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Redescription of *Plutomurus unidentatus* (Börner, 1901) comb. nov. (Collembola, Tomoceridae)

by

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Abstract: *Tomocerus unidentatus* described by Börner (1901) has been included in the genus *Plutomurus*. A redescription of this species and some remarks on its chaetotaxy are given.

Zusammenfassung: *Tomocerus unidentatus* wurde von Börner (1901) aus einer Höhle Westfalens beschrieben. Frisches Material aus Luxemburg, welches mit Börners Typen aus der Sammlung des Staatlichen Museums für Naturkunde (Görlitz) verglichen wurde, ermöglichte eine teilweise Neubeschreibung dieser Art. Verschiedene Merkmale der Chätotaxie zeigen, daß *Tomocerus unidentatus* zu der Gattung *Plutomurus* Yosii, 1956, gehört.

Key words: Collembola, *Plutomurus*, Westfalen, Luxembourg, microchaetotaxy, macrochaetotaxy.

Introduction

In 1901 Börner described a new species, *Tomocerus unidentatus*, from the caves in the region of Letmathe in Westfalen. We have also found some specimens of *Tomocerus unidentatus* Börner, 1901, during the investigation of Collembola of Luxembourg.

However, the morphological characters that are used nowadays according to Yosii (1956 & 1967) and Christiansen (1964), caused us to transfer this species to the genus *Plutomurus* Yosii, 1956.

We compared the material from Luxembourg with the type material from Börner's collection and with some material from France. The specimens from Luxembourg belong to the species *Plutomurus unidentaus* comb. nov. and they are identical with Börner's types.

In this paper we give the redescription of *Plutomurus unidentatus* (Börner 1901) based on Börner's type material from Staatliches Museum für Naturkunde Görlitz (SMNG) and the material from Musée National d'Histoire Naturelle in Luxembourg (MNHNL).

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Results

Plutomurus unidentatus (Börner 1901) comb. nov.

= *Tomocerus unidentatus* Börner, 1901: 341

Lectotype (designated by the authors): male on microscopic slide, in Staatliches Museum für Naturkunde Görlitz.

Paralectotypes: female (probably), on slide and one specimen in alcohol, in SMNG.

Type locality: Westfalen, Letmathe, on walls in cave below "eisernen Kreuzes" and cave of Martin (N.B.: In Börner's collection it is marked as follows: *Choreutes unidentatus*, Letmatte 1901).

Other material (MNHNL): Luxembourg near Dreibueren and Rollingen, moss close to a brook, April 10, 1991, leg. N. Stomp, W.M. Weiner, 1 specimen; Valley of the river Our near Obereisenbach, Holzbichsbaach brook, soil with moss April 11, 1991, leg. M. Ursone, W.M. Weiner, 1 specimen; Berdorf Zigzagschlöff, on a sandstone rock, April 17, 1991, leg. N. Stomp, 1 specimen; Direndall, April 24, 1991 spring with calciferous tuft of moss, leg. N. Stomp, W.M. Weiner, 1 specimen; Vianden, "Maison de Santé", schist rock with dripping water, without moss, April 24, 1991, leg. N. Stomp, W.M. Weiner, 3 specimens (1 specimen in Institut of Systematics and Evolution of Animals, Kraków); Valley of the river Our, Buch east of Lieler, near schist rock, soil with moss in bushes of *Corylus avellana*, *Sambucus* sp., *Salix* sp., April 29, 1991, leg. M. Ursone, W.M. Weiner, 2 specimens.

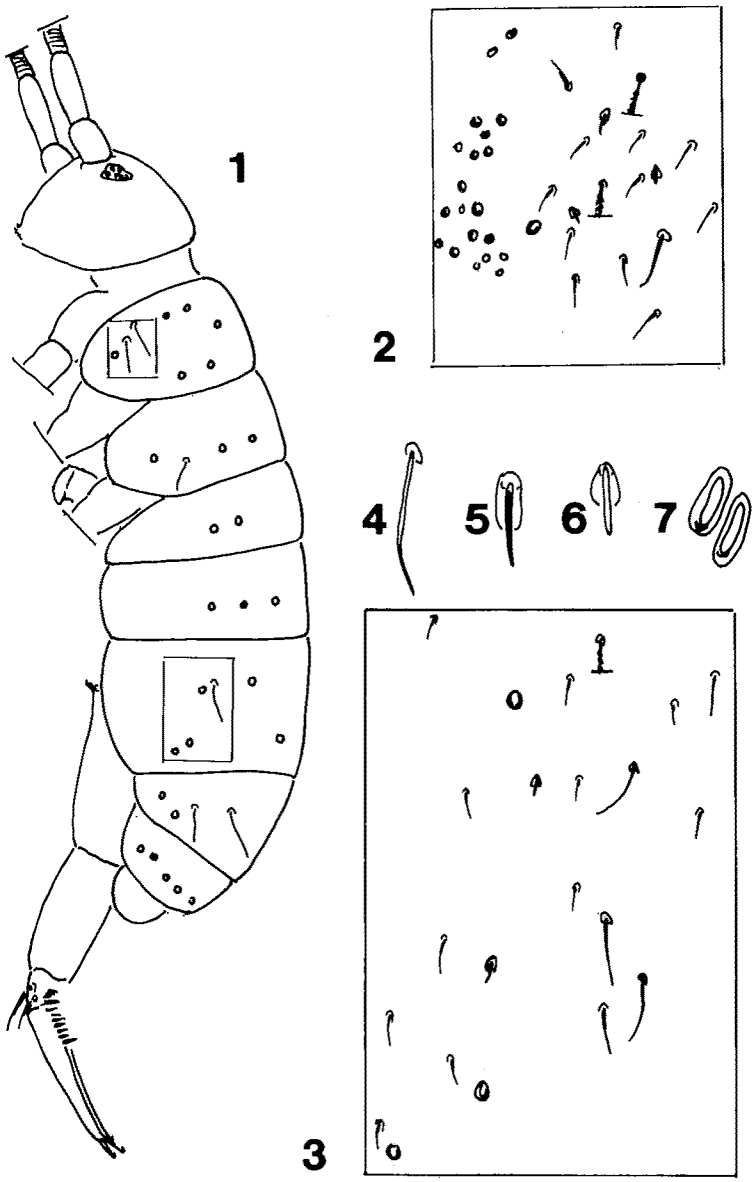
Description: Lectotype length 2.35 mm, length of paralectotype 2.40 mm, length of other specimens between 2.07 and 2.65 mm. Colour in alcohol: very light grey with darker antennae and frontal part of head, ocular plate black.Colour of living animals: very light blue. Ant. I and II are grey, ant. III and IV blue-violet.

Antennae shorter than body length. Ratio of antenna I : II : III : IV : head = 0.11 : 0.19 : 0.72 : 0.19 : 0.44. Antennal segments III and IV secondarily annulated without scales, antennal segments I and II with scales. All antennal segments covered by normal strong setae, fine microchaetae with slightly blunt apex. On latero-distal parts of each antennal segment there are short sensilla in oval depression (Fig. 7). Their number (2-3, sometimes 4) and exact position is not very stable because of the ability of regeneration of antennae. "Pin seta" trifurcate, without widened basal part.

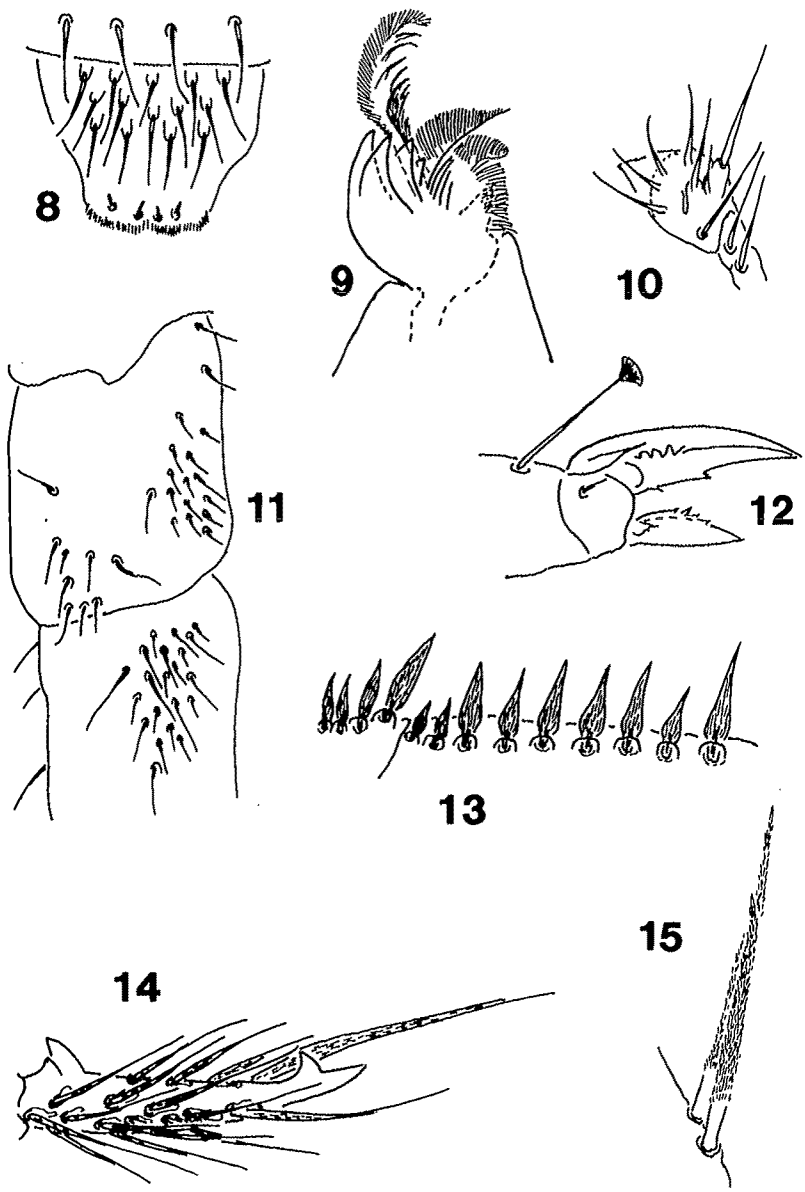
Ocelli 6+6, two posterior are slightly smaller. Prelabral setae 2+2. Labral chaetotaxy, maxilla, maxillar outer lobe (with 6 setae) and pleural fold as in Figs. 8, 9 and 10 respectively.

Legs III with trochanteral organ of about 12-15 setae on trochanter and 20-22 setae on femur (Fig. 11). Tibiotarsi with tenent hair (Fig. 12). Claw with large pseudonychia, with two internal teeth (one of which is basal, Fig. 12). Empodial appendage with one strong tooth and with 2-3 very small weak teeth on leg III (Fig. 12). Tibiotarsal large inner setae are: 0,0,1.

Ventral tube multisetaceous with some scales.



Figs. 1-7. *Plutomurus unidentatus* (Börner, 1901). Fig. 1. Schematic dorsal macrochaetotaxy. Fig. 2. Thorax II, microchaetotaxy. Fig. 3. Abdomen III, microchaetotaxy. Fig. 4. Sensilla. Fig. 5. Sensilla in oval depression. Fig.6. Sensilla in pear-shaped depression. Fig. 7. Antennal sensilla.



Figs. 8-15. *Plutomurus unidentatus* (Börner, 1901). Fig. 8. Labrum. Fig. 9. Head of maxilla. Fig. 10. Maxillary outer lobe and pleural folds. Fig. 11. Trochanteral organ. Fig. 12. Claw, empodial appandage and tenent hair. Fig. 13. Dental spines. Fig. 14. Mucro. Fig. 15. Dental macrochaetae.

Retinaculum with 4+4 teeth and one seta on corpus. Manubrium with medial dorsal and ventral furrow. Ventral side of manubrium with numerous scales Dorsally on either side of furrow 3-5 rows of setae, lateral side of manubrium with a few setae. Dentes with two stout, shortly ciliated macrochaetae (Fig. 15) on outer proximal side, and 12 to 15 spines. Formula of dental spines: 3-4,1/7-9,1 (Fig. 13). Mucro very short with two basal teeth, one anteapical tooth but without intermediate teeth. Very strong setae with special basis (Fig. 14). Length of apical seta = length of mucro. Ratio of manubrium : dens : mucro = 0.3 : 0.46 : 0.06.

Schematic dorsal "macrochaetotaxy" as in Fig. 1. In lateral "microchaetotaxy" of thorax II in the area marked by lateral macrochaeta and two trichobothria (Fig. 1) there are two kinds of sensilla in depression (1+2) (Fig. 5 and 6), one simple sensillum (Fig. 4) and some microchaetae (Fig. 2). On abdomen III there is an area marked by three macrochaetae and one trichobotrium (Fig. 1) with two sensilla in depression, three simple sensilla and some microchaetae (Fig. 3).

Remarks: There are three types of sensilla in the depression ("sensille à fossette", "sensille en logette" in Massoud & Ellis (1977), cup sensillum in Snider (1985)) in this species. On antennal segments the sensilla in depression (antennal sensilla) (Fig. 7) resemble the single sensilla in the sensory organ of antennal segment III in Dicyrtomidae. Two other kinds of sensilla in depression are present on the body: one with the oval depression and a strong sensillum (Fig. 5), the second one with pear-shaped depression and a very fine sensillum (Fig. 6).

Discussion

Plutomurus unidentatus belongs to the group of *Plutomurus* with 2+2 prelabral setae. Within this group of species it is most related to *Plutomurus carpaticus* Rusek et Weiner, 1978 from the Carpathian Mountains (Rusek & Weiner, 1978) but it differs by the presence of teeth on empodium, by ratio of manubrium : dens : mucro, and by the shape of mucro. The arrangement of trichobothria and sensilla on lateral area of thorax II is also different. In *Plutomurus carpaticus* the strong sensillum in the oval depression is placed above the internal trichobothrium, while in *Plutomurus unidentatus* it is between both trichobothria.

Tomocerus unidentatus was reported from the caves of Europe (Gisin, 1960). We have examined some material from Muséum National d'Histoire Naturelle (Paris) from the cave of Balme (Isère, France). This material is part of the Delamare-Deboutteville collection. Evidently these specimens belong to another species (probably new for science). The specimens from the Isère Region have two or three dental macrochaetae, they are bigger (between 3.0 and 3.8 mm) and they have only one or two very strong teeth on the empodium. However, fresh material is necessary for a description of a new species.

Ecological remarks

Plutomurus unidentatus is described by Börner as living in caves. We found this species outside caves in very moist and rather cold biotopes. In the locality of Zigzagschlöff it is living in conditions similar to cave climate. We should also

mention that *Plutomurus unidentatus* is often found together with *Tomocerus baudoti* Denis, 1932, from which it can be distinguished *in situ* by its very slow motion.

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