

Redescription of the longest-legged oribatid mite, *Metabelbella phalangioides* (Michael, 1890) **com. nov.**, a species from Algeria and Southern Spain (Acariformes: Oribatida: Damaeidae)

A. ARILLO & L. S. SUBÍAS

Departamento de Zoología y Antropología Física, Facultad de Biología, Universidad Complutense, 28040 Madrid, Spain;
E-mail: aarillo@teleline.es; subias@bio.ucm.es

Abstract

In this paper the oribatid mite *Damaeus phalangioides* Michael, 1890 is transferred to the genus *Metabelbella* and is redescribed. It was first described (based on only one specimen) from the North of Africa (Algeria) and, until now, it was only recorded once again (only one specimen also), from Southeast Spain, in Sierra Nevada. This second record was not included in the revision of the series *Fauna Ibérica* by Pérez-Íñigo (1997). Neither specimen was recorded in a cave, but now a third specimen has been found in a cave in southern Spain and the presence of this species in Spain is confirmed. *Metabelbella phalangioides* **com. nov.** could be a truly troglobic species because the specimen is rather pale coloured despite having a great body size. We assigned the new specimen to this species due (among other features) to the great development of its legs, the longest known among oribatid mites, although species with legs longer than the body are not uncommon in the family Damaeidae. The following new combinations are also proposed: *Metabelbella gratiosa* (Willmann, 1941) **com. nov.** and *Metabelbella clavigera* (Willmann, 1954) **com. nov.**

Key words: Oribatida, Damaeidae, taxonomy, *Metabelbella phalangioides* (Michael, 1890) **com. nov.**, new combinations, Spain.

Introduction

In 1890, Michael described a new species based on one specimen collected on an expedition to Algeria (North Africa). The species was very big in size and it was named *Damaeus phalangioides*. Its very long and thin legs were the main feature of the diagnosis of the species, the fourth pair being three times longer than the body. The species belongs to the family Damaeidae Berlese, 1896, where more species with long legs are known, although never being so “extraordinarily long and fine” (Michael, 1890) as in *D. phalangioides*. Two species included in the family also have very long legs (although shorter than *M. phalangioides*): *Belba gratiosa* Willmann, 1941 and *Belba clavigera* Willmann, 1954, whose legs are almost three times longer than the body.

Bulanova-Zachvatkina (1957) included *D. phalangioides* in the subgenus *Damaeus* (*Spatiodamaeus*) Bulanova-Zachvatkina, 1957, although spinae adnatae in the anterior margin of the notogaster are absent. If we follow Balogh and Balogh (1992), the specimen here studied has a leg chaetotaxy that agrees with its placement within the genus *Metabelbella* Bulanova-Zachvatkina, 1957 (mainly with a Mediterranean distribution) and, although it has only 3 setae on trochanter III (instead of the expected four setae), the rest of the features agree with this genus, so we preferred a placement within *Metabelbella*, avoiding the addition of more confusion to the systematics of the family.

Due to the leg length and the very pale colour (“yellow-brown” according to Michael (1890)), it is reasonable to think that *M. phalangioides* **com. nov.** could be a troglotic species, although Michael (1890) did not mention if it was collected in a cave (type locality given as Gorge de la Chiffa, Blidah). Two species belonging to the family Damaeidae are true troglotic species: *Damaeus lengersdorfi* (Willmann, 1932) and *Damaeus longipes* (Willmann, 1941), both having long legs and being poorly sclerotized. Even in the case of *B. clavigera*, collected over mosses on a rock wall from Balcarova (Czech Republic), Willman (1954) suggests the possibility that, due to its morphology, the species could be troglotic or even truly troglotic, and is considered so by Bernini (1980).

Since it was described, *M. phalangioides* **com. nov.** was only once more recorded until now. Mihelčič (1958) found it in southeastern Spain, in Sierra Nevada (Granada Province), in the north face of Veleta Mount at 2,720m. He also found only one specimen, not in a cave but in an alpine grassland. The species was never again recorded and it was even overlooked by Pérez-Íñigo (1997), who did not mention it in his recent revision of the Iberian Fauna.

Now a third specimen has been found in southern Spain, in Carcabuey (Córdoba Province). This specimen has been discovered in a cave and, as the original description is poor (made more than 110 years ago) and the species was never redescribed, we asked the Natural History Museum, London for Michael’s holotype. Comparing both specimens, we consider them as belonging to the same species due to their peculiar features. Its presence in Spain is so confirmed and due to the incomplete knowledge of the species we considered that a redescription was needed.

***Metabelbella phalangioides* (Michael, 1890) com. nov. (Figs. 1–3)**

Damaeus phalangioides Michael, 1890. *Proc. Zool. Soc. London*, 1890, 421.

Damaeus (*Spatiodamaeus*) *phalangioides*: Bulanova-Zachvatkina, 1957, *Zool. Zh.*, 36, 1178.

Spatiodamaeus phalangioides: Bulanova-Zachvatkina, 1967, *Pantsirnye Kleshchi-Oribatidy*, 143.

Studied material

Holotype from Gorge de la Chiffa, Blidah, Algeria, A.D. Michael leg., April 1889, stored at the Natural History Museum, London. A second specimen from Sima de Jaula I, Sierra de los Pollos, Carcabuey, Córdoba Province, Spain, altitude 1.035m (UTM: 30SUG84), A. Moreno leg., February 17, 2002. It was captured 'de visu' with the help of an insect pooter. The specimen is stored in the collection of the Department of Zoology, Faculty of Biology, Complutense University (Madrid), Spain.

Diagnosis

Damaeid mite with very long legs, pair IV being more than three times longer than the body. Sensilla very long. Interlamellar setae medium to long sized. Spinae adnatae on the anterior margin of the notogaster absent. Notogastral setae arranged in two rows, the first seven pairs being stronger and darker than the rest. Sejugal apophysis S1 and S2 absent.

Redescription

Dimensions and tegument: Big-sized, the holotype idiosoma is 520µm long and around 290µm wide, while the Spanish specimen is 735µm long and 425µm wide; the tegument is not heavily sclerotized and is light brown in colour. All the body is covered with a thin cerotegumentary film (slightly granulated-filamentose) specially developed in the lateral regions of the sejugal sulcus.

Prodorsum: Rostrum rounded with its rostral setae on either side. Lamellar setae in dorsal position, close to the rostral setae. Both pairs of setae are long, smooth and arched, the lamellar pair

being slightly longer than the rostral pair. Bothridia are well developed and cup-shaped, with a pair of very long, smooth and flagelliform sensilla. Interlamellar setae are long and smooth also (specially in the holotype specimen), being inserted close to the bothridia on their inner side. Only the dorsosejugal tubercles (D) are developed, the tectopodia (P) being absent on the first pair of legs. Sejugal apophysis S1 and S2 are also absent, although they are generally present in this family. The prodorsum bears a fine and dense granulation except in the interbothridial region. The holotype has an additional seta.

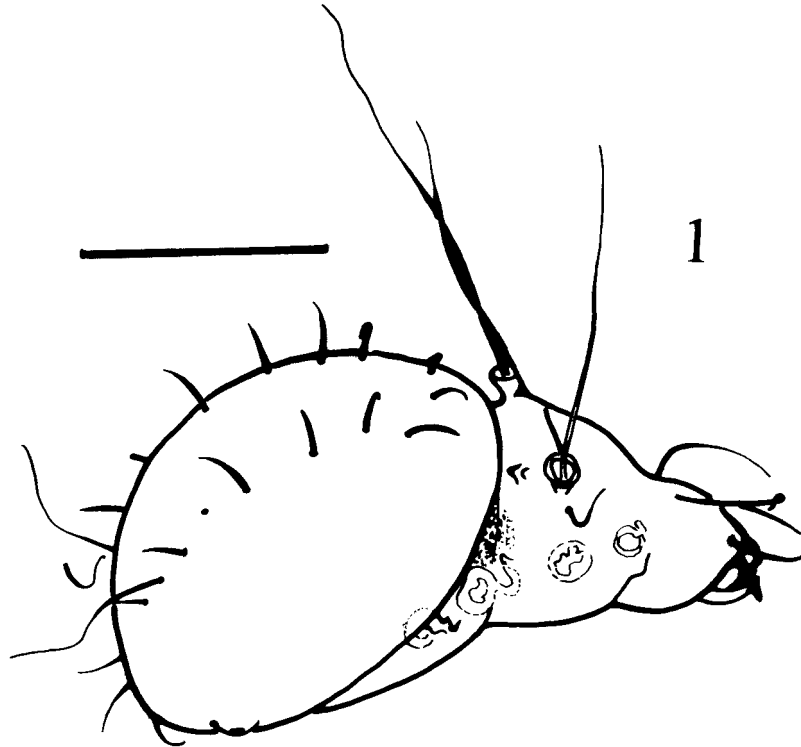


FIGURE 1. *Metabelbella phalangioides* (Michael, 1890) **com. nov.** Holotype from Algeria. Dorsal view without legs. Scale bar 200 μ m.

Notogaster: Rounded, almost circular. Without spinae adnatae on its anterior margin. With 11 pairs of well developed setae, arranged in two parallel rows. First seven pairs of setae are specially strong and dark, being flagelliform at their tip (the tip is normally broken). In the middle of the notogaster a small pore is present, being probably the point of insertion of a cornicle that holds the nymphal exuviae and that is present in some members of this family.

Ventral region: All the region is finely and densely granulated (as the prodorsum). In the epimeral region the sejugal apodema (*sj*) is unbroken and clear. Epimeral chaetotaxy is as usual (3-1-4-3) with thin, smooth and small- or medium-sized setae. Discidia well developed, being sharp and curved posteriorly. Genital and anal plates are large and narrowly separated. Genital plates bear 6 pairs of setae arranged in single file and anal plates bear two pairs of setae. There are also present the usual three pairs of adanal and one pair of adgenital setae, all of them similar to the epimeral setae. Adanal fissurae (*iad*) are small and difficult to see, situated lateral to the anterior margin of the anal plates but slightly separated from them.

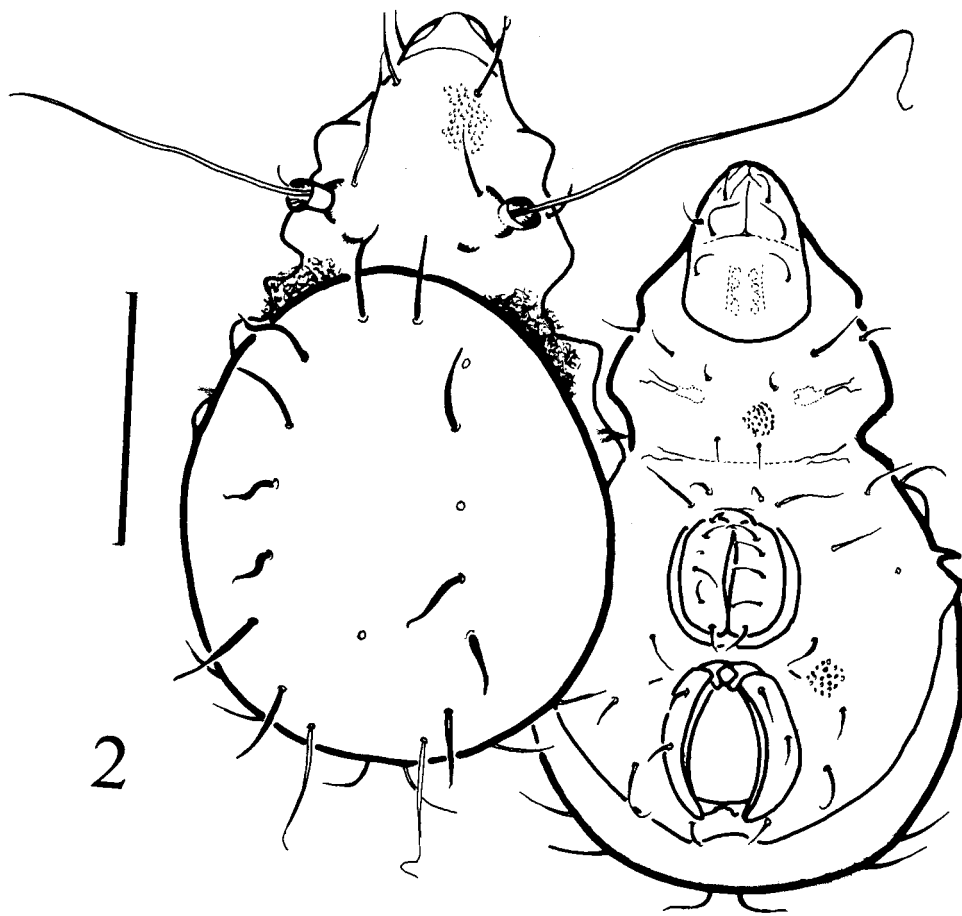


FIGURE 2. *Metabelbella phalangioides* (Michael, 1890) **com. nov.** Spanish specimen. Dorsal and ventral view without legs. Scale bar 250 μ m.

Legs: Legs are monodactylous, narrow and very long. Pair IV is the longest, more than three times the length of the body and with its tarsus slightly twisted. Respective size of legs differ between the holotype and the Spanish specimen. In the holotype leg lengths are: leg I 1400 μ m; leg II 820 μ m; leg III 1210 μ m; leg IV 1850 μ m. In the Spanish specimen leg lengths are: leg I 1210 μ m; leg II 770 μ m; leg III 1110 μ m; leg IV 2003 μ m. Trochanteral chaetotaxy is 1-1-3-3. Femoral chaetotaxy is 10-10-9-8. Genual chaetotaxy is 4-4-4-4, bearing also one solenidium on genu I, II and III, each having an associated seta. Tibial chaetotaxy is 4-4-4-4, having two solenidia on tibia I and only one on tibiae II, III and IV, all lacking an associated seta. Tarsal chaetotaxy is 20-16-16-14, with two solenidia both on tarsi I and II, those on leg I being located on an apophysis.

Discussion

Although the Spanish specimen differs in several features (body size, length of legs and different length of interlamellar setae), we think these differences could be due to intraspecific variability, although it is difficult to be sure as only two isolated specimens are known.

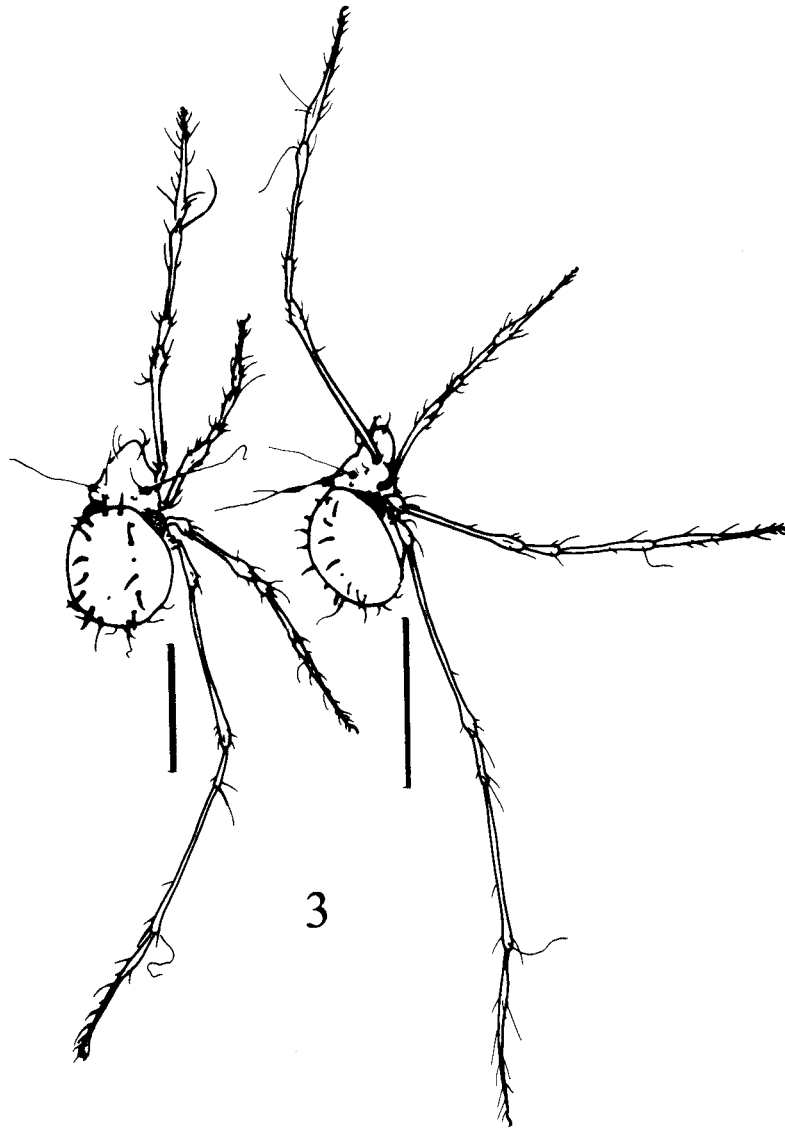


FIGURE 3. *Metabelbella phalangioides* (Michael, 1890) **com. nov.** Holotype (right) and Spanish specimen (left) in dorsal view. Scale bars 500 μ m.

The redescribed species *M. phalangioides* **com. nov.** is closely related to *B. gratiosa* and *B. clavigera*, mainly due to their hugely developed legs and the absence of spinae adnatae on the anterior margin of the notogaster. *Metabelbella phalangioides* **com. nov.** is easily differentiated from *B. clavigera* because *B. clavigera* has very short sensilla and interlamellar setae. *Metabelbella phalangioides* **com. nov.** is closer to *B. gratiosa*, but the interlamellar setae are longer in *B. gratiosa*, more than half the length of the sensilla (Willmann 1941), while in *M. phalangioides* they are less than half their length. Another difference is that *B. gratiosa* bears thin and homogeneous notogastral setae, while *M. phalangioides* **com. nov.** bears heterogeneous notogastral setae, the central ones

being stronger and darker than the rest. The rest of the species (8) included to date in the genus *Metabelbella* never have such highly developed legs (Pérez-Íñigo Jr. 1991), including the two previously known species from Spain, *M. interlamellaris* Pérez-Íñigo, 1978 and *M. janae* Pérez-Íñigo Jr., 1991. Another feature that seems to be exclusive to *M. phalangioides* **com. nov.** is the absence of sejugal apophysis S1 and S2.

The systematics of the family has been mainly based since Bulanova-Zachvatkina (1957) on leg chaetotaxy. But due to the antiquity of most of the descriptions of the species belonging to the family Damaeidae, usually it is almost impossible to assign them to a genus. It is frequent to have in a genus several species very differently shaped and it is also common that very similar species can appear in different genera. We think that *B. gratiosa* and *B. clavigera* must be included in the same genus as *M. phalangioides* **com. nov.**, so we also propose the following new combinations:

Metabelbella gratiosa (Willmann, 1941) **com. nov.** (*Belba*)

Metabelbella clavigera (Willmann, 1954) **com. nov.** (*Belba*)

Although *D. lengersdorfi* and *D. longipes* have also very long legs they are better placed in the genus *Damaeus* due to their leg chaetotaxy.

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