



## The spider-like katydid *Arachnoscelis* (Orthoptera: Tettigoniidae: Listroscelidinae): anatomical study of the genus

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### Abstract

This paper provides some observations on the anatomy of the neotropical katydid *Arachnoscelis arachnoides* Karny (Insecta: Orthoptera: Tettigoniidae). *Arachnoscelis* is a genus of predaceous katydids that comprise species that resemble spiders in their general body appearance. The type species, *A. arachnoides*, was described in 1891 from a single male collected in Colombia. Following the original description, these creatures were never found again, and were thought to have gone extinct or mistakenly assigned to the type locality. But between 1891 and 2012 four more species were described and incorrectly assigned to *Arachnoscelis* based on a similarity of body form. In this paper we present an anatomical comparison of *Arachnoscelis* and its relatives, and propose that *Arachnoscelis* should be treated as a monotypic genus. This implies that other species previously described in *Arachnoscelis*, should be placed in different genera.

**key words:** ultrasound, predator, Colombia, stridulation, bushcricket

### Introduction

Small, slim, long-legged katydids (Insecta: Orthoptera: Tettigoniidae) resembling spiders (Fig. 1) are grouped in the genus *Arachnoscelis* Karny (Karny, 1911). Five species have been assigned to this genus based on general body resemblance to the type species *A. arachnoides*. However no attempt to review and validate these assumptions has been undertaken. In this paper we study the biomechanics of sound production of *A. arachnoides*, and present an anatomical comparative analysis of all species presently assigned to *Arachnoscelis*. A more reliable report of the distribution of the type species is provided.

*Arachnoscelis* was described by Karny (Karny, 1911) as a monotypic genus, his type species, *A. arachnoides*, was described earlier from an adult male from Colombia by Joseph Redtenbacher (Redtenbacher, 1891) as *Listroscelis arachnoides*. Except for a few taxonomic reviews, these predaceous katydids have rarely been studied in detail. The only known specimen of *A. arachnoides* is the male studied by Redtenbacher and Karny. Since 1891 these animals have apparently not been collected or studied again. Some taxonomists even believed they had gone extinct, or that the type locality, was incorrect (Theodore Cohn, personal comm.). The peculiar spider-like anatomy has led to taxonomists including other Neotropical similar spider-like katydids in *Arachnoscelis*. Four additional species from Central America (Bowen-Jones, 1994; Hebard, 1927; Randell, 1964) and two more from South America (Gorochoy, 2012; Nickle, 2002) were described and assigned to *Arachnoscelis*. Montealegre-Z *et al.* (2006) reported another spider-like species of katydid wrongly identified as *Arachnoscelis* sp. from Colombia. This species uses the mechanism of elastic energy to produce a very unusual ultrasonic call consisting of a tone peaking at ca 130kHz, the highest tonal mating call ever recorded in nature.