

## Taxonomy of Podoscirtinae (Orthoptera: Gryllidae). Part 3: Podoscirtini from Madagascar and nearest regions

A.V. Gorochov

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Twelve genera belonging to a generic group with relatively primitive type of the male genitalia are characterized. They are distributed mainly in Madagascar, but some are known also from the Seychelles and Comores or from Africa; one genus possibly belonging to this group is known from Africa only. Six new genera, one new subgenus, and 24 new species are described; several other species are considered (including revisions of type material and information about systematic position of some forms). New synonymy is established: *Kilimagryllus africanus* (Walker, 1869) = *Platydictylus fuliginosus* Walker, 1869, **syn. n.** Lectotypes of *Fryerius aphonoides* and *K. africanus* are designated.

A.V. Gorochov, Zoological Institute, Russian Academy of Sciences, Universitetskaya nab. 1, St.Petersburg 199034, Russia.

This, third part of the series of papers on the taxonomy of Podoscirtinae contains a partial review of Podoscirtini distributed in Madagascar, Seychelles, and Comores as well as descriptions of some African taxa of this tribe. The first and second parts include a brief description of morphology and nomenclature of the male genitalia, a partial review of Indo-Malayan Podoscirtini, and new data on taxonomy of Australo-Oceanian Podoscirtini (Gorochov, 2002, 2003).

The material considered here is deposited at the following institutions: Zoological Institute, Russian Academy of Sciences, St.Petersburg (ZIAS); Natural History Museum, London (BMNH); Museum für Naturkunde der Humboldt-Universität, Berlin (MNHU); Museo Nacional de Ciencias Naturales, Madrid (MNCN); Museum and Institute of Zoology, Polish Academy of Sciences, Warszawa (MIZP); Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków (ISEA).

### “PODOSCIRTUS” GENERIC GROUP

This group is characterized by a rather primitive type of the male genitalia: the epiphallus is rather long and of comparatively simple shape (not divided into a large upper lobe and a pair of lower lateral lobes); its apical part is usually with two pairs of processes (a medial pair directed more or less upwards and a lateral pair directed more or less backward or strongly reduced); the ectoparameres are well developed, movable (articulated), connected with the epiphallus (but not

with guiding rod); the guiding rod is well developed and partly fused (or almost fused) with the mold of spermatophore attachment plate; this mold is provided with more or less large (unpaired) apodeme (Figs II: 5-7; III: 1-3, 6-8; IV: 1-3, 6-8; VI: 2-4, 6-8; VII: 4-6, 8-10; IX: 3-5; X: 3-5, 8-10; XI: 5-7, 10-12; XII: 3-5, 8-10; XIII: 3-5; XIV: 2-4, 9; XVI: 1-3, 6-13; XVII: 1-6; XVIII: 1-4; XIX: 1-14). These characters are present also in representatives of some Indo-Malayan and Australo-Oceanian Podoscirtini (*Noctitrella* Gor., *Varitrella* Gor., *Matuanus* Gor., *Hemitrella* Gor., and possibly some others). The structure of tympana in the “*Podoscirtus*” generic group is diverse: both tympana are open; only outer tympanum is open, but inner one is immersed and slit-like or almost slit-like; one of tympana strongly reduced or absent.

### Genus *Podoscirtus* Serville, 1839

Type species: *Podoscirtus crocinus* Serville, 1839.

*Note.* This genus is characterized by the following features: size very large; body elongate (Fig. I: 1); head comparatively high, with rather narrow rostrum and large ocelli (Fig. II: 1); pronotum and legs long and rather slender; fore tibiae without any inflation; inner and outer tympana open and distinctly elongate (but not large); wings very long; tegmina similar in both sexes (without traces of stridulatory apparatus in male); male metanotum without any gland; male anal plate without central membranous area (Fig. II: 2); male genital plate long, narrowing to apex, and with characteristic apical

part (Figs II: 3, 4); male genitalia comparatively small; their epiphallus long and provided with both pairs of spine-like apical processes (each medial process is with a small tubercle on its hind surface); ectoparameres almost stick-like, long, and thin; guiding rod not very long, but wide and with rather narrow apical part; mold of spermatophore attachment plate partly fused with guiding rod and provided with distinct apodeme; endoparameral apodemes long; rami very short (Figs II: 5-7); ovipositor long and with drilling apex (Fig. II: 8).

The genus includes only the type species.

**Podoscirtus crocinus** Serville, 1839  
(Figs I: 1; II: 1-8)

*Neotype* (designated by Gorochov, 1990). ♂, **Madagascar**, "Fort Dauphin, Madagascar mer., Sikora, 1899" (ZIAS).

*Other material examined. Madagascar*: 1 ♂, 1 ♀, "Rogez, Foret cote est", "X-1932, A. Seyrig" (ZIAS).

*Note*. The coloration of this species is characteristic: the head is brown with dark brown fore part of epicranium, upper part of genae, hind part of vertex, and antennal flagellum, light brown mouthparts (including palpi) and sometimes lower parts of genae and longitudinal lines behind eyes (Fig. II: 1); the pronotum is light brown with dark brown lateral lobes and yellowish bands along lateral edges of disc; the legs are almost uniformly light brown (only apices of femora, distal parts of tibiae, and tarsi are somewhat darkened); the tegmina are light brown with yellowish stripe along lateral side of dorsal part, greyish brown veins, and sometimes slightly darkened lateral area; the hind wings are light greyish; the pterothorax and abdomen are darkish brown above and almost light brown beneath (but with darkish spots on lateral parts of abdominal sternites and male genital plate) (Figs II: 2-4); the cerci are light brown.

Length (mm). Body: ♂ 36-40, ♀ 38; body with wings: ♂ 60-63, ♀ 63; pronotum: ♂ 6-7, ♀ 6.7; tegmina: ♂ 46-48, ♀ 48; hind femora: ♂ 30-32, ♀ 31; ovipositor 23.

Genus **Eupodoscirtus** gen. n.

Type species: *Eupodoscirtus idoneus* sp. n.

*Diagnosis*. Similar to *Podoscirtus*, but distinguished from it by following characters: size much smaller; body slightly shorter; legs distinctly shorter; male anal plate with large and almost round membranous area (Figs II: 9, 12); male genital plate with transverse fold in middle part (Figs II: 10, 11); male genitalia comparatively larger; epiphallus and lateral pair of its apical processes much shorter; ectoparameres with two characteristic projections in proximal part, sometimes rather wide; guiding rod with less narrow

apical part [Figs III: 1-3, 6-8 (in position of erection: base of guiding rod and mold of spermatophore attachment plate deformed and projecting backwards); Figs IV: 1-3, 6-8 (in position of rest)]. From other genera of Podoscirtini, this genus differs in long wings, complete loss of stridulatory apparatus in male tegmina, well developed and open both tympana, absence of metanotal gland, and characteristic male copulatory structures.

*Included species*: type species; *E. affinis* sp. n.; *E. voeltzkowi* sp. n.; *E. stolarczyki* sp. n.

**Eupodoscirtus idoneus** sp. n.  
(Figs II: 9-11; III: 1-4)

*Holotype*. ♂, **Madagascar**, "Perinet", Olsufiev or Robinson? (ZIAS).

*Description*. Male (holotype). Coloration light brown with almost dark brown narrow median stripe on rostrum, spots under antennal cavities and on their membranes, stripe along clypeal suture, large spot above (between fore parts of eyes), longitudinal bands behind eyes (Fig. III: 4) and along upper edges of both pronotal lateral lobe and proximal part of tegminal lateral area, lower parts of 1st and 2nd segments of fore and middle tarsi, upper parts of 10th abdominal tergite, and lateral parts of anal plate, slight darkenings on scapes, greyish distal parts of hind wings, and whitish membranous area of anal plate (Fig. II: 9). Genitalia with short medial and lateral pairs of apical epiphallic processes; size of all these processes almost equal to that of tubercles on hind (upper) surface of medial processes; ectoparameres narrow; their apices acute and almost hooked (Figs III: 1-3).

Female unknown.

Length (mm). Body 21; body with wings 29; pronotum 3.2; tegmina 20; hind femora 13.

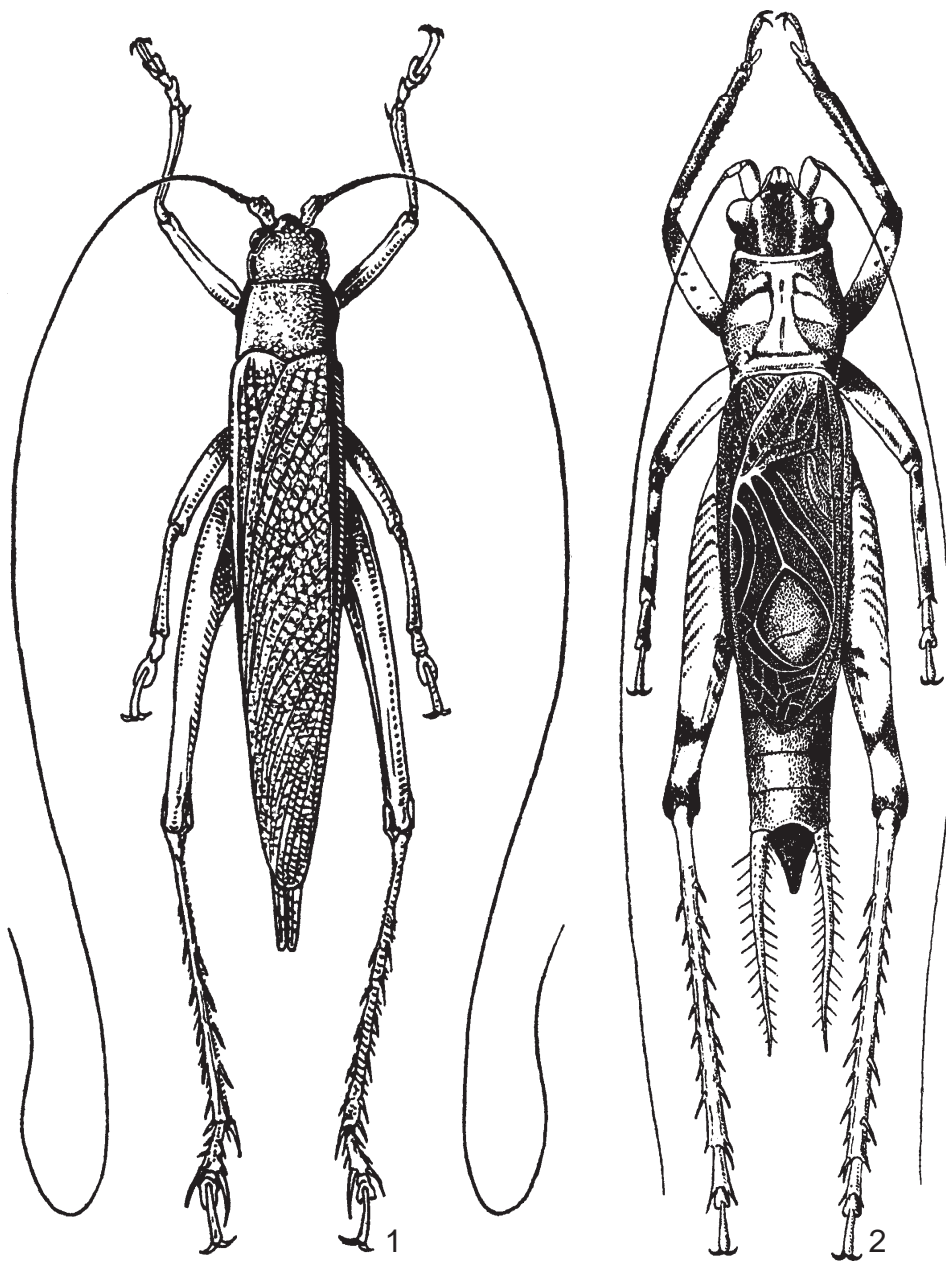
**Eupodoscirtus affinis** sp. n.  
(Figs III: 5-9)

*Holotype*. ♂, **Madagascar**, "S. C. [Süd Central] Madagaskar, Hildebrandt", "*Podoscirtus*" (MNHU).

*Paratype. Madagascar*: ♂, "Betsileo" (MIZP).

*Description*. Male (holotype). Very similar to *E. idoneus*, but distinguished from it by following characters: size slightly smaller; dark median stripe of rostrum fused with darkenings under antennal cavities and with upper darkish part (between fore parts of eyes) (Fig. III: 5); membranous area of anal plate brownish; genitalia with much longer medial pair of apical epiphallic processes and almost without lateral pairs of these processes (latter pair presented by short rounded projections) (Figs III: 6-8).

Variation. Dark median stripe of rostrum not fused with darkenings under antennal cavities;



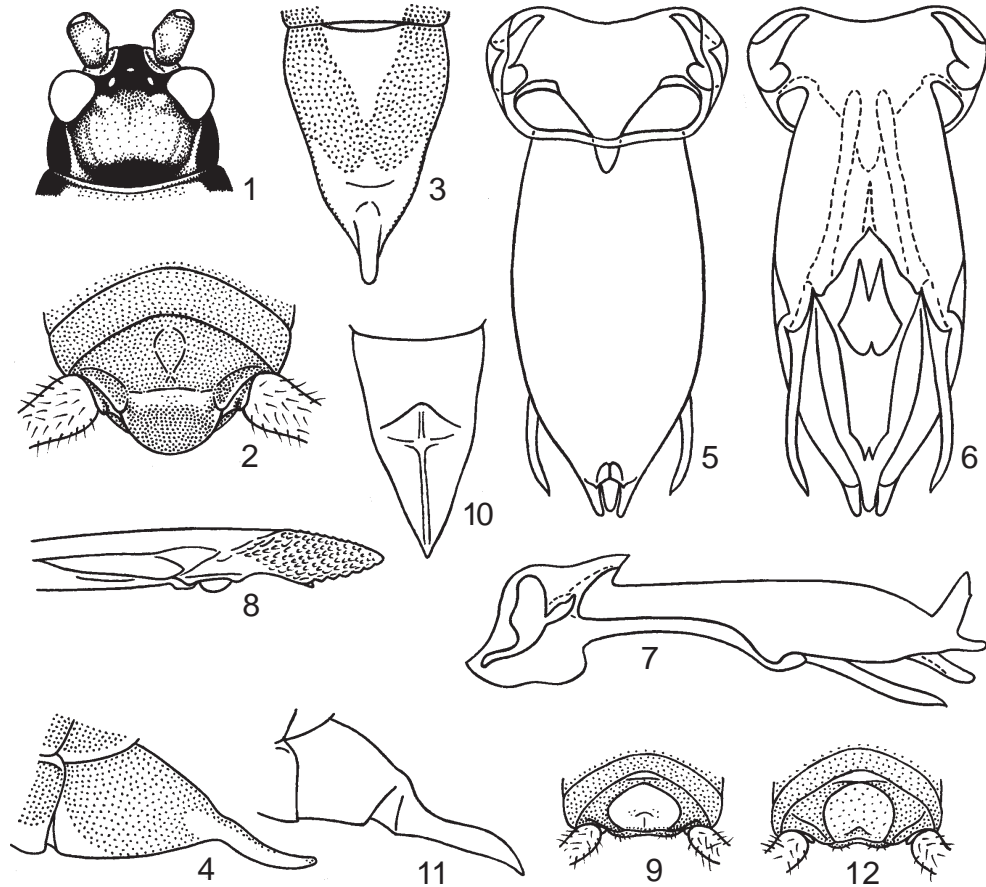
**Figs I** (1, 2). Habitus of male from above. 1, *Podoscirtus crocinus* Serv. (after Chopard, 1948); 2, *Stenogryllodes lucens* Chop. (after Chopard, 1952).

darkish stripe along clypeal suture and darkenings on tegmina almost absent; medial pair of apical epiphallic processes directed upwards [in holotype, they are directed almost forward (possible deformation as result of genital erection)

(for comparison see Figs III: 8, 9)].

Female unknown.

Length (mm). Body 16-17; body with wings 21-23; pronotum 2.7-2.9; tegmina 15-16.5; hind femora 9.5-10.



**Figs II (1-12).** *Podoscirtus* and *Eupodoscirtus*. **1-8.** *P. crocinus* Serv. (2-7, neotype; 5-7, after Gorochov, 1990); **9-11.** *E. idoneus* sp. n.; **12.** *E. voeltzkowi* sp. n. Head from above (1); anal (2, 9, 12) and genital (3, 4, 10, 11) plates of male from above/behind (2, 9, 12), from below (3, 10), and from side (4, 11); male genitalia from above (5), from below (6), and from side (7); apex of ovipositor from side (8).

***Eupodoscirtus voeltzkowi* sp. n.**  
(Figs II: 12; IV: 1-5)

*Holotype*. ♂, **Madagascar**, "O. [Ost] Madagascar, Sahana, Urwald, IX.1904, Voeltzkow S." (MNHU).

*Description*. Male (holotype). Similar to *E. idoneus*, but distinguished from it by following characters: darkenings under antennal cavities and along clypeal suture virtually absent; lateral parts of rostrum darkened; longitudinal band behind eyes much narrower (Fig. IV: 5); pronotum, tegmina, and legs uniformly light brown (almost yellowish); membranous area of anal plate brownish (Fig II: 12); genitalia with much longer medial pair of apical epiphallic processes; ectoparameres much wider; their apical part provided with long upper hook and short lower projection (Figs IV: 1-4).

Female unknown.

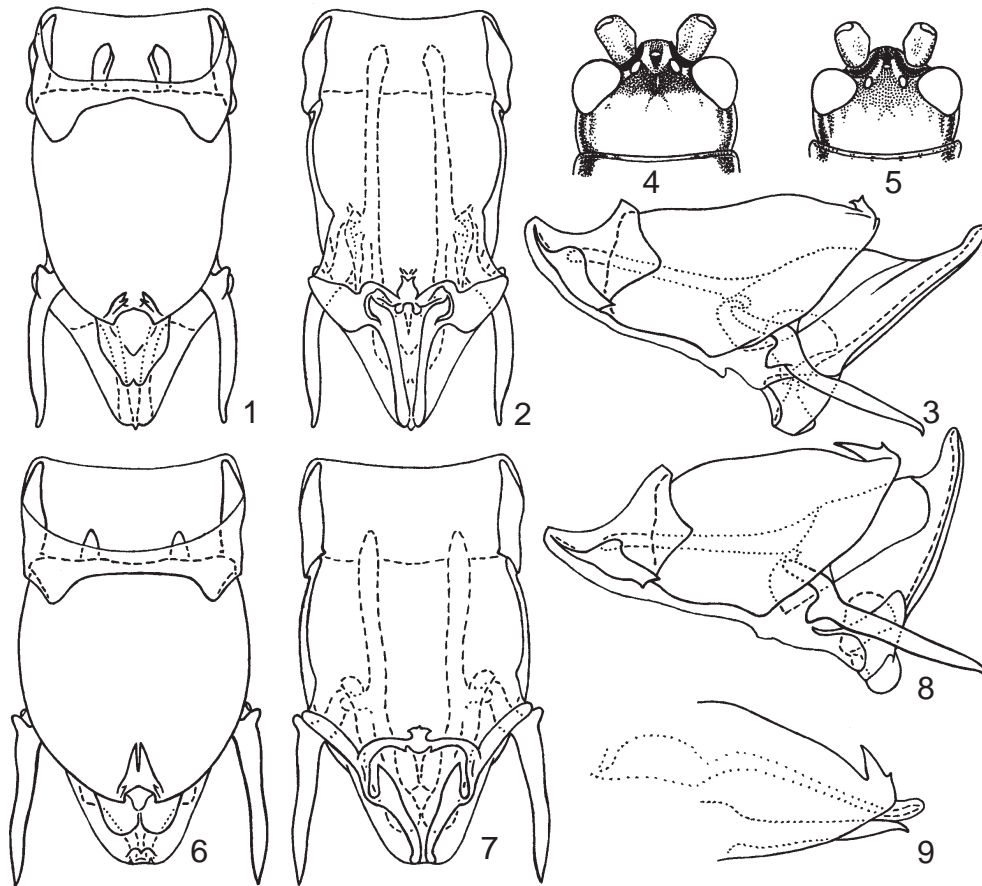
Length (mm). Body 20; body with wings 29; pronotum 3.3; tegmina 21; hind femora 13.

*Comparison*. *E. voeltzkowi* clearly differs from *E. affinis* in the uniform pronotum and the shape of ectoparameres (much wider and with bifurcate apex).

***Eupodoscirtus stolarczyki* sp. n.**  
(Figs IV: 6-10)

*Holotype*. ♂, **Madagascar**, "Analamazaotra", 3-8.XI. 1997, J. Stolarczyk (ISEA).

*Description*. Male (holotype). Very similar to *E. voeltzkowi*, but distinguished from it by following characters: head with slight darkish stripes on hind part of vertex and somewhat wider dark bands behind eyes (Fig. IV: 10); antennal



**Figs III** (1-9). *Eupodoscirtus*, male. 1-4, *E. idoneus* sp. n.; 5-9, *E. affinis* sp. n. (5-8, holotype). Genitalia in positions of erection (1-3, 6-8) and of rest (9) from above (1, 6), from below (2, 7), and from side (3, 8, 9); head from above (4, 5).

flagellum with sparse brownish rings (more distinct than in other congeners); upper parts of lateral pronotal lobes with dark band along upper edges; lower parts of these lobes and legs with more or less distinct darkish dots or small spots; tegmina with darkish band along proximal part of lateral area; hind wings somewhat darker (light greyish in proximal part and almost dark greyish in distal one); membranous area of anal plate whitish; genitalia slightly narrower and with somewhat different shape of ectoparameres (body of ectoparameres narrower in distal part and distinctly longer; upper apical hook much shorter) (Figs IV: 6-9).

Female unknown.

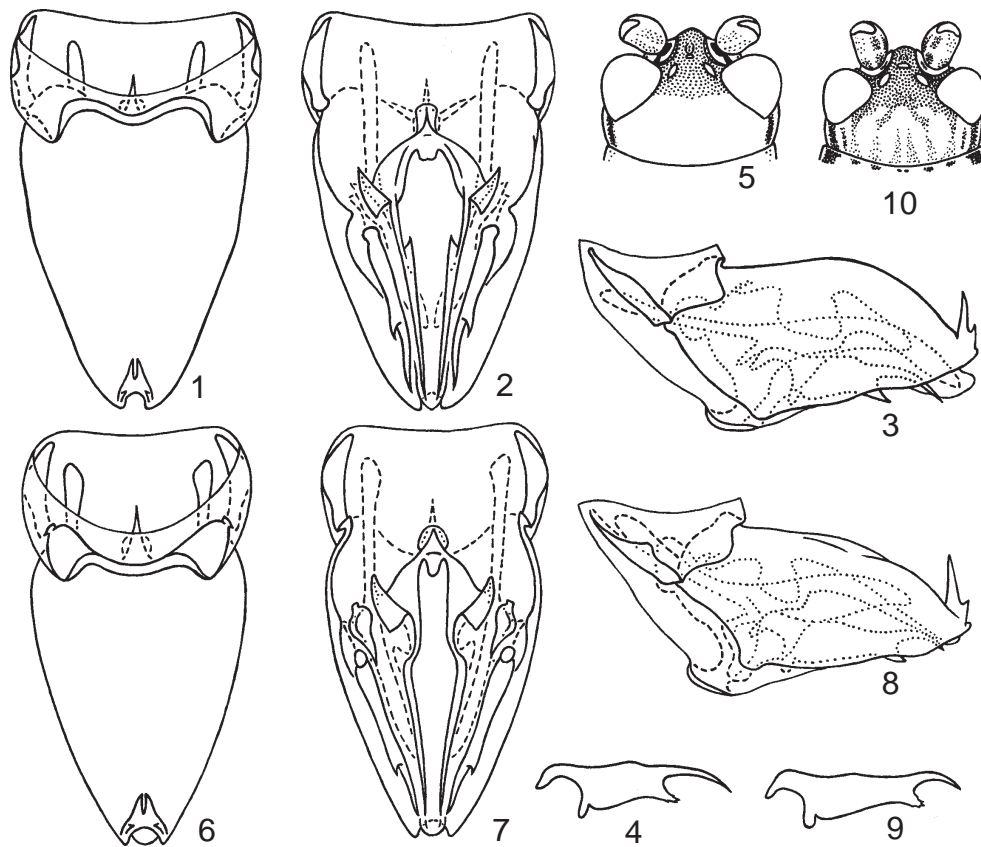
Length (mm). Body 18.5; body with wings 28; pronotum 3.1; tegmina 20; hind femora 12.5.

*Comparison.* *E. stolarczyki* is clearly distinguished from *E. idoneus* and *E. affinis* by the rather wide ectoparameres with bifurcate apical parts.

### Genus *Atruljalia* Gorochov, 1988

Type species: *Atruljalia malgasa* Gorochov, 1988.

*Note.* This genus is similar to *Podoscirtus* and *Eupodoscirtus*, but differs from them in the following characters: size medium (smaller than in *Podoscirtus*, but larger than in *Eupodoscirtus*); male tegmina provided with partly reduced stridulatory apparatus (stridulatory vein, oblique veins, and chords are well developed, but mirror is virtually absent) (Figs VI: 1, 5); male genitalia with much larger guiding rod strongly projecting backward in position of rest and provided with more or less twisted apical part (apex of spermatophore tube is also twisted) (Figs VI: 2-4, 6-9). This genus is similar to *Eupodoscirtus* and distinguished from *Podoscirtus* in some other characters: body and legs not very long; male anal plate with round membranous area (Fig. V: 2); male genital plate with transverse fold in middle



**Figs IV** (1-10). *Eupodoscirtus*, male. **1-5**, *E. voeltzkowi* sp. n.; **6-10**, *E. stolarczyki* sp. n. Genitalia in position of rest from above (1, 6), from below (2, 7), and from side (3, 8); ectoparamere from side (4, 9); head from above (5, 10).

part (Fig. V: 1); male genitalia with not very long epiphallus and two projections in proximal part of ectoparameres (Figs VI: 2-4, 6-8).

The genus includes the type species (from Madagascar: "Ranomafana") and *A. ampla* sp. n.

***Atruljalia ampla* sp. n.**  
(Figs V: 1, 2; VI: 1-4)

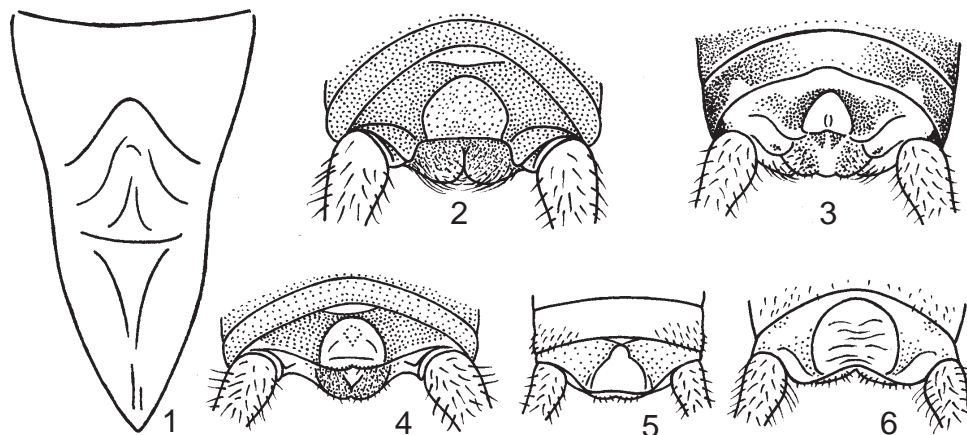
*Holotype*. ♂, **Madagascar**, "Maroancetra, Madagascar, 12.1897", "Collection A. Finot. *Calyptotrypus spec. nova*" (MNCN).

*Paratype*. ♂, same data as in holotype (ZIAS).

*Description*. Male (holotype). Head intensely brown above and light brown under eyes and behind lower and middle parts of eyes; this coloration combined with slightly distinct lightish and darkish lines and small spots (almost marmorate); antennae uniformly light brown; membranes of their cavities with dark spots. Pronotum and legs brown with slightly distinct stripes

and small spots (marmorate also). Tegminal dorsal part brown with small whitish spots at base (near lateral area), near plectrum, and near lateral corner of former mirror; venation of this part as in Fig. VI: 1; tegminal lateral area very light brown with brown longitudinal veins, yellowish crossveins, and darkish spots on membranes of most cells. Hind wings brownish grey, rather light in proximal part and darker in distal part. Pterothorax and abdomen brown above and somewhat lighter beneath, but apical tergites, sclerotized parts of anal plate, paraprocts, and spots on genital plate almost dark brown, membranous area of anal plate slightly lighter, and cerci light brown; anal and genital plates as in Figs V: 1, 2; genitalia as in Figs VI: 2-4.

*Variation*. Lateral pronotal lobes in paratype slightly lighter, almost light brown, but with numerous darkish dots; apical part of hind femora and base of hind tibiae in paratype almost dark brown.



**Figs V** (1-6). Male. **1, 2**, *Atruljalia ampla* sp. n. (holotype); **3**, *Spinotrella pulcherrima* sp. n.; **4**, *Malgasotrella robusta* sp. n.; **5**, *Ultratrella gracilis* sp. n.; **6**, *Zvenellomorpha bella* sp. n. Genital plate from below (1); anal plate from above/behind (2-6).

Length (mm). Body 34; body with wings 42-44; pronotum 5.4-5.6; tegmina 30-32; hind femora 19-20.

**Comparison.** *A. ampla* is very similar to *A. malgasa*, but differs from it in the clearly larger size (in *A. malgasa*, lengths of pronotum, tegmina, and hind femora are 4.5, 27, and 16.5 mm, respectively), absence of additional longitudinal vein in tegminal dorsal part between chords and former mirror (for comparison see Figs VI: 1, 5), arched middle part of epiphallus (Figs VI: 4, 8), much shorter lateral apical processes of epiphallus (Figs VI: 2, 4, 6, 8), position of hind tubercle on medial apical processes of epiphallus (almost central position in *A. ampla* and distal position in *A. malgasa*; Figs VI: 4, 8), larger lateral lobes of spermatophore attachment plate (Figs VI: 3, 7), and shape of apical part of ectoparameres (Figs VI: 2-4, 6-8).

**Genus *Malgasotrella* gen. n.**

Type species: *Malgasotrella robusta* sp. n.

**Diagnosis.** Similar to *Podoscirtus*, *Eupodoscirtus*, and *Atruljalia* in shape of head, absence of metanotal gland, and structure of male genitalia including presence of characteristic tubercle on hind surface of medial pair of apical epiphallic processes (Figs VII: 4-6, 8-10), but differs from all above-mentioned genera in somewhat smaller ocelli, robust body and legs, oval tympana, well developed stridulatory apparatus in male tegmina, and wide (lobe-like) lateral apical processes of epiphallus (Figs VII: 6, 10); in addition, distinguished from *Podoscirtus* by male anal plate

with characteristic membranous area (similar to that of *Eupodoscirtus* and *Atruljalia*) (Fig. V: 4), from *Eupodoscirtus* by distinctly larger size and low epiphallus, and from *Atruljalia* by shorter guiding rod with normal apical part.

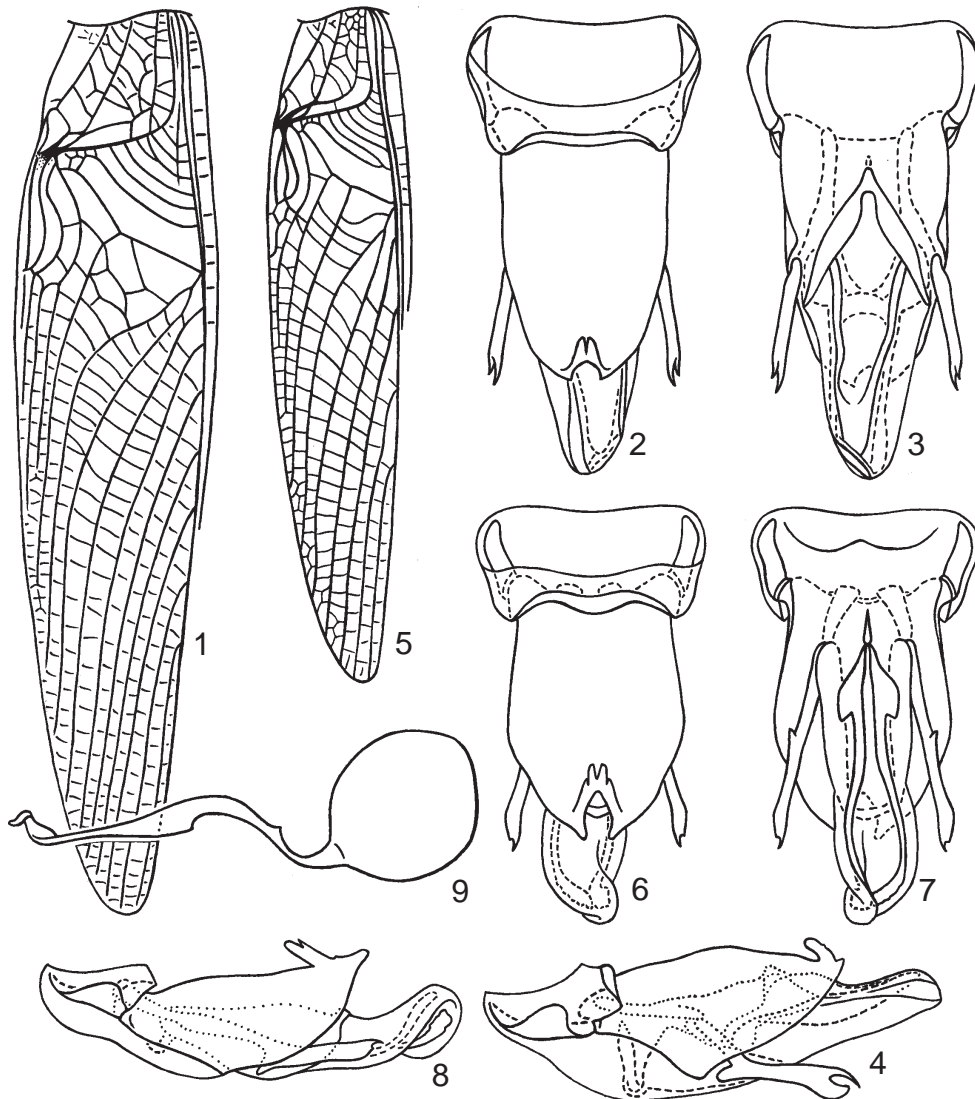
**Included species:** type species and *M. venosa* sp. n.

**Note.** There are two females in MNHU labelled "O. [Ost] Madagascar, Tenerivo, Voeltzkow S." and "Madagascar, Sainte Marie, A. Voeltzkow S.", respectively. They possibly belong to this genus, but more exact determination is problematic. They are somewhat longer than the males described below; length of their ovipositor is 18.5-19.5 mm; its apex is drilling (Fig. VII: 11).

***Malgasotrella robusta* sp. n.**  
(Figs V: 4; VII: 7-10)

**Holotype.** ♂, **Madagascar**, "Fort Dauphin, Madagascar mer., Sikora, 1899" (ZIAS).

**Description.** Male (holotype). Coloration of head, pronotum, and legs brown with dark brown rostral part and large spot on upper part of head (between fore parts of eyes), numerous darkish and lightish small spots and short stripes (marmorate, almost as in *Atruljalia ampla*), and slightly darkened apex of femora. Tegmina with dorsal part as in Fig. VII: 7; coloration of this part light brown with brown veins, basal area, longitudinal spots between oblique and diagonal veins and between latter vein and chords, stripe along lateral edge of dorsal part, and several short spots between anal chords, near anal edge of mirror, and on apical area; lateral area of tegmina dark



**Figs VI (1-9).** *Atruljalia*, male. **1-4**, *A. ampla* sp. n. (2-4, holotype); **5-9**, *A. malgasa* Gor. (after Gorochov, 1988). Dorsal part of right tegmen (1, 5); genitalia from above (2, 6), from below (3, 7), and from side (4, 8); spermatophore from side (9).

brown with light stripe along lower edge and yellow spots around crossveins situated along upper edge (between *R* and *M*); hind wings greyish. Pterothorax and abdomen brown, but with lighter sternites, cerci, and round membrane of anal plate, darker (more or less marmorate) tergites, and almost dark brown paraprocts and rest of anal plate (Fig. V: 4). Genital plate probably similar to that in Fig. VII: 3 (its distal part damaged); genitalia as in Figs VII: 8-10.

Female unknown.

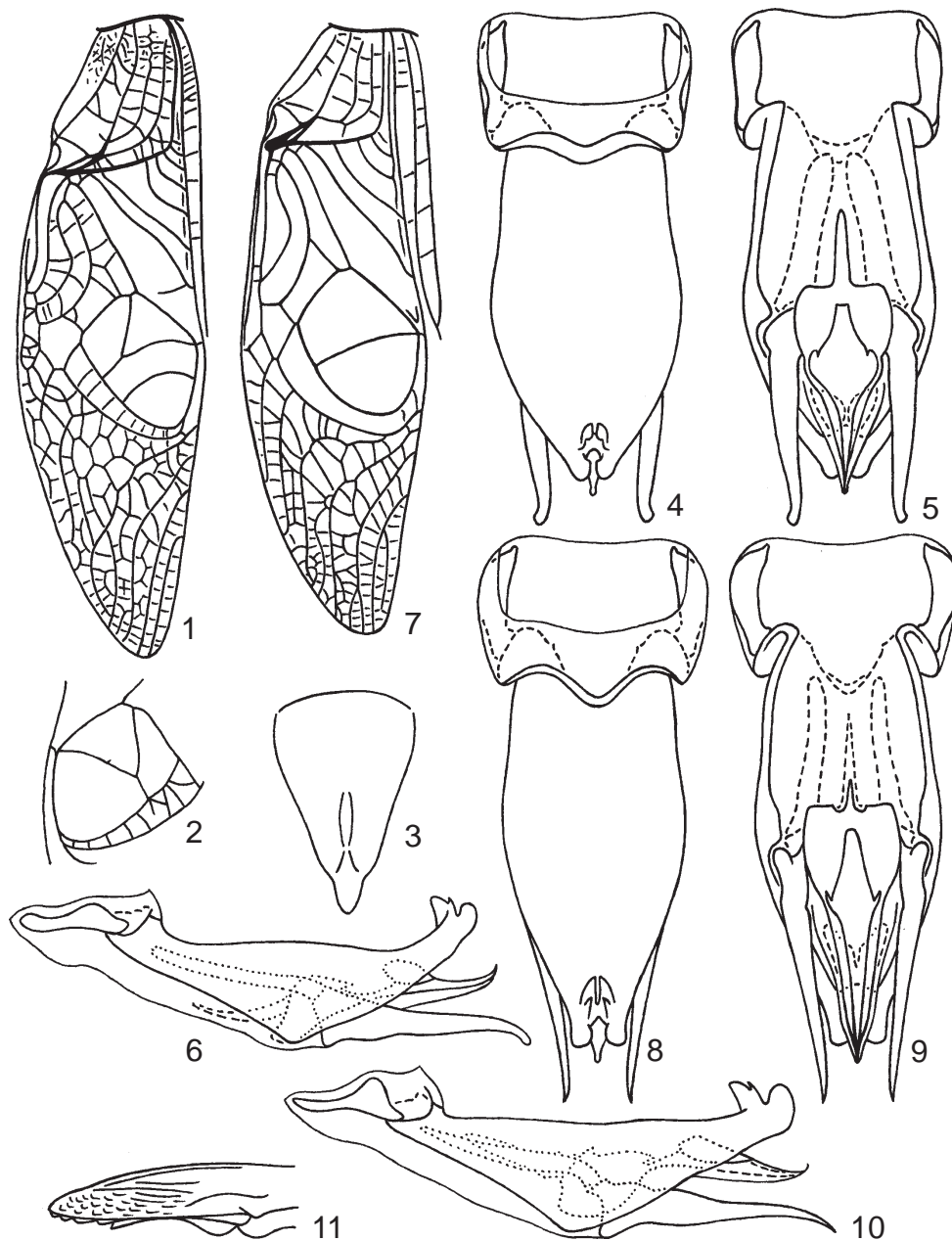
Length (mm). Body 27; body with wings 33; pronotum 4.7; tegmina 21; hind femora 15.5.

***Malgasotrella venosa* sp. n.**  
(Figs VII: 1-6)

*Holotype*. ♂, **Madagascar**, "S. C. [Süd Central] Madagaskar, Hildebrandt" (MNHU).

*Description*. Very similar to *M. robusta*, but distinguished by following characters: head and pronotum with light brown longitudinal bands

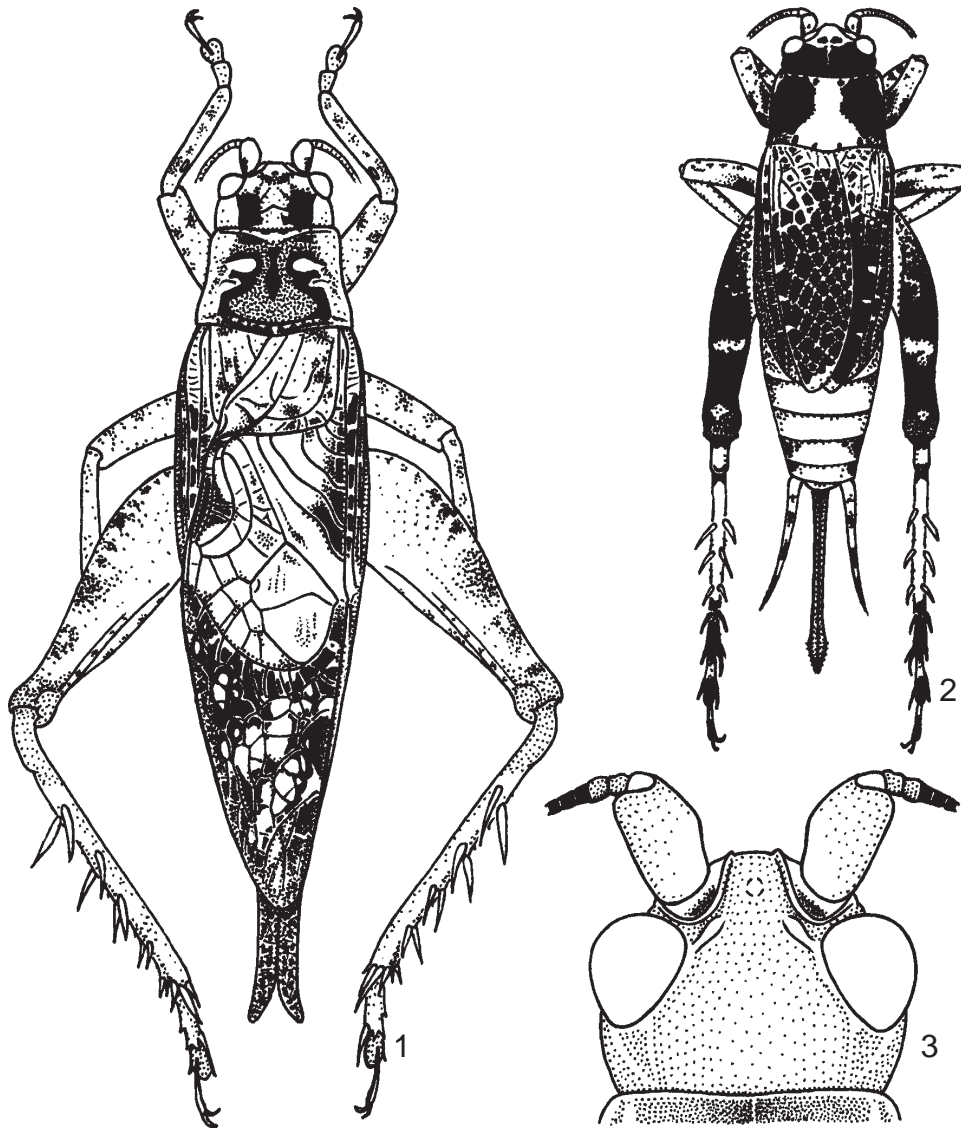




**Figs VII** (1-11). *Malgasotrella*. 1-6, *M. venosa* sp. n., male; 7-10, *M. robusta* sp. n., male; 11, *M.*? sp., female. Dorsal part of right tegmen (1, 7); mirror of left tegmen (2); genital plate from below (3); genitalia from above (4, 8), from below (5, 9), and from side (6, 10); apex of ovipositor from side (11).

behind eyes and along lateral edges of pronotal disc; tegmina noticeably pubescent, with distinctly longer basal and apical areas, slightly shorter mirror and distal oblique vein, rather numerous

additional crossveins in mirror, between chords, between chords and diagonal vein, between chords and mirror, and in long cell near distal part of mirror (in *M. robusta*, these crossveins



**Figs VIII** (1-3). *Spinotrella* and *Zvenellomorpha*. 1, *S. pulcherrima* sp. n., male; 2, *S.?* *variegata* sp. n., female; 3, *Z. bella* sp. n. General view from above (1, 2); head from above (3).

absent) (for comparison see Figs VII: 1, 2 and 7); tegminal dorsal part almost dark brown with some crossveins yellowish; legs more distinctly spotted; epiphallus with distal part slightly curved upwards and lateral apical (lobe-like) processes smaller; ectoparameres with narrowly rounded (not acute) apex (see Figs VII: 4-6 and 8-9). Genital plate as in Fig. VII: 3.

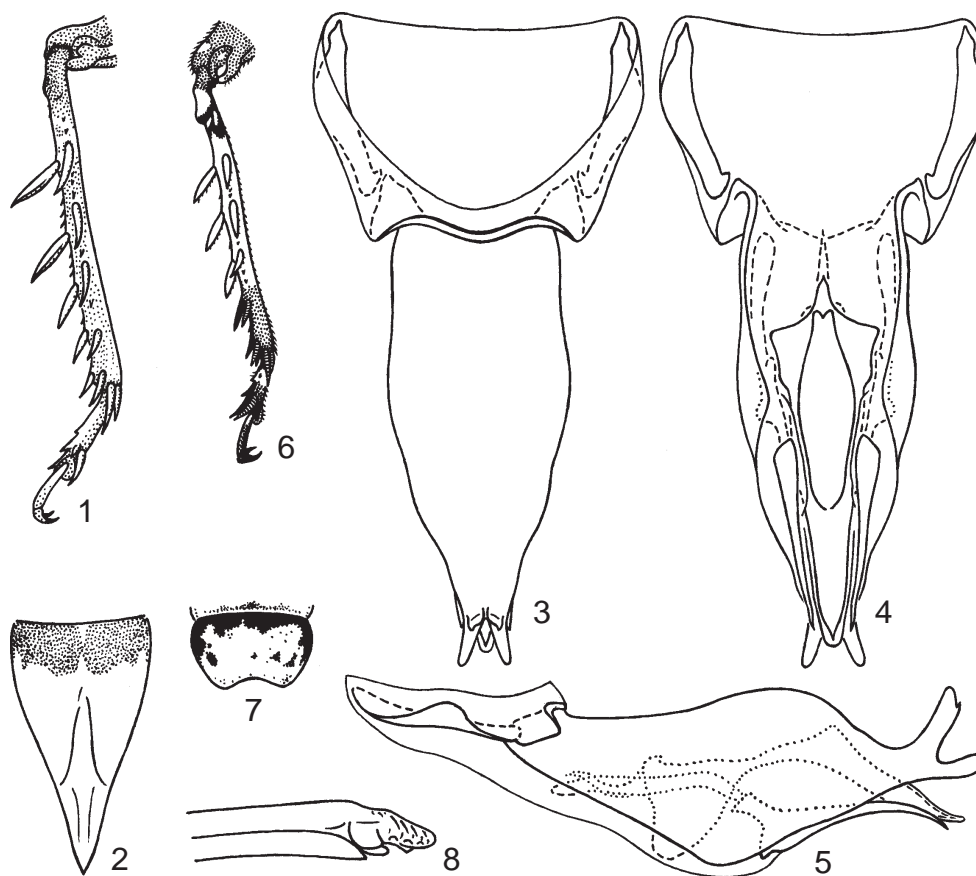
Female unknown.

Length (mm). Body 26; body with wings 33; pronotum 4.7; tegmina 22.5; hind femora 15.

#### Genus *Spinotrella* gen. n.

Type species: *Spinotrella pulcherrima* sp. n.

*Diagnosis.* Similar to *Malgasotrella* in shape of head, absence of metanotal gland, presence of well developed stridulatory apparatus of male tegmina, and structure of male anal plate and male genitalia (Figs V: 3; IX: 3-5), but differs in very characteristic hind tibiae provided with very large (much longer and thicker) proximal articulated spines and not numerous small denticles (Figs



**Figs IX (1-8).** *Spinotrella*. 1-5, *S. pulcherrima* sp. n., male; 6-8, *S.?* *variegata* sp. n., female. Hind tibia from side/above (1, 6); genital plate from below (2, 7); genitalia from above (3), from below (4), and from side (5); apex of ovipositor from side (8).

IX: 1, 6) (these characters clearly distinguish the new genus also from all other genera of Podoscirtini), narrower and longer lateral apical processes of epiphallus, distinctly higher middle part of epiphallus, and somewhat shorter ectoparameres (for comparison see Figs VII: 4-6, 8-10 and IX: 3-5).

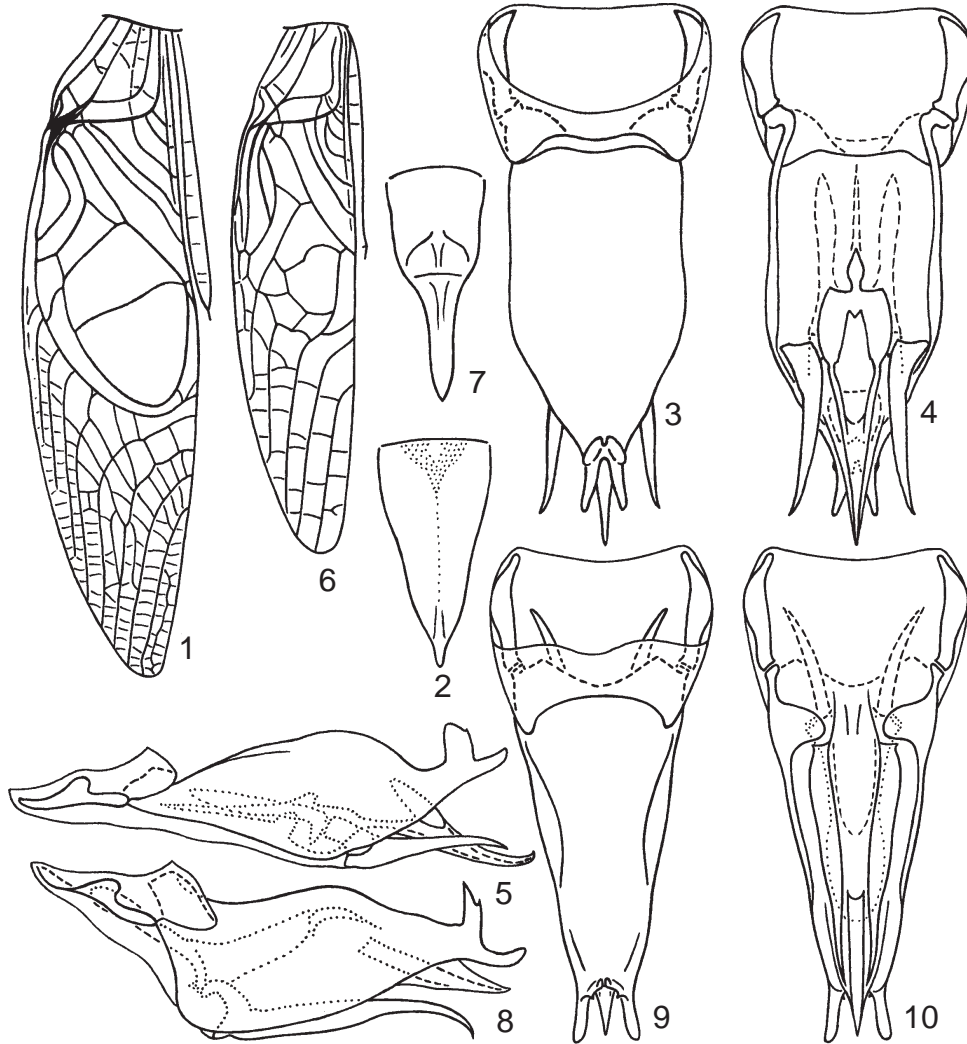
*Included species:* type species and possibly *S.?* *variegata* sp. n.

***Spinotrella pulcherrima* sp. n.**  
(Figs V: 3; VIII: 1; IX: 1-5)

*Holotype.* ♂, Madagascar, distr. Tamatave, environs of Moramanga, 13-17.XII.1995, collector unknown (ZIAS).

*Description.* Male (holotype). Head with well developed ocelli, yellowish with a pair of large dark brown spots on vertex, small brown spots under antennae, on clypeus, genae, and lateral

surfaces of scape, brownish lines on light parts of vertex, light brown transverse spot near lateral ocelli and numerous rings of antennal flagellum (Fig. VIII: 1). Pronotum rather high, with yellowish lateral lobes provided with slight darkenings along hind edge, and with characteristic coloration of disc (reddish brown with a pair of yellowish spots and dark brown marks: stripes bordering reddish and yellowish parts, median stripe, and a pair of spots near anterior edge of disc) (Fig. VIII: 1). Legs and tympana yellowish with numerous brown and dark brown spots of diverse shapes (Fig. VIII: 1); both tympana well developed, oval; spines and denticles of hind tibiae as in Fig. IX: 1; venation of tegminal dorsal part as in Fig. VIII: 1; lateral tegminal area with brown longitudinal veins, whitish crossveins, and partly dark brown membranes of most cells; hind wings long, with brownish distal part. Pterotho-



**Figs X (1-10).** Male. **1-5**, *Ultratrella gracilis* sp. n.; **6-10**, *Zvenellomorpha bella* sp. n. Dorsal part of right tegmen (1, 6); genital plate from below (2, 7); genitalia from above (3, 9), from below (4, 10), and from side (5, 8).

rax and abdomen yellowish with small brownish grey spots on ventral part and partly darkened apical tergites, base of genital plate, anal plate, and paraprocts; structure of anal and genital plates as in Figs V: 3; IX: 2; genitalia as in Figs IX: 3-5.

Female unknown.

Length (mm). Body 25; body with wings 35; pronotum 4.5; tegmina 24; hind femora 14.5.

**Spinotrella? variegata** sp. n.  
(Figs VIII: 2; IX: 6-8)

*Holotype*. ♀, **Madagascar**, "Manankaro [Manakara?]", 28-30.XI.1997, J. Stolarczyk (ISEA).

*Description*. Female (holotype). Clearly distinguished from *S. pulcherrima* by much smaller size, strongly reduced ocelli, lower pronotum, presence of only outer tympanum, almost round shape of this tympanum, shorter hind femora, more distinct tubercle at base of hind tibiae (Fig. IX: 6), shorter wings (extending only to 6th abdominal tergite), and strongly differing coloration (Fig. VIII: 2); head generally black, but with whitish large spot above (between fore parts of eyes including upper part of rostrum; this spot provided with a pair of smaller blackish spots), two proximal antennal segments (scape with blackish dot above and spot on lateral surface),

small spots under antennae and eyes, on genae, clypeus, and palpi; mandibles and labrum with dark brown and light brown parts; antennal flagellum brownish with sparse yellowish rings; pronotal lateral lobes black with whitish band along lower edge and small light spots along hind edge; pronotal disc with whitish median and black lateral parts; fore and middle legs whitish with large black spots in basal part of femora, smaller blackish spots in rest of femora, in distal part of tibiae, not far from base of tibiae, and on tarsi (at base, in middle and distal parts); hind femora black with whitish inner surface of proximal and middle parts as well as two spots on upper surface of distal part; hind tibiae whitish with black distal part and small blackish spots at base and not far from it; hind tarsi similar in coloration to fore and middle ones; tegmina black with whitish very large proximal spot on dorsal part, small dots on lateral area, and crossveins along longitudinal bend of tegmina; pterothorax and abdomen whitish with blackish spots on lateral parts of tergites, on sternites including genital plate, and on cerci. Genital plate as in Fig. IX: 7; ovipositor well developed, not very long, with characteristic drilling apex (Fig. IX: 8).

Male unknown.

Length (mm). Body 10.5; pronotum 1.8; tegmina 6; hind femora 6; ovipositor 4.9.

#### Genus *Ultratrella* gen. n.

Type species: *Ultratrella gracilis* sp. n.

*Diagnosis.* Similar to *Malgasotrella* and *Spinotrella* in structure of male tegmina, male metanotum, male anal plate, and male genitalia (the latter especially similar to those of *Spinotrella*; for comparison see Figs IX: 3-5 and X: 3-5), but distinguished from them by distinctly smaller head, slender body more depressed dorsoventrally (including head and pronotum having lower lateral lobes), distinctly longer and narrower legs (the latter almost as in *Podoscirtus*, including structure of tympana), strongly developed male tegminal stridulatory apparatus with very large mirror (Fig. X: 1), and triangular membranous area of male anal plate (Fig. V: 5). In addition, the new genus differs from *Spinotrella* in normal structure of hind tibiae: articulated spines much smaller, small denticles very numerous.

*Included species:* type species only.

#### *Ultratrella gracilis* sp. n.

(Figs V: 5; X: 1-5)

*Holotype.* ♂, Madagascar, "Madagaskar, Jîô t-Prune, Friederichs S.V." (MNHU).

*Description.* Male (holotype). Body strongly pubescent. Ocelli very small, but distinct; head

light greyish brown with yellowish mouthparts, lower parts of genae, and two longitudinal stripes behind each eye, brown small spot under rostral apex and lines along upper edge of upper yellowish stripes and lower edge of lower ones; antennae uniformly light greyish brown. Pronotum light greyish brown with yellowish band along upper edge of lateral lobes and numerous darkish dots under this band. Legs from light greyish brown to light brown, but with slightly distinct darkish dots and small spots on fore and middle femora and tibiae. Venation of tegminal dorsal part as in Fig. X: 1; tegmina almost transparent, but with brownish longitudinal veins, yellowish band along longitudinal bend of tegmina, and few small brown spots on this band and upper part of lateral area; hind wings long, transparent. Pterothorax and abdomen from light brown to yellowish, but anal plate brown with whitish membranous area; anal and genital plates as in Figs V: 5; X: 2; genitalia as in Figs X: 3-5.

Female unknown.

Length (mm). Body 22; body with wings 34; pronotum 3.7; tegmina 23; hind femora 16.5.

#### Genus *Zvenellomorpha* gen. n.

Type species: *Zvenellomorpha bella* sp. n.

*Diagnosis.* Similar to *Ultratrella* in slender body, distinctly depressed dorsoventrally head and pronotum, rather narrow legs, oval both tympana, and hind tibiae with short spines and numerous denticles, but distinguished by much smaller size, partly reduced ocelli (Fig. VIII: 3), and slightly reduced stridulatory apparatus of male tegmina (Fig. X: 6). Male metanotal gland reduced, but metanotum with small elevated area in middle part. Male anal plate with large membranous area (Fig. V: 6); male genital plate with very narrow distal part (Fig. X: 7); male genitalia similar to those of *Ultratrella* and *Spinotrella*, but with much longer ectoparameres connected with epiphallus in its proximal part (in middle part in *Ultratrella* and *Spinotrella*).

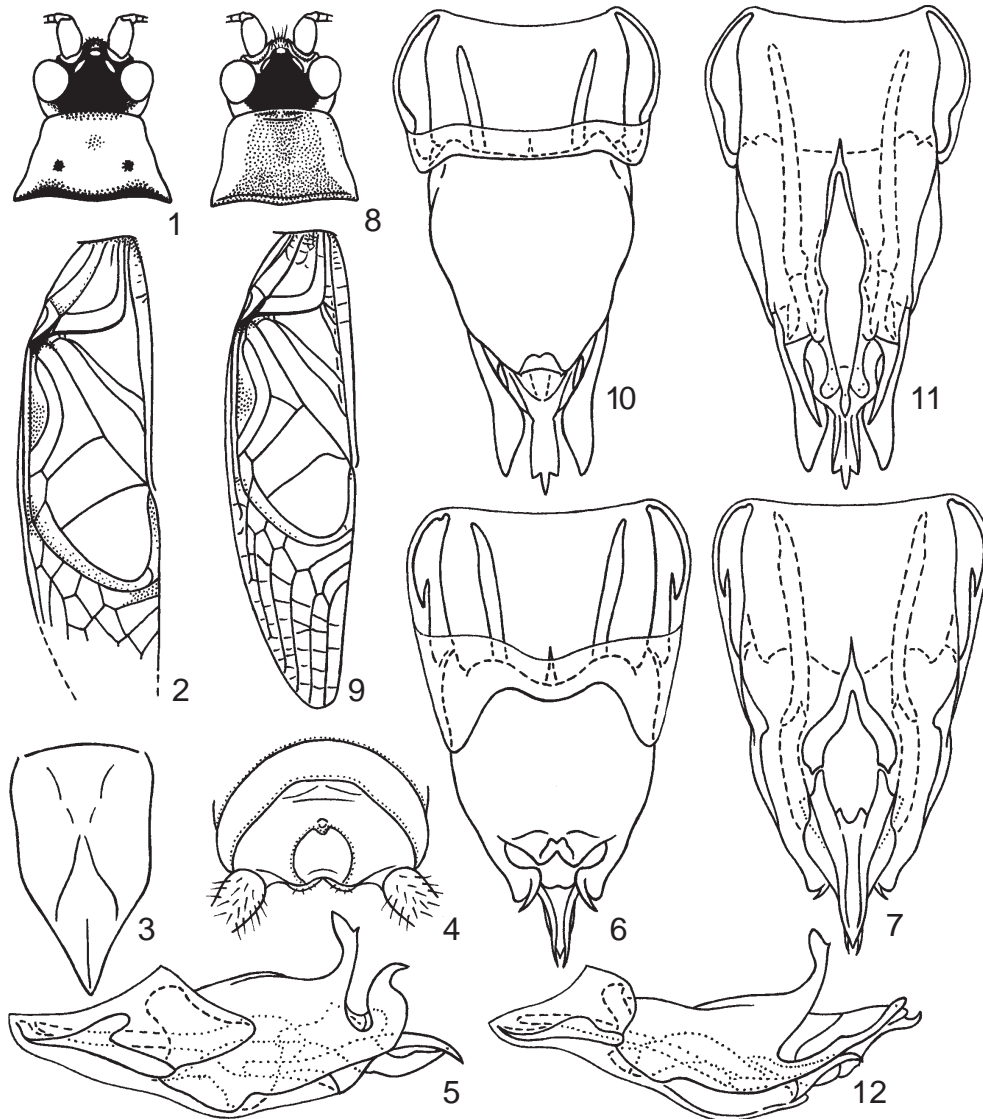
*Included species:* type species only.

#### *Zvenellomorpha bella* sp. n.

(Figs V: 6; VIII: 3; X: 6-10)

*Holotype.* ♂, Madagascar, "Manankaro [Manakara?]", 28-30.XI.1997, J. Stolarczyk (ISEA).

*Description.* Male (holotype). Head reddish brown (not dark) with yellowish mouthparts, palpi, genae under eyes, and narrow stripes along inner parts of eyes and behind them, light brown base of scapes, blackish proximal part of antennal flagellum (excepting 1-2 proximal segments), and brown (with lightish spots) middle and distal parts of this flagellum; ocelli partly reduced:



**Figs XI (1-12).** *Neozenella*, male. **1-7**, *N. picta* sp. n.; **8-12**, *N. bona* sp. n. Head and pronotum from above (1, 8); dorsal part of right tegmen (2, 9); genital (3) and anal (4) plates from below (3) and from behind/above (4); genitalia from above (6, 10), from below (7, 11), and from side (5, 12).

lateral ocelli represented by a pair of elongate convexities, median ocellus represented by only traces (small concavity on rostrum) (Fig. VIII: 3). Pronotal disc reddish brown with yellowish interrupted line along anterior edge and narrow stripes along lateral edges; pronotal lateral lobes almost uniformly light brown. Legs yellowish with very slight darkish spots on upper parts of all femora and fore and middle tibiae. Tegminal dorsal part as in Fig. X: 6; its coloration light

brown with slightly darker basal area, region of chords, and most of longitudinal veins, whitish longitudinal spot along anal edge of proximal part of basal area, round spot near plectrum, triangular spot near lateral corner of mirror, large spot near posterolateral part of mirror, longitudinal stripe between *M* and *CuA*, and some crossveins; tegminal lateral area transparent with narrow dark brown stripe along *M*, yellowish (almost whitish) veins and areas between *Sc* and *M*; hind

wings transparent with yellowish veins, but their apical (exposed) parts almost light brown. Pterothorax and abdomen yellowish with brownish spots on cerci; metanotal elevated area triangular and with concave upper surface, but without hairs; anal and genital plates as in Figs V: 6 and X: 7; genitalia as in Figs X: 8-10.

Female unknown.

Length (mm). Body 15; body with wings 21.5; pronotum 2.2; tegmina 15.5; hind femora 10.3.

#### Genus *Neozvenella* gen. n.

Type species: *Neozvenella picta* sp. n.

**Diagnosis.** Similar to *Zvenellomorpha* in general appearance (size; shape of body and legs; structure of tympana, hind tibiae, male anal plate) (Fig. XI: 4) and structure of male genitalia including presence of characteristic tubercle on hind surface of medial pair of apical epiphallic processes (this tubercle present also in all previous genera), but differs in following characters: ocelli well developed, usually large (Figs XI: 1, 8; XII: 1, 6; XIII: 1); male stridulatory apparatus strongly developed (Figs XI: 2, 9; XII: 2, 7) or slightly reduced (Figs XIII: 2), but usually with two distal oblique veins fused with each other in proximal part (Figs XI: 2, 9; XII: 2, 7; XIII: 2); male metanotum with a pair of small convexities; male genital plate with narrow distal part less long (for comparison see Figs X: 7 and XI: 3); male genitalia with shorter ectoparameres (as in majority of previous genera), but distinguished from those of all previous genera by characteristic structure of apical epiphallic processes (medial processes longer, fused with each other in proximal and middle parts, and with strongly curved distal parts; lateral processes also long, very diverse in shape) and guiding rod (large, well sclerotized, with hook-like apical part) (Figs XI: 5-7, 10-12; XII: 3-5, 8-10; XIII: 3-5).

**Included species:** type species; *N. bona* sp. n.; *N. aucta* sp. n.; *N. hildebrandti* sp. n.; *N. ablata* sp. n.; possibly *N. ? sikorai* sp. n. and maybe *Calypotypus hova* Brancsik, 1895 (see p. 215).

#### *Neozvenella picta* sp. n. (Figs XI: 1-7)

**Holotype.** ♂, Madagascar, "Ambohitomba, Madagascar.", Sikora? (ZIAS).

**Description.** Head light brown with dark brown upper part and eyes (rostral apex, ocelli and vertical stripes on eyes light brown); ocelli large. Pronotum light brown with a pair of small brown spots on disc and dark brown stripe along hind edge of disc (Fig. XI: 1). Tegmina virtually transparent, with dark brown spots at base of dorsal part, near plectrum, in region of two medial

chords, and around distal part of mirror, narrow stripe along *Sc* and *R*, somewhat lighter (brown) veins in apical area of dorsal part, light brown rest of veins, and yellowish stripes along *M* and medial edge of dorsal part; venation of tegminal dorsal part as in Fig. XI: 2; hind wings as in *Zvenellomorpha bella*. Legs, pterothorax, and abdomen from light brown to yellowish; anal and genital plate as in Figs XI: 3, 4; genitalia with lateral apical epiphallic processes strongly curved (directed upwards) and with comparatively simple apical part of guiding rod (Figs XI: 5-7).

Female unknown.

Length (mm). Body 13; body with wings 20; pronotum 1.9; tegmina 14.5; hind femora 8.5.

#### *Neozvenella bona* sp. n. (Figs XI: 8-12)

**Holotype.** ♂, Madagascar, "Analamazaotra", 3-8.XI.1997, J. Stolarczyk (ISEA).

**Description.** Male (holotype). Similar to *N. picta*, but distinguished from it by following characters: dark brown part of head slightly smaller; pronotal disc almost uniformly brown (rather light, but slightly darker than lateral lobes) (Figs XI: 8); dark parts of tegmina less distinct (darkish stripe along *Sc* and *R* almost indistinct); tegminal mirror with more angular proximal part and shorter distal part (Fig. XI: 9); genitalia with almost straight (directed backward) lateral apical epiphallic processes, distinctly shorter ectoparameres, and characteristic hook at apex of guiding rod (Figs XI: 10-12).

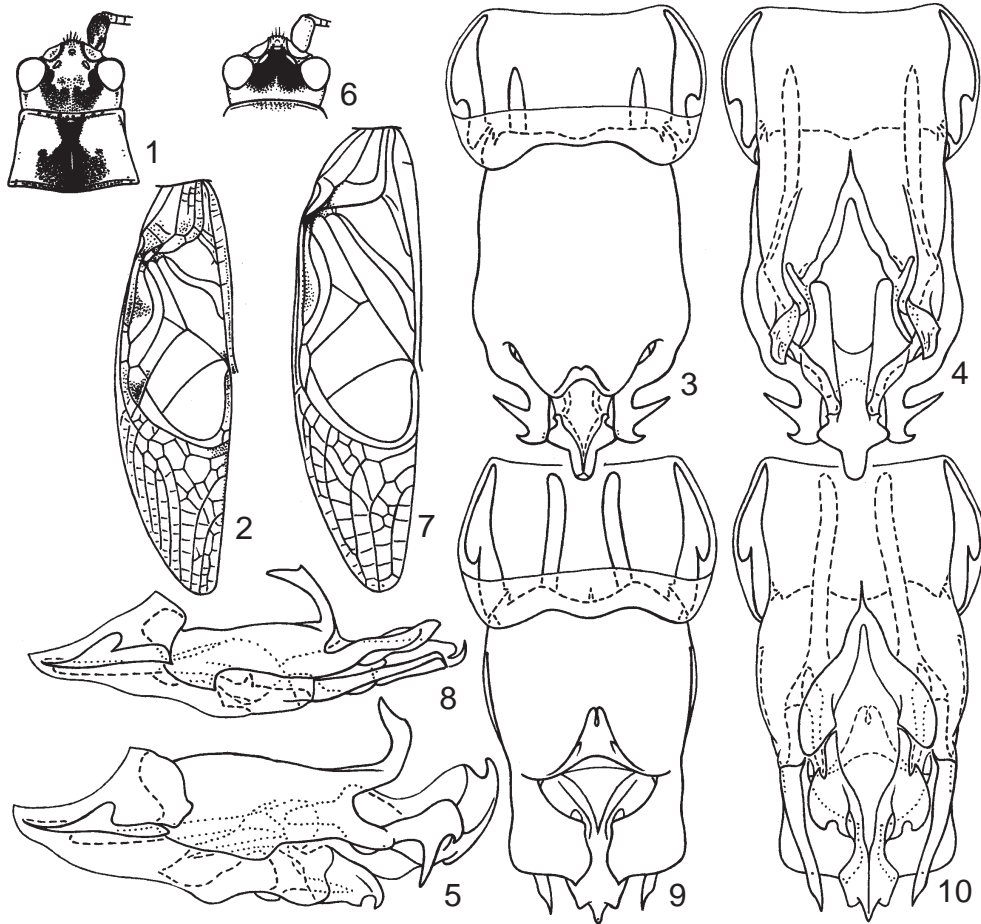
Female unknown.

Length (mm). Body 14; body with wings 21; pronotum 2.1; tegmina 15; hind femora 9.

#### *Neozvenella aucta* sp. n. (Figs XII: 1-5)

**Holotype.** ♂, Madagascar, "Analamazaotra", 3-8.XI.1997, J. Stolarczyk (ISEA).

**Description.** Male (holotype). Differs from *N. picta* and *N. bona* in following characters: size somewhat larger; ocelli distinctly smaller; dark upper part of head with large whitish spot between eyes; head rostrum and two proximal antennal segments partly dark brown (Fig. XII: 1); pronotum with narrower median dark part of disc, greyish brown lateral parts of disc, and sparse darkish dots on light brown pronotal lobes (Fig. XII: 1); tegmina semitransparent, but with brownish grey tissue, dark brown spots of dorsal part as in Fig. XII: 2 and stripe between *R* and *M*, whitish *M*, crossveins between *R* and *CuA*, and some veins around mirror and along lateral edge of apical area; shape of tegminal mirror almost intermediate between that of *N. picta* and *N. bona* (Fig. XII: 2); distal part of hind wings darker,



**Figs XII** (1-10). *Neozvenella*, male. 1-5, *N. aucta* sp. n.; 6-10, *N. hildebrandti* sp. n. Head and pronotum (1) and head (6) from above; dorsal part of right tegmen (2, 7); genitalia from above (3, 9), from below (4, 10), and from side (5, 8).

greyish; legs light brown with numerous darkish dots, sparse small spots on fore and middle legs, and numerous spots more or less fused with each other in distal part of hind femora; genitalia with characteristic lateral apical epiphallic processes (widened at apex and provided with distinct spines), shorter and much wider ectoparameres, and different shape of guiding rod and its apical hook (Figs XII: 3-5).

Female unknown.

Length (mm). Body 17; body with wings 25; pronotum 2.7; tegmina 18; hind femora 11.5.

***Neozvenella hildebrandti* sp. n.**  
(Figs XII: 6-10)

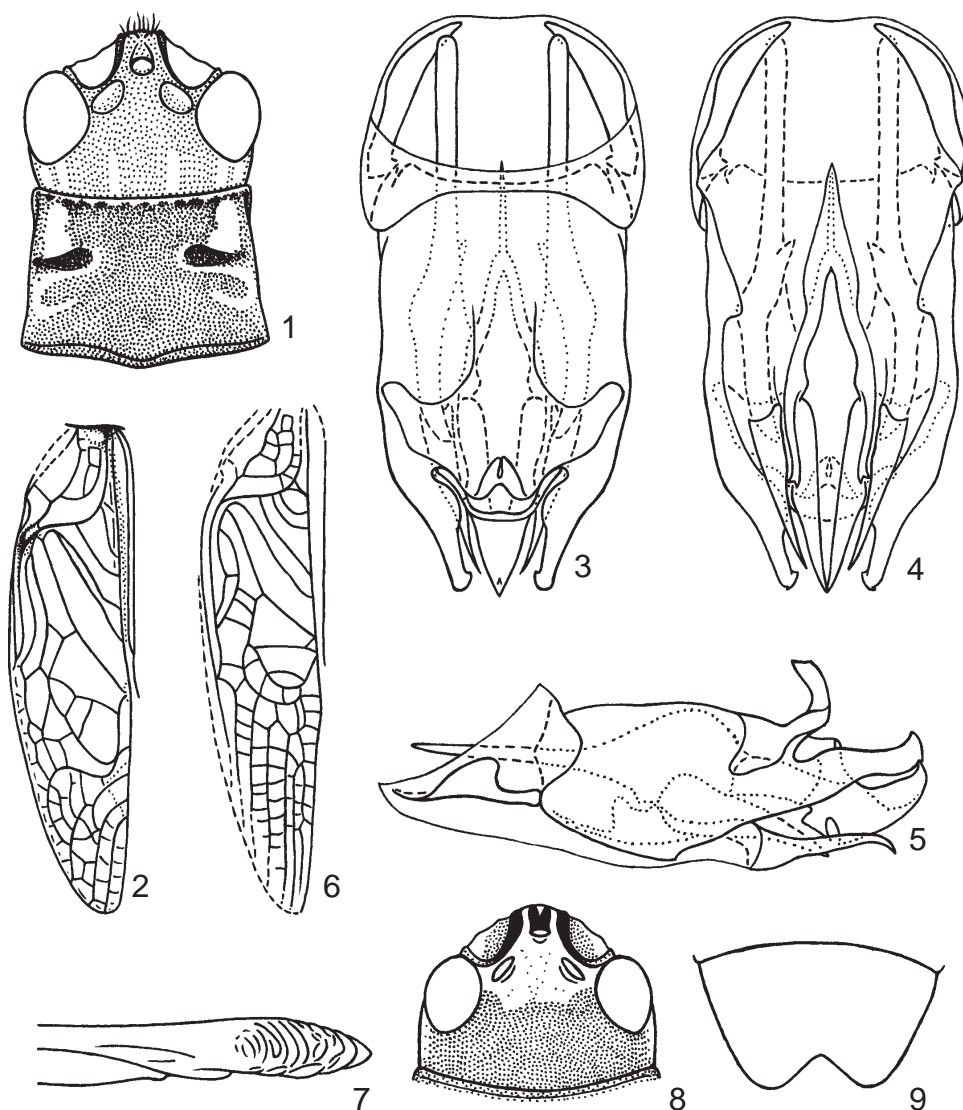
*Holotype*. ♂, Madagascar, "S. C. [Süd Central] Madagaskar, Hildebrandt", "*Calyptotrypus grandidieri* Sauss." (MNHU).

*Description*. Male (holotype). Distinguished from all previous congeners in following characters: coloration almost as in *N. bona*, but with larger light hind part of vertex (Fig. XII: 6), lighter pronotal disc (with only slight darkish stripes along anterior and posterior edges); almost uniformly transparent tegmina (with only two brownish darkenings: near plectrum, in region of two medial chords, and along upper edge of lateral area); size of ocelli as in *N. picta* and *N. bona*; tegminal mirror somewhat larger; tegminal apical area slightly shorter (Fig. XII: 7); genitalia with very wide lateral apical epiphallic processes, long and almost straight ectoparameres provided with strongly curved apex, and characteristic shape of guiding rod (Figs XII: 8-10).

Female unknown.

Length (mm). Body 13; body with wings 20; pronotum 2; tegmina 14; hind femora 8.5.





**Figs XIII (1-9).** *Neozvenella*. 1-5, *N. ablata* sp. n., male (holotype); 6, *N.?? hova* (Brancs.), male (after Brancsik, 1895); 7-9, *N.?? sikorai* sp. n., female. Head and pronotum (1) and head (8) from above; dorsal part of right tegmen (2, 6); genitalia from above (3), from below (4), and from side (5); apex of ovipositor from side (7); genital plate from below (9).

*Note.* This specimen was misidentified as *C. grandidieri*; the latter species is much larger (Saussure, 1878) and possibly belongs to another genus.

***Neozvenella ablata* sp. n.**  
(Figs XIII: 1-5)

*Holotype.* ♂, Madagascar, "Central Madagascar, Hildebrandt" (MNHU).

*Paratype.* ♂, same data as in holotype (ZIAS).

*Description.* Male (holotype). Distinguished from all previous congeners in characteristic coloration, partly reduced tegminal stridulatory apparatus, and details of genitalia: head brown with light brown lower part, scarcely distinct lines on hind part of vertex, and anterior parts of very large ocelli (Fig. XIII: 1); pronotum brown with narrow light brown stripes along its anterior edge and along lower and posterior edges of its lateral lobes, longitudinal yellowish spots along lateral edges of disc (Fig. XIII: 1), and small lightish

spot in anteroventral corner of each pronotal lateral lobe; tegmina greyish brown with whitish small spots at base of basal area, near plectrum, near lateral and posterolateral parts of mirror, stripe along upper edge of lateral area, and parts of veins situated near lower edge of this area; hind wings greyish; legs light brown with indistinct, very small darkish spots; pterothorax and abdomen dark brown with light upper part of pterothorax, upper median band on abdomen, round membranous area of anal plate, middle and distal parts of genital plate, and spotted cerci; tegminal mirror smaller than in all previous congeners, but larger (longer) than in *N.?? hova* (Brancsik) (Figs XIII: 2, 6), and with additional crossveins; genitalia with lateral apical epiphallic processes not strongly curved, not very wide, without spines, and with hook-like apex; shape of ectoparameres and guiding rod different from that of all previous congeners (Figs XIII: 3-5).

Variation. Darkened parts of head and pronotum slightly darker, dark brown; ocelli entirely yellow; light marks of head and pronotum yellow, more distinct on head and smaller on pronotum.

Female unknown.

Length (mm). Body 11; body with wings 14-14.5; pronotum 1.7-1.9; tegmina 10; hind femora 7-7.5.

***Neozvenella? sikorai* sp. n.**  
(Figs XIII: 7-9)

*Holotype*. ♀, Madagascar, "Fort Dauphin, Madagascar mer., Sikora, 1899" (ZIAS).

*Description*. Female (holotype). Clearly distinguished from all congeners by almost not depressed body (including head) and rather robust legs. Ocelli developed, not large; coloration of head characteristic: upper part brown with almost whitish large spot in region of ocelli; face yellowish with small reversed V-shaped dark brown spot on rostral apex and greyish labrum; antennal cavities yellowish with dark edges (excepting edge near eye) and darkish upper part of membrane (Fig. XIII: 8); antennae brown with dark 2nd antennal segment and somewhat lighter and darker spots on scape. Pronotum brown, almost uniform, but with light brown anteroventral spot on each lateral lobe. Both tympana oval; coloration of legs light brown with somewhat darkened apex of fore and middle femora, upper part of fore and middle tibiae, distal part of hind femora (their middle part forms gradual transition to lighter proximal part), two longitudinal lines on upper surface of each hind tibia, and small spot on lower surface of apical part of hind tibiae. Wings long; dorsal part of tegmina with 10 longitudinal (oblique) veins more or less reg-

ularly situated and with not very numerous crossveins; main veins along longitudinal bend of tegmina not fused with each other; tegminal coloration brownish grey with whitish six reticular spots situated at base and along lateral edge of dorsal part (these spots consist of whitish parts of veins with darker membranes between them), stripe along proximal part of *R*, and some crossveins near this stripe, yellowish lines on some longitudinal veins, light brown (semitransparent) lateral area; hind wings with brownish grey exposed part. Abdomen light brown; genital plate as in Fig. XIII: 9; ovipositor comparatively short, with drilling apex (Fig. XIII: 7).

Male unknown.

Length (mm). Body 16; body with wings 21; pronotum 3.2; tegmina 15; hind femora 12; ovipositor 5.5.

*Note*. This species clearly differs from all other *Neozvenella* species in the robust body. It may be a representative of another (new) subgenus or even genus.

Genus ***Stenogrylloides*** Chopard, 1952

Type species: *Stenogrylloides lucens* Chopard, 1952.

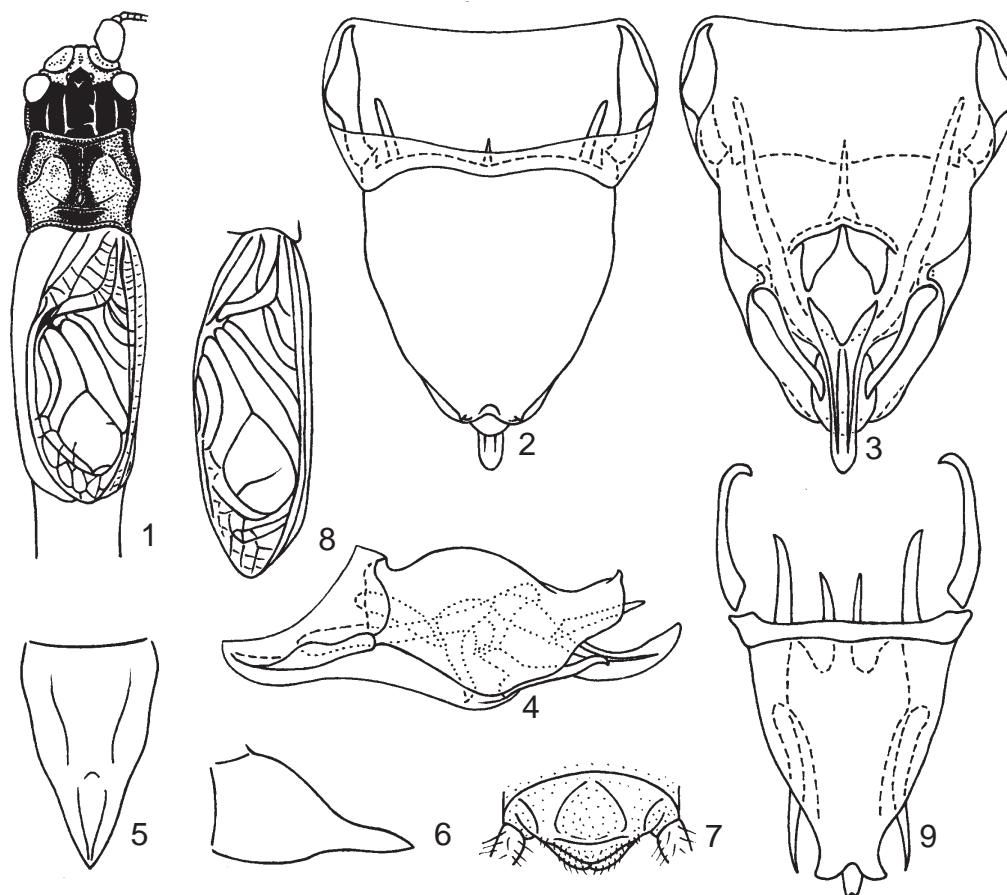
*Note*. The genus includes Podoscirtini with long and slender body and legs, shortened wings (distinctly not extending to abdominal apex), only outer tympanum (sometimes absent), normally developed stridulatory apparatus of male tegmina (Figs I: 2; XIV: 1, 8) (possibly, this apparatus may be sometimes reduced or absent), characteristic membranous area of male anal plate (Fig. XIV: 7), and male genital plate (Figs XIV: 5, 6) and male genitalia (Figs XIV: 2-4, 9) typical of this group of Podoscirtini (but the lateral apical epiphallic processes strongly reduced or virtually absent, and the medial ones without any tubercle on hind surface; the latter character distinguishes this genus from all genera discussed above).

*Stenogrylloides* contains 3 species from Madagascar: type species; *S. seyrigi* Chopard, 1952; *S. skeleton* sp. n.

***Stenogrylloides skeleton* sp. n.**  
(Figs XIV: 1-7)

*Holotype*. ♂, Madagascar, "Antsikanaka, Madagascar", Sikora? (ZIAS).

*Description*. Male (holotype). Similar to *S. lucens* in body structure, but distinguished by larger head, slenderer body and legs (hind legs are almost incapable to jumps), shorter pronotum and wings (especially apical area of tegmina) (for comparison see Figs XIV: 1 and 8), wider epiphallus (especially its distal part), less bifurcated epiphallic apex, and somewhat shorter ectoparameres (see Figs XIV: 2-4 and 9). Rostrum very



**Figs XIV (1-9).** *Stenogryllodes*, male. **1-7**, *S. skeleton* sp. n.; **8, 9**, *S. lucens* Chop. (after Chopard, 1952). Body without legs and abdominal apex from above (coloration of tegmina and abdomen not shown) (1); genitalia from above (2, 9), from below (3), and from side (4); genital (5, 6) and anal (7) plates from below (5), from side (6), and from above/behind (7); dorsal part of right tegmen (8).

narrow, distinctly angular in profile; median ocellus absent; lateral ocelli small; upper part of head near these ocelli with transverse concavity (this concavity with a pair of additional small concavities between lateral ocelli). Pronotum with rather numerous large and small concavities and convexities; metanotal gland absent. Wings extending to base of 5th abdominal tergite; venation of tegminal dorsal part as in Fig. XIV: 1. Anal and genital plate as in Figs XIV: 5-7; genitalia as in Figs XIV: 2-4. Coloration as follows: head dark brown with light brown face, rostrum, mouthparts (including palpi), antennae, lower part of genae, and spots between ocelli and eyes, yellowish lateral ocelli and lines on vertex (Fig. XIV: 1); pronotum from brown to dark brown, but with wide light brown bands along lateral edges of disc (Fig. XIV: 1); tegmina brown with yellow-

ish (almost whitish) diagonal vein, vein forming mirror, parts of main veins near plectrum, and veins in apical and lateral areas, light brown *M* and stripe between *M* and *R*; legs light brown with almost indistinct darkish spots and stripes (these stripes better noticeable on outer surface of hind femora; they are narrow, presented by 1-2 longitudinal stripes and numerous oblique ones); abdomen brown with some parts, including cerci, slightly lighter.

Female unknown.

Length (mm). Body 23; pronotum 3.3; tegmina 8.7; hind femora 16.

*Comparison.* The differences of this species from *S. lucens* are listed above. From *S. seyrigi* known from a single female, the new species differs in the much larger size and the presence of tympanal organs.

Genus **Fryerius** Uvarov, 1940

*Fryeria* Bolivar, 1912 (junior homonym of *Fryeria* Gray, 1853, Mollusca).

*Fryerius* Uvarov, 1940 (replacement name).

Type species: *Fryeria aphonoides* Bolivar, 1912.

*Note.* The genus is somewhat similar in general appearance to *Ultratrella*: the body is more or less large, but comparatively slender; the legs are rather long; the male tegmina are with well developed stridulatory apparatus (Figs XV: 4, 7, 10, 13); the male anal plate is provided with a large median membranous area (Figs XVI: 5). The structure of male genital plate and male genitalia in *Fryerius* is somewhat similar to that in the genera considered above (Figs XVI: 1-4, 6-13; XVII: 1-6; XVIII: 1-3). However this genus is clearly distinguished from them by the slit-like or almost slit-like inner tympanum (outer one open, oval), the well developed male metanotal gland, which is very characteristic, consisting of a large concavity with numerous hairs and a median lamellar lobe bifurcated apically (Figs XV: 1, 3, 6, 9, 11, 12). The male genitalia are similar to those of *Stenogryllodes* (and differ from those of the previous Madagascan genera) in the absence of both distinct lateral apical epiphallic processes and tubercle on hind surface of medial apical epiphallic processes, but distinguished from those of *Stenogryllodes* by the paired and rather long processes of upper part of guiding rod [the latter processes are ectoparamere-like and usually visible near the true (epiphallic) ectoparameres from below and from above (Figs XVI: 2, 6, 11, 12; XVII: 1-6); from side, these processes are clearly visible above the true ectoparameres (Figs XVI: 3, 7, 10, 13; XVIII: 1-3)].

*Fryerius* includes 7 species from the Seychelles (type species), Comores (*Madasumma fleutiauxi* Chopard, 1958), and Madagascar (*F. fowleri* sp. n., *F. guichardi* sp. n., *F. prudens* sp. n., *F. congruens* sp. n., *F. magnus* sp. n.).

**Fryerius aphonoides** (Bolivar, 1912)

(Figs XV: 1; XVI: 1-5)

*Lectotype* (present designation). ♂, **Seychelles**, "Aldabra, '08-9, J.C.F. Fryer", "Paratype", "306, *Fryeria aphonoides* Bol." (MNCN).

*Note.* This species was described from several specimens from Aldabra I. These specimens are bearing the labels "Type" or "Paratype", but Bolivar did not designate a holotype, and all specimens must be considered syntypes (Paris, 1994). After designation of this lectotype, all other syntypes of *F. aphonoides*, deposited in BMNH and Cambridge University, must be considered paralectotypes. *F. aphonoides* is characterized by the following features: coloration of head and pro-

notum reddish brown with dark brown spot in region of ocelli and with light brown (almost yellowish) lower part of head, antennae, and lower half of pronotal lateral lobes; male tegmina yellowish grey (rather light and semitransparent) with brownish veins; legs, pterothorax, and abdomen light brown with slightly darker anal and genital plates in male; head rather small; ocelli large; pronotum rather long, distinctly narrowing to head; inner tympanum moderately slit-like; male tegmina long, with rather narrow dorsal part and small mirror; hind wings distinctly longer than tegmina; male metanotal gland with characteristic shapes of both central concavity and lamellar lobe (Fig. XV: 1); anal and genital plates of male as in Figs XVI: 4, 5; male genitalia as in Figs XVI: 1-3.

Length (mm). Body 27; body with wings 32; pronotum 4.5; tegmina 22.5; hind femora 15.5.

**Fryerius ?fleutiauxi** (Chopard, 1958)

(Figs XVI: 6, 7)

*Material examined.* **Comores:** 1 ♂, "Gr.-Comoro [Grand-Comoro], Küste, Voeltzkow S." (MNHU).

*Note.* This specimen is very similar to the lectotype of *F. aphonoides*, but differs in the following characters: tegmina more uniformly yellowish grey (with lighter veins); metanotal gland with somewhat wider median lamellar lobe (damaged by pin); male genitalia with wider epiphallus provided with shorter convexity on its upper surface (approximately as in Figs XVI: 6, 7). This determination is provisional, as I had an opportunity for only very short comparison of this specimen with the description and figures of holotype (from the same island) published by Chopard (1958).

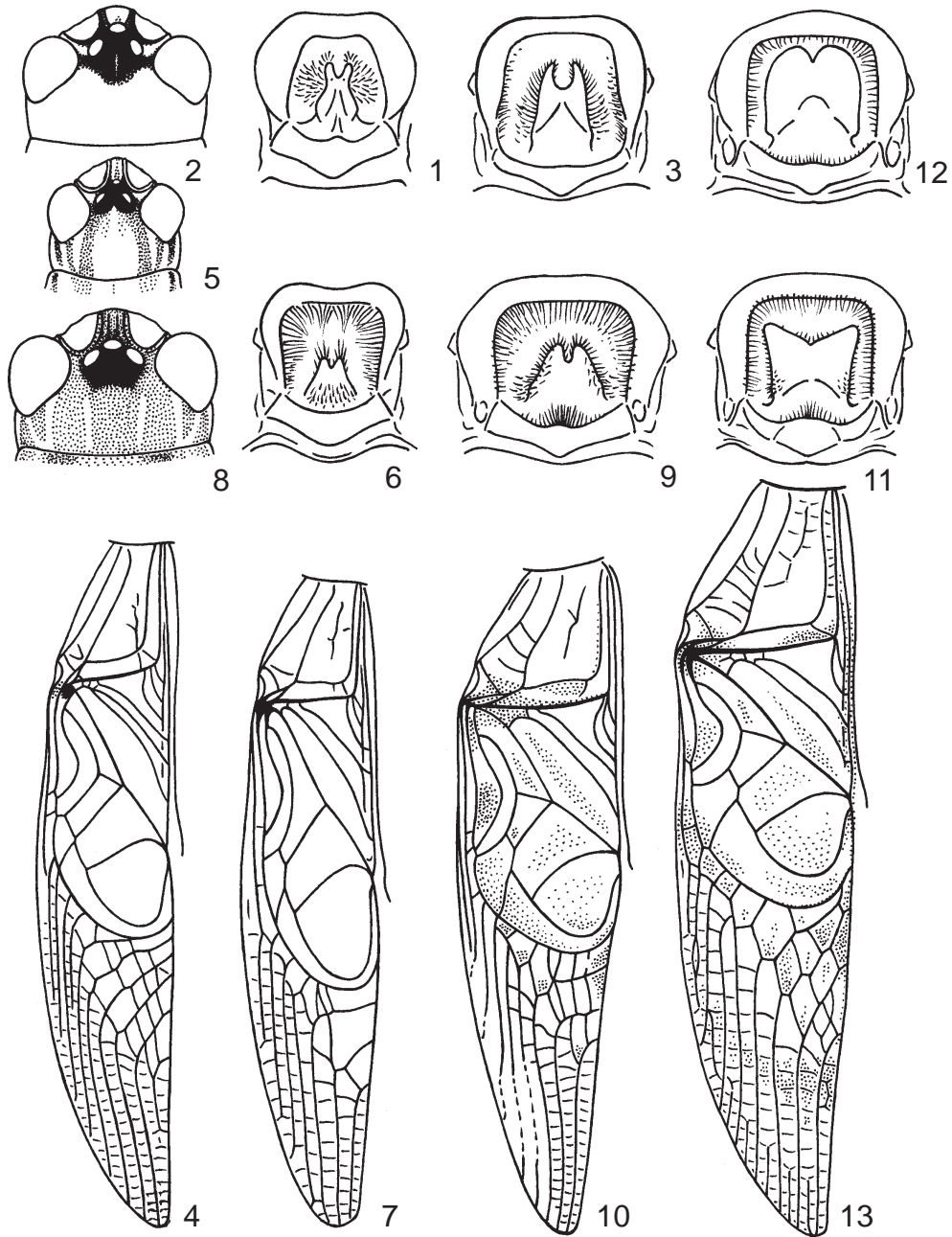
**Fryerius fowleri** sp. n.

(Figs XV: 2-4; XVI: 8-10)

*Holotype.* ♂, **Madagascar**, "Ankarana, Amtilobe, VII. 1986, S.V. Fowler" (BMNH).

*Paratype.* ♂, same data as in holotype (ZIAS).

*Description.* Male (holotype). Body medium-sized. Head rather wide, with large ocelli (Fig. XV: 2). Pronotum not long, slightly narrowing to head; its hind part somewhat wider than head. Inner tympanum distinctly slit-like. Tegmina long, with narrow dorsal part, elongate mirror, and comparatively short and well curved chords (as in Fig. XV: 4). Metanotal gland similar to that of *F. aphonoides*, but with wider middle part of median lamellar lobe (Fig. XV: 3). Anal and genital plates as well as genitalia rather similar to those of *F. aphonoides* and *F. fleutiauxi*, but epiphallus without lateral angular projections, its apical processes hook-like, and mold of spermat-

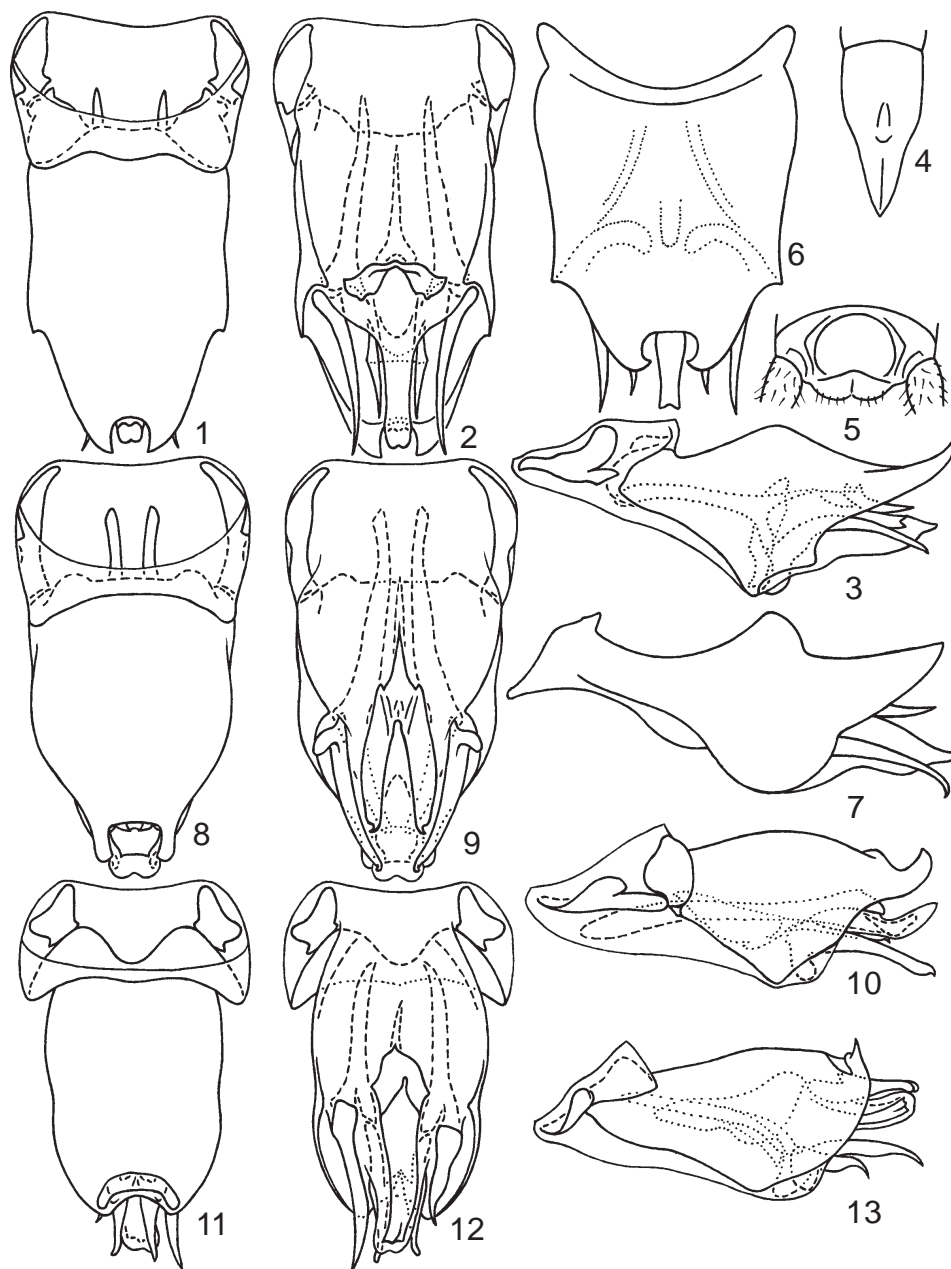


**Figs XV (1-13).** *Fryerius*, male. **1**, *F. aphonoides* (Bol.) (lectotype); **2-4**, *F. fowleri* sp. n. (**2**, **3**, holotype); **5-7**, *F. guichardi* sp. n. (**5**, **6**, holotype); **8-10**, *F. prudens* sp. n. (**8**, **9**, holotype); **11**, *F. congruens* sp. n.; **12**, **13**, *F. magnus* sp. n. Metanotal gland (**1**, **3**, **6**, **9**, **11**, **12**) and head (**2**, **5**, **8**) from above; dorsal part of right tegmen (**4**, **7**, **10**, **13**).

ophore attachment plate with long distal lobes provided with small apical hooks (Figs XVI: 8-10). Coloration light brown with yellowish mouthparts, dark brown spot in region of ocelli,

almost transparent wings, and darkish upper part of abdomen (excepting cerci).

Variation. Paratype with less distinct dark spot on head.



**Figs XVI** (1-13). *Fryerius*, male. **1-5**, *F. aphonoides* (Bol.) (lectotype); **6, 7**, *F. fleutiauxi* (Chop.) (after Chopard, 1958); **8-10**, *F. fowleri* sp. n. (holotype); **11-13**, *F. guichardi* sp. n. (holotype). Genitalia from above (1, 6, 8, 11), from below (2, 9, 12), and from side (3, 7, 10, 13); genital (4) and anal (5) plates from below (4) and from above/behind (5).

Female unknown.

Length (mm). Body 22-23; body with wings 32-33; pronotum 3.1-3.2; tegmina 22-23; hind femora 13-14.

*Comparison.* The new species distinctly differs from *F. aphonoides* and *F. fleutiauxi* in the above-mentioned characters of the male genitalia.

**Fryerius guichardi** sp. n.  
(Figs XV: 5-7; XVI: 11-13)

*Holotype*. ♂, **Madagascar**, "Tulear Pr., Sakaraha, 20.III.1968, K.M. Guichard" (BMNH).

*Paratype*. ♂, same data as in holotype (ZIAS).

*Description*. Male (holotype). Somewhat similar to *F. fowleri*, but distinguished from it by following characters: size smaller; head narrow and with smaller ocelli (Fig. XV: 5); pronotum comparatively longer and distinctly narrowing to head; inner tympanum very weakly slit-like (almost open); tegminal mirror and chords distinctly longer (chords weakly curved) (Fig. XV: 7); metanotal gland with much shorter median lamellar lobe and its apical lobules (Fig. XV: 6); epiphallus with apical processes shorter, spine-like, and directed upwards; ectoparameres, guiding rod, and mold of spermatophore attachment plate asymmetrical; latter structure without hooked lobes (Figs XVI: 11-13); slight darkish longitudinal stripes present on upper part of head and on pronotal lateral lobes (near their upper edge).

*Variation*. Paratype with some veins of dorsal tegminal part brown (its genitalia asymmetrical as in holotype).

Female unknown.

Length (mm). Body 21-22; body with wings 27-29; pronotum 2.9-3; tegmina 18-20; hind femora 11.5-12.

*Comparison*. The differences between *F. guichardi* and *F. fowleri* are given above. From *F. aphonoides* and *F. fleutiauxi*, the new species differs in the shape of the epiphallal distal part and the asymmetry of ectoparameres, guiding rod, and mold of spermatophore attachment plate.

**Fryerius prudens** sp. n.  
(Figs XV: 8-10; XVII: 1, 2; XVIII: 1)

*Holotype*. ♂, **Madagascar**, "Ankarana, Ambilobe, VII. 1986, S.V. Fowler" (BMNH).

*Paratype*. ♂, **Madagascar**, "N. W. [Nord West] Madagaskar, Hildebrandt" (MNHU).

*Description*. Male (holotype). Similar to *F. fowleri*, but distinguished from it by following features: head somewhat larger; distances between ocelli smaller (Fig. XV: 8); pronotum with almost parallel lateral sides, not wider than head; inner tympanum moderately slit-like; tegmina with distinctly wider dorsal part and shorter mirror (Fig. XV: 10); median lamellar lobe of metanotal gland almost as in *F. guichardi*, but distinctly larger (Fig. XV: 9); epiphallus with almost not hooked apical processes; mold of spermatophore attachment plate without hooked lobes (Figs XVII: 1, 2; XVIII: 1); coloration of head, pronotum, tegmina, and legs less uniform (head brown with yellowish lower part and longitudi-

nal stripes on upper part, dark brown spot in region of ocelli and short stripes under antennal cavities and on genae; pronotum with numerous slight darkish spots; tegmina with majority of veins brown and some membranes of dorsal part with brownish spots; legs light brown with brown hind tibiae and apical part of hind femora).

*Variation*. Paratype with slightly more uniform coloration and more rounded apical lobules of median lamellar lobe of metanotal gland.

Female unknown.

Length (mm). Body 23-25; body with wings 33-36; pronotum 3.4-3.7; tegmina 23-24.5; hind femora 13-14.

*Comparison*. *F. prudens* differs from all previous congeners in the structure of the male tegminal venation (wider dorsal part, characteristic shape of mirror) and in the general outlines of epiphallus (see Figs XVI: 3, 7, 10, 13; XVIII: 1).

**Fryerius congruens** sp. n.  
(Figs XV: 11; XVII: 3, 4; XVIII: 2)

*Holotype*. ♂, **Madagascar**, "S. C. [Süd Central] Madagaskar, Hildebrandt", "*Calyptotrypus madecassus* Sauss." (MNHU).

*Description*. Male (holotype). Very similar to *F. prudens*. Distinguished from it by only few characters: median lamellar lobe of metanotal gland distinctly larger and almost rectangular (Fig. XV: 11); epiphallus narrower and with deeper apical notch; upper distal (ectoparamere-like) processes of guiding rod shorter and less curved; endoparameral apodemes longer (for comparison see Figs XVII: 1, 2 and 3, 4; XVIII: 1 and 2); coloration of head more uniform, darkish, with less distinct dark spot in region of ocelli and without light stripes on vertex.

Female unknown.

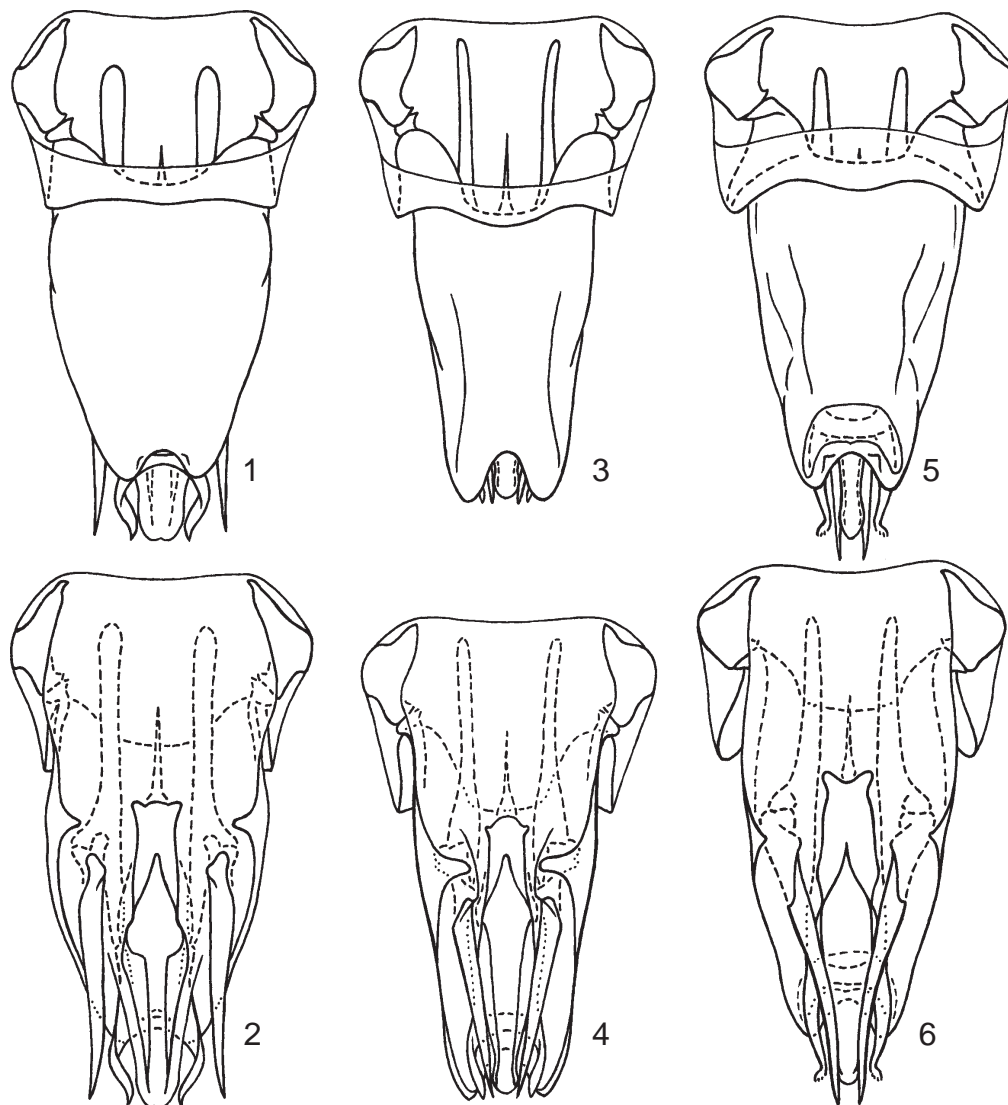
Length (mm). Body 24; body with wings 34; pronotum 3.3; tegmina 24; hind femora 14.

*Comparison*. *F. congruens* differs from all other previous congeners in the shape of the median lamellar lobe of metanotal gland and the same characters of the male tegminal venation and male genitalia as *F. prudens*.

**Fryerius magnus** sp. n.  
(Figs XV: 12, 13; XVII: 5, 6; XVIII: 3, 4)

*Holotype*. ♂, **Madagascar**, "Tulear Pr., Sakaraha, 20.III. 1968, K.M. Guichard" (BMNH).

*Description*. Male (holotype). Most similar to *F. prudens* and *F. congruens*. Distinguished from them by following characters: size much larger; inner tympanum distinctly slit-like; tegmina with smaller mirror and shorter, more strongly curved chords (Fig. XV: 13); metanotal gland with median lamellar lobe more rounded (Fig. XV: 12); genitalia with upper distal (ectoparamere-like)



**Figs XVII** (1-6). *Fryerius*, male. **1, 2**, *F. prudens* sp. n. (holotype); **3, 4**, *F. congruens* sp. n.; **5, 6**, *F. magnus* sp. n. Genitalia from above (1, 3, 5) and from below (2, 4, 6).

processes of guiding rod denticulate at apex (ectoparameres slightly asymmetrical, but this asymmetry may be a result of individual variability) (Figs XVII: 5, 6; XVIII: 3, 4); coloration of head intermediate between that of *F. prudens* and *F. congruens* (light stripes on vertex slight), but additional dark longitudinal stripes behind eyes developed; darkish spots on membranes of dorsal tegminal part more distinct; tibiae and femoral apex of fore and middle legs darkened (as in hind legs).

Female unknown.

Length (mm). Body 37; body with wings 44; pronotum 4.5; tegmina 30; hind femora 17.5.

*Comparison.* *F. magnus* is clearly distinguished from all other congeners by the distinctly larger size and the median lamellar lobe of male metanotal gland very large and rounded at apex; there are also some differences in the venation of the male tegmina and structure of the male genitalia.



Genus **Kilimagryllus** Sjöstedt, 1909

Type species: *Kilimagryllus ochraceus* Sjöstedt, 1909.

*Note.* This genus is widely distributed in Africa (1 species reaches Madagascar); it is characterized by the comparatively small size and the trend to shortening of wings and reduction of tympana. Its abdominal structure is similar to that of most representatives of the “*Podoscirtus*” generic group (Figs XVIII: 6-8, 13-15; XIX: 3-5, 8, 11), but, as in *Stenogryllodes* and *Fryerius*, the epiphallus lacks distinct lateral apical epiphallic processes and tubercle on hind surface of medial apical epiphallic processes. Some other body structures are rather diverse and allow division of this genus into 2 subgenera (nominotypical one and *Brevitrella* subgen. n.).

Subgenus **Kilimagryllus** s. str.

*Note.* This subgenus, known only from Africa, is characterized by the fore tibiae with normal (open and oval) outer tympanum and strongly reduced inner one, the wings distinctly shortened and not extending to abdominal apex, the male tegmina with well developed stridulatory apparatus (Figs XVIII: 5, 9, 10), the male metanotal gland absent, and the male genitalia with rather large guiding rod bearing a sclerotized spine at apex (Figs XIX: 1-5).

*Included species:* type species (Tanzania); *Calypotrypus steini* Saussure, 1877 (Guinea?); *K. gyldenstolpei* Chopard, 1926 (Zaire).

**Kilimagryllus (Kilimagryllus) steini** (Saussure, 1878)

(Figs XVIII: 5-8; XIX: 1-3)

*Holotype.* ♂, Africa, Guinea?, “Guinei, Berlin”, “*Calypotrypus steini*. Sss, ♂”, “Holotypus”, “*Calypotrypus steini* Sauss\*, ♂” (MNHU).

*Note.* This specimen is characterized by the following characters: head is slightly depressed dorsoventrally; ocelli small and not very near to each other; rostrum angular in profile; scape approximately 1.5 times as wide as rostral apex; pronotum is somewhat narrowing to head; tegmina extending to hind part of 6th abdominal tergite, rather similar to those of *K. gyldenstolpei* and somewhat distinguished from those of *K. ochraceus* by the longer apical area (for comparison see Figs XVIII: 5, 9, 10); anal and genital plates as in Figs XVIII: 6-8; genitalia very similar to those of *K. gyldenstolpei*, but clearly distinguished from those of *K. ochraceus* by the distinctly longer medial apical epiphallic processes and shorter guiding rod and ectoparameres (see Figs XIX: 1-5); the coloration is light brown with darkish numerous dots on epicranium, an-

teclypeus, pronotum, legs, and abdomen, dark brown spots between ocelli and in middle part of vertex, three longitudinal stripes behind each eye, a pair of stripes along sides of pronotal disc, part of abdominal apex, and a longitudinal band along median line of abdominal ventral part, brown antennae and tegmina (but with sparse lightish rings on flagellum, yellowish sparse spots on dorsal tegminal part and stripe along longitudinal bend of tegmina, and dark most of tegminal veins), and whitish membranous area of anal plate (Figs XVIII: 5-8).

Length (mm). Body 16.5; pronotum 2.6; tegmina 8.5 (hind legs are missing) .

Subgenus **Brevitrella** subgen. n.

Type species: *Kilimagryllus (Brevitrella) madagascariensis* sp. n.

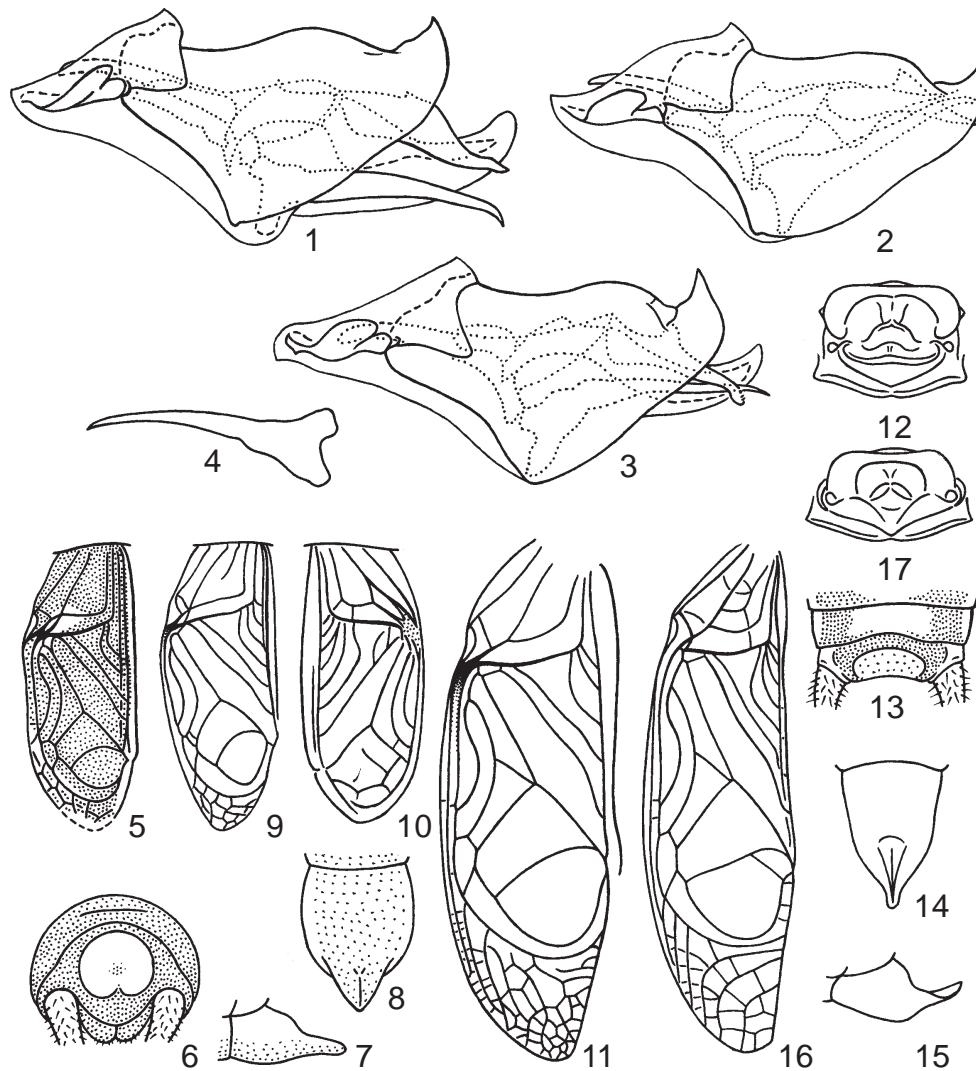
*Diagnosis.* Fore tibiae with normal (open and oval) outer tympanum and only traces of inner one (or even without such traces). Wings weakly shortened, extending to abdominal apex; male tegmina with well developed stridulatory apparatus (Figs XVIII: 11, 16). Male metanotal gland developed (Figs XVIII: 12, 17). Male genitalia with comparatively small (narrow) guiding rod having rounded membranous lobe at apex (Figs XIX: 6-13).

*Included species:* type species (Madagascar); *Platy-dactylus africanus* Walker, 1869 (South Africa).

**Kilimagryllus (Brevitrella) madagascariensis** sp. n. (Figs XVIII: 16, 17; XIX: 11-13)

*Holotype.* ♂, Madagascar, “Tulear Pr., Sakaraha, 20.III.1969, K.M. Guichard” (BMNH).

*Description.* Male (holotype). Structure of head and ocelli similar to that of *K. steini*. Pronotum slightly narrowing to head, with rather low lateral lobes. Metanotal gland partly reduced, with only comparatively small and shallow central cavity having a pair of small convexities in middle part (Fig. XVIII: 17). Venation of tegmina as in Fig. XVIII: 16; hind wings hardly protruding behind tegmina. Anal and genital plates very similar to those in Figs XVIII: 13-15; genitalia with epiphallic apex distinctly notched, medial apical epiphallic processes spine-like, ectoparameres long and comparatively narrow, guiding rod provided with rather deep median notch at apex of its upper sclerite (Fig. XIX: 12) and almost not hooked lateral lobes of this sclerite (such a structure of this sclerite is most distinct at profile; Fig. XIX: 11), and mold of spermatophore attachment plate as in Fig. XVIII: 13 (rami of holotype maybe somewhat deformed). Coloration of head and pronotum almost dark brown, but with yellowish ocelli and light brown



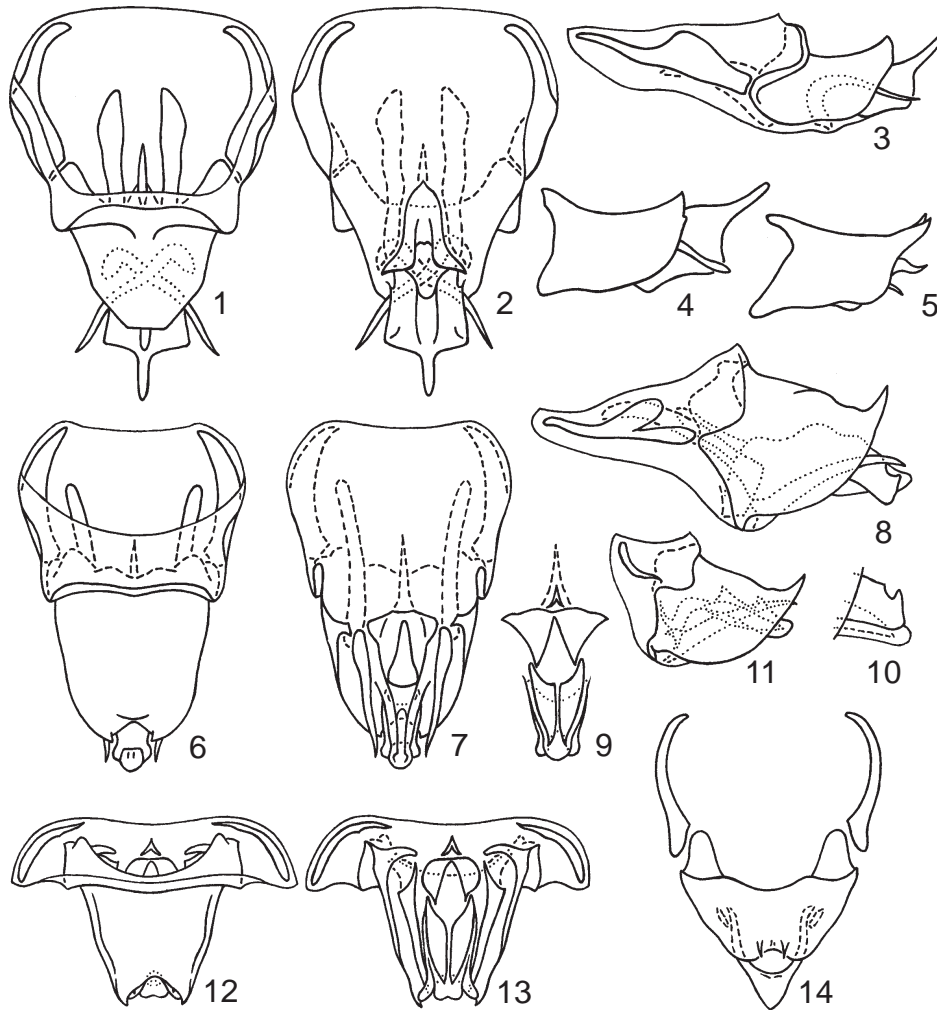
**Figs XVIII** (1-17). *Fryerius* and *Kilimagryllus*, male. **1**, *F. prudens* sp. n. (holotype); **2**, *F. congruens* sp. n.; **3**, **4**, *F. magnus* sp. n.; **5-8**, *K. steini* (Sauss.) (holotype); **9**, *K. gyldenstolpei* Chop. (after Chopard, 1934); **10**, *K. ochraceus* Sjöst. (after Sjöstedt, 1909); **11-15**, *K. africanus* (Walk.) (lectotype); **16**, **17**, *K. madagascariensis* sp. n. Genitalia (1-3) and left ectoparamere (4) from side; dorsal part of right (5, 9, 11, 16) and left (10) tegmina; anal (6) and genital (7, 8, 14, 15) plates from side (7, 15), from below (8, 14), and from above/behind (6); metanotal gland (12, 17) and abdominal apex (13) from above.

lower part of head (provided with several dark dots under rostral apex, antennal cavities, and eyes) and narrow border around anterior, posterior, and ventral edges of pronotal lobes; tegmina light greyish (almost whitish) with wide dark brown band along longitudinal bend of tegmina (occupying also uppermost part of lateral area), brown diagonal vein, veins forming mirror, veins of lateral area, and parts of chords and longitudi-

nal veins of basal and apical areas; hind wings yellowish, but with light brownish apical part; legs, pterothorax, and abdomen brown with somewhat lighter tibial spines and proximal parts of femora, light brown metanotum, and yellowish membranous area of anal plate.

Female unknown.

Length (mm). Body 15; body with wings 16.5; pronotum 2.7; tegmina 11.2; hind femora 10.9.



**Figs XIX (1-14).** *Kilimagryllus* and *Parametrypa*, male. **1-3**, *K. steini* (Sauss.) (holotype); **4**, *K. gyldenstolpei* Chop. (after Chopard, 1934); **5**, *K. ochraceus* Sjöst. (after Chopard, 1934); **6-10**, *K. africanus* (Walk.) (6-8, lectotype); **11-13**, *K. madagascariensis* sp. n.; **14**, *P. fortipes* (Walk.) (after Chopard, 1955). Genitalia from above (1, 6, 12, 14), from below (2, 7, 13), and from side (3, 8, 11); epiphallus, ectoparameres, and guiding rod from side (4, 5); guiding rod with mold of spermatophore attachment plate from below (9); distal part of guiding rod from side (10).

**Comparison.** The differences between the new species and *K. africanus* are given below (in the note about the latter species).

***Kilimagryllus (Brevitrella) africanus* (Walker, 1869)**

(Figs XVIII: 11-15; XIX: 6-10)

*Platydictylus fuliginosus* Walker, 1869, **syn. n.**

**Lectotype** of *P. africanus* (present designation). ♂, **South Africa**, "Pt Natal 55.96", "*Platydictylus africanus*. One of Walker's series so named. Cotype", "Syntype" (BMNH).

**Paralectotype** of *P. africanus*. ♂, **South Africa**: "Pt Natal 58/13", other data as in lectotype (BMNH).

**Holotype** of *P. fuliginosus*. ♀, **South Africa**: "Pt Natal 58/13", "*Platydictylus fuliginosus*. One of Walker's series so named. Type", "Holotype" (BMNH).

**Other material examined.** **South Africa**: 1 ♂, "Lady Smith, Dr. Martin" (MNCN).

**Note.** The holotype of *P. fuliginosus* and syntypes of *K. africanus* originate from the same locality. They are very similar to each other and, in my opinion, they are a female and males of the same species. *K. africanus* is very similar to *K. madagascariensis*, but it differs from the latter species in the following characters: male meta-

notal gland well developed and with larger and deeper central cavity having rather large unpaired (median) lobe in middle part (Fig. XVIII: 12); dorsal part of the male tegmina slightly wider (Fig. XVIII: 11); male genitalia with less deep median notch at apex of the guiding rod upper sclerite (Fig. XIX: 6), distinctly hooked lateral lobes of this sclerite (best visible in profile; Figs XIX: 8, 10), and larger apodeme of mold of spermatophore attachment plate (Figs XIX: 7, 9); coloration of head and sometimes of pronotum slightly lighter (reddish brown with darkish upper part of rostrum and without dark dots on lower part of head); male tegminal *M* distinctly yellow; male abdominal apex partly light brown and with darkish membranous area of anal plate (Fig. XVIII: 13). The characteristic features of female are as follows: wings almost reaching abdominal apex; tegminal dorsal part provided with 8-9 almost parallel longitudinal veins; genital plate with large rounded apical notch; apex of ovipositor drilling; coloration as in male, but tegmina slightly darker (with darker veins and band along longitudinal tegminal bend), with brown *M*, yellow proximal part of *R*, and three small yellowish spots in distal part of tegmina.

Length (mm). Body: ♂ 15.5-18, ♀ 18; body with wings, ♂ 16-19; pronotum: ♂ 2.3-3, ♀ 3.3; tegmina: ♂ 11-13.5, ♀ 10; hind femora: ♂ 9.5-12.2, ♀ 12.7; ovipositor 9.6.

Genus **Parametrypa** Brunner von Wattenwyl, 1873

Type species: *Nessa fortipes* Walker, 1869 (subsequent designation by Kirby, 1906).

*Note.* This genus is characterized by the absence of wings, tympanal organs, and male metanotal gland. It includes two species not recorded from Madagascar, Seychelles and Comores: type species (South Africa) and *Parametrypa viettei* Chopard, 1958 (Sao Tome I. in Gulf of Guinea). The figure of the *P. fortipes* male genitalia by Chopard (1955) shows that they are similar to the male genitalia of *Kilimagryllus* (Fig. XIX: 14). Possibly, this genus also belongs to the "*Podoscirtus*" generic group.

#### **Madagascan Podoscirtini with unclear generic position**

Five species described from Madagascar by Walker (1869), Saussure (1878), and Brancsik (1892, 1895) were included in the genera *Gryllacris* Serv. (Stenopelmatoidea) and *Calyptotrypus* Sauss. (the latter generic name is a *nomen dubium* – see Gorochov, 2002: p. 306). They may belong to some of the genera described above, but the previous descriptions of these species are insufficient for determination of their generic affiliations.

*Gryllacris (?) reducta* Walker, 1869. This species was described from a single female ("Holotype", "Madagascar 58/85", "*Gryllacris (?) reducta* W., type"; BMNH; examined). It belongs to Podoscirtini and has the head rather high, body narrow, ocelli well developed, lateral pronotal lobes low, both tympana open and oval, wings long, dorsal part of tegmina with rather irregularly situated crossveins and 10 almost not parallel and oblique longitudinal veins, tegminal *M* and *Cu* fused with each other at a short distance near base of tegmina, and characteristic coloration: head and thorax light brown with dark small spots under eyes, behind them, between lateral ocelli and eyes, triangular spot near clypeus, darkish anteclypeus, stripes along lateral edges of pronotal disc, two pairs of small spots on pronotal disc (along anterior and posterior edges); legs light brown, but with rather numerous dark dots; tegmina light greyish brown with brown longitudinal veins, darkish spots in middle part of some tegminal cells and stripe along longitudinal bend of tegmina (abdomen missing). This species is somewhat similar in general appearance to representatives of *Neozvenella*, but the upper surface of head is light (with only a pair of small dark spots) in *reducta* and with comparatively large dark part in all known *Neozvenella* species.

*Calyptotrypus grandidieri* Saussure, 1878. The species is described from a female ("Madagascar"). Its description (Saussure, 1878) shows that it is probably a representative of *Fryerius*. But this species is clearly distinguished from other possible congeners, excepting *F. magnus*, by the much larger size and from *F. magnus* by the slightly larger size, less numerous large spines of hind tibiae (6 pairs in *grandidieri* and 5 pairs in *magnus*), and somewhat more uniform and lighter (yellowish) coloration.

*Calyptotrypus madecassus* Saussure, 1878. This species, described from a male ("Madagascar") without any description of important structures (genitalia, metanotal gland) and illustrations (Saussure, 1878), may belong to *Fryerius*. It is more or less similar in the size and coloration to *F. fowleri*, *F. prudens*, and *F. congruens*, but is slightly larger (and distinctly smaller than *F. magnus*) and without dark spot between ocelli or with almost indistinct one (the more or less distinct dark spot between ocelli is a very characteristic feature of all known *Fryerius* species).

*Calyptotrypus binotatus* Brancsik, 1892. The species is described from a single female (Nosy-Be I. very near to Madagascar). Its description (Brancsik, 1892) shows a certain similarity of *binotatus* in the general appearance to representatives of *Ultratrella* and *Fryerius*, but this species is distinguished from them by the pronotal

disc with a pair of distinct dark spots near the hind pronotal edge.

*Calypotrypus hova* Brancsik, 1895. This species is described from a single male (Nosy-Be I.). It is more or less similar in general appearance to *Neozvenella* species, but clearly differs from them in the characteristic venation of tegminal dorsal part (with smaller mirror) (Fig. XIII: 6) and lighter coloration of head (with only rather small dark spots).

The sixth species, *Paranaudus* (?) *micropterus* Chopard, 1952 (Madagascar, Mt. Tsaratanana), was tentatively put in the African genus *Paranaudus* Sauss. This species was described from a single female characterized by the presence of very short tegmina and absence of tympana (Chopard, 1952). In the type species of *Paranaudus*, *P. terebrans* (Sauss.), all wings are absent, and one of tympana (outer) is present. Such differences between these species allow me to doubt their belonging to the same genus.

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