# A note on *Bombus rohweri* with a description of the queen (Hymenoptera: Apidae)

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*Abstract:* Hitherto only two workers and a single male of *Bombus rohweri* were reliably reported in 1925 and 1973 – the queen still being unknown. In 1990 and 1991 three queens, 103 workers and 21 males have been collected in the Sierra Nevada de Mérida, Venezuela. The queen is thus described here for the first time. Variation in workers and males is indicated. Frison's specific ranking is endorsed.

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## Introduction

Frison described his new *Bremus rohweri* in 1925 from a holotype male and a morphotype worker both collected in the 'mountains near Valera, Venezuela, 8,000-11,000 ft. altitude'. He considered 'the male and worker . . . as the same species on the basis of their structural characters, colouration and habitat' and *B. rohweri* a seperate species from *Bombus funebris* Smith because of their marked difference in colouration and the slightly shorter malar space of *B. funebris* – the male genitalia being similar.

Milliron (1962) reduced *B. rohweri* to subspecific rank of *B. funebris* without giving any reason for this change in status. In 1973 Milliron added one worker from Apartaderos, Venezuela, to the two specimens described by Frison but confused the issue with his description of the male. Although he stated having examined the holotype male No. 28504 in the United States National Museum, Washington D.C., his description applies to certain males of *B. funebris* which are entirely clothed with greyish pile. Milliron mentioned two such males one from Bogotà, Columbia, and one from Huaraz, Peru. The present author took one in Ollantaytambo, Peru.

I have examined Frison's holotype in May 1991. It conforms in every respect to his description and carries labels with the same data as published by Frison. Thus up until now only two workers and one male had been reliably reported and the queen was unknown.

The author and his wife took 17 workers in November 1990 and 3 queens, 86 workers and 21 males a year later, all in the Sierra Nevada de Mérida. The queen is therefore here described for the first time and some comments are given on the variability of the worker and male and on the status of *B. rohweri.*

## *Bombus rohweri*

(fig. 1)

### *Material*

16 ♀: Apartaderos, Estado de Mérida, Venezuela, altitude c. 3200 m 8-9.xi.1990 on *Trifolium repens* L.; 1 ♀: Los Frailes, Estado de Mérida, Venezuela, altitude c. 2900 m 9.xi.1990 on *T. repens*; 1 ♂: Apartaderos, Estado de Mérida, Venezuela, altitude c. 3200 m 27.xi.1991 on *T. repens*; 1 ♀: Apartaderos, Estado de Mérida, Venezuela, altitude c. 3200 m 28.xi.1991 on *T. repens*; 3 ♀, 85 ♀ and 20 ♂: Pico El Aguila, Estado de Mérida, Venezuela, altitude 4115 m 28.xi.-1.xii.1991 on an unidentified pink flower with sticky leaves.

## Description

Queen: Length c. 21 mm, distance between tegular margins 7.8-8.1 mm. Malar space: average for three queens 0.70 mm (range 0.65-0.75 mm) and thus somewhat longer than in *B. funebris* where the average for 18 queens from

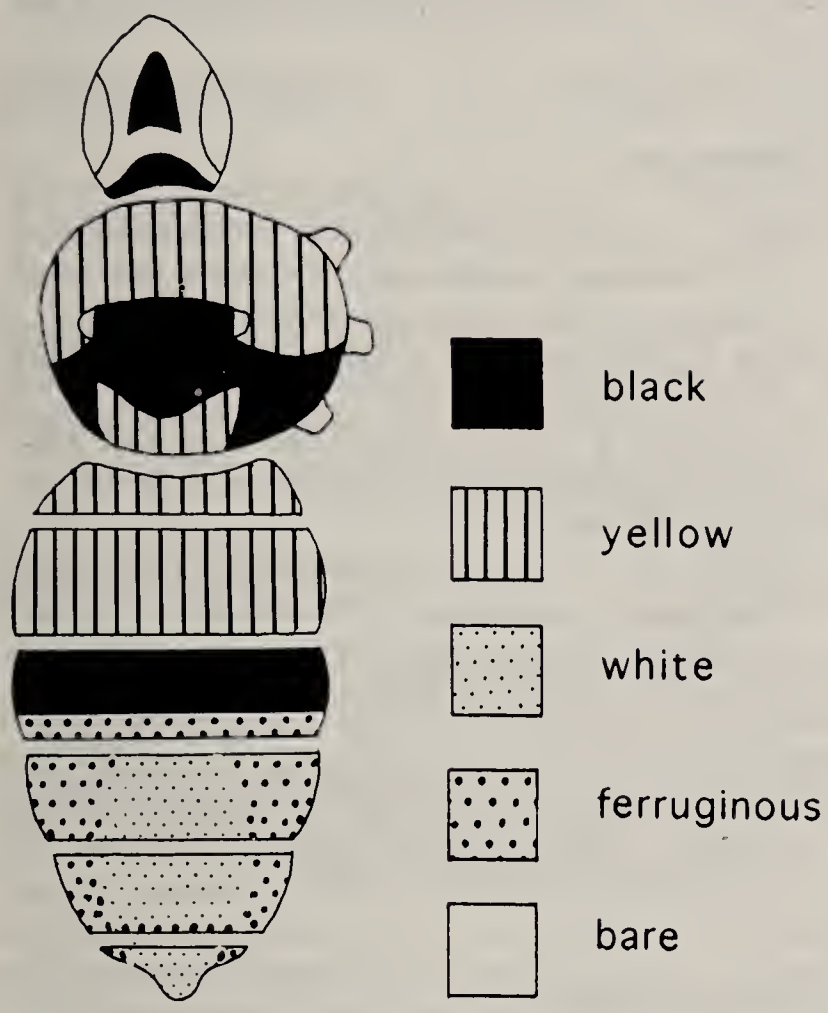


Fig. 1. Colour pattern of the queen of *Bombus rohweri* Frison.

the author's collection is 0.61 mm (range 0.55-0.65 mm). Clypeus c. 2.0 mm wide and 1.5 mm high, covered with moderately coarse and finer punctures also in the middle. Head about as wide as high. Intertubercular depression about 1/5 of labral width. Labral tubercles of flat triangular shape, not pointed.

Colour pattern: Head black, vertex black. Notum yellow on pronotum and scutellum with a wide black interalar band. Some black hairs intermixed on the scutellum (one queen has also some black hairs on the pronotum). Mesopleura yellow with some black hairs interspersed below the wings. Metapleura mostly black with some yellow. First and second tergite (T1 and T2) pale yellow, T3 black with distal 1/4 ferruginous, T4 ferruginous but white in the medial 1/3, T5 white with ferruginous hairs laterally and on distal fringe, T6 whitish with ferruginous hairs laterally. Sterna blackish-brown. Legs black. Wings only slightly infuscate with brown.

**Variation in workers and males**

A number of workers have T3 entirely black with the basal 1/3 of T4 black. Only a few workers have whitish hairs on T5 medially. Black hairs are often interspersed among the yellow of the thorax and on T3. The darkest workers have black hairs laterally on T1, and T2 entirely black with many black hairs mixed with the yellow on thorax and mesopleura. On other workers T2 is mostly black with a yellow distal fringe. None of the workers is lighter than the queens. Length varies from 11-16 mm.

The differences in the male genitalia between *B. funebris* and *B. rohweri* are extremely slight. In *B. rohweri* a slight indentation on the gonocoxite seems somewhat lower than in *B. funebris*. The penis valve of *B. funebris* is shorter and thicker than that of *B. rohweri*. The volsella of *B. funebris* is somewhat longer.

The abdominal setae of *B. rohweri* seem longer than in *B. funebris* males.

Three of the 21 males collected have the ferruginous pile on the abdomen faded to whitish yellow and are pretty worn. One of those males was observed perching on a *Lupine* stalk and returning to the same position after darting short flights thus displaying mate-searching behaviour described as 'racing' by Williams (1991).

**Status of *Bombus rohweri***

Frison (1925) considered *B. rohweri* and *B. funebris* separate species also because of their markedly different and very constant colouration. Indeed all individuals of *B. rohweri* collected so far differ in colouration from *B. funebris* and do not provide evidence of any intergradation in this respect; they seem to represent two allopatric populations. There is no known area in the mountains of Columbia where the two might overlap. Specimens of *B. funebris* have neither been reported from the Sierra Nevada de Mérida nor has the author observed any there. It is noticeable that most *B. rohweri* individuals reported here were taken at an altitude of over 4100 m where the average temperature is 4 °C while *B. funebris* has been most frequently taken at somewhat lower altitudes. *Bombus rohweri* may thus be superior to *B. funebris* at higher altitudes even

if geographical overlapping could be shown to occur (Mayr, 1969).

Williams (1991) has emphasized different male mate-searching behaviour as a criterion for specific status in bumblebees. 'Racing' behaviour was observed for one *B. rohweri* male but has never been described for males of *B. funebris* nor has the author ever observed it in any of the 74 males taken by him in Peru and Ecuador.

Although morphological differences between *B. funebris* and *B. rohweri* are few and slight the author would still be inclined to support Frison's specific ranking of the latter.

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