



Gynandromorphism in Xylocopinae Bees (Hymenoptera: Apidae): description of four new cases

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Abstract

Four new gynandromorph Xylocopinae bees from Argentina are described and illustrated; one specimen of *Xylocopa splendidula* Latreille and three of *Ceratina rupestris* Holmberg. All specimens are mosaic gynandromorphs as they display mixed female-male characters in different parts of the body.

Key words: Gynandromorphs, Carpenter Bees, Argentina

Introduction

Gynandromorphs are sexually abnormal individuals that display secondary characters of both sexes. Sex anomalies occur relatively frequently among bees and may be of striking appearance in species where the two sexes are markedly dissimilar in structure or color (Engel 2007). Gynandromorphs are interesting because they provide the possibility to recognize both female and male characters in the same specimen, allowing to match the different sexes with reasonable certainty when unknown. Among bees, most reports of gynandromorphism come from the families Megachilidae and Apidae (Ornosa Gallego 1984; Gonzalez 2004; Wcislo *et al.* 2004; Oliveira and Andrade 2006; Lucia *et al.* 2009; Michez *et al.* 2009; Sampson *et al.* 2010; Giangarelli and Sofia 2011). The subfamily Xylocopinae of Apidae includes four tribes: Manuelliini, Xylocopini, Ceratinini and Allodapini; the first three tribes are monotypic and include the genera *Manuelia* Vachal, *Xylocopa* Latreille and *Ceratina* Latreille respectively (Michener 2007). In this subfamily gynandromorphs have been described for *Xylocopa* (Wcislo *et al.* 2004; Lucia *et al.* 2009) and *Ceratina* (Holmberg 1874; Daly 1966). In this paper we describe and illustrate four new cases of gynandromorphism within Xylocopinae for two species, *Ceratina (Crewella) rupestris* Holmberg and *Xylocopa (Schonherria) splendidula* Lepageletier.

Material and methods

External morphological structures were studied using a Nikon SMZ 745T stereomicroscope and photographs were taken with a Canon Power Shot® A520 digital camera attached to it. Digital images were mounted using CombineZM open source software (Hadley 2011). The terminology used in this work is that proposed by Michener (2007). All measures are expressed in millimeters. Abbreviations used below are T and S for terga and sterna. Voucher specimens are deposited in the entomological collection of Museo de La Plata, Argentina (MLP).