



<http://dx.doi.org/10.11646/zootaxa.3956.1.10>

<http://zoobank.org/urn:lsid:zoobank.org:pub:1D3A602A-543C-4BFA-8944-CA1C5582AA05>

### On the family-group ranks of katydids (Orthoptera, Tettigoniidae)

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The purpose of this note is to propose minor modifications to recent changes in the classification of katydids, to preserve the stability of the family Tettigoniidae as including all katydids. This concept has been used in the majority of references since it was established long ago (Krauss 1902), with comparatively few exceptions, where all katydid subfamilies were treated as families in superfamily Tettigonoidea.

In a recent molecular phylogeny of katydids four subfamilies, Phaneropterinae, Pseudophyllinae (excluding Pterochrozini, see below), Phyllophorinae and Mecopodinae turned out as one monophyletic group (Mugleston *et al.* 2013). To bring these subfamilies formally together, it was suggested to give the group family status as Phaneropteridae, which of course would move them away from Tettigoniidae (Heller *et al.* 2014). After almost four months of deliberation, this change was adopted by Orthoptera Species File Online (Eades *et al.*), since it allowed recognizing five subfamilies proposed within Pseudophyllinae elevated to subfamily group Pseudophyllidae (Gorochov 2012). Two of these subfamilies, Pseudophyllinae and Pleminiinae include several tribes, while the others each simply elevated the status of a single tribe: Simoderinae, Polyancistrinae and Pterochrozinae.

This rather drastic change, removing more than half of the katydid species from the well-established family Tettigoniidae, could be avoided by slight modifications of ranks. To keep Pseudophyllinae as a subfamily, either infra-families or supertribes are necessary. The International Code of Zoological Nomenclature only specifies suffixes for names of superfamilies, families, subfamilies, tribes and subtribes, which must not be used for other family-group ranks (Article 29.2). These are not regulated by the Code. According to searches on the Internet and in Zoological Record, there are used various and partly strange suffixes for infra-families, while one established suffix for supertribes seems to be -iti (Engel 2005, Heads 2010). So the subfamilies Pseudophyllinae and Pleminiinae could be replaced by two supertribes under Pseudophyllinae stat. rev.: **Pseudophylliti** (including Aspidonotini, Callimenellini, Cymatomerini, Pantecphylini, Phrictini, Phyllophorini and Pseudophyllini) and **Pleminiiti** (including Aphractini, Cocconotini, Eucocconotini, Homalaspidiini, Ischnomelini, Leptotettigini, Platyphyllini, Pleminiini, Pterophyllini and Teleutiini). Polyancistrini and Simoderini do not need an intermediate rank between tribe and subfamily. Then Phaneropteridae (including the four above-mentioned subfamilies) could be placed as subfamily group under family Tettigoniidae. As suffixes for subfamily groups are used -idae and -inae (Eades *et al.*, Internet search, Zoological Record), although that does not comply with Article 29.2 of the Code. Probably it does not matter, since this rank is not regulated.

Perhaps the most interesting result of the above-mentioned molecular study is the position of the Pterochrozini. While they are traditionally treated as tribe of Pseudophyllinae, they originate there at the very base of the tree, as sister group of all other Tettigoniidae (Mugleston *et al.* 2013). Another indication that this group of camouflage specialists of neotropical rainforests might be unrelated to Pseudophyllinae is the development of the non-functional stridulatory file on the right tegmen in males. In Pterochrozini it appears as an unsclerotized and inconspicuous vestigial copy of the functional one on the left tegmen, like in seven of the eight subfamilies investigated concerning this character, whereas in true Pseudophyllinae it is completely reduced, except for very few species, which bear on the otherwise smooth underside of the cubital vein some asymmetrically arranged toothlets (Chamorro-Rengifo *et al.* 2014). Placing the Pterochrozinae as subfamily directly under Tettigoniidae, as proposed hereby, would substantiate the monophyly of the subfamily group Phaneropteridae.

The latter was questioned by a new molecular study of all Orthoptera (Song *et al.* 2015), particularly referring to the previous katydid phylogeny in regard to the pterochrozines. In the new tree the portion concerning the katydids looks quite confusing. Phaneropterinae and Mecopodinae (both members of subfamily group Phaneropteridae) each appear as polyphyletic, and a species of *Typophyllum*, as only representative of the Pterochrozinae, branches off somewhere in the middle of all other groups. So this tree seems to lack resolution as for drawing any conclusions about the arrangement