

## Review of the millipede genus *Macellolophus* Attems, 1940 (Diplopoda: Polydesmida: Xystodesmidae)

### Обзор диплопод рода *Macellolophus* Attems, 1940 (Diplopoda: Polydesmida: Xystodesmidae)

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КЛЮЧЕВЫЕ СЛОВА: Diplopoda, *Macellolophus*, таксономия, синонимия, Испания, Алжир, Марокко.

ABSTRACT. The western Palaearctic millipede genus *Macellolophus* Attems, 1940 is shown to currently comprise perhaps a single valid species. Provisionally, this species is identifiable as *M. rubromarginatus* (Lucas, 1846), comb.n. ex *Polydesmus* (= *M. excavatus* Verhoeff, 1931, syn.n., = *M. hispanicus* Verhoeff, 1931, = *M. panousei* Schubart, 1960, syn.n., = *M. breuili* Ceuca, 1988, syn.n.), from southern Spain, Algeria and Morocco. The status of *M. diadema* (Gervais, 1836), from Gibraltar, must remain dubious until strict topotypes have become available for study but, judged from all available evidence, this name is very likely to represent a senior synonym of *M. rubromarginatus*. If so, *Macellolophus* is to be regarded as a mono- or oligospecific genus showing clear-cut tendencies to troglomorphy.

РЕЗЮМЕ. Показано, что диплоподы западно-палеарктического рода *Macellolophus* Attems, 1940 в настоящее время, кажется, включают единственный валидный вид. Предварительно это вид определен, как *M. rubromarginatus* (Lucas, 1846), comb.n. ex *Polydesmus* (= *M. excavatus* Verhoeff, 1931, syn.n., = *M. hispanicus* Verhoeff, 1931, = *M. panousei* Schubart, 1960, syn.n., = *M. breuili* Ceuca, 1988, syn.n.) из Южной Испании, Алжира и Марокко. Статус вида *M. diadema* (Gervais, 1836) из Гибралтара остается неясным до тех пор, пока не будет изучен строго топотипический материал. Однако, судя по уже накопленным данным, весьма вероятно, что это название представляет собой старший синоним *M. rubromarginatus*. Если это так, то *Macellolophus* следует рассматривать в качестве моно- или олиготипического рода с явными склонностями к троглофилии.

### Introduction

Originally, the genus *Macellolophus* was proposed invalidly by Verhoeff [1931] for two new species from southern Spain: *M. excavatus* Verhoeff, 1931 (male and female, from a dubious locality) and *M. hispanicus* Verhoeff, 1931 (female, from Cartagena). Attems [1940] validated *Macellolophus* by selecting *M. excavatus* as type species. Both Verhoeff [1931] and Attems [1940] must have been so strongly impressed by the unusual looks of *Macellolophus*, in both species of which the head is completely covered by the collum from above, and the paraterga are conspicuously elevated above the level of the dorsum, that this genus was treated as the sole component of the family Macellolophidae.

Schubart [1960] described a third species, *M. panousei* Schubart, 1960, from Morocco. Hoffman & Lohmander [1968] formally transferred *Polydesmus diadema* Gervais, 1836, from Gibraltar, to *Macellolophus*, while Ceuca [1988] not only added one more congener, *M. breuili* Ceuca, 1988, from a cave in southern Spain but he also recorded *M. excavatus* from a cave in Algeria.

The first attempt at a review was that of Hoffman & Lohmander [1968] who revised type material of *M. excavatus* and gave excellent illustrations made from the lectotype. Furthermore, the Macellolophidae has since been downgraded to the rank of a separate tribe, Macellolophini, in the family Xystodesmidae [Hoffman, 1980].

Vicente [1988] revised type material of both *M. excavatus* and *M. hispanicus* and, based on extensive samples, both epigeal and cavernicolous, from various parts of southern Spain, including male topotypes of *M. hispanicus*, she provided sufficient evidence to formally synonymize the latter species with *M. excavatus*.

Furthermore, in view of the highly pronounced variation range *M. excavatus* appears to display as regards both somatic and gonopod structures, she also suspected that *M. panousei* might well prove to be another junior synonym of *M. excavatus*. Indeed, the discriminant analysis and the numerous additional illustrations presented by Vicente [1988] show that variation in Spanish populations of *M. excavatus* concerns body length (10–23.9 mm in males, 17–25.5 mm in females), midbody pro- and metazona (0.9–1.7 and 1.1–2.1 mm in males, 1.5–2.2 and 1.6–2.5 mm in females, respectively), coloration (from moderately dark brown with yellowish paraterga to almost blackish throughout), shape of paraterga (more or less broad and more or less rounded anterolaterally), gonopods (telopodite more or less slender, with solenomere either shorter or longer in relation to prefemur, set off from latter by a more or less well-expressed lateral sulcus, and gonopod tip from more or less distinctly emarginate to subtruncate), etc. This variation seems to be purely individual, often sex-linked but with neither evident geographical patterns nor habitat inclinations (e.g., epi- versus hypogean).

#### Identity of *Polydesmus rubromarginatus* Lucas, 1846

Regrettably, the collection of the Muséum national d'Histoire naturelle in Paris (MNHNP) no longer contains type material of *Polydesmus diadema* Gervais, 1836, to verify the identity of this species versus the other nominal members of *Maccellophus*. So strict topotypes from Gibraltar are crucial to finally resolve the problem. The species was described as red-brownish (cinnamon) in colour, body 25 mm long [Gervais, 1836].

Fortunately, the types of *Polydesmus rubromarginatus* Lucas, 1846, another enigmatic species long suspected to actually represent a *Maccellophus*, are still available at MNHNP (Collection Myriapodes-Onychophores JB 229). The single male syntype is here-with designated as lectotype, while the single female syntype the paralectotype. The original handwritten label given for the lectotype is hard to read but it has «*Polydesmus rubro-marginatus* Lucas Tlemcen» on it, with further two handwritten labels added later by H. W. Brölemann, «*Cryptodesmus rubro-marginatus* Lucas Algérie (Brölemann)» and «*Cryptodesmus rubromarginatus* Lucas Brölemann det. Muséum Paris Tlemcen Lucas». The original typewritten label attached to the paralectotype reads «*Polydesmus rubromarginatus* Luc. M. Lucas Tlemcen», again with further two handwritten labels added later by H.W. Brölemann, «*Cryptodesmus rubromarginatus* Lucas Algérie (Brölemann)» and «*Cryptodesmus rubromarginatus* Lucas Brölemann-det. Muséum Paris Lucas Tlemcen».

This species was described as generally black with red sides of segments, 21 mm long and 2.75 mm wide. The samples derived from Oran and Tlemcen, Algeria [Lucas, 1846]. The lectotype is currently rather uni-

form dark brown, the paralectotype is pale greyish, both apparently more or less strongly faded.

In addition, H.W. Brölemann identified but likewise never published a few more samples of «*Cryptodesmus rubromarginatus*» belonging to the MNHNP (Collection Myriapodes-Onychophores JB 230 & 231):

Espagne, prov. Valencia, part.° Ontenyent, Cueva de la Zarra de San Blas, Bocairent, 6-4-1913, leg. H.W. Brölemann, 1 ♂, 1 ♀.

Espagne, prov. Valencia, part.° Gandia, Palma, Cueva Negra de Palma, 7-4-1913, leg. H.W. Brölemann, 1 ♂, 1 ♀.

Algérie, Oranais, environs d'Oran, leg. L. Léger, 1 ♂, 1 ♀.

Algérie, Oranais, Tlemcen, grotte d'Aïn Fezza, leg. E. Simon, 6 ♂♂, 1 ♀.

#### Synonymy

Re-examination of all above material shows clearly that *Polydesmus rubromarginatus* is a member of *Maccellophus*, comb.n. ex *Polydesmus* Latreille, 1802/03. Moreover, this is an undisputable senior synonym of *M. excavatus*. Hence the new formal synonymy below: *M. excavatus* Verhoeff, 1931 = *M. rubromarginatus* (Lucas, 1846), syn.n.

According to Schubart's [1960] description of *M. panousei*, the only characters distinguishing this species from *M. excavatus* are the slightly smaller body size (length 15–17 mm, width of midbody pro- and metazona 1.5 and 2.1–2.4 mm, respectively) and the somewhat stouter gonopods. However, as noted above, since body size, proportions of the different parts of the gonopods and even the degree of expression of the lateral sulcus demarcating the prefemoral part from the solenomere prove to vary individually a great deal, we also take the opportunity to formalize the synonymy long suspected by Vicente [1988]: *M. panousei* Schubart, 1960 = *M. rubromarginatus* (Lucas, 1846), syn.n.

Reading carefully the original description of *M. breuili* leaves little doubt, we face still one more junior synonym of *M. rubromarginatus*. Indeed, Ceuca [1988] depicted a ventral view of the right gonopod of what he identified as *M. excavatus* taken from a cave near Tlemcen (sic!), Algeria, i.e. the terra typica of *M. rubromarginatus* (see also topotypic material documented above). That drawing was believed to serve as the basic argument to distinguish *M. excavatus* from *M. breuili*, the latter deriving from a cave in Málaga, Spain. However, this time Ceuca depicted the left gonopod in mesal view, thus making a direct comparison of both species virtually impossible. So we only can compare the gonopod drawing of *M. breuili* with a similar figure of the *M. excavatus* lectotype published by Hoffman & Lohmander [1968], with the result that both look nearly the same. The distinct lateral flange on the solenomere of *M. breuili* as shown by Ceuca [1988] must have simply been

obscured by a slightly different angle displaying the gonopod of *M. excavatus*. This is clear from the illustration of the same gonopod in ventral view as presented both by Verhoeff [1931] and Hoffman & Lohmander [1968]. The tip of the *M. breuili* gonopod is said to be a slightly swollen lobe with a minor funnel-shaped extension that marks the end of the prostatic groove. Yet this description provides no distinction whatsoever from *M. excavatus*! Even if the subterminal lobule of the solenomere generally characteristic of *M. rubromarginatus* is underdeveloped to absent in *M. breuili*, as it has not been mentioned by Ceuca, this alone would hardly justify separation of this species from *M. rubromarginatus*. The slightly different body size and proportions of *M. breuili* as indicated by Ceuca (males 12 mm long and 2.5 mm wide, females 14.5 mm long and 3 mm wide) do not seem sufficient for specific discrimination either. In other words, based on the original description of *M. breuili* alone and keeping in mind the pronounced variation range of *M. rubromarginatus*, there seem to be no palpable differences whatever that would justify keeping this species separate from *M. rubromarginatus*. To summarize, we formally propose still another new subjective synonym: *M. breuili* Ceuca, 1988 = *M. rubromarginatus* (Lucas, 1846), syn.n.

### Concluding notes

The genus *Macellolophus* Attems, 1940 seems to currently contain only a single valid species. Provisionally, this species is identifiable as *M. rubromarginatus* (Lucas, 1846), comb. n. ex *Polydesmus*, with the following junior synonyms involved: *M. excavatus* Verhoeff, 1931, syn.n., = *M. hispanicus* Verhoeff, 1931, = *M. panousei* Schubart, 1960, syn.n., = *M. breuili* Ceuca, 1988, syn.n. The distribution of this species covers entire southern Spain, as well as northern Algeria and Morocco. The status of *M. diadema* (Gervais, 1836), from Gibraltar, is bound to remain dubious until strict topotypes have become available for study but, judging from all available evidence, including geographical one, this species is most likely to represent a senior synonym of *M. rubromarginatus*. On the other hand, there might be grounds to believe that still another, probably undescribed congener inhabits southern Spain [Spelda, in litt.]. If so, *Macellolophus* must be

regarded as a mono- to oligospecific genus showing clear-cut tendencies to cavernicolity. Cave-dwelling populations of *M. rubromarginatus* appear to be scattered more or less randomly over the entire geographical range of this species, apparently none of these being more than merely troglomorphic.

The documented localities of *Macellolophus* (= *M. rubromarginatus* (Lucas, 1846)) are as follows: 1: Gibraltar; 2: Tlemcen; 3: Cartagena; 4: Talasse M'Tane; 5: between Carratraca and Ardales; 6: Zuheros; 7: Calahonda; 8: Sierra de Cazorra; 9: Sorbas; 10: Calasparra; 11: Totana; 12: Bocarient; 13: Callosa d'En Sarria; 14: (Punta de) Moraira; 15: Ebo; 16: Jalon; 17: El Verger; 18: Atsubia (= Atzuvia); 19: Tous; 20: Dos Aguas (= Dos Aigües); 21: Cabanes.

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