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A brief revision of brachypterous Phaneropterinae of the tropical Andes (Orthoptera, Tettigoniidae, Odonturini)

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Abstract

The main purpose of this paper is the description of two very tiny, long-legged, and short-winged katydids from the eastern slope of the eastern Andean cordillera of south-east Ecuador, *Nanoleptopoda nigrifrons* **gen.** et **sp. nov.** and *N. albifrons* **sp. nov.**, the first species along with its ultrasound calling song. The monospecific and closely-related genus *Parangara* is included in Odonturini. *Dichopetala inca* and *Anisophya equatorialis* are transferred under the so far monospecific genus *Cohnia*, so that now the tribe includes three genera with six species from the tropical Andes. The ecological background of wing reduction in relation to elevation is briefly discussed.

Key words: *Cohnia*, *Nanoleptopoda* **gen. nov.**, *Parangara*, Ecuador, Peru, bioacoustics, wing-reduction, high-elevation habitat, tropical montane rainforest

Introduction

The members of the worldwide-distributed and highly diverse Phaneroperinae, by far the largest subfamily of katydids (with over 2300 species according to Eades *et al.*), typically have well-developed wings. But wing reduction is also common and has probably evolved multiple times independently (Naskrecki & Bazelet 2011, listing the brachypterous genera). The over 270 species of the tribe Barbitistini, distributed over Europe and western Asia, are all short-winged. Another tribe with only short-winged genera is Odonturini, currently including around 60 species from North and South America, Africa, Spain, and one species from an island in Papua New Guinea. In Africa wing reduction seems to be related with high-elevation areas (Naskrecki & Bazelet 2011). From South America are known only few brachypterous Phaneropterinae, and some of them from the type specimens only (Buzzetti *et al.* 2010). The six species treated here were found between 1250 and 3000 m, and five of them are known from above 2000 m. Two very small and delicate species from southeast Ecuador are new, as well as the genus they belong to. Under the recently described genus *Cohnia* Buzzetti, Fontana & Carotti 2010 are moved two more species, so it will include altogether three. The genus *Parangara*, currently without tribal affiliation and containing a single species, is included here in the tribe Odonturini (containing already the here-mentioned genera *Anisophya*, *Cohnia*, and *Dichopetala*). The only additionally known brachypterous and montane member of the Phaneropterinae from South America is *Anisophya schoenemanni* (Karsch 1889) from central Chile, 1500–2000 m.

Material and methods

The sound recording of *Nanoleptopoda nigrifrons* **sp. nov.** was made with a Laar Bridge Box XL (BVL von Laar, Klein-Görnow, Germany), which has an ultrasound sensitive microphone and a digital loop memory from which fragments of 5.12 seconds (at 400 kHz sampling rate), 10 times slowed down, were stored on DAT (digital audio tape TDK DA-RXG 90) using a Sony Walkman (model TCD-D7). The recorded individual was accommodated in a gauze cage, provided with plant parts and fresh pieces of cucumber. Sound analysis was done with Avisoft-SASLab Pro (R. Specht, Berlin). Numerous photographs and point maps of the localities of the two new species are

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