

New and Little Known Crickets of the Subfamily Phalangopsinae (Orthoptera, Gryllidae): 5. Neotropical Taxa of the Tribe Paragryllini

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Abstract—One new genus, two new subgenera, and eight new species from Ecuador, Brazil, and Venezuela are described. The former genus *Hattersleya* Nischk et Otte is considered as a subgenus of the genus *Neoacla* Des. *Acla multivenosa* Chop., *A. reticulata* Chop., *A. vicina* Chop., *Selvacla choreutes* Otte, *S. salvator* Otte, *S. alsiosus* Otte, and *S. sophos* Otte are transferred to the genus *Neoacla*, and *Desutteria epiplatys* Nischk et Otte, to the genus *Silvastella* Des.-Gr. New data on the geographical and ecological distribution of some species are given.

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The 5th communication of a series of publications on the systematics of Phalangopsinae, similarly to the preceding communication (Gorochov, 2007), deals with the Neotropical representatives of the subfamily. The study is based on examination of the material from the collections of the Zoological Institute, Russian Academy of Sciences, St. Petersburg (ZIN), the Natural History Museum, London (NHM), and the Museum and Institute of Zoology, Polish Academy of Sciences, Warsaw (MIZ).

TRIBE PARAGRYLLINI

In the recently published paper dealing with Mexican spider-like crickets (Gorochov, 2007), the former tribes Paragryllini, Rumeini, Benoistellini, and Neoacolini (Desutter-Grandcolas, 1992a) were combined in one tribe Paragryllini Desutter, 1988 on the basis of the structure of the distal area of the ovipositor: the area is slightly widened (in lateral view) before the apex, pointed apically, and provided with a peculiar subapical lobe on the dorsal valves. This lobe entirely or almost entirely conceals laterally the subapical part of the lower valves but retains their apical area open (Figs. 1, 4, 8; 2, 3, 3, 4, 11, 15; 4, 8, 9). The male genitalia in these groups are rather diverse, but can be easily traced from the relatively simple genitalia characteristic of the genera *Mikluhomaklaya* Gor. and *Brevizacla* Gor. from New Guinea (also included by Gorochov in this tribe). Thus, the tribe Paragryllini sensu Gorochov, 2007 comprises the following genera:

Paragryllus Guer.-Men., *Ectecous* Sauss., *Laranda* Sauss., *Benoistella* Uv., *Neoacla* Des., *Rumea* Des., *Silvastella* Des.-Gr., *Mexiacla* Gor., *Oaxacla* Gor., and the two mentioned genera from New Guinea. In addition, *Strogulomorpha* Des. and *Loretana* Des.-Gr. (e.g., part of the former tribe Strogulomorphini) and also *Apteracla* gen. n. are included here in this tribe. Some other genera of the subfamily Phalangopsinae, whose ovipositors have been described insufficiently fully, may also belong to this tribe.

GENUS *NEOACLA* DESUTTER, 1988

Type species of *N. loiselae* Desutter, 1988 (Peru).

Diagnosis. Body medium-sized; legs long; rostrum between antennal cavities 0.55–0.62 times as wide as scape; oval tympanum present only on inner side of fore tibia. Tegmina of male moderately or strongly shortened; stridulatory apparatus well developed; stridulatory vein arcuate; oblique veins rather numerous and partly arcuate (approximate and rather ill-defined in dorsal tegmen); diagonal vein short and slightly arcuate; mirror rather large, crossed by numerous, obliquely arcuate cross-veins; chords of normal structure (Fig. 5, 1, 2). Tegmina of female in form of fine lateral scales entirely or almost entirely concealed dorsally by pronotum. Anal plate of male simple, with rounded or roundly truncate apex; genital plate of male weakly to strongly elongate, with rounded or nearly truncate apex. Male genitalia (Figs. 1, 1–3, 5–7, 9, 10; 2, 1, 2, 4, 5) with V-shaped

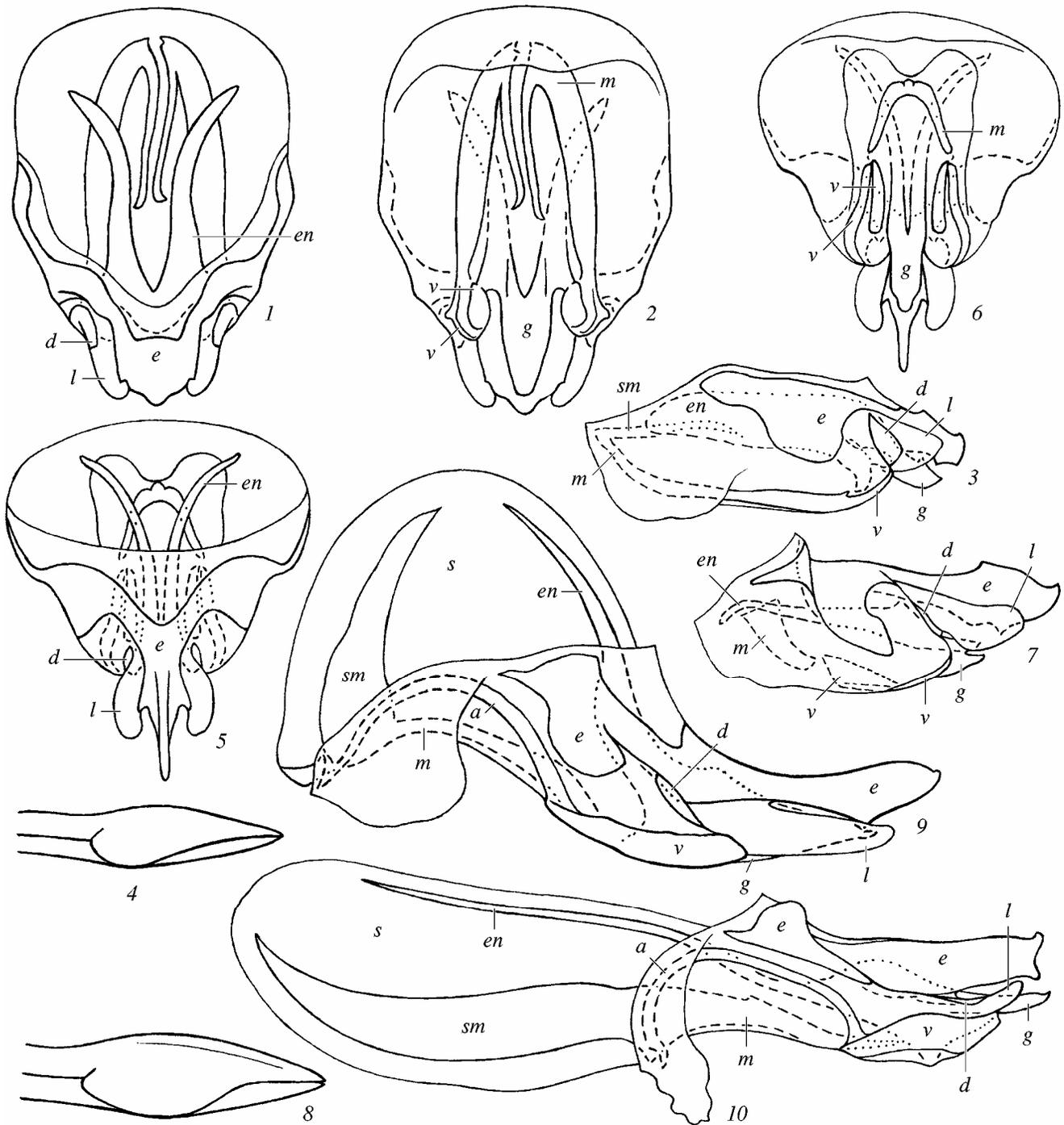


Fig. 1. *Neoacla* (*Neoacla*) *loiselae* Des. (1–4); *N. (Hattersleya) clandestina* (Nischk et Otte) (5–8); *N. (Superacla) ecuadori* sp. n., holotype (9), *N. (S.) longisacculus* sp. n. (10) [(1, 5) male genitalia, dorsal view; (2, 6), ventral view; (3, 7, 9, 10), lateral view; (4, 8) distal area of ovipositor, lateral view].

epiphallus (*e*) and short rami not isolated from epiphallus; ectoparameres almost undeveloped; instead of ectoparameres, sides of epiphallus with elongate membranous lobes (*l*) bearing basally small ectoparameral sclerites: 1 dorsal pair (*d*) and 1–2 ventral

pairs (*v*); these sclerites usually fused or articulated with posterior lateral arms of endoparameres (*en*) and, frequently, also with elongate lateral sclerotizations of mold of spermatophore attachment plate (*m*) or with additional sclerotized ribbons (*a*) separated from latter

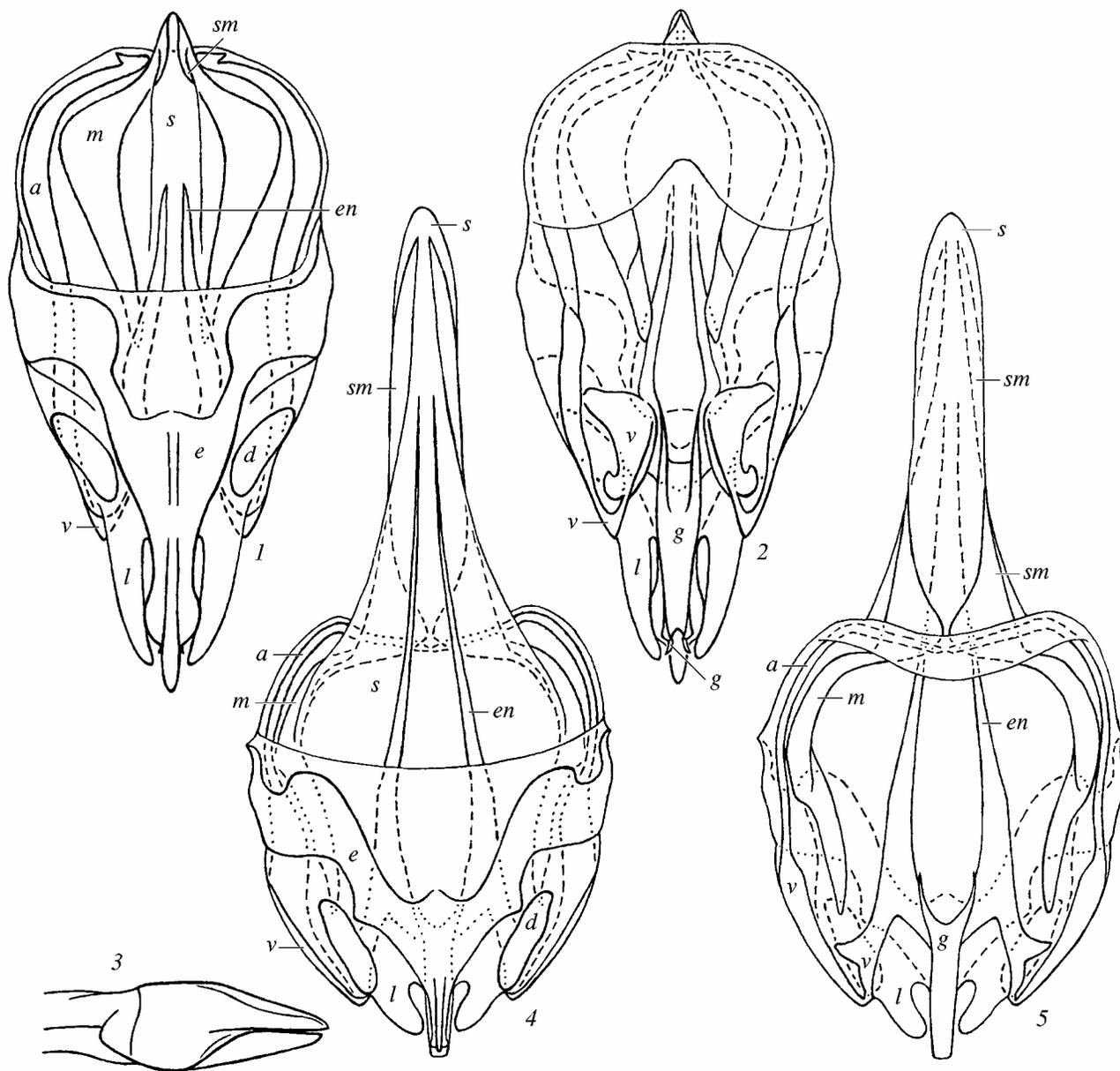


Fig. 2. *Neoacla* (*Superacla*): *N. ecuadori* sp. n., holotype (1–3), *N. longisacculus* sp. n. (4, 5) [(1, 4) male genitalia, dorsal view; (2, 5) male genitalia, ventral view; (3) distal area of ovipositor, lateral view].

sclerotizations; posterior part of endoparameres more or less rigidly connected with moderately large and sulciform guiding rod (g); anterior (proximal) parts of endoparameres long but not widened; spermatophore sac (s) small or large. Ovipositor long, with smooth distal area, distinctly compressed (Fig. 1, 4, 8; 2, 3).

Composition. Three subgenera: nominotypical subgenus including the type species of the genus (Fig. 1, 1–4) and *Acla vicina* Chopard, 1956 from Peru; *Hattersleya* Nischk et Otte, 2000, stat. n. includ-

ing only *H. clandestina* Nischk et Otte, 2000 from Ecuador (Fig. 1, 5–8); *Superacla* subgen. n with two new species (Figs. 1, 9, 10; 2, 1–5). In addition, the following species should also be placed in the genus *Neoacla*: *Acla multivenosa* Chopard, 1937 from Costa Rica, *A. reticulata* Chopard, 1956 from Peru, and *Selvacla choreutes* Otte, 2006, *S. salvator* Otte, 2006, *S. alsiosus* Otte, 2006, and *S. sophos* Otte, 2006 from Costa Rica. The male genitalia in all these species have not been examined enough to determine to which subgenus these species belong. All the species

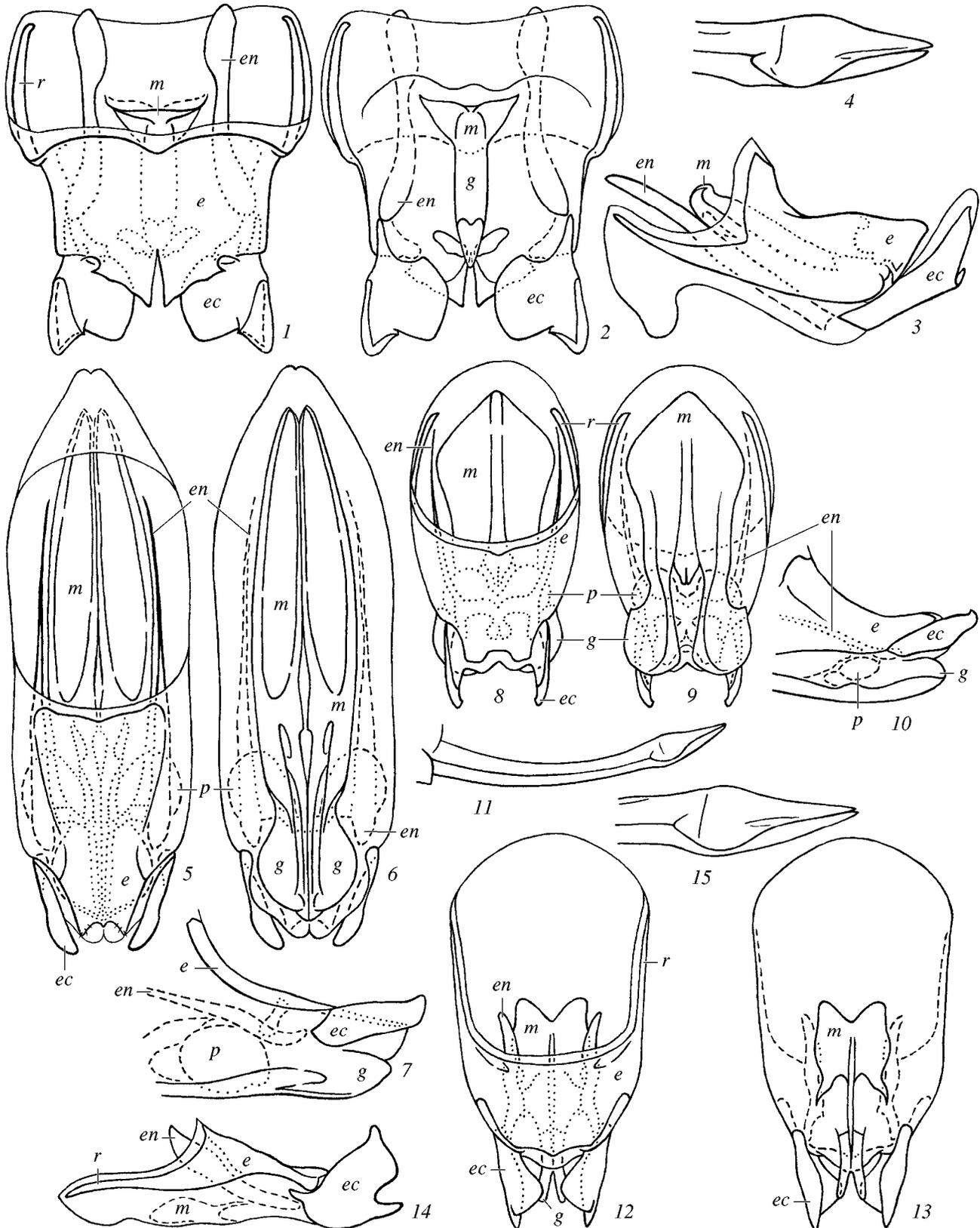


Fig. 3. *Apteracla*, *Strogulomorpha*, and *Loretana*: *A. rafaeli* sp. n. (1–4), *S. aequatorialis* sp. n. (paratype) (5–7), *S. sympatricus* sp. n. (8–11), *L. transversalis* sp. n. (12–15) [(1, 5, 8, 12) male genitalia, dorsal view; (2, 6, 9, 13) male genitalia, ventral view; (3, 14) male genitalia, lateral view; (7, 10) distal half of male genitalia, lateral view; (11) ovipositor; (4, 15) distal area of ovipositor, lateral view].

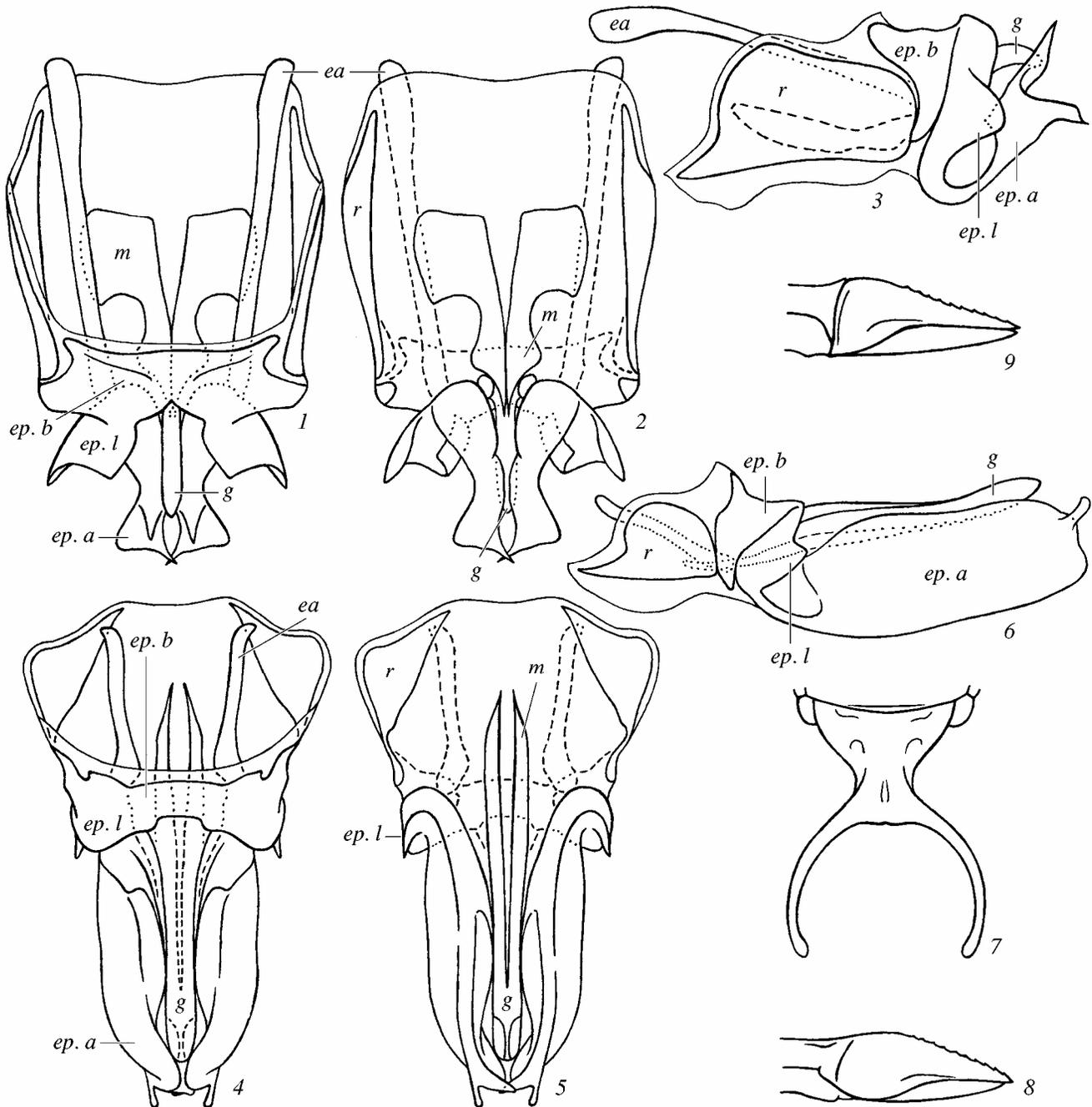


Fig. 4. *Paragrillus*, *Benoistella*, and *Silvastella*: *P. (Paragrillus) minutus* sp. n. (1–3), *P. (Aclogryllus) crybelos* Nischk et Otte (4–6), *B. lyra* sp. n. (7, 8), *S. epiplatys* (Nischk et Otte) (9) [(1, 4) male genitalia, dorsal view, (2, 5) male genitalia, ventral view; (3, 6) male genitalia, lateral view; (7) genital plate of male, ventral view; (8, 9) distal area of ovipositor, lateral view].

from Costa Rica are closely related to each other, and *N. multivenosa* and *N. choreutes* may be synonyms.

Notes. Some of the species described earlier in this genus were included by their author (Chopard, 1937, 1956) in the former genus *Acla* Heb. Later, the type species of this genus (*Heterogryllus crassicornis* Sauss.) was transferred to the former genus *Aclodes*

Heb., but without synonymization of these generic names logically following from this action (Desutter-Grandcolas, 1992b). Recently both these “genera” and also *Paraclodes* Des.-Grand were downgraded to subgenera of the genus *Uvaroviella* Chop. belonging to the tribe Phalangopsini (Gorochov, 2007). The genus *Selvacla* Otte probably includes only the type species,

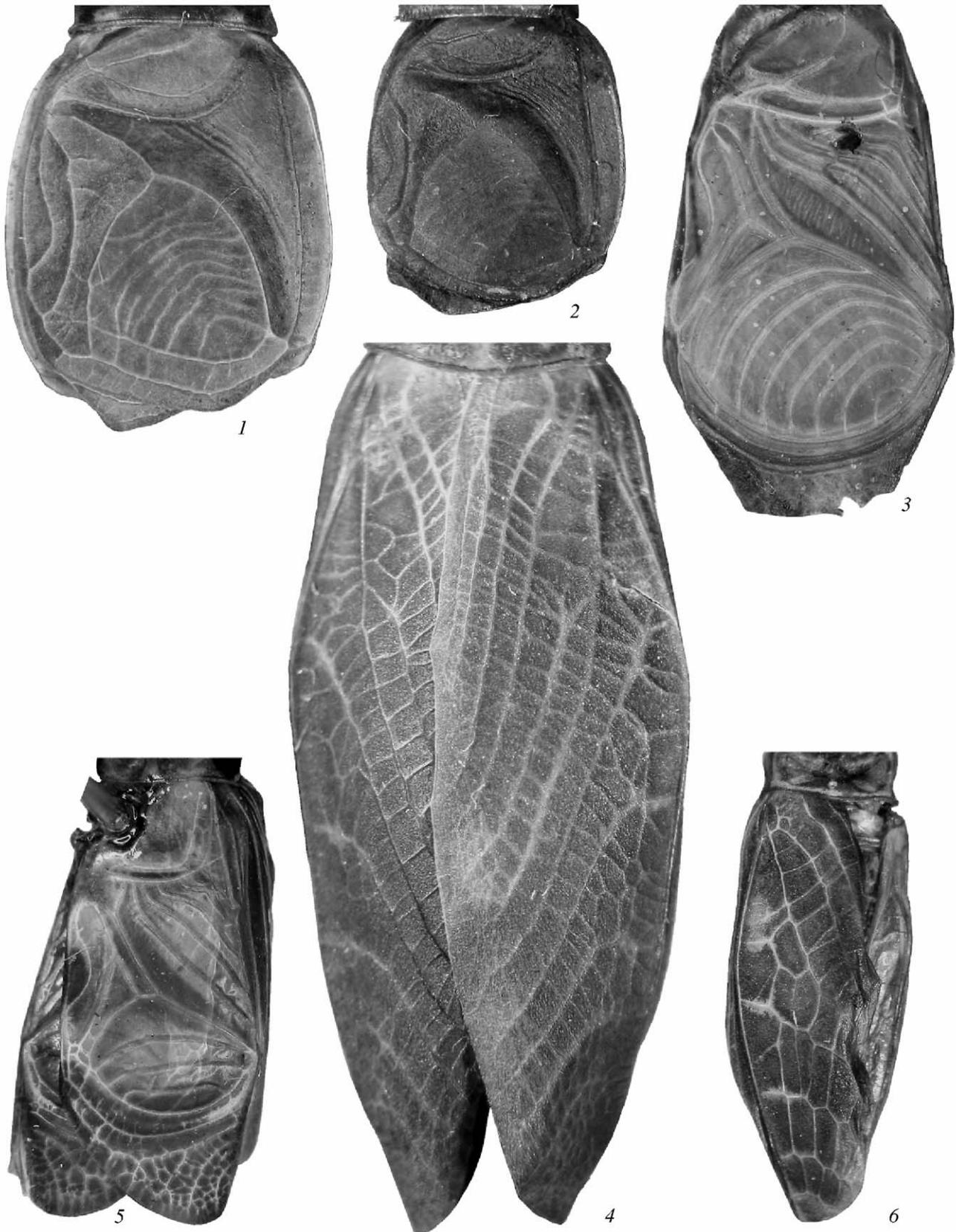


Fig. 5. Area of tegmina, dorsal view (photograph): (1) *Neoacla (Superacla) ecuadori* sp. n., male (paratype); (2) *N. (S.) longisacculus* sp. n., male; (3) *Paragrillus (Paragrillus) minutus* sp. n., male; (4) *P. (Aclogrillus) crybelos* Nischk et Otte, female; (5) *Benoistella lyra* sp. n., male; (6) *Silvastella epiplatys* (Nischk et Otte), female (right tegmen lost).

which, judging by the photographs given by its author (Otte, 2006 : fig. 76H, I), does not possess, in contrast to *Neoacla*, membranous lobes at the sides of the distal part of the epiphallus. The tribal position of the genus *Selvacla* is unclear. The other species included by Otte in *Selvacla*, the type species of *Neoacla* and *Hattersleya* (Desutter, 1988; Nischk and Otte, 2000), and also most species placed by Chopard in *Acla* belong to the tribe Paragryllini and are so closely related as to be placed in one genus.

SUPERACLA Gorochov, subgen. n.

Type species *Neoacla (Superacla) ecuadori* sp. n.

Diagnosis. The male genitalia are similar to those of the subgenus *Neoacla* s. str. in the presence of sclerotized areas connecting the mold of the spermatophore attachment plate with the ventral ectoparameral sclerites and in the characteristic elongate proximal sclerotizations of this mold (*sm*), situated in the lateral walls of the spermatophore sac (Figs. 1, 2, 3, 9, 10; 2, 2, 5). The male genitalia of *Superacla* differ from those of *Neoacla* in a distinct isolation of the lateral (additional) sclerotized ribbons from the mentioned mold; the ribbons are connected with the ventral ectoparameral sclerites, and the remaining part of the mold loses the sclerotized connection with the other structures (cf. Fig. 1, 2, 3, 9, 10; 2, 2, 5). The new subgenus is similar to the subgenus *Hattersleya* stat. n. in the structure of the epiphallus apex: it is narrow, elongate, and compressed; but in *Hattersleya*, the mold of the spermatophore attachment plate is not fused with the ectoparameral sclerites (though very weakly sclerotized areas extend along the lateral margins of these structures) (see Figs. 1, 5, 6; 2, 1, 2, 4, 5). In addition, the male genitalia of the new subgenus differ from those of both the mentioned subgenera in the large spermatophore sac and in very narrow proximal parts of the endoparameres; these parts are situated mostly in parallel in the wall of the spermatophore sac (Figs. 1, 9, 10; 2, 1, 2, 4, 5).

Composition. The type species and *N. (S.) longisacculus* sp. n.

Neoacla (Superacla) ecuadori Gorochov, sp. n.

Material. Holotype: ♂, Ecuador, western spurs of Andes near Puerto Lopez, 10 km E of Agua Blanca Vill., San Sebastian shelter, 700 m, foggy forest, on a tree trunk low above the ground, at night, 26–29.X.2005, Gorochov and Ovchinnikov (ZIN). Para-

types: 2 ♂, 5 ♀, as holotype, but some specimens were collected on rocks by a stream (ZIN).

Description. Male (holotype). Body rather large, mostly spotty, rather dark; face with large whitish spot on frons near clypeal suture, from which vertical whitish stripe originating to almost reach median ocellus; in addition, short whitish vertical stripe present below each eye; horizontal yellowish stroke present below each antennal cavity; dorsal tegmen brown but not dark, with yellowish veins in dorsal part and stripe along dorsal margin of lateral part and also with nearly dark brown lower half of latter part. Rostrum between antennal cavities nearly 0.59 times as wide as scape; eyes large; ocelli small (subequal in size) and nearly round; antennae without long hairs or marked tufts of setae. Tegmina reaching base of abdominal tergite VII, their dorsal part nearly 1.5 times as wide as pronotum; dorsal tegmen with weakly longitudinal mirror and long area of chords, this area subequal to mirror in length (Fig. 5, 1). Anal plate with roundly truncate apex; genital plate moderately elongate, with narrowly rounded apex; genitalia (Figs. 1, 9; 2, 1, 2) with long epiphallus (*e*) and membranous lobes (*l*), large ventral ectoparameral sclerites (*v*), wide lateral parts of mold of spermatophore attachment plate (*m*), moderately long endoparameres (*en*) and proximal sclerotizations of this mold (*sm*), and high (but not long) spermatophore sac (*s*).

Variations. Pronotum occasionally almost entirely dark. Ectoparameral sclerites of genitalia slightly varying in shape.

Female. Shape of body and coloration as those in male, but whitish spots on face somewhat larger. Tegmina very small, entirely concealed dorsally by pronotum. Genital plate short, with very shallowly emarginate apex; ovipositor with distal part as in Fig. 2, 3.

Length (mm). Body: male 13.5–17.0, female 15.5–16.5; pronotum: male 3.1–3.3, female 3.3–3.5; tegmina: male 8.0–8.5; hind femur: male 13.5–14.5, female 14–15.5; ovipositor 12–13.

Comparison. The new species clearly differs from the species of the subgenera *Neoacla* and *Hattersleya* in the characters listed in the diagnosis of the subgenus *Superacla*, from the Costa-Rica species and *N. reticulata*, in the distinctly larger median emargination of the proximal margin of the epiphallus (see Chopard, 1956 : fig. 3e; Otte, 2006 : figs. 77J, 78D, 79E, 80E; Ingrisch, 2005).

Neoacla (Superacla) longisacculus Gorochov, sp. n.

Material. Holotype: ♂, Ecuador, "Pichilingue Expt. St., Quevedo, 1°00'S, 79°30'W, 9.IX.79, A.W. Harvey and J.M. Ritchie" (NHM).

Description. Male (holotype). Body rather small, almost uniformly brown but with spotty head, fore and middle legs, and hind tibiae; face with whitish pattern similar to that of *N. ecuadori*, but rostrum almost entirely dark anteriorly (between antennae), and pale strokes below antennal cavities absent. Structure of head as that in *N. ecuadori*. Tegmina reaching middle of abdominal tergite V, and their dorsal part approximately 1.3 times as wide as pronotum; dorsal tegmen with slightly transverse mirror and short (slightly shorter than mirror) area of chords (Fig. 5, 2). Anal and genital plates as those in *N. ecuadori*, but genital one slightly longer; genitalia (Figs. 1, 10; 2, 4, 5) with rather short epiphallus (*e*) and membranous lobes (*l*), small ventral ectoparameral sclerites (*v*), narrow lateral parts of mold of spermatophore attachment plate (*m*), very long endoparameres (*en*) and proximal sclerotizations of abovementioned mold (*sm*), and long (but not high) spermatophore sac (*s*).

Female unknown.

Length (mm). Body 16.5; pronotum 2.9; tegmina 6.2; hind femora 13.5.

Comparison. The new species clearly differs from *N. ecuadori* in the more uniform coloration, more strongly reduced tegmina of the male, transverse (instead of longitudinal) mirror of the dorsal tegmen, and the characters of the male genitalia listed in the description; from the other species of the genus, *N. longisacculus* differs in the same characters as *N. ecuadori*.

Neoacla (Hattersleya) clandestina
(Nischk et Otte, 2000)

Ecuador, eastern plain: 1 ♂, 70 km SE of Lago Agrio, near San Pablo de Vill. on the Rio Aguarico River, not flooded primary forest, 10–17.XI.2005, Gorochov and Ovchinnikov (ZIN); 1 ♂, nearly 80 km SE of El Coca, "FCO De Orellana" on the Rio Shiripuno River, primary forest, V.2007, Smolnikov (ZIN); 1 ♀, 80–85 km E of Lago Agrio, near Lake Lago Grande on the Rio Cuyabeno River, flooded primary forest, 2–9.XI.2005, Gorochov and Ovchinnikov (ZIN). The first male and female were collected on tree trunks low above the ground, at night.

The first male is distinctly darker than the second male and female, the most part of its pronotum and dorsal tegmen are dark brown; in the other specimens, the pronotum bears numerous pale brown spots occupying nearly the same area as the darkened areas; the dorsal tegmen of the second male is brownish gray. The female of this species was not described earlier (Nischk and Otte, 2000); in this connection, the statement that the female collected near Lake Lago Grande belongs to *N. clandestina* requires confirmation. It is similar to the female of *N. ecuadori*, but is smaller, and its ovipositor is longer and has a distal area as that shown in Fig. 1, 8.

Length (mm). Body: male 11–13, female 14; pronotum: male 2.3–2.6, female 2.8; tegmina: male 6.3–7.0; hind femur: male 10.7, female 13.8; ovipositor 16.

Neoacla (Neoacla) loiselae Desutter, 1988

2 ♂, Brazil, Amazonia, Tapajos River (MIZ, ZIN).

Both males quite correspond to the original description of this species, but their genitalia differ in the shape of the lateral sclerotized areas of the mold of the spermatophore attachment plate (*m*), which connect the plate with the ventral ectoparameral sclerites (*v*); in one male, these areas are more or less approximate to each other (Fig. 1, 2) and similar to those in the holotype of *N. loiselae* (Desutter, 1987 : fig. 4); in the other male, these areas are widely spaced and resemble those of *N. vicina* (Chopard, 1956 : fig. 3f). These distinctions may be accounted for by a different extent of the deformation of these flexible structures, which was caused by drying but also remained after treatment by solution of KOH. In this case, the status of *N. loiselae* and *N. vicina*, similar in the other characters, requires check.

APTERACLA Gorochov, gen. n.

Type species *Apteracla rafaeli* sp. n.

Diagnosis. Body medium-sized, apterous; legs moderately long; rostrum of head between antennal cavities subequal to scape in width, tympana absent. Anal plate of male simple, with roundly truncate apex; genital plate of male short (shorter than that in *Neoacla*), about as long as wide; apex of genital plate slightly emarginate. Male genitalia rather simple (Fig. 3, 1–3): epiphallus (*e*) slightly wider than long, nearly rectangular dorsally but with 1 pair of approximate posterior prominences; rami (*r*) better pronounced than those in

Neoacla, but not separated from epiphallus; (*ec*) ectoparameres well developed, in form of wide sclerites distinctly projecting posteriorly beyond apex of epiphallus; endoparameres (*en*) rather narrow, weakly curved and articulated with ectoparameres; guiding rod (*g*) moderately large, elongate, sulciform, fused to certain extent with small (but rather wide) mold of spermatophore attachment plate (*m*); spermatophore sac absent. Ovipositor (Fig. 3, 4) similar to that in *Neoacla*, but distinctly shorter (see description of *A. rafaeli* sp. n.).

Notes. The male genitalia of the new genus are simple, similar in the structure to those of some other genera: *Laranda* (Paragryllini), *Eugryllina* Heb., and *Escondacla* Nischk et Otte (both with a vague tribal position). These three genera clearly differ from *Apteracla* in the shape of the endoparameres and the mold of the spermatophore attachment plate, or in the tegmina possessing a stridulatory apparatus in the male and tympana in both sexes, and also in some other details of the structure of the genitalia. Some similarity of all these genera in the male genitalia can be accounted for by preservation of a primitive (ancestor) type of the genitalia in representatives of different branches of Phalangosinae.

Apteracla rafaeli Gorochov, sp. n.

Material. Holotype: ♂, Ecuador, the eastern Andes, 95 km E of Quito, near San Rafael cascade on the Rio Coca River, 1300 m, primary forest, on tree trunk, at night, 23–26.XI.2005, Gorochov and Ovchinnikov (ZIN). Paratype: ♀, as holotype (ZIN).

Description. Male (holotype). Body entirely distinctly pubescent. Head pale brown with grayish brown dorsal part (with 1 pair of large yellowish spots at medial margins of eyes and 1 pair of narrow dark brown spots along dorsal margin of antennal cavities) and genae, also with dark brown vertical stripe extending from median ocellus to clypeus and including dorsal median area of clypeus and divided between antennal cavities by pale vertical median line; visible parts of tergites grayish brown, with darker areas on disc and lateral lobes of pronotum, at bases of tergites of metathorax and abdomen, and also with small sparse pale spots and stripes on median part of posterior abdominal tergites and lateral parts of pronotum, metanotum, and some anterior abdominal tergites; legs (except for their bases) spotty; cerci and genital plate grayish brownish with pale base of cerci and median

stripe in distal half of genital plate; other parts of body pale. Eyes moderately large; ocelli small, nearly round, subequal in size. Pronotum slightly wider than long. Hind tibia with rather short spines and spurs (longest spur nearly 0.3 times as long as hind basitarsus). Genitalia as in Fig. 3, 1–3.

Female. Body structure and coloration as those in male, but head dorsally with additional pale spots at center and marked dark spot in dorsal half of membrane of each antennal cavity, also with 1 pair of large pale spots in posterior half of pronotum. Genital plate short (almost semicircular) and with shallow emargination at apex; ovipositor with distal area as in Fig. 3, 4.

Length (mm). Body: male 10.5, female 12.5; pronotum: male 2.1, female 2.4; hind femur: male 9.0, female 10.5; ovipositor 7.3.

GENUS *STROGULOMORPHA* DESUTTER, 1988

Type species *Strogulomorpha borea* Desutter, 1988 (Peru).

One of the main characters of the genus, in addition to the small size and entire absence of wings and tympana, is the presence of additional rounded sclerotized plates (*p*) in the male genitalia, situated at the posterior part of the endoparameres (*en*) and, probably, being their separated lobes (Fig. 3, 5–10). The additional sclerotizations resembling those of the genus *Neoacla* are also developed, but in *Strogulomorpha*, they connect the guiding rod (*g*) with a very large mold of the spermatophore attachment plate (*m*), and not with the ectoparameres (Fig. 3, 6, 9). Probably, the sclerotizations have developed in these genera independently, and their presence is not a common derivative character testifying to the close relationship of the genera. The ovipositor of *Strogulomorpha* is similar to that of *Apteracla*, but is slightly more arcuate (Fig. 3, 11).

Strogulomorpha aequatorialis Gorochov, sp. n.

Material. Holotype: ♂, Ecuador, the eastern Andes, 75 km EES of Quito, near El Chaco Vill. on the Rio Quijos River, 1500 m, forest in a gorge by a stream, on a large leaf of a grassy plant, at night, 18–22.XI.2005, Gorochov and Ovchinnikov (ZIN). Paratypes: 2 ♂, as holotype (ZIN).

Description. Male (holotype). Body small, moderately pubescent, with long legs, grayish brown, but with following marks: face below eyes, antennal cavi-

ties, and median ocellus almost uniformly pale brown; antennae weakly spotty; pronotum with several pale brown spots in median part of disc; legs spotty; tergites of pterothorax and abdomen with sparse paler spots along posterior margin, but metanotum with 1 pair of additional pale longitudinal strokes at sides; abdominal tergites III and IV almost entirely black; tergite VI with 1 pair of approximate pale spots at base of its visible part; sternites, cerci, and genital plate uniformly grayish brownish (rather pale). Eyes large; ocelli small, round, equal in size; rostrum between antennal cavities insignificantly wider than scape. Pronotum very slightly wider than long. Abdominal tergites III and IV slightly more convex than others, and probably forming ill-defined abdominal gland. Hind tibia with moderately short spines and spurs (longest spur nearly half as long as hind basitarsus). Anal plate simple, with widely truncate apex. Genitalia as in Fig. 3, 5–7, long, with nearly membranous lateral parts of epiphallus, rather narrow apex of epiphallus, wide distal lobes of guiding rod, and long and not very wide sclerotizations of mold of spermatophore attachment plate.

Variations. In the paratypes, the pale spots and strokes on the tergites are slightly less strongly pronounced than those in the holotype, or absent.

Female unknown.

Length (mm). Body 6.5–7.5; pronotum 1.2–1.3; hind femur 5.7–6.

Comparison. The new species differs from *S. borea* Des., *S. boreita* Des., and *S. estiron* Des.-Gr. in the distinctly longer male genitalia with much narrower sclerotizations of the mold of the spermatophore attachment plate, and from *S. infuscata* Des., in the wider distal lobes of the guiding rod and the shorter ectoparameres. There are also additional differences between these species in the structure of the male genitalia, including the shape of the epiphallus apex.

***Strogulomorpha sympatrica* Gorochoy, sp. n.**

Material. Holotype: ♂, Ecuador, the eastern Andes, 75 km EES of Quito, near El Chaco Vill. on the Rio Quijos River, 1500 m, forest in a gorge by a stream, on a shrub leaf in undergrowth, at night, 18–22.XI.2005, Gorochoy and Ovchinnikov (ZIN). Paratypes: 4 ♀, Ecuador, the eastern Andes, 95 km E of Quito, near San Rafael cascade on the Rio Coca River, 1300 m, primary forest by the river, on shrub leaves in under-

growth, at night, 23–26.XI.2005, Gorochoy and Ovchinnikov (ZIN).

Description. Male (holotype). Structure of body and coloration similar to those of *S. aequatorialis*, but head additionally with 4 narrow pale longitudinal stripes on posterior part of vertex, pronotum with pale spot in anteroventral corner of each lateral lobe and with stripe only along posterior margin of disc, tergites of pterothorax and abdomen uniformly grayish brown (only metanotum with 1 pair of pale longitudinal strokes at sides), genital plate and genitalia distinctly shorter; in addition, genitalia with weakly sclerotized lateral parts of epiphallus, wider apex of epiphallus, and wider and shorter sclerotizations of mold of spermatophore attachment plate (Fig. 3, 8–10).

Female. Structure and coloration of body as those in male, but tergites of pterothorax and abdomen occasionally weakly spotty or slightly darker. Genital plate short, widely rounded apically; ovipositor as in Fig. 3, 11.

Length (mm). Body: male 6.5, female 7.0–7.8; pronotum: male 1.2, female 1.3–1.4; hind femur: male 5.2, female 5.5–6.0; ovipositor 3.5–3.8.

Comparison. The new species differs from *S. aequatorialis* in the characters listed above, from *S. borea* and *S. boreita*, in the distinctly smaller emargination of the epiphallus apex, from *S. infuscata*, in the wide distal lobes of the guiding rod, and from *S. estiron*, in the much larger ectoparameres.

GENUS **LORETANA**
DESUTTER-GRANDCOLAS, 1991

Type species *Loretana maxima* Desutter-Grandcolas, 1991 (Peru).

The differences of this previously monotypical genus from *Strogulomorpha* have become more obvious after a find of the second species of the genus. These genera differ in the characters of the structure of the male genitalia: in *Loretana* (Fig. 3, 12–14), ectoparameres (*ec*) larger, guiding rod (*g*) narrow and strongly projecting beyond apex of epiphallus, endoparameres (*en*) short and not very narrow in distal part, additional sclerotized plates at posterior part of endoparameres (characteristic of *Strogulomorpha*, see Fig. 3, 5–10: *p*) not developed, mold of spermatophore attachment plate (*m*) not very large and separated from guiding rod by more or less strongly membranous areas. The absence of additional sclerotized plates and

the structure of the mold suggest that *Loretana* has retained a more primitive state of the male genitalia, in comparison with that in *Strogulomorpha*. Nevertheless, these genera are obviously closely related: the process of extension of the sclerotizations of the mold of the spermatophore attachment plate may have started in their common ancestor. In the other characters, these genera are very similar, and *Loretana* may be only a subgenus of the genus *Strogulomorpha*.

Loretana transversalis Gorochov, sp. n.

Material. Holotype: ♂, Ecuador, the eastern Andes, 75 km EES of Quito, near El Chaco Vill. on the Rio Quijos River, 1500 m, forest in a gorge by a stream, on a shrub leaf in undergrowth, at night, 18–22.XI.2005, Gorochov and Ovchinnikov (ZIN). Paratypes: 4 ♀, Ecuador, the eastern Andes, 95 km E of Quito, near San Rafael cascade on the Rio Coca River, 1300 m, primary forest by the river, on shrub leaves in undergrowth, at night, 23–26.XI.2005, Gorochov and Ovchinnikov (ZIN).

Description. Male (holotype). Structure of body (except for apex of abdomen) and coloration similar to those of *S. aequatorialis*, but coloration slightly more motley: head with 1 pair of nearly dark brown vertical approximate stripes between antennal cavities (below median ocellus), 1 pair of yellowish stripes along median margins of antennal cavities, and several more or less pale areas (line between these dark stripes, several spots above clypeus and on genae, and mouthparts pale, but labrum darkened apically and palpi with darkish strokes); pronotum with 3 yellowish spots along anterior margin of each lateral lobe, slightly paler spots in median part of disc, 1 pair of pale longitudinal lines along lateral margins of posterior part of disc, and marked yellowish transverse stripe along posterior margin of disc (this stripe edged anteriorly with very dark line), center of disc with nearly cruciform dark spot (other parts of body colored similarly to those of holotype of *S. aequatorialis*). Anal plate simple, with more or less rounded apex; genital plate very small (as compared with those of *S. aequatorialis* and *S. sympatricus*), oblong, with narrow and truncate apex. Genitalia as in Fig. 3, 12–14.

Female. Structure of body and coloration as those in male, but face less motley (similar in coloration to that of *S. aequatorialis*), dark cruciform spot and pale transverse stripe on pronotal disc slightly less strongly pronounced, darkening on abdominal tergites III and

IV clearly less strongly pronounced (occasionally only abdominal tergite IV partly darkened). Genital plate rather short, with rather narrow and truncate apex; ovipositor weakly arcuately curved, with distal area as in Fig. 3, 15.

Length (mm). Body: male 7.3, female 7.0–8.5; pronotum: male 1.4, female 1.4–1.5; hind femur: male 6.3, female 6.3–7.0; ovipositor 4.4–5.0.

Comparison. The new species clearly differs from *L. maxima* in the ectoparameres of the male genitalia, which are distinctly bifurcate apically.

GENUS *PARAGRYLLUS*
GUERIN-MENEVILLE, 1848

Type species *Paragryllus martinii* Guerin-Meneville, 1848 (Lesser Antilles).

This genus is subdivided here into two subgenera: the nominotypical one comprising most species of the genus and *Aclogryllus* subgen. n. The distinctions between these subgenera are listed below, see the description of the last subgenus.

Paragryllus (Paragryllus) minutus Gorochov, sp. n.

Material. Holotype: ♂, Brazil, “Igua. Wase.” (ZIN).

Description. Male (holotype). Body small, pale brown with following marks: face from apex of rostrum to clypeal suture and most part of genae (except for stripe along posterior margin) intensively brown (nearly dark brown); dorsal part of rostrum and transverse stripe between middles of eyes also intensively brown; antennal flagella brown, with rather dense, transverse, paler anelli (except for small proximal area of these flagella); pronotum with one-color dark lateral lobes and 1 pair of small spots in middle of posterior margin of disc; dorsal tegmen grayish brownish, slightly darker than pronotal disc, with pale veins in proximal half; apical area of this tegmen and also lateral area of both tegmina darkish; fore and middle legs more or less uniformly pale brown (hind legs lost). Head with distinctly slanting facial part; ocelli round and small, median ocellus nearly 1.5 times as large as lateral one. Pronotum slightly wider than long, weakly narrowed forwards, with low lateral lobes. Dorsal tegmen with 8 oblique veins, very weakly transverse mirror provided with 7 dividing veins, and also with short apical area (Fig. 5, 3). Anal plate with 1 pair of not very long, narrow processes directed backward

(approximately as those in *P. elapsus* Des.-Gr.); genital plate short, with shallow median emargination at apex. Genitalia (Fig. 4, 1–3) with short median part of transverse epiphallic bridge (*ep. b*) and posterior lateral lobes of this bridge (*ep. l*); lateral arms of epiphallus (*ep. a*) rather short, slightly twisted apically; guiding rod (*g*) very long in comparison with those of most representatives of the genus, projecting backward beyond apex of posterior lateral lobes of transverse epiphallic bridge; mold of spermatophore attachment plate (*m*) with distinctly widened sclerotizations in proximal (anterior) part.

Female unknown.

Length (mm). Body 13.7; body with wings 15.5; pronotum 2.5; tegmina 10.8.

Comparison. The new species is similar to *P. elapsus* Des.-Gr., *P. eclogos* Otte, *P. ovalis* Gor., *P. concolor* Gor., and *P. circularis* Gor. in the structure of the male genitalia, but differs in the smaller body, slightly shorter posterior lateral lobes of the median epiphallic bridge (*ep. l*), and longer guiding rod (*g*) of the male genitalia. It differs from *P. temulentus* Sauss., *P. tricaudatus* Fairm., and *P. simplex* Chop. in the distinctly shorter lateral arms of the epiphallus (*ep. a*), and from *P. rex* Sauss. and *P. martini* Guer.-Men., in the significantly smaller body and less numerous oblique veins in the male tegmina. The differences of the new species from *P. cinctipes* (Walk.) described from the larva are vague.

ACLOGRYLLUS Gorochov, subgen. n.

Type species *Paragryllus crybelos* Nischk et Otte, 2000 (Ecuador).

Diagnosis. Dorsal inner spur of male hind tibia normal, rather narrow (more or less strongly swollen in the nominotypical subgenus). Anal plate of male simple, without marked specializations (with 1 pair of fine and more or less long processes in *Paragryllus* s. str.); male genitalia (Fig. 4, 4–6) with very long guiding rod (*g*) and lateral arms of epiphallus (*ep. a*), distinctly shortened endoparameral apodemes (*ea*) and rami (*r*), and with narrow sclerotizations of anterior (proximal) part of mold of spermatophore attachment plate (*m*).

Paragryllus (Aclogryllus) crybelos (Nischk et Otte, 2000) comb. n.

1 ♂, 1 ♀, 2 nymphs, Ecuador, eastern plain, 80–85 km E of Lago Agrio, near Lake Lago Grande on the

Rio Cuyabeno River, flooded primary forest, on tree trunks at a height of 2–5 m above the ground, at night, 2–9.XI.2005, Gorochov and Ovchinnikov (ZIN).

The previously unknown female of *P. crybelos* is similar to the male in the shape of the body and coloration, but its tegmina possesses a dark brown dorsal area crossed by pale brown veins (see Fig. 5, 4). Its ovipositor is very similar to those of the species of the subgenus *Paragryllus*.

Length (mm). Body: male 20, female 19; body with wings: male 23, female 25; pronotum: male 3.8, female 4.2; tegmina: male 16, female 18.5; hind femur: male 14.5, female 15.8; ovipositor 22.

Benoistella lyra Gorochov, sp. n.

Material. Holotype: ♂, Venezuela, eastern part, near El Dorado (ZIN). Paratype: ♀, as holotype (ZIN).

Description. Male (holotype). Body medium-sized, flattened dorsoventrally, pale brown with following marks: dark, grayish brown spots around each ocellus, along dorsal and ventral margins of antennal cavities, around apex of rostrum, and at center of dorsal part of clypeus; whitish cream lateral areas of labrum and small spots below and above apex of rostrum and at most approximate areas of eyes; moderately darkened longitudinal stripes behind eyes and spots on genae; dark lateral lobes of pronotum, except for narrow pale stripe along their lower margin; weakly darkened spots on pronotal disc and on fore leg (middle and hind legs lost); nearly transparent dorsal part of tegmina, with brown stripes and spots on stridulatory areas, whitish veins in distal part of stridulatory apparatus and in apical area, and also brown membranes of apical area (Fig. 5, 5); brown lateral part of tegmina, crossed by pale branches of *Sc*; weak darkenings on lower parts of abdominal tergite X and in proximal half of genital plate. Head low, with rostrum angular in lateral view; eyes large; ocelli small, subequal in size, lateral ocelli round, median one wider than long. Pronotum slightly wider than long, with low lateral lobes; fore femur rather large; fore tibia with oval medium-sized tympana, outer tympanum slightly longer than inner one. Tegmina reaching base of anal plate; venation of their dorsal part as in Fig. 5, 5 (mirror oval, transverse, with 3 dividing veins; chords normally developed; oblique veins 5 in number: longest vein nearly straight, 2 veins nearest to the longest vein and 1 shortest vein smoothly curved, vein nearest to the latter angular); hind wings projecting posteriorly from under tegmina

by nearly 2 mm. Anal plate triangular but rounded at apex; genital plate with 1 pair of fine and very long apical processes curved in form of lyre (Fig. 4, 7) (genitalia not preserved).

Female similar to male in shape of body and coloration, but slightly paler (middle and hind legs also lost). Dorsal part of tegmina brown with pale veins, bearing 10–11 longitudinal veins: 1st and 2nd, and also 5th and 6th veins (from anal margin) fused in pairs in proximal part; cross-veins of dorsal part of tegmina rather dense and similar to longitudinal veins in thickness. Genital plate relatively large, narrowed backwards, with moderately large semicircular emargination at apex; distal area of ovipositor as in Fig. 4, 8.

Length (mm). Body (without genital plate): male 13, female 12; body with wings (without genital plate): male 15.0, female 15.2; pronotum: male 2.3, female 2.3; tegmina: male 9.2, female 10; ovipositor 10.6.

Comparison. The new species is similar to *B. guyanensis* (Chop.), but clearly differs in the presence of lyre-shaped processes on the genital plate in the male and in the absence of teeth on the ventral ovipositor valve in the female.

Silvastella epiplatys (Nischk et Otte, 2000) comb. n.

1 ♀, Ecuador, eastern plain, 70 km ES of Lago Agrio, near San Pablo de Kantesiya Vill. on the Rio Aguarico River, not flooded primary forest, 10–17.XI.2005, Gorochov and Ovchinnikov (ZIN).

The genus *Silvastella* was established for two species collected from French Guiana (Desutter-Grandcolas, 1992a) and described in the same paper only from the female. Later (Nischk and Otte, 2000), the genus *Desutteria* Nischk et Otte was proposed; the genus included only one species described in the same paper only from the male. The specimen indicated above quite corresponds to the description of the latter species and obviously belongs to the genus including the species from French Guiana. Thus, *Desutteria* is either a subgenus of the genus *Silvastella* or its synonym. This question could be resolved after examination of the male of the type species of *Silvastella*. The previously unknown female of *S. epiplatys* (Fig. 4, 9; 5, 6) is very similar to the male in the coloration, including the characteristic transverse striation of the anterior part of the head, but the structure of its wings, including a certain irregularity in the venation of the

dorsal part of the tegmina, is very similar to that in the species from French Guiana.

Length of female (mm). Body 10.5; body with wings 13.0; pronotum 2.1; tegmina 9.0; hind femora 7.8; ovipositor 7.0.

The following designations are used in the figures: *a*, additional sclerotized ribbon; *d*, dorsal ectoparameral sclerite; *e*, epiphallus; *ea*, endoparameral apodeme; *ep. a*, lateral epiphallic arm; *ep. l*, posterior lateral lobe of median epiphallic bridge; *en*, endoparamere; *ep. b*, median epiphallic bridge; *g*, guiding rod; *l*, membranous lobe; *m*, mold of spermatophore attachment plate; *p*, additional rounded sclerotized plate near posterior part of endoparamere; *s*, spermatophore sac; *sm*, proximal elongate sclerotization of mold; *r*, ramus; *v*, ventral ectoparameral sclerite.

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REFERENCES

1. Chopard, L., "Notes sur les Gryllides et Tridactylides du Deutsches Entomologisches Institut et description d'especes nouvelles," Arb. morph. taxon. Entomol. Berlin-Dahlem. **4** (2), 136–152 (1937).
2. Chopard, L., "Some Crickets from South America (Grylloidea and Tridactyloidea)," Proc. US Nat. Mus. **106** (3366), 241–293 (1956).
3. Desutter, L., "Structure et evolution du complexe phallic des Gryllidea (Orthopteres) et classification des genres *Neotropicaux* de Grylloidea. Premiere partie," Ann. Soc. Entomol. Fr. (N. S.) **23** (3), 213–239 (1987).
4. Desutter, L., "Structure et evolution du complexe phallic des Gryllidea (Orthopteres) et classification des genres *Neotropicaux* de Grylloidea. Deuxieme partie," Ann. Soc. Entomol. Fr. (N. S.) **24** (3), 343–373 (1988).
5. Desutter-Grandcolas, L., "Les Phalangopsidae de Guyane francaise (Orthopteres, Grylloidea): systematique, elements de phylogenie et de biologie," Bull. Mus. natl. Hist. nat. (S. 4) **14** [sect. A] (1), 93–177 (1992a).

6. Desutter-Grandcolas, L., "Les Phalangopsidae Neotropicaux (Orthoptera: Grylloidea). II. Le groupe des Aclodae," *Ann. Soc. Entomol. Fr. (N. S.)* **28** (2), 171–199 (1992b).
7. Gorochov, A.V., "Taxonomic Study of Mexican Phalangopsinae (Orthoptera: Gryllidae)," *Zoosyst. Ross.* **16** (2), 177–200 (2007a).
8. Gorochov, A.V., "New and Little-Known Crickets of the Subfamily Phalangopsinae (Orthoptera, Gryllidae): 4. Neotropical Genus *Uvaroviella*," *Zool. Zh.* **86** (10), 1183–1195 (2007) [*Entomol. Rev.* **87** (7), 880–892 (2007b)].
9. Ingrisch, S., "*Acla multivenosa* Chopard, 1937," Digitized Orthoptera Specimens Access (DORSA), http://www.biologie.uni-ulm.de/systax/cgi-in/query_all/details.pl?sid=T&lang=e&extidname=osfspeciescode&extid=12714 (2005).
10. Nischk, F. and Otte, D., "Bioacoustics, Ecology and Systematics of Ecuadorian Rainforest Crickets (Orthoptera: Gryllidae: Phalangopsinae), with a Description of Four New Genera and Ten New Species," *J. Orthoptera Res.* **9**, 229–254 (2000).
11. Otte, D., "Eighty-four New Cricket Species (Orthoptera: Grylloidea) from La Selva, Costa Rica," *Trans. Amer. Entomol. Soc.* **132** (3 + 4), 299–418 (2006).