



<http://dx.doi.org/10.11646/zootaxa.3793.1.9>

<http://zoobank.org/urn:lsid:zoobank.org:pub:96885D47-3554-47B5-A3F8-8F4321C681BD>

The millipede genus *Riukiaria* Attems, 1938 in continental China, with descriptions of new species (Diplopoda: Polydesmida: Xystodesmidae)

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Abstract

Fresh collections of Diplopoda from China contain five new species of the large, East Asian, warm temperate to subtropical genus *Riukiaria*: *R. martensi* **sp. nov.**, from Shaanxi Province, as well as *R. belousovi* **sp. nov.**, *R. kabaki* **sp. nov.**, *R. korolevi* **sp. nov.** and *R. davidiani* **sp. nov.** from Sichuan Province. A key is given to all eight *Riukiaria* species currently known to occur in mainland China, including *R. tianmu* (Tanabe, Ishii & Yin, 1996), **comb. nov.** ex *Sinoria* Tanabe, Ishii & Yin, 1996, the latter genus a new junior subjective synonym of *Riukiaria*, **syn. nov.**

Key words: *Riukiaria*, taxonomy, synonymy, key, China

Introduction

The East Asian, warm temperate to subtropical genus *Riukiaria* Attems, 1938 is one of the most species-rich amongst the diplopod genera in the region, at present composing about 30 nominate species (Korsós *et al.* 2011). *Riukiaria* was first invalidly proposed without a type species by Verhoeff (1936), but later Attems (1938) typified the genus, and hence became its author, through designating *R. pugnifera* Verhoeff, 1936 as type species.

Most of the species diversity of *Riukiaria* is restricted to southern Japan, i.e. southern Honshu, Kyushu, Shikoku and Ryukyu islands, with ca 22 species or subspecies named, many of which are highly local endemics. Taiwan supports another 5–6 species, only one of which, *R. holstii* (Pocock, 1895), is shared with Okinawa, Ryukyus, while some further congeners are likely to represent synonyms of others (Korsós 2004, Korsós *et al.* 2011, Golovatch *et al.* 2011). Only one species, *R. semicircularis* (Takakuwa, 1941), seems to be common to southern Korea and southern Honshu + Kyushu, Japan (Korsós *et al.* 2011). Mainland China harbours only two species: *R. capaca* Wang & Zhang, 1993, from Jangle County, Fujian Province, and *R. chinensis* Tanabe, Ishii & Yin, 1996, from Tian-mu Mountains, Zhejiang Province (Wang & Zhang 1993, Tanabe *et al.* 1996). In addition, Korsós *et al.* (2011), albeit with neither any formal synonymy nor transfer, suggested that, because *Sinoria tianmu* Tanabe, Ishii & Yin, 1996, also from the Tian-mu Mountains (Tanabe *et al.* 1996), seems to actually represent a species of *Riukiaria*, the monobasic genus *Sinoria* Tanabe, Ishii & Yin, 1996 is synonymous with *Riukiaria*.

According to Tanabe *et al.* (1996) and Korsós *et al.* (2011), *Riukiaria* is primarily characterized by a rather simple, biramous, forceps-like gonopod conformation, and the gonocoxa carrying one seta. I can add here that the solenomere is always longer and stronger than the prefemoral process if any, whereas the number of setae on the gonopod coxae actually varies between zero and two.

A bulky, rather small body (2–3 cm long), a rather vivid colour pattern (bluish grey-brown metaterga with orange or yellowish spots on paraterga), the caudolateral corner of paraterga being rounded in segments 1–4, but acute in segments 5–19, and a clearly biramous gonopod telopodite are also characteristic of *Xystodesmus* Cook, 1895, a small genus endemic to Japan (Tanabe & Shinohara 1996). Within the large, Holarctic tribe Xystodesmini, both *Xystodesmus* and *Riukiaria* seem to be particularly similar (Tanabe & Shinohara 1996), but these genera can readily be separated through the gonopod telopodite in *Xystodesmus* usually being more elaborate, not really forceps-like, with the solenomere and prefemoral process split deeply, but far more narrowly, often also subequal in length.

found in habitats ranging from broadleaved forest (ca 2800–2900 m a.s.l., *R. davidiani* **sp. nov.** or *R. korolevi* **sp. nov.**) to alpine meadows (ca 4100–4450 m a.s.l., *R. belousovi* **sp. nov.** or *R. kabaki* **sp. nov.**). In China, this genus, as well as the family it belongs to, can soundly be characterized as warm temperate to subtropical, apparently mostly typical of humid forest, sometimes even of high-montane nival environments, but it so far lacks true cavernicoles.

Another remarkable observation lies in the lack (or at least scarcity, because the coloration of *R. tianmu* and *R. chinensis* has not been described even from alcohol material) of *Riukiaria* species showing distinctive colour patterns in continental China. Such species abound in Japan, especially in the Ryukyus (e.g. Korsós *et al.* 2011), and some are also known to occur in Taiwan, at least the dark *Riukiaria* illustrated and referred to so by Golovatch *et al.* (2011). But no congeners with contrasting patterns have hitherto been encountered in the mainland. At least none of the species from Sichuan shows the high-mountain melanism generally so common in various animals.

Last but not least, there can hardly be any doubt that more *Riukiaria* species will be revealed with further progress in our knowledge of the millipede fauna of mainland China. Moreover, as usual, most can be predicted to show very local endemism.

Acknowledgements

I am most grateful to my friends I. Belousov and J. Martens for the samples they so generously rendered to me for treatment. In addition, I. Belousov kindly allowed me to deposit his material in the ZMUM collection. K. Makarov (Moscow, Russia) very skillfully took all pictures. The project was partly supported through a grant issued by the Ministry of Education and Science of Russia.

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