



## A synopsis of *Actenosigynes* Moure, Graf & Urban, 1999 (Hymenoptera: Colletidae)—new species, possible oligolecty and biogeographic comments

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### Abstract

A second species of *Actenosigynes* from the Mantiqueira mountain range, in the southeastern Brazilian state of Minas Gerais, is described. This new taxon can be readily distinguished from the type species of the genus, *A. fulvoniger* (Michener, 1989), by its entirely black-pubescent mesosoma and by the light-yellow pilosity on its terga, among other characters. Females of the two known species are illustrated for the first time and a key is presented for their identification. Analysis of the pollen extracted from the scopa of the holotype of the new species and field observations of *A. fulvoniger* indicate that both species of *Actenosigynes* are oligolectic on flowers of Loasaceae as pollen sources. This presumed couple of sister species is the first example of a speciation event related to the isolation of populations of temperate and subtropical bee species on the top of southeastern-Brazilian mountains. It suggests that complexes of sibling species may exist among the other bee species with similar disjunct distribution.

**Key words:** Paracolletinae, *Leioproctus*, Atlantic Forest, Loasaceae, Neotropics, Pleistocene, biogeography, taxonomy

### Introduction

The generic classification of Paracolletinae has been considered unnatural (Michener 1989; Alexander & Michener 1995; Almeida & Danforth 2009) but attempts to change it have been hindered by the lack of knowledge of the phylogenetic relationships among its supraspecific groups. Its largest genus, *Leioproctus* (*sensu* Michener 2007), groups the taxa that presumably retain the largest set of plesiomorphies in the subfamily (Michener 1989) and that could not be attributed to any other genus (Michener 2007). This genus has been shown to be paraphyletic by Almeida and Danforth (2009) and, in conformance with their phylogenetic analyses, Almeida (2008) adopted the same position previously adopted by South American taxonomists (*e.g.*, Urban 1995; Moure *et al.* 1999, 2008; Silveira *et al.* 2002), who considered *Leioproctus* subgenera in the Neotropics as genera. Moreover, to make the classification of *Leioproctus* coherent across the world, he (Almeida 2008) also elevated all subgenera of *Leioproctus* in the Australian region to genus level. Since this reduces the number of paraphyletic taxa in the classification, this is the arrangement adopted here.

Among the many subgenera recognized by Michener (1989, 2000) in *Leioproctus*, *L.* (*Leioproctus*) was composed of more than 140 species in the Australian Region (Almeida 2008) and, oddly, of a single one from southern Brazil (*Leioproctus fulvoniger* Michener, 1989). When describing this species, Michener did not find it to be very similar to any of the Australian species in the genus, but also could not find any putative apomorphies for it. To accommodate this species, Moure *et al.* (1999) erected the genus *Actenosigynes*, which was later considered as a subgenus of *Leioproctus* by Michener (2007).

In this paper, a second species, described as new, is assigned to *Actenosigynes*, a key to distinguish its two known species is presented and a brief discussion is made on their biogeography and possible reliance on flower resources of Loasaceae.