

A new genus for a new species of the subfamily Phalangopsinae (Orthoptera: Gryllidae) with unclear tribal position from Madagascar

Новый род для нового вида подсемейства Phalangopsinae (Orthoptera: Gryllidae) из Мадагаскара с неясным отнесением к трибе

A.V. Gorochov
А.В. Горохов

Zoological Institute, Russian Academy of Sciences, Universitetskaya Nab. 1, Saint Petersburg 199034 Russia. Email: gorochovandrei3@gmail.com.

Зоологический институт Российской Академии наук, Университетская наб. 1, Санкт-Петербург 199034 Россия.

Key words: Taxonomy, Orthoptera, Gryllidae, Phalangopsinae, Madagascar.

Ключевые слова: систематика, Orthoptera, Gryllidae, Phalangopsinae, Мадагаскар.

Abstract. Two new taxa, *Andasibeacla* Gorochov, **gen.n.** and *A. tianasoai* Gorochov, **sp.n.**, probably belonging to the tribe Phalangopsini, are described from the Toamasina Province of Madagascar. A new species is type and alone species in this genus; it is found on bark of tree trunks in tropical forests. The new genus is characterized by the following features: the body is rather small, spotted and almost apterous; the head has a narrow and well separated rostral part; the thoracic segments lacks any notal gland, but the male abdominal dorsum is with a characteristic transverse keel (this keel is low and rounded in profile, possibly it is an abdominal gland); the legs are long, rather thin, without tympana and denticles on hind tibiae; the structures of the abdominal apex in the both sexes are rather simple and do not allow us to establish a subtribal position of this genus.

Резюме. Два новых таксона: *Andasibeacla* Gorochov, **gen.n.** и *A. tianasoai* Gorochov, **sp.n.**, вероятно, принадлежащие к трибе Phalangopsini, описаны из провинции «Тоамасина» острова Мадагаскар. Новый вид — типовой и единственный вид этого рода; он обнаружен на коре деревесных стволов в тропических лесах. Новый род характеризуется следующими признаками: тело довольно маленькое, пятнистое и почти бескрылое; голова с узкой и хорошо обособленной ростральной частью; сегменты груди без какой-либо нотальной железы, но дорсальная поверхность брюшка самца с характерным поперечным килем (этот киль низкий и округлённый в профиль, возможно, он представляет собой абдоминальную железу); ноги длинные и тонкие, без тимпанумов и мелких зубчиков на задних голенях; структуры вершины брюшка у обоих полов довольно простые и не позволяют установить подтрибальное положение изучаемого рода.

Introduction

The recent tribal and subtribal classifications of the subfamily Phalangopsinae are mainly elaborated by two taxonomists, namely: Gorochov [1986a, b, 2014, 2015, 2018, 2019, 2020] and Desutter-Grandcolas [Desutter,

1987, 1988; Desutter-Grandcolas, 1992; Desutter-Grandcolas, Faberon, 2020; Hugel et al., 2021] including the collective paper (with her participation) on molecular phylogenetics [Chintauan-Marquier et al., 2016].

According the first author, this subfamily consists of 5 tribes and 17 subtribes: Tribe Phalangopsini (subtribes Phalangopsina, Luzarina, Amphiacustina, Modestozarina, Nemozarina, Lernecina, Parenacustina, Heterogryllina, Indoacolina and Phaeophylacridina); Tribe Paragryllini (subtribes Paragryllina, Neoacolina, Strogulomorphina, Mexiacolina, Brevizaclina, Adelosgryllina and Paragryllodina); Tribe Endacustini (no subtribes); Tribe Luzaropsini (no subtribes); Tribe Oteini (no subtribes).

According Desutter-Grandcolas and her co-authors, this subfamily is treated as a family including tribes Phalangopsini and Paragryllini as subfamilies but together with some other subfamilies: Phaloriinae, Cacoplistinae and even Gryllomorphinae (these 3 subfamilies are considered by Gorochov as separate subfamilies, but Phaloriinae and Cacoplistinae as related to Phalangopsinae, and Gryllomorphinae as unrelated to all these taxa). The other above-mentioned tribes and subtribes in the latter classification possibly preserve their tribal status inside Phalangopsinae, except for Heterogryllina which is given under the possibly synonymous name Aclodini and considered as a second tribe in Paragryllinae (in this classification, this subfamily contains also the tribe Paragryllini). Nevertheless, the both classifications are more or less similar in relation to phylogenetic positions of many tribes and subtribes inside Phalangopsinae sensu Gorochov [Chintauan-Marquier et al., 2016; Gorochov, 2019].

The new genus, considered here, probably belongs to the tribe Phalangopsini and are rather similar to the subtribes Palangopsina and Heterogryllina in the head structure (especially in the rostral shape), but its male

genitalia is rather simple (primitive) and may belong to ancestral forms of all these subtribes.

All the specimens examined are dry, pinned and deposited in the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg (ZIN). The illustrations were made using a Leica M216 stereomicroscope and a DFC290 digital camera.

Nomenclatural acts introduced in the present work are registered in ZooBank (www.zoobank.org) under urn:lsid:zoobank.org:pub:B5F235F1-0295-43E3-83C3-4921AF3C9876.

Descriptions of new taxa

Phalangopsini (?)

Andasibeacla Gorochov, gen.n.

urn:lsid:zoobank.org:act:A654D6AE-A01D-438F-BBF0-36822C4C4A76

Type species: *Andasibeacla tianasoa* Gorochov, sp.n.

Diagnosis. Almost apterous crickets of rather small (for Phalangopsinae) body size. Coloration distinctly spotted. Head short, almost triangular in front, with very large eyes slightly projected above dorsum of epicranium (their height somewhat greater than their length; Figs 1, 2), and with rather small and almost angular (in profile) rostrum which slightly narrower than scape (this rostrum located lower than rest part of head dorsum and separated from it by transverse concavity well distinct in profile; Fig. 2); maxillary palpi moderately short, with apical segment weakly widening towards apex as well as approximately 2 and 1.5 times as long as subapical and third segments, respectively (Figs 1, 2). Pronotum slightly transverse, with barely narrowing anterior part, more or less straight anterior edge of disc, concave its posterior edge, and rather low lateral lobes having obliquely sinuated ventral edges (Figs 2, 3); mesonotum and metanotum without any gland and almost without wings. Legs moderately long for this subfamily and rather slender, without tympana, with 3 apical spurs on fore tibia, 2 ones on middle tibia, 5 apical spurs on hind tibia (ventral inner one lost), 4 pairs of short dorsal spines on latter tibia (but distinct denticles between these spines absent) and a pair of dorsal subapical denticles on hind basitarsus near its apical spurs. Fourth abdominal tergite of male with distinct (almost keel-like) but rounded and transverse convexity (abdominal gland ?) (Figs 2, 3); in female, abdominal tergites without distinct specializations, but last sternite somewhat enlarged (Fig. 6); anal plate in both sexes slightly transverse, moderately narrowing to roundly truncated apex, directed downwards, dorsally (posteriorly) with incomplete thin and longitudinally median groove, 2 low transverse keels (proximal one interrupted in median portion, and very thin one in middle part of this plate) and a pair of short but more distinct longitudinal keels in proxilateral parts (Fig. 4); small paraprocts almost completely covered by this plate and practically invisible; male genital plate approximately 1.5 times as long as anal plate, gradually narrowing to narrowly truncated apex (Fig. 5); female genital plate barely shorter than anal plate, triangular and with distinct (but not deep) almost angular posteromedian notch (Fig. 6). Male genitalia: epiphallus simple, in form of elongate plate having rather deep and roundly angular anteromedian notch as well as somewhat less deep and almost trapezoidal posteromedian notch (posteromedian part of epiphallus semimembranous and distinctly separated from more sclerotized anterior and lateral parts; these lateral parts

projecting backwards as more or less thin lobes ventrally fused with a pair of oblique and semisclerotized medial structures); above-mentioned semimembranous posteromedian epiphallus part and semisclerotized medial structures possibly homologous to rachis and ectoparameres, respectively, but possibly also that rachis and ectoparameres undeveloped; endoparameres ribbon-like, with short anteroventral projections and long anterior apodemes; formula small, consisting of a pair of semisclerotized plates and unpaired median stripe; rami indistinct (Figs 9–12). Ovipositor slightly shorter than hind femur; its distal portion not widened in subapical part, lacking distinct denticles and acute at apex (Figs 7, 8).

Included species. Type species only.

Comparison. The new genus differs from all other taxa of Phalangopsini in the following combination of characters: the head is with a narrow rostrum well separated dorsally from the rest of the epicranium (i.e., this rostrum is approximately as in the subtribes Phalangopsina and Heterogryllina as well as in some taxa of the subtribes Amphiacustina, Modestozarini and Parendacustina); the male pterothoracic tergites lack any distinct gland, but the male abdomen with a probable gland on the fourth abdominal tergite (a more or less similar gland is developed also in some other taxa of Phalangopsinae, but its structure and position are very different); the hind tibiae lack any denticles between the dorsal spines (this feature is possibly unique for Phalangopsinae but characteristic for Nemobiinae and some other subfamilies); the hind basitarsus has only a pair of dorsal denticles (this feature is also somewhat unusual for Phalangopsini and Nemobiinae). The structure of the abdominal apex in both sexes (including the male genitalia and the ovipositor distal part) does not allow us to distinguish this genus from any primitive representatives of Phalangopsini as well as from Nemobiinae, but the overall set of characters supposes that *Andasibeacla* gen.n. is still more related to Phalangopsini than to Nemobiinae and other higher taxa.

Etymology. The name of this genus consists of two words: the Andasibe Village, situated very near its type species locality, and the former generic name *Acla* (this name is often used in names of crickets with more or less similar general appearance).

Andasibeacla tianasoa Gorochov, sp.n.

Figs 1–12.

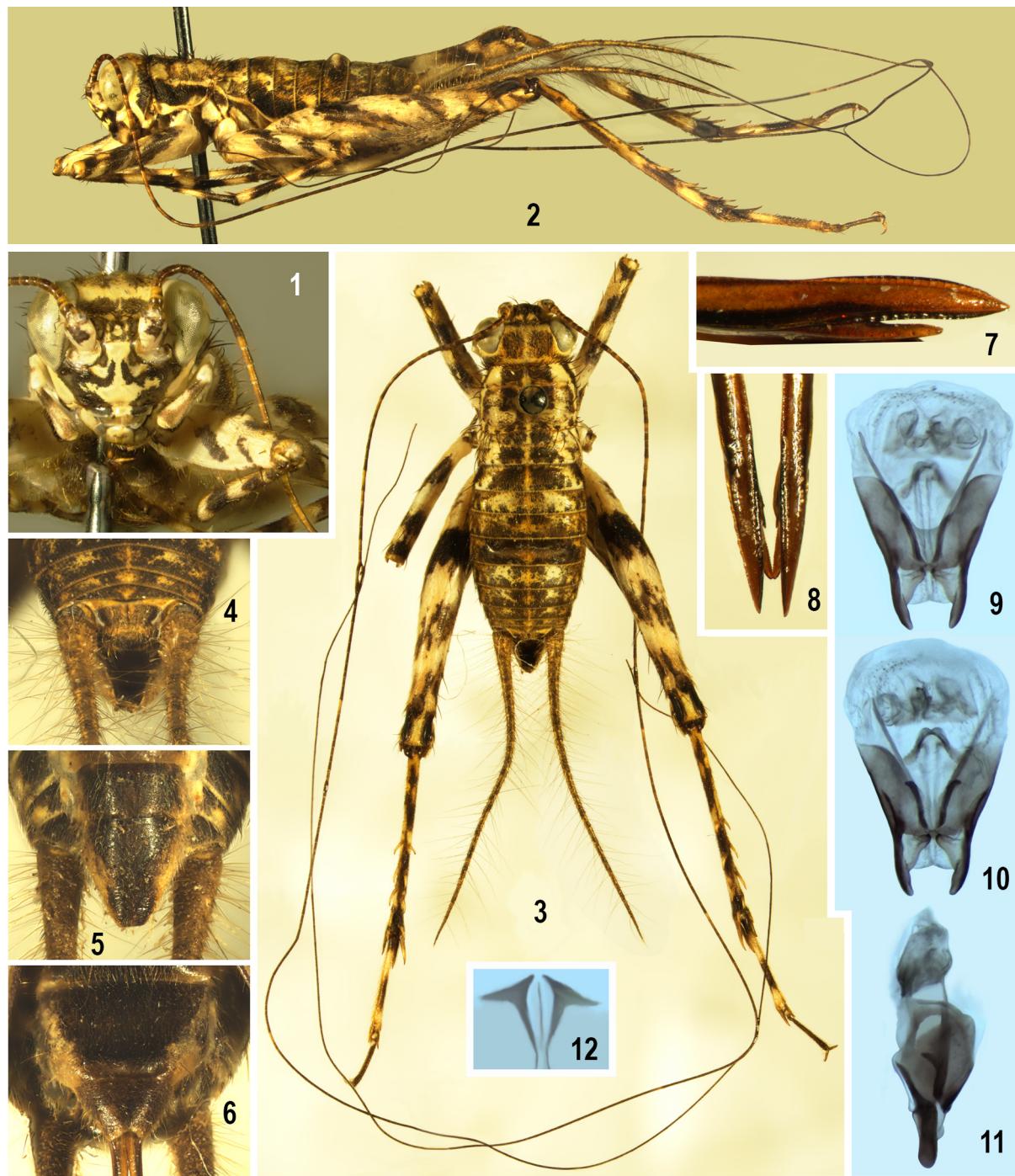
urn:lsid:zoobank.org:act:2243F25F-72FA-41B3-B900-970C266B1A7D

Material. Madagascar: Holotype, ♂: Toamasina Prov., Moramanga Distr., Analamazaotra Forest Station near Andasibe Vill., 18°56' S, 48°25' E, h~900 m a.s.l., primary/secondary forest, on bark of living tree at night, 1–7.III.2013, A. Gorochov, L. Anisyutkin leg. (ZIN). Paratypes: 1♂, 8♀, same data as for holotype, but 1–20.III.2013 (ZIN); 1♂, 2♀, same province and district, about 10 km NW of Andasibe Vill, Torotorofotsy Reserve, h~1000 m a.s.l., primary forest, under same conditions as holotype, 22.II–11.III.2013, A. Gorochov leg. (ZIN).

Description. *Male* (holotype). Head yellowish with following pattern: eyes light grey; epicranial dorsum between eyes with a pair of rather large greyish brown spots in posterior half and one dark brown transverse stripe between anterior halves of eyes; fore part of epicranium with very large and almost triangular dark brown area located between narrow yellowish transverse stripe (crossing yellowish lateral ocelli) and clypeus

(this dark area with a few yellowish marks: median ocellus and small spot near its anterior edge, larger apical spot on rostrum, a pair of arcuate marks under this spot, vertical median stripe from this spot to large transverse mark near clypeal suture, and small median part of this suture region); genae with dark brown bands along their posterior edges (these bands in upper part connected with a pair of dorsal greyish brown spots); anten-

nae with two greyish brown ventral spots on each scape, dark brown most part of each pedicel, brown (with yellowish lateral part) proximal segment of each flagellum and brown to greyish brown rest of this flagellum (but this part of flagellum also with very sparse lighter spots); clypeus and labrum with grey lateral parts; mandibles darkened in their apical part; maxillary palpi with greyish brown proximal part of apical segment and light



Figs 1–12. Details of body structure of *Andasibecla tianosooi* Gorochov, gen. et sp. n.: male holotype (1–5, 9–12) and female paratype (6–8). 1 — head and partly fore leg in front; 2, 3 — body; 4–6 — abdominal apex; 7, 8 — distal part of ovipositor; 9–11 — genitalia; 12 — formula of genitalia, posteroventral view; 2, 7, 11 — from side; 3, 4, 8, 9 — from above; 5, 6, 10 — from below.

Рис. 1–12. Детали строения тела *Andasibecla tianosooi* Gorochov, gen. et sp. n.: самец, голотип (1–5, 9–12) и самка, параптип (6–8). 1 — голова и частично передняя нога спереди; 2, 3 — тело; 4–6 — вершина брюшка; 7, 8 — дистальная часть яйцеклада; 9–11 — гениталии; 12 — формочка гениталий, нижнезадний вид; 2, 7, 11 — сбоку; 3, 4, 8, 9 — сверху; 5, 6, 10 — снизу.

brown subapical part of this segment (Figs 1–3). Pronotum and other tergites yellowish with greyish brown to dark brown spots on dorsum and near it, but fourth abdominal tergite and last tergite almost completely darkened (Figs 2, 3); sternites brown in thoracic part and dark brown with small yellowish lateral parts (and nearest membranes) in abdominal part; anal plate light brown with yellowish narrow proximal part and partly whitish proxilateral keels (Fig. 4); genital plate dark brown with yellowish lateral parts (Fig. 5); cerci more or less greyish brown; legs yellowish to almost whitish with dark brown to greyish brown spots and bands (Figs 1–3). Scape almost 1.5 times as wide as rostrum between antennal cavities; ocelli very small but distinct; shape of head and pronotum as in Figs 1–3; pterothoracic tergites and majority of abdominal tergites unspecialized, but fourth abdominal tergite with keel-like transverse convexity as in Figs 2, 3; wings invisible (possibly hidden under pronotum); legs and abdominal apex also almost unspecialized (see generic diagnosis), but left tibia with one very small denticle near proximal outer spine (Figs 2–5); genitalia as in Figs 9–12.

Variations. Other males often barely darker or with slightly less contrast pattern; tegmina sometimes visible in form of microscopical scales behind posterolateral parts of pronotal disc; hind tibia usually without denticles and their traces; hind basitarsus sometimes with only a single denticle or without denticles.

Female. General appearance as in males, but all tergites unspecialized, apical abdominal sternite distinctly enlarged (longer than other abdominal sternites and strongly widened) and ventrally flattened (Fig. 6), and genital plate as in Fig. 6; ovipositor slightly shorter than hind femur (this femur almost 1.2 times as long as ovipositor) and with distal part as in Figs 7, 8 (distal portion of upper valves with acute apex as well as finely sinuate ventral edge and possibly used for cutting less loose substrate than soil).

Length in mm. Body: ♂ — 8–9, ♀ — 7.5–9; pronotum: ♂ — 1.6–1.8, ♀ — 1.6–1.9; hind femora: ♂ — 7–7.3, ♀ — 6.5–7.3; hind tibiae: ♂ — 5.2–5.7, ♀ — 4.8–5.6; ovipositor 5.2–5.8.

Etymology. The new species is named after Mr. Tiansoa Ratolojanahary for his help in collecting insects.

Comparison. The differences of this species from all other related taxa are given above, in the diagnosis and comparison for this monotypic genus.

Acknowledgements

The author is very grateful to Dr. Rainer Dolch and Mr. Tiansoa Ratolojanahary from «Mitsinjo Association» (Madagascar, Andasibe) for their assistance in organizing and conducting fieldwork in the natural landscapes of Madagascar. This study was performed in the frames of the state research project No. 125012901042-9 (Russian Federation).

References

Chintauan-Marquier I.C., Legendre F., Hugel S., Robillard T., Grandcolas Ph., Nel A., Zuccon D., Desutter-Grandcolas L. 2016. Laying the foundations of evolutionary and systematic studies in crickets (Insecta, Orthoptera): a multilocus phylogenetic analysis // Cladistics. Vol.32. No.1. P.54–81. <https://doi.org/10.1111/cla.12114>

Desutter L. 1987. Structure et évolution du complexe phallique de Gryllidae (Orthoptères) et classification des genres néotropicaux de Grylloidea. Première partie // Annales de la Société Entomologique de France. Vol.23. No.3. P.213–239.

Desutter L. 1988. Structure et évolution du complexe phallique des Gryllidae (Orthoptères) et classification des genres néotropicaux de Grylloidea. Deuxième partie // Annales de la Société Entomologique de France. Vol.24. No.3. P.343–373.

Desutter-Grandcolas L. 1992. Les Phalangopsidae néotropicaux (Orthoptera: Grylloidea). 2. Le groupe des Aclodae // Annales de la Société Entomologique de France. Vol.28. No.2. P.171–199.

Desutter-Grandcolas L., Faber L. 2020. Phalangopsidae crickets (Orthoptera, Grylloidea) from the Mitaraka biological survey, French Guiana // Zootaxa. Vol.42. No.32. P.739–797. <https://doi.org/10.5252/zootaxa2020v42a32>

Gorochov A.V. 1986a. [On system and morphological evolution of the cricket family Gryllidae (Orthoptera) with description of new taxa. Communication 1] // Zoologicheskii Zhurnal. Vol.65. No.4. P.516–527. [In Russian].

Gorochov A.V. 1986b. [On system and morphological evolution of the cricket family Gryllidae (Orthoptera) with description of new taxa. Communication 2] // Zoologicheskii Zhurnal. Vol.65. No.6. P.851–858. [In Russian].

Gorochov A.V. 2014. Classification of the Phalangopsinae subfamily group, and new taxa from the subfamilies Phalangopsinae and Phaloriinae (Orthoptera: Gryllidae) // Zootaxa. Vol.23. No.1. P.7–88.

Gorochov A.V. 2015. New and little-known crickets of the subfamily Phalangopsinae (Orthoptera, Gryllidae). 8. The genus *Paragryllodes* and notes on the subfamily classification // Zoologicheskii Zhurnal. Vol.94. No.8. P.905–916. [In Russian]. <https://doi.org/10.7868/S0044513415080073>

Gorochov A.V. 2018. New and little-known crickets of the subfamily Phalangopsinae (Orthoptera, Gryllidae). 12. The genus *Parendacutes* (part 3) and other taxa // Zoologicheskii Zhurnal. Vol.97. No.1. P.3–16. [In Russian]. <https://doi.org/10.7868/S0044513418010014>

Gorochov A.V. 2019. The cricket subfamily Phalangopsinae (Orthoptera: Gryllidae) in Peru // Zootaxa. Vol.28. No.1. P.51–87. <https://doi.org/10.31610/zsr/2019.28.1.51>

Gorochov A.V. 2020. New and Little-Known Crickets of the Subfamily Phalangopsinae (Orthoptera, Gryllidae). 13. The Subtribe Phaeophilacridina // Zoologicheskii Zhurnal. Vol.99. No.11. P.1268–1282. <https://doi.org/10.31857/S004451342009010X>

Hugel S., Warren B.H., Desutter-Grandcolas L. 2021. The Phalangopsidae crickets (Orthoptera, Grylloidea) of the Seychelles Archipelago: Taxonomy of an ecological radiation // Zootaxa. Vol.5047. No.3. P.201–246. <https://doi.org/10.11646/zootaxa.5047.3.1>

Поступила в редакцию 29.7.2025