uniformly coloured tegmina of male with a larger stridulatory apparatus having a distinctly developed mirror as well as with narrower area along the anal edge located behind this apparatus (in *B. rapidoaestima*, this mirror is undeveloped; for comparison see Figs 41 and 42), as well as by the male genital plate almost triangular but not trapezoidal. I cannot exclude that the new taxon is a separate species, but its male genital plate (very characteristic in *B. r. speculifera*) is insufficiently described and not illustrated in the nominotypical subspecies (Naskrecki 2008).

Genus *Naskreckia* gen. nov.

Type species: *Amyttacta farelli* Naskrecki, Bazelet et Spearman, 2008 (South Africa: Limpopo).

Etymology. This genus is named in honor of the orthopterist P. Naskrecki, a senior co-author of the both species of this genus.

Diagnosis (after Naskrecki et al. 2008: figs 1, A–O). Body size approximately as in *Kamerula* gen. nov. and *Parakamerula* gen. nov., but colouration light green with a pair of light yellow bands (running from head dorsum to posterolateral parts of pronotal disc). Head hypognathous but with roundly oblique anterior edge under rostral tubercle in profile; this tubercle parallel-sided, blunt apically, as wide as half of antennal scape, not reaching anterior edge of keel along border of antennal cavity, flat dorsally. Pronotum long, rather low (lateral lobe almost 3 times as long as high), and without distinct humeral notches; anterior edge of pronotum almost straight; hind pronotal lobe flat and with narrowly rounded posterior edge. Tegmina strongly shortened, much shorter than pronotum and completely hidden under hind pronotal

lobe, with clearly developed stridulatory apparatus in male; proximal part of lateral tegminal field very narrow; hind wings absent. Legs slender; fore coxa with long spine; all femora unarmed (their apices with short and rounded genicular lobules only); fore and middle tibiae unarmed dorsally but with a few (4–7) ventral spines; hind tibia unarmed ventrally and with more numerous dorsal spines having alternating size (small and very small). Last abdominal tergite in male with short and rather wide posterolateral lobes as well as with not deep and rather wide notch between them; male cercus moderately thin and rather long, arcuately curved inside, with narrowly rounded or almost acute apex, and with a few small lobules or teeth on ventroproximal part (these lobules or teeth directed posteromedially); unpaired genital sclerite probably developed and more or less similar to that of *Amyttosa* in size (length) and position (see Figs 1–3) [this sclerite treated as unpaired large projection of paraprocts in original descriptions of both species of this genus (Naskrecki et al. 2008: 22, 23), but most probably it located between paraprocts and dorsal fold of phallus (see note on *Amyttosa mutillata* here)].

Included species. Type species; *Amyttacta marakelensis* Naskrecki, Bazelet et Spearman, 2008 (South Africa: Limpopo).

Comparison. The new genus differs from *Amyttacta* Beier, 1965 in the pronotum clearly longer and lacking humeral notches, the wings strongly shortened and completely covered with the hind pronotal lobe, and the presence of a large unpaired genital sclerite distinctly protruding behind the apex of genital plate. From the other similar genera, *Naskreckia* gen. nov. is distinguished by the following combination of characters: head is slightly opisthognathous; fore coxa has a long spine; last tergite in male is without unpaired posteromedian lobe but with a rather wide posteromedian notch; male cerci are rather thin and arcuate (curved inside), simple in shape but with small ventromedial process and/or projections in the basal part; ovipositor is long, rather thin, almost straight, lacking denticles, and acute at the apex.

Genus *Xiphidiola* Bolivar, 1906

= *Amyttina* Beier, 1965

Notes. *Xiphidiola* and its type species (*X. nigrospinosa* Bolivar, 1906, stat. nov. from Bioko I.) were synonymized by Beier (1966) with *Amyttina*

and its type species (*Anepitacta aliquantula* Karsch, 1893 from Togo), respectively. This generic synonymy is correct, but synonymization of these species is problematical, because the photographs of genital plates of their holotypes (females) are not identical (OSF): in the specimen from Bioko I., this plate has a narrower apical part and the lateral tubercles near this part very short (convexity-like); in the female from Togo, this plate is with a slightly wider apical part and with the lateral tubercles clearly longer (almost finger-like). Thus, these taxa are two different subspecies as a minimum: *X. aliquantula nigrospinosa* stat. nov. and *X. a. aliquantula*.

Xiphidiola is characterized by a moderately long and weakly curved ovipositor having the dorsal and ventral edges or only ventral one denticulate, and its male copulatory device is rather diverse in different species. On the base of such device as well as of ovipositor denticulation, this genus is here divided into three subgenera (see below).

1. Ovipositor with dorsal and ventral edges denticulate (Figs 81–83). Male genital plate with styles (Fig. 48), or this plate without styles but with apical part having a pair of characteristic bundles of setae (Figs 43–46, 49, 50, 52–55, 57–60) 2
- Ovipositor with only ventral edge denticulate (Figs 84, 85). Male genital plate without styles and without above-mentioned bundles of setae
 **subgenus *Hemidiola* subgen. nov.**
 [Included species: *Xiphidiola* (*H.*) *emarginata* sp. nov. – type species; *Amyttina exorbitans* Beier, 1965 (Cameroon); *A. pulchra* Beier, 1967 (Ivory Coast); *X. (H.) minuta* sp. nov.; possibly *A. congica* Beier, 1965 (Zaire) and *A. rhodei* Beier, 1965 (Cameroon). Etymology: *Hemidiola* consists of the Latinized Greek prefix “hemi-“ (semi-, half) and a part of the generic name *Xiphidiola*.]
2. Male genital plate without styles (they probably lost or completely fused with this plate), but its apical part with a pair of characteristic bundles of setae (Figs 43–46, 49, 50, 52–55, 57–60)
 **subgenus *Deinodiola* subgen. nov.**
 [Included species: *X. adunca* sp. nov. – type species; *Xiphidiopsis quadrimaculata* Karny, 1911 (Cameroon); *Amyttina kivuensis* Beier, 1965 (Zaire); *Xiphidiola lobulata* sp. nov.; *X. dja* sp. nov.; possibly *X. ituriensis* Rehn, 1914 (Zaire) and *A. dispersa* Beier, 1965 (Congo). Etymology: *Deinodiola* consists of the Latinized Greek prefix “deino-“ (strange, terrible) and part of the generic name *Xiphidiola*.]
- Male genital plate with distinct styles, and its apical part without bundles of setae (Fig. 48)
 **subgenus *Xiphidiola* s. str.**

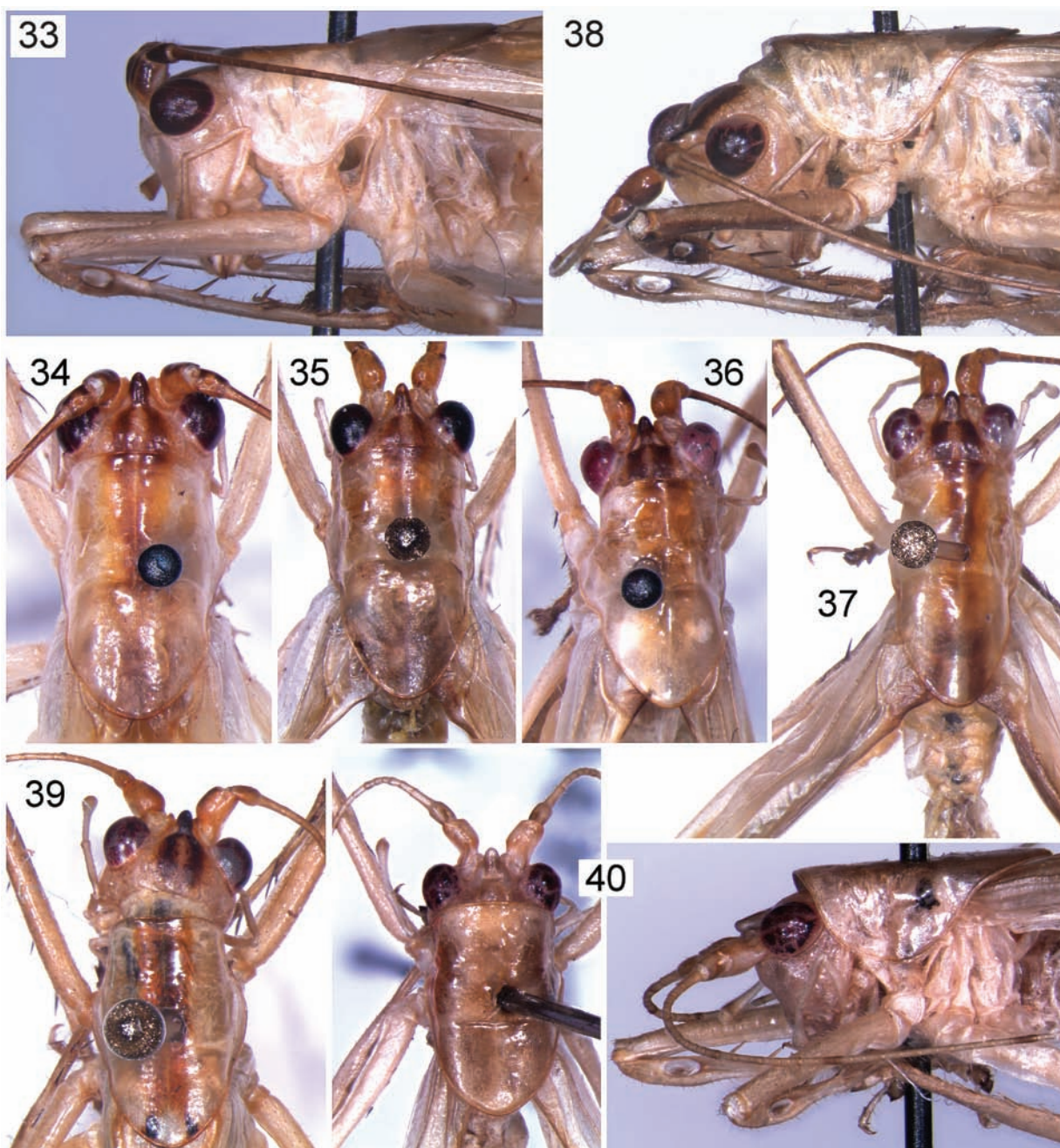
[Included species: type species of *Xiphidiola* and of *Amyttina* (see above); *X. hokei* Naskrecki, 2008 (Ghana); *X. lobaticerca* Naskrecki, 2008 (Ghana); possibly *X. concolor* Bolivar, 1906 (Bioko I.).]

***Xiphidiola (Deinodiola) adunca* sp. nov.**
(Figs 33, 34, 43–47, 81)

Etymology. This name is the Latin word “*adunca*” (hooked), because the species studied has a hooked distal part of the male cerci in profile.

Type material. *Holotype* – male, CAMEROON: Southwest Region not far from Nigeria, Korup National Park, ~300 m, primary forest, at light, 1–8 February 2016, A. Gorochov (ZIN). *Paratypes*: 1 male, 2 females, same data as for holotype (ZIN).

Description. *Male* (holotype). General appearance similar to that of majority of congeners: colouration yellowish with dark brown eyes, with brown ventral half of scape and of pedicel as well as most part of rostral tubercle, with light brown antennal flagellum and rest of pedicel, with a pair of brown to light brown longitudinal bands on head dorsum behind rostral tubercle, with a pair of light brown to yellow longitudinal bands on pronotal disc (these bands separated from each other by light median line in anterior half but weakly distinguishable from other parts of pronotum in posterior half; Fig. 34), with yellow (almost light brown) stripe on each tegmen along its anal edge, with small and sparse weakly darkened spots on distal half of tegmina, with greyish brown marks on outer side of fore tibia near its tympanum and on third segment of all tarsi, and with somewhat darkened spines of fore and middle tibiae; head hypognathous, with almost vertical anterior surface, with rather short and conical rostral tubercle having finger-like apical part (dorsum of this tubercle with very thin median groove); scape approximately 2.5 times as wide as minimal space between antennal cavities; pronotum not long, with moderately long hind lobe, with rather high lateral lobe having shallow humeral notch and additional very shallow notch under humeral one (Fig. 33), with almost straight anterior edge, with narrowly rounded posterior edge of disc, and with hind lobe almost completely covering tegminal stridulatory apparatus; tegmina narrow and long, distinctly protruding behind apices of hind femora; hind wings barely not reaching tegminal apices; legs typical of this genus, with a pair of very short angular projections at



Figs 33–40. Meconematini: 33, 34 – *Xiphidiola (Deinodiola) adunca* sp. nov.; 35 – *X. (D.) lobulata* sp. nov.; 36 – *X. (D.) dja* sp. nov.; 37 – *X. (D.) quadrimaculata immaculata* subsp. nov.; 38, 39 – *X. (Hemidiola) emarginata* sp. nov.; 40 – *X. (H.) minuta* sp. nov. Head with pronotum from side (33, 38) and from above (34, 35, 36, 39); same parts of body and proximal part of left tegmen from above (37); 40 – head with pronotum from above (left) and from side (right).

apices of fore and middle femora as well as a pair of short spinules at apex of hind femur. Last abdominal tergite with a pair of short, wide and rounded posterolateral lobes as well as with shallow and rather

wide (rounded) posteromedian notch (Figs 43–45); epiproct and paraprocts small and sac-like, but paraproct with angular tubercle on apical part (Fig. 44); cercus elongate but rather short, with flattened distal

part having large, concave, almost oval and slightly darkened dorsal plate (this distal part hook-like in profile; Figs 43–45), and with dorsal lobe situated in vertical position near above-mentioned plate and directed somewhat backwards (Figs 43, 45); genital plate with wide proximal part and much narrower middle and distal parts (latter part bifurcated and having bundle of setae on each apex; in profile, this part with rounded upper apical lobule, small lower one and very shallow notch between them; Figs 45, 46); genitalia completely membranous.

Variations. Second male with fore tibiae uniformly light and with last tergite having somewhat smaller median notch.

Female. Colouration and structure of body similar to those of male, but weakly darkened stripes in anterior half of pronotal disc somewhat more distinct, tegmina without traces of stridulatory apparatus, and abdominal apex more similar to that of females of other congeners (one female with light median line on dorsum of rostral tubercle and with more distinct darkish stripe on tegmen along its anal edge). Genital plate with almost widely truncate apex and with each lateral lobule in shape of two characteristically curved folds (Fig. 47); ovipositor as in Fig. 81.

Length (mm). Body: male 9.5–10.0, female 8.5–10.0; body with wings: male 21.0–22.0, female 21.5–23.0; pronotum: male 3.4–3.6, female 3.7–3.9; tegmina: male 17.0–18.0, female 18.5–19.5; hind femora: male 10.5–11.0, female 10.5–11.0; ovipositor 5.0–5.3.

Comparison. The new species is most similar to *X. kivuensis* in a hooked shape of the distal part of the male cercus and a characteristic structure of the male genital plate but distinguished by distinctly higher (wider) proximal and middle parts of this cercus as well as by a clearly longer distal (hooked) part of this cercus (for comparison see Figs 45 and 50). From the other congeners with a similar male genital plate (having a pair of bunches of setae in the apical part), *X. adunca* sp. nov. is distinguished by a hook-like distal part of the male cercus in profile (see Figs 45, 49, 54, 59); from *X. dispersa* (structure of its male genital plate is unclear), by the same character of male cercus as well as a more angulate (less rounded) dorsal lobe and longer distal part of this cercus (see Figs 45 and 51); and from *X. ituriensis* (its male is unknown), by the hind pronotal lobe and dorsal tegminal field less darkened, as well as in a clearly lighter distal part of the ovipositor.

***Xiphidiola (Deinodiola) lobulata* sp. nov.**
(Figs 35, 52–56, 82)

Etymology. This species name is the Latin word “lobulata” (lobulate) given in connection with the structure of male cercus.

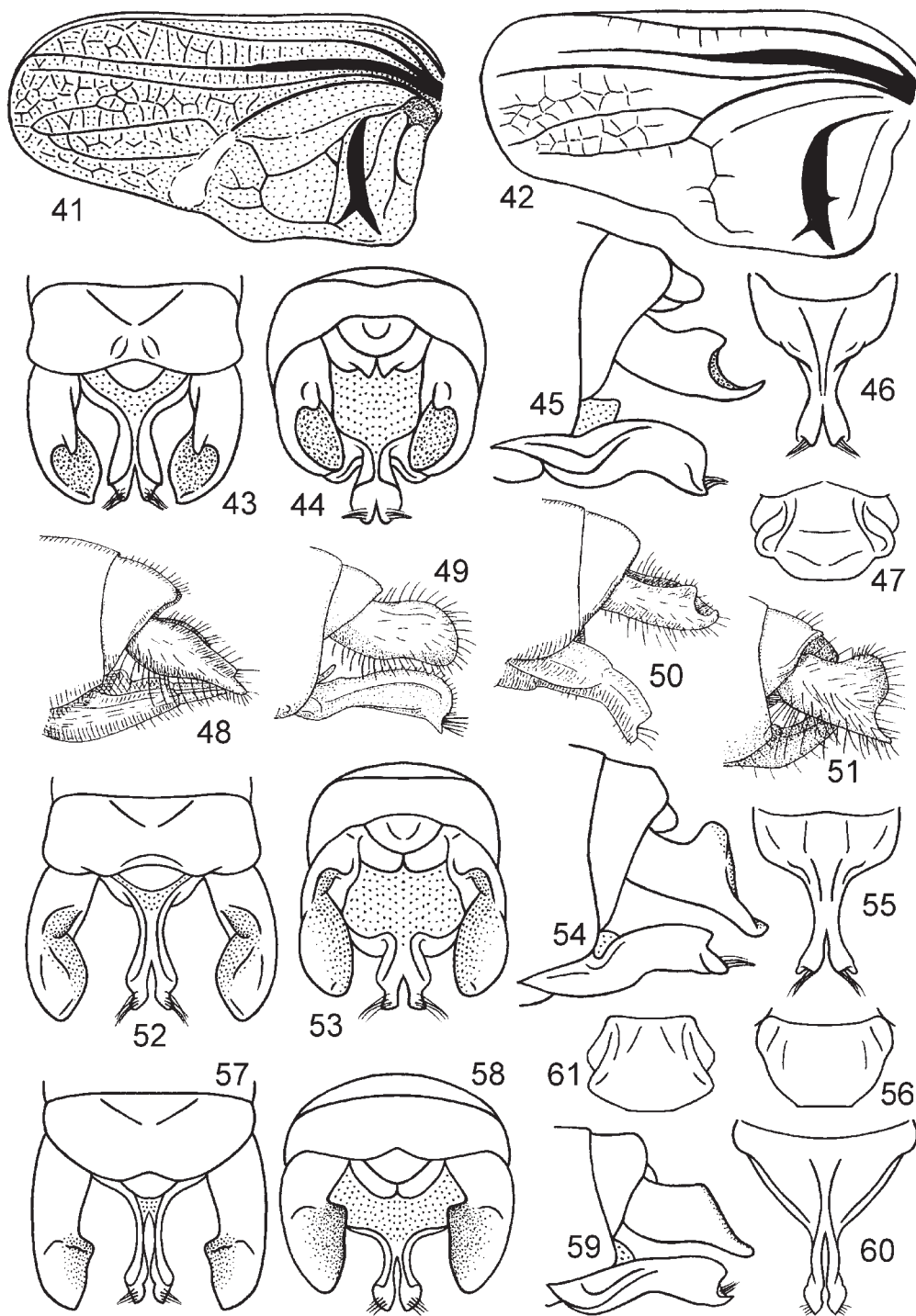
Type material. *Holotype* – male, CAMEROON: Southwest Region not far from Nigeria, Korup National Park, ~300 m, primary forest, at light, 1–8 February 2016, A. Gorochov (ZIN). *Paratypes*: 1 male, 1 female, same data as for holotype (ZIN).

Description. *Male* (holotype). Size, colouration and structure of body very similar to those of *X. adunca* sp. nov. (Fig. 35) but with following differences: some areas on head and pronotum somewhat lighter (ventral half of scape and of pedicel light brown; antennal flagellum light with sparse and small darkish spots; pronotal disc almost uniformly light); legs with slightly darkish spines on tibiae as well as third segments of tarsi only; paraproct without any tubercle on posteroventral part (Fig. 53); cercus with dorsoventrally flattened (horizontally oval) lobe-like distal part which almost straight (not hooked) in profile but directed more or less posteroventrally, and with rounded and vertically situated dorsal lobe (lobule) near above-mentioned oval part (this lobule directed upwards, not somewhat backwards; Figs 52–54); genital plate distinguished from that of *X. adunca* sp. nov. by smaller and angular dorsoapical lobules, longer ventroapical lobules as well as distinct and almost angular notch between them in profile (Figs 54, 55).

Variations. Darkish bands on anterior half of pronotal disc weak but distinct; posteromedian notch of last tergite slightly shallower than in holotype; apical part of genital plate almost intermediate between those of holotype and of *X. adunca* sp. nov. in shape.

Female. General appearance as in male, but rostral tubercle and rest of head dorsum as well as pronotal disc almost uniformly light. Genital plate more or less similar to that of *X. adunca* sp. nov., but its posterolateral corners almost angular (not rounded), and its lateral lobules simpler (in shape of short and rounded lateroproximal projections slightly curved downwards and clearly arcuate in profile; Fig. 56); ovipositor as in Fig. 82.

Length (mm). Body: male 9.0–9.5, female 10.0; body with wings: male 21.0–21.5, female 22.0; pronotum: male 3.6–3.9, female 3.6; tegmina: male 17.0–18.0, female 18.5; hind femora: male 10.0–10.5, female 11.0; ovipositor 4.5.



Figs 41–61. Meconematini: 41 – *Brachyamytta rapidoaestima speculifera* subsp. nov.; 42 – *B. r. rapidoaestima* Naskrecki; 43–47 – *Xiphidiola* (*Deinodiola*) *adunca* sp. nov.; 48 – *X. (Xiphidiola) aliquantula shoutedeni* (Beier); 49 – *X. (D.) quadrimaculata* (Karny); 50 – *X. (D.) kivuensis* (Beier); 51 – *X. (D.?) dispersa* (Beier); 52–56 – *X. (D.) lobulata* sp. nov.; 57–61 – *X. (D.) dja* sp. nov. Left tegmen of male (41, 42); male abdominal apex from above (43, 52, 57), from behind and slightly above (44, 53, 58), and from side (45, 48–51, 54, 59); male genital plate (46, 55, 60) and female genital plate (47, 56, 61) from below. In Fig. 41, more darkened areas dotted; in other Figs [excepting Figs 48–51 given after Beier (1965)], membranous areas covered with sparser dots, and more darkened areas on cerci covered with denser dots.

Comparison. The new species is similar to *X. dispersa* in the shape of male cerci in profile and in the structure of female genital plate, but it differs from the latter species in a narrower (shorter) dorsal lobule of the male cercus and longer and wider (horizontally oval, not almost conical) distal part of this cercus (see Figs 51 and 54). From the other congeners with a similar male genital plate, the new species is distinguished by a more different shape of the male cercus in the profile (see Figs 45, 49, 50, 54); from *X. lobaticerca* and *X. hokei* belonging to another subgenus but similar to *X. lobulata* sp. nov. in the general shape of the male cerci, by the male genital plate without distinct styles but with apical bunches of setae; and from *X. ituriensis*, by the same characters as *X. adunca* sp. nov. (see the comparison for this species above).

***Xiphidiola (Deinodiola) dja* sp. nov.**
(Figs 36, 57–61, 83)

Etymology. This species is named after the Dja Nature Reserve where it was collected.

Type material. *Holotype* – male, CAMEROON: Dja Nature Reserve on Dja River (near border of South and East Regions), ~600 m, primary forest, at light, 15–22 February 2016, A. Gorochov (ZIN). *Paratype* – female, same data as for holotype (ZIN).

Description. *Male* (holotype). Size, colouration and structure of body very similar to those of *X. adunca* sp. nov. and *X. lobulata* sp. nov. (Fig. 36) but with following characteristic features: body yellowish with large brown ventromedial area on scape and on pedicel, light brown proximal part of antennal flagellum and rest of pedicel, brown middle and dark brown distal parts of this flagellum, brown rostral tubercle (but with distinct light spots around lateral ocelli) and a pair of rather wide longitudinal band on head dorsum behind this tubercle, reddish brown eyes, yellow proximal half of pronotal disc having a pair of weak light brown areas near anterior edge, light brown stripe on tegmen along proximal part of anal edge, absence of darkened spots on distal tegminal half, light greyish brown area on fore tibia around outer tympanum, brown apical lobules on fore femur and spines on all tibiae, and darkish marks on third segment of all tarsi; apical lobules of fore and middle femora small and rounded, but those of hind femur somewhat longer (but also rather small) and almost spinule-like; wings long, distinctly protruding behind apices of hind femora; last abdominal tergite as in Figs

57–59; epiproct and paraprocts small and sac-like (without distinct tubercles; Fig. 58); cercus more or less similar to that of *X. lobulata* sp. nov. but without dorsal lobe and with characteristic (almost angular) medial projection at base of flattened (oval) distal part (Figs 57–59); genital plate as in Figs 59, 60.

Female. General appearance (including uniformly light distal part of tegmina) as in male but with antennal flagellum slightly lighter and having more distinct darkish spots, with pronotal disc completely light and with other characters more similar to those of females of other congeners; however, genital plate with lateral lobules similar to those of *X. adunca* sp. nov. (but each of them separated from rest part of this plate by only a single fold), with posteromedian part wider, and with posterolateral corners of this part rounded and somewhat laterally projected (Fig. 61); ovipositor as in Fig. 83.

Length (mm). Body: male 8.0, female 8.0; body with wings: male 21.0, female 21.5; pronotum: male 3.5, female 3.6; tegmina: male 17.0, female 18.5; hind femora: male 10.0, female 11.0; ovipositor 4.5.

Comparison. The new species is distinguished from *X. adunca* sp. nov., *X. kivuensis*, *X. dispersa* and *X. lobulata* sp. nov. by the absence of dorsal lobe on the male cercus and by the presence of a distinct medial projection at the base of distal (flattened) part of this cercus. From *X. ituriensis*, *X. dja* sp. nov. differs in the same characters of colouration as *X. adunca* sp. nov. and *X. lobulata* sp. nov.

***Xiphidiola (Deinodiola) quadrimaculata immaculata* subsp. nov.**
(Fig. 37)

Etymology. The subspecies name is the Latin word “immaculata” (immaculate, without spots).

Type material. *Holotype* – male, CAMEROON: Dja Nature Reserve on Dja River (near border of South and East Regions), ~600 m, primary forest, at light, 15–22 February 2016, A. Gorochov (ZIN).

Description. *Male* (holotype). General appearance similar to that of *X. adunca* sp. nov., *X. lobulata* sp. nov. and *X. dja* sp. nov. but with following characters: pattern of head as in *X. dja* sp. nov. but antennal flagellum lighter (from light brown in anterior half to brown in posterior one); pronotum with a pair of rather narrow brown longitudinal stripes on disc (these stripes almost light brown in posterior half and with wider light area between their distal parts;

Fig. 37); colouration of tegmina and legs also as in *X. dja* sp. nov. but with slightly lighter (from brown to light brown) spines on tibiae and somewhat darkened middle tibiae; genital plate slightly darkened; structure of body, including abdominal apex, practically as in nominotypical subspecies (see Fig. 49).

Female unknown.

Length (mm). Body 9.5; body with wings 21.0; pronotum 3.7; tegmina 17.5; hind femora 10.0.

Comparison. The new subspecies differs from *X. q. quadrimaculata* collected in another locality of Cameroon (Karny 1912: "Victoria") in a more uniform body colouration lacking characteristic very dark spots on the hind part of pronotum and on the proximal parts of tegmina.

***Xiphidiola (Hemidiola) emarginata* sp. nov.**
(Figs 38, 39, 62, 63, 84)

Etymology. The species name is the Latin word "emarginata" (emarginate, notched).

Type material. *Holotype* – female, CAMEROON: Dja Nature Reserve on Dja River (near border of South and East Regions), ~600 m, primary forest, on leaf of bush at night, 15–22 February 2016, A. Gorochoy (ZIN).

Description. *Female* (holotype). General view more or less similar to that of congeners previously considered here. Body yellowish with dark brown upper half of rostral tubercle, a pair of brown longitudinal bands on head dorsum behind this tubercle, brown eyes, light brown antennae having brown ventral surface of scape and of pedicel as well as distal half of flagellum, light reddish brown wide median band on pronotal disc somewhat not reaching posterior edge of this disc, a pair of small dark brown spots on this disc along its posterior edge (space between them yellowish; Figs 38, 39), rather wide light brown band on tegmen along its anal edge, brown spot on tegminal basal part, a few small almost brown areas between tegminal RS branches (crossveins in distal half of tegmen whitish), partly darkened hind wings, dark brown apical lobules of fore and middle femora, small brown median apical spot on fore femur, light brown outer longitudinal stripe on this femur, light brown area around inner and brown one around outer tympana in fore tibia, brown spines of all tibiae, and partly darkened distal half of all tarsi. Structure of head and legs similar to that of above-mentioned congeners; pronotum also similar to that of these species

but with somewhat more distinct (widely rounded) humeral notches (Fig. 38); wings not long, slightly protruding behind abdominal apex but distinctly not reaching apices of hind femora; hind wings almost reaching tegminal apices; abdominal apex typical of female of this genus (last tergite, epiproct, paraprocts and cerci unspecialized), but genital plate very characteristic, slightly longer than wide, with moderately small but distinct triangular notch at apex, with anterior edge located under last sternite (i.e. in ventral view, anterior part of genital plate covering posterior part of this sternite) and having a pair of rather large anterolateral lobules which rounded and directed forwards (Fig. 62) as well as hook-like in profile (Fig. 63); ovipositor as in Fig. 84.

Male unknown.

Length (mm). Body 12.0; body with wings 13.5; pronotum 3.6; tegmina 9.5; hind femora 10.5; ovipositor 4.5.

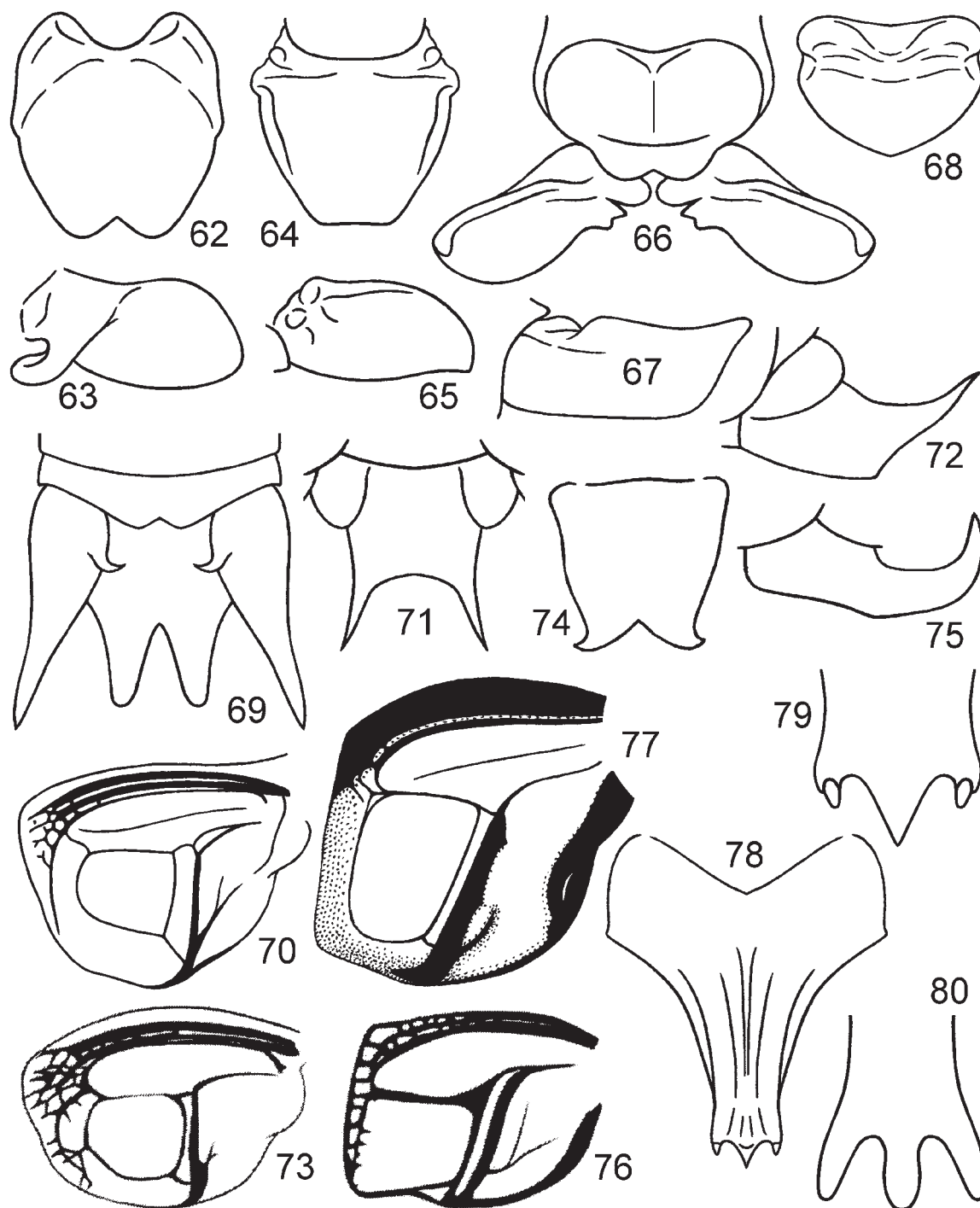
Comparison. The new species is most similar to *X. pulchra* in the colouration of posterior pronotal part and the length of wings, but it is clearly distinguished from the latter by the absence of dark marks on the anterior pronotal part, as well as by the female genital plate longer and having a larger posteromedian notch and characteristic anterolateral lobules. From *X. exorbitans*, *X. congica* and *X. rhodei*, the new species differs in the presence of a pair of small dark spots on the posterior pronotal part in combination with clearly shorter wings.

***Xiphidiola (Hemidiola) minuta* sp. nov.**
(Figs 40, 64, 65, 85)

Etymology. The species name is the Latin word "minuta" (small).

Type material. *Holotype* – female, CAMEROON: Southwest Region, Cameroon Mt near Buea Town, ~1500 m, primary/secondary forest, on leaf of tree at night, 9–12 February 2016, A. Gorochoy (ZIN).

Description. *Female* (holotype). General appearance most similar to that of *X. emarginata* sp. nov., but body distinctly smaller, colouration almost uniformly yellowish (with only brownish eyes and very sparse small darkish spots on antennal flagellum; Figs 40), and wings slightly longer but clearly not reaching apices of hind femora. Abdominal apex also similar to that of *X. emarginata* sp. nov., but genital plate with widely and rather sharply truncate apex, and with anterior part situated not under posterior part of last



Figs 62–80. Meconematini and Phisidini: 62, 63 – *X. (Hemidiola) emarginata* sp. nov.; 64, 65 – *X. (H.) minuta* sp. nov.; 66–68 – *Proamytta (Archamytta) kamerunensis* Beier; 69, 70 – *Paracilacris (Paracilacris) lateralis* Chop.; 71, 72 – *P. (Neacilacris) latiexcisa* sp. nov.; 73–75 – *P. (N.) periclitatus* Naskrecki et al.; 76 – *P. (Anaroegas) mordax* Naskrecki et al.; 77–79 – *Acilacris (Aroegas) rentzi* Naskrecki; 80 – *A. (Acilacris) furcata* Naskrecki. Female genital plate from below (62, 64, 68, 71, 74) and from side (63, 65, 72, 75); male abdominal apex without genital plate (66) and with this plate (69) from above; left male cercus from side (67); left male tegmen (70, 73, 76, 77); male genital plate (78) and its distal part (79, 80) from below/behind. [73–76, after Naskrecki et al. (2008); 80, after photograph in OSF].

sternite and having two rounded tubercles in each lateral corner (Figs 64, 65); ovipositor as in Fig. 85.

Male unknown.

Length (mm). Body 6.5; body with wings 11.5; pronotum 3.3; tegmina 8.4; hind femora 8.6; ovipositor 4.3.

Comparison. The new species distinctly differs from *X. emarginata* sp. nov. and *X. pulchra* in a uniformly light colouration of the head (excepting eyes) and pronotum, as well as in a widely truncate (not emarginate and not narrowly rounded) female genital plate. From *X. exorbitans*, *X. congica* and *X. rhodei*, it differs in the same peculiarities of the body colouration in combination with shorter wings.

Xiphidiola (Hemidiola) exorbitans (Beier, 1965)

Material studied. CAMEROON: 1 male, Southwest Region not far from Nigeria, Korup National Park, ~300 m, primary forest, at light, 1–8 February 2016, A. Gorochoy (ZIN).

Notes. This species was described from two localities of Cameroon (Beier 1965: “Mundame” and “Melende-Banga”). Here it is recorded from another locality of the same country. The male studied is very similar to the original description of *X. exorbitans*, but its cerci are without shallow concavity in the medial edge of distal part (in dorsal view), and its genital plate is with a deeper dorsal notch between the distal and proximal parts (in lateral view). It is a reason that I cannot exclude that this male belongs to another subspecies of *X. exorbitans*.

Genus *Proamytta* Beier, 1965

Proamytta (Archamytta) kamerunensis Beier, 1965 (Figs 30, 31, 66–68)

Material studied. CAMEROON: 1 male, 2 females, Southwest Region not far from Nigeria, Korup National Park, ~300 m, primary forest, at light, 1–8 February 2016, A. Gorochoy (ZIN).

Notes. This species was described from three localities in Cameroon (Beier 1965: “Mundame”, “Batoki” and “Hinterland, Jaunde-Station”). Here it is recorded from another locality of the same country. It is necessary to note that the male studied (Figs 30, 31, 66, 67) is more or less in accordance to the original description of *P. kamerunensis* and to the

photographs of one of its paratypes in OSF. However, the females studied are with an obtuse-angled apex of the female genital plate and with a pair of distinct convexities (clearly separated from each other by a median concavity) in the proximal half of this plate (Fig. 68); but judging by some other photographs in OSF, this plate in the female paratype of *P. kamerunensis* is with a roundly truncate apex and without distinct convexities in the proximal half. Thus, I cannot exclude that the latter female may belong to another species.

Also, it is necessary to add that the male genitalia of *Archamytta* Gorochoy, 1993 have a rather large sclerite with a pair of posterolateral projections (Fig. 31). In this connection, it is very possible that a characteristic unpaired structure with a pair of large posterolateral lobes in male of the subgenus *Proamytta* Beier, 1965, considered by Naskrecki (2008: figs 2, A–C) as fused paraproctal processes, is the same genital sclerite.

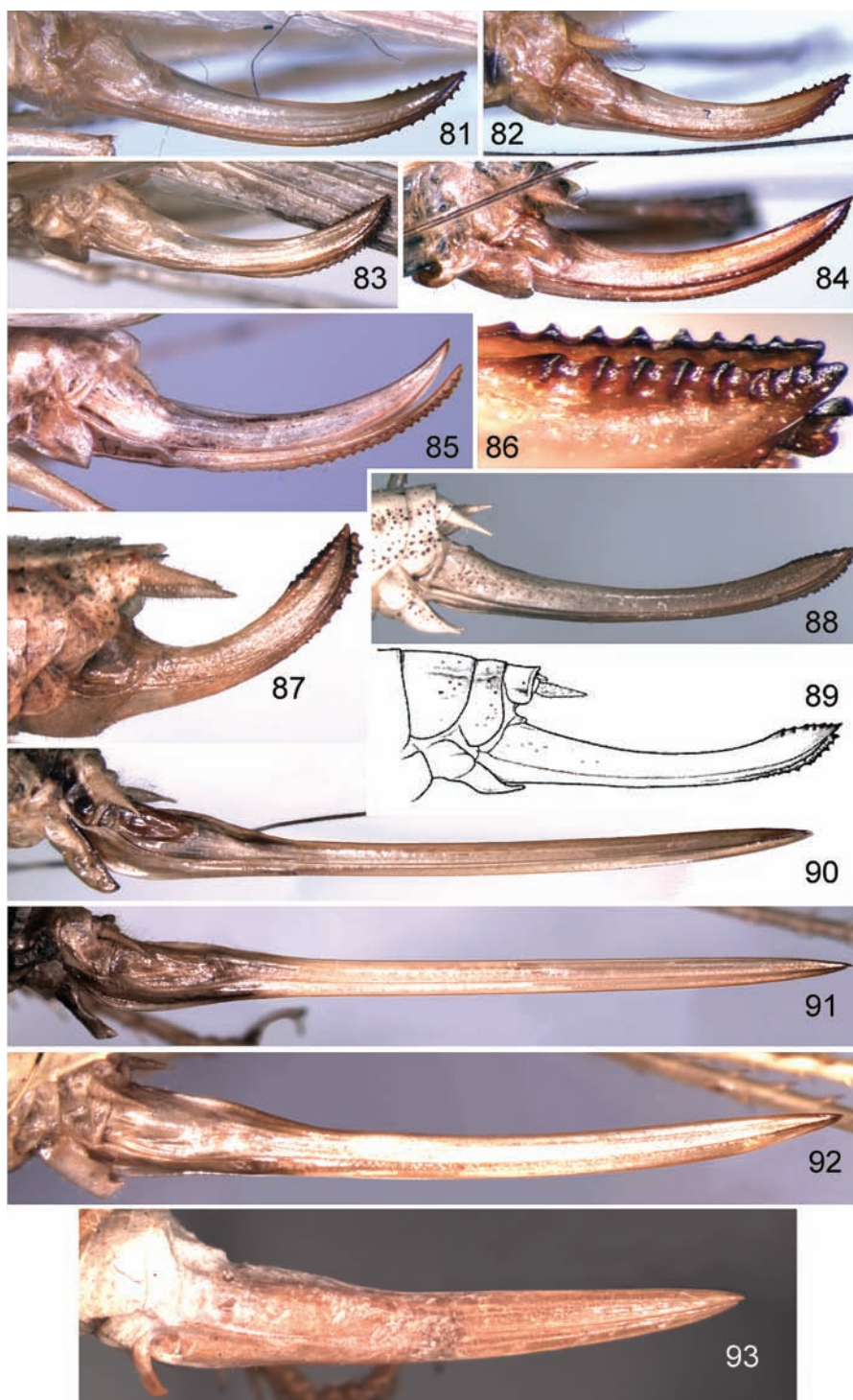
Subtribe *Acilacridina* subtrib. nov.

Type genus: *Acilacris* Bolivar, 1890 (gender feminine).

Diagnosis. Pronotum long and wide, without distinct humeral notches; hind lobe large, completely covering wings. Wings strongly shortened; tegmina of male usually with developed stridulatory apparatus; hind wings absent. Outer and inner tympana developed, completely opened; hind femora with thickened proximal halves. Ovipositor normally developed, with slightly widened subapical part and with rather numerous strong and transversally oblique ridges on thickened dorsal and ventral edges of subapical and apical parts of ovipositor (in profile, these ridges looking as denticles; Figs 86–89).

Included genera. Type genus (with two subgenera: *Acilacris* s. str. and *Aroegas* Périnquey, 1916, stat. nov.), *Paracilacris* Chopard, 1955 (with three subgenera: *Paracilacris* s. str., *Anaroegas* subgen. nov. and *Neacilacris* subgen. nov.) and probably *Africariola* Naskrecki, 1996 (see remarks below).

Comparison. The new subtribe is clearly distinguished from the nominotypical subtribe mainly by the structure of ovipositor: its distal part with strong transversally oblique ridges on the dorsal and ventral edges, but in Meconematina, ovipositor usually is with smooth edges or with small simple denticles only. Also, the new subtribe usually has a character-



Figs 81–93. Meconematini, Phisidini and ?Ecuanedubini: 81 – *Xiphidiola (Deinodiola) adunca* sp. nov.; 82 – *X. (D.) lobulata* sp. nov.; 83 – *X. (D.) dja* sp. nov.; 84 – *X. (Hemidiola) emarginata* sp. nov.; 85 – *X. (H.) minuta* sp. nov.; 86, 87 – *Paracilacris (Neacilacris) latiexcisa* sp. nov.; 88 – *P. (Paracilacris) lateralis* Chop.; 89 – *P. (P.) ?lateralis*; 90 – *Poecilomerus saga* Karny; 91 – *Longiphisis gracilis* sp. nov.; 92 – *Breviphisis robusta* sp. nov.; 93 – *Nepheliphila raptor* Hugel. Ovipositor from side (81–85, 87–93), and distal part of its upper valves in dorsolateral view (86). [89, after Naskrecki et al. (2008)].

istic general appearance connected with its pronotal shape and strongly shortened tegmina. The subtribe Meconematina is more diverse in the body structure but usually with more slender habitus (division of Meconematina into additional subtribes or groups of genera seems to me premature, but such division made on the base of more complete data may be useful in the future).

Remarks. Inclusion *Aroegas* stat. nov. in the genus *Acilacris* is based on a significant similarity of their representatives: all of them are characterized by a robust habitus with a very wide pronotum having the disc strongly widened in the posterior half; their copulatory structures are also rather similar, especially the male genital plate having long and narrowed distal part which is more or less curved upwards and provided with three small apical lobules (Figs 78–80). These characters clearly show that these species form a holophyletic group, and differences between them are not bigger than between subgenera in some other genera of Meconematinae (for comparison see subgeneric differences in the genus *Xiphidiola* above).

The genus *Paracilacris* distinctly differs from *Acilacris* in a less robust habitus with a less wide pronotum having the disc weakly and gradually widening backwards, as well as in a rather simple structure of the male genital plate (this plate is distinctly shorter, not curved upwards and with bifurcate apical part). However, the structure of male tegmina, of female genital plate and of ovipositor is rather diverse within this genus and allows me to divide it into three subgenera (see the key to subgenera of *Paracilacris* below). *Africariola* also belongs to *Acilacridina* subtrib. nov., but it is known from a single female only (Naskrecki 1996), and its relation to the both previous genera is not very clear.

Genus *Paracilacris* Chopard, 1955

Key to subgenera of *Paracilacris* s. l.

1. Male tegmina with distal part more or less rounded posteriorly and having distal edge located not very near distal edge of mirror, with mirror moderately large and having rounded distal edge, and with stridulatory vein transverse (Fig. 70); sclerite of male genitalia with narrow (almost spine-like) median part and rather long (wide) lateroproximal projections (Fig. 32). Female genital plate with a pair of narrow and moderately long posterior lobules directed only backwards (not partly

upwards); ovipositor long and more or less slender, slightly curved upwards (Figs 88, 89)

..... **subgenus *Paracilacris* s. str.**
[Included species: *P. lateralis* Chopard, 1955 (South Africa) – type species.]

- Male tegmina rather diverse in structure (Figs 73, 76); sclerite of male genitalia almost as in *Paracilacris* s. str., or this sclerite with much wider median part (having numerous lateral denticles) and short (small) lateroproximal projections. Female genital plate with more or less truncate apex or with a pair of narrow and very long posterior lobules directed partly upwards (Figs 71, 72, 74, 75); ovipositor moderately short and strong, weakly or distinctly curved upwards (Fig. 87) 2

2. Male tegmina almost as in *Paracilacris* s. str., i.e. with distal part more or less rounded posteriorly and having distal edge located not very near distal edge of mirror, with mirror moderately large and rounded, and with stridulatory vein transverse (compare Figs 70 and 73); sclerite of male genitalia with rather wide median part having numerous lateral denticles and with short (small) lateroproximal projections. Female genital plate with a pair of narrow and very long posterior lobules directed partly upwards (Figs 71, 72, 74, 75)

..... **subgenus *Neacilacris* subgen. nov.**
[Included species: *P. (N.) latiexcisa* sp. nov. – type species; *P. perichitatus* Naskrecki, Bazelet et Spearman, 2008 (South Africa). Etymology: *Neacilacris* consists of the Latinized Greek prefix “ne-” (new) and generic name *Acilacris*.]

- Male tegmina somewhat similar to those of *Acilacris* (*Aroegas*) stat. nov., i.e. with distal part truncate posteriorly and having distal edge located very near distal edge of mirror, with mirror very large and rectangular, and with stridulatory vein oblique (compare Figs 76 and 77); sclerite of male genitalia with narrow (almost spine-like) median part and rather long (wide) lateroproximal projections. Female genital plate with almost truncate (shallowly notched) posterior edge

..... **subgenus *Anaroegas* subgen. nov.**
[Included species: *P. mordax* Naskrecki, Bazelet et Spearman, 2008 (South Africa) – type species. Etymology: *Anaroegas* consists of the Latinized Greek prefix “an-” (not, against) and generic name *Aroegas*.]

Paracilacris (*Paracilacris*) *lateralis* Chopard, 1955 (Figs 69, 70, 88)

Material studied. SOUTH AFRICA: 1 male, KwaZulu-Natal, northern Drakensberg, Mike's Pass in Cathedral Peak area, 1640 m, on *Protea caffra*, 9 October 1988, I. Pajor (NMU); 1 female, same locality but 1710 m, on *Protea roupelliae*, 30 August 1988, I. Pajor (NMU); 2 females, same region but Tarn Hill

in Cathedral Peak area, 1850 m, on *Protea caffra*, 30 June 1988 and 21 July 1988, I. Pajor (NMU and ZIN).

Notes. These specimens originate from localities, situated close to the type locality of *P. lateralis* (Natal: Tugela Valley in Royal National Park; Chopard, 1955), and most probably belong to this species. However, its paratype (a single female recorded by Chopard as allotype of this species) originates from another region (Eastern Cape), and its ovipositor is broken. It is important because Naskrecki et al. (2008) identified a female from Free State of South Africa as belonging to *P. lateralis* and published illustrations of its ovipositor and genital plate. The latter plate is similar to that of my females, but its ovipositor is distinctly shorter (for comparison see Figs 88 and 89); thus, I cannot exclude that this female belongs to another species or to another subspecies of *P. lateralis*.

The male studied here is in accordance to the original description and photographs of Chopard's holotype in OSF; its genital sclerite is similar to that of *P. mordax* (Fig. 32), but its cerci and tegmina are more similar to those of *P. periclitatus* (Figs 69, 70).

***Paracilacris (Neacilacris) latiexcisa* sp. nov.**
(Figs 71, 72, 86, 87, 94)

Etymology. This species name consists of the Latin prefix "lati-" (widely) and the Latin word "excisa" (notched); such name is given in connection with a characteristic shape of the female genital plate.

Type material. *Holotype* – female, SOUTH AFRICA: Eastern Cape, environs of Grahamstown Town, December 1999, I. Bunakov (ZIN).

Description. *Female* (holotype). Colouration of body light brown with slightly lighter wide dorso-median band running from rostral apex and eyes to abdominal apex (this band with somewhat darkened narrow longitudinal median area on head behind rostral tubercle), with a pair of slightly darker lateral bands running from eyes to abdominal apex and gradually transforming into somewhat lighter ventral parts of body, with a pair of very light (yellowish) longitudinal lines running between above-mentioned bands (from eyes to abdominal apex), with antennae and distal part of rostral tubercle also yellowish (Fig. 94), and with brown dots on hind femur along its outer ventral keel and denticles (ridges) of distal part of ovipositor. Head conical (distinctly opistognathous), with more or less finger-like rostral tubercle

which almost truncate at apex (this tubercle not very narrow and with more convex dorsal edge in profile); scape approximately 2.7 times as wide as minimal space between antennal cavities, reaching apex of rostral tubercle. Pronotum widely semitubular, with weakly convex dorsal edge in profile; pronotal lateral lobe rather low, with oblique anterior edge, and with weakly rounded ventral edge gradually transforming into obliquely sloping posterior edge (hind pronotal lobe rather large but not separated from rest of pronotum, i.e. humeral notches absent; Fig. 94); wings invisible. Legs with inner and outer tympana opened, oval but not large; inner and outer surfaces of fore tibia with distinct longitudinal concavity located near each tympanum (distal to it); hind femur with barely thicker proximal half than in *P. lateralis*. Abdomen with posteromedian lobe of last tergite narrowing to apical part having small but distinct angular posteromedian notch and a pair of small angular lobules around it; epiproct partly reduced, in shape of small fold under posteromedian lobe of last tergite; paraprocts moderately small and unspecialized; genital plate rather short, with moderately large and rounded lateroproximal lobules distinctly separated from rest of this plate by narrow grooves, with rather long and almost spine-like posterolateral lobules directed mainly backwards and partly curved upwards, and with widely rounded notch between them (Figs 71, 72); ovipositor rather short, strong, clearly but not strongly curved upwards, and with distal part typical of this subtribe (Figs 86, 87).

Male unknown.

Length (in mm). Body 15.5; pronotum 6.9; hind femur 12.5; ovipositor 4.5.

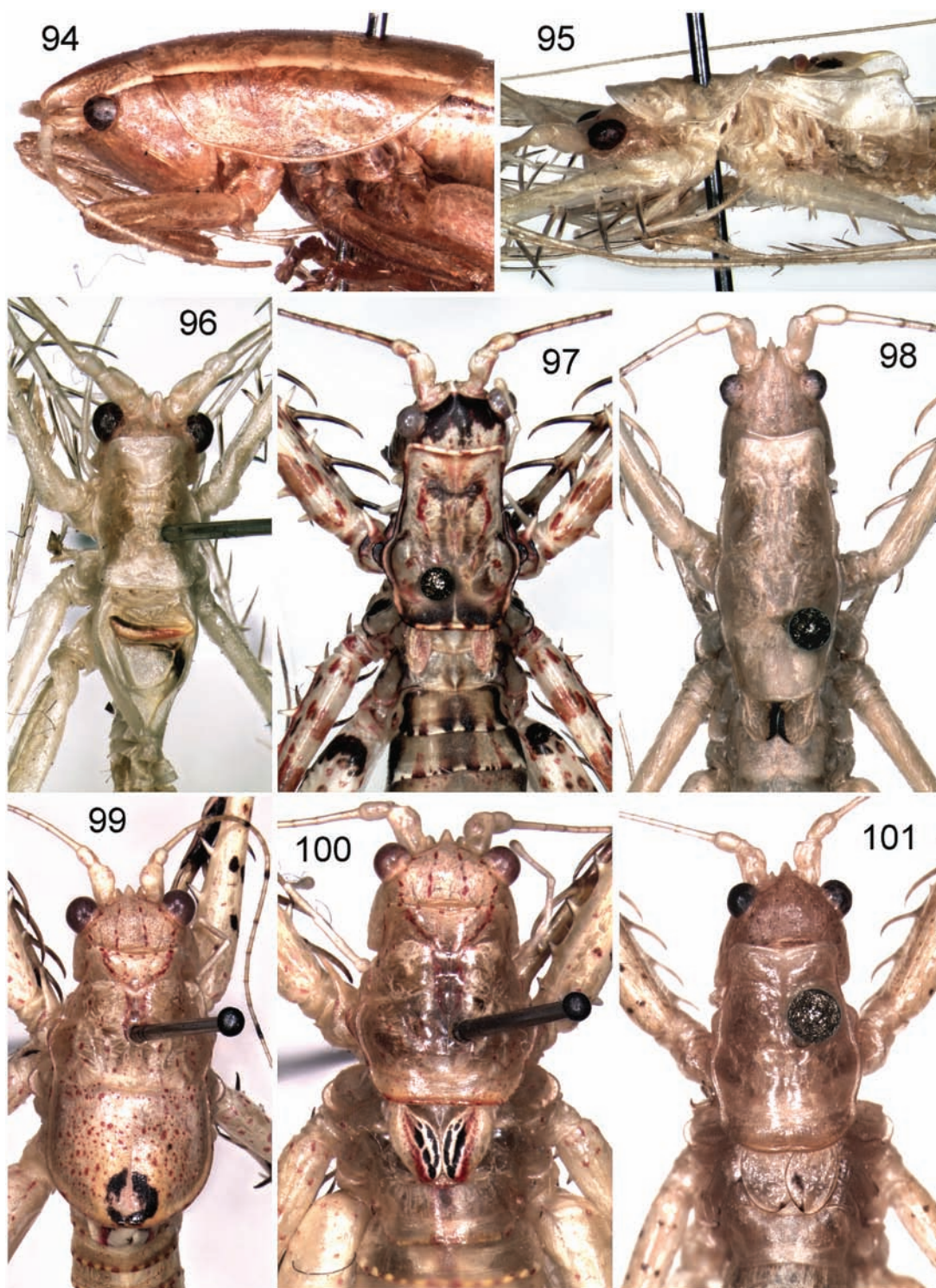
Comparison. The new species is most similar to *P. periclitatus* from KwaZulu-Natal in the general shape of female genital plate and of ovipositor, but it differs from the latter species in this plate shorter, having the posterolateral lobules less strongly curved upwards, and provided with a widely rounded (not angular) posteromedian notch (for comparison see Figs 71, 72 and 74, 75).

Tribe Phisidini Jin, 1987

Subtribe Phisidina Jin, 1987

Genus *Afrophisis* Jin et Kevan, 1991

Type species: *Teuthras carminator* Bolivar, 1906 (Cameroon).



Figs 94–101. Meconematini and Phisidini: 94 – *Paracilacris (Neocilacris) latiexcisa* sp. nov., female; 95, 96 – *Afrophisis (Jinkevania) parva* sp. nov., male; 97 – *Poecilomerus saga* Karny, female; 98 – *Longiphisis gracilis* sp. nov., male; 99, 100 – *Breviphisis robusta* sp. nov., male (99) and female (100); 101 – *L. media* sp. nov., female. Head and pronotum from side (94); head, pronotum and tegmina from side (95) and from above (96–101).

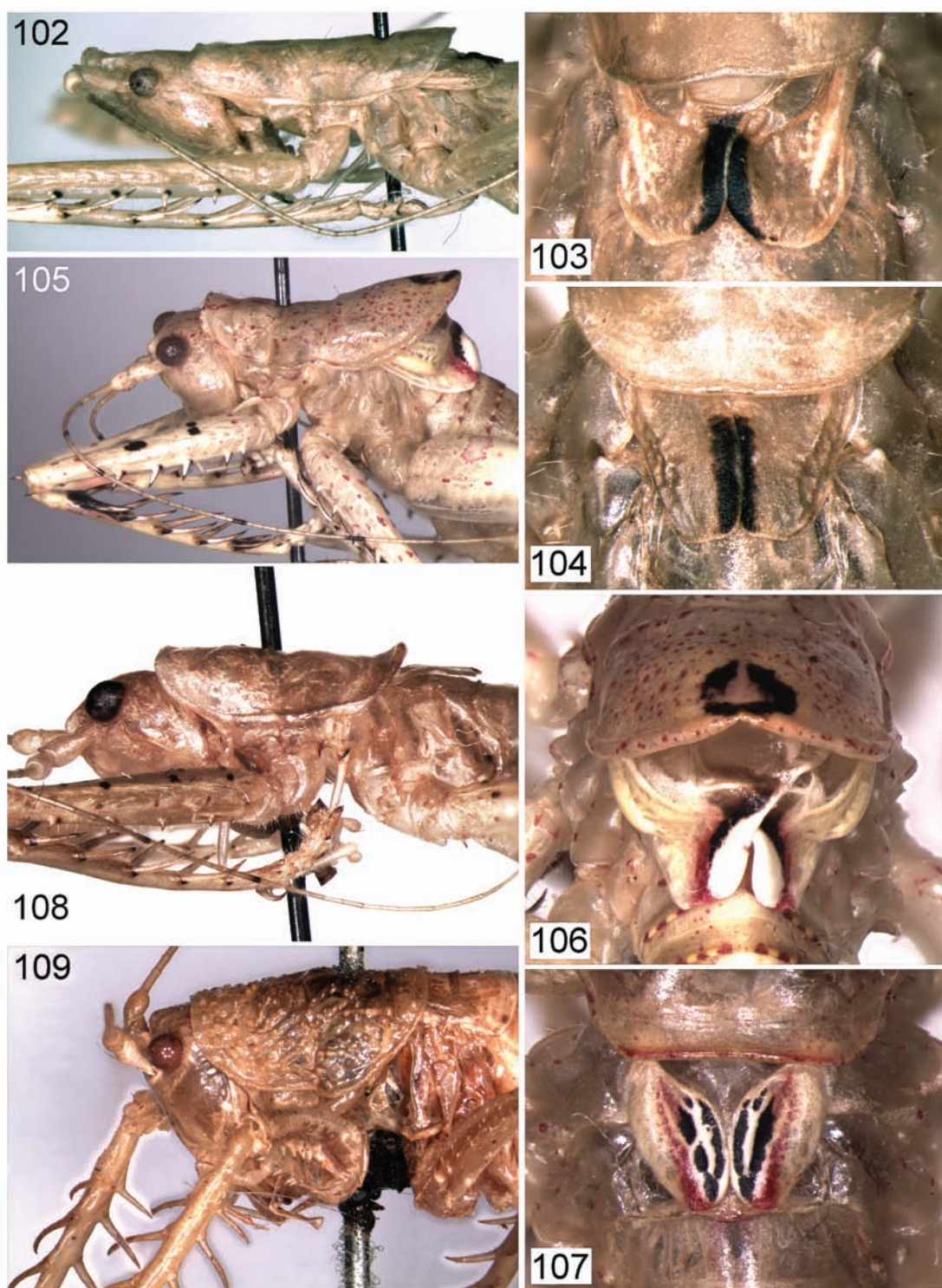
Notes. This African genus is rather diverse in the structure of male abdominal apex and of wings; its fore coxa may be with a distinct spine or without any spine (Jin and Kevan 1991). This genus may be divided into three subgenera which are described below, in the key to subgenera of *Afrophisis*.

1. Wings long, clearly protruding behind abdominal apex. Fore coxa with spine or without it. Male epiproct rather short and in usual position (i.e. directed backwards or partly downwards; approximately as in Fig. 111), or it elongated and directed partly upwards; male genital plate with more or less narrow and distinctly notched apex (Figs 113–115) 2
- Wings short, distinctly not reaching abdominal apex (Figs 95, 96). Fore coxa without spine. Male epiproct short and situated in usual position (Fig. 111); male genital plate with wide and almost truncate apex (Fig. 111) **subgenus *Jinkevania* subgen. nov.**
[Included species: *Afrophisis* (*J.*) *parva* sp. nov. (Cameroon) – type species; probably *A. leptopennis* Jin et Kevan, 1991 (Cameroon). Etymology: this subgenus is named after X.-B. Jin and D.K.McE. Kevan who described this genus and part of its species.]
2. Fore coxa without spine. Male epiproct short and situated in more or less usual position; male genital plate with rather short or moderately long posteromedian notch, and with comparatively short or moderately long posterior lobules having not very small styles (Figs 113, 114) **subgenus *Afrophisis* s. str.**
[Included species: type species; *A. flagellata* Hemp, 2013 (Tanzania); possibly *A. kisarawe* Hemp, 2013 (Tanzania) and *Teuthras dumosa* Karsch, 1896 (Togo).]
- Fore coxa with spine. Male epiproct elongated and directed more or less upwards; male genital plate with very deep and narrow posteromedian notch and with very long and narrow posterior lobules having extremely small styles (Fig. 115) **subgenus *Mirabiphisis* subgen. nov.**
[Included species: *Afrophisis tanzanica* Jin et Kevan, 1991 (Tanzania) – type species; *A. mazumbaiensis* Hemp, 2013 (Tanzania); possibly *A. pseudoflagellata* Hemp, 2013 (Tanzania). Etymology: *Mirabiphisis* consists of a part of the Latin word “mirabilis” (mirabile, remarkable) and the generic name *Phisis*.]

***Afrophisis* (*Jinkevania*) *parva* sp. nov.**
(Figs 95, 96, 110, 111, 130)

Type material. *Holotype* – male, CAMEROON: Southwest Region not far from Nigeria, Korup National Park, ~300 m, primary forest, on leaf of tree at night, 1–8 February 2016, A. Gorochov (ZIN). *Paratype* – male, same data as for holotype (ZIN).

Description. *Male* (nov.). Body small and slender, with long and very thin legs (however, all femora with slightly thickened proximal third). Colouration uniformly light green, but eyes light brown with numerous brown spots, left tegmen with reddish yellow stridulatory vein (having narrow brown stripe along proximal edge of its lateral half) and with not large brown spot near proximodorsal corner of mirror (Figs 95, 96), ventral spines of fore femur and of fore and middle tibiae with dark brown or greyish brown most part of ventral (inner) surfaces, and dorsal surface of fore tibia with a pair of brownish spots around proximal halves of tympanal openings. Head typical of Phisidina: slightly opisthognathous, with median convexity on anterior surface under antennal bases, with rostral tubercle short and conical but having narrow median groove on dorsum, with scape strongly protruding before apex of rostral tubercle and about 3.5 times as wide as minimal space between antennal cavities. Pronotum also typical of this subtribe: widened in middle part, moderately narrowed in anterior part, slightly narrowed in posterior part, with almost straight (transverse) anterior and posterior edges of disc, with very low lateral lobe (especially in anterior and posterior parts), and without distinct hind lobe and humeral notches (Figs 95, 96). Tegmina strongly shortened, reaching base of fifth abdominal tergite, with normally developed stridulatory apparatus having thickened transverse stridulatory vein and rather large and weakly transverse mirror, and with very short lateral field slightly longer than dorsal field and almost lacking venation in distal half (Figs 95, 96); hind wings invisible. Legs without spine on fore coxa; fore femur with 5 pairs of very long ventral spines and 1 somewhat shorter unpaired (proximal outer) ventral spine; fore tibia with 7 pairs of such spines (majority of them very long, but 1 distal pair distinctly shorter) and tympanal organ as in Fig. 110; middle legs with trochanter having 1 ventral spinule, with femur having 4–5 moderately long ventral outer spines and 1–2 smaller ventral inner (proximal) spinules, and with tibia having 5 pairs of moderately long ventral spines and 1 unpaired (proximal outer) ventral spine of same length as well as 1 shorter dorsal outer spine; hind legs with several short spinules on outer ventral keel of femur and rather numerous such spinules on all sides of tibia (femoral apices of all legs with a pair of distinct spinules). Last abdominal tergite and epiproct as in Fig. 111; paraproct somewhat smaller than epiproct but with short posterior projection an-



Figs 102–109. Phisidini and ?Ecuanedubini: 102–104 – *Longiphisis gracilis* sp. nov., male (102, 103) and female (104); 105–107 – *Breviphisis robusta* sp. nov., male (105, 106) and female (107); 108 – *L. media* sp. nov., female; 109 – *Nepheliphila raptor* Hugel, female. Head, pronotum and tegmina from side (102, 105, 108, 109); tegmina from above and slightly behind (103), from above (104, 107), and from behind and slightly above (106).

gular in profile and directed partly downwards; cercus rather long and thin, almost cylindrical in transverse section, and with distal part arcuately curved inside (Fig. 111); genital plate short and with almost widely truncate (weakly notched, slightly sinuate) distal part having a pair of small styles at posterolateral corners (Fig. 111); genitalia with elongate sclerite having three elongate lobules at apex (Fig. 130).

Variations. Tegmina of second male reaching middle of fourth abdominal tergite; its upper tegmen with darkened spot near proximomedial corner of mirror distinctly smaller.

Female unknown.

Length (mm). Body 11.0–12.5; pronotum 3.2–3.3; tegmina 3.3–3.4; hind femora 14.0–14.5.

Comparison. This species differs from *A. leptopennis* (described after a single female from another locality in Cameroon; Jin and Kevan 1991: Mueli) in a distinctly smaller body size and clearly less projecting (not almost angular) anteroventral corner of the pronotal lateral lobe.

Genus *Malagasyphisis* Hugel, 2012

Malagasyphisis maromizaha Hugel, 2012

(Figs 116, 134, 135)

Material studied. MADAGASCAR: 2 males, Toamasina Prov., Moramango Distr., Analamazaotra Forest Station near Andasibe Vill., 18°56'S, 48°25'E, ~900 m, secondary forest, on leaf of bush at night, 1–7 March 2013, A. Gorochov, L. Anisyutkin (ZIN).

Notes. This species was described by Hugel (2012) from Madagascar (Anevoka: Maromizaha). My specimens are in accordance to its original description (Figs 116, 134, 135) and recorded from another locality of the same island. It is useful to note that *Malagasyphisis* Hugel, 2012 is rather similar in the majority of characters to *Afrophasis* but has a very small spine on the fore coxa.

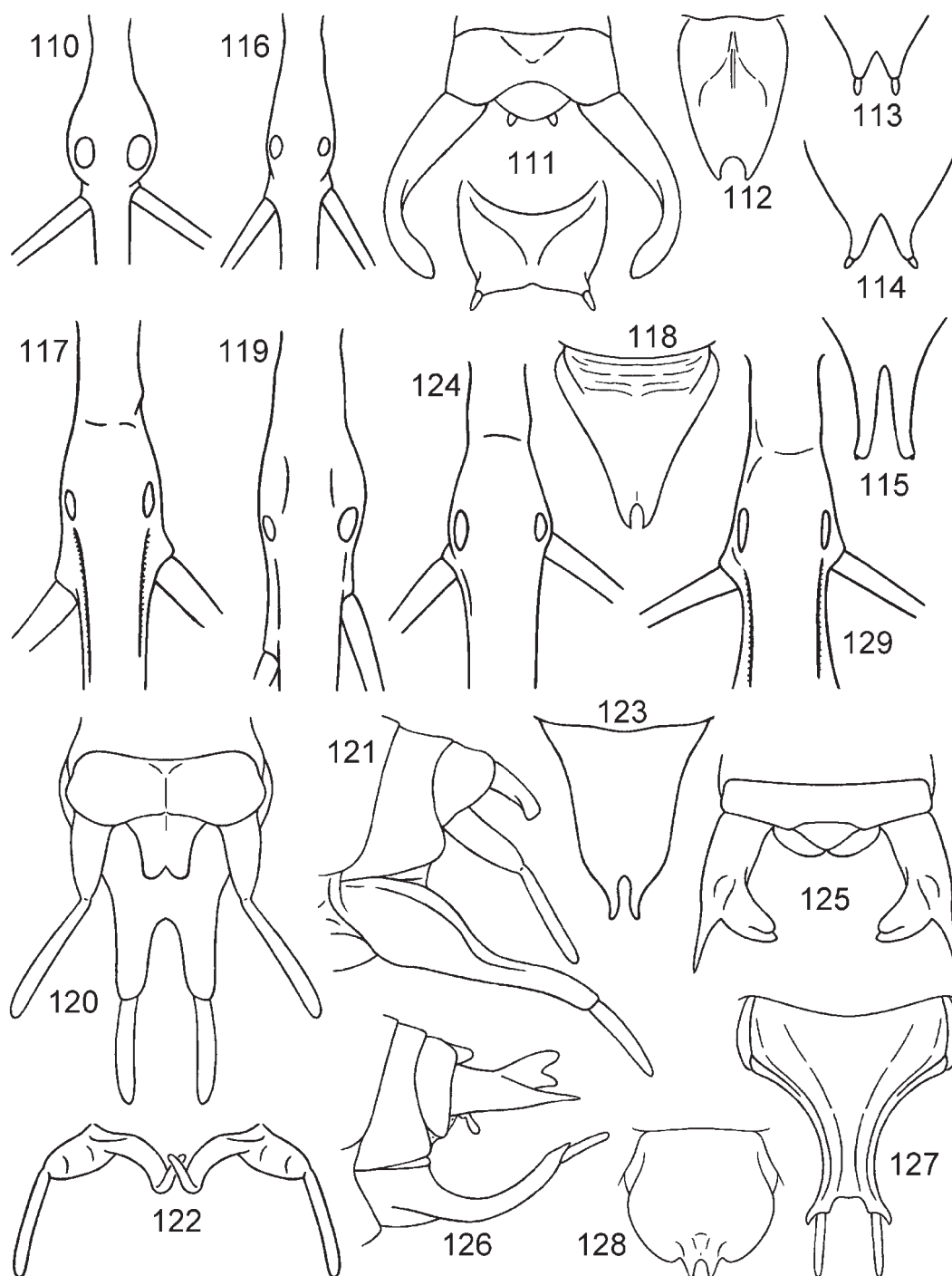
Genus *Brachyphisis* Chopard, 1957

(Figs 131, 132)

Notes. The former genus *Paradecolya* Jin, 1992 may be included in this genus as its subgenus, because their representatives are distributed in two nearest islands of the Indian Ocean (Mauritius and Reunion) only, and they are similar to each other in the most characters of body structure including the

presence of one proximal spine and numerous very small denticles on the inner ventral keel of middle tibia, elongate male paraprocts (which are protruding behind the apex of epiproct), a rather simple shape of the male cerci, undivided and strongly curved male genital sclerite, and somewhat arcuate ovipositor. After the description of separated genera (*Rodriguesiophisis* Hugel, 2010 and *Seselphisis* Hugel, 2012) for the two species from Rodrigues I. and from Seychelles, included by Jin and Kevan (1992) in *Brachyphisis* and *Paradecolya*, morphological diversity inside *Brachyphisis* s. l. has become lower than these authors believed. Thus, these subgenera differ from each other in the height of pronotum, in the size of “thoracic auditory opening”, in the length of wings (this character is usually variable inside the same genus) and in small peculiarities of the paraproctal and cercal shape only; such differences seem to me more subgeneric than generic. Also, it is useful to note that the fore coxa in this genus has a rather large spine, and the membranous part of its male genitalia is with a pair of small semisclerotized lobules (having very small denticles) similar to those of *Malagasyphisis* (see Figs 131, 132 and 134, 135).

The presence of numerous small denticles on the inner ventral keel of the middle tibia may be a very interesting character testifying the relationship of *Brachyphisis* s. l. with some other genera of Phisidini from the above-mentioned islands (for example with *Seselphisis*) and with some representatives of the genus *Phisis* Stål, 1861. Moreover, the genus *Nepheliphila* Hugel, 2010, described from Mauritius I. and included in the subfamily Hexacentrinae by its author (Hugel 2010), is also with numerous small denticles between almost all the larger ventral femoral spines (in some other representatives of Hexacentrinae, for example in *Hexacentrus* Audinet-Serville, 1831, such armament of legs may be also developed) and with the tympanal organs more or less similar to those of some Madagascan genera considered below (see Figs 117, 119, 124, 129). However, *Nepheliphila* has a characteristic rostral tubercle (vertically lamellar, rounded in profile, and distinctly separated from its strongly convex dorsoproximal part by a deep fold well visible in profile; Fig. 109) and very robust general appearance (Figs 93, 109, 129); these features, especially the structure of rostral tubercle, indicate a certain similarity of *Nepheliphila* to the American genus *Ecuaneduba* Gorochov, 2003 clearly belonging to Hexacentrinae.



Figs 110–129. Phisidini and ?Ecuanedubini: 110, 111 – *Afrophisis* (*Jinkevania*) *parva* sp. nov.; 112 – *Longiphisis media* sp. nov.; 113 – *A. (Afrophisis) carminator* (Bol.); 114 – *A. (A.) flagellata* Hemp; 115 – *A. (Mirabiphisis) tanzanica* Jin et Kevan; 116 – *Malagasyphisis maromizaha* Hugel; 117, 118 – *Poecilomerus saga* Karny; 119–123 – *L. gracilis* sp. nov.; 124–128 – *Breviphisis robusta* sp. nov.; 129 – *Nepheliphila raptor* Hugel. Tympanal organ of left fore tibia, dorsal view (110, 116, 117, 119, 124, 129); male abdominal apex without genital plate from above, and this plate from below (111); female genital plate from below (112, 118, 123, 128); male genital plate (127) and its distal part (113–115) from below; male abdominal apex with genital plate from above (120) and from side (121, 126), and this apex without genital plate from above (125); male cerci from behind (122).

Subtribe Arachnoscelidina Gorochov, 2013

Note. Belonging of this subtribe to Phisidini is questionable, because the most part of Arachnoscelidina characters shows similarity with Phisidina, but the structure of rostral tubercle is similar to that of Hexacentrinae. In Phisidina, this tubercle is usually more or less conical and with a flattened dorsum often having a thin median groove, but in Arachnoscelidina and Hexacentrinae, it is vertically lamellar, often rounded in profile, and usually without any dorso-median groove. *Poecilomerus* and the new Madagascan genera also have the rostral tubercle similar to that of Arachnoscelidina and Hexacentrinae. Thus, relationship of these genera to this subtribe as well as to Phisidini or Hexacentrinae are in need of an additional study, and the present inclusion them in Arachnoscelidina is very provisional.

Genus *Poecilomerus* Karny, 1907

Poecilomerus saga Karny, 1907

(Figs 90, 97, 117, 118)

Material studied. MADAGASCAR: 6 females, Toamasina Prov., Moramango Distr., Analamazaotra Forest Station near Andasibe Vill., 18°56'S, 48°25'E, ~900 m, secondary forest, on leaf of bush at night, 1–20 March 2013, A. Gorochov, L. Anisyutkin (ZIN).

Notes. Male of this species, described from Madagascar (Karny 1907: Antongil) after a single female, is unknown (in OSF, there is an erroneous indication that holotype of *P. saga* is a male). The females studied are in accordance to the original description of *P. saga* (Figs 90, 97, 117, 118). Taxonomic position of the genus *Poecilomerus* was questionable during the long time. Originally, Karny included it together with some genera of Meconematini in his tribe "Listroscelini" of the subfamily Conocephalinae. However, Gorochov (1995) proposed to transfer this genus in the tribe Phisidini (Meconematinae) on the base of structure of its tympanal organs. Later, he began to doubt this proposal (Gorochov 2007) because *P. saga* has distinct longitudinal concavities on the outer and inner surfaces of fore tibia near the distal edges of tympanal openings (such concavities are more characteristic for tettigoniids from the subfamilies Tettigoniinae, Conocephalinae, Hexacentrinae and some other related subfamilies but not for the other known

representatives of Phisidini). At present, the hypothesis about belonging of *Poecilomerus* to Phisidini is weakly supported by a more or less similar (almost intermediate) structure of the fore tibia discovered in the new genera from Madagascar (*Longiphisis* gen. nov., *Breviphisis* gen. nov.).

Genus *Longiphisis* gen. nov.

Type species: *Longiphisis gracilis* sp. nov.

Etymology. This generic name consists of the Latin prefix "longi-" (long) and generic name *Phisis*.

Diagnosis. Body rather large and long for this tribe, similar to that of *Poecilomerus* in general appearance but distinctly smaller and less spotted. Head elongately conical (clearly opistognathous), with vertically lamellar rostral tubercle clearly projected before borders of antennal cavities but distinctly not reaching apices of scapes (apex of this tubercle rounded in profile). Pronotum long and low, weakly widened in middle part, with distinctly concave anterior and roundly truncate posterior edges of disc (Figs 98, 101), with barely sinuate ventral edge of lateral lobe, with hind lobe developed but almost not separated from rest of pronotum (humeral notches indistinct; Figs 102, 108); in male, latter lobe clearly longer than in female (it covering tegminal stridulatory apparatus in male and only basal part of tegmina in female; Figs 98, 101, 102, 108); sternite of prothorax with a pair of short and not acute spines (almost angular tubercles); meso- and metathoracic sternites practically without such spines. Tegmina small, reaching base of first abdominal tergite in male and middle or apex of metanotum in female; male tegmina with comparatively large stridulatory apparatus, with narrow lateral part (between this apparatus and costal edge) having one thick longitudinal vein only, and with rather short distal part (behind stridulatory apparatus) having rounded apex and arcuately curved (in profile) medial part (Figs 102, 103); female tegmina narrow and elongate, contacting with each other, and almost without venation (Figs 101, 104); hind wings undeveloped. Legs very long and rather thin, more or less similar to those of *Jinkevania* subgen. nov. in general shape (including absence of spine on fore coxa); however, apices of all femora with a pair of distinctly longer apical spines, fore femur with 4–5 pairs of not long ventral spines, fore tibia with 5 pairs of very long ventral spines and 1 distal pair of clearly shorter ventral spines as well as

with weakly inflated tympanal organ having a pair of small oval openings and weakly visible longitudinal concavity near distal edge of inner opening (such concavity near outer opening almost indistinct; Fig. 119). Last abdominal tergite of male also similar to that of *Jinkevania* subgen. nov., but male epiproct more elongate and narrowing to bilobate apex (Figs 120, 121); male paraprocts small and unspecialized; male cerci almost cylindrical in proximal half, somewhat narrowed in middle part, stick-like in distal part (this part movable relative to proximal cercal part), and with characteristic medial hook at base (Figs 120–122); male genital plate long, clearly narrowed in distal half, with deep and narrow median notch, and with long and narrow posterior lobules having very long stick-like styles (Figs 120, 121); male genitalia with unpaired T-shaped sclerite somewhat similar to that of *Neacilacris* subgen. nov. (Fig. 133). Abdomen of female with genital plate more or less similar to that of *Poecilomerus* (Figs 112, 123), and with ovipositor long, narrow (low), practically straight, and acute at apex (Fig. 91).

Included species. Type species; *L. media* sp. nov.

Comparison. This genus is most similar to *Poecilomerus* in the habitus as well as in the structure of the tympanal organs, but it is clearly distinguished from the latter genus by the absence of any spine on the fore coxa as well as of spines on the mesothoracic sternite. From the other similar genera, *Longiphisis* gen. nov. differs in a rather long body in combination with a distinctly opistognathous head, long and low pronotum, weakly inflated tympanal organ with small openings, characteristic structure of the male copulatory device, and the above-mentioned characters of fore coxa and of mesothoracic sternite.

***Longiphisis gracilis* sp. nov.**

(Figs 91, 98, 102–104, 119–123, 133)

Etymology. This species name is the Latin word “gracilis” (gracile).

Type material. *Holotype* – male, MADAGASCAR: Toamasina Prov., Moramango Distr., Analamazaotra Forest Station near Andasibe Vill., 18°56′S, 48°25′E, ~900 m, secondary forest, on leaf of tree at night, 1–7 March 2013, A. Gorochoy, L. Anisyutkin (ZIN). *Paratypes*: 2 males, 3 females, same data as for holotype but 1–20 March 2013 (ZIN).

Description. Male (holotype). Body uniformly greenish with yellowish grey tinge, light brown eyes,

almost whitish pedicel and first segment of antennal flagellum, dark brown (almost blackish) stripe on each tegmen along its anal edge from stridulatory apparatus to tegminal apex, and small brown spot at base of each ventral spine of fore femur and of fore tibia (excepting a most distal pair of these spines on tibia). Head rather elongate (Figs 98, 102); scape almost 3.5 times as wide as minimal space between antennal cavities; maxillary palpi long and thin, with apical segment slightly longer than subapical one. Pronotum with almost trapezoidal transverse sulcus on anterior part of disc and with barely inflated hind pronotal lobe (Figs 98, 102). Tegmina as in Figs 103; legs with outer tympanal opening distinctly larger than inner one, with proximal spines of fore tibia located not very near tympanal openings (Fig. 119), with middle legs having 1 small ventral spine on trochanter, 4 inner and 4–5 outer ventral spinules on femur, and 6 pairs of ventral spines on tibia (a distal pair of these spines short, others rather long but distinctly shorter than in fore tibia); abdominal apex and genital sclerite as in Figs 120–122, 133.

Variations. One male with general colouration of tegmina light yellow, and with abdominal tergites having reddish dots along their posterior edges (but last tergite without such dots).

Female. General appearance as in male, but hind lobe of pronotum clearly not inflated and with posterior edge directed backwards in profile, tegmina reaching middle of metanotum and with almost truncated apices (Fig. 104), and abdominal apex with unspecialized last tergite, epiproct and cerci. Ovipositor and genital plate as in Figs 91 and 123.

Length (mm). Body: male 21.0–24.0, female 22.0–25.0; pronotum: male 6.5–6.8, female 5.7–6.2; tegmina (visible part): male 1.8–2.0, female 1.3–1.6; hind femora: male 18.0–19.5, female 20.0–22.0; ovipositor 19.0–20.5.

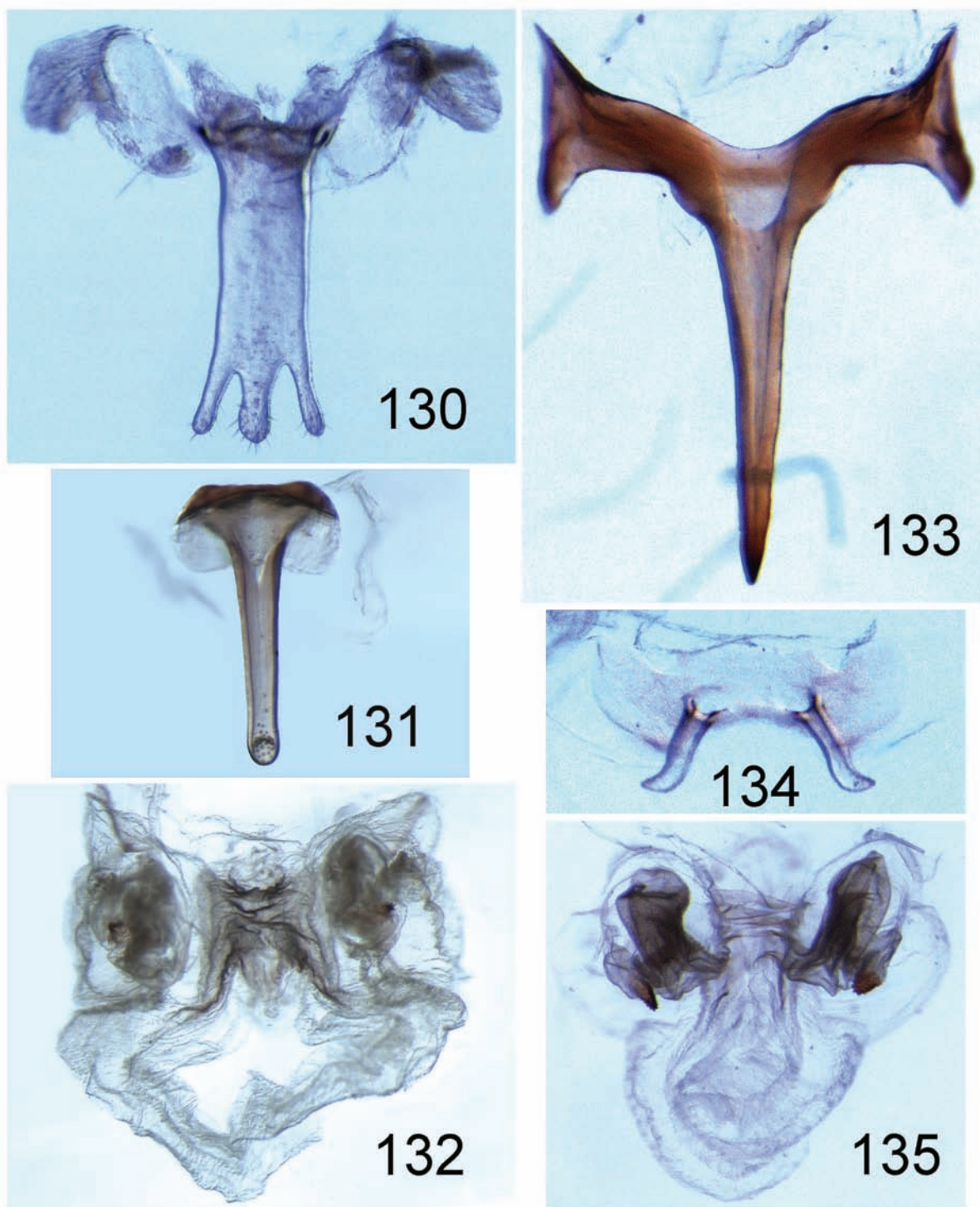
Comparison. Differences from the second congener are given below, after its description.

***Longiphisis media* sp. nov.**

(Figs 101, 108, 112)

Etymology. This species name is the Latin word “media” (middle) indicating an intermediate general appearance of this species between *L. gracilis* sp. nov. and *Breviphisis* gen. nov.

Type material. *Holotype* – female, MADAGASCAR: Toamasina Prov., Moramango Distr.,



Figs 130–135. Phisidini: 130 – *Afrophisis (Jinkevania) parva* sp. nov.; 131, 132 – *Brachyphisis (Paradecolya) expectata* (Hugel); 133 – *Longiphisis gracilis* sp. nov.; 134, 135 – *Malagasyphisis maromizaha* Hugel. Male genital sclerite from above (130, 131, 133, 134); mainly membranous part of male genitalia from below (132, 135).

Analamazaotra Forest Station near Andasibe Vill., 18°56'S, 48°25'E, ~900 m, secondary forest, on leaf of bush at night, 8–20 March 2013, A. Gorochoy (ZIN).

Description. *Female* (holotype). Body yellowish with greyish tinge, brown eyes and sparse small spots on antennal flagellum, several large brown dots on dorsal part of fore and middle femora, several smaller light brown dots on outer and inner surfaces of same femora, a few brownish dots on distodorsal area of hind femur, dark brown dot at base of each ventral spine of fore and middle tibiae, a few light brown dots on dorsal half of middle tibia, and two small brown marks on each tegmen along its medial edge (Figs 101, 108). Head less elongate than in *L. gracilis* sp. nov. (for comparison see Figs 102 and 108); scape approximately 4 times as wide as minimal space between antennal cavities; palpi as in *L. gracilis* sp. nov. Pronotum with almost angular transverse sulcus on anterior part of disc (Fig. 101); hind pronotal lobe with posterior edge directed somewhat upwards (Fig. 108). Tegmina reaching apex of metanotum and with distal part narrowly rounded (Fig. 101); legs with both (outer and inner) tympanal openings almost equal to each other in size, with proximal spines of fore tibia located very near tympanal openings (almost as in Fig. 124), and with rest armament of legs as in *L. gracilis* sp. nov. (but outer ventral keel of middle femur having 3–4 spinules); abdominal apex also similar to that of female of *L. gracilis* sp. nov., but genital plate with less deep posteromedian notch and not sinuated lateral edges (Fig. 112).

Male unknown.

Length (mm). Body 18.0; pronotum 4.3; tegmina (visible part) 1.4; hind femora 12.5; ovipositor 12.5.

Comparison. The new species clearly differs from *L. gracilis* sp. nov. in a smaller body, more spotted colouration (especially colouration of legs), shorter head, different position of the pronotal posterior edge in female (it is clearly directed upwards), narrowly rounded distal part of the female tegmina, and the above-mentioned characters of fore tibia and of female genital plate.

***Genus Breviphisis* gen. nov.**

Type species: *Breviphisis robusta* sp. nov.

Etymology. This generic name consists of the Latin prefix “brevi-” (short) and generic name *Phisis*.

Diagnosis. Body moderately large for this tribe, but somewhat smaller (shorter) than in *Longiphisis*

gen. nov. Head rather short, weakly conical (slightly opistognathous), with short and somewhat laterally flattened rostral tubercle; this tubercle obtuse-angled in profile and with almost rounded apex reaching anterior borders of antennal cavities (Figs 99, 100, 105). Male pronotum long but not very low, clearly narrowed in anterior part, distinctly widened in rest parts but with weak narrowing before hind lobe; this lobe very large (covering tegminal stridulatory apparatus), inflated, directed slightly upwards, clearly separated from rest of pronotum by small (shallow) humeral notches located in ventral parts of lateral lobes (more anterior part of ventral edge of each lateral lobe distinctly sinuate, but more posterior one, clearly roundly convex; Fig. 105); pronotal disc with concave anterior and almost angularly rounded posterior edges (Fig. 99). Female pronotum much shorter, with much shorter and not inflated hind lobe (anterior edge of disc as in male, but posterior one truncated) not covering most part of tegmina (Figs 100, 107). Pro- and metathoracic sternites more or less similar to those of *Longiphisis* gen. nov. but somewhat wider; mesothoracic sternite also wider than in this genus and with a pair of short finger-like processes widely separated from each other. Male tegmina small, reaching base of 3rd abdominal tergite, somewhat inflated in region of rather large stridulatory apparatus; lateral tegminal part between this apparatus and costal edge clearly wider than in *Longiphisis* gen. nov. but also with one very thick longitudinal vein; distal part of tegmina (behind stridulatory apparatus) short, roundly truncated at apex, lacking venation, and situated almost in vertical plane (Figs 99, 105, 106). Female tegmina much smaller (reaching apex of metanotum) but elongate, lobule-like, almost oval, lying in horizontal plane, and with only traces of a few veins in medial half; distal halves of these tegmina contacting with each other (Fig. 107). Hind wings undeveloped in both sexes. Legs and majority of their spines somewhat more robust than in *Longiphisis* gen. nov.; tympanal organs and armament of fore legs similar to those of this genus, but fore coxae with very large spine slightly curved downwards, inner tympanal opening clearly larger than outer one, and a proximal pair of tibial ventral spines located very near these openings (longitudinal concavity on this tibia barely distinct near inner tympanal opening and absent near outer one; Fig. 124). Male last abdominal tergite almost as in *Longiphisis* gen. nov.;

male epiproct very small, triangular, unspecialized; each male paraproct with small finger-like lobule directed downwards; male cerci with distal spine, with medial lamellar lobe having bifurcated apex, and without any hook at base (Figs 125, 126); male genital plate elongated, strongly narrowed in distal half, and with a pair of apical lobules having rather long and thin styles (Figs 126, 127). Female abdominal apex distinguished from that of *Longiphisis* gen. nov. only by a shorter genital plate having a pair of apical spinule-like projections, rather narrow notch between them, and a pair of shorter rounded lobules around these projections (Figs 92, 128).

Included species. Type species only.

Comparison. The new genus differs from *Longiphisis* gen. nov. in shorter body and legs, a more inflated hind pronotal lobe in male, larger and inflated male stridulatory apparatus, the presence of a large spine on the fore coxa, as well as in the above-named characters of copulatory devices in male and in female; from *Poecilomerus*, in a smaller and shorter body as well as in a different shape of the female genital plate; and from the other similar genera of Phisidina, in a larger body in combination with a large and inflated hind pronotal lobe, strongly shortened tegmina with a rather large and inflated stridulatory apparatus, small openings of the tympanal organs, a simple male epiproct, and characteristic male paraprocts, male cerci, male genital plate and female genital plate (see the description above).

***Breviphisis robusta* sp. nov.**

(Figs 92, 99, 100, 105–107, 124–128)

Etymology. This species name is the Latin word “robusta” (robust).

Type material. *Holotype* – male, MADAGASCAR: Toamasina Prov., Moramango Distr., Analamazaotra Forest Station near Andasibe Vill., 18°56'S, 48°25'E, ~900 m, secondary forest, on leaf of bush at night, 8–20 March 2013, A. Gorochov (ZIN). *Paratypes*: 6 females, same data as for holotype but 1–20 March 2013, A. Gorochov, L. Anisyutkin (ZIN); 1 female, same province and district, ~10 km NW of Andasibe Vill., Torotorofotsy Reserve, ~1000 m, 22 February – 11 March 2013, A. Gorochov (ZIN).

Description. *Male* (holotype). Body yellowish with greenish tinge, rather numerous and very small reddish marks on head dorsum and on pronotum,

less numerous similar marks on all femora and on fore coxa, sparse similar marks on thoracic pleurites and on abdominal tergites, greyish brown eyes, dark brown ring-like spot on hind part of pronotal disc, several blackish marks on legs [fore femur with a few small dorsal spots and ventral (inner) surface of all spines, fore and middle tibiae with large ventral spot near base and smaller one near apex as well as with marks at base and on distoventral surface of spines, hind tibia with apical spot, and tarsi with small marks on third segment of fore and middle tarsi and on three proximal segments of hind tarsus], whitish area in distal part of tegmina (this area separated from rest of tegmen by reddish band having blackish stripe in its proximal half and brownish grey spot at its base), small but distinct reddish spots along posterior edges of abdominal tergites, and two rather large rose spots on dorsal surface of each hind femur (Figs 99, 105, 106). Head with scape approximately 2.5 times as wide as minimal space between antennal cavities; maxillary palpi similar to those of *L. gracilis* sp. nov.; pronotum with angular transverse sulcus on anterior part of disc and with lateral and hind lobes as in Figs 99, 105; tegmina with rounded transverse fold (elongated concavity) between inflated stridulatory apparatus and distal tegminal part (Figs 105, 106). Legs with distinctly thickened proximal femoral parts (rather robust in general view); tympanal organ of fore legs as in Fig. 124; middle trochanter with small ventral spinule; middle femur with 4 pairs of rather short ventral spines; middle tibia with 6 pairs of ventral spines (these spines, especially a most distal pair of them, shorter than such spines in fore tibia). Abdominal apex as in Figs 125–127 (genitalia missing).

Female. General appearance similar to that of male, but reddish and rose marks sometimes less distinct or partly absent, pronotum much shorter and with hind lobe as in Fig. 100, tegmina yellowish with a few blackish medial spots separated from rest part by reddish longitudinal stripe (this stripe distinct in all females; Fig. 107), tergites usually with rose median band (stripe) running from metathorax to last tergite, and abdominal apex more or less similar to that of female of *L. gracilis* sp. nov. (however, genital plate clearly different; Figs 92, 128).

Length (mm). Body: male 13.7, female 14.0–16.0; pronotum: male 6.5, female 4.2–4.5; tegmina (visible part): male 2.9, female 1.8–2.0; hind femora: male 12.0, female 13.0–14.0; ovipositor 14.0–15.0.

ACKNOWLEDGEMENTS

The author is thankful to all the persons who helped him in collecting and borrowing the material studied. This study was performed in the frames of the state research project No. 01201351189 (Russian Federation) and is supported by the Russian Foundation for Basic Research (grant No. 16-04-01143).

REFERENCES

- Beier M. 1965.** Die afrikanischen Arten der Gattungsgruppe “*Amytta*” Karsch (Saltatoria: Tettigoniidae, Meconeminae). *Beiträge zur Entomologie*, **15**: 203–242.
- Beier M. 1966.** Tettigoniidae; Meconematinae, Mecopodinae, Phyllophorinae. *Orthopterorum Catalogus*, **9**: 247–342.
- Beier M. 1967.** Neue Beiträge zur Kenntnis der Gattungsgruppe *Amytta* Karsch (Orth. Meconematinae). *Eos*, **42**: 305–310.
- Bolívar I. 1890.** Ortopteros de Africa del Museo de Lisboa. *Jornal de Ciências Matemáticas, Físicas, e Naturaes; publicado sob os auspícios da Academia Real das Ciências de Lisboa (2 sér.)*, **1**: 211–232.
- Bolívar I. 1906.** Fasgonuridos de la Guinea Española. *Memorias de la Real Sociedad Española de Historia Natural*, **1**: 327–377, pl. 10.
- Bolívar I. 1912.** Reports of the Percy Sladen Trust Expedition to the Indian Ocean in 1905. No. XVI. – Orthoptera: Acrydiidae, Phasgonuridae, Gryllidae. *Transactions of the Linnean Society of London*, **15**(2): 263–292, pls 13–14.
- Butler A.G. 1876.** Preliminary notice of new species of Orthoptera and Hemiptera collected in the island of Rodriguez by the naturalists accompanying the Transit of Venus Expedition. *Annals and Magazine of Natural History (4th ser.)*, **17**: 409–412.
- Chopard L. 1945.** Orthoptéroïdes recueillis dans les montagnes du Cameroun par la mission Lepesme, Paulian, Villiers. *Revue Française d'Entomologie*, **11**: 156–178.
- Chopard L. 1954.** La Réserve Naturelle Intégrale du Mont Nimba, fasc. 2. III. Orthoptères Ensifères. *Mémoires de l'Institut Français d'Afrique Noire*, **40**: 25–98.
- Chopard L. 1955.** Chapter IX. Orthoptera Ensifera. In: B. Hanstrom, P. Brinck and G. Rudebeck (Eds). *South African Animal Life (Results of the Lund University Expedition in 1950–1951)*, **2**: 266–300.
- Chopard L. 1957.** La faune entomologique de la Réunion. Orthoptéroïdes. *Mémoires de l'Institut Scientifique de Madagascar (Sér. E)*, **8**: 31–56.
- Chopard L. 1958.** Mission du Muséum dans les îles du Golfe de Guinée. Entom. 6. Orthoptéroïdes. *Bulletin de la Société Entomologique de France*, **63**: 73–85.
- Eades D.C., Otte D., Cigliano M.M. and Braun H. 2014.** *Orthoptera Species File Online. Version 5.0/5.0*. Visited 19 July 2016. Available from: < <http://Orthoptera.SpeciesFile.org> >
- Gorochov A.V. 1993.** A contribution to the knowledge of the tribe Meconematini (Orthoptera: Tettigoniidae). *Zoosystematica Rossica*, **2**(1): 63–92.
- Gorochov A.V. 1994.** A new species of *Anepitacta* from Cameroon (Orthoptera, Tettigoniidae). *Zoosystematica Rossica*, **3**(1): 34.
- Gorochov A.V. 1995.** On the systematic position of the genera *Arachnoscelis*, *Poecilomerus*, and *Parateuthras* (Orthoptera: Tettigoniidae). *Zoosystematica Rossica*, **3**(2), 1994: 202.
- Gorochov A.V. 2007.** Notes on taxonomy of the subfamily Hexacentrinae with descriptions of some taxa (Orthoptera: Tettigoniidae). *Zoosystematica Rossica*, **16**(2): 209–214.
- Gorochov A.V. 2013.** A new subtribe of the tribe Phisidini from America and remarks on the genus *Arachnoscelis* (Orthoptera: Tettigoniidae: Meconematinae). *Zoosystematica Rossica*, **22**(1): 59–62.
- Griffini A. 1908.** Phasgonuridae africaine del R. Museo di Storia Naturale di Bruxelles, 4. Meconemidae et Conocephalidae. *Mémoires de la Société entomologique de Belgique*, **15**: 65–73.
- Hemp C. 2001.** Two new species of *Amytta* Karsch (Orthoptera: Meconematinae) from East Africa (Tanzania, Mt. Kilimanjaro). *Journal of Orthoptera Research*, **10**(1): 129–134.
- Hemp C. 2002.** *Phlugidia usambarica* (Orthoptera: Tettigoniidae: Meconematinae, Phlugidini), a new species from the East Usambara Mts, Tanzania. *Journal of Orthoptera Research*, **11**(1): 63–66.
- Hemp C. 2013a.** Annotated list of Ensifera (Orthoptera) and further records on Caelifera (Orthoptera) of Mt Kilimanjaro, Tanzania. *Zootaxa*, **3613**(4): 301–342.
- Hemp C. 2013b.** Annotated list of Tettigoniidae (Orthoptera) from the East Usambara Mountains, Tanzania and new Tettigoniidae species from East Africa. *Zootaxa*, **3737**(4): 301–350.
- Hugel S. 2010.** New and little known predatory katydids from Mascarene islands (Ensifera: Meconematinae and Hexacentrinae). *Zootaxa*, **2543**: 1–30.
- Hugel S. 2012.** New and little known Phisidini from Madagascar, Comoros and Seychelles (Orthoptera, Ensifera, Meconematinae). *Zoosystema*, **34**(3): 525–552.
- Jin X.-B. and Kevan D.K.McE. 1991.** *Afrophisis*, a new genus and two new species of small orthopteroids from Africa (Grylloptera Tettigoniioidea Meconematinae). *Tropical Zoology*, **4**: 317–328.
- Jin, X.-B. and Kevan D.K.McE. 1992.** Taxonomic revision and phylogeny of the tribe Phisidini (Insecta: Grylloptera: Meconematidae). *Theses Zoologicae*, **18**. Koenigstein: Koeltz Scientific Books. 360 p.
- Karny H.H. 1907.** Revisio Conocephalidarum. *Abhandlungen der Kaiserlich-Königliche Zoologisch-Botanische Gesellschaft in Wien*, **4**(3): 1–114.

- Karny H.H. 1911.** Descriptiones Conocephalidarum novarum. *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien*, **61**: 334–347.
- Karny H.H. 1920.** Dodecas Conocephalidarum novarum. *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien*, **70**: 21–33.
- Karsch F. 1888.** Die Meconemiden. Ein orthopterologischer Beitrag. *Wiener Entomologische Zeitung*, **7**: 159–162.
- Karsch F. 1890.** Verzeichniss der von Herrn Dr. Paul Preuss auf der Barombi-Station in Deutsch-Westafrika 1890 gesammelten Locustodeen aus den Familien der Phaneropteriden, Mekonemiden und Gryllakriden. *Entomologische Nachrichten Berlin*, **16**: 353–369.
- Karsch F. 1893.** Die Insecten der Berglandschaft Adeli im Hinterlande von Togo (Westafrika) nach dem von den Herren Hauptmann Eugen Kling (1888 und 1889) und Dr. Richard Büttner (1890 und 1891) gesammelten Materiale bearbeitet. *Berliner Entomologische Zeitung*, **38**: 1–266.
- Karsch F. 1896.** Neue Orthopteren aus dem tropischen Afrika. *Stettiner Entomologische Zeitung*, **57**: 242–359.
- Kevan D.K.McE. and Jin X.-B. 1993.** Remarks on the tribe Phlugidini Eichler and recognition of new taxa from the Indo-Malayan region and East Africa (Grylloptera: Tettigoniidae: Meconematidae). *Invertebrate Taxonomy*, **7**: 1589–1610.
- Naskrecki P. 1996.** Systematics of the southern African Meconematinae (Orthoptera: Tettigoniidae). *Journal of African Zoology*, **110**: 159–193.
- Naskrecki P. 2008.** New species of arboreal predatory katydids from West Africa (Orthoptera: Tettigoniidae: Meconematinae). *Zootaxa*, **1732**: 1–28.
- Naskrecki P., Bazelet C.S. and Spearman L.A. 2008.** New species of flightless katydids from South Africa (Orthoptera: Tettigoniidae: Meconematinae). *Zootaxa*, **1933**: 19–32.
- Péringuey L. 1916.** Descriptions of new or little-known Orthoptera in the collection of the South African Museum. *Annals of the South African Museum*, **15**: 401–452.
- Rehn J.A.G. 1914.** Orthoptera. I. Mantidae, Phasmidae, Acrididae, Tettigonidae und Gryllidae aus dem Zentral-Afrikanischenseengebiet, Uganda und dem Ituri-Becken des Kongo. *Wissenschaftliche Ergebnisse der deutschen Zentral-Afrika Expedition, 1907–1908. Band 5 [Zoologie 3(1)]*: 1–223.
- Sjöstedt Y. 1912.** Zur Orthopterenfauna des Kamerungebirges. *Arkiv för zoologi*, **7(37)**: 1–30.

Submitted August 24, 2016; accepted November 10, 2016.