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Malaysian species of *Dryopomorphus* Hinton, 1936 (Insecta: Coleoptera: Elmidae)

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Abstract

We provide a review of species of the genus *Dryopomorphus* Hinton, 1936 occurring in Malaysia. Three known species: *D. bishopi* Hinton, 1971; *D. satoi* Spangler, 1985 and *D. hendrichi* Čiampor Jr & Kodada, 2006 are diagnosed and five new species from the Malay Peninsula and Borneo are described here: *D. grandis*, *D. jaechi*, *D. memei*, *D. pekariki* and *D. sarawacensis*. Habitus photographs, drawings of genitalia and diagnostic characters of all species are included.

Key words: Coleoptera, Elmidae, *Dryopomorphus*, taxonomy, new species, Southeast Asia

Introduction

The small elmid genus *Dryopomorphus* Hinton, 1936 has an Asian distribution, occurring from Malaysia in the west to Japan in the east. Adult *Dryopomorphus* are always associated with running waters, prefering submerged accumulations of plant debris or submerged wood in shaded forest streams. *Dryopomorphus* larvae are still poorly known; the only known ones, found on the surface of waterlogged wood, belong to three Japanese species (Yoshitomi & Satô 2005).

Generally, *Dryopomorphus* species diversity was rather unknown for a long time, because most of them were collected in small series only. The four Japanese species were reviewed recently (Yoshitomi & Satô 2005), whereas the remaining four known species were described separately from Malaysia (Hinton 1971, Spangler 1985, Čiampor Jr & Kodada, 2006) and Thailand (Kodada 1993). Examining material collected in recent years, however, confirmed that the species diversity is much higher.

In this paper we continue revising the material available, focusing on the Malaysian species of *Dryopomorphus*. The examination allowed us to describe five new species from Sabah and Sarawak (Malaysian part of the island Borneo). As all known representatives of the genus, the new species are externally very similar. It is difficult to find distinct and stable external morphological characters distinguishing species, and the only reliable differences are found on the male genitalia. This problem likely also faced Spangler when he described *D. satoi* (Spangler 1985) since he repeated reasonable parts of Hinton's statements from the description of *D. bishopi* (Hinton 1971).

Material & Methods

Specimens prepared for this study were cleaned and examined under a Leica M205C stereomicroscope with a Planapo 1.0 lens, by using diffuse lighting at magnifications up to 160×. Male genitalia and pregenital segments were studied as temporary glycerine slides at magnifications up to 600× by using a Leica DM1000 compound microscope. Drawings were made with a drawing tube. Habitus photographs were made using Leica M205C with digital camera attached.

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