



Conference Abstract

# Subterranean millipedes, some patterns and adaptations

Henrik Enghoff ‡

‡ Natural History Museum of Denmark, University of Copenhagen, Copenhagen OE, Denmark

Corresponding author: Henrik Enghoff ([henghoff@snm.ku.dk](mailto:henghoff@snm.ku.dk))

Received: 23 Aug 2018 | Published: 05 Sep 2018

Citation: Enghoff H (2018) Subterranean millipedes, some patterns and adaptations. ARPHA Conference Abstracts 1: e29273. <https://doi.org/10.3897/aca.1.e29273>

## Abstract

Millipedes (class Diplopoda) are a large group of arthropods mostly living in the soil. More than 10,000 species have been described, but this is surely just a mere fraction of the actually existing number of living species. Many lineages of millipedes have invaded caves and other subterranean habitats, not the least in southern Europe.

In spite of their many legs, millipedes are in general poor dispersers, and their present-day distributions often reflect very old biogeographical patterns. The monotypic genus *Cantabrodesmus* Mauriès, 1971, of uncertain family placement and only known from a few caves in N Spain, is an extreme example of this.

The genus *Thalassisobates* Verhoeff, 1908, provides an example of “ecological disjunction”: One species is truly littoral and occurs along the coasts of Europe and eastern N America, whereas the two other species of the genus were collected in a cave in S Spain and in MSS on the island of La Gomera, Canary Islands, respectively, in both cases more than 500 m above sea level. Similar ecological disjunctions (littoral/subterranean) are known from pseudoscorpions (genus *Paraliochthonius* Beier, 1956) and isopods (genera *Halophiloscia* Verhoeff, 1908, and *Littorophiloscia* Hatch, 1947).

Subterranean millipedes often exhibit classical troglomorphisms, but there are also some not-so-classical adaptations, such as modification of the mouthparts for a semiaquatic/

hygropetric mode of life. Such modifications have apparently arisen at least seven times independently in unrelated lineages belonging to four millipede families.

Millipedes are often hosts to epibiotic fungi of the order Laboulbeniales. Available evidence, although scant, suggests a difference between cave and epigean millipedes in the distribution patterns of the fungi on the hosts: Laboulbeniales on epigean millipedes tend to grow on body parts which come into contact during copulation, whereas those on cave millipedes tend to be scattered along the millipede body, suggesting transfer via the substrate.

## **Presenting author**

Henrik Enghoff