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The lineages of Stylocellidae (Arachnida: Opiliones: Cyphophthalmi)

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Abstract

The taxonomy of the Southeast Asian mite harvestman family Stylocellidae is updated in light of new molecular and morphometric phylogenies, examinations of type specimens, and a new species from Thailand. A new genus, *Giribetia* **gen. nov.**, is erected, and *Fangensis insulanus* Schwendinger & Giribet, 2005, recombined in it as *Giribetia insulana* **new comb**. All species in the genus *Stylocellus* have been recombined in *Miopsalis* and *Leptopsalis*, except for the type species, *S. sumatranus* Westwood, 1874, and a new species, *S. lornei*, **sp. nov.**, described here. The new recombinations of former *Stylocellus* species are as follows: *Leptopsalis pangrango* (Shear, 1993), **new comb.**, *Leptopsalis sedgwicki* (Shear, 1979), **new comb.**, *Leptopsalis laevichelis* (Roewer, 1942), **new comb.**, *Miopsalis globosa* (Schwendinger & Giribet, 2004), **new comb.**, *Miopsalis kinabalu* (Shear, 1993), **new comb.**, *Miopsalis leakeyi* (Shear, 1993), **new comb.**, *Miopsalis mulu* (Shear, 1993), **new comb.**, and *Miopsalis pocockii* (Hansen & Sørensen, 1904), **new comb.** "*Stylocellus*" *spinifrons* Roewer, 1942 is now designated as *nomen dubium*, as the sole type specimen has been found to be a juvenile. Two new subfamilies are proposed, each with two genera: Fangensinae **subfam. nov.**, containing *Fangensis* and *Giribetia*, and Leptopsalinae **subfam. nov.**, containing *Leptopsalis* and *Miopsalis*. The subfamily *sensu strictu* Stylocellinae contains the remaining two genera: *Stylocellus* and *Meghalaya*

Key words: biogeography, Borneo, harvestman, Sibumasu, Southeast Asia, Sundaland

Introduction

In 1874, when British entomologist John Obadiah Westwood described *Stylocellus sumatranus* Westwood (Fig. 1), there was no hint of the great number and varied forms of Cyphophthalmi still hidden on Sumatra and throughout Southeast Asia, nor any suggestion of the family's importance to understanding the region's history. Westwood's only mention of other Cyphophthalmi in Southeast Asia is a Javanese specimen he saw in the British Museum, which he contrasts with *S. sumatranus* by color only. (The Javanese specimen was reddish brown, unlike the purplish black of *S. sumatranus*, he says.) Appearing on the 200th of 205 pages of taxonomic descriptions and being illustrated by small sketches on the 37th plate of 40, the description of *S. sumatranus* was based on a lone male who was, in fact, deformed: sternites 3 and 4 as well as tergites V and VI were fused on the right side (Westwood 1874).

Since Westwood, another 33 species in the family have been described, and due to a recent focus on Cyphophthalmi collecting worldwide (Giribet 2000), scores of new stylocellid species await description. The analysis of DNA sequence and morphometric data from newly collected specimens has led to the understanding that the family includes all Cyphophthalmi found from the Eastern Himalayas to New Guinea and out to Palawan and Mindanao (Clouse *et al.* 2011; Clouse *et al.* 2009; Clouse & Giribet 2010). Stylocellidae is also considered the most ancient living family of animals in Southeast Asia (Stelbrink *et al.* in press; Lohman *et al.* 2011), having likely arrived on an ancient fragment of the Gondwanan coastline which today underlies the Thai-Malay Peninsula (Clouse & Giribet 2010). Following the most recent phylogenetic analysis of Cyphophthalmi, it was placed with the Laurasian family Sironidae in a new infraorder, Boreophthalmi (Giribet *et al.* 2012). However, no adequate definition exists for the genera containing most of the family's diversity, and no subfamilial taxonomy exists to record identifications that at least limit the number of possible genera to which any new specimen might belong.

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