

Phalangopsidae crickets from Tropical Africa (Orthoptera, Grylloidea), with descriptions of new taxa and an identification key for African genera

LAURE DESUTTER-GRANDCOLAS

Institut de Systématique, Evolution et biodiversité, ISYEB, UMR 7205 CNRS MNHN UPMC EPHE, Muséum national d'Histoire naturelle, Sorbonne Universités, 57 rue Cuvier, Case Postale 50 (Entomologie), 75231 Paris Cedex 05, France.

Corresponding author: Laure Desutter-Grandcolas (desutter@mnhn.fr)

Abstract

New Phalangopsidae crickets are described from tropical Africa, including three new genera and ten new species: *Afrophaloria* Desutter-Grandcolas, n.gen., *Afrophaloria amani* Desutter-Grandcolas, n. sp., type species, *Afrophaloria apiariensis* Desutter-Grandcolas, n. sp., *Afrophaloria hempae* Desutter-Grandcolas, n. sp., *Kameruloria gabonensis* Desutter-Grandcolas, n. sp., *Kameruloria nigricornis* Desutter-Grandcolas, n. sp., *Kameruloria trimaculata* Desutter-Grandcolas, n. sp., *Paragryllodes amani* Desutter-Grandcolas, n. sp., *Phasmagryllus* Desutter-Grandcolas, n.gen., *Phasmagryllus elegans* Desutter-Grandcolas, n. sp., type species, *Upupagryllus* Desutter-Grandcolas, n.gen., *Upupagryllus subalatus* Desutter-Grandcolas, n. sp., type species, and *Upupagryllus alatus* Desutter-Grandcolas, n. sp. All these taxa, except *Paragryllodes amani* Desutter-Grandcolas, n. sp., belong to the subfamily Phaloriinae. The subfamily is redefined, to take into account their morphological (apterous taxa) and ecological (straminicolous taxa) diversity. A key for phalangopsid African genera is proposed, and the status of *Larandeicus* Chopard, 1937 briefly discussed.

Key words: Grylloidea, Taxonomy, New genera, New species, Identification Key, Tropical Africa

Résumé

Des grillons Phalangopsidae nouveaux sont décrits d'Afrique tropical, incluant trois nouveaux genres et dix nouvelles espèces: *Afrophaloria* Desutter-Grandcolas, n.gen., *Afrophaloria amani* Desutter-Grandcolas, n. sp., l'espèce type, *Afrophaloria apiariensis* Desutter-Grandcolas, n. sp., *Afrophaloria hempae* Desutter-Grandcolas, n. sp., *Kameruloria gabonensis* Desutter-Grandcolas, n. sp., *Kameruloria nigricornis* Desutter-Grandcolas, n. sp., *Kameruloria trimaculata* Desutter-Grandcolas, n. sp., *Paragryllodes amani* Desutter-Grandcolas, n. sp., *Phasmagryllus* Desutter-Grandcolas, n.gen., *Phasmagryllus elegans* Desutter-Grandcolas, n. sp., l'espèce type, *Upupagryllus* Desutter-Grandcolas, n.gen., *Upupagryllus subalatus* Desutter-Grandcolas, n. sp., l'espèce type, and *Upupagryllus alatus* Desutter-Grandcolas, n. sp. Tous ces taxons, à l'exception de *Paragryllodes amani* Desutter-Grandcolas, n. sp., appartiennent à la sous-famille des Phaloriinae, qui est redéfinie pour tenir compte de leur diversité morphologique (espèces aptères) et écologique (espèces straminicoles). Une clé des genres africains de Phalangopsidae est proposée, et le statut de *Larandeicus* Chopard, 1937 brièvement discuté.

Mots clés: Grylloidea, Taxonomie, Nouveaux genres, Nouvelles espèces, Clé d'identification, Afrique tropicale

Introduction

Phalangopsidae is a highly diverse clade of crickets, with more than 160 known genera presently distributed in 5 putative subfamilies (Chintauan-Marquier *et al.* 2015). It exhibits a unique biological diversity within crickets, with many original morphological, ecological, behavioral and acoustic attributes (Dambach & Lichtenstein 1878, de Mello 2007, Desutter-Grandcolas 1995, 2012, Souza-Dias & Desutter-Grandcolas 2014). As an example, the vast majority of troglobitic crickets belong to the Phalangopsidae, with few troglobitic species known in other cricket clades, such as Nemobiinae (Rentz & Su 1996, Gurney & Rentz 1978, Desutter-Grandcolas 2009),

Acknowledgments

Field work was supported by the program "Origine de la biodiversité dans les principaux bassins d'Afrique centrale: une analyse phylogénétique" (Université Rennes I, EC), and partly performed during a Research Associate program at the Sokoine University of Morogoro (Tanzania). I am indebted to R. Machangu and R. Sabouni for their help in Tanzania, to A. Renault (CIMRF), P. and M. Bureau (WWF) and the staff of the La Makandé station for facilities in Gabon, and to the ECOFAC staff in CAR. I thank C. Hemp (Germany) for material from Tanzania, H. Entghoff (ZMC) for loan of material, and S. Hugel (France) for pictures of the type of *Zaora morbillosa* Walker, 1869 (NHM, London). Other specimens were photographed by Guy Lecorvec (MNHN).

References

- Chintauan-Marquier, I., Legendre, F., Hugel, S., Robillard, T., Grandcolas, P., Nel, A., Zuccon, D. & Desutter-Grandcolas, L. (2013) *Laying the foundations of evolutionary and systematic studies in crickets (Insecta, Orthoptera) : a multilocus phylogenetic analysis*. 11th International Congress of Orthopterology, 11–16. [Kunming, China. Oral presentation]
- Chintauan-Marquier, I., Legendre, F., Hugel, S., Robillard, T., Grandcolas, P., Nel, A., Zuccon, D. & Desutter-Grandcolas, L. (2015) Laying the foundations of evolutionary and systematic studies in crickets (Insecta, Orthoptera) : a multilocus phylogenetic analysis. *Cladistics*. (in press)
- Chopard, L. (1949) Ordre des Orthoptères. In: Grassé, P.P. (Ed.), *Traité de Zoologie*, 9, pp. 617–722. [Masson, Paris]
- Chopard, L. (1968) Pars 12. Fam Gryllidae: Subfam. Mogoplistinae, Myrmecophilinae, Scleropterinae, Cachoplistinae, Pteroplistinae, Pentacentrinae, Phalangopsinae, Trigonidiinae, Eneopterinae. Fam. Oecanthidae, Gryllotalpidae. In: Beier, M. (Ed.), *Orthopterorum Catalogus*. Dr.W.Junk N.V., 's Gravenhage, pp. 215–500.
- Dambach, M. & Lichtenstein, L. (1978) Zur Ethologie der afrikanischen Grille *Phaeophilacris spectrum* Saussure. *Zeitschrift für Tierpsychologie*, 46, 14–29.
- de Mello, F.A.G. (2007) Female monopolization and paternity assurance in South American crickets (Orthoptera, Grylloidea): mating plugs, extra claspers and forced copulation. *Papeis Avulsos de Zoologia*, 46, 245–257.
- Desutter, L. (1987) Structure et évolution du complexe phallique des Gryllidea (Orthoptera) et classification des genres néotropicaux de Grylloidea. 1ère partie. *Annales de la Société entomologique de France*, New Series, 23, 213–239.
- Desutter-Grandcolas, L. (1992) Les Phalangopsidae de Guyane française (Orthoptères, Grylloidea): systématique, éléments de phylogénie et de biologie. *Bulletin du Muséum national d'Histoire naturelle, Paris*, 14, 93–177.
- Desutter-Grandcolas, L. (1995) Toward the knowledge of the evolutionary biology of phalangopsid crickets (Orthoptera, Grylloidea, Phalangopsidae: data, questions and scenarios. *Journal of Orthoptera Research*, 4, 163–175.
<http://dx.doi.org/10.2307/3503472>
- Desutter-Grandcolas, L. (1998) Grylloidea. In: Juberthie, C. & Decu, V. (Eds.), *Encyclopædia biospeologica*, II, Société de Biospéologie, Moulis, 989–1001. [France]
- Desutter-Grandcolas, L. (1999) The genus *Paragryllodes* Karny, 1909 in tropical Africa (Orthoptera, Grylloidea, Phalangopsidae): new taxa and field observations on the habitat of the species. *Zoosystema*, 21, 495–524.
- Desutter-Grandcolas, L. (2003) Phylogeny and the evolution of acoustic communication in extant Ensifera (Insecta, Orthoptera). *Zoologica Scripta*, 32, 525–561.
<http://dx.doi.org/10.1046/j.1463-6409.2003.00142.x>
- Desutter-Grandcolas, L. (2009) New and little known crickets from Espiritu Santo Island, Vanuatu (Insecta, Orthoptera, Grylloidea, *Pseudotrigonidium* Chopard, 1915, Phaloriinae and Nemobiinae p.p.). *Zoosystema*, 31, 619–659.
<http://dx.doi.org/10.5252/z2009n3a12>
- Desutter-Grandcolas, L. (2012) Phalangopsidae crickets from Espiritu Santo Island, Vanuatu (Insecta, Orthoptera, Grylloidea). *Zoosystema*, 34, 287–304.
<http://dx.doi.org/10.5252/z2012n2a7>
- Desutter-Grandcolas, L. & Jaiswara, R. (2012) Phalangopsidae crickets from the Indian region (Orthoptera, Grylloidea), with the descriptions of new taxa, diagnoses for genera, and a key to Indian genera. *Zootaxa*, 3444, 1–39.
- Gorochov, A.V. (1985) Sur la faune des Itariniae, Podoscirtinae et Nemobiinae (Orthoptera, Gryllidae) d'Indochine. In : Medvedev, L.N. (Ed.), *Insects of Vietnam*, Nauka, Moscow, pp. 17–25. (in Russian)
- Gorochov, A.V. (1996) New and little known crickets from the collection of the Humboldt University and some other collections (Orthoptera: Grylloidea). Part 2. *Zoosystematica Rossica*, 6, 29–90.
- Gorochov, A.V. (2003) New and little known Cachoplistinae and Phaloriinae (Orthoptera: Gryllidae). *Zoosystematica Rossica*, 12, 79–92.
- Gurney, A.B. & Rentz, D.C. (1978) The cavernicolous fauna of Hawaiian lava tubes. 10. Crickets (Orthoptera, Gryllidae). *Pacific Insects*, 18, 85–103.
- Hubbell, T.H. (1938) New cave-crickets from Yucatan, with a review of the Pentacentrinae, and studies on the genus *Amphiacusta* (Orthoptera, Gryllidae). *Carnegie Institution of Washington Publication*, 491, 191–233.
- Kirby, W.F. (1906) *A synonymic catalogue of Orthoptera*. Vol. 2. *Orthoptera Saltatoria*. Part 1. *Achetidae and Phasgonuridae*.

- British Museum (Natural History).
- Rentz, D.C. & Su, Y.N. (1996) New apterous pygmy crickets from Australia with notes on their habitats and reevaluation of characters defining the Australian genera (Gryllidae: Nemobiinae). *Journal of Orthoptera Research*, 5, 185–198.
<http://dx.doi.org/10.2307/3503593>
- Robillard, T. & Desutter-Grandcolas, L. (2004) Phylogeny and the modalities of acoustic diversification in extant extant Eneopterinae (Insecta, Orthoptera, Grylloidea, Eneopteridae). *Cladistics*, 20, 271–293.
<http://dx.doi.org/10.1111/j.1096-0031.2004.00025.x>
- Saussure, H. de (1878) Mélanges orthoptérologiques. VIème fascicule. Gryllides (2ème partie). *Mémoires de la Société de Physique et d'Histoire naturelle de Genève*, 25, 369–702.
- Souza-Dias, P.G.B. & Desutter-Grandcolas, L. (2014) A new genus and three new species of Luzarinae crickets from the Atlantic forest of Northeast Brazil (Orthoptera, Grylloidea). *Zootaxa*, 3872 (4), 498–512.
<http://dx.doi.org/10.11646/zootaxa.3872.5.4>