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Revised species checklist of the Paracolletinae (Hymenoptera, Colletidae) of the Australian Region, with the description of new taxa

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Abstract

Colletid bees are widely distributed, but most of their diversity is found in southern continents, particularly Australia and South America. A major obstacle for the classification of Colletidae has been the lack of a well-resolved phylogenetic hypothesis encompassing representatives from all the main lineages of this family. A molecular phylogenetic study recently completed shed light on the subfamilial delimitation and relationships within Colletidae, and included a thorough enough sampling of Paracolletinae that genus-level classification could be evaluated. In this article a revised genus-level classification is presented for the Australian Paracolletinae, an attempt to make it more congruent with the phylogenetic relationships, as well as consistent with the classification of the South American paracolletine generic classification. According to the classification proposal presented here, Paracolletinae comprise 425 species, 298 of them endemic to the Australian Region. All subgenera of *Leioproctus* and of *Paracolletes* are elevated to the level of genus, thus raising the number genera occurring in the Australian Region to 25. According to a recent phylogenetic analysis of Colletidae, the Australian genus *Callomelitta* does not form a monophyletic group with the remaining genera of Paracolletinae. *Callomelitta* is hence removed from Paracolletinae and placed on a subfamily of its own, Callomelittinae, subfamily nov. Additionally, a new species of the Australian Paracolletinae genus *Andrenopsis* Cockerell is described as *Andrenopsis michenerianus*, sp.n..

Key words: bee, Apoidea, taxonomy, supraspecific classification, new species, new subfamily

Introduction

The main goal of this paper is to provide an account of necessary taxonomic changes that can be confidently made on basis of the current knowledge of relationships among colletid subfamilies, tribes, and genera (Almeida 2007; Almeida & Danforth, *in press*). While Michener's (1944, 1965, 1989, 2000, 2007) proposals for the classification of Colletidae have been the basis for the delimitation of higher taxa, much controversy exists regarding the generic limits especially within "Colletinae" *s.l.* (compare *e.g.*, Michener 2007 and Silveira *et al.* 2002).

According to the phylogenetic hypothesis followed in this article, "Colletinae" *s.l.* (*e.g.*, Michener 2007) is an artificial assemblage composed of at least four distinct lineages: Colletinae *s.str.* (*i.e.*, *sensu* Silveira *et al.* 2002; Engel 2005), Paracolletinae, Scrapterinae, and *Callomelitta* (Almeida 2007; Almeida & Danforth, *in press*). Paracolletinae includes the genus *Leioproctus sensu* Michener (1965, 1989, 2007), a very large genus from the New World (especially xeric temperate regions of South America) and the Australian region. As discussed by Almeida and Danforth (*in press*; see also comments by Michener 2000, 2007), *Leioproctus* is not monophyletic (Fig. 1). The elevation of its many subgenera to generic level is crucial for the development of a

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