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Apterous crickets of the tribe Gryllini from South Africa and Namibia (Orthoptera: Gryllidae)

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ABSTRACT

Apterous crickets of the tribe Gryllini from South Africa and Namibia are reviewed. Four new taxa are described: *Natalogryllus* Gorochov, gen. n., *Kurtguentheria macroxipha* Gorochov, sp. n., *K. brachyxipha* Gorochov, sp. n., *Cophogryllus pietersburgi* Gorochov, sp. n. The rank of the former subgenus *Acophogryllus* Gor. is raised to generic level. An identification key to the four genera and 14 species is given. Systematic position and distribution of some species are clarified.

KEY WORDS: Orthoptera, Gryllidae, Gryllinae, Gryllini, *Kurtguentheria*, *Cophogryllus*, *Acophogryllus*, crickets, new taxa, South Africa, Namibia, identification key.

INTRODUCTION

The majority of apterous or almost apterous crickets of the tribe Gryllini from different continents were included by Chopard (1967) in the genus *Cophogryllus* Saussure, 1877. The genitalia of these crickets were inadequately studied, or not examined at all. Later, on the basis of male genital characters, some African species were transferred to the genera *Modicoides* Otte et Cade, 1984, *Sigagryllus* Otte et Cade, 1984, and *Omogryllus* Otte, 1987. Likewise, some Asian species were assigned to the genera *Apterocryncus* Gorochov, 1990, *Apterosvercus* Gorochov, 1991, *Agryllus* Gorochov, 1994, and *Hemitrullus* Gorochov, 2001 (Otte & Cade 1984*a*, *b*; Otte 1987; Gorochov 1990, 1994, 2001). However, in his redescription of *Cophogryllus*, Otte (1987) failed to identify any reliable diagnostic characteristics for this genus. The problem was likely to have been created by the inclusion of five new species described from South Africa in *Cophogryllus* in the same paper, because these species form two or three groups with very different male genitalia. Gorochov (1991, 1996) noted that *Cophogryllus* probably includes only some African species, and he divided the African representatives of *Cophogryllus* (*sensu* Otte) into two genera: *Cophogryllus* with two subgenera (*Acophogryllus* Gorochov, 1996 and nominotypical subgenus) and *Kurtguentheria* Gorochov, 1996. In the latter paper, he described two new species (*A. schultzei* Gorochov, 1996 and *K. laciniosa* Gorochov, 1996) and raised the rank of *C. delalandi* var. *brevicauda* Karny, 1910. These three species were stated by him as having originated from South Africa, but are known to have been collected in Namibia.

New material shows that apterous Gryllini of South Africa and Namibia needs to be divided into four genera (*Kurtguentheria*, *Cophogryllus*, *Acophogryllus* stat. n., and a new genus). All these genera are clearly distinguishable from one other by the male genital characteristics, but some of them have similar characteristics in the structure of these organs, offering evidence of their origin from a common African ancestor. Moreover, the differences between the four genera with respect to male genitalia are more remarkable than between some other genera from the same tribe. There are also significant differences in the structure of the genitalia between different species of the same genus. Almost every species may be

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isolated as a distinct subgenus on the basis of genitalia characteristics. It is possible that these apterous crickets are the remnants of an ancient group of Gryllini, which had the highest diversity and rate of evolution before emergence of a mass distribution of younger (and now more abundant) groups of Gryllini. These crickets may represent indirect evidence that supports the hypothesis that the southern part of Africa is a refugium for remains of an endemic African fauna that have evolved during isolation of this continent.

Study material is housed in the following collections: South African National Collection of Insects, Plant Protection Research Institute, Pretoria (SANC); Zoological Institute, Russian Academy of Sciences, St Petersburg (ZIAS).

Key to genera and species of southern African apterous Gryllini, based on males

1 Each ectoparamere divided into 2 sclerotised parts articulated with each other: first ectoparamere (1*ec*) situated laterally and additionally articulated with endoparamere (*en*), and second ectoparamere (2*ec*) situated medially and contacting with virga (*v*) (Figs 1–3, 6–8, 10–12, 15–28) 2

– Each ectoparamere (*ec*) consists of 3 sclerotised parts [lateroproximal part articulated with endoparamere, and medioproximal (*m*) and distal parts contacting with virga] fused with each other by sclerotised areas, or it contains only a single elongate sclerite (Figs 30, 33, 36, 39) 11

2 Each endoparamere (*en*) with elongated lateral apodeme (*la*) at middle part; proximal parts of left and right endoparameres, fused with each other, appear as a narrow transverse sclerite lacking distinct apodeme; spermatophore sac (*s*) with additional loops (Figs 1, 3, 6–8, 10–12) [**Kurtguentheria** Gorochov, 1996] 3

– Each endoparamere with elongate or almost undeveloped lateral apodeme at middle part; proximal parts of left and right endoparameres, fused with each other, with large lamellar apodeme (*pa*); spermatophore sac simple, without additional loops (Figs 15, 18–20, 22–25, 28) [**Cophogryllus** Saussure, 1877] 7

3 Epiphallus (*e*) with 2 apical processes on each lateral hind lobe (Figs 3, 5) 4

– Epiphallus with only 1 apical denticle or process on each lateral hind lobe (Figs 8, 12, 14) 5

4 Coloration light, but sometimes with slight darkish spots between antennal cavities and on tergites; epiphallus more or less straight in profile (Fig. 3) .... **K. macroxipha** Gorochov, sp. n.

– Coloration contrastingly spotted, consisting of distinct light and dark spots; epiphallus strongly curved in profile (Fig. 5) ..... **K. simonsi** (Otte, 1987)

5 First ectoparameres almost straight, distinctly not reaching apex of epiphallus (Figs 7, 8) ..... **K. brachyxipha** Gorochov, sp. n.

– First ectoparameres more or less curved in profile, distinctly projecting behind apex of epiphallus (Figs 12, 14) 6

6 Dorsal edge of epiphallus in profile with large rounded convexity near apical denticle; first ectoparameres in profile with narrowed distal part and almost acute apex (Fig. 12) ..... **K. laciniosa** Gorochov, 1996

– Dorsal edge of epiphallus in profile without any distinct convexity near apical process; first ectoparameres in profile with slightly widened distal part and round apex (Fig. 14) ..... **K.? fasciata** (Walker, 1869)

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7 Epiphallus with small hind median notch (Fig. 15); first ectoparameres narrow and long, very strongly projecting behind apex of epiphallus (Figs 15–17) .... **C. maculatus** Chopard, 1955

– Epiphallus with deep hind median notch (Figs 18, 21, 23, 26); first ectoparameres distinctly wider and/or much shorter, not projecting or not strongly projecting behind apex of epiphallus (Figs 18–28) 8

8 Distal part of first ectoparamere wide, not less than 4 times as wide as distal part of second ectoparamere (Figs 19, 21) 9

– Distal part of first ectoparamere distinctly narrower, 1.5–2.5 times as wide as distal part of second ectoparamere (Figs 24, 27) 10

9 Latero-apical part of each lateral hind lobe of epiphallus roundly angular from above (Fig. 18); first ectoparamere with rather large apical notch in profile (Fig. 20); second ectoparamere distinctly not reaching apex of first ectoparamere (Figs 18–20)..... ..... **C. brevicauda** (Karny, 1910)

– Latero-apical part of each lateral hind lobe of epiphallus with acute hook-like projection visible from above (Fig. 21); first ectoparamere with small apical notch in profile (Fig. 22); second ectoparamere distinctly projecting behind apex of first ectoparamere (Figs 21, 22) ..... **C. delalandi** Saussure, 1877

10 Epiphallus with elongate and thin process at medio-apical corner of each lateral hind lobe (Fig. 23); first ectoparameres rather long, almost as long as epiphallus (Fig. 24); ramus (*r*) reaching apex of epiphallus (Figs 23–25)..... ..... **C. pietersburgi** Gorochov, sp. n.

– Epiphallus with short and stout tubercle at medio-apical corner of each lateral hind lobe (Fig. 26); first ectoparameres short, distinctly shorter than epiphallus (Fig. 27); ramus distinctly not reaching apex of epiphallus (Figs 26–28) .... **C.? zoutpansbergi** Otte, 1987

11 Epiphallus with only 2 large lateral hind lobes (Fig. 29); each ectoparamere consists of 3 sclerotised parts [lateroproximal part articulated with endoparamere, medio-proximal (mesal lobe) and distal parts contacting virga] fused with each other by sclerotised areas (Fig. 30); endoparamere with lateral apodemes only (Fig. 31) [**Acophogryllus** Gorochov, 1996, stat. n.] ..... **A. schultzei** (Gorochov, 1996), comb. n.

– Epiphallus with 3 lateral hind lobes: a pair of large lateral lobes and smaller median lobe (Figs 32, 35, 38); each ectoparamere contains only a single elongate sclerite as mesal lobe is absent (Figs 33, 36, 39); endoparamere without any distinct apodeme (Figs 32, 34, 35, 38–40) [**Natalogryllus** Gorochov, gen. n.] 12

12 Epiphallus with rounded (not hooked) lateral hind lobes (Figs 32, 34); sclerite of ectoparamere situated medially in relation to membranous part of ectoparamere, distal half of this sclerite strongly curved aside (Fig. 33)..... ..... **N. eshowensis** (Otte, 1987), comb. n.

– Epiphallus with more or less hooked lateral hind lobes (Figs 35, 37, 38, 40); ectoparamere with sclerite not situated medially in relation to membranous part of ectoparamere, distal half of this sclerite not curved aside (Figs 36, 39) 13

13 Median hind lobe of epiphallus not very short, distinctly visible (Fig. 35); each ectoparamere with apical hook directed medially (Fig. 36) .... **N. escourtensis** (Otte, 1987), comb. n.

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– Median hind lobe of epiphallus very short, weakly distinct (Fig. 38); each ectoparamere with apical lobule almost rounded (Figs 38, 39) .... **N. trichardti** (Otte, 1987), comb. n.

TAXONOMY

Tribe Gryllini Laicharting, 1781

Genus *Kurtguentheria* Gorochov, 1996

Type species: *K. laciniosa* Gorochov, 1996 (Namibia: Kamaggas).

Remarks: This genus (as well as all other completely apterous representatives of Gryllini) lacks tympanal organs and acoustic signalisation, which are very characteristic of the majority of Gryllini. *Kurtguentheria* seems to be most closely related to *Cophogryllus*, as the both genera have a possible synapomorphy in the structure of the ectoparameres of the male genitalia: each of the ectoparameres are divided into two sclerotised parts articulated with each other (Figs 2, 7, 11, 16, 19, 21, 24, 27). Such ectoparamere may originate from the solid trilobate ectoparamere, typical of the majority of Gryllini: the distal part of the latter ectoparamere is divided into two processes; the medial of these processes together with the ectoparameral mesal lobe (Fig. 2: *m*) and a sclerotised ribbon between them are separated from the rest of the ectoparamere by a narrow membranous interspace (the sclerotised parts form a medial sclerite named here as second ectoparamere); the rest of the ectoparamere forms a lateral sclerite (first ectoparamere) which preserves the articulation of its proximal part with the endoparamere as in hypothetical general ancestor of Gryllini. *Kurtguentheria* and *Cophogryllus* are clearly distinguished from each other by some other characteristics of male genitalia: the additional loops of the spermatophore sac in the first genus, and the presence of a large proximal apodeme of endopameres in the second genus. The body size in different representatives of *Kurtguentheria* is diverse; the length of the ovipositor may be widely variable; the coloration varying from very light to contrastingly spotted (a coloration possibly connected with life on sandy and/or salty soils).

Species included: Type species (Figs 10–13); *K. simonsi* (Otte, 1987) (Western Cape, Simon's Town) (Fig. 5); *K. macroxipha* sp. n. (Figs 1–4); *K. brachyxipha* sp. n. (Figs 6–9); possibly *K. fasciatus* (Walker, 1869) ("Natal") (Fig. 14). The latter species is insufficiently studied. Otte (1987) examined the type specimen (male), but he did not redescribe it, except for a drawing of the distal part of the genitalia in profile. This drawing does not show the structure of the endoparameres and spermatophore sac. The inclusion of the latter species in *Kurtguentheria* is thus questionable (Gorochov 1996).

Kurtguentheria macroxipha Gorochov, sp. n.

Figs 1–4

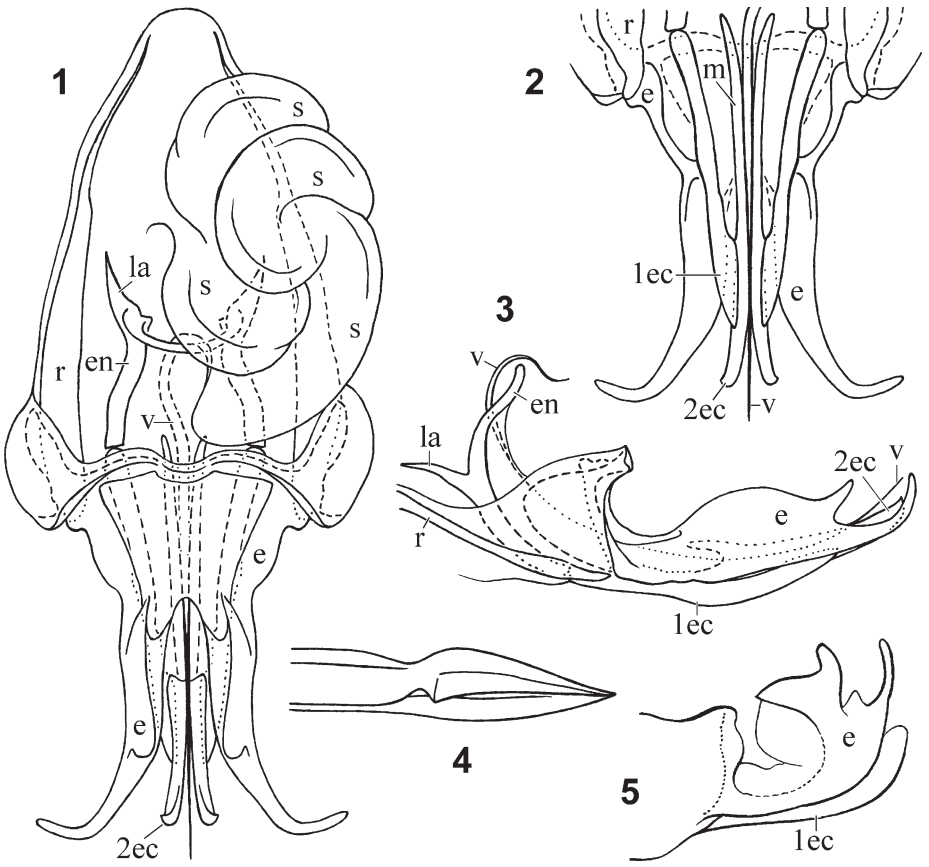
Etymology: From Greek *macros* (long) and *xiphos* (sword).

Description:

Male.

Coloration yellowish, but with very light (almost indistinct) brownish areas on labrum and distal half of mandibles, 4 longitudinal stripes on vertex, and spot on apical part of hind femora; eyes dark brown. Head large, hemispherical, with comparatively small eyes

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Figs 1–5. *Kurtguentheria*: (1–4) *K. macroxipha* sp. n., male genitalia dorsally (1), their distal half ventrally (2) and laterally (3), distal half of ovipositor laterally (4); (5) *K. simonsi* (after Otte 1987), distal half of male genitalia laterally. Abbreviations: (e) epiphallus, (1ec) first ectoparamere, (2ec) second ectoparamere, (en) endoparamere, (la) lateral apodeme of endoparamere, (m) mesal lobe of ectoparamere, (r) ramus, (s) spermatophore sac, (v) virga.

and wide area between antennae (distance between antennal cavities slightly greater than width of eye, and almost twice greater than width of scape); clypeal suture distinct, slightly arched; mandibles comparatively short, as in majority of Gryllini. Pronotum slightly widened in front, with rather high lateral lobes; pronotal disc moderately transverse, with slightly concave fore and almost straight hind edges. Fore and middle legs typical of Gryllini, neither thickened nor shortened; hind legs significantly adapted for jumping; hind tibiae very weakly inflated in middle and almost not narrowed (in profile) in distal part, with 5 pairs of articulated spines and 3 pairs of apical spurs (2 upper pairs of spurs very long, almost half as long as hind basitarsus or somewhat longer; spines gradually increase in length from proximal to distal position, longest spine almost equal in length to middle outer spur); hind basitarsus comparatively thin and almost straight, provided with 6 inner and 8 outer denticles on dorsal surface. Hind abdominal tergites simple, without any projection; anal plate with rounded distal part; genital plate large, comparatively long, and with slight median notch at apex. Genitalia

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with long and almost straight epiphallus having wide membranous median area and deep hind median notch; lateral lobes of epiphallus each with 2 apical processes (ventral process longer and more curved, and shorter dorsal process almost straight in profile) and rounded (in profile) dorsal ridge near them; first and second ectoparameres long and narrow, first ectoparameres distinctly shorter than second ones; each endoparamere with elongate lateral apodeme in middle; spermatophore sac with numerous loops; virga very long and rather narrow (Figs 1–3).

Female.

Coloration and structure of majority of body parts similar to those of male, but number of basitarsal denticles slightly varied, and some females with following additional darkish spots that somewhat more distinct than spots in holotype: brown horseshoe-shaped spot between antennal cavities and upper part of eyes, a pair of small light brown spots on pronotal disc, and brownish spots along fore edge of visible part of pterothoracic and abdominal tergites. Abdominal apex simple, typical of Gryllini, but genital plate comparatively short, with almost truncate apex; ovipositor very long, with acute apical part clearly adapted for digging (Fig. 4).

Length (in mm): Body: ♂ 16.5, ♀ 17–19; pronotum: ♂ 3.2, ♀ 3.4–3.8; hind femur: ♂ 11.5, ♀ 13.0–14.2; hind tibia: ♂ 7, ♀ 8.0–8.6; hind basitarsus: ♂ 4, ♀ 4.4–4.7; ovipositor 20–22.

Holotype: ♂ SOUTH AFRICA: *Western Cape*: "Raapenberg Cape Prov. 23-2-1915", "Collector C.W. Mally Ag Dp S Afr", "Ac.-C 2443" (SANC).

Paratypes: 5♀ with same data as holotype (SANC, ZIAS).

Comparison: The main differences of the new species from all congeners are given in the key. Additionally it differs from *K. simonsi* and *K.*? *fasciata* in the more-or-less uniform, light coloration, and from *K. laciniosa*, by larger size and much longer ovipositor.

Kurtguentheria brachyxipha Gorochov, sp. n.

Figs 6–9

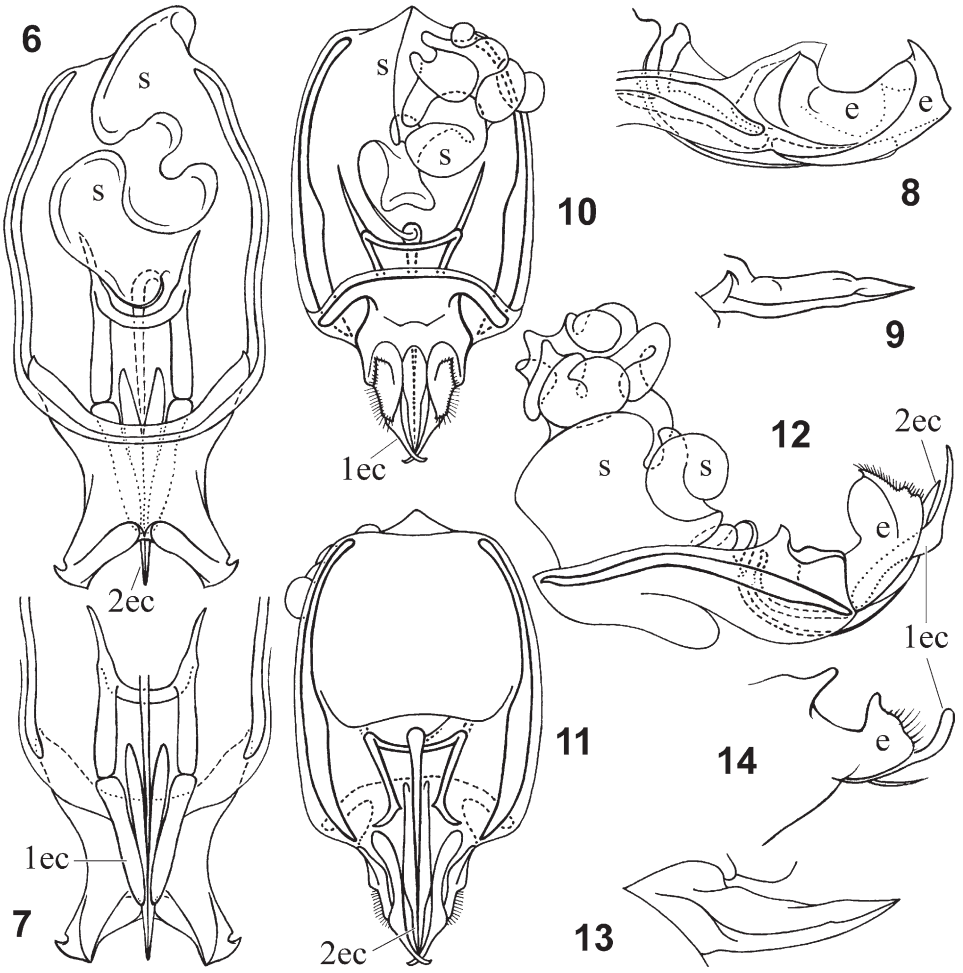
Etymology: From Greek *brachys* (short) and *xiphos* (sword).

Description:

Male.

Coloration uniformly yellowish. Head large, hemispherical, with medium-sized eyes and moderately wide area between antennae (distance between antennal cavities somewhat smaller than width of eye and almost 1.5 times as great as width of scape); clypeal suture distinct, almost straight; mandibles comparatively short. Structure of pronotum and legs similar to that of *K. macroxipha*, but hind tibiae somewhat more inflated in middle and distinctly narrowed (in profile) in distal part, with 4 pairs of articulated spines and 3 pairs of apical spurs (2 upper pairs of spurs significantly longer than half of basitarsal length; spines gradually increase in length from proximal to distal position, longest of them almost equal in length to upper outer spur); hind basitarsus comparatively thin and slightly curved in profile, with 6 inner and 5–7 outer denticles on dorsal surface (in holotype; paratype with 5 denticles on each side of hind basitarsus). Abdominal tergites and anal plate similar to those of *K. macroxipha*; genital plate medium-

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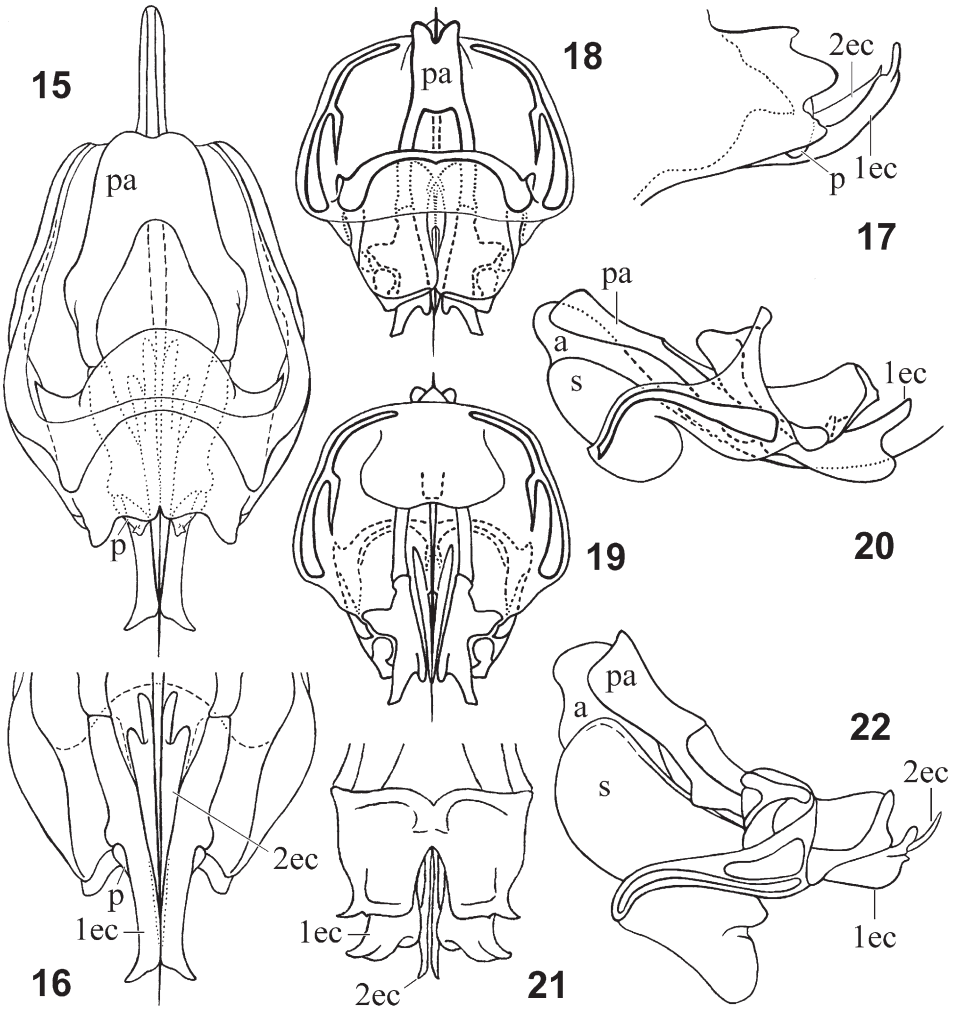
Figs 6–14. *Kurtguentheria*: (6–9) *K. brachyxipha* sp. n., male genitalia of holotype dorsally (6), their distal half ventrally (7) and laterally (8), ovipositor laterally (9); (10–13) *K. laciniosa* (after Gorochov 1996), male genitalia dorsally (10), ventrally (11) and laterally (12), ovipositor laterally (13); (14) *K.*? *fasciata* (after Otte 1987), distal half of male genitalia laterally. Abbreviations as in Figs 1–5.

sized, elongated (but not long), with distinct median notch at apex. Epiphallus not significantly long, distinctly curved in profile, with moderately deep hind notch, without any distinct membranous area in dorsal part; lateral lobes of epiphallus each with 1 short apical denticle, dorsal ridge almost indistinct in profile; first ectoparameres not very narrow, comparatively short; second ectoparameres narrow and much longer than first ones; each endoparamere with elongate lateral apodeme in middle; spermatophore sac with a few loops; virga rather narrow, but not significantly long (Figs 6–8).

Female.

Coloration and structure of majority of body parts similar to male, but apex of longest of hind tibial spurs almost reaching apex of hind basitarsus, which has slightly less

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Figs 15–22. *Cophogryllus*, ♂: (15–17) *C. maculatus* (17, after Otte 1987), genitalia dorsally (15), their distal half ventrally (16) and laterally (17); (18–20) *C. brevicauda* (after Gorochov 1996), genitalia dorsally (18), ventrally (19) and laterally (20); (21, 22) *C. delalandi* (21, after Chopard 1955; 22, after Randell 1964), distal half of genitalia dorsally (21), genitalia laterally (22). Abbreviations: (a) apodeme of spermatophore sac, (p) additional articulated process of first ectoparamere, (pa) proximal apodeme of endoparameres; others as in Figs 1–5.

numerous denticles on dorsal surface. Abdominal apex simple, genital plate as in *K. macroxipha*; ovipositor strongly shortened, its apical part acute, somewhat reduced and possibly unsuitable for digging (Fig. 9).

Length (in mm) (♂ paratype smaller than holotype): Body: ♂ 10.5–11.5, ♀ 13; pronotum: ♂ 1.9–2.1, ♀ 2.3; hind femur: ♂ 6.8–7.2, ♀ 7.6; hind tibia: ♂ 4.5–4.8, ♀ 5.1; hind basitarsus: ♂ 2.4–2.6, ♀ 2.8; ovipositor 1.8.

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: "Port Nolloth 4 m NE. C.P., S.Afr. 18:ix:1967 H.D. Brown" (SANC).

Paratypes: 1♂ 1♀ with same data as holotype (ZIAS, SANC).

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Comparison: The main differences of the new species from all congeners are given in the key. Additionally it differs from them in the uniformly light coloration and/or much shorter ovipositor. The new species is also distinguished from the most closely related *K. laciniosa* with similarly reduced ovipositor by a slightly longer remnant of this organ (see Figs 9, 13).

Genus *Cophogryllus* Saussure, 1877

Type species: *Cophogryllus delalandi* Saussure, 1877 (probably only Western Cape).

Remarks: The genus is similar and probably most closely related to *Kurtguentheria*, but clearly differs from the latter in the structure of male genitalia (see remarks on *Kurtguentheria* above). The structure of the body in different species of *Cophogryllus* is more uniform with regard to body size and ovipositor length (the ovipositor is significantly longer than the hind femur in all species with known females) than in *Kurtguentheria*. However, the male genitalia in *Cophogryllus* are somewhat more variable than in the latter genus: the first ectoparameres in one of species are provided with an additional articulated process (Figs 15–17: *p*); the lateral apodemes of the endoparameres can be distinctly developed (Fig. 25) or strongly reduced (Figs 20, 22); there are also great differences in the position of the rami (Figs 20, 22, 25) and the shape of some other structures. Coloration in *Cophogryllus* is more-or-less spotted, varying from moderately light to rather dark.

Species included: Type species (Figs 21, 22); *C. brevicauda* (Karny, 1910) (Namibia: Kamaggas) (Figs 18–20); *C. maculatus* Chopard, 1955 [possibly only Western Cape; the assignment of a female from "Natal" to this species (Chopard, 1955) is problematical] (Figs 15–17); *C. pietersburgi* sp. n. (Figs 23–25); possibly *C. zoutpansbergi* Otte, 1987 (Limpopo Prov.: Soutpansberg) (Figs 26–28). The inclusion of the latter species in the genus is questionable, as its ectoparameres have been inadequately studied, and the structure of the endoparameres is unknown. Some other African species, included in this genus by Chopard (1967), are only described for females (*C. boromensis* Brancsik, 1897 from the region of Zambezi R.; *C. fulvus* Chopard, 1927 from Tanzania; *C. kivuensis* Chopard, 1951 from the environs of Kivu L.). Their generic position can only be clarified after a study of additional material.

Cophogryllus pietersburgi Gorochov, sp. n.

Figs 23–25

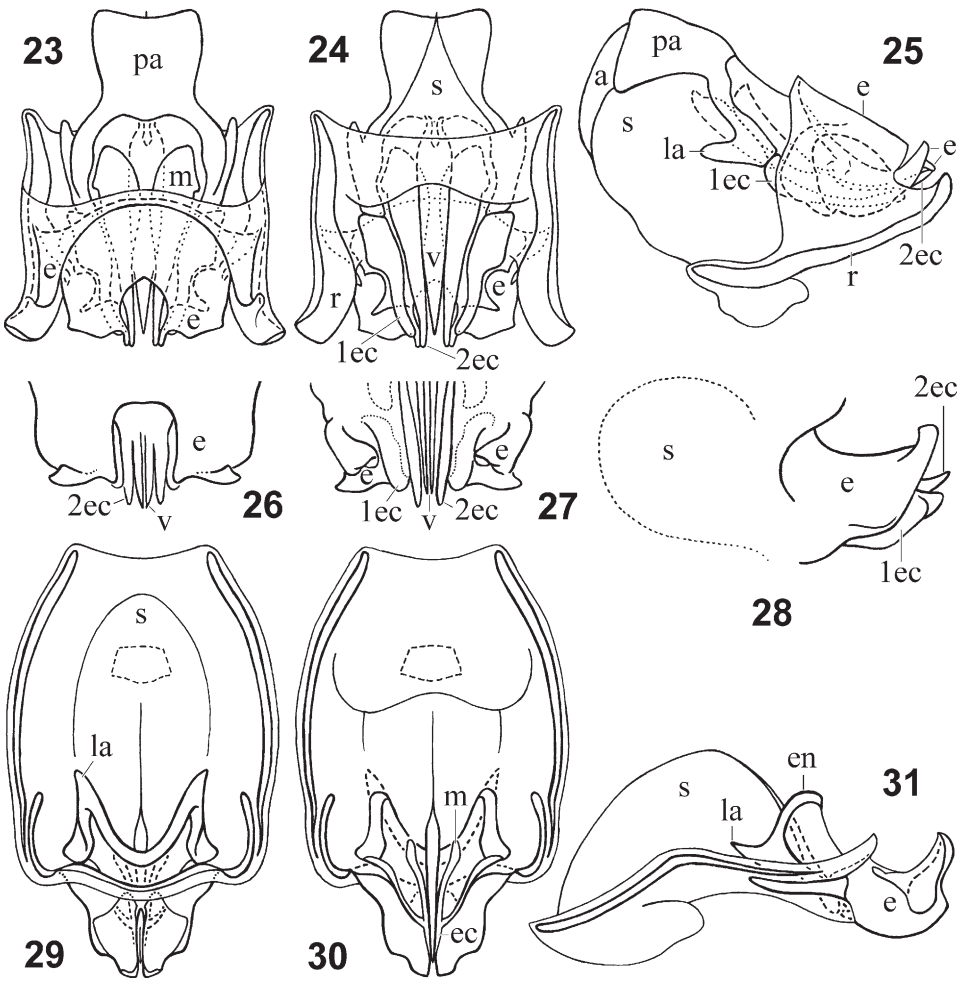
Etymology: The species is named after Pietersburg, currently Polokwane.

Description:

Male.

Coloration light brown with slightly reddish brown head, dark brown eyes, brownish grey antennal flagellum, and yellowish genae, subgenae, palpi, labium, legs, all sternites, genital plate, and lower parts of all tergites. Head very large (slightly larger than in both new species of *Kurtguentheria* described here), partly spherical, with comparatively small eyes and moderately wide area between antennae (distance between antennal cavities approximately equal to width of eye and about 1.6 times as great as width of scape); clypeal suture distinct, weakly arched; mandibles comparatively short. Pronotum

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Figs 23–31. *Cophogryllus* and *Acophogryllus*, ♂: (23–25) *C. pietersburgi* sp. n., genitalia dorsally (23), ventrally (24) and laterally (25); (26–28) *C.*? *zoutpansbergi* (after Otte 1987), distal part of genitalia dorsally (26) and ventrally (27), genitalia laterally (28); (29–31) *A. schultzei* (after Gorochov 1996), genitalia dorsally (29), ventrally (30) and laterally (31). Abbreviations: (ec) ectoparamere; others as in Figs 1–5 and 15–22.

distinctly widened in front and with high lateral lobes; pronotal disc moderately transverse, with fore and hind edges almost straight. Legs similar to those of both above-mentioned species of *Kurtguentheria*, but hind tibia distinctly shorter and without inflation in middle and narrowing in distal part, their spurs and distal spines much shorter (longest of them slightly not reaching middle of hind basitarsus), number of hind tibial spines and spurs as in *K. brachyxipha* sp. n., hind basitarsus not very thin, slightly curved in profile, with 6 or 7 inner and 8 outer denticles. Hind abdominal tergites without any projection; anal plate with rounded distal part; genital plate rather large, elongate (but not long), with narrowly rounded apex and a pair of lateral lobules near it. Genitalia with characteristic epiphallus having a pair of very long proximal

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lobes directed backwards and connected with rami by membranes covering most part of epiphallus from side (Figs 23, 25); distal part of epiphallus with large roundly angular median notch and a pair of almost spine-like small medial processes near it (Fig. 23); distal part of rami extending to apex of epiphallus; first ectoparameres not long and with rather narrow distal half; second ectoparameres long (much longer than first ones) and widened in proximal part; virga wide, but not long (Fig. 24); each endoparamere with distinct lateral apodeme (Fig. 25).

Length (in mm): Body 11.5, pronotum 2.2, hind femur 8.1, hind tibia 4.7, hind basitarsus 2.4.

Female. Unknown.

Holotype: ♂ SOUTH AFRICA: *Limpopo*: "South Africa: Pietersburg 24°14'40"S 29°15'30"E 19.II.1989 HE Stecnkamp Department of Entomology University of Pretoria" (SANC).

Comparison: The main differences of the new species from all congeners are given in the key. It is possible that *C.*? *zoutpansbergi* with insufficiently illustrated male genitalia is most closely related to the new species, but both species are additionally distinguishable from each other by the following characters of coloration: in the new species, coloration of the pronotum and other tergites is similar, but in the species from Soutpansberg, the pronotum distinctly lighter than the dorsal part of the pterothoracic and abdominal tergites.

Genus *Acophogryllus* Gorochov, 1996, **stat. n.**

Type species: *Cophogryllus* (*Acophogryllus*) *schultzei* Gorochov, 1996 (Namibia: Kamaggas).

Remarks: This genus, originally described as a subgenus of *Cophogryllus*, is characterised, unlike all other apterous Gryllini of South Africa and Namibia, by the primitive structure of the ectoparameres, which are solid and trilobate (Fig. 30). These features give reason to separate this taxon from *Cophogryllus*, and to lift its rank up to the generic level. However, this decision is not final, as this taxon comprises only a single species (Figs 29–31), and its female is unknown. More clear differences of *Acophogryllus* from macropterous and brachypterous Gryllini with primitive ectoparameres may be revealed after the discovery of additional material.

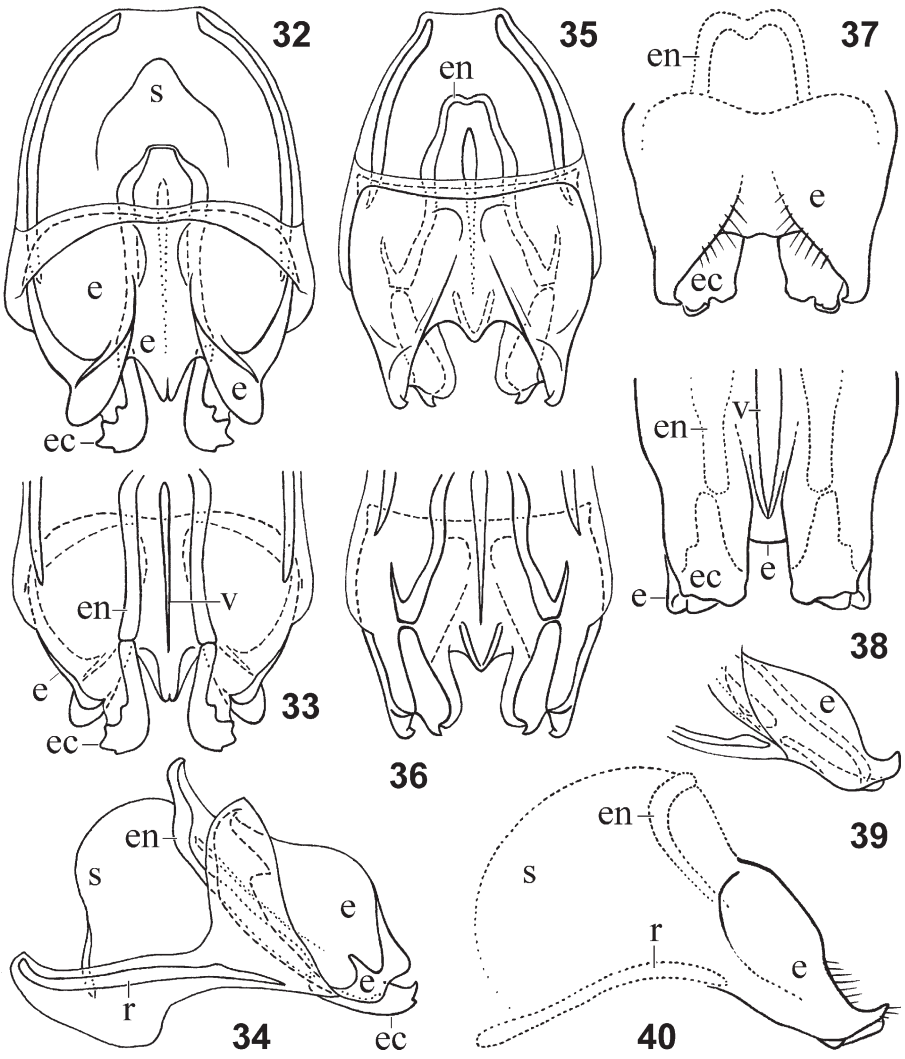
Genus **Natalogryllus** Gorochov, gen. n.

Etymology: The name refers to KwaZulu-Natal and the genus *Gryllus*.

Type species: *Cophogryllus eshowensis* Otte, 1987 (KwaZulu-Natal, environs of Eshowe and Pietermaritzburg).

Diagnosis: Medium-sized crickets with hemispherical head, comparatively small eyes and wide area between antennae (distance between antennal cavities approximately equal to width of eye and almost twice as wide as scape); body completely apterous; tympana absent; fore and middle legs neither long nor thickened (not adapted to digging); hind legs typical of Gryllini (distinctly adapted to jumping); abdominal apex without projection. Male genitalia (Figs 32–40) with rather short and wide epiphallus having a pair of large lateral hind lobes and smaller median lobe between them; ectoparameres rather short and not thin, partly membranous; each of them with a single elongate sclerite

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Figs 32–40. *Natalogryllus* gen. n., ♂: (32–34) *N. eshowensis*; (35–37) *N. escourtensis*; (38–40) *N. trichardti* (after Otte 1987). Genitalia dorsally (32, 35) and ventrally (34, 40); their distal half ventrally (33, 36, 39), laterally (37), and dorsally (38). Abbreviations: as in Figs 1–5 and 23–31.

of more-or-less simple shape; ectoparameral mesal lobes absent; endoparameres moderately long and narrow, without distinct apodemes; spermatophore sac small and simple, without additional loops or distinct apodeme; virga moderately long, weakly curved near distal part of spermatophore sac, without ligament (semi-sclerotised structure connecting virga with endoparameres in some Gryllini). Ovipositor not shortened and with acute digging apical part.

Species included: Type species (Figs 32–34); *N. escourtensis* (Otte, 1987) (*Cophogryllus*; KwaZulu-Natal, environs of Cathedral Peak and Bulwer) (Figs 35–37); *N. trichardti* (Otte, 1987) (*Cophogryllus*; Limpopo Prov., Soutpansberg) (Figs 38–40).

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Comparison: The most important differences of the new genus from the previous genera reviewed here are given in the key. From all other representatives of the tribe Gryllini, the new genus differs in the following combination of characters: both sexes completely apterous; tympana absent; epiphallus with 3 hind lobes; each ectoparamere with a single simple sclerite, its mesal lobe absent; endoparameres without distinct apodemes; spermatophore sac small and simple; virga weakly curved near distal part of spermatophore sac, without ligament; ovipositor not shortened.

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REFERENCES

CHOPARD, L. 1955. Orthoptera Ensifera. *In*: Hanström, B., Brink, P., & Rudebeck, G., eds, *South African Animal Life (Results of the Lund University Expedition in 1950–1951)*. Vol. 2. Uppsala: Almqvist & Wiksell, pp. 266–300.

———1967. Gryllides. *Orthopterorum Catalogus* **10**: 1–211.

GOROCHOV, A.V. 1990. New and little known taxa of orthopterans of the suborder Ensifera (Orthoptera) from tropics and subtropics. *Entomological Review* [*Entomologicheskoe obozrenie*] **69** (4): 820–834. (in Russian)

———1991. Material on fauna of crickets of the subfamily Gryllinae (Orthoptera, Gryllidae) from Vietnam. Part 1. *Proceedings of the Zoological Institute, USSR Academy of Sciences* [*Trudy Zoologicheskogo instituta AN SSSR*] **240**: 3–19. (in Russian)

———1994. Material on fauna of crickets of the subfamily Gryllinae (Orthoptera, Gryllidae) from Vietnam. Part 2. *Proceedings of the Zoological Institute, Russian Academy of Sciences* [*Trudy Zoologicheskogo instituta RAN*] **257**: 3–15. (in Russian)

———1996 [1995]. New and little known crickets from the collection of the Humboldt University and some other collections (Orthoptera: Grylloidea). Part I. *Zoosystematica Rossica* **4** (1): 81–114.

———2001 [2000]. Remarkable examples of convergence and new taxa of Gryllini (Orthoptera: Gryllidae). *Zoosystematica Rossica* **9** (2): 316–350.

OTTE, D. 1987. African Crickets (Gryllidae). 9. New genera and species of Brachytrupinae and Gryllinae. *Proceedings of the Academy of Natural Sciences of Philadelphia* **139**: 315–374.

OTTE, D. & CADE, W. 1984*a*. African Crickets (Gryllidae). 5. East and South African species of *Modicogryllus* and several related genera (Gryllinae, Modicogryllini). *Proceedings of the Academy of Natural Sciences of Philadelphia* **136**: 67–97.

———1984*b*. African Crickets (Gryllidae). 6. The genus *Gryllus* and some related genera (Gryllinae, Gryllini). *Proceedings of the Academy of Natural Sciences of Philadelphia* **136**: 98–122.

RANDELL, R.L. 1964. The male genitalia in Gryllinae (Orthoptera: Gryllidae) and a tribal revision. *Canadian Entomologist* **96** (12): 1565–1607.

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