



Four new species of *Rhyacophila* (Trichoptera: Rhyacophilidae) from Sabah, East Malaysia

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Abstract

Although the caddisfly genus *Rhyacophila* (Trichoptera: Rhyacophilidae) is exceptionally species-rich in southern and southeastern Asia, only 3 species were previously recorded from Borneo, 2 from Sabah and 1 from Sarawak. Examination of caddisfly specimens collected by the 1st author in 1986 through 1989 for the Leiden Museum (The Netherlands) has revealed 4 new species of *Rhyacophila*. Three of these, *R. bintil*, n. sp.; *R. ladam*, n. sp.; and *R. lepoh*, n. sp. are assigned to the *Rhyacophila curvata* Group. The 4th species, *R. kuku*, n. sp., although having affinities with the *Rhyacophila lieftincki* Group, is currently designated as *incertae sedis* within the genus. Finally, the female of *R. argentipunctella* Kimmins is described for the first time, and the species reported from Sabah.

Key words: Trichoptera, Rhyacophilidae, *Rhyacophila*, taxonomy, Sabah

Introduction

Borneo is the 3rd largest island in the world (748 168 km²), and includes the independent Sultanate of Brunei, and portions of Indonesia (Central, East, South and West Kalimantan), and East Malaysia (Sabah and Sarawak). Earlier, Huisman (1992) described 4 new species in the caddisfly genus *Apsilochorema* (Trichoptera: Hydrobiosidae) from Sabah and Sarawak. This family, with about 350 species, is most diverse on the southern continents of South America and Australia and the islands of New Zealand. Its sister family, the Rhyacophilidae, is among the most species rich in the order Trichoptera. Its largest genus, *Rhyacophila*, has more than 550 recorded species distributed across the northern continents of ancient Laurasia. Both families are present in Borneo and are members of the trichopteran suborder “Spicipalpia” (Weaver 1984).

Despite the great diversity of *Rhyacophila* on the Asian mainland (Schmid 1970), only 25 species were known previously from Indonesia (n=10), Malaysia (n=10), and the Philippines (n=5). A list of all *Rhyacophila* species now known from these countries is included in Table 1.

Of the 3 previously known Bornean species, *Rhyacophila isolata* Banks, 1934, and *R. abimael* Malicky, 2009, were collected in Sabah on Mount Kinabalu at elevations of 3080 m and 3320 m, respectively. *Rhyacophila argentipunctella* Kimmins, 1955, was collected in Sarawak on Mount Dulit at an elevation of 1232 m. In the present paper, we describe 4 new species of *Rhyacophila* from Sabah.

The new *Rhyacophila* species (89 males, 60 females) were found at 27 of 200 different collecting sites in Sabah visited by the first author in 1986 through 1989. Altitude of the sites ranged from 150-