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The Giant Pill-Millipedes of Nepal (Diplopoda, Sphaerotheriida, Zephroniidae)*

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THOMAS WESENER

Zoologisches Forschungsmuseum Alexander Koenig, Leibniz Institute for Animal Biodiversity, Center for Taxonomy and Evolutionary Research (Section Myriapoda), Adenauerallee 160, 53113 Bonn, Germany. E-Mail: t.wesener@zfmk.de

Abstract

The type of the only species of the order Sphaerotheriida with a record in Nepal, *Kophosphaera excavata* (Butler, 1874), originally described from Sikkim, is redescribed. The subspecies *K. excavata mammifera* Attems, 1936 from Sureil, Darjeeling, India, is elevated to species rank, *K. mammifera* **stat. nov.**. A species of unclear country of origin ('Himalaya'), *Sphaeropoeus montanus* Karsch, 1881, is briefly redescribed and transferred to the genus *Zephronia*, *Z. montana* (Karsch, 1881) **n. comb.**. *Z. tumida* Butler, 1882, an apparently widespread north Indian *Zephronia* species, is redescribed. Sphaerotheriida specimens collected during several expeditions to Nepal undertaken by Prof. J. Martens in the 1970s and 1980s were examined. The material contained 10 specimens (7 males, 3 females) from seven localities, including three undescribed species, *Zephronia nepalensis* **n. sp.**, *Kophosphaera shivapuri* **n. sp.**, and *Kophosphaera martensi* **n. sp.**, as well as a specimen of *Kophosphaera politissima* Attems, 1935, type species of the genus and described previously from India. A key to all (now seven) species of *Kophosphaera* is presented. A brief diagnosis of the *Kophosphaera excavata* group is provided. While *Zephronia* seems to be restricted to the eastern part of Nepal, two endemic and two more widespread *Kophosphaera* species occur also in its central and mid-western part, representing the western-most records of the family Zephroniidae in Asia. The current distribution of the family in Nepal clearly indicates the Zephroniidae as a family adapted to tropical environments.

Key words: Nepal, Himalaya, Darjeeling, Sikkim, soil arthropod

Introduction

General studies of the soil arthropod fauna of the Himalayan region (Martens 1993) have not provided specific knowledge about the giant pill-millipede (order Sphaerotheriida) fauna of Nepal. Nepal is located at the western fringe of the area of distribution of the giant pill-millipede (order Sphaerotheriida) family Zephroniidae (Wesener *et al.* 2010, Shelley & Golovatch 2011), while southern India is already occupied by species of the Malagasy-Indian family Arthrosphaeridae (Wesener & VandenSpiegel 2009, Wesener 2014). Numerous records, many in need of a revision (see Jeekel 2001), exist from the Indian states of Darjeeling and Sikkim, directly bordering Nepal to the west, but only one dubious species record exists from Nepal itself. The specimen, determined as *Kophosphaera excavata* (Butler, 1874), was described by Attems (1936) as from 'Chitlong, Nepal'. The only other record of the Zephroniidae mentions that the family occurs at heights of up to 2700 m in Nepal (Golovatch & Martens 1996), but no precise information is provided. Aside from these two records, nothing is known about the giant pill-millipedes from Nepal. The chance to study the giant pill-millipede material collected by Prof. Martens during the 1970s and 1980s was therefore undertaken with the hope of gaining a better understanding of the country's Sphaerotheriida fauna. The fauna is particularly interesting because of the topography of the regions and the fact that Nepal represents the western-most distribution records for the family Zephroniidae. In addition, type specimens of species described from the Indian provinces of Darjeeling and Sikkim were studied to avoid confusing endemic Nepalese species with more widespread taxa from India.