



## A new strikingly coloured species of *Siphonocryptus*, sixth of its order (Diplopoda: Siphonocryptida)

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The small millipede family Siphonocryptidae was revised by Enghoff & Golovatch (1995) who assigned two genera and three species to it: *Siphonocryptus compactus* Pocock, 1894, from Sumatra, *S. latior* Enghoff & Golovatch, 1995, from the Malaccan peninsula, and *Hirudicryptus canariensis* (Loksa, 1967) from the Canary and Madeiran archipelagos in the Atlantic Ocean. This highly disjunct distribution pattern has later become partly filled out by *Hirudicryptus taiwanensis* Korsós *et al.*, 2008, from Taiwan, and *H. quintumelementum* Korsós *et al.*, 2009, from Nepal.

Hoffman (1977, 1980) placed the Siphonocryptidae (at that time known only from *Siphonocryptus compactus*) in a separate suborder, Siphonocryptidea, in order Polyzooniida. This separation was supported by Enghoff & Golovatch (1995). Shelley (2002) elevated this taxon to a full order, Siphonocryptida, based on an unpublished phylogenetic analysis by W.A. Shear. In the phylogenetic analysis by Sierwald & Bond (2007), Siphonocryptida is sister to Platydesmida, and (Siphonocryptida + Platydesmida) is sister to Siphonophorida. Siphonocryptida is the second-smallest millipede order; only the Siphoniulida, with a mere 2 described species, is smaller (cf. Sierwald *et al.* 2003).

Siphonocryptids are rare in collections, and this is particularly true of the genus *Siphonocryptus*. Enghoff & Golovatch (1995) knew of 4 specimens of *S. compactus* and 3 of *S. latior*. To my knowledge, no further specimens belonging to this genus have been reported, and the discovery of an eighth specimen, clearly differing from both described species, is therefore of considerable interest.

### Material and methods

The single specimen of the new *Siphonocryptus* was found in a large material of small millipedes from the Cameron Highlands, continental Malaysia, collected by sifting by Petr Baňar (Moravian Museum, Brno) and kindly donated to the Natural History Museum of Denmark. This material is very rich in such millipede groups as glomeridesmids, glomerids, siphonorhinids, heterochordeumatids, metopidiotrichids, julids, paradoxosomatids and haplodesmids, and the fact that only one specimen of a siphonocryptid was found underlines the rarity of these millipedes. Photographs were taken with a BK Plus Lab Imaging System from Visionary Digital (<http://www.visionarydigital.com>) equipped with a Canon EOS 7D camera. Single images were combined with Helicon Focus (version 5.0) software from Helicon Soft Ltd., to increase depth of field.

### *Siphonocryptus zigzag*, new species

(Figs. 1, 3)

**Material studied.** Holotype female, MALAYSIA, PAHANG, Cameron Highlands, "ORANGE ASLI vill." env. Gunung Perdah [Mt.], 4°29.2N, 101°22.1E, 1575 m, sifting leaf litter in shallow ravine, 2–14.v.2009, Petr Baňar leg. (Natural History Museum of Denmark, Zoological Museum, University of Copenhagen, ZMUC 00101324).

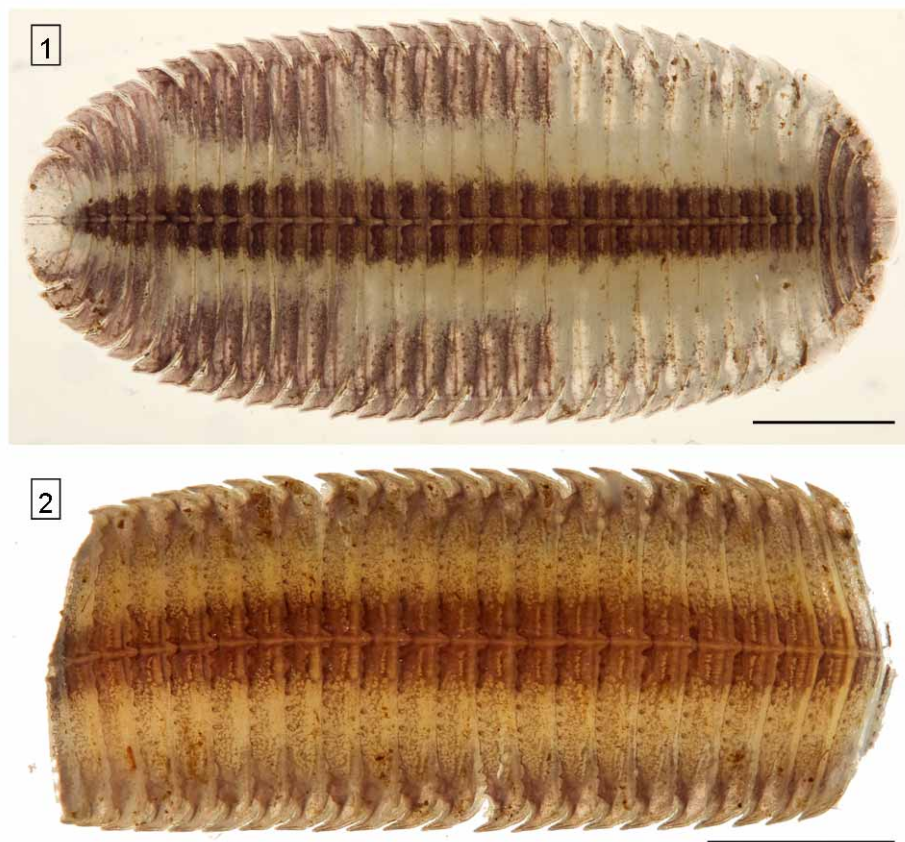
**Diagnosis.** A species of *Siphonocryptus* with a dorsal colour pattern including two triangular lateral areas each covering 7 pleurotergites.

**Description.** Female holotype with 32 pleurotergites, body length 4.3 mm, max. width 2.6 mm. Dorsal colour pattern distinctive: ground colour pale yellowish, almost transparent along margins of body. Tergites 2–4 entirely dark brown. A mid-dorsal longitudinal band, running uninterrupted from tergite 5 to penultimate tergum (both included) and

covering ca. 1/6 of the body width, also dark brown. Lateral parts of tergites 14–31 medium brown. On most of these tergites the darkened areas extend to ca. halfway between lateral margin and middle of tergites, leaving a pale band ca. as broad as mid-dorsal dark band. On tergites 19–20, and again on tergites 26–27, however, the darkened areas become gradually narrower, resulting in a distinct-zig-zag boundary between dark and light (Fig. 1). On tergites 28–31, the darkened lateral areas extend almost to the median dark brown band, leaving only a narrow light parasagittal stripe. The last, large tergite 32 has narrow darkened lateral margins but is otherwise pale.

In all other respects similar to the other species in the genus.

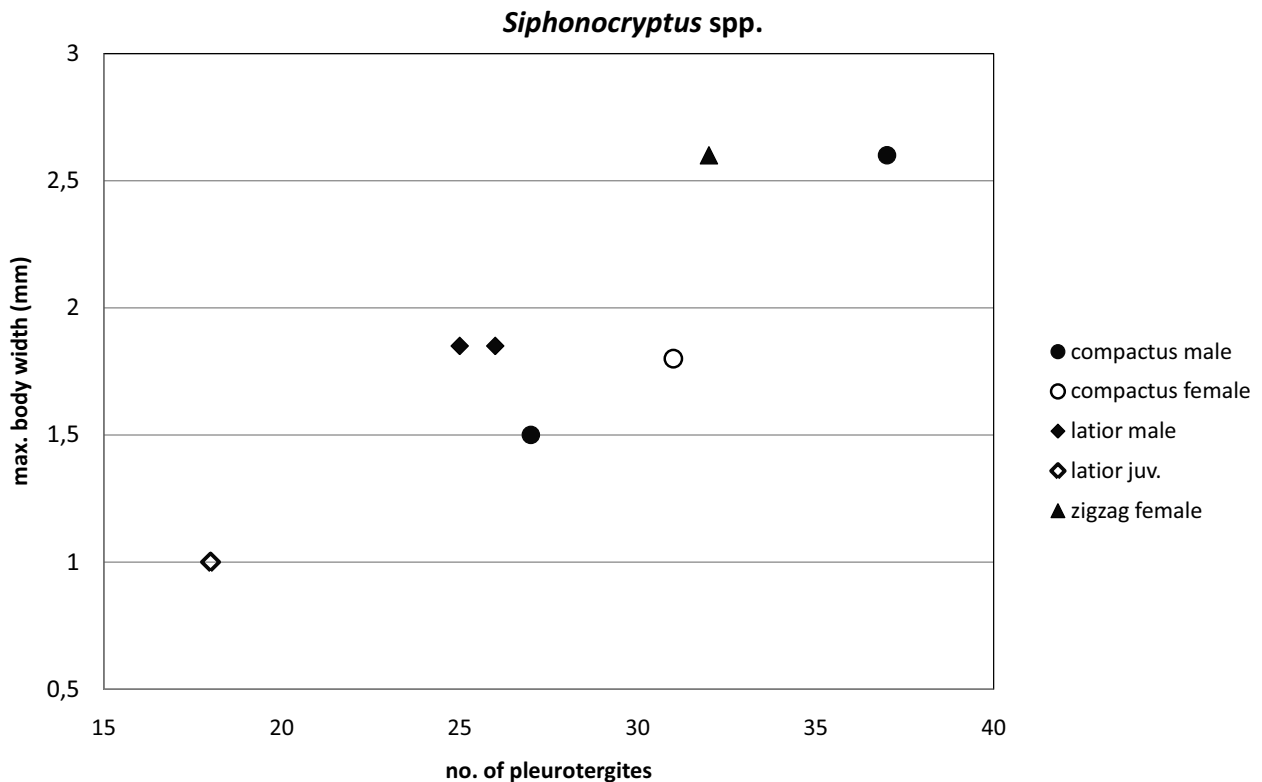
**Notes.** *Siphonocryptus zigzag* differs from its two known congeners by its remarkable colour pattern. For comparison, the colour pattern of *S. compactus* is illustrated in Fig. 2. The colour pattern of *S. zigzag* will be further discussed in a forthcoming paper on comparable colour patterns in millipedes (Enghoff in prep.). In Fig. 3, the pleurotergite numbers and maximal body diameter of known specimens of *Siphonocryptus* are shown, based on the new species and data from Enghoff & Golovatch (1995). Although the number of specimens is small, it looks as if *S. zigzag* is more similar to *S. latior* in body shape (very broad) than to *S. compactus*. The two former species have both been found in peninsular Malaysia, their type (and only known) localities lying ca. 125 km apart.



**FIGURE 1–2.** *Siphonocryptus* spp., dorsal view. 1: *S. zigzag* n.sp., holotype; 2: *S. compactus*, specimen from MALAYSIA, W SUMATRA, Bukittinggi, Gn. Singgalang, 2100–2600 m, A. Riedel leg. (ZMUC 00101325), without front end, hind end not visible. Head end of both specimens to the right. Scale bars = 1 mm.

### Acknowledgements

I am grateful to Petr Baňář (Moravian Museum, Brno) for the donation of his valuable millipede material, to Janet Beccaloni (Natural History Museum, London) for assistance with sorting the material, and to Nikolaj Scharff (Natural History Museum of Denmark) for photographic wizardry.



**FIGURE 3.** Relationship between number of pleurotergites and maximal body width in *Siphonocryptus* spp., based on holotype of *S. zigzag* and data from Enghoff & Golovatch (1995).

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