SCIENTIFIC NOTE

A Gynandromorph of *Xylocopa nigrocincta* Smith (Hymenoptera: Apidae)

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Un Ginandromorfo de *Xylocopa nigrocincta* Smith (Hymenoptera: Apidae)

RESUMEN - Se describe un ginandromorfo mixto de *Xylocopa* (*Neoxylocopa*) *nigrocincta* de un ejemplar de Argentina. El ginandromorfo tiene asimetría bilateral en la cabeza, con su mitad derecha con caracteres del macho y su mitad izquierda con caracteres de la hembra. El mesosoma presenta algunas características de macho en la mitad anterior derecha (protorax, lóbulo pronotal, mitad posterior de la protibia y pubescencia del tarso), el resto de meso y metasoma con caracteres de la hembra.

PALABRAS-CLAVE: Abeja carpintera, Argentina

ABSTRACT - We describe a mixed gynandromorph of *Xylocopa* (*Neoxylocopa*) *nigrocincta* from a single specimen from Argentina. The specimen presents bilateral asymmetry, with the right half of its head displaying male characters and the left half displaying female characters; the mesosoma presents male characters mostly in the right half of the prothorax, pronotal lobe and distal half of the fore tibia and in the pubescence of tarsus; the rest of the mesosoma and the metasoma display female features

KEY WORDS: Gynandromorph, carpenter bee, Argentina

Sexual anomalies are relatively frequent among bees, especially in species where both sexes are notably different in structure or color (Engel 2007). Among such anomalies, the gynandromorphs can be defined as sexually abnormal individuals that display secondary sexual characteristics of both sexes (Mitchell 1929, Gonzalez 2004). Gynandromorphs are uncommon in nature; however this type of anomaly is known in almost all families of bees (Oliveira & Andrade 2006). Most described gynandromorphs belong to the Megachilidae, especially in the genus *Megachile* Latreille. Eight cases are known in the genus *Xylocopa* Latreille (see Kriechbaumer 1872, Wcislo *et al* 2004), two of them in the South American species *Xylocopa* (*Neoxylocopa*) *mendozana* Enderlein and *Xylocopa* (*Neoxylocopa*) *ordinaria* Smith (Enderlein 1913 a, b). In this paper we describe the first known gynandromorph of *Xylocopa* (*Neoxylocopa*) *nigrocincta* Smith.

Material examined. One gynandromorph, Misiones, II-1-911 (read labels), deposited in the División Entomología, Museo de La Plata (MLP).

The terminology adopted in this work is essentially that employed by Michener (2000). Antennal measurements are expressed in the following order: length of scape:pedicel:flagellar segments I-IV. All measurements in millimeters.

Description. Body length 23, width (through the inner border of the tegula) 6.4 (Figs 1-5).

Head. With bilateral asymmetry, characters of both sexes differentiated perfectly: right half with male characters and left half with female characters. Length and width of the right eye (male), 3.88:1.75, distance between lateral ocelli and the orbit, 0.56; length and width of the left eye (female), 4.44:1.94, distance between lateral ocelli and the orbit, 1.13. Right half as in normal male, characterized by the yellow coloration of the pubescence and integument of the labrum, clypeus, parocular area, front, vertex, gena and galea; antenna with 13 articles (2.04:0.30:0.73:0.30:0.34:0.34), integument ventrally yellow and dorsally dark brown; labrum without tubercles or median protuberance; mandible black, with a basal yellow triangular spot; galea yellowish. Left half as in normal female, characterized by the black coloration of the pubescence and dark brown integument; antenna with 12 articles (2.64:0.32:0.84:0.32:0.32:0.35) of brown colour; labrum with a median tubercle (cut at half) and a remarked lateral tubercle; mandible and galea black.

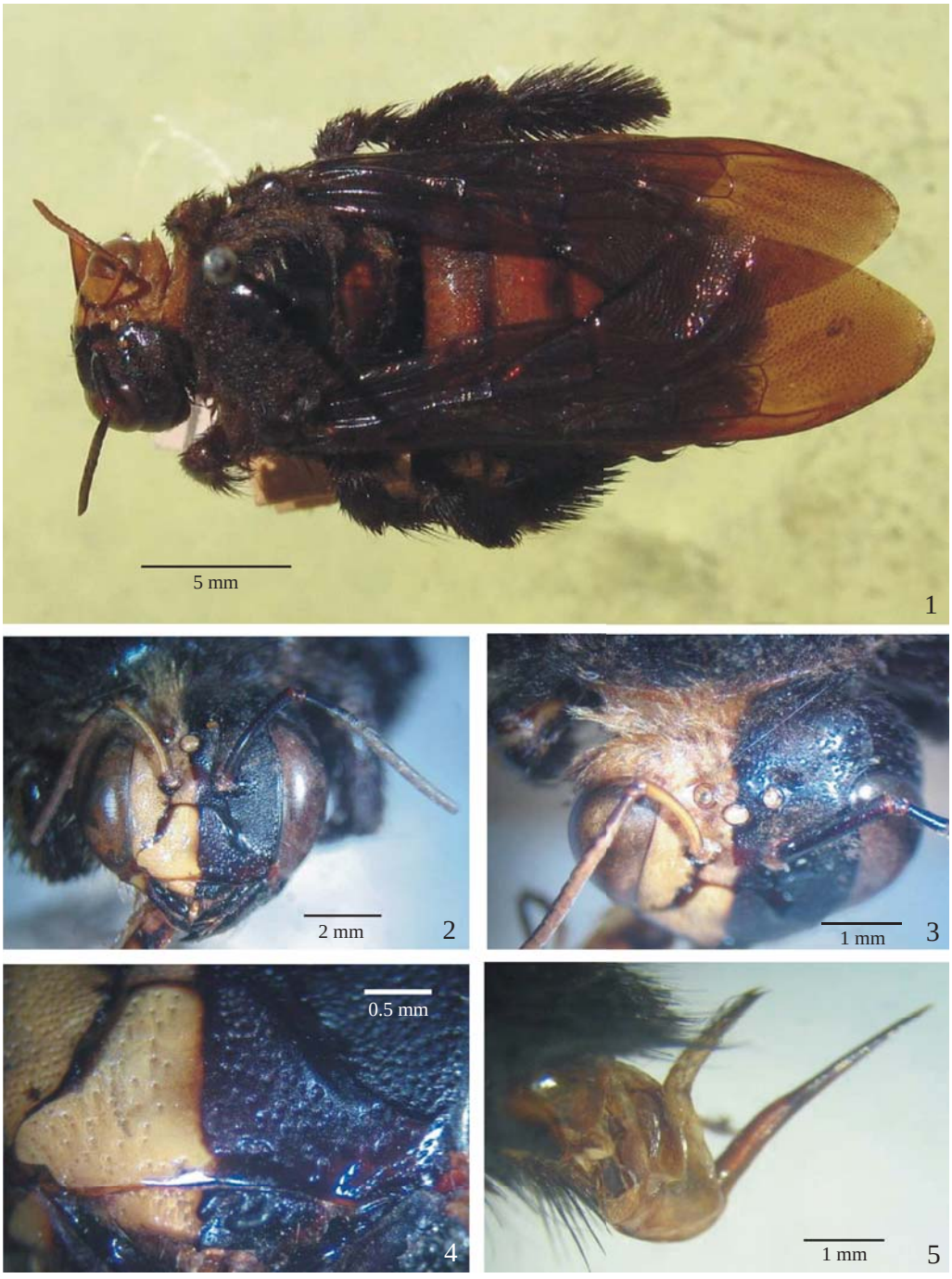
Mesosoma. Partially asymmetric: integument and pubescence on the right half of the prothorax, pronotal lobe and distal half of the fore tibia yellow; pubescence of tarsus yellow, other parts

of mesosoma black typical of female. Wings dark brown with violet iridescence as in female.

Metasoma. Symmetric, displaying characters of normal females, except by the light coloration of the integument which is unusually light even when compared with the lightest females. Genital structure developed as a sting, corresponding only to the female (Fig 5).

In conclusion, the specimen exhibits the head with bilateral asymmetry, with male characteristics on the right side and female features on the left side. The mesosoma shows mostly female features, except for the right half of the prothorax, with characteristic male coloration. Finally, the metasoma has characteristics of normal females, although with the integument weakly sclerotized.

Dalla Torre and Friese (1899) classified gynandromorphs



Figs 1-5 *Xylocapa nigrocincta*, gynandromorphy. 1, body dorsal aspect; 2, head frontal view; 3, head dorsal view. 4, detail of labrum and clypeus; 5, genitalia of female, lateral view.

in four types: lateral, anterior-posterior, transverse and mixed. According to this categorization, the specimen here described belongs to the "mixed type" since it possesses bilateral asymmetry in the head, irregular parts of both sexes in the mesosoma with predominance of female features, and female features in the metasoma. This is the most common type of gynandromorph described for *Xylocopa* (Wcislo *et al* 2004). Future genetic studies should aid unraveling the meaning of the expression of features of both sexes in the same individual as well as the evolution of morphology in this and other groups of bees.

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