

## Redescription of the subgenus *Parancistrum* Verhoeff, 1943, an eastern Mediterranean lineage of the millipede genus *Megaphyllum* Verhoeff, 1894 (Diplopoda: Julida: Julidae: Brachyiulini)

BOYAN VAGALINSKI<sup>1,2</sup>, ESZTER LAZÁNYI<sup>3</sup> & SERGEI GOLOVATCH<sup>4</sup>

<sup>1</sup> Faculty of Biology, Sofia University, 8 Dragan Tsankov Blvd., 1164 Sofia, Bulgaria. E-mail: boyan\_vagalinski@excite.com

<sup>2</sup> Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 2 Yurii Gagarin Street, 1113, Sofia, Bulgaria

<sup>3</sup> Department of Zoology, Hungarian Natural History Museum, Budapest, Baross u. 13, H-1088, Hungary.

E-mail: pescal2@gmail.com

<sup>4</sup> Institute for Problems of Ecology & Evolution, Russian Academy of Sciences, Leninsky prospect 33, Moscow 117051, Russia.

E-mail: sgolovatch@yahoo.ru

### Abstract

The subgenus *Parancistrum* Verhoeff, 1943 is redefined on the basis of the examination of type and non-type material. The subgenus is currently settled to comprise 6 species, of which *Megaphyllum arcuatum* sp. n. is described as new, while *M. adanense* (Verhoeff, 1943) syn. n. and *M. palaestinum* (Jawłowski, 1931) syn. n. are established as junior subjective synonyms of *M. curvifolii* (Verhoeff, 1898) and *M. genezarethanum* (Verhoeff, 1923) comb. nov., respectively. A neotype is designed for *Chromatoiulus tenenbaumi* Jawłowski, 1931 under ICZN Article 75.1. The distribution pattern of the studied group is discussed, and some preliminary phylogenetic ideas about *Megaphyllum* and the tribe Brachyiulini are presented.

**Key words:** millipede, *Brachyiulus*, new species, new synonymies, neotype, distribution

### Introduction

The mostly Euro-Ponto-Mediterranean genus *Megaphyllum* Verhoeff, 1894 is one of the most diverse and taxonomically complex genera in the family Julidae (Akkari *et al.* 2011; Lazányi *et al.* 2012). Its identity has been entangled with numerous problems across its history. Numerous assigned species have repeatedly been referred to under different generic names, such as *Julus* Linnaeus, 1758, *Brachyiulus* Berlése, 1884 and/or *Chromatoiulus* Verhoeff, 1894; mostly as a result of Verhoeff's inconsistent views which often contradicted the basic rules of the ICZN (see also Pocock 1895). It was Hoffman (1980) who finally resolved the confusion by giving clear arguments for re-establishing the name “*Megaphyllum*” (see also Lazányi & Korsós 2011). However, a large number of highly varied species were assigned to the genus, mostly due to the lack of a diagnosis and the very general original description. The attempts at intra-generic grouping have even increased the ambiguity, resulting in a real jungle of numerous, mostly monotypic, sometimes overlapping or even invalidly proposed subgenera. *Parancistrum* Verhoeff, 1943 is one of these problematic subgenera. It was diagnosed on the basis of a species which is actually a junior synonym of *M. curvifolii* (Verhoeff, 1898), and has since remained monotypic despite the presence of several other, obviously similar species already known at that time.

Verhoeff (1898) described *Megaphyllum curvifolii* and *M. turcicum* from “Cilicien” [near Tarsus], and *M. serratum* from Pernata, both in Turkey. Jawłowski (1931) described two new *Megaphyllum* species: *M. palaestinum* and *M. tenenbaumi*, both from today's Israel, without referring to the above mentioned Verhoeff's paper. Meanwhile, Verhoeff (1923) had already described a new species of the genus, namely *M. genezarethanum*, from the same area, based on a single female. This was noted by Jawłowski (1931), who mentioned a possible synonymy of *M. genezarethanum* with one of his two new species. Attems (1940), in his revisionary work on Julidae, placed *M. curvifolii*, *M. serratum*, *M. palaestinum* and *M. tenenbaumi*, as well as a number of other species, in a newly described subgenus of *Megaphyllum* (*Chromatoiulus* auct.), namely, *Phauloiulus* Attems, 1940.

## References

- Akkari, N., Stoev, P. & Enghoff, H. (2011) Two new cavernicolous genera of Julidae (Diplopoda, Julida), with notes on the tribe Brachyiulini and on julid subanal hooks and anchors. *ZooKeys*, 114, 1–14.  
<http://dx.doi.org/10.3897/zookeys.114.1490>
- Attems, C. (1927) Über palaearktische Diplopoden. *Archiv für Naturgeschichte*, 92 (1–2), 1–256.
- Attems, C. (1940) Beiträge zur Kenntnis der Iuliden. *Annalen des Naturhistorischen Museums in Wien*, 50, 294–327 (for 1939).
- Enghoff, H. (1992) *Dolichoiulus* - a mostly Macaronesian multituide of millipedes. With the description of a related new genus from Tenerife, Canary Islands (Diplopoda, Julida, Julidae). *Entomologica scandinavica*, Supplement 40, 1–158.
- Enghoff, H., Dohle, W. & Blower, J.G. (1993) Anamorphosis in millipedes (Diplopoda) – the present state of knowledge with some developmental and phylogenetic considerations. *Zoological Journal of the Linnean Society*, 109, 103–234.  
<http://dx.doi.org/10.1111/j.1096-3642.1993.tb00305.x>
- Enghoff, H. (2006) The millipedes of Turkey (Diplopoda). *Steenstrupia*, 29 (2), 175–198.
- Enghoff, H., Petersen, G., Seberg, O. (in press) The aberrant millipede genus *Pteridoiulus* and its position in a revised molecular phylogeny of the family Julidae (Diplopoda, Julida). *Invertebrate Systematics*.
- Hoffman, R.L. (1980) *Classification of the Diplopoda*. Muséum d'histoire naturelle, Genève, 237 pp.
- Hoffman, R.L. & Lohmander, H. (1964) The Diplopoda of Turkey. Parts I & II. *Mitteilungen aus dem Hamburgischen zoologischen Museum und Institut*, 62, 101–151.
- Jawłowski, H. (1931) Nowe gatunki dwuparców (Diplopoda) palearktycznych z Karpat Wschodnich i z Palestyny. Neue Arten paläarktischer Diplopoden aus den Ost-Karpathen und aus Palästina. *Annales Musei Zoologici Polonici*, 9 (12), 161–166.
- Pocock, R.I. (1895) Supplementary note upon Herr Verhoeff's subdivisions of the so-called genus *Iulus*. *Annals and Magazine of Natural History*, Ser. 6, 15, 369–372.  
<http://dx.doi.org/10.1080/00222939508677896>
- Lazányi, E. & Korsós, Z. (2011) Revision of the *Megaphyllum projectum* Verhoeff species complex (Myriapoda: Diplopoda: Julida: Julidae). *Zootaxa*, 2864, 43–56.
- Lazányi, E., Vagalinski, B. & Korsós, Z. (2012) The millipede genus *Megaphyllum* Verhoeff, 1894 in the Balkan Peninsula, with description of new species (Myriapoda: Diplopoda: Julida: Julidae). *Zootaxa*, 3228, 1–47.
- Lazányi, E. & Vagalinski, B. (2013) Redefinition of the millipede subgenus *Megaphyllum sensu stricto* Verhoeff, 1894 and neotype designation for *Megaphyllum austriacum* (Latzel, 1884) (Myriapoda: Diplopoda: Julida: Julidae). *Zootaxa*. in press.
- Tăbăcaru, I. (1995) Diplopodes d'Israël. I. *Libanaphe adonis galilaeensis* n. spp. avec une liste révisée des diplopodes signalé en Israël. In: Por, F.D., Decu, V., Negrea, Št. & Dimentman, Ch. (Eds.), *Soil Fauna of Israel*. Bucharest, pp. 19–28.
- Verhoeff, C. (1894) Zur Kenntnis der Copulationsorgane der Juliden, über eine neue Juliden-Gattung und eine neue *Tachypodoiulus*-Art. *Zoologischer Anzeiger*, 17, 321–325.
- Verhoeff, C. (1898) Über Diplopoden aus Kleinasien. *Verhandlungen der Zoologisch-botanischen Gesellschaft in Wien*, 48, 292–305.
- Verhoeff, C. (1923) Zur Kenntnis der Palästina-Chilognathen und über einige andere mediterrane Formen. 93. Diplopoden-Aufsatz. *Archiv für Naturgeschichte*, 89A (4), 112–157.
- Verhoeff, C. (1943) Über Diplopoden aus der Türkei. III. *Zoologischer Anzeiger*, 143 (9–10), 216–242.