



## Descriptions of unknown sexes, new geographical records, and host associations for two South American species of *Megachile* (Hymenoptera: Megachilidae)

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### Abstract

The cosmopolitan genus *Megachile* include many species described on the basis of only one sex. Sexual dimorphism is very pronounced in these taxa and therefore sexes are often difficult to associate, thus making species identification nearly impossible. The females of *M. (Chrysosarus) concava* and *M. (Pseudocentron) variplantis* are described and illustrated. Additional geographical and host records are provided as well as comments on their diagnostic features and identification based on existing keys.

**Key words:** Leafcutter bees, Megachilini, description, Neotropical

### Introduction

Females of nesting species of the family Megachilidae are easily recognized by their long tongue and sternal metasomal scopa (Michener, 2007). This cosmopolitan family includes large numbers of genera and species (Michener, 2007). In most species, sexual dimorphism is very pronounced, making sex associations difficult and species identification usually impossible.

The phylogenetic relationships of Megachilidae were recently revised by Gonzalez *et al.* (2012). Following Michener's classification (op. cit.), the tribe Megachilini includes four genera, *Coelioxys* Latreille, *Megachile* Latreille, *Noteriades* Cockerell and *Radoszkowskiana* Popov (Gonzalez *et al.* 2012). As in many other bee groups, descriptions of many megachiline species have been based on the description of a single sex. *Megachile (Chrysosarus) concava* and *M. (Pseudocentron) variplantis* were described by Mitchell (1930) and Vachal (1909), respectively; both species based only on the males. In this paper, we describe the females of *M. concava* and *M. variplantis*, and provide new geographical records and floral hosts associations for the two species.

### Material and methods

The material studied is deposited in the Facultad de Agronomía, Universidad de Buenos Aires, Argentina (FAUBA) and in the Museo de La Plata (MLP), La Plata, Buenos Aires, Argentina. The following abbreviations are used in the descriptions: S1–S8, first to eighth metasomal sterna; T1–T6, first to sixth metasomal terga. Measurements were taken using an ocular micrometer on a Leica MZ12 stereomicroscope. The scale corresponds to 0.5 mm.



**FIGURES 5–8.** *Megachile (Pseudocentron) variplantis* Vachal. Female. 5, habitus, lateral view. 6, head and mesosoma, lateral view. 7, head, frontal view. 8, metasoma, dorsal view.

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### References

- Ascher J., & Pickering, J. (2011) Bee species guide (Hymenoptera: Apoidea: Anthophila). Available from: [http://www.discoverlife.org/mp/20q?guide=Apoidea\\_species](http://www.discoverlife.org/mp/20q?guide=Apoidea_species) (accessed 2 January 2013)
- Gonzalez, V.H., Grinswold, T., Praz, C.J. & Danforth, B.N. (2012) Phylogeny of the bee family Megachilidae (Hymenoptera: Apoidea) based on adult morphology. *Systematic Entomology*, 37, 261–286.  
<http://dx.doi.org/10.1111/j.1365-3113.2012.00620.x>
- Michener, C.D. (2007) *The Bees of the World*. 2<sup>nd</sup> Edition. Johns Hopkins University Press, Baltimore, Maryland, 953 pp.
- Mitchell, T.B. (1930) A contribution to the knowledge of neotropical *Megachile* with descriptions of new species (Hymenoptera: Megachilidae). *Transactions of the American Entomological Society*, 56, 155–305.

- Moure, J.S., Melo, G.A.R. & DalMolin, A. (2007) Megachilini Latreille, 1802. *In*: Moure, J.S., Urban, D. & Melo, G.A.R. (Orgs.), *Catalogue of Bees (Hymenoptera, Apoidea) in the Neotropical Region*. Sociedade Brasileira de Entomologia, Curitiba, pp. 875–1003.
- Moure, J.S., Melo, G.A.R. & DalMolin, A. (2012) Megachilini Latreille, 1802. *In*: Moure, J.S., Urban, D. & Melo, G.A.R. (Orgs.), *Catalogue of Bees (Hymenoptera, Apoidea) in the Neotropical Region - online version*. Available from: <http://www.moure.cria.org.br/catalogue>. (accessed 15 November 2013)
- Raw, A. (2007) An annotated catalogue of the leafcutter and mason bees (Genus *Megachile*) of the Neotropics. *Zootaxa*, 1601, 1–127.
- Vachal, J. (1909) Espèces nouvelles ou litigieuses d'Apidae du haut Bassin du Parana et des régions contiguës et délimitation d'une nouvelle sous-famille Diphaglossinae (Hym.). *Revue d'Entomologie*, 28 (1/2), 5–64.