

# *Bombus menchuae* – a second species of the subgenus *Dasybombus* from Highland Guatemala

## (Hymenoptera: Apidae)

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**Abstract:** A second species of the hitherto monospecific subgenus *Dasybombus* is described from the Province of Totonicapan in Guatemala, based on a type series of one queen, seven workers and ten males. Male genitalia of *Bombus menchuae* show the typical characteristics of the subgenus *Dasybombus* but are not identical to those of *Bombus macgregori*. Both species of *Dasybombus* are black and all known specimens have a greyish-white 'collar' in common, but the apical segments of *Bombus menchuae* are ferruginous instead of white.

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### Introduction

Labougle & Ayala (1985) described *Bombus macgregori* from Guerrero, Mexico in a new subgenus *Dasybombus*. The subgenus was raised because of the particular characteristics of the male genitalia. A second species can now be added to this hitherto monospecific subgenus. The present description is based on a type series of one queen, seven workers and ten males. The series could have been much larger had not 11 workers and 28 males been lost in an armed robbery when the author was travelling south of Lake Atitlan in Guatemala. Observations noted before this loss are incorporated in the following description.

*Bombus menchuae* spec. nov.  
(figs 1-2, 5-9)

#### Type material

Holotype ♂: Guatemala, east of Quetzaltenango on road CA 1 to Guatemala City at km 165, altitude c. 3000 m (map Instituto Geografico Militar), 18.ii.1993, on violet-blue flowers of the shrub *Wigantia urens* (R. & P.) H. B. K. Paratypes: 1 ♀, 7 ♀ and 9 ♂ taken in the same location 15, 18.ii.1993. Material lost: 10 ♀ and 28 ♂, 7-11.ii.1993 same location and 1 ♀ on road CA 1 at km 153 (7.ii.1993).

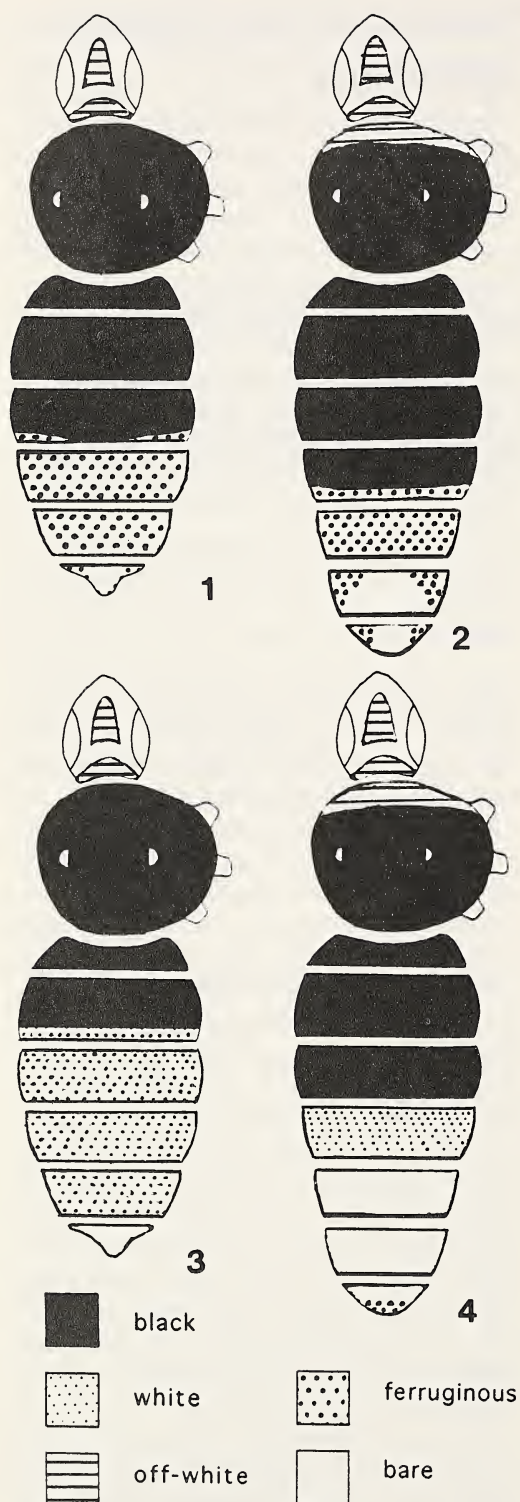
The holotype male and a paratype worker are deposited in the Zoological Museum, Amsterdam, Department of Entomology. The other paratypes are in the author's collection.

### Description

Male (holotype) (fig. 2): Length 18 mm. Distance between tegular margins (Te) 6.6 mm. Average for the 10 males available 6.7 mm, range 6.1-7.3 mm. Pile fairly short.

Head with long black hairs and shorter greyish-white plumose setae in a triangular patch on vertex, around antennal bases and clypeus, and white setae on genal areas, thus forming a whitish 'collar' when seen in front. Lower margin of labrum with reddish pile, mandibular beard black. Compound eyes bulging. Ocelli in a weak arc much below the supra-orbital line, about equal in size. Ocellar area fairly well defined with some coarse punctures at the edges; ocellar half smooth. Ocellular distance about half the diameter of the lateral ocellus. Clypeus at lower margin wider than clypeal length, covered with coarse punctures. Malar space three times shorter than distal width (about half the distal width in some other male specimens), about 0.6 times the length of the first antennal segment (A 1). Proportion A1:A2:A3 = 1:1:1.2.

Thorax brownish-black with greyish hairs on anterior area. Legs black with some greyish hairs on tibia. Wings moderately infuscated with brown, showing blueish reflections under certain light.



Figs 1-4. Colour patterns. 1-2, *Bombus menchuae* spec. nov.; 3-4, *Bombus macgregori* (after the description of Labougle & Ayala, 1985); 1, 3, queens; 2, 4, males.

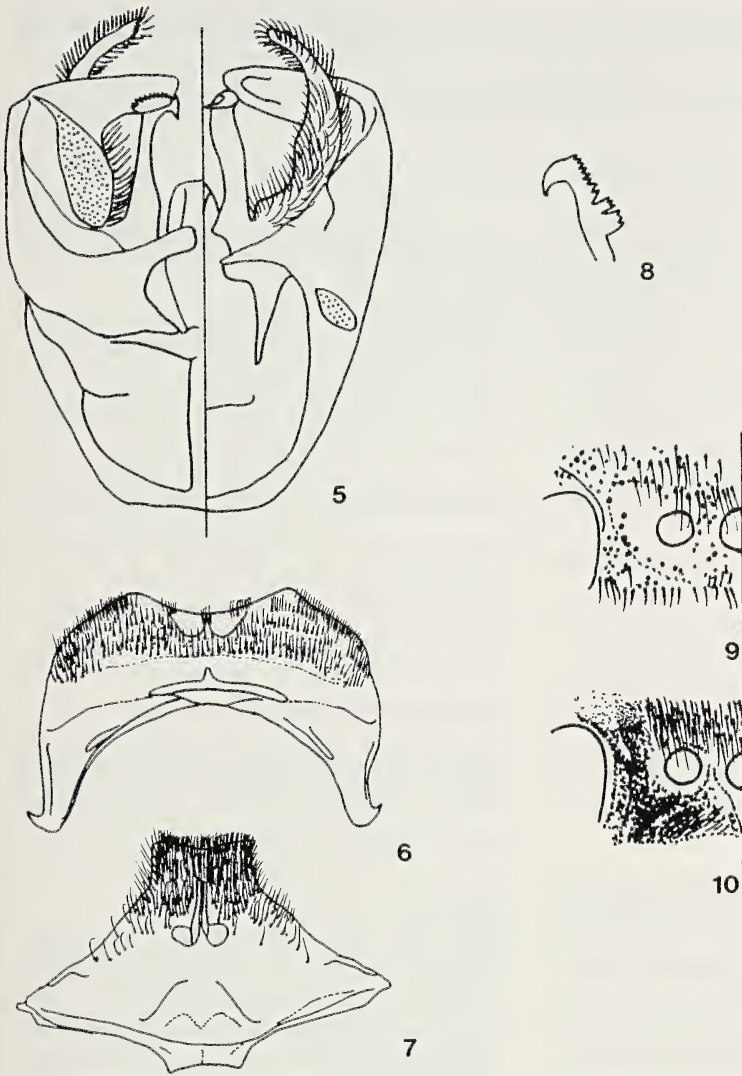
Abdomen: first metasomal tergum (T1), T2, T3 and T4 black, but posterior margin of T4 ferruginous, T5 ferruginous, and T6 and T7 ferruginous laterally. Metasomal sterna black, but light ferruginous setae on posterior margins of S5 and S6. Apical halves of S7 and S8 fairly densely covered with hair. S8 with two adjacent almost circular fenestrae.

Genitalia (figs 5-7) large and distinctive for the subgenus *Dasybombus*, but different from those of *Bombus macgregori*. The gonostylus projects beyond the squama and is covered with hairs, especially on the ventral side, the tip carries a row of small teeth. The squama projects inward as a broad hook more slender at the tip and bends upward dorsally; the two halves normally are folded over each other both ways thus concealing the head of the penis valve. The squamal projection is basally sharply pointed. The gonocoxite dorsally shows a fairly long and slender basal lobe. The penis valve head is pointed ventrally with a single row of 14 externo-lateral teeth. The number and size of those teeth vary in other specimens. In the holotype the basal teeth are somewhat longer, but less articulated, forming comb-like protuberances (fig. 8).

Queen (fig. 1): Length about 19 mm. Te: 7.1 mm. Pile fairly short.

Head black with short greyish plumose setae on vertex and around antennal bases; white on genal areas. Ocelli in a weak arc just below the supraorbital line. Middle ocellus wider. Ocellar area fairly well defined and depressed with some coarse punctures on the ocular half but ocellar half smooth (fig. 9). Ocellocular distance about 1.5 times the lateral ocellar diameter. Clypeus at lower margin a little wider than clypeal length; covered with fairly coarse punctures. Labral tubercles rather flat and not protruding. Intertubercular depression triangular, not sharp or well defined. Malar space about 3/4 the distal width, almost 1/3 longer than A1. Proportion A1:A2:A3 = 1.6:1.0:1.1.

Thorax black. Wings moderately infuscated with brown, showing blueish reflections under certain light.



Figs 5-10. 5-9, *Bombus menchuae* spec. nov.; 10, *Bombus macgregori* (after Labougle & Ayala, 1985); 5, dorsal (left) and ventral view (right) of male genitalia; 6, 7th metasomal sternum; 7, 8th metastomal sternum; 8, head of penis valve of the holotype showing the extero-lateral row of teeth; 9-10, ocellar area of the queen.

Abdomen: T1, T2 and T3 black with a few ferruginous hairs on the posterior margin of T3. T4, T5 and T6 (laterally) ferruginous with lighter tips. Sterna black but S4 and S5 with ferruginous fringes.

Worker: Length 14-16 mm. Te: average for the seven workers available 5.7 mm, range 5.4-6.4 mm. Workers are structurally similar to the queen, but differ in colouration: the anterior half of T4 is black and the posterior half ferruginous. The only variation found in the available workers is in size.

**Habitat**

*Bombus menchuae* was collected close to sparse pine forest and was not rare at the main locality described. The specimens were collected in the presence of abundant *Bombus wilmattae* Cockerell workers, occasional *B. ephippiatus formosus* Smith queens and *B. ephippiatus vauflavus* Cockerell males.

**Etymology**

The new species is dedicated to Rigoberta

Table 1. Morphological differences between *Bombus macgregori* and *B. menchuae* spec. nov.

	characteristic	<i>B. macgregori</i>	<i>B. menchuae</i>
queen	ocellar area	small, not well defined	fairly well defined
	A1:A2:A3	2:1:1.5	1.6:1:1
male	ocelli	weak arc close to supraorbital line (Labougle & Ayala, 1985) or below supraorbital line (Labougle, 1990)	weak arc much below supraorbital line
	ocellar area	not well defined (fig. 10)	fairly well defined (fig. 9)
	malar space (length: width)	1:1.6	1:3 (1:2)
	A1:A2:A3	1.5:1:1	1:1:1.2
	clypeus	densely covered with fine punctures	covered with coarse punctures
	gonocoxite	dorsal basal lobe shortish	fairly long and slender lobe
	penis valve head	with a dorsal and lateral row of teeth	a single row of 12-14 lateral teeth (fig. 8)

Menchú Tum, winner of the Nobel Prize for Peace 1992, herself from Highland Guatemala and a staunch defender of the rights of the indigenous people of Guatemala.

### Concluding remarks

The specific status of *Bombus menchuae* is supported not only by the geographical separation and the marked and constant different colouring from *B. macgregori*, but also by a number of morphological differences. The latter are juxtaposed in table 1, using data from the literature for *B. macgregori*.

### Acknowledgements

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### References

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