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## SYSTEMATICS OF THE AMERICAN KATYDIDS (ORTHOPTERA: TETTIGONIIDAE). COMMUNICATION 2

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### ABSTRACT

*Gnathoclitia (Tettohenicus) anostostoma* subgen. et sp. nov. [Pleminiinae], *Arachnoscelis tanasijtshuki* sp. nov., *Phlugis ecuador* sp. nov., *Ph. morona* sp. nov., *Odontophlugis ucayali* sp. nov., *Phlugiola amazonia* sp. nov., *Neophlugis calabaza* gen. et sp. nov., *Cephalophlugis? setosa* sp. nov. [Meconematinae], *Dysonia (Dysonia) mariposa* sp. nov., *D. (Dissonulichen) satipo* sp. nov. and *D. (Dissonulichen) simplicipes meridionalis* subsp. nov. [Phaneropterinae] are described from Ecuador and Peru. The generic name *Valna* Walker, 1869 is considered a synonym of the subgenus *Dysonia Dysonia* White, 1862; the subgenus *Dissonulichen* Cadena-Castañeda, 2011 is transferred to the genus *Dysonia*.

**Key words:** America, Dysoniini, Meconematinae, new taxa, Orthoptera, Phaneropterinae, Phisidini, Phlugidini, Pleminiinae, Tettigoniidae

## СИСТЕМАТИКА АМЕРИКАНСКИХ КУЗНЕЧИКОВ (ORTHOPTERA: TETTIGONIIDAE). СООБЩЕНИЕ 2

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### РЕЗЮМЕ

Из Эквадора и Перу описываются *Gnathoclitia (Tettohenicus) anostostoma* subgen. et sp. nov. [Pleminiinae], *Arachnoscelis tanasijtshuki* sp. nov., *Phlugis ecuador* sp. nov., *Ph. morona* sp. nov., *Odontophlugis ucayali* sp. nov., *Phlugiola amazonia* sp. nov., *Neophlugis calabaza* gen. et sp. nov., *Cephalophlugis? setosa* sp. nov. [Meconematinae], *Dysonia (Dysonia) mariposa* sp. nov., *D. (Dissonulichen) satipo* sp. nov. и *D. (Dissonulichen) simplicipes meridionalis* subsp. nov. [Phaneropterinae]. Родовое название *Valna* Walker, 1869 рассматривается как синоним подрода *Dysonia Dysonia* White, 1862; подрод *Dissonulichen* Cadena-Castañeda, 2011 переносится в род *Dysonia*.

**Ключевые слова:** Америка, Dysoniini, Meconematinae, новые таксоны, Orthoptera, Phaneropterinae, Phisidini, Phlugidini, Pleminiinae, Tettigoniidae

### INTRODUCTION

This paper is a second communication in the series of publications on Neotropical Tettigoniidae. In the first communication (Gorochov 2012), ten new American taxa from the genera *Championica* Saussure et Pictet, 1898 (Pleminiinae), *Machimoides* Rehn, 1950, *Lichenomorphus* Cadena-Castañeda,

2011 and *Dysonia* White, 1862 (Phaneropterinae) were described, and some problems of division of the subfamily group “Pseudophyllidae” (Gorochov 1988, 1995a) into subfamilies and tribes were discussed. In the second communication (as well as in the first communication), subfamilies of this group are mentioned, but any tribal position for the genera studied is not indicated.

## MATERIAL AND METHODS

All specimens described here were collected in tropical rainforests by Russian collectors. 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 wings of these insects were made by Canon 40D, and photographs of their smaller structures by Leica M216.

## SYSTEMATICS

### Subfamily Pleminiinae Brunner-Wattenwyl, 1895 Genus *Gnathoclita* Hagenbach, 1841

**Note.** The genus is closely related to the genus *Dicranostomus* Dohrn, 1888; their body structure (including stridulatory apparatus of male tegmina, structures of male abdominal apex, and ovipositor) is similar to each other. Main differences between these taxa are in the shape of mouthparts: in *Dicranostomus*, the mouthparts are more and less normal for Tettigoniidae and similar to those of female of *Gnathoclita*, but each mandible has a long process in the middle part of anterior surface [this process is directed forwards, and thus the mandibles of *Dicranostomus* are very similar to those of males from the genera *Libanasidus* Peringuey, 1918, *Anisoura* Ander, 1932 and *Motuweta* Johns, 1997 (Stenopelmatoidea: Anostostomatidae: Anostostomatinae)]; in male of *Gnathoclita*, all mouthparts are strongly lengthened, mandibles are more or less arcuately curved and often rather thin (excepting basal part), all mandibular teeth may be located in the apical widening of mandibles, and the middle part of anterior surface of each mandible may have a small tubercle. This tubercle is possibly homologous to the long mandibular process of *Dicranostomus*, and thus the structure of mouthparts in these *Gnathoclita* males is more or less similar to that of males from the genus *Libanasa* Walker, 1869 (Anostostomatinae). The new species described below has an additional character increasing its similarity to the most specialized representatives of Anostostomatinae (*Anostostoma* Gray, 1837 and *Henicus* Gray, 1837); the upper part of clypeus (or the lower part of epicranium near clypeus) has a pair of strong processes directed partly forwards and partly downwards (Figs 1, 2). So, *Gnathoclita* and

*Dicranostomus* together probably form a holophyletic branch of Pleminiinae (maybe the same genus with two or three subgenera), which independently from Anostostomatinae acquired all the variants of mouthparts specialization, characteristic of Anostostomatinae, and preserved some traces of intermediate conditions between these variants.

### Subgenus *Tettohenicus* subgen. nov.

**Type species.** *Gnathoclita* (*Tettohenicus*) *anostostoma* sp. nov.

**Etymology.** The subgeneric name originates from the family Tettigoniidae and the genus *Henicus*.

**Diagnosis.** Upper rostral tubercle spine-like; lower rostral tubercle distinctly shorter, looking as narrow convexity; male mouthparts strongly lengthening and modified as in nominotypical subgenus, but with a pair of strong processes on upper part of clypeus (or on articulated areas of lower part of epicranium) and with mandibles lacking any tubercles on middle part of anterior surface (Figs 1, 2). Pronotum long, with more or less smooth surface and almost straight anterior and posterior edges of disc; in male, hind part of disc somewhat raised; lateral lobes low, with vertical posterior edge, with horizontal ventral edge in hind half of pronotum, and with strongly oblique anterior edge reaching almost middle of pronotum (Fig. 2). Prosternum with a pair of not long spines; mesosternum with a pair of almost angular spines more or less equal to previous spines in length but slightly thicker and more widely spaced; metasternum with spines similar to those of mesosternum but distinctly shorter. Wings strongly shortened. Legs moderately long and rather thin; fore coxa with moderately long spine; both tympanal openings of fore tibia rather small and practically situated on inner and outer tibial surfaces (in majority of other representatives of Pleminiinae including *Gnathoclita*, both tympanal openings situated on dorsal tibial surface).

**Included species.** Only type species.

**Comparison.** The new subgenus differs from *Gnathoclita* s. str. in the presence of strong processes on the upper part of male clypeus, absence of any tubercles on the anterior surface of male mandibles, pronotum long and low, its surface more or less smooth, wings strongly shortened, and position of tympanal openings on the outer and inner surfaces (not on the dorsal surface) of fore tibia.

***Gnathoclista (Tettohenicus) anostostoma* sp. nov.**  
(Figs 1–8)

**Etymology.** The species is named in connection with some similarity of its mouthparts to those of the genus *Anostostoma*.

**Type material.** Holotype – male, ECUADOR: Pichincha Prov., Tambo Tanda Camping, 0°01'22''S, 78°38'48''W, 1969 m, 25 October 2011, V. Sinyaev, O. Romanov.

**Description.** *Male.* Head brown with slightly darker eyes, with dark brown spots on rostrum, on border of antennal cavities, on scapes, near hind and medial parts of eyes, between eyes and near upper clypeal processes, with light brown mandibles (excepting blackish apical teeth), upper clypeal processes, distal half of labrum, areas along hind edge of epicranium, middle and distal parts of antennal flagellum, and with yellowish rest of mouthparts; pronotum with dark brown borders, with brown disc having a few weakly distinct light brown marks, and with yellowish lateral lobes having dark brown spot at middle as well as brown area at anterior corner and stripe along hind border; tegmina dark brown with two thick light brown longitudinal veins in lateral field, with other veins and crossveins of this field whitish, with most part of dorsal field of left tegmen brownish grey, with medial part of basal area of this field and medial edge of dorsal field of right tegmen yellowish, and with mirror of latter tegmen and narrow membranes around it almost transparent (Figs 3–5); hind wings almost whitish; legs yellowish with small numerous marks on femora dark brown and brown, with apex of femora and base of tibiae brown, with rest of fore tibiae reddish brown and having light brown spot on outer tympanal region, and with all tarsi and rest of other tibiae almost light brown; venter of thorax and of abdomen yellowish; rest of thorax more or less light brown; abdominal dorsum (including cerci) and lateral parts of abdomen brown. Head with rostrum between antennal cavities almost twice as narrow as scape; upper rostral tubercle not longer than medial part of antennal cavity border; epicranium widened in lower part, with a pair of large concavities above subgenae and arcuately curved clypeal suture; mandibles strongly arcuately curved, having thin distal half and distinct apical widening with teeth (Figs 1, 2). Tegmina reaching distal edge of 2nd abdominal tergite; dorsal field of left tegmen small and narrow, with three distinct oblique veins

in basal area, with stridulatory vein very thick and visible only from below, and with mirror comparatively small and narrow (Fig. 3, 4); dorsal field of right tegmen distinctly larger than in left tegmen, with mirror much larger, and with one distinct vein in basal area (Fig. 5); lateral field of tegmina clearly larger than both dorsal fields, with venation as in Fig. 3; hind wings reaching middle part of 2nd abdominal tergite, completely covered by tegmina. Femora with a few short ventral spines in distal half (fore femur with 2 inner spines only, middle femur with 2 outer spines only, and hind femur with 4 outer spines only); fore tibia with 6 short ventral spines (including apical spurs) on both outer and inner edges; armament of middle tibia almost as in fore tibia but without 1 proximal inner ventral spine and with 2 additional inner dorsal spines; hind tibia with several short spines: 7 inner dorsal spines including apical spur, 2–3 outer dorsal spines (outer dorsoapical spur absent), 7 outer and 6–7 inner ventral spines including apical spurs. Last abdominal tergite simple; anal plate not large, rather wide, and rounded posteriorly; cerci short and rather thick, with hardly inflate and rounded apical part, with small ventromedial hook in subapical part, and with proximal part having transverse fold-like relief (Figs 6, 7); genital plate slightly elongate, somewhat narrowed in distal part, with styles moderately long, and with notch between them small and angular (Figs 7, 8); genitalia membranous.

*Female.* Unknown.

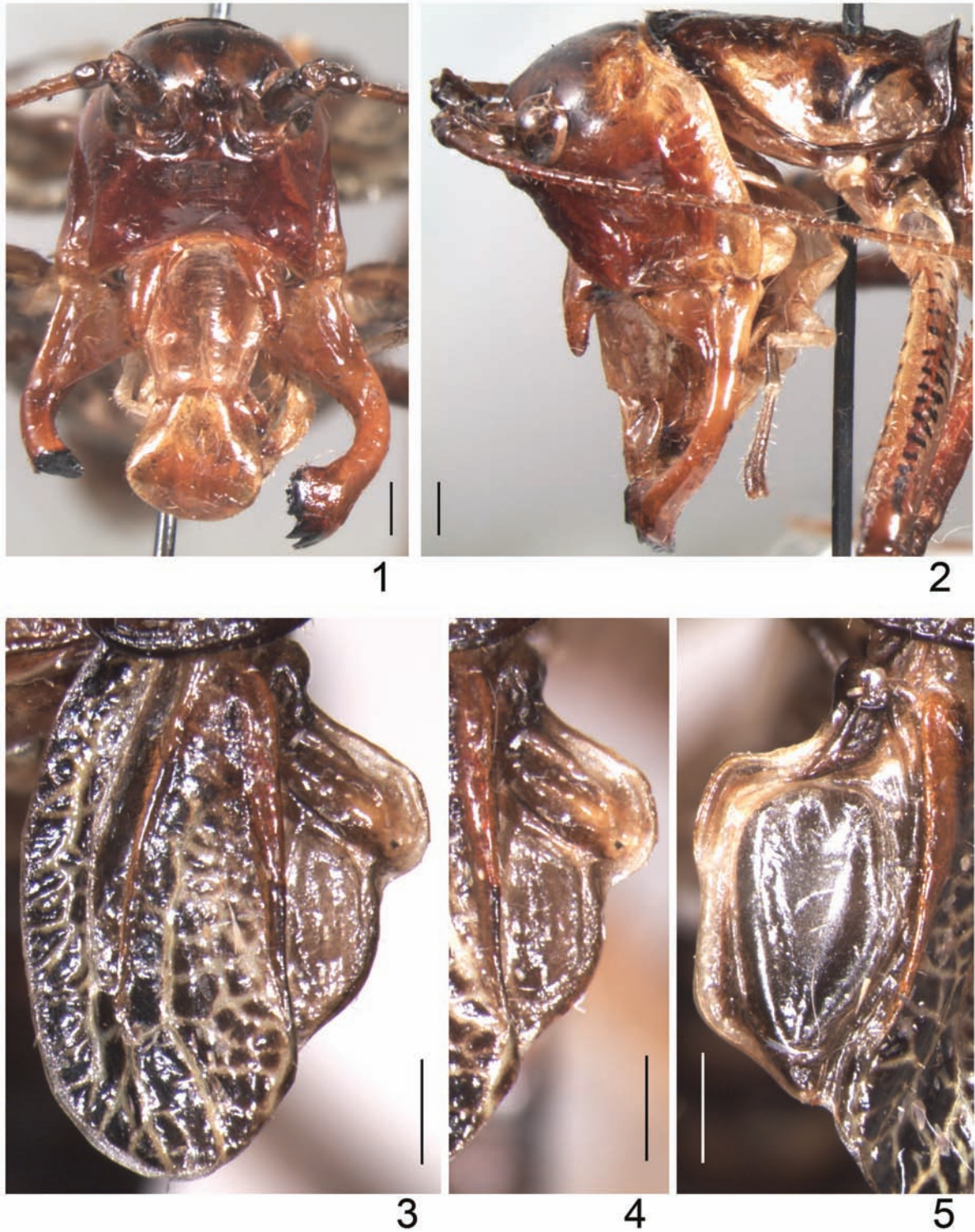
*Length* (mm). Body 24.5; pronotum 6.2; tegmina 5.3; hind femora 13.5.

**Subfamily Meconematinae Burmeister, 1838**

**Tribe Phisidini Jin, 1987**

**Genus *Arachnoscelis* Karny, 1911**

**Note.** Systematic position of this genus is not very clear. Traditionally it was included into the subfamily Listroscelidinae, however Gorochov (1995b) transferred it to the tribe Phisidini of the subfamily Meconematinae on the basis of a certain similarity in the structure of tympanal organs. *Arachnoscelis* have a distinct inflation in the proximal part of fore tibia, which is provided with a pair of oval (not very narrow) tympanal openings; this tibia also lacks any distinct concavity on inner and outer sides near the distal edge of tympanal openings (Fig. 9). This combination of features is characteristic of all the other



**Figs 1–5.** *Gnathoclista anostostoma* sp. nov., male: 1 – head in front; 2 – head with pronotum from side; 3 – left tegmen from side; 4 – dorsal field of left tegmen; 5 – dorsal field of right tegmen. Scale bars 1 mm.

representatives of Phisidini, but it is absent in the rest of Tettigoniidae. Fore tibia of Listroscelidinae (*Listroscelis* Audinet-Serville, 1831, *Cerberodon* Perty, 1832, *Monocerophora* Walker, 1869, *Carliella* Karny, 1911, and possibly some other Neotropical genera) has the tympanal openings very narrow, inner and outer tibial surfaces near distal edge of these openings with a distinct (deep) concavity, and proximal part lacking any distinct tympanal inflation. Such structure of tympanal organs is also developed in the group of subfamilies probably related to Listroscelidinae (Tympanophorinae, Saginae, Hexacentrinae, Conocephalinae, Glyphonotinae, Tettigoniinae, Bradyporinae, and some others; Gorochov 1988, 1995a: subfamily group “Tettigoniidae”), but not in the other subfamily groups of katydids. Some similarity between Listroscelidinae and Phisidini in general appearance may be caused by their convergent adaptations to predatory lifestyle and/or partial preservation of these adaptations from a predatory ancestor of two subfamily groups, “Tettigoniidae” and “Meconematidae” (Gorochov 1988, 1995a).

*Arachnoscelis* and Listroscelidinae are also similar to each other by the distinct lengthening of mouthparts (Fig. 10), especially in males. However, this lengthening is not identical in these taxa: in representatives of *Arachnoscelis* with a strong specialization of male mouthparts [*A. arachnoides* (Redtenbacher, 1891)], these mandibles are very similar in shape to those of *Pseudohenicus* (Pleminiinae; Figs 1, 2); but in Listroscelidinae, the strong specialization of male mouthparts leads to the development of a long hook at the apex of one of male mandibles (with preservation of the rest of mandibular parts in more or less normal condition).

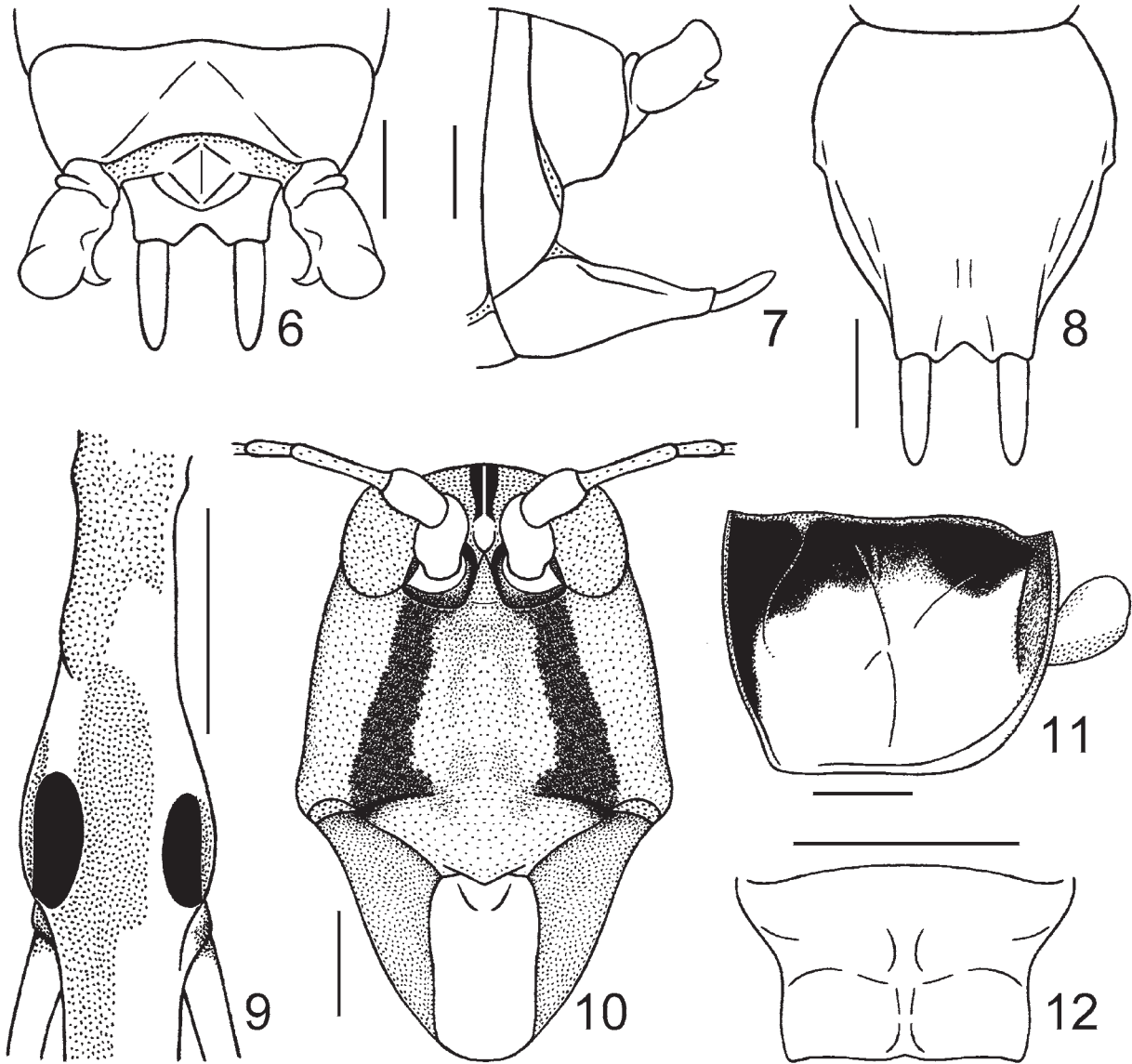
***Arachnoscelis tanasijtshuki* sp. nov.**

(Figs 9–12, 46)

**Etymology.** The species is named in honor of V.N. Tanasijtshuk, an entomologist, writer, author of a documentary book about the adventures of young Russian scientists in South America during the First World War.

**Type material.** Holotype – female, PERU: Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, on leaf of bush in partly primary / partly secondary forest, at night, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

**Description. Female.** Coloration yellowish with greenish tinge and following marks: epicranium light brown with upper rostral tubercle almost whitish and several dark brown areas (median stripe on dorsum partly divided by lighter median line, area behind each eye and stripe along posterior edge of each gena, most part of antennal cavity borders, a pair of vertical bands between antennal cavities and lateral parts of clypeus); antennal flagellum yellow; mandibles brownish rose with small medial and apical parts blackish; labrum almost whitish; pronotum with most part of disc and short stripe along upper half of anterior edge of each lateral lobe dark brown, narrow median stripe light brown, band along posterior edge of disc brown, and rest of lateral lobes yellowish with rose tinge; tegmina with distinct reddish lateral stripe and less distinct rose medial stripe; femora with brownish spines and small brown spots on apical part; tibiae partly brownish rose and with dark brown marks on dorsal surface of proximal part, brown longitudinal stripe on dorsolateral part of fore tibiae and on dorsomedial part of middle tibiae, ventral spines yellow and having dark basal spot, and other spines and spurs brownish; cerci brown; ovipositor almost yellow, with slightly darker small dorsal area at base and reddish rose ventral stripe in proximal half. Rostrum between antennal cavities very narrow (much narrower than scape); upper rostral tubercle short, almost finger-like (but somewhat laterally compressed); lower rostral tubercle in shape of low and narrow convexity; mouthparts somewhat lengthened but normal in structure (Fig. 10). Pronotum rather short and high, with anterior edge of disc straight and posterior edge of disc slightly concave; hind pronotal lobe practically undeveloped, however posterior edge of disc slightly raised (Fig. 11). Tegmina very small, oval, lacking distinct venation; their most part exposed (Fig. 11); hind wings absent. Legs moderately long for this genus (fore femur approximately 2.5 times as long as pronotum); fore femur with 6 inner and 8–9 outer ventral spines (4 distal inner spines moderately short, other spines very small); fore tibia with 5 pairs of long ventral spines and a pair of oval tympanal openings on distinct proximal inflation (Fig. 9); inner and outer fold-like lobes of this tympanal inflation not reaching dorsal edge of tibia in profile; middle femora with 5–6 outer and 1 inner ventral spines (4 distal outer spines moderately short, other spines very small, inner spine situated in distal part of femur); middle tibia with 5 pairs of



**Figs 6–12.** Male of *Gnathoclista anostostoma* sp. nov. (6–8) and female of *Arachnoscelis tanasijtshuki* sp. nov. (9–12): 6, 7 – abdominal apex from above (6) and from side (7); 8 – genital plate from below; 9 – proximal part of right fore tibia with tympanal openings, dorsal view; 10 – head in front; 11 – pronotum with tegmen from side; 12 – genital plate from below. Scale bars 1 mm.

moderately long ventral spines and 2 inner dorsal spines somewhat shorter than previous ones; hind femur with 8–9 outer and 14 inner ventral spinules; hind tibia with rather numerous dorsal spines and distinctly less numerous ventral ones. Last abdominal tergite short and with rather narrow and deep posteromedian notch; epiproct small, almost triangular; paraprocts also not large, more or less globular; cerci almost conical, elongate but not long; genital

plate short, almost truncate posteriorly, and with very small posteromedian notch (Fig. 12); ovipositor as in Fig. 46.

*Male.* Unknown.

*Length* (mm). Body 17.5; pronotum 3.3; exposed part of tegmina 0.9; hind femora 16; ovipositor 10.5.

**Comparison.** The new species is similar to *A. meriti* Nickle, 2002 from Peru by the coloration of head and shape of majority of bodyparts in female, but

distinguished from it by the labrum much lighter (not brownish rose), most part of pronotal disc darkened (vs. yellowish with small dark areas anteriorly and posteriorly), and female genital plate almost truncate (vs. deeply notched). From *A. arachnoides* distributed in Colombia, the new species differs in the head and pronotum not uniformly brown as well as fold-like lateral lobes of tympanal inflation smaller (in *A. tana-sijtshuki* sp. nov., these lobes are not reaching the dorsal edge of fore tibia in profile, but in *A. arachnoides*, they are slightly projecting above this edge); and from the other congeners (all from Central America), in the coloration of pronotum not uniform and absence of reddish color on pterothorax and abdomen.

### Tribe Phlugidini Eichler, 1938

#### Genus *Phlugis* Stål, 1861

**Note.** The genus includes only Neotropical species with the body and legs thin, spine of fore coxa very long, ventral spines on both sides of fore femur and of fore tibia rather numerous, middle tibia with one or two ventral outer spines, wings long (usually tegmina are reaching distal part of hind femora or longer, and hind wings are much longer than tegmina), male anal plate from hardly to strongly bilobed, male cerci unspecialized (without hooks and/or lobes, similar to those of female), male genital plate stiff (rather strongly sclerotized) and having its posterior lobes more or less high and lacking styles (possibly these lobes are fused with their styles, or they are modified styles fused with the genital plate). Composition of *Phlugis* is not very clear, but the following species belong or probably belong to this genus: *Ph. teres* (De Geer, 1773); *Ph. chrysopa* Bolivar, 1888; *Ph. abnormis* (Redtenbacher, 1891); *Ph. poecila* Hebard, 1927; *Ph. simplex* Hebard, 1927; *Ph. permutata* Kastner, 1932; *Ph. celerinicta* Nickle, 2003; *Ph. chrysopoides* Nickle, 2003; *Ph. gracila* Nickle, 2003; *Ph. ecuador* sp. nov.; *Ph. morona* sp. nov. All the other species included in *Phlugis* by some previous authors are in need of examination of their generic position (excepting a few species mentioned below as belonging to some other genera).

#### *Phlugis ecuador* sp. nov.

(Figs 13, 25–27)

**Etymology.** The species name originates from Ecuador.

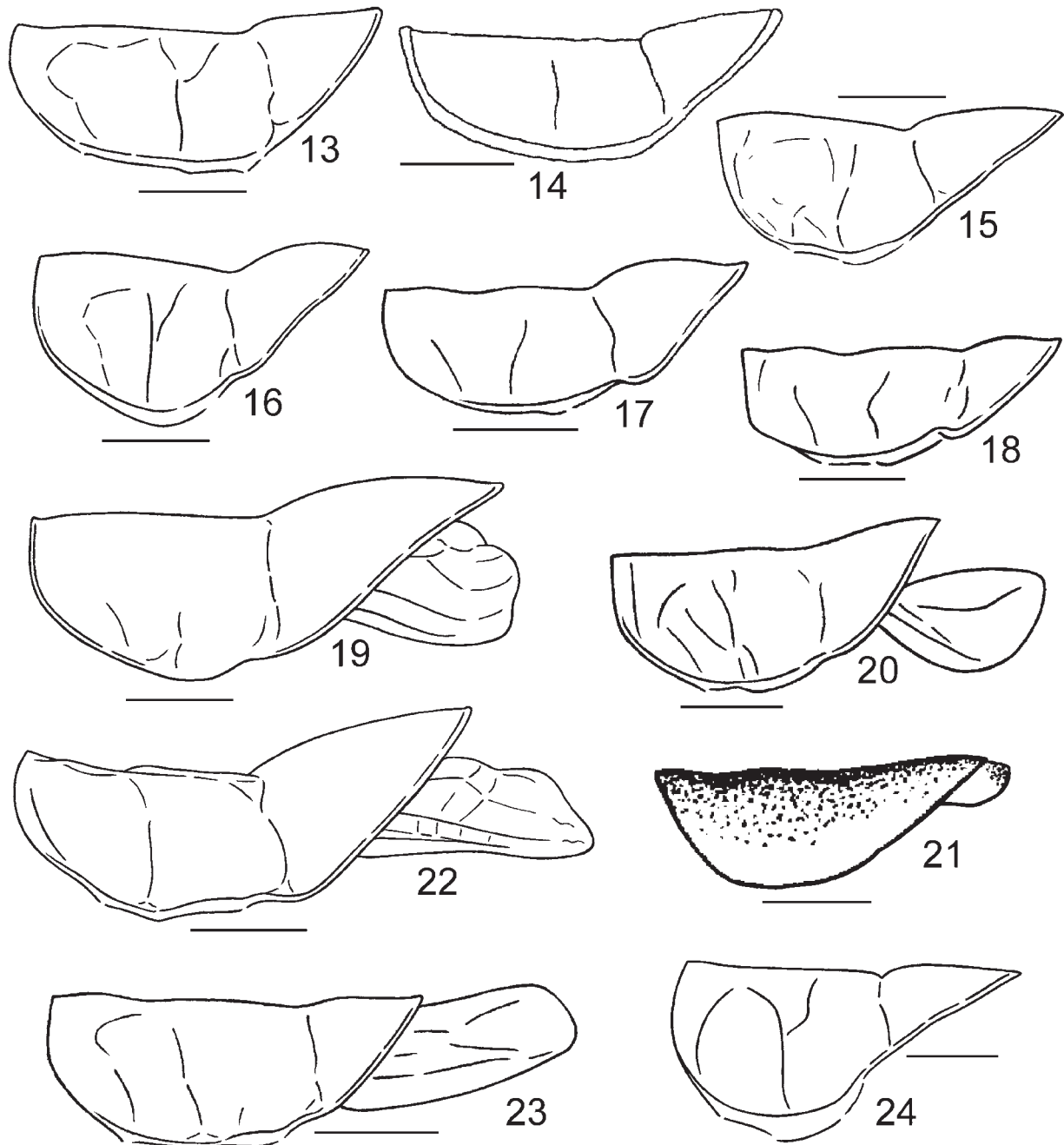
**Type material.** Holotype – male, ECUADOR: Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill., ~300 m, primary forest, at light, 5–15 January 2010, A. Gorochoy.

**Description.** *Male.* Coloration light greenish with yellowish eyes, numerous small brown and dark brown spots on antennal flagellum, brownish areas on 3rd segment of middle and hind tarsi, and most part of 1st and 2nd segments of hind tarsi blackish. Eyes longitudinal; rostral convexity behind antennal cavities (between eyes) indistinct. Pronotum (without hind lobe) rather long; its hind lobe hardly inflate and moderately short; total pronotum about 2.6 times as long as this lobe (Fig. 13). Tegmina reaching distal part of hind femora (not their apex), with rounded apex; length of exposed part of hind wings approximately 5 mm. Legs long (fore femur approximately 1.3 times as long as pronotum); fore femur with 4 outer and 3 inner ventral spines; fore tibia with 5 pairs of ventral spines (inner spines distinctly longer than outer ones), a pair of oval opened tympana, and a pair of very small ventroapical spurs; middle and hind femora unarmed; middle tibia with two small outer ventral spines and a pair of very small ventroapical spurs; hind tibia with very small and not numerous outer and inner dorsal spines, and with 3 pairs of small and very small apical spurs. Last abdominal tergite with a pair of rather narrow lamellar lobules; epiproct and paraprocts more or less rounded, not specialized; cerci reaching middle part of genital plate (1.8 mm in length); genital plate long, rather narrow near middle, with posterior lobes low and semitubular, and with notch between them not very narrow and reaching middle of this plate (Figs 25–27); genitalia membranous.

*Female.* Unknown.

*Length* (mm). Body 15.5; body with wings 22; pronotum 3.4; tegmina 12.2; hind femora 11.6.

**Comparison.** The new species is similar to *Ph. poecila*, *Ph. simplex* and *Ph. chrysopa* by the posterior lobules of male last tergite elongate and simple in shape, but it is distinguished from them by the distal part of male genital plate low (in profile). From *Ph. celerinicta* more or less similar to the new species by the structure of male pronotum and shape of male genital plate in profile, *Ph. ecuador* sp. nov. differs in the above-mentioned lobules well developed, posterior lobes of male genital plate almost semitubular (not lamellar), and notch between them clearly wider and less deep.



**Figs 13–24.** Phlugidini, pronotum (13–18, 24) and pronotum with tegmen (19–23) from side: 13 – *Phlugis ecuador* sp. nov., male; 14 – *Ph. celerinicta* Nickle, male; 15 – *Ph. morona* sp. nov., male; 16 – *Odontophlugis ucayali* sp. nov., male; 17, 18 – *O. maculata* (Nickle), male (17) and female (18); 19, 20 – *Phlugiola amazonia* sp. nov., male (19) and female (20); 21 – *Ph. redtenbacheri* Karny, female; 22, 23 – *Neophlugis calabaza* sp. nov., male (22) and female (23); 24, *Cephalophlugis? setosa* sp. nov., female. Scale bars 1 mm [14 – after Nickle 2003; 21 – after Karny 1907].



***Phlugis morona* sp. nov.**

(Figs 15, 28–30)

**Etymology.** The species name originates from the Morona River.

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

**Description.** *Male.* Coloration and structure of body parts similar to those of *Ph. ecuador* sp. nov., but antennal flagellum with lighter (light brown) spots, middle tarsi almost completely light, first and second segments of hind tarsi more or less light brown, rostral convexity behind antennal cavities (between eyes) distinct, pronotum (without hind lobe) rather short, its hind lobe slightly more inflates and clearly longer (total pronotum almost 2.2 times as long as this lobe; Fig. 15), tegmina reaching apex of hind femora, legs shorter (fore femora almost equal to pronotum in length), outer and inner spines of hind tibia rather numerous, last abdominal tergite with a pair of much wider lobules, cerci reaching distal third of genital plate (1.3 mm in length), genital plate not narrow in middle part and with vertically lamellar posterior lobes, and notch of this plate between these lobes distinctly narrower (Figs 28–30).

*Female.* Unknown.

**Length** (mm). Body 12; body with wings 21; pronotum 3.3; tegmina 12; hind femora 10.

**Comparison.** The new species is most similar to *Ph. celerinicta*, however distinguished from it by the hind lobe of male pronotum longer and pronotal part before this lobe shorter (this pronotum is almost 2.2 times as long as its hind lobe, but in *Ph. celerinicta*, male pronotum is almost 2.7 times as long as its hind lobe; for comparison see Figs 14 and 15) as well as by the notch of male genital plate much less deep (this plate is almost twice as long as its notch, but in *Ph. celerinicta*, male genital plate is almost 1.5 times as long as its notch). The differences from *Ph. ecuador* sp. nov. are given above; from the other related species, the new species differs in the male last tergite lobules more simple in shape and posterior lobes of male genital plate low in distal part and long.

**Genus *Odontophlugis* Gorochov, 1998 stat. nov.**

**Note.** This genus was described as a subgenus of the genus *Phlugis* Stål, 1861 (Gorochov 1998). In the

electronic catalogue (Eades et al. 2012), it is mentioned as a separate genus described by Gorochov; but this is a mistake, and status of this taxon is changed only here. *Odontophlugis* is similar to *Asiophlugis* Gorochov, 1998 and *Austrophlugis* Rentz, 2001 by the presence of a small hook or spine-like process at the base of male cerci, but it is clearly distinguished from them by very long styles of the male genital plate (bases of these styles may be partly or completely fused with this plate, but sometimes, this fusion may be not developed). *Odontophlugis* additionally differs from *Asiophlugis* in the presence of spines on middle tibiae and of spines or additional lobes in the distal half of male cerci. This genus includes the following species: *O. pehlkei* (Kästner, 1932), comb. nov. (type species); *O. maculata* (Nickle, 2003), comb. nov.; *O. bimaculata* (Nickle, 2003), comb. nov.; *O. bimaculoides* (Nickle, 2003), comb. nov.; *O. ucayali* sp. nov.; and possibly some other species insufficiently described but probably having a similar structure of middle tibiae, of the male genital plate, and of male cerci (these possible representatives may have been originally included in the genus *Phlugis*, as in case of *O. pehlkei* and others).

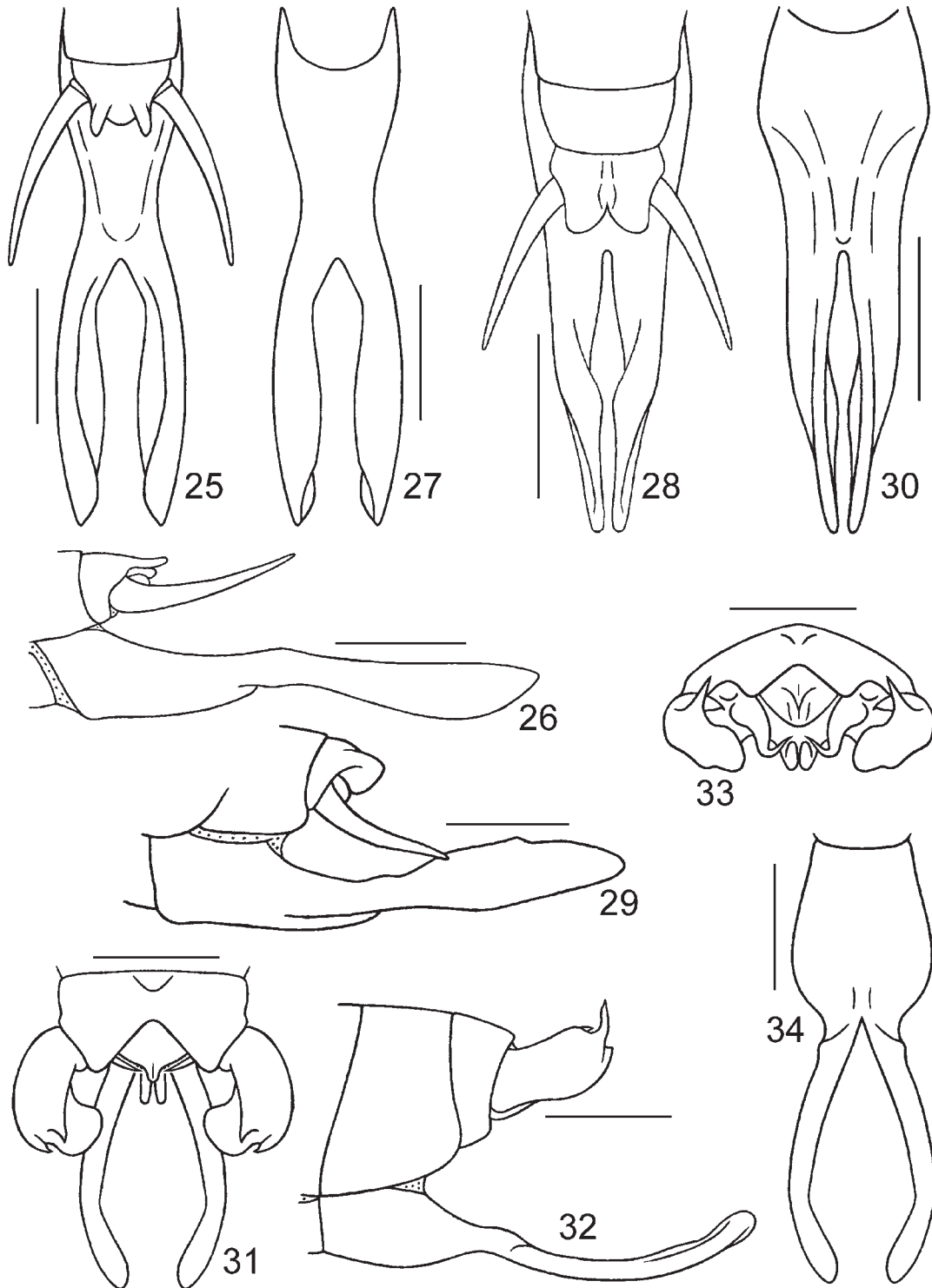
***Odontophlugis ucayali* sp. nov.**

(Figs 16, 31–34)

**Etymology.** The name originates from the Ucayali River.

**Type material.** Holotype – male, PERU: Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, on leaf of bush in partly primary / partly secondary forest, at night, 26–31 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

**Description.** *Male.* Coloration light greenish with following marks: eyes yellowish; antennal flagellum with brown middle and distal parts as well as numerous small spots on proximal part; tegmina with brown stripe along middle third of anal edge; hind wings with distal part brownish grey (but rather light); tarsi with brownish areas on two distal segments; cerci with brown apical spine and light brown basal hook. Epicranial dorsum without distinct rostral tubercle between eyes; eyes somewhat longitudinal. Pronotum with lateral lobes high, and hind lobe moderately long and distinctly inflates (Fig. 16); prosternum and metasternum without distinct tubercles or spines; mesosternum with a pair of distinct tubercles (these



**Figs 25–34.** Phlugidini, male: 25–27 – *Phlugis ecuador* sp. nov.; 28–30 – *Ph. morona* sp. nov.; 31–34 – *Odontophlugis ucayali* sp. nov. Abdominal apex from above (25, 28, 31) and from side (26, 29, 32); genital plate from below (27, 30, 34); upper half of abdominal apex from behind (33). Scale bars 1 mm.

tubercles short, rounded, and located near each other). Tegmina reaching middle of hind femora, with stridulatory apparatus well developed; hind wings clearly longer than tegmina, reaching distal third of hind femora. Legs not very long (fore femur approximately 1.1 times as long as pronotum); fore coxa with moderately long spine; fore femur with 4 inner and 2 outer ventral spines; fore tibia with 4 pairs of ventral spines (most of them clearly longer than previous spines, but 2 distal outer spines slightly shorter than femoral spines); middle and hind femora unarmed; middle tibia with 2 outer ventral spines; hind tibia with numerous spinules on both sides of dorsal surface. Last abdominal tergite with rather deep and wide posteromedian notch; epiproct not large, with apical part strongly narrowed and more or less rounded at apex; each paraproct with small finger-like process situated on its lower part and directed backwards and slightly upwards (Figs 31, 33); cerci rather short and thick, with characteristic medial hook at base and 3 projections in distal half (large ventromedial lobe, dorsoapical spine directed upwards, and dorsosubapical spinule directed medially and partly backwards; Figs 31–33); styles of genital plate long, weakly curved, more or less fused with this plate (place of this fusion marked by small inflation at base of styles; Figs 32, 34); genitalia membranous.

*Female.* Unknown.

*Length* (mm). Body 11.5; body with wings 13.5; pronotum 3; tegmina 7.8; hind femora 10.5.

**Comparison.** The new species is similar to *O. maculata*, *O. bimaculata* and *O. bimaculoides* by the male cerci with a rounded ventromedial lobe and 1–2 spine-like distal projections, but it is distinguished from them by the distinctly larger size of this lobe. Additionally it differs from *O. maculata* in the higher pronotum (see Figs 16–18) and presence of two spine-like projections on the distal part of male cerci, and from *O. bimaculata* and *O. bimaculoides*, in the styles of genital plate somewhat thinner.

### Genus *Phlugiola* Karny, 1907

**Note.** According Eades et al. (2012), the genus includes 3 species: *Ph. redtenbacheri* Karny, 1907 from Surinam (type species); *Ph. dahlemica* Eichler, 1938, described from German greenhouses but possibly of Neotropical origin; *Ph. arborea* Nickle, 2002 from Peru. Here a single new species of *Phlugiola* is added. Excepting *Ph. redtenbacheri* and *Ph. dahlemica*

known only from female (see remarks after the new species description), representatives of *Phlugiola* are similar to *Odontophlugis*, *Asiophlugis* and *Austrophlugis* by the presence of a small hook-like process at the base of male cerci, but distinguished from them by the ventral spines on fore femora less numerous (2 or 3 inner spines and 1 outer spine). Additionally, *Phlugiola* differs from *Odontophlugis* and *Austrophlugis* in the wings strongly shortened; from *Odontophlugis*, in the male cerci lacking additional hooks and/or lobes on the more distal parts of male cerci; from *Asiophlugis* and *Austrophlugis*, in the styles of male genital plate much longer, and from *Asiophlugis*, in the presence of ventral spines on middle tibiae (*Ph. dahlemica* and *Ph. redtenbacheri* also have the wings strongly shortened and middle tibiae with ventral spines). Possibly *Phlugiola* differs from all the other genera of Phlugidini also in the presence of sclerites in male genitalia, but the structure of male genitalia in this genus is known only for the new species described here.

### *Phlugiola amazonia* sp. nov.

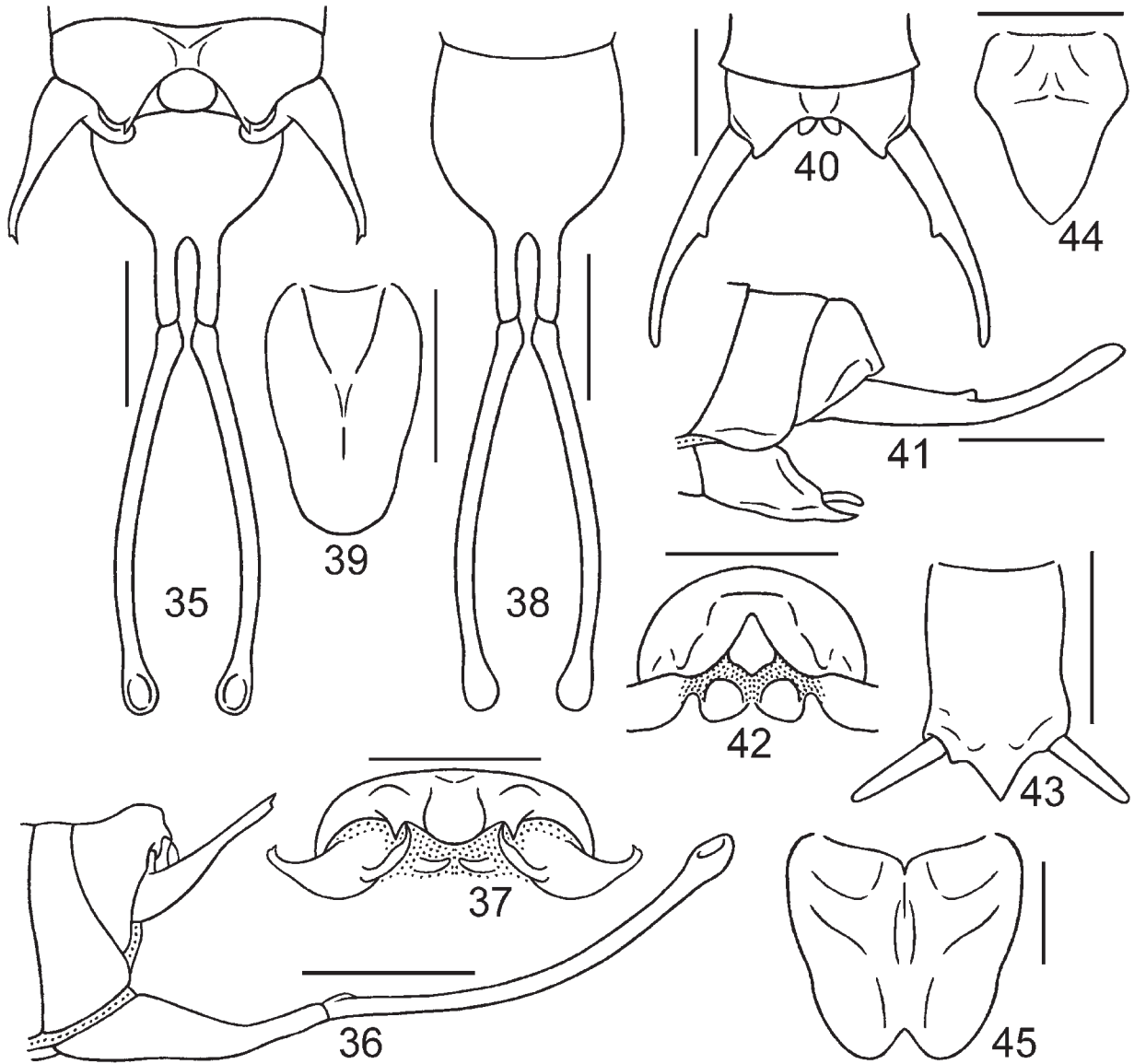
(Figs 19, 20, 35–39, 47, 48)

=*Phlugiola redtenbacheri*: Gurney 1975

**Etymology.** The species name originates from Amazonia (basin of the Amazon River).

**Type material.** Holotype – male, PERU: Ucayali Department, Atalaya Prov., ~35 km NWW of Atalaya Town on Rio Ucayali, environs of Sapani Vill., ~300 m, on leaf of small tree in partly primary / partly secondary forest, at night, 26–31 October 2008, A. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. Paratype – female, ECUADOR: Morona Santiago Prov., bank of Rio Morona near border with Peru, environs of Puerto Morona Vill., ~300 m, on leaf of bush in primary forest, at night, 5–15 January 2010, A. Gorochoy.

**Description.** *Male.* Coloration light greenish with several marks: eyes rose; antennae brownish grey with most part of 2 proximal segments and rather numerous small spots on proximal part of flagellum light; pronotum with median stripe in posterior half of disc and stripe along posterior edge of hind lobe brown (these stripes interrupted by light brown median spot at apex of this lobe), with yellow median stripe in anterior half of disc and a pair of yellow longitudinal stripes in posterior half of disc between dark median stripe and lateral (ventral) edges; teg-



**Figs 35–45.** Phlugidini: 35–39 – *Phlugiola amazonia* sp. nov.; 40–44 – *Neophlugis calabaza* sp. nov.; 45 – *Cephalophlugis? setosa* sp. nov. Male abdominal apex from above (35, 40) and from side (36, 41); its upper half from behind (37, 42); genital plate of male (38, 43) and of female (39, 44, 45) from below. Scale bars 1 mm.

mina with light brown (almost yellow) spot in apical part; legs with brownish marks on fore tibiae near tympana, all tarsi and ventral spines of fore tibiae partly brown, apical areas of hind femora and of hind tibiae as well as apical spurs of these tibiae almost dark brown, and all other tibial spines and spurs more or less light brown; abdomen with small brown spot on median part of 6th and 7th tergites as well as

dark brown transverse stripe on last tergite along its posterior edge (between posterolateral lobes of this tergite, but including apices of these lobes and short denticles on these apices). Head without distinct rostral tubercle on dorsum; eyes slightly longitudinal. Pronotum with lateral lobes not very high and with hind lobe very long and moderately inflate (Fig. 19); prosternum and metasternum unarmed; mesoster-

num with tubercles similar to those of *O. ucayali* sp. nov. Tegmina short, reaching apex of 2nd abdominal tergite, almost completely covered by hind pronotal lobe, and with well developed stridulatory apparatus (Fig. 19); hind wings not exposed. Legs not long (pronotum approximately 1.3 times as long as fore femur); fore coxa with moderately long spine; fore femur with 2 inner and 1 outer ventral spines; other femora unarmed; fore tibia with 5 inner and 4 outer ventral spines; middle tibia with 1–2 outer ventral spines; hind tibia with 2 rows of numerous dorsal spinules. Last abdominal tergite rather short, with moderately deep and wide posteromedian notch; each posterolateral lobe of this tergite with small spine-like projection directed somewhat downwards and backwards (Figs 35–37); epiproct not large, more or less fused with edges of posteromedian notch of last tergite, with distal part widely rounded (Figs 35, 37); each paraproct with very small finger-like process situated on its lower part and directed backwards and partly medially (Fig. 37); cerci more or less straight and with distal half thin; cercal apex spinule-like and with very small subapical tubercle; cercal base with characteristic medial hook (Figs 35–37); genital plate with a pair of rather long posterior lobules situated near each other and with very long and slightly curved styles located at apices of these lobules (these styles thin but with small globular inflation at apex; Fig. 38); genitalia with a pair of characteristic sclerites (Fig. 48).

**Variation.** Male of this species from Tingo Maria (Peru), identified by Gurney as *Ph. redtenbacheri*, very similar to holotype described above but having very small differences in coloration (see Gurney 1975: figs 1, 3).

**Female.** Coloration distinguished from that of male by anterior half of pronotum with wide brown median band, tegmina with distal part having 2 rather large spots (brown and yellow) very near to each other, abdomen with dark brown median band running from 2nd tergite to last one; coloration of ovipositor almost yellow in distal half and light greenish in proximal half, with a pair of light brown spots on dorsum of proximal half. Structure of majority of body parts more or less as in male, but hind lobe of pronotum shorter and practically not inflate, tegmina lacking stridulatory apparatus and reaching middle part of 2nd abdominal tergite, most part of tegmina exposed (Fig. 20); last tergite with short and rounded posteromedian lobe; epiproct and paraprocts very

small and unspecialized. Genital plate elongate and with rounded apex (Fig. 39); ovipositor as in Fig. 47.

**Length** (mm). Body: male 8.5, female 10.5; pronotum: male 5, female 3.2; exposed part of tegmina: male 1.7, female 1.5; hind femora: male 10, female 10.3; ovipositor 4.

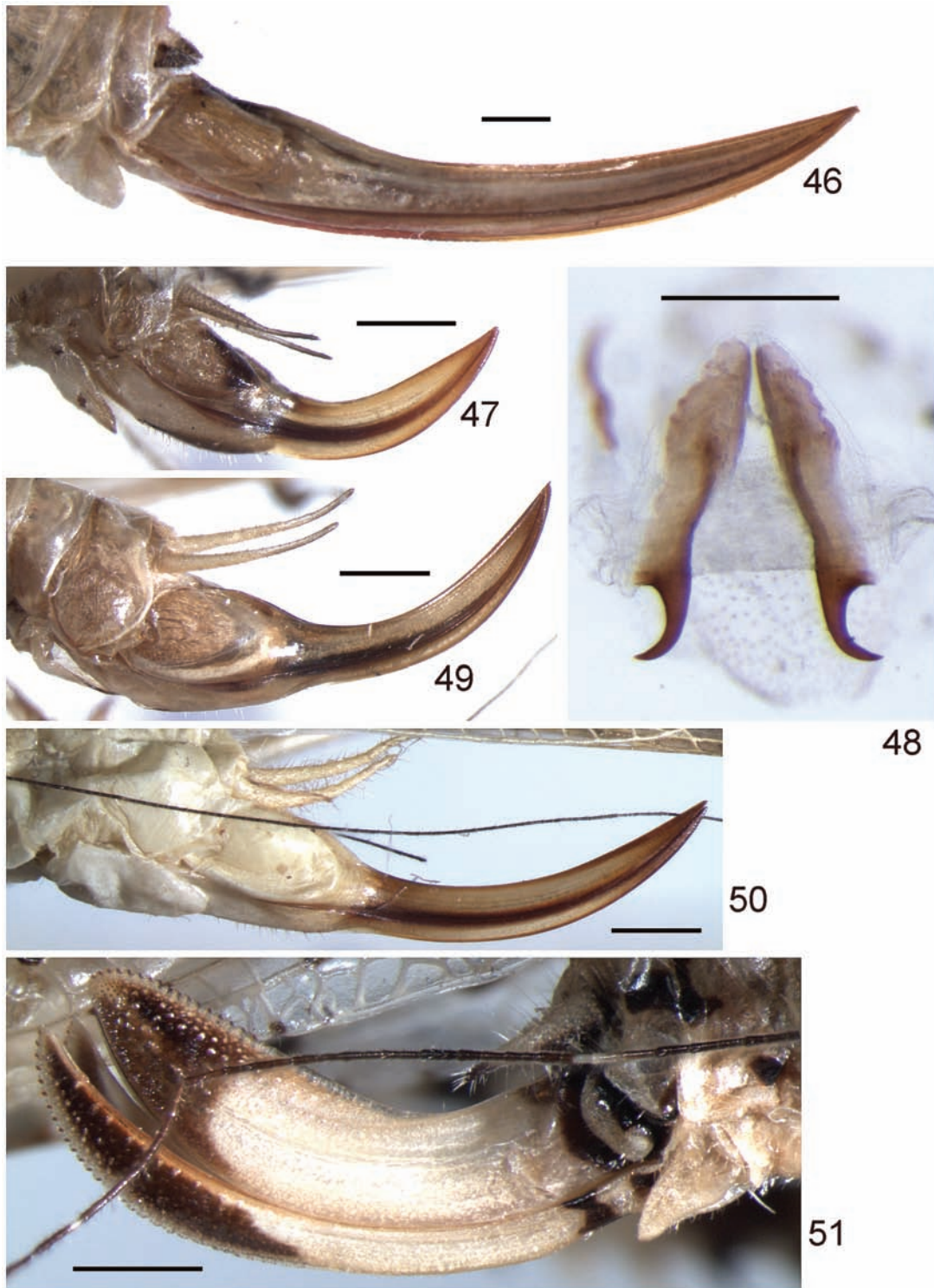
**Comparison.** The new species is similar to *Ph. redtenbacheri* by the coloration of female, but it distinctly differs in the female tegmina much larger (exposed part of female tegmina in the new species is 1.5 mm from side and 1 mm from above; vs. 0.2 mm in *Ph. redtenbacheri* female; for comparison see Figs 20 and 21) and, judging by some published data on *Ph. redtenbacheri* (Kevan and Jin 1993: fig. 6a), female genital plate not bilobed. From *Ph. dahlemica*, the new species differs in the pronotum, legs and abdomen with very distinct dark marks, and apex of female genital plate rounded (not truncate). From *Ph. arborea*, it differs in the presence of dark marks on abdomen of both sexes, dark band on female pronotum larger, fore femur with 2 inner ventral spines (vs. 3), hind part of male genital plate (before styles) bifurcate, styles of this plate clearly more curved, male cerci distinctly less curved, and apical part of female genital plate somewhat wider.

**Remarks.** Gurney (1975) identified a male of this species from Peru (Tingo Maria) and a female from Brazil (Teffe, Amazonas) as *Ph. redtenbacheri*, described by Karny (1907) from a female collected in Surinam. Gurney also indicated in this paper that, judging by the original description of Karny, the tegminal length in female of *Ph. redtenbacheri* is 2 mm (i.e. its tegmen is longer than half of its pronotal length and equal in length to tegmen of the Brazilian female). But in reality Karny (1907: 103) recorded that the tegminal length in his type is 0.2 mm (!); moreover, his picture from the same paper clearly shows that tegmen in true *Ph. redtenbacheri* is extremely small, much shorter than half of pronotal length (Fig. 21). So, Gurney's male from Peruvian Amazonia and possibly his female from Brazilian Amazonia belong to *Ph. amazonia* sp. nov. described here, but not to *Ph. redtenbacheri* distributed in Surinam (very far from the type locality of *Ph. amazonia* sp. nov.).

### Genus *Neophlugis* gen. nov.

**Type species:** *Neophlugis calabaza* sp. nov.

**Etymology.** The generic name originates from the Greek "neo" (new) and genus *Phlugis*.



**Figs 46–51.** Female abdominal apex from side (46, 47, 49–51) and sclerites of male genitalia from above (48): 46 – *Arachnoscelis tanasijtshuki* sp. nov.; 47, 48 – *Phlugiola amazonia* sp. nov.; 49 – *Neophlugis calabaza* sp. nov.; 50 – *Cephalophlugis? setosa* sp. nov.; 51 – *Dysonia satipo* sp. nov. Scale bars 1 mm.

**Diagnosis.** Head with small and shallow concavity along dorsomedial edges of antennal cavities. Pronotum rather long and low, with hind lobe in male long and weakly inflate (Figs 22, 23); prosternum with a pair of very small (hardly distinct) tubercles; mesosternum with a pair of large tubercles having rounded apex; metasternum unarmed. Tegmina strongly shortened, but with stridulatory apparatus well developed in male, and distal half not covered by pronotum in both sexes (Figs 22, 23); hind wings very small. Legs not long (fore femur not longer than pronotum in both sexes); fore coxa with rather short spine; fore femur with 3–4 rather short ventral spines only on inner side; other femora unarmed; fore tibia with a pair of oval tympana and 4 pairs of ventral spines; middle tibia with 2 outer ventral spines. Last abdominal tergite of male with more or less deep posteromedian notch; epiproct unspecialized in both sexes; male paraprocts with lobules in lower part; cerci rather simple in shape, thin and more or less long; in male, cerci lacking any hook at base, but their more distal part with small medial projection (Figs 40–42); male genital plate rather short, with angular apex and rather small styles located almost subapically (Figs 41, 43); female genital plate and ovipositor typical of Phlugidini; male genitalia completely membranous.

**Included species.** Type species only.

**Comparison.** The new genus is clearly distinguished from all the other genera of Phlugidini by the following characters: from *Phlugis*, *Phlugiola*, *Odontophlugis* and *Cephalophlugis* Gorochoy, 1998, by the fore femora lacking outer ventral spines, and male genital plate or styles of this plate much shorter; from *Asiophlugis* and *Austrophlugis*, by the same character of fore femora, and base of male cerci lacking medial hook; from *Indiamba* Rentz, 2001, in the latter cercal character, and posterior lobes of male last tergite much shorter; from *Lucienola* Gurney, 1975, in the hind pronotal lobe and both tympana developed, middle tibia with ventral spines, male genital plate not bifurcate posteriorly, and its styles located subapically (not basally); from *Stenophlugis* Gorochoy, 2012, in the hind pronotal lobe in male distinctly longer, middle tibia with ventral spines, male paraprocts with characteristic lobules, and male genital plate with distinct apical projection (not with apical notch); from *Papuaphlugis* Gorochoy, 2012, in the fore coxa and venter of middle tibia spinose, male genital plate short (vs. its distal part is strongly lengthened)

and with a distinct apical projection (vs. with an apical notch); and from *Phlugidia* Kevan, 1993, in the mesosternum having a pair of distinct tubercles (vs. all thoracic sternites unarmed), male tegmina only partly (not completely) covered by pronotum, male cerci distinctly longer and much thinner.

***Neophlugis calabaza* sp. nov.**

(Figs 22, 23, 40–44, 49)

**Etymology.** The species is named after the Calabaza Village.

**Type material.** Holotype – male, PERU: Junin Department, Satipo Prov., ~40 km NE of Satipo Town, environs of Calabaza Vill., ~2000 m, on leaf of bush in disturbed primary forest, at night, 16–17 October 2008, A. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. Paratype – female, same data as for holotype.

**Description.** *Male.* Coloration yellowish with brown spots on eyes and numerous small spots on proximal part of antennal flagellum (other antennal parts missing), light brown spot on hind part of stridulatory areas of upper tegmen, and brownish areas in apical part of hind tibiae and on 2 distal segments of all tarsi (2 proximal segments of hind tarsi with small brownish lateral marks). Head without distinct rostral convexity on dorsum; eyes slightly longitudinal. Pronotum as in Fig. 22; tegmina reaching apex of 5th abdominal tergite, with narrowly rounded apex; hind wings reaching middle of tegmina. Legs more or less typical of Phlugidini in shape and in size (pronotum 1.4 times as long as fore femur); hind tibia with rather numerous outer and inner spinules on dorsal surface only; proximal half of this tibia with rather sparse spinules, but distal one with denser spinules. Abdominal apex as in Figs 40–43; cerci with small angular projection on dorsomedial surface near middle of cercal length (Figs 40, 41); genital plate with styles rather thin (Fig. 43).

*Female.* General appearance as in male (middle and distal part of antennal flagellum, missing in male, almost uniformly brownish grey), but each tegmen with brown medial spot not reaching apical part, pronotal hind lobe shorter and not inflate, tegmina reaching apex of 2nd abdominal tergite and lacking stridulatory apparatus, last tergite short and practically without any notch, epiproct and paraprocts small and unspecialized. Genital plate with almost acute apex (Fig. 44); ovipositor with brownish grey

stripe along median line of lateral surface; shape of ovipositor as in Fig. 49.

**Length** (mm). Body: male 10.2, female 12; pronotum: male 4, female 3; exposed part of tegmina: male 2.2, female 2.3; hind femora: male 10.8, female 11.2; ovipositor 4.8.

**Comparison.** As given for the genus.

***Cephalophlugis? setosa* sp. n.**

(Figs 24, 45, 50)

**Etymology.** The species name is the Latin word “setosa” (setose).

**Type material.** Holotype – female, ECUADOR: eastern part, 80–85 km E of Lago Agrio Town, environs of Lago Grande on Rio Cuabeno, very low-lying primary forest, at light, 2–9 November 2005, A. Gorochov, A. Ovtshinnikov.

**Description.** *Female.* Coloration light greenish with following marks: numerous and very distinct small spots on proximal part of antennal flagellum, setae on ventral spines of fore tibiae, narrow stripe on tegmina along proximal half of anal edge, and median stripe along lateral surface of ovipositor brown; middle and distal parts of this flagellum dark brown; dorsal spinules of hind tibiae black; small spot at base of each ventral spine of fore tibiae, and small areas on 3 distal segments of fore and middle tarsi as well as on all segments of hind tarsi brownish; hind wings transparent with greyish tinge. Head rather large; its dorsum with upper rostral tubercle in shape of small and keel-like convexity between eyes; eyes slightly longitudinal. Pronotum with lateral lobes rather high, and hind lobe moderately long for female and not inflate (Fig. 24); prosternum as well as mesosternum with a pair of short tubercles (anterior tubercles clearly smaller than posterior ones); metasternum unarmed. Wings long; tegmina reaching only proximal part of hind tibiae, with rounded apex and without stridulatory apparatus; hind wings remarkably longer than tegmina, reaching distal third of hind tibiae. Legs not long (fore femur approximately as long as pronotum); fore coxa with moderately long spine; fore femur with 4 inner and 3 outer ventral spines (all spines not long); middle femur unarmed; hind femur with 1 very small outer ventral denticle near apex; fore tibia with a pair of oval tympana and 5 pairs of ventral spines (inner spines with strong and rather short setae along proximal edge); middle tibia with 3 outer ventral spines; hind tibia with 2 rows of rather numerous spi-

nules only on dorsal surface. Last abdominal tergite not long, with short rounded posterior lobe lacking any distinct notch at apex; epiproct and paraprocts small, rounded, unspecialized; cerci thin and long, reaching almost middle of ovipositor; genital plate large (but not long), with rather deep posteromedian notch and rounded lobes near it (Fig. 45); ovipositor as in Fig. 50.

**Male.** Unknown.

**Length** (mm). Body 14; body with wings 24; pronotum 3.5; tegmina 14.5; hind femora 11; ovipositor 5.5.

**Comparison.** The new species is similar to *C. cephalotes* (Bolivar, 1888) from Brazil and to *O. pehlkei* from Colombia (they are type species of the genera *Cephalophlugis* and *Odontophlugis*, respectively) by the head rather large and middle tibia with 3 outer ventral spines. It differs from *C. cephalotes* in the wings distinctly longer (*C. cephalotes* has tegmina reaching the distal part of hind femora, and hind wings reaching the proximal part of hind tibiae) and posteromedian notch of female genital plate less wide. From *O. pehlkei*, it is distinguished by the tegmina having a dark stripe along their anal edges (vs. tegmina are uniformly light), and wings slightly longer (*O. pehlkei* has tegmina reaching the apex of hind femora, and hind wings reaching the middle of hind tibiae). The new species is also similar to *Phlugis crassifemorata* Kästner, 1932 from Brazil and to *Ph. stigmata* Nickle, 2003 from Peru by the shape of female genital plate, as well as to *Ph. arborealoides* Nickle, 2005 and *Ph. robertsi* Nickle, 2005 from Costa Rica by the middle tibia with 3 outer ventral spines (all these species have an unclear generic position). However, it differs from *Ph. crassifemorata* and *Ph. stigmata* in the tegmina distinctly projected behind abdominal apex, and hind wings much longer than tegmina (vs. all wings are somewhat shortened and almost equal in length); from *Ph. arborealoides* and *Ph. robertsi*, in the antennal flagellum distinctly spotted, spinules of hind tibiae very dark, and female genital plate with a rather deep posteromedian notch; and additionally only from *Ph. robertsi*, in the tegmina with a dark stripe along anal edge.

**Subfamily Phaneropterinae Burmeister, 1838**

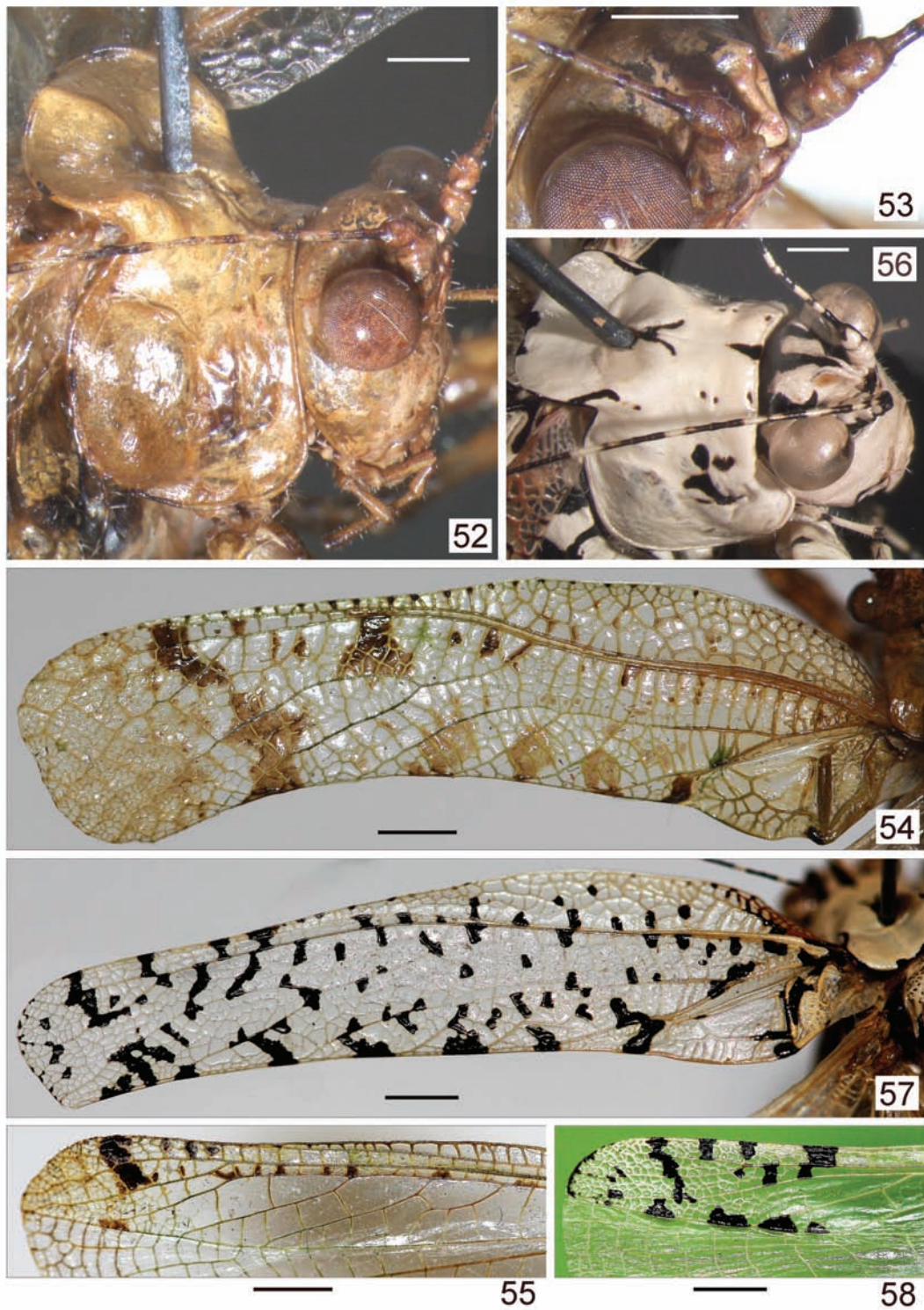
**Tribe Dysoniini Rehn, 1950**

**Genus *Dysonia* White, 1862**

=*Valna* Walker, 1869

**Note.** The genus was synonymized with *Valna* Walker, 1869 by Kirby (1906). Recently, Cadena-





**Figs 52–58.** *Dysonia* White, male: 52–55 – *D. mariposa* sp. nov.; 56–58 – *D. satipo* sp. nov. Head with pronotum from side and slightly from above (52), and from above and slightly from side (56); rostrum of head from above and slightly from side (53); left tegmen (54, 57); distal part of costal lobe of left hind wing (55, 58). Scale bars 1 mm.

Castañeda (2011) restored *Valna* from this synonymy and divided it into two subgenera. However, he did not take in attention that *V. melaleuca* Walker, 1869 (type species of *Valna*) is very similar to *D. alipes* (Westwood, 1844) (type species of *Dysonia*) by the apical part of male tegmina moderately widened and distal part of hind femora with a pair of large lamellar lobes darkened dorsally. The apical width of tegmina as well as development of small antennal inflations and of median ocellus, used by Cadena-Castañeda for delimitation of these “genera”, are rather variable and show an almost gradual transition from the condition as in *D. alipes* to that as in type species of the subgenus *Dissonulichen* Cadena-Castañeda, 2011. So, it is reasonable to secondarily synonymize *Valna* and *Dysonia*. However, *Dissonulichen* may be preserved as a subgenus of *Dysonia* s. l.; it may be distinguished from the nominotypical subgenus (*Dysonia* s. str.) by the hind femora having only not very large and more or less triangular spines (in *Dysonia* s. str., these femora have large lamellar lobes with the edges toothed), and possibly by the female wings not shortened.

***Dysonia (Dysonia) mariposa* sp. nov.**  
(Figs 52–55, 59–61)

**Etymology.** The species is named after the Mariposa Village.

**Type material.** Holotype – male, PERU: Junin Department, Satipo Prov., ~35 km NE of Satipo Town, environs of Mariposa Vill., ~1200 m, disturbed primary forest, at light, 17–18 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

**Description.** *Male.* Coloration unusual for this genus: head uniformly light brown but with eyes, second antennal segment, and small spot on frontal surface of lower rostral tubercle brown, as well as with rather numerous light brown, brown and dark brown spots on antennal flagellum; pronotum almost uniformly light brown with small sparse brown and dark brown spots in hind half along edges; tegmina greenish with yellowish tinge and almost transparent cell membranes, but they also with several light brown and brown spots; hind wings almost completely transparent with a few very small brown spots along distal half of costal edge and somewhat larger dark brown spot near apex of costal lobe (see Figs 54, 55); legs light brown with most part of middle femora (excepting spines) and 2 ventroproximal spots on each hind femur brown, spines and spurs of

fore tibiae dark brown, 3 spots in distal half of each hind tibia yellowish, ventral part of proximal half of hind femora whitish, and rest of this half as well as areas on fore tarsi weakly darkened; rest of body light brown with dark and darkish spots on thoracic pleurites, on all coxae, on abdominal sternites, and on apices of cercal lobes. Head with lower rostral tubercle slightly narrower than basal part of scape; upper rostral tubercle with two almost angular apices (anterior and posterior) and narrow median concavity between them (Fig. 53); antennal flagellum with sparse and very small inflations in proximal half (rest of this flagellum missing). Each pronotal lobe with strongly inflate and almost round outer convexity on posteroventral part; hind pronotal lobe with 3 distinct longitudinal convexities (Fig. 52). Wings long; tegmina with moderately widened apical part and with stridulatory apparatus typical of the subgenus (Fig. 54); hind wings distinctly longer than tegmina. Fore coxa with moderately short and thin spine; fore femur with 2 inner ventral triangular (lobe-like, lamellar) spines; fore tibia with 4 inner and 3 outer rather short and thin ventral spines as well as with a pair of similar ventroapical spurs and 1 similar outer dorsoapical spur; middle femur with 3–4 outer ventral triangular spines; middle tibia with 2 pairs of very short ventral triangular spines (proximal inner spine in both legs and distal outer one in right leg with additional thin spinule at apex), 5 inner and 4 outer thin ventral spines, a pair of thin ventroapical spurs, and 1 thin inner dorsoapical spur; hind femur with 4 outer ventral triangular spines, very large outer distal lamellar lobe (having 5 marginal teeth), 2 short inner ventral triangular spines, and moderately large inner distal lamellar lobe (having 2 marginal teeth); hind tibia with 14 inner and 15 outer dorsal almost triangular spines, 19 outer and 5 inner thin ventral spines, and 6 thin apical spurs. Last abdominal tergite short, with a pair of very small posterior projections near cercal bases, and slightly concave hind edge between these projections (Fig. 59); epiproct not very small, almost oval, directed downwards, with rather narrow median concavity; paraprocts small, unspecialized; cerci with lateral lobe long, having small apical hook and almost lacking subapical denticle (Fig. 60); medial lobe of cerci much shorter than lateral one and mainly directed to opposite side (Fig. 59); distal half of genital plate moderately narrowed and with truncate apex, but this apex with narrow and rather deep

posteromedian notch; styles of genital plate rather long and thin (Figs 59, 61).

*Female.* Unknown.

*Length* (mm). Body 14; body with wings 36; pronotum 3.8; tegmina 26; hind femora 14.

**Comparison.** The new species is most similar to *D. pardalis* Gorochov, 2012 by the shape of male cerci, but distinguished from it by the head (excepting antennal flagellum) and pronotum almost uniformly light brown, tegmina and legs clearly less spotted (large distal lobes of hind femora light brown on dorsal and ventral surfaces), lower rostral tubercle of head almost twice wider, posteroventral part of each lateral pronotal lobe with the outer convexity more strongly inflates, hind pronotal lobe with 3 distinct longitudinal convexities, lateral lobe of male cerci with the subapical denticle almost indistinct, and male genital plate with the posteromedian notch somewhat deeper and styles distinctly longer (for comparison see Figs 60–63). From all the other congeners, the new species differs in the same characters of coloration and of pronotal structure in combination with the hind femora having large lobes in distal part, male genital plate having a rather deep posteromedian notch, styles of this plate long, and shape of male cerci different.

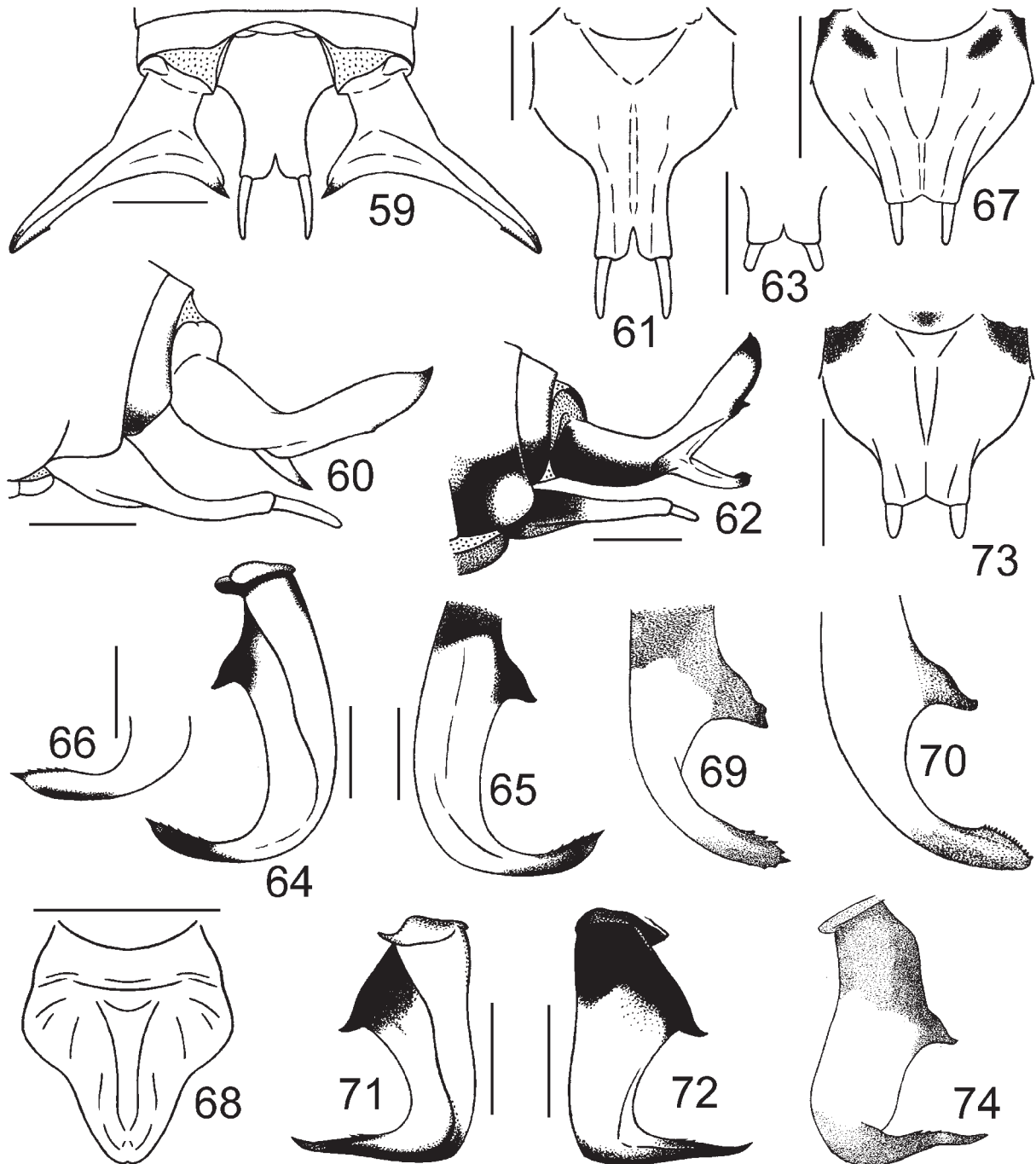
***Dysonia (Dissonulichen) satipo* sp. nov.**  
(Figs 51, 56–58, 64–68)

**Etymology.** The species is named after the Satipo Province.

**Type material.** Holotype – male, PERU: Junin Department, Satipo Prov., ~25 km SE of Satipo City, environs of Rio Venado Vill., ~1200 m, partly primary / partly secondary forest, at light, 20–23 October 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. Paratypes: 15 males, 1 female, same data as for holotype; 1 male, same province, environs of waterfall near Satipo Town, ~800 m, secondary forest, at light, 4–5 November 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky; 1 male, forest garden very near Satipo Town, ~600 m, at light, 15 October–6 November 2008, A. Gorochov, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

**Description.** *Male* (holotype). Coloration whitish with yellowish tinge and following marks: epicranium with 3 longitudinal stripes on dorsum, frontal surface of lower rostral tubercle, medial edges of antennal cavities, 2 narrow stripes above and under

ventral edge of each antennal cavity, narrow stripe under eyes, 2 longitudinal stripes behind each eye, and spot above each subgena black; labrum with brown apex; palpi with small sparse blackish spots; other mouthparts with rather numerous blackish and brown marks; antennae with outer part of 2 proximal segments black, and rather numerous blackish and brown spots on flagellum [these spots in proximal part of flagellum rather short (not longer than light areas); in rest of flagellum, they long and very long (distinctly longer than light spots)]; pronotum with a few black spots on disc and lateral lobes (Fig. 56); tegmina with numerous rather small black spots and reddish brown (rather light) veinlets in basal part of costal area (Fig. 57); hind wings transparent with whitish distal part of costal lobe having numerous small black marks (Fig. 58); legs, thoracic pleurites, abdominal tergites, cerci and genital plate with diverse black and dark brown spots (Figs 64, 65, 67); epiproct with wide dorsomedian part blackish. Head with lower rostral tubercle approximately 3 times narrower than basal part of scape; upper rostral tubercle with anterior apex almost angular, with narrow median concavity behind it, and with posterior part of this tubercle widely rounded in profile (Fig. 56); antennal flagellum without distinct inflations. Pronotum typical of this genus (without convexities on hind lobe as well as with weakly distinct convexity on each lateral lobe; Fig. 56). Wings similar to those of *D. mariposa* sp. nov., but tegmina somewhat narrower and with apical part not widened (Fig. 57). Legs with spine on fore coxa and apical spurs on all tibiae as in *D. mariposa* sp. nov.; fore femora with 1 triangular inner ventral spine and dorsal keel; fore tibia with 4 inner and 4–5 outer thin ventral spines; middle femur with 2 triangular outer ventral spines and dorsal longitudinal keel; middle tibia with 3 thin inner dorsal spines and 5 pairs of thin ventral spines; hind femur with 5–6 triangular outer ventral spines only; hind tibia with 10 outer and 14–15 inner almost triangular dorsal spines, and with 9–10 outer and 7–8 inner thin ventral spines. Last abdominal tergite short, with almost straight posterior edge; epiproct not very small, roundly triangular, directed downwards, and with rather wide median concavity; paraprocts small, unspecialized; cerci with very long lateral lobe and short medial tooth near base; this lateral lobe strongly and arcuately curved, with distal part narrow and directed medially, and with short apical spinule and a few very small subapical denticles (Figs



**Figs 59–74.** *Dysonia* White: 59–61 – *D. mariposa* sp. nov.; 62, 63 – *D. pardalis* Gor.; 64–68 – *D. satipo* sp. nov.; 69 – *D. monticola* Costa Lima et Guitton; 70 – *D. elegans* (Br.-W.); 71–73 – *D. simplicipes meridionalis* subsp. nov.; 74 – *D. s. simplicipes* (Br.-W.). Male abdominal apex from above (59) and from side (60, 62); male genital plate (61, 67, 73) and its apical part (63) from below; male right cercus completely (64, 71, 72, 74), without base (65, 69, 70), and without proximal and middle parts (66) from above (64, 66, 71) and from below (65, 69, 70, 72, 74); female genital plate from below (68). Scale bars 1 mm [69, 70, 74 – after Costa Lima and Guitton 1961].

64, 65); genital plate with posteromedian notch very small and styles moderately long (Fig. 67).

Variations. Sometimes dorsum of epicranium without dark median stripe or only with traces of it, pronotum without dark marks or only with traces of them, spots on wings and legs slightly or distinctly less numerous, and cerci with hardly shorter and somewhat wider distal part of lateral lobe (Fig. 66). Number of spines on legs and of subapical denticles on cercal lateral lobe as well as coloration of distal part of this lobe (see Figs 64, 66) weakly varied.

*Female*. General appearance as in holotype, however tegminal stridulatory apparatus absent, cerci rather short (conical) and with ventral surface blackish (rest of cerci light). Genital plate completely light and narrowing to hardly notched apex (Fig. 68); coloration and shape of ovipositor as in Fig. 51.

*Length* (mm). Body: male 12–15, female 13.5; body with wings: male 31–34, female 30; pronotum: male 3.7–3.9, female 3.4; tegmina: male 22–24, female 21; hind femora: male 11–12, female 11.5; ovipositor 4.8.

**Comparison.** The new species is very similar to *D. simplicipes* (Brunner-Wattenwyl, 1878), type species of *Dissonulichen*, by the general appearance and shape of male cerci. It differs from the latter species in the lateral lobe of these cerci distinctly longer, apical spinule of this lobe much smaller (shorter) and not curved, and styles of male genital plate clearly longer (for comparison see Figs 64–67 and 71–74). From *D. monticola* Costa Lima et Guitton, 1960 and *D. elegans* (Brunner-Wattenwyl, 1878) as well as *D. cuiabensis* Piza et Peres Filho, 1982 having the apical part of lateral lobe of male cerci more or less similar, the new species differs in this cercal lobe longer and more strongly curved as well as in the medial tooth of male cerci less projected (for comparison see Figs 65, 69, 70); and from all the other congeners, in the lateral lobe of male cerci clearly denticulate (not with 1 or 2 apical denticles only) in combination with the medial tooth of these cerci shorter, tegmina not widened apically, hind femora without large lamellar lobes, and male genital plate and its styles almost completely light.

***Dysonia (Dissonulichen) simplicipes meridionalis* subsp. nov.**  
(Figs 71–73)

**Etymology.** The species name is the Latin word “meridionalis” (southern).

**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 bodyparts similar to those of *D. satipo* sp. nov., however with following differences: majority of light areas of body with greenish tinge, but ocelli and dorsal part of pronotum yellowish; dark marks almost as in holotype of *D. satipo* sp. nov. (middle and distal parts of antennal flagellum missing), but black longitudinal stripes on head dorsum interrupted and black parts of cerci larger (Figs 71, 72); lower rostral tubercle almost 2.5 times narrower than basal part of scape; fore coxa with very short spine; outer ventral triangular spines of middle femur large, forming rather large lamellar lobe as a result of fusion of their bases with each other; dorsal surface of middle tibia with 1 thin inner spine only (hind legs missing); cerci with moderately long lateral lobe, and their short medial tooth located on rather large angular projection near base; lateral cercal lobe almost angularly curved, with large (long) and weakly S-shaped apical spine situated distad to a few subapical denticles (Figs 71, 72); genital plate with styles moderately short (Fig. 73).

*Female*. Unknown.

*Length* (mm). Body 12.5; body with wings 34; pronotum 4; tegmina 24.

**Comparison.** The new subspecies differs from *D. s. simplicipes* stat. nov., described from Mexico (Brunner-Wattenwyl 1878) and recorded from Panama (Costa Lima and Guitton 1960), in the proximal part of male cerci (from base to medial tooth) somewhat shorter, curvature of lateral lobe of these cerci more angular (vs. more rounded; for comparison see Figs 72 and 74), and male genital plate light with small dark marks at the base only (Fig. 73) (vs. this plate is with the proximal half and styles darkened). Possibly the specimens of *D. simplicipes* from Colombia, described and illustrated by Cadena-Castañeda (2011: fig. 3), belong to *D. s. meridionalis* subsp. nov., as they differs from the nominotypical subspecies from Central America in the same characters.

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