



## Occurrence of the millipede genus *Piccola* Attems, 1953 in China (Diplopoda: Polydesmida: Paradoxosomatidae)

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### Abstract

*Piccola golovatchi* sp. nov. is described and illustrated. It comes from the limestone cave called Shizikou Dadong, Tianlin County, Guangxi Zhuang Autonomous Region, southern China. This species is considered to be a troglobite, showing a pallid tegument and extremely elongated antennae and legs. This is the first record of the millipede genus *Piccola* Attems, 1953 from China.

**Key words:** *Piccola*, troglobite, new species, new record, Guangxi

### Introduction

The millipede genus *Piccola* Attems, 1953 belongs to the tribe Orthomorphiini, subfamily Paradoxosomatinae, family Paradoxosomatidae (Nguyen & Sierwald 2013). It was defined to contain the single species, *P. odontopyga* Attems, 1953, based on the following two major diagnostic characteristics: paraterga not well-developed, and the 5<sup>th</sup> segment without a sternal process in males (Attems 1953). However, Jeekel (1963) thought that the gonopod structure of *P. odontopyga* Attems, 1953 is closely associated with five species also described by Attems as members of the genus *Orthomorpha* Bollman, 1893, viz. *O. banana* Attems, 1937, *O. spadix* Attems, 1937, *O. corrugata* Attems, 1953, *O. debilis* Attems, 1953, and *O. minuscula* Attems, 1953, so he transferred them from *Orthomorpha* to *Piccola*. The main characteristics of *Piccola* lie in only paraterga 2 well-developed, combined with the finely rugulose metaterga surface, and the gonopod femur and postfemur without an obvious demarcation sulcus (Jeekel 1963). Jeekel's opinion was confirmed by him (Jeekel 1968) and supported by other authors (Golovatch 1983; Enghoff *et al.* 2004).

*Piccola* is one of many poorly known genera of millipedes. Up to now, it encompassed only six montane species which are restricted to Vietnam (5 species) and Laos (1 species) (Attems 1937, 1953). It is noteworthy that *P. debilis* (Attems, 1953), *P. minuscula* (Attems, 1953), *P. odontopyga* Attems, 1953, and *P. spadix* (Attems, 1937) occur at the same mountain, Mt. Langbian in Lamdong Province, Vietnam, and furthermore, two different species (*P. minuscula* and *P. odontopyga*) are living at the same altitude.

During cave biological surveys carried out in 2014, two dozen specimens of an interesting millipede species were collected from a limestone cave called Shizikou Dadong, Tianlin County, Guangxi. Further study confirmed that they are members of a new species belonging to the genus *Piccola*. It is the first record of *Piccola* in China, and also the first record of a troglobitic species in the genus. Apart from the descriptions and illustrations of the new species, *P. golovatchi* sp. nov., a distributional map for all seven species of *Piccola* is also provided.

### Material and methods

All specimens used in this study were collected by hand in the cave Shizikou Dadong, Tianlin County, Guangxi Zhuang Autonomous Region, southern China, and preserved in 75% ethanol. The holotype and a number of

blind and highly modified cave fish, *Giraffaphaenops* sp., a extremely adapted blind ground beetle (Deuve 2002), diplopods of the genera *Glyphiulus* sp. and *Eutrichodesmus* sp., bats and spiders, etc.

## Discussion

The finding of *Piccola golovatchi* sp. nov. has important value from the viewpoints of zoogeography and biospeleology. The distributional pattern of *Piccola* shown in Fig. 4 reveals that there is a wide gap between Tianlin, Guangxi and the localities of other congeners which occur in Vietnam and Laos respectively. Based on the fact that *P. golovatchi* is the only cavernicolous representative of *Piccola*, and there are no congeners found outside the cave, we speculate that the cave might have acted as a refuge for animals in southern China during the Ice-age period.

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