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SYSTEMATICS OF THE AMERICAN KATYDIDS (ORTHOPTERA: TETTIGONIIDAE). COMMUNICATION 1

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ABSTRACT

Championica cervus sp. nov. and *Ch. peruana spinifera* subsp. nov. (Pleminiinae), as well as *Machimoides rehni* sp. nov., *M. vivasi peru* subsp. nov., *Lichenomorphus berezini* sp. nov., *L. sinyaevi* sp. nov., *L. oscari* sp. nov., *Dysonia pardalis* sp. nov., *D. holgeri extensa* subsp. nov. and *D. holgeri cusco* subsp. nov. (Phaneropterinae) are described from Ecuador, Bolivia, Peru and Mexico.

Key words: America, *Championica*, *Dysonia*, *Lichenomorphus*, *Machimoides*, new taxa, Orthoptera, Phaneropterinae, Pleminiinae, Tettigoniidae

СИСТЕМАТИКА АМЕРИКАНСКИХ КУЗНЕЧИКОВ (ОРТНОПТЕРА: ТЕТТИГОНИИДАЕ). СООБЩЕНИЕ 1

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РЕЗЮМЕ

Описываются *Championica cervus* sp. nov. и *Ch. peruana spinifera* subsp. nov. (Pleminiinae), а также *Machimoides rehni* sp. nov., *M. vivasi peru* subsp. nov., *Lichenomorphus berezini* sp. nov., *L. sinyaevi* sp. nov., *L. oscari* sp. nov., *Dysonia pardalis* sp. nov., *D. holgeri extensa* subsp. nov. и *D. holgeri cusco* subsp. nov. (Phaneropterinae) из Эквадора, Боливии, Перу и Мексики.

Ключевые слова: Америка, *Championica*, *Dysonia*, *Lichenomorphus*, *Machimoides*, новые таксоны, Orthoptera, Phaneropterinae, Pleminiinae, Tettigoniidae

INTRODUCTION

The paper contains descriptions of new American taxa from two subfamilies of katydids: Pleminiinae and Phaneropterinae. The Pleminiinae is a largest subfamily of the subfamily group “Pseudophyllidae” (Gorochov 1988, 1995) in America. The latter group is divided into 5 subfamilies: Pterochrozinae (Neotropical), Polyancistrinae (Neotropical), Pleminiinae (Neotropical, but with some representatives in tropical Africa and Southern parts of Nearctic

region), Simoderinae (Madagascar and Australia) and Pseudophyllinae (Paleotropical, but with some representatives in Australia, Oceania and Southern parts of Palearctic Asia). These subfamilies are well distinguished from each other mainly by the characteristic structure of tympanal organs (Figs 1–6). There are also some important differences in the structure of male tegminal stridulatory apparatus and venation of hind wings (Gorochov 1995).

However the authors of Orthoptera species file (Eades et al. 2011) continue to use the old classifica-

tion by Beier (1962, 1963), who considered all the above-mentioned subfamilies as a single subfamily (Pseudophyllinae s. l.) and divides it into numerous tribes only. Some of Beier's tribes (Simoderini, Pterochrozini) are strongly isolated from all his other tribes, but these other tribes are often close related to each other and difficult for determination. I think that Beier's tribes Pseudophyllini, Phyllomimini, Cymatomerini and possibly Pantecphylini (together with the Callimenellini described later) may be placed in Pseudophyllinae s. str., although his tribes Pleminiini, Aphractini, Platyphyllini, Cocconotini, Glaphyraspidini, Ischnomelini, Teleutiini, Eucocconotini, Leptotettigini and Pterophyllini must be included in Pleminiinae [from Pleminiinae Brunner-Wattenwyl, 1895; Gorochov (1988) is a first user of this name for subfamily].

The Pleminiinae is well characterized by the both tympana distinctly slit-like, situated near each other on the flat part of dorsal surface of fore tibia (not on lateral or dorsolateral surfaces of this tibia), and lost any traces of fusion of lobes or folds around the tympanal membranes (development of lobes or folds around these membranes is an inevitable step in the evolution of tympana from opened to slit-like) (Figs 5, 6). Tribal division of this subfamily is in need of a revision on the base of additional morphological study. It is a reason that here I do not mention any tribal position of the genera studied.

The subfamily Phaneropterinae is understood by different researchers more similarly than Pleminiinae. There are questions only in relation to Scambophyllinae and Odonturinae from Old World usually placed as tribes inside Phaneropterinae, but sometimes considered separate subfamilies (Gorochov 1988, 1995; Eades et al. 2011). The Phaneropterinae is also in need of tribal revision (Gorochov and Kang 2002), but its taxa described below are members of a rather isolated group with the characteristic general appearance (cryptic, imitating different tree lichens or tree bark with lichen). This group is the tribe Dysoniini [its composition is given by Eades et al. (2011) and Cadena-Castañeda (2011)].

MATERIAL AND METHODS

Majority of the specimens described here were collected in tropical rainforests by the Russian collectors. All these specimens belong to taxa which are inhabitants of trees in tropical forests. Some of them

(*Championica* Saussure et Pictet) imitate rough tree bark with spots of cristose lichen. The representatives of *Markia* White, *Machimoides* Rehn, *Lichenomorphus* Cadena-Castañeda and *Dysonia* White were collected near trees having the crown branches covered with two kinds of lichens: one lichen was whitish and bush-like, having the long filamentous structures very similar to spines of *Markia* (Cadena-Castañeda 2012); another lichen was grayish with darker and lighter spots, consisting of rather short and more or less lobe-like structures, and similar to specimens of *Lichenomorphus* and *Dysonia* in general appearance (Fig. 40, 69).

All the material studied (including types) are deposited at the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg. The specimens are dry and pinned. The photographs of complete insects and their large structures were made by Canon 40D, and photographs of their small structures, by stereomicroscope microscope Leica MZ 16.0. The photographs of living specimens in natural environment were made by M.V. Berezin, head of the Insect Department of the Moscow Zoo.

SYSTEMATICS

Subfamily Pleminiinae Brunner-Wattenwyl, 1895 Genus *Championica* Saussure et Pictet, 1898

Note. This genus was divided by Beier (1954) into three subgenera: (1) nominotypical one synonymized with *Orpacophora* Kirby, 1906; (2) *Auchenacophora* Beier, 1954; (3) *Lipacophora* Beier, 1954. The latter subgenus is distinguished from two others by the distinctly granulate surface of pronotum. Differences between *Championica* s. str. and *Auchenacophora* are less understandable. Both their type species (*Ch. montana* Saussure et Pictet, 1898 and *Acanthodis attenuata* Brunner-Wattenwyl, 1895, respectively) are very similar to each other in the structure of male stridulatory apparatus having rather large and distinctly outlined oval mirror in both tegmina as well as very short area between stridulatory vein and tegminal base. But some other species (*Orpacophora peruana* Beier, 1933, placed by Beier in *Championica* s. str., and a new species related to this species) are distinctly different from them and similar to each other in the partly reduced mirror of stridulatory apparatus in upper tegmen, and clearly longer area be-

tween stridulatory vein and tegminal base (Figs 19, 24). Moreover *Ch. haenschii* Beier, 1954, included by its author in the subgenus *Auchenacophora*, is close related to this new species and thus to *Ch. peruana*. So, it is possible that *Auchenacophora* is a synonym of the nominotypical subgenus, and three the latter species may be placed in an additional subgenus. If the type species of *Orpacophora* (*Gryllus coronatus* Linnaeus, 1758) is related to these latter species, *Orpacophora* must be restored for such additional subgenus. However structure of male stridulatory apparatus of *Ch. coronata* is unknown, and in this connection I do not use any subgeneric names of this genus in the present paper.

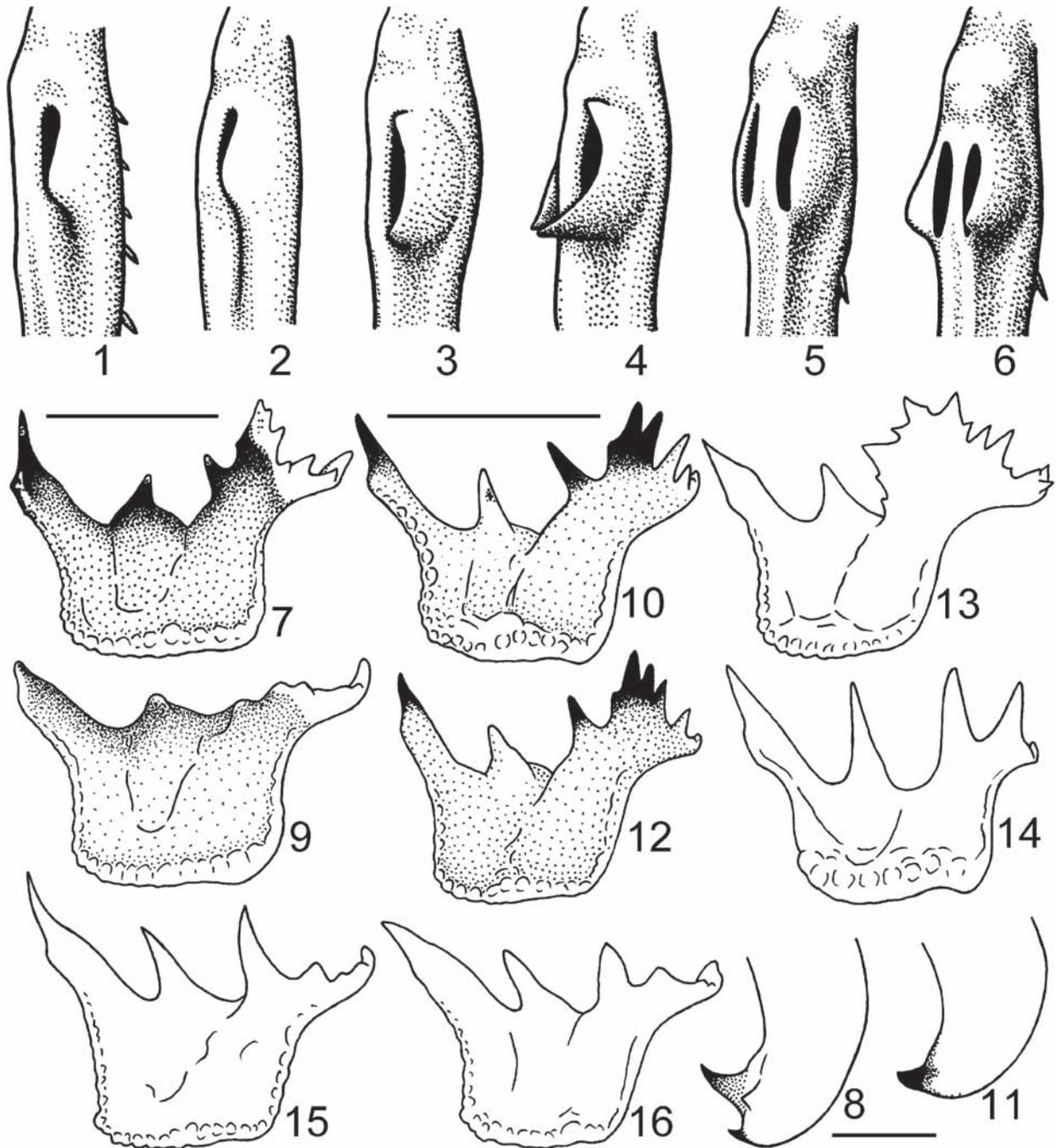
***Championica cervus* sp. nov.**
(Figs 7, 8, 17–21)

Etymology. The name originates from the genus *Cervus* (Mammalia).

Type material. Holotype – male, ECUADOR: Eastern slopes of Andes, ~75 km SEE of Quito City, environs of El Chaco Vill. on Rio Quijos, ~1500 m, secondary forest, on bark of tree not far from soil at night, 18–22 November 2005, A. Gorochoy, A. Ovtshinnikov.

Description. Male. General appearance typical of *Championica* (Fig. 17). Coloration yellowish with following marks: head with light brown clypeus and face of epicranium, and with dark brown areas between lower rostral tubercle and antennal cavities, median spot on dorsal surface of upper rostral tubercle, narrow stripes along dorsal and ventral edges of each eye, small area on inner anteroproximal part of each mandible, dot at each lateroproximal corner of labrum, and numerous small marks on antennae (including scape and pedicel; Figs 17, 19); pronotum having most part of lateral lobes light brown, most part of disc brown, majority of spines blackish (but with very small light spots near apex of anterior spine and at apex of other spines), and metazona (= posterodorsal part of pronotum in shape of cup) dark brown with yellowish stripe along hind edge occupying also distal part of longest lateral spines (Figs 7, 18, 19); legs with light brown large spots on fore legs and brown ones on middle and hind legs; tegmina with brown “C” and some large crossveins near it (forming characteristic reticular pattern; Figs 17–19), most part of both MA and MP+CuA1,

numerous dots and small spots, several larger spots along distal half of costal edge and between R+RA and anal edge, and with grayish brown basal area of dorsal field, mirror of upper tegmen and marginal stripe on mirror of lower tegmen (around transparent middle part of this mirror) (Figs 17, 19); hind wings grayish brown with darker proximal part and whitish spots as in Fig. 17; abdomen and rest of thorax with light brown pterothoracic dorsum, and with brown abdominal dorsum (including epiproct, but not cerci) and small marks on lateral parts of sternites and of genital plate. Upper rostral tubercle triangular (if to see from above) and with rather deep dorsal concavity limited in anterior half by low keel and in posterior half by a pair of rounded lateral inflations; apical part of scape with dorsomedial spine equal to half of pedicel in length. Pronotum with three spines on anterior half of disc (anterior spine very long; a pair of other spines moderately long) and eleven spines on metazona having a few small additional denticles between them (second pair of these spines very long; other spines distinctly shorter, medium-sized; denticles very short); anterior, ventral and posterior edges of pronotal lateral lobes granulate; metazona long (Figs 7, 18, 19). Wings long; tegmina not wide, gradually narrowing to rounded apex, with dense veinlets and very small membranous cells between them; mirror of lower tegmen almost oval, twice longer than area between it and basal edge of this tegmen; mirror of upper tegmen slightly shorter and distinctly narrower than previous mirror, partly reduced (= partly occupied by veinlets); stridulatory vein rather narrow and slightly longer than width of upper mirror (Fig. 19); hind wings reaching tegminal apices. Legs with rather numerous large spines [moderately short and flattened spines on inner ventral keel of fore femora and on outer ventral keel of middle femora, moderately long and thin spines on outer ventral keel of hind femora, moderately long and flattened spines on both dorsal keels of hind tibiae (but their distal spines moderately short)] as well as with more numerous small spines on all ventral keels of tibiae; tympanal region of fore tibiae with lobes on both sides similar to those pictured in Fig. 6. Abdomen with hind edge of last tergite almost fused with moderately wide and truncate epiproct (Fig. 20); cerci rather short and arcuate; each cercus with two small apical hooks (they heavily sclerotized) and one small tubercle above them (Figs 8, 20); genital plate as in



Figs 1–16. Tettigoniidae: 1–4 – tympanal region of fore tibia (from side) in Polyancistrinae (1), Pterochrozinae (2) and Pseudophyllinae (3, 4); 5, 6 – same (but from side and slightly in front) in Pleminiinae; 7, 8 – *Championica cervus* sp. nov.; 9 – *Ch. haenschi* Beier; 10, 11 – *Ch. peruana spinifera* subsp. nov.; 12 – *Ch. p. peruana* (Beier); 13 – *Ch. niepelti* Beier; 14 – *Ch. ornata* (Piza); 15 – *Ch. echinus* (Rehn); 16 – *Ch. pilata* (Beier). Pronotum from side (7, 9, 10, 12–16); distal part of male cercus from above (8, 11). Scale bars: 5 mm for Figs 7, 10; 3 mm for Figs 8, 11. [1–6, after Gorochov (1988); 9, 12–16, after Eades et al. (2011).]

Fig. 21; genitalia membranous, but with one small and tubercle-like median sclerite.

Female unknown.

Length (mm). Body 33; body with wings 47; pronotum 9.5; tegmina 39; hind femora 27.

Comparison. The new species is most similar to *Ch. haenschi* from Ecuador in the coloration and general shape of pronotum (especially in shape of its metazona, long and rather low in profile; Figs 7, 9), structure of costal and “precostal” tegminal areas occupied by the dense light veinlets and sparse darker veins (but lacking more or less large membranous cells), and pattern of legs and hind wings (legs similarly spotted, wings darkened with numerous lighter spots). *Ch. cervus* sp. nov. is clearly differs from *Ch. haenschi* in the slightly darker and more contrast coloration of body (including presence of distinct dark spots on mandibles and tegmina, and clearly smaller light spots of hind wings), much longer spines of middle and hind parts of pronotum, and presence of additional tubercles on some of these spines. However I cannot exclude that these species, collected in different localities of Ecuador, may be only two subspecies of the same species. *Ch. cervus* sp. nov. is also similar to *Ch. peruana* (Peru), but distinguished from it by the darker pronotal dorsum, less distinct spots on legs, spotted hind wings, longer hind part of pronotal metazona (for comparison see Figs 7, 10, 12), thinner spines of legs, absence of large membranous cells in costal and “precostal” tegminal areas, wider male epiproct, longer styles of male genital plate, narrower and deeper hind median notch of this plate, and cerci with more numerous apical hooks (see Figs 8, 11). From *Ch. coronata* with unknown type locality (Beier 1962), the new species differs in the yellowish (not dark) hind edge of pronotum; from *Ch. niepelti* Beier, 1954 (Ecuador; Fig. 13), in the shorter lateral ridges of pronotal metazona with less numerous spines and denticles; from *Ch. echinus* (Rehn, 1940) (Ecuador; Fig. 15), *Ch. pilata* (Beier, 1933) (Peru; Fig. 16) and *Ch. ornata* (Piza, 1950) (Brazil; Fig. 14), in the second pair of spines of pronotal metazona longer than all the other spines of this metazona, and first pair of spines of this metazona rather short; and from all the other congeners, in the majority of pronotal surface non granulate, hind half of pronotum with upper part between spines distinctly narrower than lower part of this half, or mirror of male upper tegmen partly reduced.

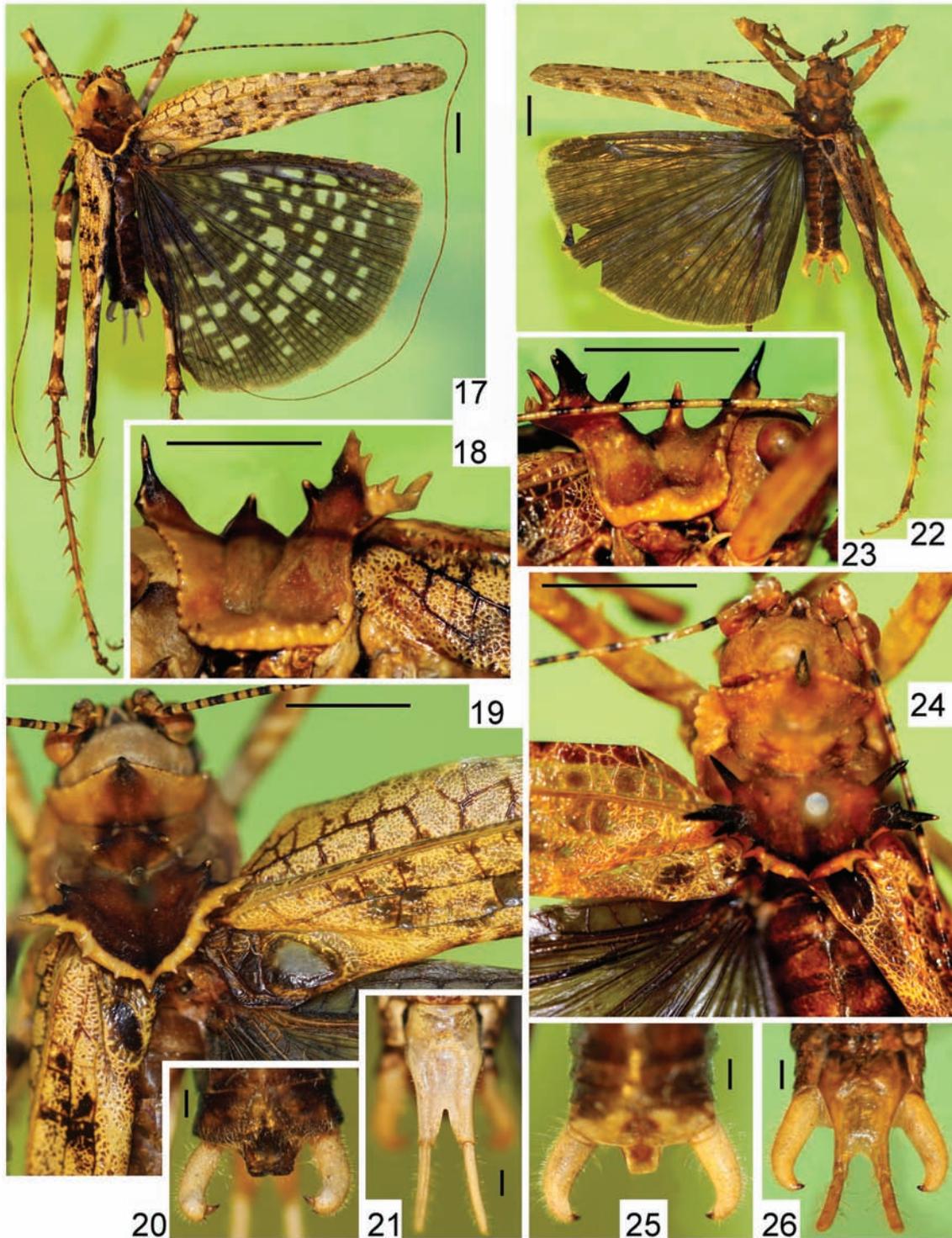
***Championica peruana spinifera* subsp. nov.**

(Figs 10, 11, 22–26)

Etymology. The name originates from the Latin “spinifer” (prickly).

Type material. Holotype – male, BOLIVIA: “Yunges de la Paz, Boliv., 1000 m”.

Description. *Male.* Coloration and structure of body similar to those of *Ch. cervus* sp. nov., but distinguished by following characters: head light brown with brown dorsal spot on upper rostral tubercle, very small and slightly darkened areas around lower rostral tubercle, and numerous dark brown spots on antennal flagellum only (Figs 22, 24); pronotum light brown with slightly darkened lower half of lateral lobes (excepting stripe along their ventral edge), brown dorsum of metazona between spines (excepting light brown hind pronotal border; this light stripe distinctly not reaching longest spines of metazona), dark brown some of spines and narrow dorsal stripe between brown part of metazona and its hind light border (Figs 10, 23, 24); tegmina light brown with brown majority of cell membranes between costal edge and MP+CuA1, several yellowish spots along costal and anal edges of distal two thirds of tegmina (these spots consisting of yellowish veinlets and very small membranes between them), and completely grayish brown mirror; hind wings almost uniformly grayish brown (rather dark), but with yellowish distal border (Fig. 22); legs from yellowish to light brown and with weakly darkened spots similar to those of *Ch. cervus* sp. nov., but less distinct; rest of thorax light brown with brown dorsum and spots on lateral and ventral parts; abdominal dorsum brown with light brown last tergite and epiproct (latter structures having a few slightly darkened spots; Fig. 25); genital plate light brown; rest of abdomen intermediate between brown and light brown; pronotal metazona with clearly shorter hind lobe and distinctly longer first and forth pairs of spines; lower part of pronotal lobes slightly more inflated (Figs 10, 23, 24); tegmina with numerous large membranous cells in costal and “precostal” areas, and with somewhat sparser ones in areas R–MA, RA–RS, RS–MA and between MA and MP+CuA1 (Figs 23, 24); mirror distinctly (but not strongly) smaller in both tegmina (Fig. 24); fore tibiae with slightly larger lobes on both sides of tympanal region; hind tibiae with dorsal spines somewhat shorter and more flattened (Fig. 22); epiproct weakly (but clearly) narrower; each cercus with only one



Figs 17–26. *Championica* Sauss. et Pict., male: 17–21 – *Ch. cervus* sp. nov.; 22–26 – *Ch. peruana spinifera* subsp. nov. Body and wings from above (17, 22); pronotum and base of tegmen from side (18, 23); head, pronotum and base of tegmina from above (19, 24); abdominal apex (without hind parts of genital plate) from above (20, 25); same (with complete genital plate) from below (21, 26). Scale bars: 5 mm for Figs 17–19, 22–24; 1 mm for Figs 20, 21, 25, 26.

apical hook (heavily sclerotized) and without any additional tubercle (Figs 11, 25); genital plate with somewhat shorter styles and with wider and less deep notch between them (Fig. 26).

Female unknown.

Length (mm). Body 29; body with wings 43; pronotum 8; tegmina 35; hind femora 24.5.

Comparison. The new subspecies differs from more northern *Ch. p. peruana* stat. nov. in the somewhat longer and less vertical spines of pronotal metazona, deeper notch between third and fourth pairs of spines on this metazona, more inflated ventral part of lateral pronotal lobes (for comparison see Figs 10, 12), and more numerous large membranous cells and smaller interspaces (occupied by dense veinlets) between them in the costal and “precostal” areas of tegmina.

Subfamily Phaneropterinae Burmeister, 1838

Tribe Dysoniini Rehn, 1950

Genus *Machimoides* Rehn, 1950

Note. Five close related genera of this tribe, similar to each other in the general appearance and structures of abdominal apex, were described: *Markia* White, 1862, *Machima* Brunner-Wattenwyl, 1878, *Machimoides*, *Apolinaria* Rehn, 1950, *Lichenodraculus* Braun, 2011. These taxa differ from each other mainly in the presence or absence of median processes on pronotal dorsum and length of spines on legs. All these characters are probably specializations to the imitation of bush-like lichens in tree crowns expressed in different degree: *Markia* has three long dorsal processes (one on head and two on pronotum) and very long (ribbon-like) spines on legs; *Lichenodraculus* is similar to *Markia*, but lacking second pronotal process; *Apolinaria* is similar to *Lichenodraculus*, but lacking all pronotal spines; *Machima* and *Machimoides* are similar to *Apolinaria*, but *Machima* has the shorter process of head, and *Machimoides* is with the shorter spines of legs. Possibly the opinion by Brunner-Wattenwyl (1878) was correct, and all these genera are only subgenera of the same genus. However here I tentatively preserve a generic status for *Machimoides*, as it is additionally (but not very strongly) distinguished from the most similar *Machima* and *Apolinaria* by the more simple structure of male cerci (Figs 35, 36, 39).

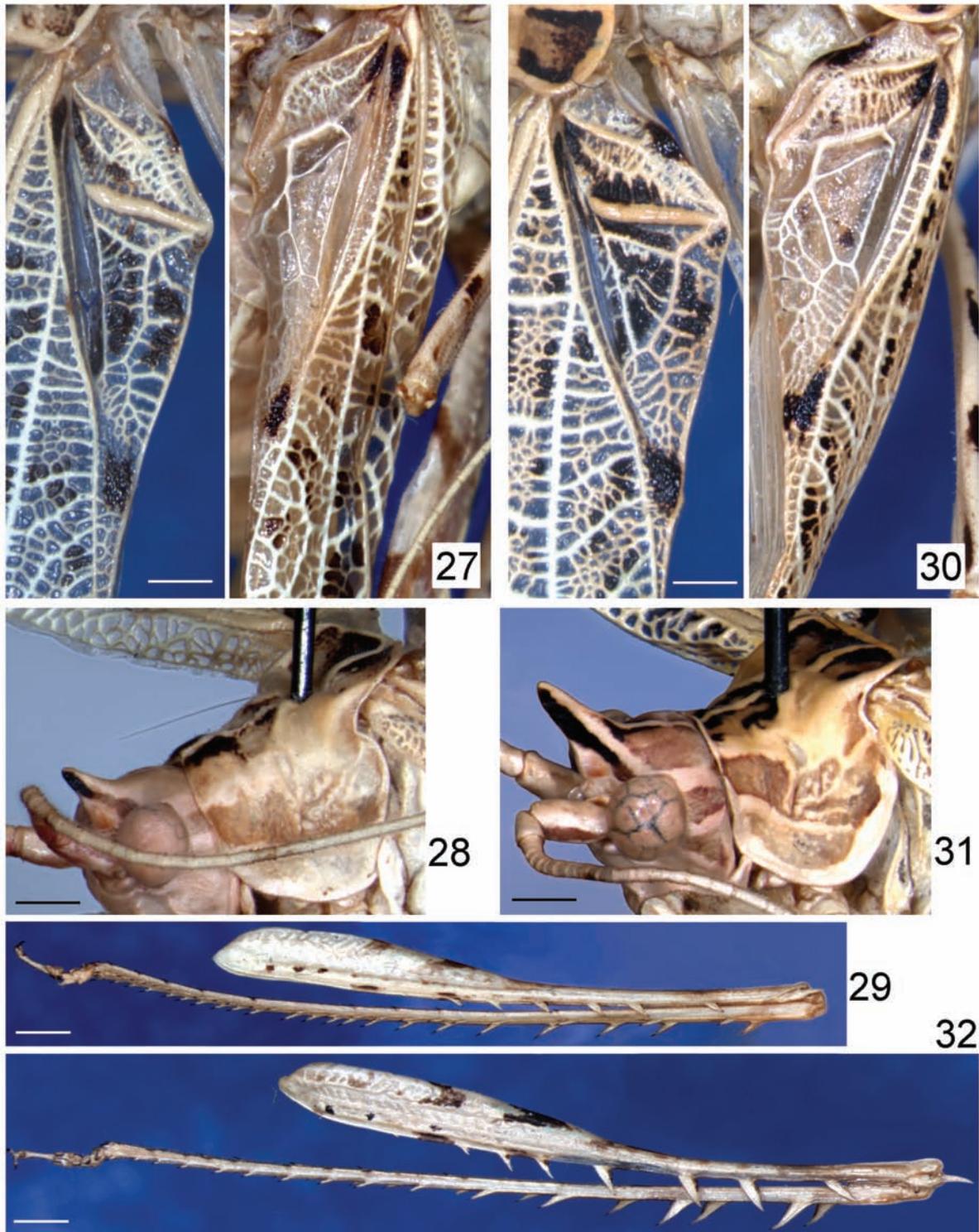
Machimoides rehni sp. nov.

(Figs 27–29, 33–36)

Etymology. The name is given in memory of entomologist James Rehn, author of the tribe Dysoniini and numerous taxa included in this tribe.

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. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. Paratypes: 5 males, same data as for holotype.

Description. *Male.* Coloration whitish with yellowish green tinge and following darker marks: upper rostral spine of head with darkened stripe running from rostral apex to eye on each lateral surface (these stripes dark brown in upper half, fused with each other subapically on anterior side of rostral spine, as well as light brown and contacting with yellow eyes in lower half); vertex behind rostrum and eyes with a few very slight light brown longitudinal stripes; antennae with two light brown longitudinal stripes on scape (one on its ventral surface, and one on its lateral surface) and sparse and slightly lighter (than previous stripes) spots on flagellum; pronotum with three pairs of dark brown spots on disc (middle pair smallest) and slight light brown longitudinal band on lateral lobes (Fig. 28); fore and middle femora with two brown spots and light brown small distal spot on dorsal surface; hind femora with two similar brown spots situated more proximally, long light brown dorsal stripe in distal half, and several light brown spots and brown dots on lateral surface; tympanal membranes somewhat darkened; middle and hind tibiae with two very slight darkish spots in proximal half; all tarsi with small dark areas on third segment; all spines, spinules, spurs and claws of legs with dark distal part; tegmina with majority of membranes almost transparent, but some of them from light brown to dark brown – forming rather numerous darkened spots (Fig. 27); hind wings with transparent membranes and venation (excepting exposed apical part which similar to that of tegmina, but without darkened spots); abdomen with almost light brown majority of tergites having yellowish stripe along their hind edge and five longitudinal stripes of same color crossing previous transverse stripes. Head with relief of face very similar to that of *Apolinaria* (see Eades et al. 2011); upper rostral spine moderately long (Fig.



Figs 27–32. *Machimoides* Rehn, male: 27–29 – *M. rehmi* sp. nov.; 30–32 – *M. vivasi peru* subsp. nov. Stridulatory apparatus of upper and lower tegmina (27, 30); upper half of head with pronotum from side and slightly from above (28, 31); hind leg, outer view (29, 32). Scale bars: 1 mm for Figs 27, 28, 30, 31; 2 mm for Figs 29, 32.

28). Pronotum with three weak transverse folds: fore fold somewhat inflated; middle fold thin and more sharply separated, consisting of vertical part on lateral lobes and V-shaped part on disc; third fold situated near base of hind pronotal lobe, weakly inflated and fused with latter fold in median part. Fore and middle femora somewhat flattened, with only one or two short apical spinules on inner side of first femora (Fig. 33) and on both sides of second femora; hind femora with six flattened and comparatively short spines only on outer ventral keel (Fig. 29) and a pair of non articulated spurs hardly projected behind basal condyle of hind tibiae (Figs 29, 33); fore and middle tibiae as well as ventral side of hind tibiae with only rather numerous small spinules; dorsal side of hind tibiae with longer spines on both keels of proximal half and short spines (almost equal to previous spinules in size) on both keels of distal half [but all these spines not longer than width (height) of hind tibia; Fig. 29]. Tegmina rather long and moderately narrow, with obliquely truncate and slightly concave apex, cell-like cross venation, two branches on RA, three branches on RS in right tegmen and four ones in left tegmen, and narrow and rather long mirror in both tegmina (Fig. 27); hind wings with long exposed part (length of this part 4.7 mm) similar to tegminal apex in cross venation. Abdomen with simple tergites and sternites, however last tergite with a pair of rather short rounded lobes and small arcuate transverse fold (Fig. 35); epiproct oval; paraprocts narrowly triangular; cerci moderately short, with arcuate distal part having short apical hook, and with rather short ventromedial lobule (Figs 35, 36); genital plate as in Fig. 34; genitalia completely membranous.

Variations. Some paratypes with a pair of additional small brown spots on dorsum of vertex behind rostrum or with light brown stripes on vertex sometimes more distinct (slightly darker than in holotype) and partly fused with each other. Sometimes one tegmen or both tegmina with anterior branch of RA lost, and both tegmina with three or four branches on RS. Shape and size of cercal ventromedial lobule weakly varied.

Female unknown.

Length (mm). Body 16–19; body with wings 35–38; pronotum 3.8–4; tegmina 25.5–28; hind femora 18–20.

Comparison. The new species differs from *M. vivasi* Rehn, 1950 (Venezuela) and *M. minarum* Rehn, 1950 (Brazil) in the short spurs at the apex

of hind femora, smaller majority of spines of hind femora, and distinctly shorter proximal part of male cerci (from base to ventromedial lobule) which is not longer than the distance between cercal ventromedial lobule and cercal apex; and from *M. yuracare* Rehn, 1950 (Bolivia), in the absence of spines on the inner ventral keel of hind femora, much shorter spurs of hind femora, smaller majority of spines in hind femora and hind tibiae, and narrower mirror in male tegmina.

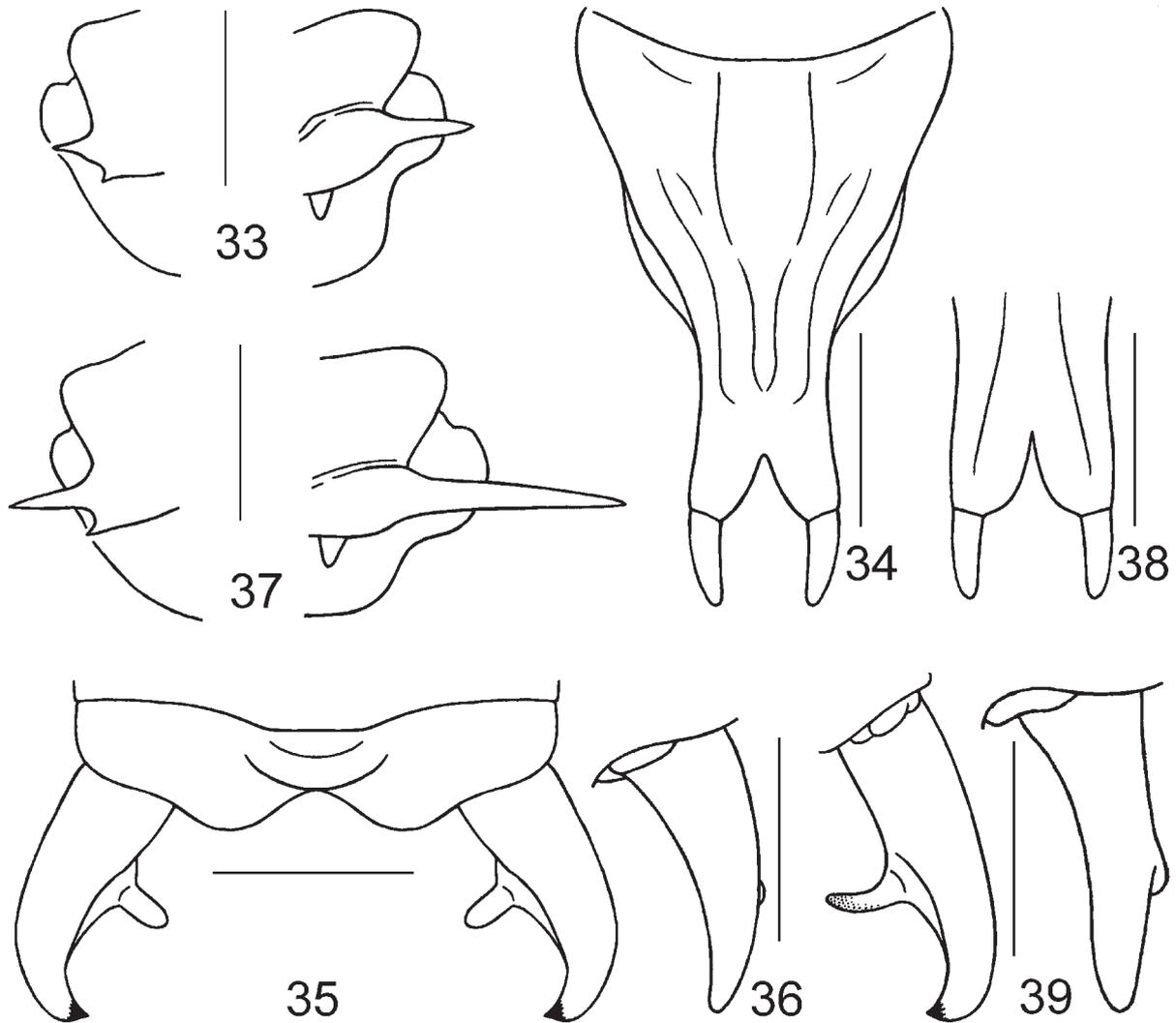
***Machimoides vivasi peru* subsp. nov.**

(Figs 30–32, 37–39)

Etymology. The name originates from Peru.

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. Gorochoy, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky. Paratype – male, same data as for holotype.

Description. *Male.* Coloration and structure of body similar to those of holotype of *M. rehni*, but distinguished by following characters: darkened stripes on upper rostral spine of head with longer dark brown part occupying distinctly more than half of general length of these stripes (only small part of these stripes near eyes light brown); vertex with a pair of additional dark longitudinal stripes on dorsum running from base of rostrum to area between hind edges of eyes (Fig. 31); pronotum with slightly darker (almost brown) anterior part of darkened band on lateral lobes and a pair of additional dark dots situated on disc more laterally than anterior pair of dark spots (Fig. 31); fore and middle femora with additional small dark mark on dorsal side of their basal part; majority of darkened spots on legs and tegmina somewhat darker; exposed part of hind wings with two darkish spots; upper rostral spine on head (Fig. 31) distinctly longer (higher); fore and middle femora with two apical spinules on both sides (however dorsal spinules clearly longer than in *M. rehni*; Fig. 37); hind femora with 7–8 spines on outer ventral keel (4–5 distal ones noticeably larger than in *M. rehni*) and a pair of much longer spurs (Figs 32, 37); hind tibiae with two pairs of proximal spines much larger (Fig. 32); tegmina with anterior branch of RA practically lost, with three branches on RS in both tegmina, and with mirror shorter and wider (Fig. 30); exposed part of hind wings longer (length of this part 6 mm); cerci slightly



Figs 33–39. *Machimoides* Rehn, male: 33–36 – *M. rehni* sp. nov.; 37–39 – *M. vivasi peru* subsp. nov. Apex of fore (inner view) and hind (outer view) femora with base of tibiae (33, 37); genital plate (34) and its distal part (38) from below; abdominal apex without genital plate from above (35); right cercus from side (36); right cercus from above and it from side (39). Scale bars 1 mm.

longer and with somewhat longer both proximal part (from base to ventromedial lobule) and ventromedial lobule (Fig. 39); genital plate with hardly narrower hind median notch (Fig. 38).

Variations. Paratype with anterior branch of RA distinct in one of tegmina and ventromedial lobule of cerci hardly shorter.

Female unknown.

Length (mm). Body 17.5–18.5; body with wings 40–41; pronotum 3.9–4.1; tegmina 27–28; hind femora 22–24.

Comparison. The new subspecies differs from *M. v. vivasi* stat. nov. in the male cerci having the somewhat shorter proximal part (from base to ventromedial lobule), longer ventromedial lobule and thicker apical part. It is useful also to compare the new subspecies with the other congeners, as I cannot exclude that it may be a separate species. It is distinguished from *M. minarum* by the same characters of male cerci and noticeably longer proximal spines of hind tibiae, and from *M. yuracare*, by the absence of spines on the inner ventral keel of hind femora, some-

what shorter spines in the middle part of hind tibiae, and male cerci less curved in profile.

Genus *Lichenomorphus* Cadena-Castañeda, 2011

***Lichenomorphus berezini* sp. nov.**

(Figs 40, 41, 44–51)

Etymology. The name is given in honor of entomologist Michail Berezin, one of collectors of this species.

Type material. Holotype – male, MEXICO: Chiapas (NE part of this state), Ocosingo Distr. near border with Guatemala, Selva Lacandona (between Montes Azules Biosphere Reserve and Bonampak Natural Monument), environs of Lacanja-Chansayab Vill., primary forest, at light, 20–27 May 2007, M. Berezin, E. Tkatsheva.

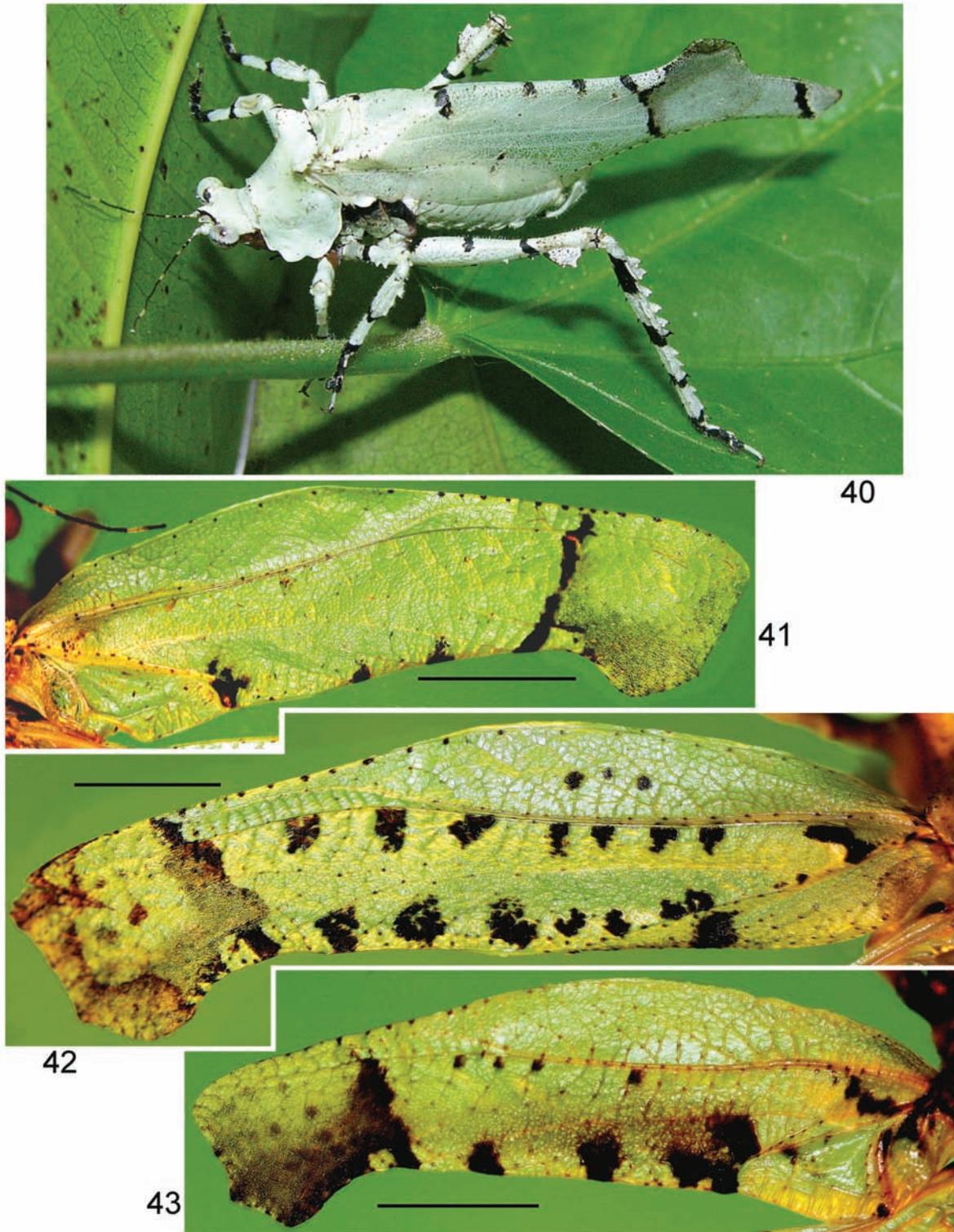
Description. *Male.* Coloration (Fig. 40) whitish with following marks: frontal half of epicranium light brown with brown genae and dark brown oblique stripes behind eyes separating genae from lighter dorsum; upper rostral tubercle with a pair of blackish stripes running from its apex to eyes (these stripes fused with each other apically, their subapical parts almost fused with each other anteriorly, and their middle parts situated along hind edge of lateral ocelli; Fig. 45); mouthparts (including clypeus) from dark brown to blackish; antennal flagellum in short basal part with small dark spots and distad with rather long dark areas interrupted by short light interspaces (middle and distal parts of flagellum missing); pronotum with several dark dots on lateral parts of hind lobe, one small blackish spot on each of these parts, and one similar spot at middle of hind edge of this lobe; tegmina with blackish oblique stripe on distal part and three small spots along anal edge, dark dots along lateral edge of dorsal field and along distal half of costal edge, grayish (rather light) area on anal half of subapical part, and transparent membranes of stridulatory apparatus (Figs 41, 44); hind wings with rather short blackish oblique stripe near apex of costal lobe and transparent majority of membranes (excepting distal part of costal lobe exposed behind tegmina in rest position; Fig. 40); legs (Figs 40, 46, 47) with dark marks on coxae, light brown proximal half of fore femora, blackish rings at middle of middle femora and of fore and middle tibiae, blackish marks on hind femora (two basal spots fused with each other laterally, two small ones not far from them, one

ring on distal part, and large spot occupying ventral surface of a pair of strongly widened subapical spines and ventral area between them; dorsal surface of latter spines weakly darkened) and on hind tibiae (one large spot occupying ventral surface of two pairs of widened subbasal spines and all areas under them, one similar spot situated near middle of tibiae and having narrow transverse stripe connected lateral parts of this spot dorsally, and one ring not far from tibial apex), and dark both apical part of all tibiae and most part of all tarsi (excepting middle part of apical tarsomeres); rest of thorax with very dark sternites and with almost blackish visible parts of prothoracic pleurite and upper half of other pleurites; abdomen with very dark sternites and proximal part of genital plate, and with brown hooks of cerci (Figs 48–51). Upper rostral tubercle not high, short (narrow and almost conical in profile), with additional anteroventral denticle (Fig. 45). Pronotum with moderately narrow (in profile) and non granulate lateral part of hind lobe. Tegmina as in Figs 40, 41; exposed part of hind wings about 5.5 mm in length. Legs typical of this genus (see Cadena-Castañeda 2011), but fore femora with high dorsal and ventral keels, tympanal region of fore tibiae strongly widened, and flattened spines of middle legs moderately large (Figs 46, 47). Last abdominal tergite with almost straight hind edge; epiproct medium-sized, almost triangular (but with rounded apex) and directed downwards; paraprocts smaller, more or less rounded; cerci with rather thick and very short proximal part and two thin processes distad (medial process long, almost straight and with small hook at apex; lateral process short, but with very long hook; latter hook narrow, arcuate, heavily sclerotized, contacting by its middle part with dorsal surface of previous process and not reaching hook of this process; Figs 49, 50); genital plate (Figs 48, 51) divided into a pair of movable halves by very deep median notch; these halves long, narrowing in middle part and characteristically widened in distal part; styles lamellar, elongate and strongly widened; genitalia membranous.

Female unknown.

Length (mm). Body 18; body with wings 33; pronotum 4.6; tegmina 23; hind femora 10.6.

Comparison. The new species is most similar to some species having a long hook on the short lateral process of male cerci, but distinguished from them by the following characters: from *L. fuscifrons* (Brunner-Wattenwyl, 1878) (Mexico), by lighter face of epicra-



Figs 40–43. *Lichenomorphus* Cadena-Castañeda: 40, 41 – *L. berezini* sp. nov., male; 42 – *L. sinyaevi* sp. nov., female; 43 – *L. oscari* sp. nov., male. Holotype in living condition (40); right (41) and left (42, 43) tegmen. Scale bars 5 mm.

nium, clearly longer medial process of male cerci, and distinctly longer styles of male genital plate; from *L. ypsilon* (Piza, 1951) and *L. nigrosignatus* (Costa Lima et Guitton, 1961) (Brazil), by the narrower hook on the lateral process of male cerci, and distal part of male genital plate distinctly more widened; from *L. montealegrezi* Cadena-Castañeda, 2011 (Colombia), by the lighter face of epicranium, longer styles of male genital plate, and much longer medial process of male cerci. From all the other congeners, the new species differs in the smooth (not punctuate) face of epicranium and longer dark oblique stripe on the distal tegminal part [from *L. punctifrons* (Brunner-Wattenwyl, 1878) (Brazil)], in the same character of tegminal coloration and distinctly higher dorsal and ventral keels of fore femora [from *L. nigriventer* (Piza, 1981) (Brazil)], and in the clearly shorter hook on the lateral process of male cerci and distinctly longer or wider styles of male genital plate [from rest congeners (see Eades et al. 2011)].

***Lichenomorphus sinyaei* sp. nov.**
(Figs 42, 52–56)

Etymology. The name is given in honor of entomologist Victor Sinyaev, collector of this species.

Type material. Holotype – female, MEXICO: Oaxaca, 27 km NE of Huatulco Town, Finca Monte-Carlo, 15°59.6'N, 96°06.3'W, 890 m, at light, 26 August – 3 September 2011, V. Sinyaev.

Description. *Female.* Coloration and structure of body similar to those of *L. berezini* sp. nov., but distinguished by following characters: frontal half of epicranium whitish with yellowish (probably greenish in living condition) tinge, separated from dorsum by weakly distinct light brown oblique stripe with not large dark brown spot at lower (hind) end; blackish stripes of upper dorsal tubercle interrupted near posterodorsal part of lateral ocelli (Fig. 52); clypeus and upper part of mandibles light brown with small darker marks; maxillary palpi with sparse light spots; antennae with numerous more or less small dark and darkish spots on flagellum; tegmina with greenish tinge, clearly more numerous dark spots and dots, lighter (partly grayish) distal oblique stripe, and grayish area on both apical part and anal half of subapical part (Fig. 42); outer surface of fore femora with only large light brown spot near middle (Fig. 55); hind femora with two blackish basal spots isolated from each other and with light ventral surface of a

pair of strongly widened subapical spines and ventral area between them (other marks of these femora as in *L. berezini* sp. nov.); all tarsi with light dorsal spot on each of three proximal segments; prothoracic pleurites with small light spots; other pleurites with light parts larger than in *L. berezini* sp. nov.; all sternites light brown with darker areas; cerci light with large brown spot on ventromedial part; upper rostral tubercle distinctly longer (wider and not conical in profile; Fig. 52); fore legs distinctly longer (more slender) and with tympanal region less widened (Fig. 55); middle legs with flattened spines clearly larger and having additional lobule on some of these spines (Fig. 56). Abdominal apex (middle part of abdomen damaged) typical of female of Dysoniini, but genital plate light brown with darker lateroproximal parts, and ovipositor yellowish with greenish tinge and dark brown marks at base; shape of these structures as in Figs 53, 54.

Male unknown.

Length (mm). Body with wings 44; pronotum 5; tegmina 31; hind femora 14; ovipositor 6.5.

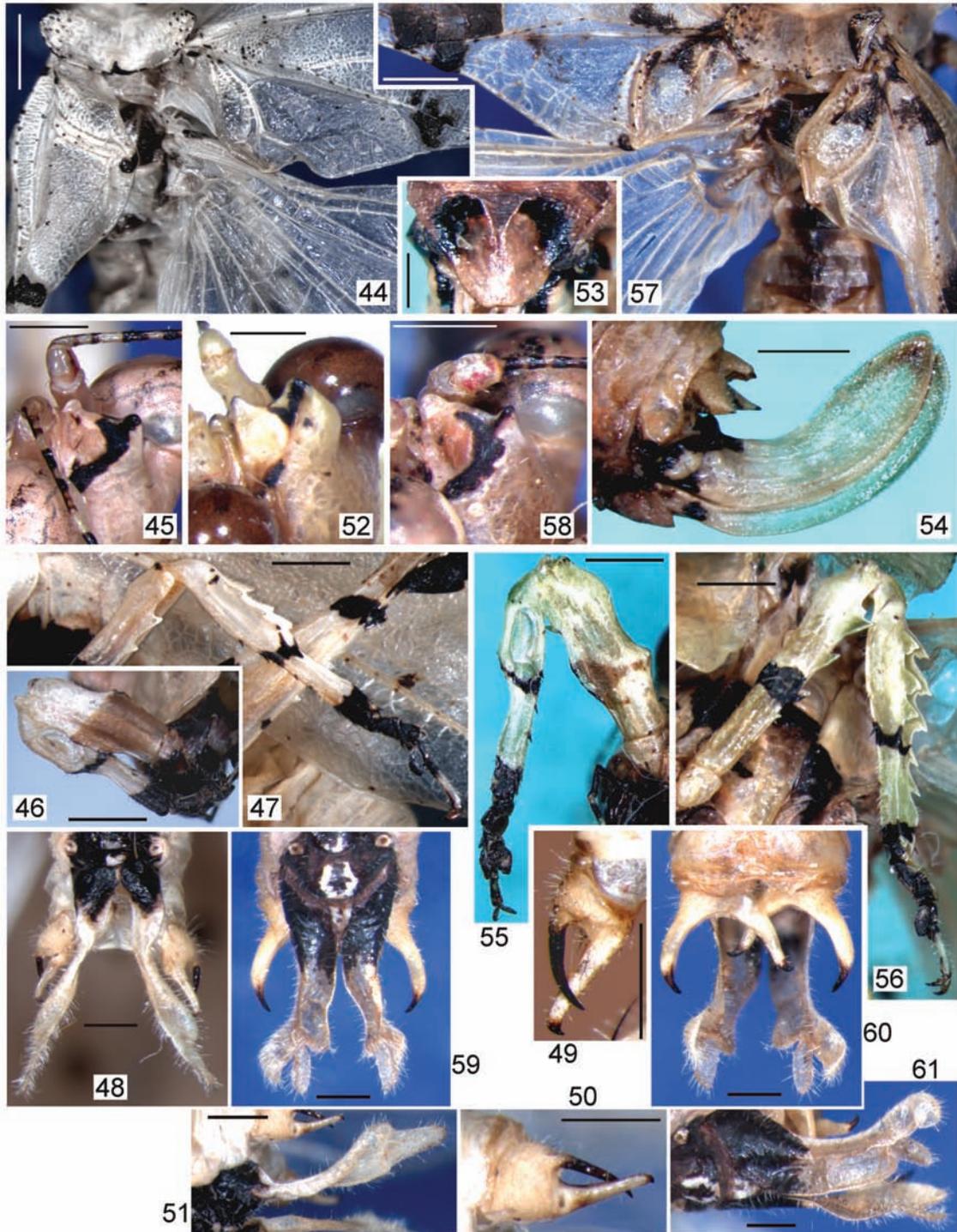
Comparison. The new species is most similar to *L. fuscifrons*, but distinguished by the light frontal part of epicranium, more numerous dark spots on radial and interradial areas of tegmina, and clearly longer upper rostral tubercle. From *L. berezini* sp. nov., it differs in the characters listed in its description, and from all the other congeners, in the clearly more numerous dark spots of tegmina and longer upper rostral tubercle, as well as some additional characters: smooth frontal part of epicranium, lighter coloration of ventral surface of widened subapical spines of hind femora, comparatively low (moderately narrow in profile) lateral parts of hind pronotal lobe, rather high keels of fore femora, or large spines of middle legs.

***Lichenomorphus oscari* sp. nov.**
(Figs 43, 57–61)

Etymology. The name is given in honor of entomologist Oscar Cadena-Castañeda, author of this genus.

Type material. Holotype – male, PERU: Junin Department, Satipo Prov., environs of Satipo Town near waterfall, ~800 m, partly primary / partly secondary forest, at light, 4–5 November 2008, A. Gorocho, M. Berezin, L. Anisyutkin, E. Tkatsheva, V. Izersky.

Description. *Male.* Coloration and structure of body similar to those of *L. berezini* sp. nov., but with



Figs 44–61. *Lichenomorpha* Cadena-Castañeda: 44–51 – *L. berezini* sp. nov., male; 52–56 – *L. sinyaevi* sp. nov., female; 57–61 – *L. oscari* sp. nov., male. Hind part of pronotum and stridulatory apparatus of tegmina from above (44, 57); rostrum of head from side and slightly from above (45, 52, 58); fore (46, 55) and middle (47, 56) legs from side; abdominal apex from below (48, 59) and from above (60); left cercus from above (49) and from side (50); male genital plate from side and slightly from below (51, 61); female genital plate from below (53); ovipositor from side (54). Scale bars: 2 mm for Figs 44, 46, 47, 54–57; 1 mm for Figs 45, 48–53, 58–61.

following differences: frontal half of epicranium under eyes, under antennal cavities and under lower rostral tubercle blackish; upper rostral tubercle with longer anterior (subapical) tongue of each blackish stripe (Fig. 58); antennae with flagellum approximately as in *L. sinyaevi* sp. nov.; pronotum with additional blackish stripe along posterolateral edges of hind lobe (Fig. 57); tegmina with larger dark spots and wider and oblique stripe, almost grayish brown anal half of subapical and apical parts, and some additional marks (dark spots on basal part of tegmina and dots along stridulatory vein of upper tegmen, smaller darkish spots along R+RA in middle tegminal part, and slightly darkened area situated along MA; Fig. 43); proximal half of fore femora dark brown; hind femora with only three blackish spots (basal spot, large subapical spot consisting of ventral areas on widened subapical spines fused with ventral area between them and ring near these spines, and distinct apical spot); meso- and metathoracic pleurites blackish with rather small light lower area; stridulatory apparatus with slightly larger mirror lacking veinlets in both tegmina (Fig. 57); last tergite with hardly sinuate hind edge; cerci with processes directed in different sides (not toward each other and not parallel) and having short heavily sclerotized hooks (Fig. 60); genital plate with distinctly wider middle part of lateral halves, characteristic lobule at posterolateral corner of each lateral lobe, and hardly shorter styles (Figs 59, 61).

Female unknown.

Length (mm). Body 17.5; body with wings 32; pronotum 4.7; tegmina 23; hind femora 10.4.

Comparison. The new species is most similar to *L. paulistanus* (Costa Lima et Guitton, 1961) in the processes of male cerci directed in different sides (not towards each other) and with the both heavily sclerotized apical hooks short, but distinguished by the much wider interspace between these processes in each cercus and presence of elongate posterolateral lobule on each lateral lobe of male genital plate. From *L. carlosmendesii* (Piza, 1950), the new species differs in the same characters and absence of numerous small denticles at the apex of medial process of male cerci; from *L. nigrosignatus*, *L. punctifrons*, *L. ypsilon*, *L. berezini* sp. nov. and *L. montealegrezi*, in the heavily sclerotized hook of lateral process of male cerci short and directed in different side than proximal process of these cerci (not towards it or not parallel to it); from *L. fuscifrons*, in the dark stripe on distal

tegminal part less oblique, heavily sclerotized hook of lateral process of male cerci clearly shorter, and styles of male genital plate distinctly shorter; from *L. ocraceithorax* (Piza, 1951), in the same character of male genital plate, and lateral parts of hind pronotal lobe less high and non granulate; from *L. nigriventer*, in the dark face of epicranium, dark spots on tegmina distinctly larger, and keels of fore femora clearly higher; and from *L. sinyaevi* sp. nov., in the ventral surface of strongly widened subapical spines of hind femora much darker, dark spots along R+RA in tegmina less numerous and less large, upper rostral tubercle shorter (narrower in profile), and flattened spines of middle legs smaller and lacking any additional lobule.

Genus *Dysonia* White, 1862

Dysonia pardalis sp. nov.

(Figs 62–67)

Etymology. The name originates from *Felis pardalis* (Mammalia) in connection with the spotted coloration.

Type material. Holotype – male, PERU: Ucayali Department, 11 km from Puerto Bermudes, 10°29.9'S, 75°03.1'W, 713 m, at light, 10–12 March 2011, V. Sinyaev, A. Poleschuk.

Description. *Male.* Coloration whitish with greenish tinge and following marks: epicranium with black stripes of upper rostral tubercle similar to those of *L. berezini* sp. nov. (but without anterior subapical tongues; Fig. 62), blackish ventral and ventromedial edges of antennal cavities as well as almost horizontal narrow stripe contacted with each of these edges and each eye from below, wider black longitudinal band running from hind part of this stripe and from lower half of eye, small dark brown median spot on hind part of vertex, and lighter (from brown to light brown) upper part of epicranial face; antennae with black lateral half of scape, almost completely black second and third segments, and numerous brownish and blackish spots on rest of flagellum; mouthparts with dark apical marks on majority of structures and a few small dark spots on palpi; pronotum with small dark brown anteromedian spot and three pairs of small blackish strokes on edges of hind pronotal lobe; tegmina with rather numerous darkish and dark brown spots as well as not numerous darkened dots situated as in Fig. 63, but stridulatory areas of lower tegmen partly transparent (Fig. 64); coloration of hind wings

similar to that of *L. berezini* sp. nov., however with three (not two) smaller dark spots and a few darkish dots on distal part of costal lobe; legs with two basal segments partly dark brown and other segments having black and blackish areas [fore femora with partly black proximal half and small blackish dorsal spot in distal half; middle femora with black middle ring and inner proximal spot near it (latter spot almost ring-like and fused with middle ring on inner surface; fore and middle tibiae with two black areas (apical area and middle ring) and blackish tympanal membranes; hind femora with three large black spots (basal spot, subapical spot occupying dorsal surface of strongly widened subapical spines as well as lateral and dorsal areas between them, and wide ring situated very near latter spot and more proximally than this spot) and three smaller ones in proximal half; hind tibiae with black apical part and three more proximal rings; all tarsi blackish with light dorsal spots on two proximal segments and light middle part of lateral and dorsal surfaces of distal segment]; rest of thorax with blackish most part of pro- and mesothoracic sternites as well as of pro- and metathoracic pleurites (but lower part of these pleurites light), large blackish areas on upper half of mesothoracic pleurite, and dark brown spots on metathoracic sternite; abdomen with sternites partly darkened, brown spot on each lateral part of fifth tergite, blackish areas on lower parts of ninth and tenth tergites, on proximal two thirds of genital plate, on ventroproximal part of cerci, and on apical part of their processes (Figs 65–67). Upper rostral tubercle similar to that of *L. berezini* sp. nov., but lower (shorter) and with smaller anteroventral denticle (Fig. 62). Pronotum with almost round lateral lobes, non sinuate ventral edges of this lobe, and lamellar hind lobe (almost as in Fig. 69). Structure of tegmina as in Figs 63, 64; hind wings more or less similar to those of *L. berezini* sp. nov. Legs and abdomen distinguished from those of this species by fore femora without dorsal keel and with inner ventral keel low, middle legs with flattened spines only on femora and without any dorsal spines on tibiae (excepting inner apical one), hind tibiae with all dorsal spines weakly widened, cerci as in Figs 65–67, and genital plate much shorter and narrowing to apex as well as with small hind median notch and thin (cylindrical) styles (Fig. 66).

Female unknown.

Length (mm). Body 13.5; body with wings 33; pronotum 3.5; tegmina 25; hind femora 10.2.

Comparison. The new species is most similar to *D. alipes* (Westwood, 1844) from Colombia in the shape of male cerci, but clearly distinguished by the tegmina much more spotted, inner process of male cerci distinctly wider, outer process of male cerci longer and having a small ventral denticle not far from apex, and hind part of male genital plate light, narrower and with longer styles. From *D. holgeri* Cadena-Castañeda, 2011 (Colombia), the new species differs in the same characters of coloration, distinctly wider apical hooks of cercal processes in male, much shorter hook of inner process of these cerci, absence of strong curvature of this process, and less deep notch at the apex of male genital plate; from *D. pirani* Costa Lima et Guitton, 1961 (Brazil), in the outer process of male cerci clearly shorter, inner one much longer, distal (narrow) part of male genital plate shorter, and apical notch of this plate less deep; and from *D. bridarollii* Costa Lima et Guitton, 1960 (described for only short winged female from Bolivia), in the distinctly more numerous dark spots on tegmina.

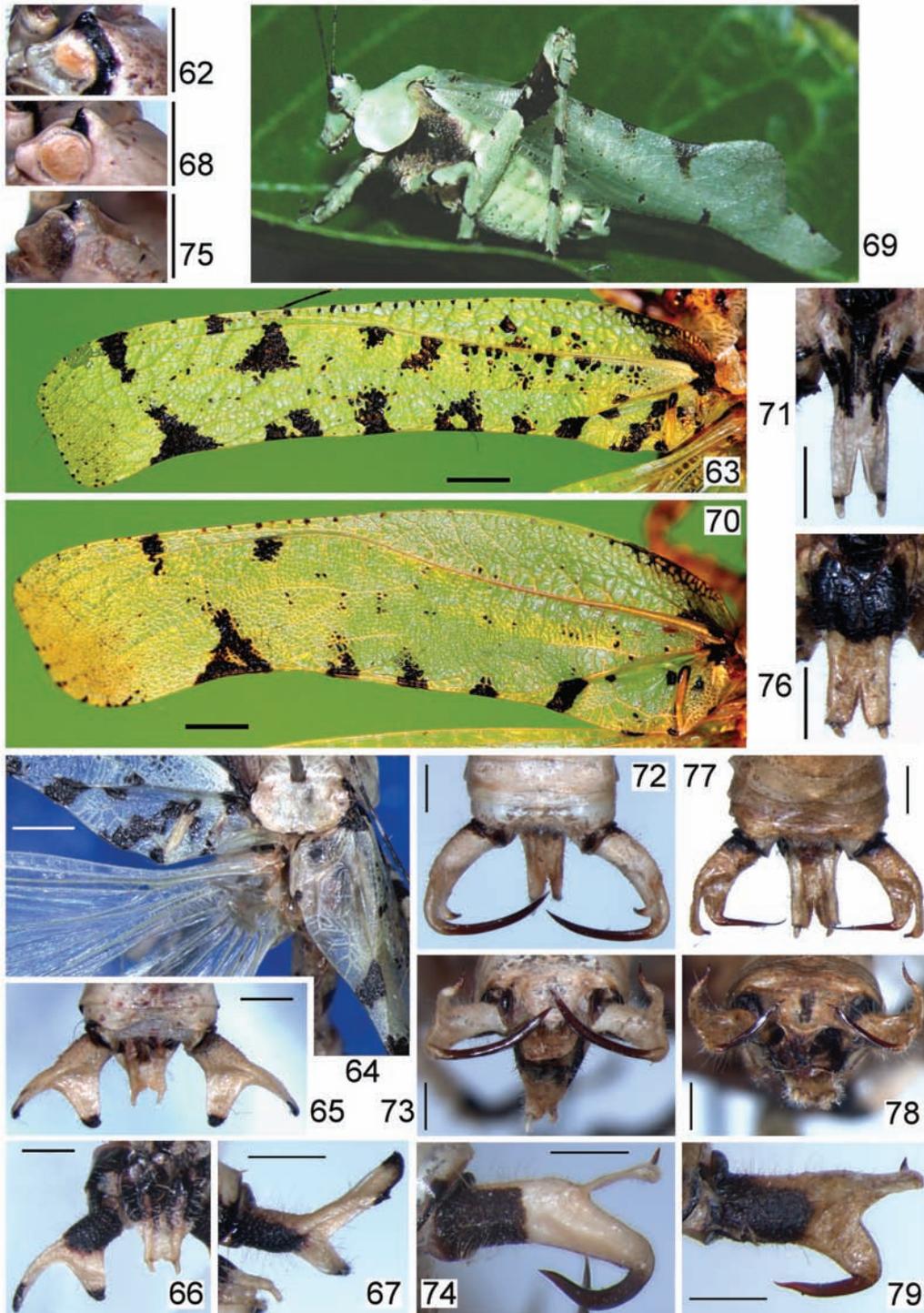
***Dysonia holgeri extensa* subsp. nov.**

(Figs 68–74)

Etymology. The name originates from the Latin “*extensus*” (distributed).

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: 20 males, same data as for holotype; 1 male, same department, 18 km from Satipo City, 11°30.4’S, 74°51.7’W, 588 m, at light, 21 December 2010, V. Sinyaev, S. Sinyaeva, V. Izersky; 1 male, same department, 9 km SW of San Ramon, 11°09.9’S, 74°25.3’W, 1150 m, at light, 9 March 2011, V. Sinyaev, A. Poleschuk; 1 male, Peru, Ucayali Department, 11 km from Puerto Bermudes, 10°29.9’S, 75°03.1’W, 713 m, at light, 10–12 March 2011, V. Sinyaev, A. Poleschuk.

Description. *Male.* Coloration of body (Fig. 69) similar to that of *D. pardalis* sp. nov., but upper rostral tubercle with only small blackish anteroapical spot (Fig. 68), labrum completely light, palpi with very small dark spots, dorsum of vertex with sparse reddish dots only, dark spots of pronotum very small, tegmina much less spotted (Fig. 70), hind wings with only two small brown spots on distal part of costal



Figs 62–79. *Dysonia* White, male: 62–67 – *D. pardalis* sp. nov.; 68–74 – *D. holgeri extensa* subsp. nov.; 75–79 – *D. h. cusco* subsp. nov. Rostrum of head from side and slightly from above (62, 68, 75); left tegmen (63, 70); hind part of pronotum and stridulatory apparatus of tegmina from above (64); abdominal apex from above (65, 72, 77) and from behind (73, 78); abdominal apex without left part from below (66); left cercus from side and slightly from below (67, 74, 79); paratype in living condition (69); genital plate from below (71, 76). Scale bars: 1 mm for Figs 62, 65–68, 71–79; 2 mm for Figs 63, 64, 70.

lobe, legs with completely light fore femora and almost completely light tympanal membranes as well as with only one dark dorsal spot between two largest dark spots (basal and subapical) on hind femora, rest of thorax with light lower areas on pleurites larger and sternites lighter (prothoracic sternite dark brown, and meso- and metathoracic ones light with brown spots), and abdomen with completely light tergites and only a few blackish spots on proximal half of genital plate (Fig. 71) as well as with wide blackish ring on proximal part of cerci (this ring very narrow on medial side) and dark brown hooks of cercal processes (Figs 72–74). Structure of body also similar to that of *D. pardalis* sp. nov., however upper rostral tubercle shorter (= narrower in profile, but not lower; Fig. 68), pronotal lobes with ventral edge slightly sinuate (Fig. 69), shape and venation of tegmina as in Fig. 70, proximal half of middle tibiae slightly inflated and having dorsal keels somewhat sinuate and provided with thin spines, cerci distinguished from those of nominotypical subspecies only by lateral (upper) cercal process more strongly S-shaped and hook of medial (lower) cercal process arcuate (not more or less straight), and genital plate distinguished from that of this subgenus by styles clearly shorter than notch between them (Figs 71–74).

Variations. Tegmina of lighter specimens without one, two or three dark spots along middle part of anal edge and with very small darkish spot in proximal half of interradial area; in darkest specimens, tegmina with five dark spots along anal edge, a few smaller ones along R+RA, and dark oblique stripe formed by fusion of two distal spots with each other), and hind wings sometimes with dark transverse stripe instead smaller distal spot.

Female unknown.

Length (mm). Body 14–18; body with wings 33–37; pronotum 4.5–5; tegmina 25–28; hind femora 11.5–13.5.

Comparison. The new subspecies is distinguished from nominotypical one by the inner spine-like hook of male cerci arcuate, outer hook of these cerci more strongly S-shaped, and styles of male genital plate shorter. I cannot exclude that this taxon may be a separate species close related to *D. holgeri*. Also, it is necessary to note that Costa Lima and Guitton (1961: Figs 1, 2) pictured the male cerci and male genital plate similar to those of *D. holgeri* as belonging to *Valna lamellipes* (Bruner, 1915), a Bolivian species including by Cadena-Castañeda (2011) in

the subgenus *Dissonulichen* Cadena-Castañeda, 2011 of the genus *Valna* Walker, 1869; these structures differ from those of *D. holgeri* (including *D. h. extensa* subsp. nov.) only in the less narrow (not spine-like) hook of inner cercal process, somewhat deeper apical notch of genital plate, and longer styles of this plate.

***Dysonia holgeri cusco* subsp. nov.**

(Figs 75–79)

Etymology. The name originates from Cusco Department of Peru.

Type material. Holotype – male, PERU: Cusco Department, 10 km N of Marcapata, 13°25'S, 70°54.3'W, 1265 m, at light, 7–8 December 2010, V. Sinyaev, S. Sinyaeva, Yu. Bezverkhov. Paratypes: 3 males, same department, 7 km NE of Mandor, 13°18.7'S, 70°49.5'W, 890 m, at light, 1–3 December 2010, V. Sinyaev, S. Sinyaeva, Yu. Bezverkhov.

Description. *Male.* Coloration and structure of body very similar to those of *D. h. extensa* subsp. nov., however with following differences: upper rostral tubercle distinctly lower (shorter; Fig. 75); spines on outer dorsal keel of middle tibiae slightly widened and flattened; medial (lower) cercal process distinctly shorter and with somewhat shorter and narrower spine-like apical hook (this hook less arcuate, but its apical part weakly S-shaped); lateral (upper) cercal process somewhat less S-shaped (Figs 77–79); genital plate with slightly less deep hind median notch, clearly shorter styles, and almost completely dark proximal half (Fig. 76).

Variations. Structure of outer dorsal spines of middle tibiae intermediate between those in holotype and in *D. h. extensa* subsp. nov.; length of genital plate styles varied from that of holotype to that of *D. h. extensa* subsp. nov.; coloration of this plate lighter than in holotype (dark area smaller or divided into a few not large spots).

Female unknown.

Length (mm). Body 17–19; body with wings 34–36; pronotum 4.3–4.7; tegmina 24–26; hind femora 12.5–13.5.

Comparison. The new subspecies is very similar to *D. h. holgeri* stat. nov., but distinguished by the upper rostral tubercle somewhat more projected, lateral (upper) process of male cerci more strongly curved upwards, spine-like apical hook of medial (lower) process of these cerci shorter, and styles of male genital plate more or less smaller. The new subspecies

differs from *D. h. extensa* subsp. nov. in the characters of rostrum and male cerci listed in its description.

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