



УДК 595.729

SYSTEMATICS OF THE AMERICAN KATYDIDS (ORTHOPTERA: TETTIGONIIDAE). COMMUNICATION 5

A.V. Gorochov

Zoological Institute of the Russian Academy of Sciences, Universitetskaya Emb. 1, 199034, Saint Petersburg, Russia;
e-mail: orthopt@zin.ru

ABSTRACT

This communication deals with a key to subgenera of the Neotropical genus *Theia* Brunner-Wattenwyl, 1891 (Phaneropterinae) including here the former genera *Dolichocercus* Rehn et Hebard, 1914, *Oxyprorella* Giglio-Tos, 1898 and *Theiella* Cadena-Castañeda, 2014, as well as with descriptions of some new taxa in the genus *Theia* (*Th. ucayali* sp. nov., *Th. morona* sp. nov., *Th. carinata* sp. nov., *Th. amazonica levis* subsp. nov., *Th. andina ecuadori* subsp. nov.) and in the subfamilies Conocephalinae (Cestrophorini trib. nov., *Acanthacara ridiculosa* sp. nov.) and Meconematinae (*Phlugis gerana* sp. nov., *Phlugiola? appendicula* sp. nov.). Moreover, redescriptions of *Th. dives* (Giglio-Tos, 1898) and *Th. misera* (Brunner-Wattenwyl, 1878), comb. nov. are given on the base of study of their previously unknown males; and *Odontophlugis ramirezi* (Barranco Vega, 2013), comb. nov. is transferred from the genus *Phlugis* Stål, 1861 to the genus *Odontophlugis* Gorochov, 1998 (Meconematinae).

Key words: *Acanthacara*, America, Conocephalinae, Meconematinae, new taxa, *Odontophlugis*, Orthoptera, Phaneropterinae, *Phlugiola*, *Phlugis*, Tettigoniidae, *Theia*

СИСТЕМАТИКА АМЕРИКАНСКИХ КУЗНЕЧИКОВ (ОРТНОПТЕРА: ТЕТТИГОНИИДАЕ). СООБЩЕНИЕ 5

А.В. Горохов

Зоологический институт Российской академии наук, Университетская наб. 1, 199034, Санкт-Петербург, Россия;
e-mail: orthopt@zin.ru

РЕЗЮМЕ

Данное сообщение содержит ключ к под родам неотропического рода *Theia* Brunner-Wattenwyl, 1891 (Phaneropterinae), включающего здесь бывшие роды *Dolichocercus* Rehn et Hebard, 1914, *Oxyprorella* Giglio-Tos, 1898 и *Theiella* Cadena-Castañeda, 2014, а также описания новых таксонов в роде *Theia* (*Th. ucayali* sp. nov., *Th. morona* sp. nov., *Th. carinata* sp. nov., *Th. amazonica levis* subsp. nov., *Th. andina ecuadori* subsp. nov.) и в подсемействах Conocephalinae (Cestrophorini trib. nov., *Acanthacara ridiculosa* sp. nov.) и Meconematinae (*Phlugis gerana* sp. nov., *Phlugiola? appendicula* sp. nov.). Кроме того, даны переописания *Th. dives* (Giglio-Tos, 1898) и *Th. misera* (Brunner-Wattenwyl, 1878), comb. nov. на основе изучения их ранее неизвестных самцов; а также *Odontophlugis ramirezi* (Barranco Vega, 2013), comb. nov. переносится из рода *Phlugis* Stål, 1861 в род *Odontophlugis* Gorochov, 1998 (Meconematinae).

Ключевые слова: *Acanthacara*, Америка, Conocephalinae, Meconematinae, новые таксоны, *Odontophlugis*, Orthoptera, Phaneropterinae, *Phlugiola*, *Phlugis*, Tettigoniidae, *Theia*

INTRODUCTION

This paper is the fifth communication in the series of publications on the American Tettigoniidae. The previous communications of this series (Gorochov 2012a, 2012b, 2014a, 2014b) were devoted to some genera from the subfamilies Plemniinae, Phaneropterinae and Meconematinae; one genus, two subgenera, 35 species and 13 subspecies were described in these communications as taxa new for science. In some additional papers (Gorochov 1998, 2006, 2013, 2014c; Cadena-Castañeda and Gorochov 2012, 2013; Cadena-Castañeda and Gorochov in Cadena-Castañeda 2013 as well as in Cadena-Castañeda and Garcia 2014), four genera, four subgenera, 12 species and two subspecies of the American Meconematinae, Hexacentrinae and Phaneropterinae were also described as new for science by the same author. Here, new data on the genera *Theia* Brunner-Wattenwyl, 1891 (Phaneropterinae), *Phlugis* Stål, 1861 and *Phlugiola* Karny, 1907 (Meconematinae), as well as on the genus *Acanthacara* Scudder, 1869 belonging to a new tribe (Conocephalinae) are proposed.

MATERIAL AND METHODS

All the specimens studied were collected in tropical rainforests mainly by Russian entomologists. Majority of these specimens were collected at light, but some of them, on leaves of trees and bushes during night work with a flash-lamp. This material (including types) is deposited at the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg. The specimens are dry and pinned. The photographs of their morphological structures were made with Leica M216 stereomicroscope.

SYSTEMATICS

Subfamily Phaneropterinae Burmeister, 1838

Genus *Theia* Brunner-Wattenwyl, 1891

Note. This genus was recently put in the subtribe Theiina Cadena-Castañeda, 2014 which was included in the tribe Pycnopalpini Cadena-Castañeda, 2014 (Cadena-Castañeda 2014). However, Gorochov (2014a) indicated that there are rather numerous previously described generic groups of the American Phaneropterinae which may be related to the genus

Pycnopalpa Audinet-Serville, 1838 (for example *Turpiliae* or *Dysoniini*). Nevertheless, *Pycnopalpa* and *Theia* also seem to me rather closely related genera belonging to the same generic group but with a lower rank than tribal one. Thus, I include these genera together with *Hetaira* Brunner-Wattenwyl, 1891 and *Topana* Walker, 1869 in the subtribe Pycnopalpina and consider the former subtribe Theiina as one good genus divided into a few subgenera. The latter approach to the genus *Theia* allows us to not use some insignificant and insufficiently distinct characters as generic ones. For example, Cadena-Castañeda (2014) used the following characters in the key to genera of his Theiina: little distinct differences in the tegminal shape for the separation of *Dolichocercus* Rehn et Hebard, 1914; partial shortening of the wings and pronotum, slight thickening of the hind femora, and some peculiarities of the ovipositor for the separation of *Oxyprorella* Giglio-Tos, 1898; small differences in the vertex and tegmina, and peculiarities of the male cercal shape for the separation of *Theiella* Cadena-Castañeda, 2014.

Below, I give a key to subgenera of *Theia* based mainly on the structure of male copulatory apparatus; these subgenera are partly coinciding with the genera used by Cadena-Castañeda, but my diagnosis of this genus is coinciding with his diagnosis of "Theiina" (see Cadena-Castañeda 2014). It is necessary to note that majority of the old species of *Theia* are known from females only; their descriptions and illustrations are often unusable for species determination. Cadena-Castañeda (2014) published several illustrations of males ostensibly belonging to such species [*Th. unicolor* Brunner-Wattenwyl, 1891; *Th. peruviana* (Brunner-Wattenwyl, 1891)]; these determinations are problematic but tentatively used here for a subgeneric classification and comparison with new species. One species (*Th. lineolata* Brunner-Wattenwyl, 1891 from "Alto Amazonas"; Brunner-Wattenwyl 1891) with unknown male is not included here in any subgenus of *Theia*.

A key to subgenera of the genus *Theia*

1. Stridulatory vein in male left tegmen with inflated lateral half (Figs 3, 7). Male cercus divided into two branches or distinct processes (Figs 13, 14, 18, 19) subgenus *Theia* s. str.
[Included species: *Th. unicolor* Brunner-Wattenwyl, 1891 (São Paulo in Brazil, but Cadena-Castañeda

- (2014) believes that Brunner-Wattenwyl's indication of type locality is erroneous, and this locality is possibly in Peru; type species); *Hormilia peruviana* Brunner-Wattenwyl, 1891 (Peru); *Oxyprorella dives* Giglio-Tos, 1898 (Ecuador); *Th. bifurcata* Cadena-Castañeda, 2014 (Colombia); *Th. ucayali* sp. nov.; *Th. morona* sp. nov.]
- Stridulatory vein in male left tegmen diverse (Figs 30, 34, 58, 62). Male cercus undivided (Figs 40, 41, 44, 46, 48, 49, 52, 53) 2
 - 2. Lateral half of stridulatory vein in male left tegmen not inflated (Figs 34, 58, 62). Male cercus slightly arcuate and with one small apical denticle (Figs 44–46, 48–50, 52–54)
 - subgenus ***Oxyprorella*** Giglio-Tos, 1898, stat. nov. [Included species: *Oxyprora misera* Brunner-Wattenwyl, 1878 (Peru; type species); possibly *Theiella andina* Cadena-Castañeda, 2014 and *Th. amazonica* Cadena-Castañeda, 2014 (two the latter species are originally described from Colombia as representatives of the genus *Theiella* Cadena-Castañeda, 2014 with *Th. amazonica* as its type species, i. e. the latter generic name may be a junior synonym of *Oxyprorella*; however, this assumption is in need of support on the base of a new material, because *Theiella* may be also considered as an additional subgenus closely related to *Oxyprorella* but somewhat less specialized).]
 - Stridulatory vein in male left tegmen with inflated lateral half (Fig. 30). Male cercus moderately or strongly curved but with more specialized distal part (Figs 40–42)
 - subgenus ***Dolichocercus*** Rehn et Hebard, 1914, stat. nov. [Included species: *Hormilia latipennis* Brunner-Wattenwyl, 1891 (Panama; type species); *D. costaricensis* Cadena-Castañeda, 2014 (Costa Rica); *D. santanderensis* Cadena-Castañeda, 2014 (Colombia); *Th. carinata* sp. nov.]

***Theia (Theia) ucayali* sp. nov.**

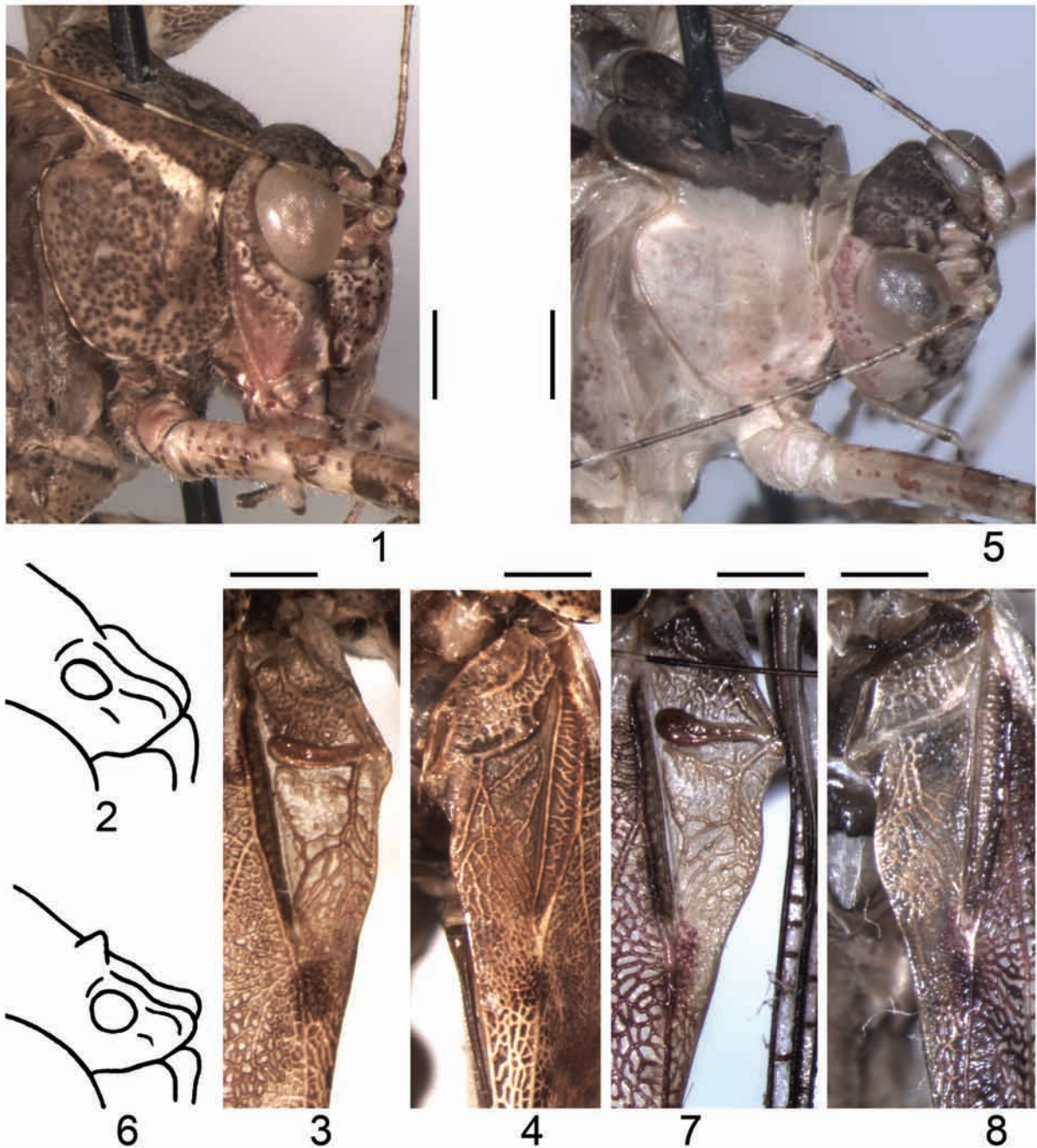
(Figs 1–4, 9, 10, 13–17, 22–24)

Etymology. The species is named after Rio Ucayali.

Type material. *Holotype* – male, PERU: Ucayali Department, Atalaya prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, partly primary / partly secondary forest, at light, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. *Paratypes*: 3 females, same data as for holotype.

Description. *Male.* Body medium-sized for this genus. Colouration light brown with numerous darker dots: head with very dense greyish brown dots on dorsum behind rostral tubercles, with less dense

brown dots on face of epicranium under rostrum, with a pair of narrow brown stripes on low vertical keel between each eye and clypeus, almost without darker dots on genae and mouthparts, with sparse and small brown marks on palpi and two proximal antennal segments, and with more sparse dark and whitish spots on rest part of antenna; pronotum with rather dense greyish brown dots on disc and lateral lobes, and with yellowish stripe along lateral and posterior edges of disc and interrupted line along ventral and posterior edges of each lateral lobe (middle part of disc with a pair of narrow arcuate yellowish stripes also; Fig. 1); tegmina almost uniformly light greyish brown but with darker (brown) distoanal area and a few yellowish spots along rest part of anal edge (M-Cu area and small spot near its distal part also somewhat darkened; Fig. 9); hind wings transparent with brown venation and contrastingly coloured distal part of costal lobe (distal half of this part almost cream coloured, but its proximal half brown; Fig. 10); legs with moderately dense reddish brown dots and spots on fore femur, brown ones on middle and hind femora (but their dorsal surface with dark brown marks, and most part of outer surface of hind femur almost uniformly light brown), sparse and rather large brown spots on fore tibia, sparse and small brown marks on middle tibia, almost uniformly light brown hind tibia (however, its spines partly darkened), and partly brown / partly yellowish tarsi; abdomen with almost yellowish dorsum (excepting last tergite), brown ventral and posterolateral areas as well as rest of abdominal apex (but cercus with yellowish stripe on posterior surface of its branches; Figs 13–15). Body structure typical of this genus but with following peculiarities: head rostrum (Figs 1, 2) with short and narrow vertical lower tubercle having rounded apex (its apical part almost twice narrower than scape), with similar upper tubercle but horizontal and having distinct dorsomedian groove, and with a pair of small rounded inflations in posterior part of upper tubercle; lateral ocellus situated on lateral side of latter inflation, almost round and with diameter approximately equal to distance between this ocellus and apex of upper tubercle; median ocellus almost equal to lateral ocellus in size but somewhat oval, vertical and located almost between middle parts of antennal cavities; pronotum (Fig. 1) longer than wide, with short hind lobe having barely bilobate posterior part, with almost straight anterior edge of disc, with high and somewhat oblique lateral



Figs 1–8. *Theia* Br.-W.: 1–4 – *Th. ucayali* sp. nov.; 5–8 – *Th. dives* (Giglio-Tos). Head with pronotum from side and partly above (1, 5); rostrum of head from side and partly above (2, 6); dorsal field of left (3, 7) and right (4, 8) male tegmina. Scale bars 1 mm.

lobes, and with rather deep humeral notches; tegmina long and obliquely truncate at apex (their structure as in Figs 3, 4, 9); hind wings distinctly longer than tegmina, with distal part as in Fig. 10; legs with 4–5 ventral inner spines on fore femur, with 5–7 ventral

outer spines on middle femur, as well as with 2–3 ventral inner and 5–7 ventral outer spines on hind femur; abdominal tergites without distinct median keels; cercus deeply bifurcated, with a pair of long and thin arcuately curved branches (lateral branch with

barely inflate distal part having short medial groove and very small apical hook, and medial branch with clearly thinner distal part having small apical denticle; Figs 13–17); epiproct elongate, with narrowly rounded apex; genital plate almost semicircular but with slightly bilobate posterior part having a pair of very small tubercles (traces of styles; Fig. 23).

Female. General appearance as in male, but tegmina sometimes slightly lighter (light brown with weakly darkened spots along edges), distal part of costal lobe in hind wings with somewhat longer cream area, all sternites yellowish with brown lateral margins of pterothoracic sternites and a few marks on each abdominal sternite, abdominal tergites as well as epiproct and cerci light brown with brown dots on lateral parts of tergites and middle part of each cercus, second–seventh abdominal tergites with very small (but distinct) longitudinal posteromedian keels, epiproct clearly smaller, and cerci simple (shorter, conical and with very thin distal part). Genital plate rather short, triangular, and with distinct apical notch (its colouration yellowish with dark brown apical part and longitudinal median stripe on rest part; Fig. 24); ovipositor light brown but having large brown area near base, and with gonangulum having more or less roundly truncate posterior part (Fig. 22).

Length (mm). Body: male 15, female 14–16; body with wings: male 29, female 30–33; pronotum: male 2.5, female 2.4–2.5; tegmina: male 21, female 21–23; hind femora: male 17, female 16.5–18; ovipositor 4.8–5.

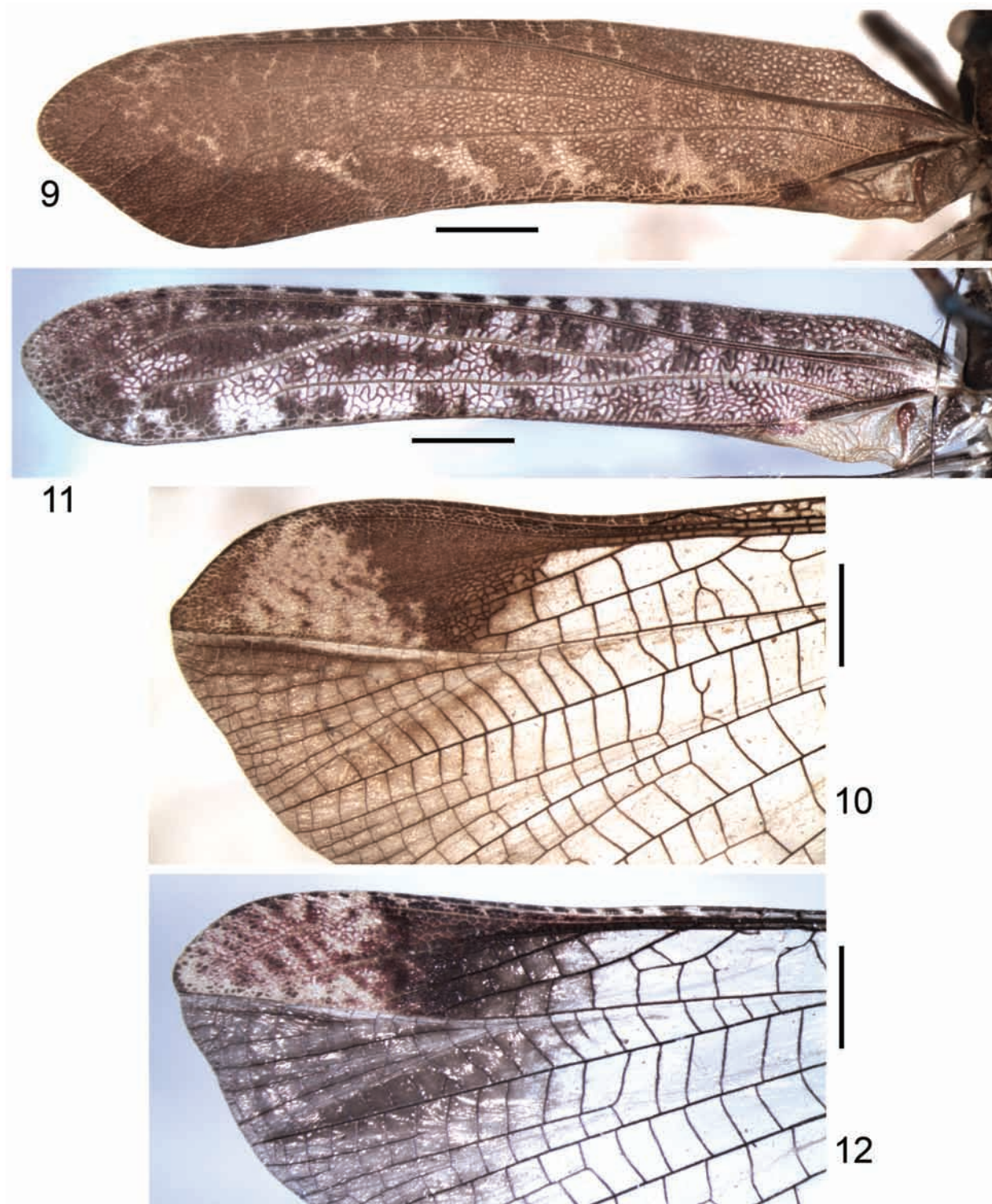
Comparison. The new species is most similar to *Th. bifurcata* in the shape of male cerci, but it is distinguished from the latter species by the lateral branch of male cercus most strongly curved in the distal part (*vs.* in the proximal one), and medial branch of this cercus not truncate at the apex. From *Th. unicolor*, the new species is distinguished by a contrastingly coloured distal third of the hind wing costal lobe and somewhat shorter ovipositor, and from the male determined by Cadena-Castañeda (2014) as this species and illustrated in Eades et al. (2015) but also having a more or less contrast colouration of hind wing, by the male cercus darker, lacking any convexity between its branches, and having an arcuate (not sinuate) medial branch; from *Th. peruviana*, by the female genital plate lacking long posteromedian lobe (judging by some photographs from the above-mentioned catalogue of Eades et al., *T. peruviana*

type is with a rather long lobe on this plate) as well as by a narrower distal third of the hind wing costal lobe having distinctly smaller light area, and from the male determined by Cadena-Castañeda (2014) as this species, by a much longer medial cercal branch; from *Th. lineolata*, by darkened head dorsum and pronotal disc, the absence of very light longitudinal median stripe on the anterior half of this disc, a more strongly curved distal part of the hind wing costal edge, and a more contrastingly coloured distal third of this wing; and from *Th. dives*, by the ovipositor gonangulum with an almost roundly truncate (not spine-like) posterior part.

***Theia (Theia) dives* (Giglio-Tos, 1898)**
(Figs 5–8, 11, 12, 18–21, 25–27)

Material studied. Male and female, ECUADOR: Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill., ~300 m, primary forest, at light, 5–15 January 2010, A. Gorochov.

Redescription. *Male* (nov.). Body size similar to that of *Th. ucayali* sp. nov. Colouration cream with following marks: head dorsum and face of epicranium darkened, consisting of rather numerous brown dots, small spots and stripes (lateral and dorsal edges of lower rostral tubercle as well as anterior and dorsal parts of upper rostral tubercle brown, but most part of first tubercle and lateral parts of second tubercle as well as narrow area on epicranium along dorsal edge of each antennal cavity light); clypeus, scape and pedicel with a few small brownish marks; proximal and rest parts of antennal flagellum light brown and brown, respectively, but both with rather sparse whitish and dark brown spots; palpi with sparse small brown marks; pronotum with only disc darkened (colouration of this disc almost as in *Th. ucayali* sp. nov.; Fig. 5); tegmina (Fig. 11) and legs somewhat more spotted than in *Th. ucayali* sp. nov. (hind femur with brown transverse bands on most part of proximal half of outer surface); sternites coloured approximately as in female of latter species; pterothoracic pleurites and abdominal tergites with brown dorsolateral areas on pleurites and in proximal half of abdomen as well as with greyish brown areas on lateral parts of posterior tergites; genital plate rather densely dotted; and cerci yellowish with brown lateral area in proximal third of each cercus (Figs 18, 19). Structure of body parts distinguished from that of *Th. ucayali* sp. nov.



Figs 9–12. *Theia* Br.-W.: 9, 10 – *Th. ucayali* sp. nov.; 11, 12 – *Th. dives* (Giglio-Tos). Left male tegmen (9, 11); distal part of hind wing (10, 12). Scale bars 2 mm.

by following characters: head dorsum with small but distinct median tubercle located between posterior edges of lateral ocelli (this tubercle indistinct in *Th. ucayali* sp. nov.; for comparison see Figs 1, 2 and 5, 6); tegmina clearly narrower, with less obliquely truncate apex, with somewhat more inflated lateral half of stridulatory vein in left tegmen, and with slightly smaller mirror in right tegmen (Figs 7, 8, 11); distal third of costal lobe in hind wing distinctly narrower (Fig. 12); cercus with longer proximal part (between cercal base and place of cercal bifurcation; Figs 18, 19), without any inflation of lateral branch (but distal part of this branch with low medial ridge and without any groove; Fig. 20), and with a few small medial denticles in middle part of medial branch (Fig. 21); and genital plate as in Fig. 26.

Female. General appearance as in male, but abdominal apex similar to that of female of *Th. ucayali* sp. nov. (Figs 25, 27) excepting colouration of ovipositor (greyish brown with light proximal part having three dark marks) and shape of its gonangulum (this gonangulum with characteristic posterior spine-like projection in upper half; Fig. 25).

Length (mm). Body: male 16.5, female 15.5; body with wings: male 32, female 31; pronotum: male 2.5, female 2.4; tegmina: male 22, female 21.5; hind femora: male 18, female 17.5; ovipositor 5.5.

Remarks. This species was described from a female collected in Ecuador (Giglio-Tos 1898: “valle del Santiago”). In this country, Rio Santiago and Rio Morona are situated near each other, and in Peru, these rivers reach Rio Marañón.

***Theia (Theia) morona* sp. nov.**
(Figs 87–97)

Etymology. The species is named after Rio Morona.

Type material. *Holotype* – male, PERU: bank of Rio Morona approximately at middle of distance between its mouth and its Ecuadorian part, 200–300 m, 24–27 January 2010, A. Gorochov.

Description. *Male.* General appearance similar to that of *Th. ucayali* sp. nov. but with following differences: head dorsum with less distinct dots and with five darkened longitudinal lines (two of them located behind medial parts of eyes); face of epicranium with less numerous dots; labrum with brown spot in apical part; pronotal disc also with less numerous dots, but yellowish stripe along its posterior edge inter-

rupted by a few small brown marks, and small lightish arcuate stripes in middle part of this disc almost indistinct; lateral lobes of pronotum without light stripe along ventral and posterior edges (Fig. 87); wings coloured almost as in *Th. ucayali* sp. nov. but with somewhat darkened small apical area of hind wing costal lobe (Figs 89–92); fore and middle legs with brown to light brown spots only; lateral parts of abdominal tergites light brown and with dense brown dots on posterior tergites; cercus yellowish with brown proximal part and small marks on distal parts of both branches (Figs 93, 94); head rostrum with somewhat higher apical part of upper tubercle (Figs 87, 88); tegmina barely narrower (Fig. 91) and with stridulatory apparatus as in Figs 89, 90; legs with 3–5 inner ventral spines on fore femur, 6 outer ventral spines on middle femur, 3 inner and 7 outer ventral spines on hind femur; lateral cercal branch with rather long but low medial ridge along distal part (Figs 93–95); medial cercal branch with spine-like apical part curved backwards and slightly upwards (Figs 94, 96); genital plate with slightly narrower posterolateral lobes (Fig. 97).

Female. Unknown.

Length (mm). Body 15; body with wings 31; pronotum 27; tegmina 23; hind femora 17.3.

Comparison. The new species is similar to *Th. ucayali* sp. nov. and to the male determined by Cadena-Castañeda (2014) as *Th. unicolor*, but it is distinguished from the first species by the characters listed in this description (mainly by the male cercus much lighter and its lateral branch not thickened and with a longitudinal medial ridge), and from the latter male, by the male cercus having a shorter proximal part (from base to place of cercal bifurcation), distinctly less curved lateral branch, not S-shaped medial branch, and the absence of characteristic convexity between these branches; from holotype of *Th. unicolor* (female), the new species differs in a contrast coloration of the distal part of hind wing costal lobe (Eades et al. 2015). From all the other true and possible species of this subgenus, *Th. morona* sp. nov. differs in a spine-like (not truncate) apical part of the medial cercal branches in male (from *Th. bifurcata*), in the absence of additional median tubercle on the head dorsum and in a non-denticulated subapical part of the medial branch of male cerci (from *Th. dives*), and in the absence of characteristic very light median stripe on the anterior half of pronotal disc (from *Th. lineolata*).



Figs 13–21. *Theia* Br.-W., male: 13–17 – *Th. ucayali* sp. nov.; 18–21 – *Th. dives* (Giglio-Tos). Abdominal apex from above (13, 18); left cercus from side and partly below (14, 19), and from behind (15); distal part of lateral branch of left cercus from above and partly medially (16, 20); distal part of medial branch of left cercus from above and partly laterally (17, 21). Scale bars 0.5 mm.

***Theia (Dolichocercus) carinata* sp. nov.**

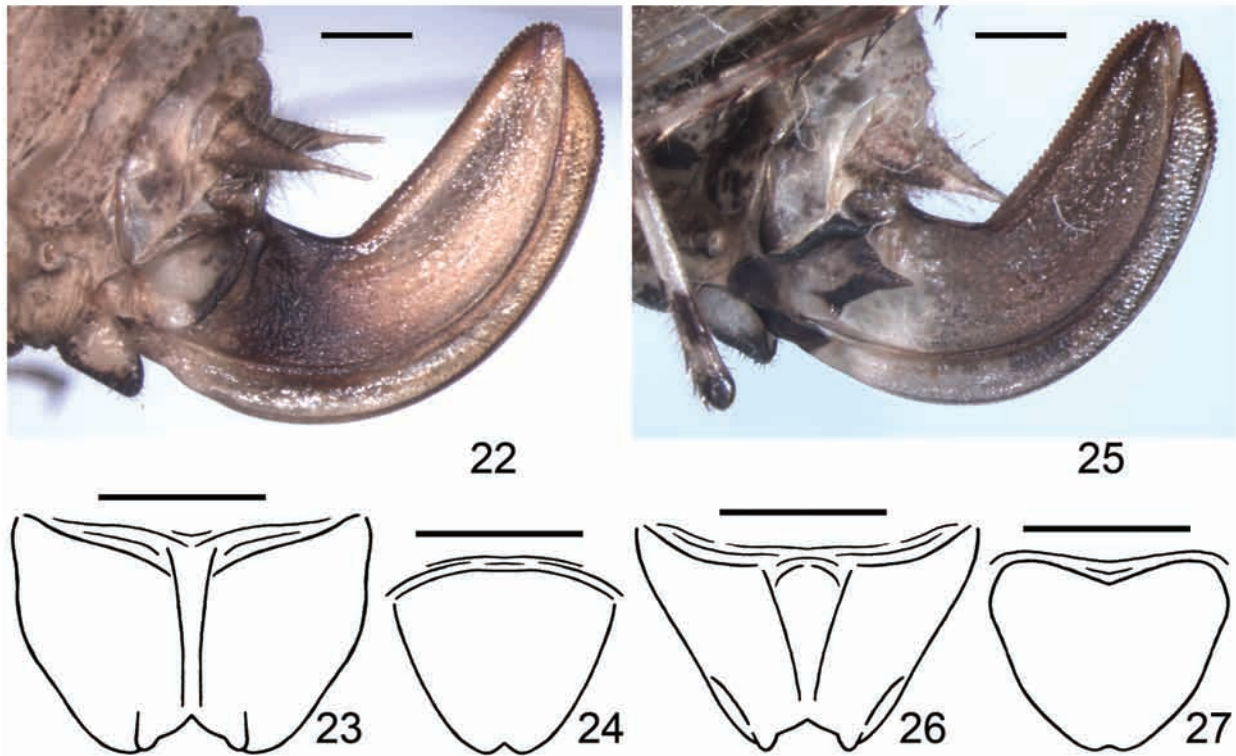
(Figs 28–31, 36, 37, 40–43)

Etymology. This name is the Latin word “carinata” (carinate).

Type material. *Holotype* – male, ECUADOR: Pichincha Prov., Rio Pachijal, Los Bancos, 928 m, 0°04′06″N, 78°54′17″W, at light, 29 October 2011, V. Sinyayev, O. Romanov. *Paratype* – male, same data as for holotype.

Description. *Male* (holotype). General appearance similar to that of *Th. ucayali* sp. nov. and *Th. dives* but with following characteristic features: head light brown with rather sparse brown dots on dorsum and on face of epicranium, with rather dense greyish brown spots on genae and behind eyes, with brown clypeus and labrum, with sparse dark brown small marks on palpi, and with sparse blackish spots

on antennal flagellum; pronotum with yellowish lateral lobes and longitudinal median stripe on disc (these lobes and stripe having numerous brown dots), and with brown lateral parts of disc having dark brown stripe along each lateral edge (Fig. 28); tegmina light brown with yellowish and brown spots as in Fig. 36; colouration of hind wings similar to that of both above-mentioned species (Fig. 37); colouration of legs more similar to that of *Th. ucayali* sp. nov.; rest of body light brown with dense brown dots, with greyish brown most part of abdominal sternites as well as genital plate and lateral parts of posterior tergites, and with two darkened areas on cercus (on most part of its proximal half and on dorsal and ventral surfaces of distal ridge; Figs 40–42); structure of body parts more similar to that of *Th. dives*, but median tubercle on head dorsum between posterior edges of lateral ocelli smaller (Figs 28, 29), pronotal



Figs 22–27. *Theia* Br.-W.: 22–24 – *Th. ucayali* sp. nov.; 25–27 – *Th. dives* (Giglio-Tos). Ovipositor from side (22, 25); male (23, 26) and female (24, 27) genital plates from below. Scale bars 1 mm.

disc with distinct median tubercle near anterior edge, shape of tegmina more similar to that of *Th. ucayali* sp. nov. (but with somewhat wider distal half; Fig. 36), stridulatory apparatus as in Figs 30 and 31, second–fifth abdominal tergites with very small longitudinal posteromedian keels having barely distinct and more or less acute posterior projection, cercus strongly arcuate and with high and lamellar medial ridge (having denticulate medial edge) near almost spine-like cercal apex (Figs 40–42), and genital plate as in Fig. 43.

Variation. Paratype with a few greyish brown dots on scape and pedicel, with greenish tinge on tegmina and legs, with almost light greyish brown cercal medial ridge, and with almost indistinct posteromedian keels on second–fifth abdominal tergites.

Female. Unknown.

Length (mm). Body 14–16; body with wings 32–34; pronotum 2.7–2.8; tegmina 23–24; hind femora 18–18.5.

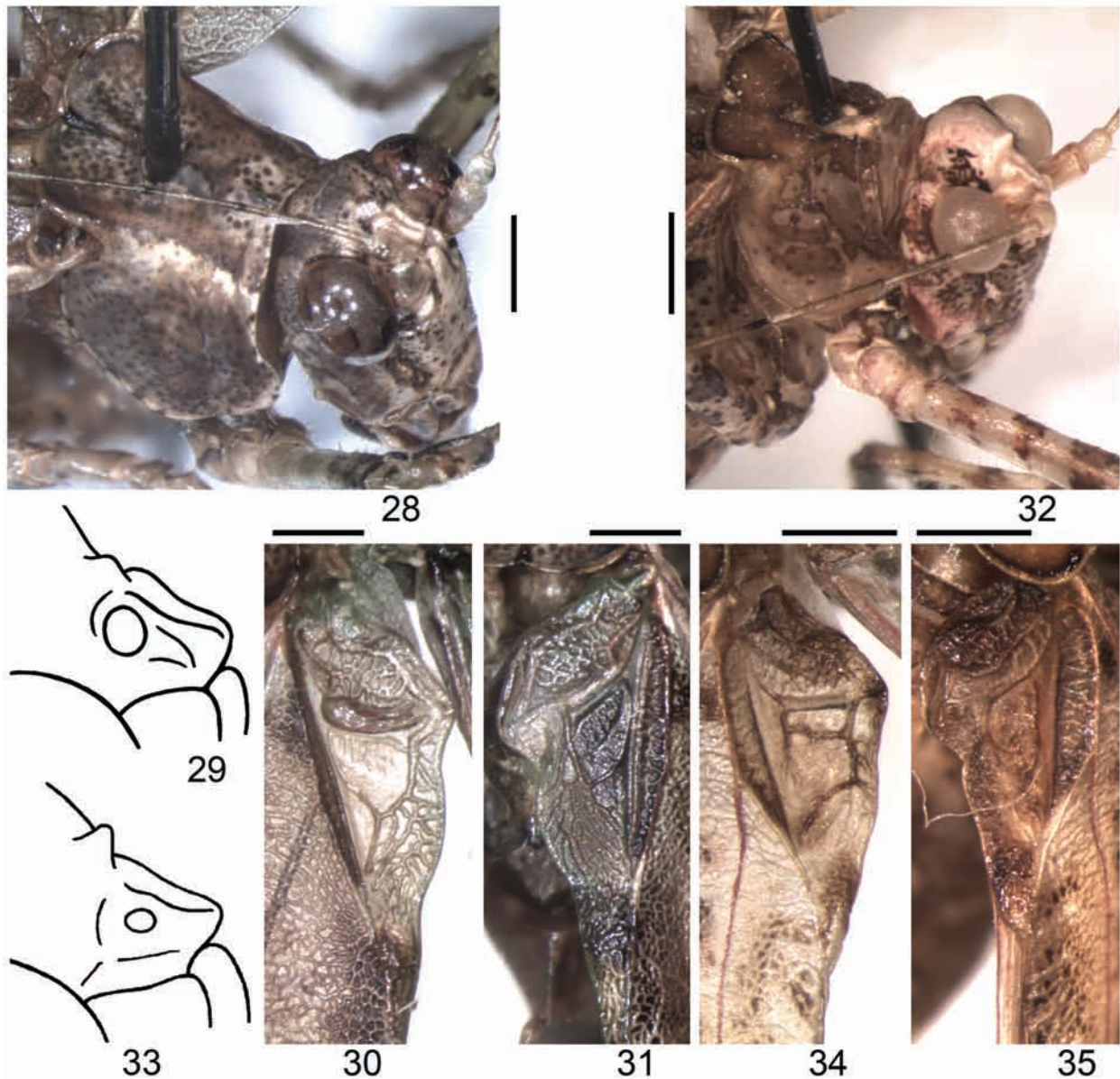
Comparison. The new species differs from *Th. latipennis* in a somewhat more uniform colouration of the

hind wings and legs as well as more oblique darkened spots on the tegmina near their anal edge, and from the male determined by Cadena-Castañeda (2014) and Eades et al. (2015) as this species, in the presence of a high medial ridge on the subapical part of male cercus; from *Th. costaricensis*, in the same character of male cercus; from *Th. santanderensis*, in a more strongly curved male cercus having an almost spine-like apex; and from *Th. lineolata*, in a different colouration of the pronotal disc (with rather dark lateral parts as well as without narrow and very light longitudinal median stripe in the anterior half) and somewhat narrower distal part of the hind wing costal lobe.

***Theia (Oxyprorella) misera* (Brunner-Wattenwyl, 1878)**

(Figs 32–35, 38, 39, 44–47)

Material studied. Male, PERU: Junin Department, Satipo Prov., ~25 km SE of Satipo Town, environs of Rio Venado Vill., ~1200 m, partly primary /

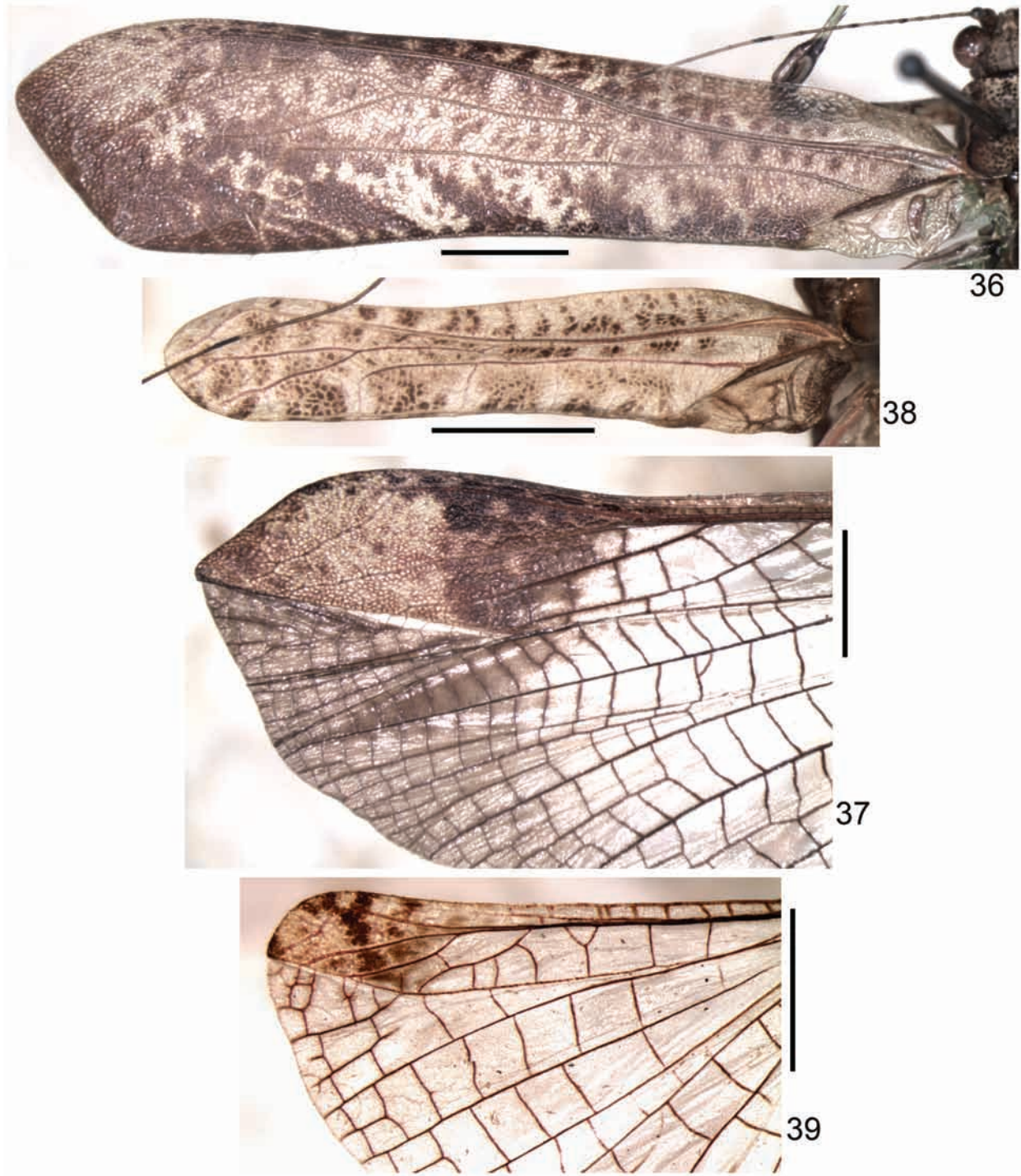


Figs 28–35. *Theia* Br.-W.: 28–31 – *Th. carinata* sp. nov.; 32–35 – *Th. misera* (Br.-W.). Head with pronotum from side and partly above (28, 32); rostrum of head from side and partly above (29, 33); dorsal field of left (30, 34) and right (31, 35) male tegmina. Scale bars 1 mm.

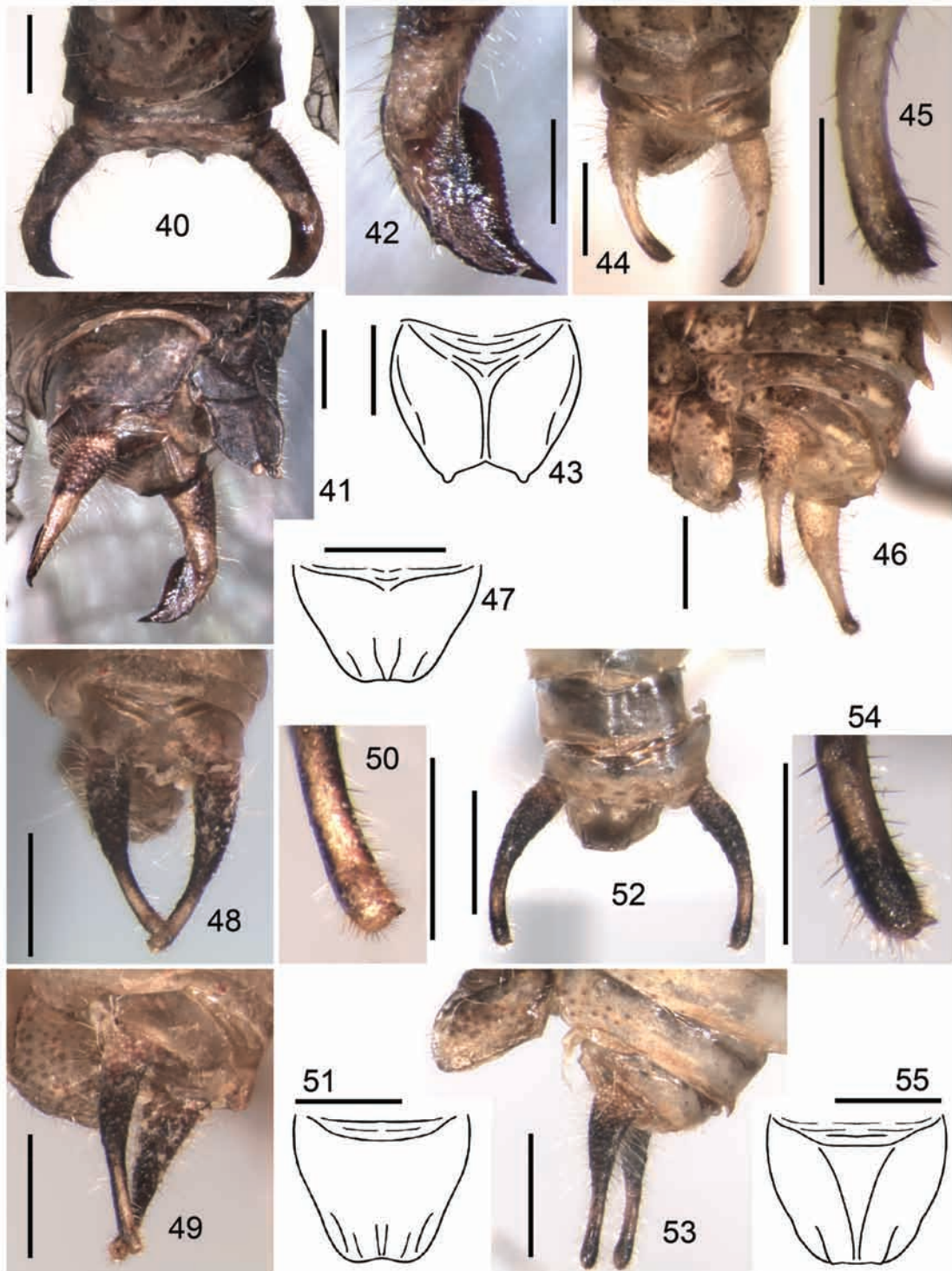
partly secondary forest, on leaf of bush at night, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

Redescription. *Male* (nov.). Body very small. Colouration marble-spotted: head yellowish with whitish dorsum (including rostral tubercles, upper parts of antennal cavities and two proximal segments of each antenna) having a pair of brown stripes along medial edges of eyes, with light brown areas on face of epi-

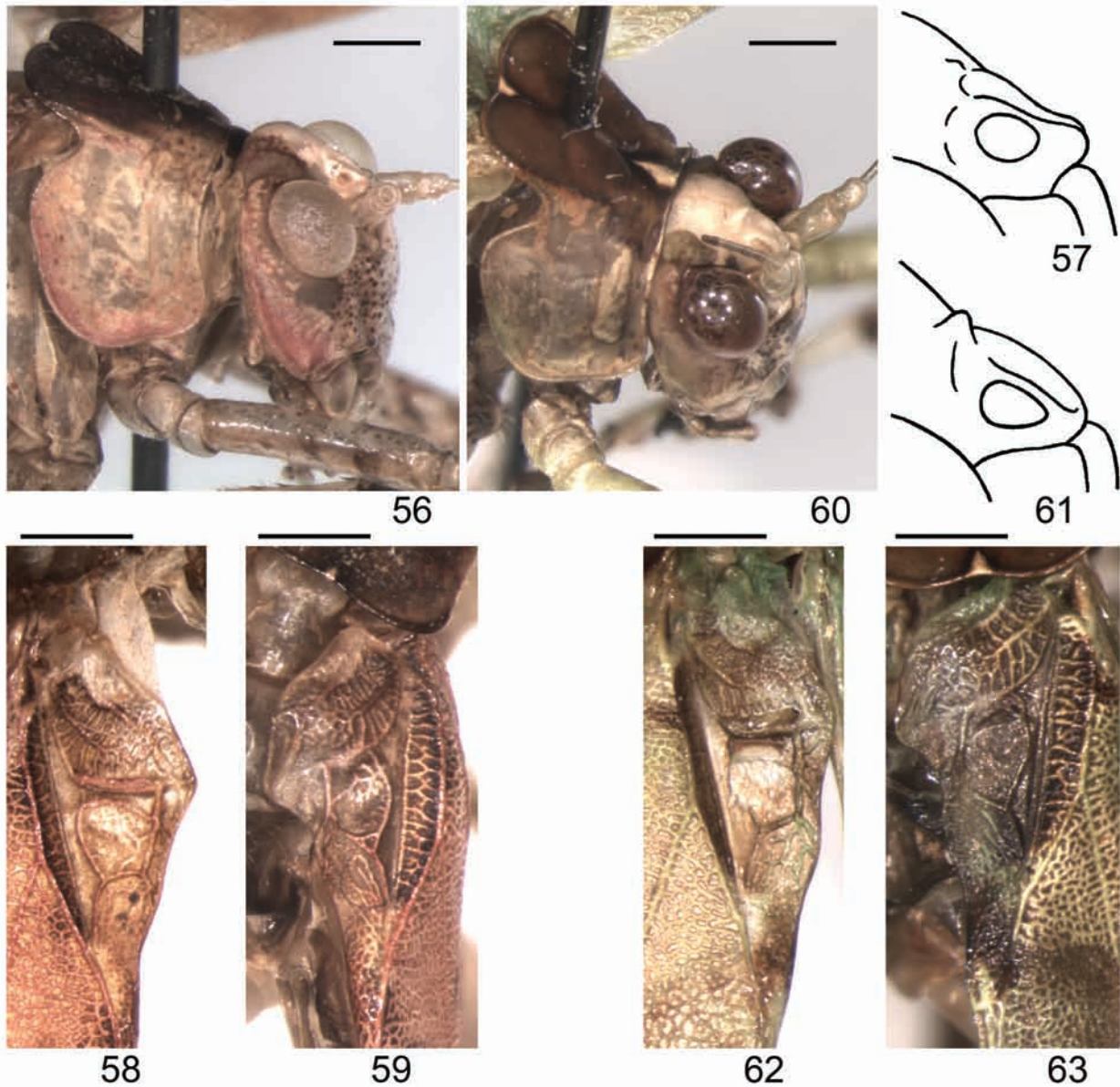
cranium and on genae (including space behind each eye), with rather numerous brown dots on these face and genae, with a pair of dark red spots on clypeus and marks in posteroventral corners of epicranium, with small and rather sparse dark brown spots on palpi, and with light brown most part of antennal flagellum having small sparse brown and whitish spots; pronotum light brown but with disc having whitish longitudinal spot on anteromedian half of disc, yellowish



Figs 36–39. *Theia* Br.-W.: 36, 37 – *Th. carinata* sp. nov.; 38, 39 – *Th. misera* (Br.-W.). Left male tegmen (36, 38); distal part of hind wing (37, 39). Scale bars 3 mm.



Figs 40–55. *Theia* Br.-W., male: 40–43 – *Th. carinata* sp. nov.; 44–47 – *Th. misera* (Br.-W.); 48–51 – *Th. amazonica levis* subsp. nov.; 52–55 – *Th. andina ecuadori* subsp. nov. Abdominal apex from above (40, 44, 48, 52), from side and partly below (41), and more or less from side (46, 49, 53); distal part of cercus from below and partly medially (42), and from above and partly laterally (45, 50, 54); genital plate from below (43, 47, 51, 55). Scale bars: 0.5 mm for 42, 45, 50, 54; 1 mm for all others.



Figs 56–63. *Theia* Br.-W.: 56–59 – *Th. amazonica levis* subsp. nov.; 60–63 – *Th. andina ecuadori* subsp. nov. Head with pronotum from side and partly above (56, 60); rostrum of head from side and partly above (57, 61); dorsal field of left (58, 62) and right (59, 63) male tegmina. Scale bars 1 mm.

border along posterior edge and blackish line along this border (but slightly before posterior edge), and with lateral lobes having wide yellowish area along ventral and posterior edges as well as light greyish marks on rest part (Fig. 32); tegmina cream with reddish Sc, RS and MA, as well as with rather numerous small brown spots (Fig. 38); hind wings transparent with spotted distal part of costal lobe (Fig. 39); legs

yellowish with distinct brown spots but also with a few oblique reddish stripes on proximal half of fore femur and with large brown area in proximal third of outer surface of hind femur (all other spots on latter femur almost light brown); all sternites brown to light brown; pterothoracic pleurites yellowish with small brownish spots and brown dots; abdomen also yellowish but with a pair of brown spots on dorsum of

sixth-eighth tergites and rather dense brown dots on lateral parts of all tergites; epiproct, cerci and genital plate light with greyish brown apical part of cercus, subbasal spot on ventral cercal surface and three spots on basal part of genital plate. Shape of rostral tubercles more or less similar to that of *Th. dives* (including distinct median tubercle behind lateral ocelli; Figs 32, 33); pronotum somewhat shorter and with less deep humeral notches than in all other congeners (Fig. 32); wings slightly shortened (tegmina and hind wings almost equal in length); tegmina rather narrow, with rounded apical part (Fig. 38) and with stridulatory apparatus as in Figs 34, 35; legs with hind femora strongly widened in proximal part (somewhat more widened than in other congeners); abdomen with distinct and almost spine-like posteromedian process on each tergite (except only last one; Fig. 46) as well as with two pairs of small lobular projections on posterior edge of sixth and more proximal tergites; epiproct rather small, simple, triangular; cercus also simple, stick-like, slightly curved (its apex directed backwards / medially), and with one small apical denticle (Figs 44–46); genital plate as in Fig. 47.

Female. General appearance (including body size, colouration, length of wings, and armament of legs and abdominal tergites) similar to that of male. For other characters of female see descriptions and illustrations of holotype in Brunner-Wattenwyl (1878) and Eades et al. (2015).

Length (mm), female after Brunner-Wattenwyl (1878). Body: male 11.5, female 10; body with wings, male 15; pronotum: male 1.9, female 2; tegmina: male 11, female 10; hind femora: male 12.7, female 12; ovipositor 5.

Remarks. This species is a somewhat modified representative of the subgenus *Oxyprorella*; but it has the same shape of male cerci as well as remarkable whitish areas on the head dorsum and pronotal disc which are characteristic for the other representatives of this subgenus included in the former genus *Theiella* (Cadena-Castañeda 2014).

***Theia (Oxyprorella?) amazonica levis* subsp. nov.**
(Figs 48–51, 56–59, 64, 65)

Etymology. This species name is the Latin word “levis” (smooth, flat).

Type material. *Holotype* – male, ECUADOR: Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill.,

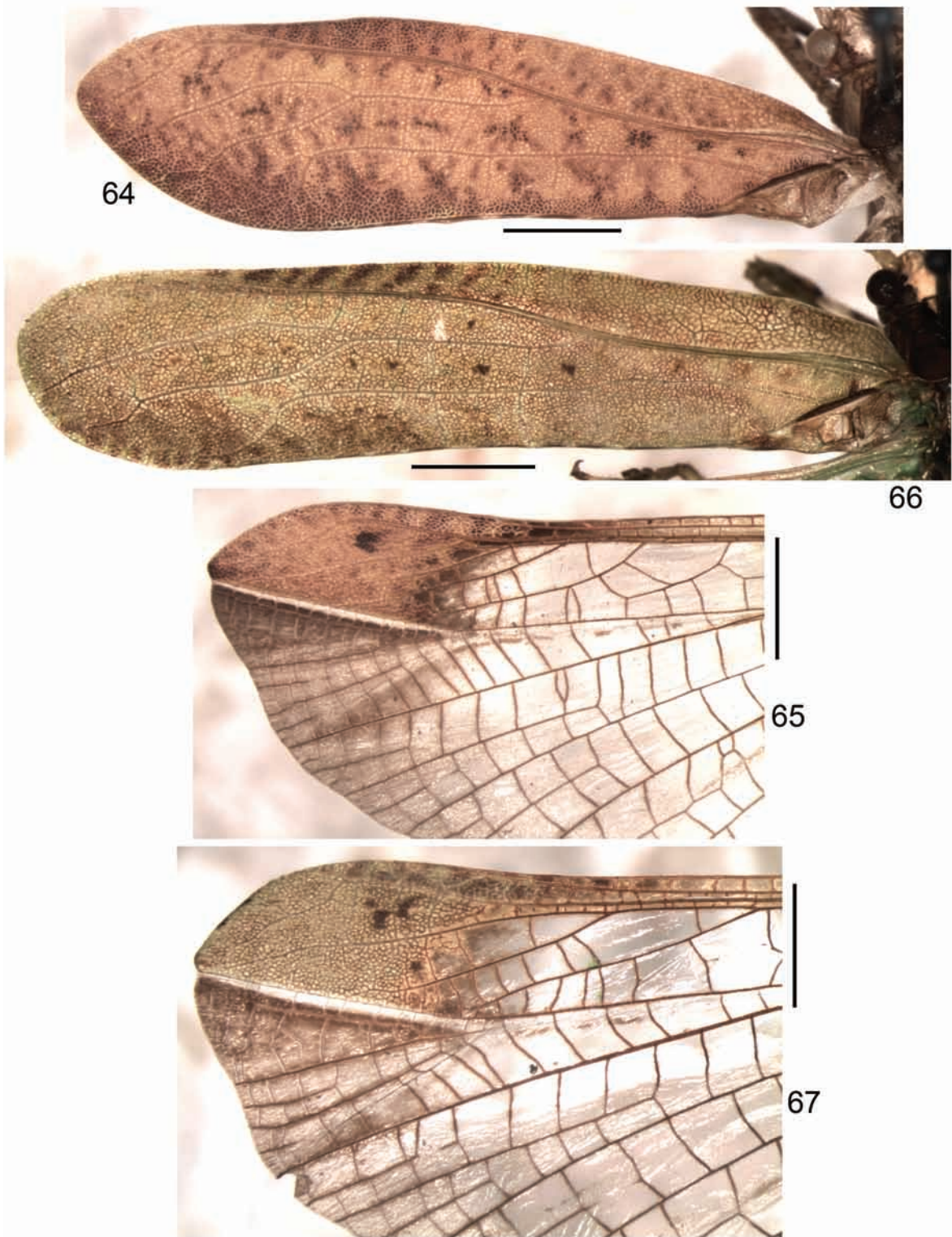
~300 m, primary forest, at light, 5–15 January 2010, A. Gorochov.

Description. *Male.* General appearance more or less as in representatives of this genus from subgenera *Thea* and *Dolichocercus* described here, but body colouration somewhat similar to that of *Th. misera*: head dorsum as in this species, i. e. with characteristic large whitish area; pronotum also with whitish longitudinal median stripe in anterior part of disc and very small median spot on posterior edge of disc, but these whitish marks smaller, rest part of disc almost dark brown and with a pair of short additional transverse whitish lines in anterior half of disc, and lateral lobes yellowish with rose stripe along ventral and posterior edges (Fig. 56); tegmen and distal part of hind wing costal lobe light reddish brown with several darker marks (Figs 64, 65); other body parts yellowish with brown areas around tympana, small brown to light brown marks and dots on legs (but hind femur almost uniformly light), and dark greyish brown both most part of proximal half of cercus and longitudinal stripe running on lateral side of cercus to its apical part (Figs 48–50). Head distinguished from that of *Th. misera* by absence of distinct median tubercle on dorsum behind lateral ocelli (Figs 56, 57); pronotum normal, i. e. somewhat longer than in *Th. misera* and with deeper humeral notches; wings long, with hind wings distinctly longer than tegmina; shape of tegmen and of distal part of hind wing costal lobe as in Figs 64, 65; structure of stridulatory apparatus as in Figs 58, 59; abdomen with processes on tergites similar to those of *Th. misera* but smaller (posterolateral lobules on tergites indistinct); epiproct rather narrow; cerci almost indistinguishable from those of this species (Figs 48–50); genital plate also almost as in *Th. misera*: with three low keels in dorsal part and barely notched (almost truncate) apical part (see Figs 47 and 51).

Female. Unknown.

Length (mm). Body 13; body with wings 26; pronotum 2.4; tegmina 19; hind femora 14.

Comparison. This new subspecies is very similar to the nominotypical subspecies (Cadena-Castañeda 2014: Colombia) but differs from it in the absence of unpaired median tubercle on the head dorsum behind the lateral ocelli as well as undarkened male genital plate and distal part of the male cerci. From *Th. andina*, the new subspecies differs in smaller whitish marks on the pronotal disc and in the tegmina with less parallel costal and anal edges as well



Figs 64–67. *Theia* Br.-W.: 64, 65 – *Th. amazonica levis* subsp. nov.; 66, 67 – *Th. andina ecuadori* subsp. nov. Left male tegmen (64, 66); distal part of hind wing (65, 67). Scale bars 3 mm.

as with an obliquely truncated (not rounded) apical part, and from *Th. lineolata*, in the same character of pronotal disc.

***Theia (Oxyprorrella?) andina ecuadori* subsp. nov.**
(Figs 52–55, 60–63, 66, 67)

Type material. *Holotype* – male, ECUADOR: Napo Prov., Hollin, 0°42'46''S, 77°44'26''W, 1321 m, at light, 8–9 November 2011, V. Sinyaev, O. Romanov.

Description. *Male.* Coloration and structure of body similar to those of *Th. amazonica levis* subsp. nov. but with following differences: pronotum with disc having clearly larger whitish median marks (however, anterior mark smaller than in *Th. misera*) and with lateral lobes lacking rose stripes (Fig. 60); tegmina and distal part of hind wing costal lobe greenish with brownish grey dorsal tegminal field and slightly more sparse darkish marks in lateral tegminal field (Figs 66, 67); hind femur with a few darkish spots on dorsal part and two whitish spots on proximal third of this part; cerci almost completely darkened (dark brown but with area near distal part barely lighter; Figs 52–54); median tubercle on head dorsum behind lateral ocelli distinctly developed (Figs 60, 61); tegmina with more parallel costal and anal edges, with almost rounded apical part (Fig. 66), and with stridulatory apparatus as in Figs 62, 63; hind wings with distal part of costal lobe somewhat wider (see Figs 65 and 67); and structure of abdominal apex practically indistinguishable from that of *Th. amazonica levis* subsp. nov. but with barely sinuated posterior edge of genital plate (Figs 52–55).

Female. Unknown.

Length (mm). Body 15; body with wings 29; pronotum 2.5; tegmina 22; hind femora 16.

Comparison. This new subspecies differs from the nominotypical subspecies in distinctly darker both most part of the pronotal disc anterior third (in *Th. andina andina*, this third is mainly yellowish but with small brown marks) and distal half of the male cerci, a thinner dorsomedian denticle near the upper rostral tubercle base, somewhat wider distal half of the tegminal costal area, less angular (more rounded) medial projection of the left tegmen near its stridulatory vein, and weakly longitudinal stridulatory area including mirror and cell between mirror and stridulatory vein (*vs.* such stridulatory area is as long as wide). Also, the new taxon is distinguished from *Th. amazonica levis* subsp. nov. by the characters given in the description;

from *Th. a. amazonica*, by majority of these characters as well as by the absence of unpaired median tubercle on the head dorsum behind the lateral ocelli; from *Th. misera*, by the same characters as *Th. a. levis* subsp. nov.; and from *Th. lineolata*, by the pronotal coloration and shape of hind wing (*Th. lineolata* has a distinctly lighter most part of the pronotal disc and narrower apical part of the hind wing costal lobe).

Subfamily Conocephalinae Kirby et Spence, 1826

Tribe Cestrophorini trib. nov.

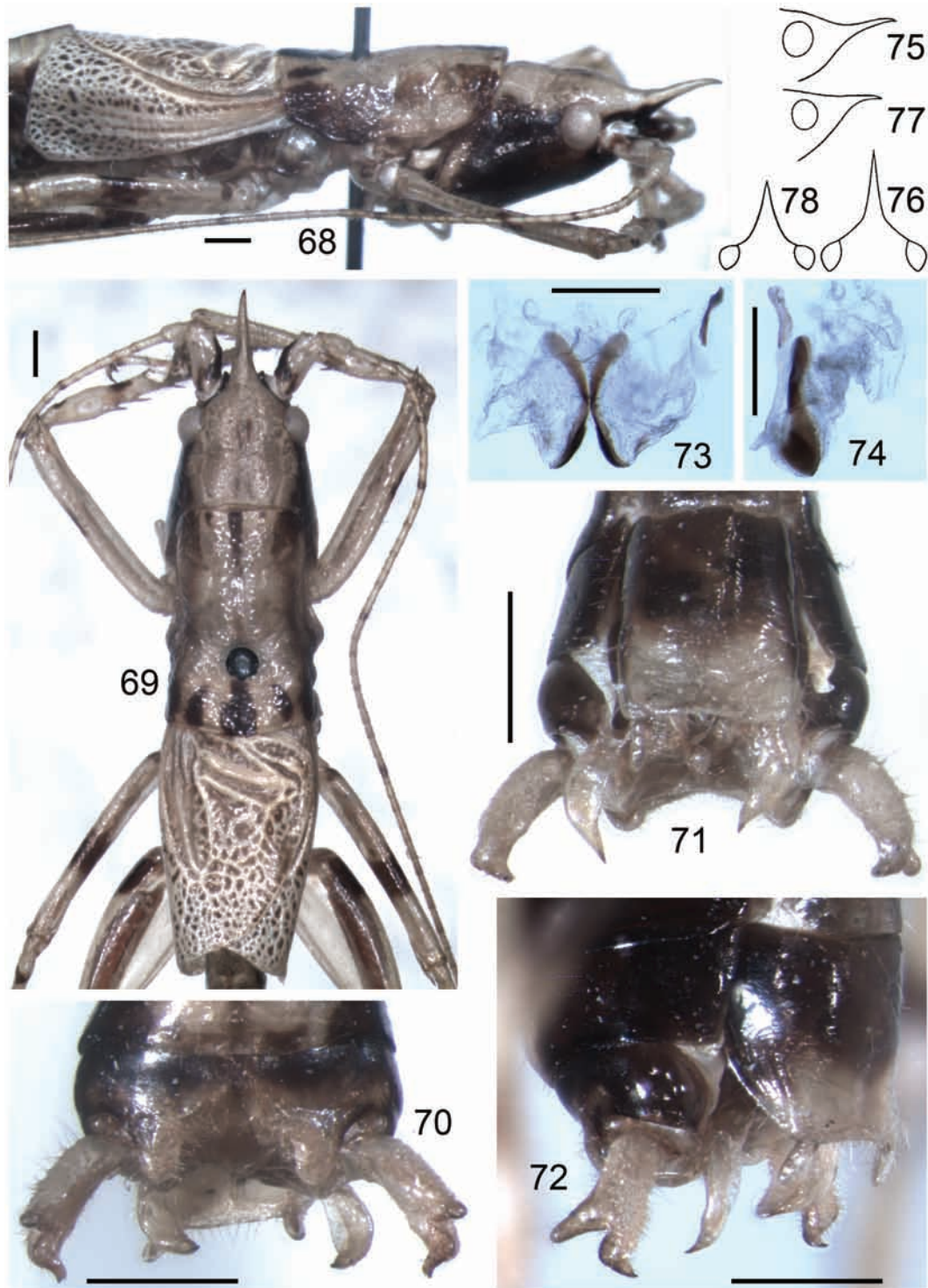
Type genus: *Cestrophorus* Redtenbacher, 1891 (gender masculine).

Diagnosis. Shape of head and general appearance approximately as in tribe Agraeciini Redtenbacher, 1891 but with following characteristic features: head strongly opistognathous (Fig. 68); rostrum of head narrow (scape wider than area between antennal cavities), presented by one spine-like upper tubercle only (lower tubercle and ocelli undeveloped; Figs 68, 69, 75–78); pronotum long and narrow, with very short hind lobe covering base of tegminal basal area only (Figs 68, 69); wings shortened in both known genera of this tribe (male) or rudimentary (female); male tegmina with rather large stridulatory apparatus and cellular venation between main longitudinal veins (including mirror and other areas around it; Figs 68, 69); fore tibiae with both tympana completely opened (oval) but with distinct longitudinal concavity near distal edge of each tympanum (Fig. 69); male abdominal apex with moderately small epiproct, short and rather diverse cerci, simple genital plate having distinct styles (Figs 70–72), and genitalia with a pair of large sclerites (Figs 73, 74).

Included genera. Type genus and *Acanthacara* Scudder, 1869.

Comparison. The new tribe is distinguished from all the other tribes of Conocephalinae mainly by completely opened tympana (presence of a longitudinal concavity near each tympanum shows that these tympana derived from the slit-like tympana, characteristic of Conocephalinae and some related subfamilies, as a result of reduction of sclerotized folds around the tympanal membranes in a common ancestor of Cestrophorini trib. nov.).

Remarks. The genus *Cestrophorus* was established for *C. paradoxus* Redtenbacher, 1891 described from a single male from “Madagascar” (Redtenbacher



Figs 68–78. *Acanthacara* Scud.: 68–76 – *A. ridiculosa* sp. nov.; 77, 78 – *A. acuta* Scud. Body of male without posterior part from side (68) and from above (69); male abdominal apex from above (70), from below (71), and from side and partly below (72); male genitalia from above (73) and from side (74); schematic outlines of head rostrum with eyes from side (75, 77) and from above (76, 78). Scale bars 1 mm. [77, 78 – after photographs by Gurney (1972).]

1891); however, there is information that this specimen might be collected in Ecuador (Eades et al. 2015: pers. comm. by G.K. Morris). The genus *Acanthacara* was described from a single female from Ecuador also (Scudder 1869: *A. acuta* Scudder, 1869); fore legs of this female were missing (Gurney 1972), and relationship between these genera were established only after the discovery of a new species described below.

Genus *Acanthacara* Scudder, 1869

Note. Diagnosis of this genus is corresponding to that of the tribe Cestrophorini trib. nov. but with following possible differences from the genus *Cestrophorus*: male tegmina are clearly shorter (slightly longer than pronotum; *vs.* almost twice longer than pronotum); male last abdominal tergite is with a pair of distinct posterior lobes (in *Cestrophorus*, these lobes are probably undeveloped; see photographs in Eades et al. 2015); male cerci are bifurcate; each paraproct is with a hook-like process; and genital plate has much longer styles (male genitalia in *Cestrophorus* are unstudied). *Acanthacara* includes two species: *A. acuta* (type species) and *A. ridiculosa* sp. nov.

Acanthacara ridiculosa sp. nov. (Figs 68–76)

Etymology. This name is the Latin word “ridiculus” (amusing).

Type material. *Holotype* – male, ECUADOR: ~95 km E of Quito City, environs of San Rafael Waterfall on Rio Coca, ~1300 m, primary forest, on bush branch at night, 23–26 November 2005, A. Gorochoy, A. Ovtshinnikov.

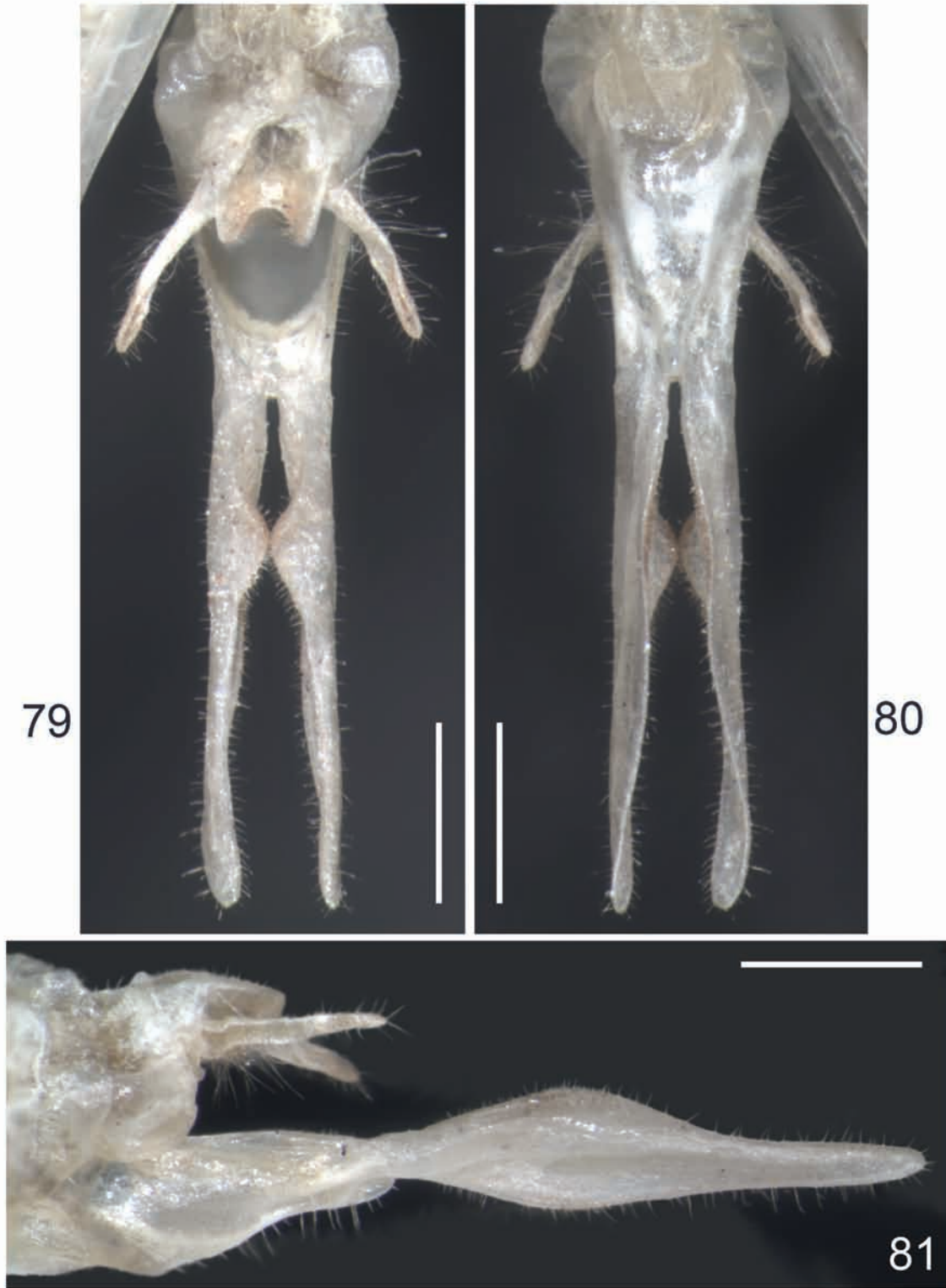
Description. *Male.* Body rather small. Colouration yellowish with following pattern (Figs 68, 69): epicranium with dark brown face from antennae and eyes to clypeus and mandibles (ventral part of proximal half of upper rostral tubercle brown to dark brown) as well as most part of genae and narrow stripe along dorsal edge of each antennal cavity; mouthparts with narrow dark brown area on clypeus along clypeal suture and a few brown spots on mandibles; antennae with large dark brown spot on medial part of scape, smaller brown marks on proximal parts of scape, and small sparse brownish spots on flagellum; pronotum with three dark brown marks in both anterior pronotal part and posterior area of

disc, and with brown posterior part of lateral lobes; tegmina with almost whitish venation and light brown membranes of majority of cells; legs with brown middle spot on all femora, additional brown spot on basal part of middle and hind femora, brown distal part of hind femur, small brown subbasal spot on dorsal part of all tibiae, brown spot on middle part of fore and hind tibiae, light brown small spot on subapical part of fore and middle tibiae, and small brownish spots near base of spines on hind tibia; abdomen with brown lateral parts of tergites (except last one having brown anterior part of dorsum also), and with brown proximal half of genital plate (Figs 70–72). Epicranium strongly conical, elongate and low, with long and thin spine-like upper rostral tubercle having apical part barely curved downwards (Figs 68, 69, 75, 76); scape almost twice wider than area between antennal cavities. Pronotum as in Figs 68 and 69, with disc more or less rugose and having almost straight anterior and convex posterior edges, with hind lobe not inflated, and with lateral lobes distinctly rugose. Tegmina significantly shortened (their visible part only insignificantly longer than pronotum), with almost truncate distal edge, with dorsal field rather wide in region of stridulatory apparatus and having somewhat oblique stridulatory vein (Fig. 69), with lateral field narrow in proximal part and distinctly wider in distal part (Fig. 68), and with rather short distal parts of both fields having almost only cellular venation (Figs 68, 69); legs rather long and thin but with somewhat thickened proximal part of hind femur; abdominal apex with lobes of last tergite as in Fig. 70, with epiproct having normally widened proximal half and strongly narrowed (almost finger-like) distal half, with paraproct having rather large and hook-like process in lower part (this process flattened and with almost spine-like apical part; Figs 70–72), with rather large and rectangular genital plate having a pair of moderately elongate styles situated rather far from each other (Fig. 71), and with genitalia having two pairs of sclerites: larger arcuate sclerites with distal part widened in profile, and much smaller lateroproximal sclerites in shape of short ribbons (Figs 73, 74).

Female. Unknown.

Length (mm). Body 19.5; pronotum 4.8; exposed part of tegmina 5.8; hind femora 9.5.

Comparison. The new species is similar to *A. acuta* in the colouration of head and pronotum as well as general shape of body (especially rostral region),



Figs 79–81. *Phlugis gerana* sp. nov., male: 79 – abdominal apex from above; 80 – same from below; 81 – same from side. Scale bars 1 mm.

but it is distinguished from the latter species known from only female (as well as from *C. paradoxus* known from only male) by a distinctly longer upper rostral tubercle and somewhat thinner proximal half of this tubercle (for comparison see Figs 75, 76 and 77, 78).

Subfamily Meconematinae Burmeister, 1838

Tribe Phlugidini Eichler, 1938

Phlugis gerana sp. nov.

(Figs 79–81, 85, 86)

Etymology. This species is named in memory of Natalia Geraskina, Deputy Director of Orlovskoye Polesye National Park, a great lover of wild animals and wonderful companion in our journey to Bolivia and Paraguay in 2014; many beautiful photographs in nature were published by N. Geraskina in the Internet under her nickname “Gerana”.

Type material. *Holotype* – male, PARAGUAY: “Reserva Pantanal Paraguayo” near Bolivia, Los Tres Gigantes Biological Station on Rio Negro (Parana Basin), open landscape with bushes and sparse low trees among high grasses near water, on leaf of bush at night, 31 January – 4 February 2014, A. Gorochov. *Paratype* – female, same data as for holotype.

Description. *Male.* General appearance (including body size) as in other congeners but with following characteristic features: colouration uniformly light green (almost whitish in dry specimen) with numerous very small greyish brown spots on antennal flagellum (proximal spots almost light brown) and with darkened areas on tarsi (fore and middle tarsi with darkened distolateral parts of third segments, but hind tarsi with three proximal segments almost completely greyish brown); face of head somewhat concave in profile; pronotum elongate, with hind lobe barely inflated and slightly shorter than rest part of disc, and practically without humeral notches (only small and weakly distinct concavity developed on ventral edge of each lateral lobe near anterior thoracic stigma); fore leg with coxa having long and thin spine barely curved downwards, with femur having three inner and four outer ventral spines (this spines long and thin), with right tibia having five pairs of similar spines (but majority of them longer and slightly arcuate), and with left tibia slightly shorter than right one and with less numerous and less long spines (this tibia possibly restored after preimaginal damage); other legs with two outer ventral spinules

on middle tibia and with numerous short spines on both dorsal keels of hind tibia only; tegmina rather long (reaching apex of genital plate), narrow, with regular venation and large transparent membranes of cells, as well as with normally developed stridulatory apparatus; last abdominal tergite with rather large and deep median concavity, as well as with a pair of moderately large (but not long) posterolateral lobes situated almost in vertical plane and having numerous distinct hairs on their medial (dorsal) surfaces (Fig. 79); epiproct and paraproct simple, very small; cerci also simple, almost stick-like but soft (Figs 79–81); genital plate very long and very deeply notched, with a pair of rather thin lateral branches having rounded dorsal lobe situated almost at middle of this plate (this lobe directed partly medially and looking as widening in profile; Figs 79–81); genitalia completely membranous.

Female. Body very similar to that of male, but pronotum with hind lobe shorter (rest part of pronotal disc approximately 1.5 times as long as this lobe) and traces of humeral notches almost indistinct, tegmina with narrow light brown stripe along anal edge and without stridulatory apparatus, both fore tibiae as right one in holotype, last abdominal tergite unspecialized, genital plate short and more or less triangular in shape (Fig. 86), and ovipositor as in Fig. 85.

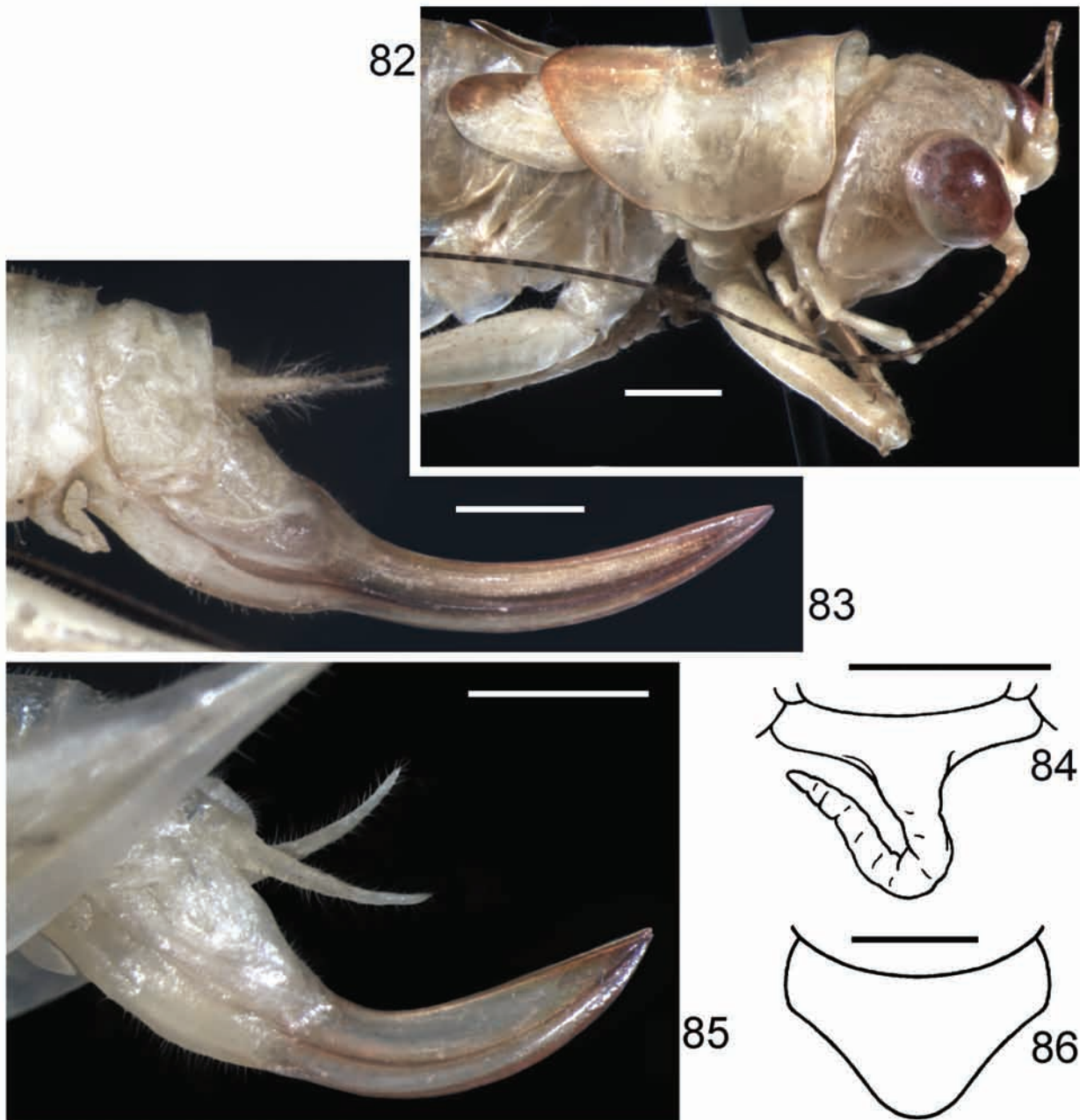
Length (mm). Body: male 13.5, female 12; body with wings: male 19, female 20.5; pronotum: male 3, female 2.9; tegmina: male 9.7, female 11.3; hind femora: male 9.3, female 10.5; ovipositor 4.5.

Comparison. The new species is most similar to *Ph. celerinicta* Nickle, 2003 (Peru), *Ph. ecuador* Gorochov, 2012 and *Ph. morona* Gorochov, 2012 (Ecuador) in the male genital plate very long and very deeply notched, but it is distinguished from them by the presence of rather high dorsal lobes located at the middle of this plate and directed partly medially. From *Ph. irregularis* Bruner, 1915 known only from females collected in Bolivia (not far from Paraguay), the new species differs in the clearly shorter tegmina and longer ovipositor (*Ph. irregularis* has the same length of both pronotum and hind femur, but tegmina and ovipositor are 14.5–15 mm and 3.5 mm, respectively).

Phlugiola? appendicula sp. nov.

(Figs 82–84)

Etymology. This species name is the Latin word “appendicula” (small appendix, small appendage),



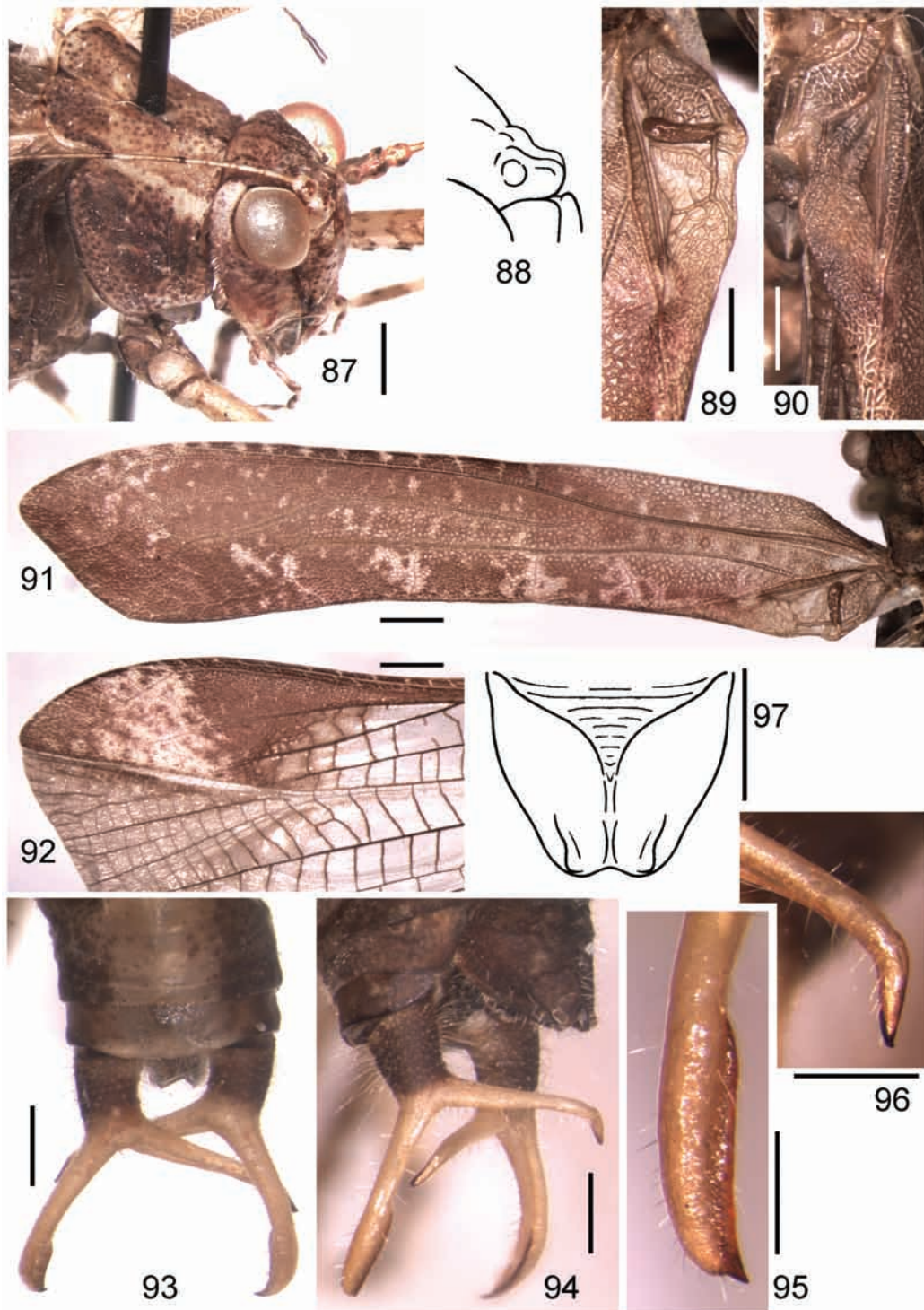
Figs 82–86. *Phlugiola? appendicula* sp. nov. (82–84) and *Phlugis gerana* sp. nov. (85, 86), female: 82 – head, pronotum and tegmina from side and slightly above; 83, 85 – abdominal apex with ovipositor from side; 84, 86 – genital plate from below. Scale bars 1 mm.

because female genital plate of this species has a characteristic soft appendix.

Type material. *Holotype* – female, BOLIVIA: southern part of Santa Cruz Prov. (near Brazil), environs of Puerto Suares Town on Rio Paraguay (Parana

Basin), ~200 m, secondary forest, on leaf of small tree at night, 4–5 February 2014, A. Gorochov.

Description. *Female.* Body rather large. Colouration greenish with yellowish tinge (completely yellowish in dry specimen), but eyes reddish, antennal



Figs 87–97. *Theia morona* sp. nov., male: 87, 88 – head with pronotum (87) and rostrum of head (88) from side and partly above; 89, 90 – dorsal field of left (89) and right (90) tegmina; 91 – left tegmen; 92 – distal part of hind wing; 93 – abdominal apex from above; 94 – right cercus from side and partly below; 95, 96 – distal part of lateral cercal branch from above and slightly in front (95), and of medial cercal branch from below and slightly from side (96); 97 – genital plate from below. Scale bars: 0.5 mm for 95, 96; 1 mm for all others.

flagellum light brown to brown with numerous very small lighter spots, hind lobe of pronotum with light brown median part and lateral edges, tegmina with distinct light brown distomedial area, legs with small weak darkenings on third tarsal segments and greyish brown spines of hind tibia, and ovipositor with partly greyish brown / partly light brown distal and middle parts. Head rather large, with almost straight anterior edge of epicranium in profile; pronotum more or less similar in shape to that of male of *Ph. gerana* sp. nov. but with hind lobe not inflated and lateral lobes slightly less high (Fig. 82); tegmina strongly shortened, reaching middle part of second abdominal tergite, not contacting with each other, with narrowly rounded apical part, and with a few distinct veins only (Fig. 82); legs similar to those of *Ph. gerana* sp. nov. but somewhat more robust and with more thickened proximal part of hind femur; fore femur with two inner and two outer ventral spines; fore tibia with four inner and five outer ventral spines; middle legs with 2–3 outer and two inner ventral spines as well as one small outer spur on tibia; hind legs with armament approximately as in *Ph. gerana* sp. nov.; last abdominal tergite with more or less straight posterior edge and rather deep median groove; epiproct, paraprocts and cerci also almost as in this species but with distinct median groove on dorsoproximal part of epiproct; genital plate very short (strongly transverse) but with posteromedian lobe having long, thin and probably rather soft appendix (this appendix strongly deformed in dry specimen and looking as an almost loop-like structure; Figs 83, 84); ovipositor as in Fig. 83.

Male. Unknown.

Length (mm). Body 15; pronotum 3.8; exposed part of tegmina 2.2; hind femora 10.7; ovipositor 6.5.

Comparison. There are three American genera of Phlugidini with strongly shortened wings: *Phlugiola* Karny, 1907, *Neophlugis* Gorochov, 2012 and *Paraphlugiola* Cadena-Castañeda et Gorochov, 2014. All the known species of these genera are remarkably differ from this new species in a simple shape of the female genital plate lacking any distinct process or appendix at the apex; in *Ph.? appendicula* sp. nov., the apical part of this plate has a very characteristic (long, thin and soft) unpaired appendix. This unique feature of female as well as the absence of any information about male of this species do not allow me to determine its generic position more exactly, and I tentatively include it in the genus *Phlugiola* under question.

***Odontophlugis ramirezi* (Barranco Vega, 2013), comb. nov.**

Note. This species was recently described from Costa Rica as a member of the genus *Phlugis* Stål, 1861 (Barranco Vega 2013). This description clearly shows that the species has distinct teeth on the male cerci as well as very long and firm styles of the male genital plate fused (or partly fused) with this plate and almost cylindrical in the shape (i. e. without more or less high and almost lamellar vertical area in the middle or distal parts of each style). These characters testify belonging of this species to *Odontophlugis* Gorochov, 1998 but not to *Phlugis*.

ACKNOWLEDGEMENTS

The author is thankful to the collectors of these interesting insects and to Dr. Oscar J. Cadena-Castañeda (Universidad Distrital Francisco José de Caldas, Bogotá, Colombia) for useful discussion on the katydid genus *Theia*. The study was performed in the frames of the state research project No. 01201351189 (Russian Federation).

REFERENCES

- Barranco Vega P. 2013.** Descripción de tres nuevas especies de tettigónidos de Costa Rica (Orthoptera, Tettigoniidae). *Animal Biodiversity and Conservation*, **36**(2): 217–223.
- Brunner-Wattenwyl C. 1878.** *Monographie der Phaneropteriden*. F.A. Brockhaus, Wien, 401 p.
- Brunner-Wattenwyl C. 1891.** Additamenta zur Monographie der Phaneropteriden. *Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien*, **41**: 1–196.
- Cadena-Castañeda O.J. 2013.** The tribe Dysoniini part II: The genus *Markia* (Orthoptera: Tettigoniidae; Phaneropterinae), new species and some clarifications. *Zootaxa*, 3599(6): 501–518.
- Cadena-Castañeda O.J. 2014.** La tribu Pycnopalpini trib. n. (Orthoptera, Tettigoniioidea, Phaneropteridae): segunda contribución a la organización supragenérica de los faneropterinos neotropicales. *Animal Biodiversity and Conservation*, **37**(2): 149–163.
- Cadena-Castañeda O.J. and Garcia A.G. 2014.** Nuevos taxones de la tribu Phlugidini (Orthoptera: Tettigoniidae) de los Andes y pie de monte llanero de Colombia, con comentarios acerca del estatus actual de la tribu. *Boletín de la Sociedad Entomológica Aragonesa*, **54**: 85–90.
- Cadena-Castañeda O.J. and Gorochov A.V. 2012.** Review of the Neotropical genus *Paraphidnia* (Ortho-

- ptera: Tettigoniidae: Phaneropterinae). *Zoosystematica Rossica*, **21**(2): 204–233.
- Cadena-Castañeda O.J. and Gorochov A.V. 2013.** Review of the Neotropical genera *Quiva* and *Yungasacris* (Orthoptera: Tettigoniidae: Phaneropterinae). *Zoosystematica Rossica*, **22**(2): 189–203.
- Eades D.C., Otte D., Cigliano M.M. and Braun H. 2014.** *Orthoptera Species File Online. Version 5.0/5.0.* Visited 12 February 2015. Available from: < <http://Orthoptera.SpeciesFile.org>>
- Giglio-Tos E. 1898.** Viaggio del Enrico Festa nella Repubblica dell'Ecuador e regioni vicine. VI. Ortoteri. *Bollettino dei Musei di Zoologia ed Anatomia comparata della R. Università di Torino*, **13**(311): 70.
- Gorochov A.V. 1998.** New and little known Meconematinae of the tribes Meconematini and Phlugidini (Orthoptera: Tettigoniidae). *Zoosystematica Rossica*, **7**(1): 101–131.
- Gorochov A.V. 2006.** A new katydid genus of unclear systematic position from Ecuador (Orthoptera: Tettigoniidae). *Zoosystematica Rossica*, **15**(1): 47–50.
- Gorochov A.V. 2012a.** Systematics of the American katydids (Orthoptera: Tettigoniidae). Communication 1. *Proceedings of the Zoological Institute RAS*, **316**(1): 3–21.
- Gorochov A.V. 2012b.** Systematics of the American katydids (Orthoptera: Tettigoniidae). Communication 2. *Proceedings of the Zoological Institute RAS*, **316**(4): 285–306.
- Gorochov A.V. 2013.** A new subtribe of the tribe Phisidini from America and remarks on the genus *Arachmoscelis* (Orthoptera: Tettigoniidae: Meconematinae). *Zoosystematica Rossica*, **22**(1): 59–62.
- Gorochov A.V. 2014a.** Systematics of the American katydids (Orthoptera: Tettigoniidae). Communication 3. *Proceedings of the Zoological Institute RAS*, **318**(2): 109–147.
- Gorochov A.V. 2014b.** Systematics of the American katydids (Orthoptera: Tettigoniidae). Communication 4. *Proceedings of the Zoological Institute RAS*, **318**(3): 226–251.
- Gorochov A.V. 2014c.** Three new taxa of the genus *Paraphidnia* (Orthoptera: Tettigoniidae: Phaneropterinae) from French Guiana. *Zoosystematica Rossica*, **23**(1): 89–95.
- Gurney A.B. 1972.** The South American katydid genus *Acanthacara*: descriptive notes and subfamily position (Orthoptera: Tettigoniidae, Agraeciinae). *Journal of the Washington Academy of Sciences*, **62**(1): 32–35.
- Redtenbacher J. 1891.** Monographie der Conocephaliden. *Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien*, **41**(2): 315–562.
- Scudder S.H. 1869.** Notes on Orthoptera collected by Professor James Orton on either side of the Andes of Equatorial South America. *Proceedings of the Boston Society of Natural History*, **12**: 330–345.

Submitted September, 2, 2015; accepted November, 6, 2015.