



Whip spiders of the genus *Sarax* Simon 1892 (Amblypygi: Charinidae) from Borneo Island

CAHYO RAHMADI^{1,2,4}, MARK S. HARVEY³ & JUN-ICHI KOJIMA²

¹Museum Zoologicum Bogoriense, Research Center for Biology, Indonesian Institute of Sciences (LIPI), Jl. Raya Jakarta-Bogor Km. 46, Cibinong, 16911, INDONESIA. E-mail: cahyo.rahmadi@lipi.go.id

²Natural History Laboratory, Faculty of Science, Ibaraki University, Mito, 310-8512, JAPAN. E-mail: jkrte@mx.ibaraki.ac.jp

³Department of Terrestrial Zoology, Western Australian Museum, Locked Bag 49, Welshpool DC, Western Australia 6986, AUSTRALIA. [School of Animal Biology, University of Western Australia, Crawley, Western Australia 6009, AUSTRALIA; Research Associate, Division of Invertebrate Zoology, American Museum of Natural History, New York, USA; Research Associate, California Academy of Sciences, San Francisco, California, USA]. E-mail: mark.harvey@museum.wa.gov.au

⁴Corresponding author

Abstract

Five species of the whip spider genus *Sarax* are recognized from Borneo, with the following four species newly described: *Sarax yayukae* **sp. nov.** from Sabah (Malaysia), West and Central Kalimantan (Indonesia), and three species from East Kalimantan, *S. cavernicola* **sp. nov.**, *S. sangkulirangensis* **sp. nov.**, and *S. mardua* **sp. nov.**. *Sarax mardua* and *S. cavernicola* have pale coloration, reduced eyes and elongate legs suggesting troglomorphic adaptations to cave environments. The characters diagnosing the family Charinidae and the genus *Sarax* are discussed and revised. The distribution patterns of *Sarax* species in Southeast Asia, especially in Borneo Island, are discussed in relation to their habitat preferences. The generic status of *Stygophrynus moultoni* Gravelly 1915 (Charontidae) is briefly discussed.

Key words: Caves, troglomorphic species, taxonomy, new species, *Stygophrynus*

Introduction

Whip spiders (Amblypygi) are bizarre arachnids found in tropical and subtropical regions of the world that have a peculiar external appearance characterized by their dorso-ventrally flattened body, strong raptorial pedipalps armed with spines, and the first legs extremely elongate and antenniform (Weygoldt 2000). The whip spider fauna of Borneo Island is currently represented by only two species of different genera in different families: *Sarax sarawakensis* (Thorell 1888) (Charinidae) from Sarawak (Malaysia) and *Stygophrynus moultoni* Gravelly 1915 (Charontidae) from Klingkang Range (Indonesia) near the border of Sarawak and West Kalimantan.

Southeast Asian whip spiders have been poorly studied, and we expect that many further species are to be found in Borneo. The present study focuses on the species *Sarax* Simon 1892 collected from Borneo. *Sarax* is one of the three valid genera recognized in the family Charinidae (Harvey 2003). We have recognized five species of *Sarax* in Borneo Island, of which four are herewith described as new. The characters diagnosing the family Charinidae and the genus *Sarax* are discussed and revised. The generic status of *Stygophrynus moultoni* is also briefly discussed.

Material and methods

The present study was based on the specimens mainly collected by the first author and deposited in the Museum Zoologicum Bogoriense, Bogor, Indonesia (abbreviated as MZB) and the Muséum National