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Five new species of the genus *Cheumatopsyche* (Trichoptera: Hydropsychidae) from the Phetchabun Mountains, Thailand

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Abstract

Five new species of the genus *Cheumatopsyche* (Trichoptera: Hydropsychidae) from the Phetchabun Mountains, Thailand, are described and illustrated. The national parks and wildlife sanctuaries in the Phetchabun Mountains are recognized as areas with a high density of endemic species deserving protection. Four new species of *Cheumatopsyche* (*C. recta*, *C. diversa*, *C. triangula*, and *C. tongto*) have been found in Phu Khieo Wildlife Sanctuary, Phu Kradueng National Park and Thung Salaeng Luang National Park; a fifth new species (*C. cava*) has been found in Phu Kradueng National Park. Describing hydropsychid species is important not only to study diversity and distribution but also to facilitate eventual descriptions of larvae for use in freshwater biomonitoring programs to detect pollution.

Key words: caddisfly, aquatic insects, biodiversity, freshwater biomonitoring, national park, wildlife sanctuary

Introduction

Thailand is located in the tropical Oriental region where the density of endemic caddisfly species is high (Morse 2011). More than 900 species have been reported from Thailand, especially northern Thailand (Malicky 2010). The family Hydropsychidae is diverse, with 1,756 species presently known from all biogeographic regions and at least 120 species known in Thailand (Malicky 2010; Morse 2011). In particular, rare hydropsychid species have been reported in the national parks from northeastern Thailand. The Phetchabun Mountains are located in northern and northeastern Thailand and are the location for Phu Kradueng National Park, Nam Nao National Park, Thung Salaeng Luang National Park, Phu Hin Rong Kla National Park and Phu Khieo Wildlife Sanctuary. These protected areas include headwater streams with high diversity of endemic fauna and flora. The caddisflies species from headwater streams with high elevation such as the Phetchabun Mountains are poorly reported.

Thailand is experiencing rapid development and water pollution problems are a consequence of that development. Larvae of caddisflies are an important component of biomonitoring and water assessment programs and have been studied throughout northeastern Thailand. Caddisfly larvae are used widely in freshwater biomonitoring because of their great abundance and the wide range of pollution tolerances among their species. Research on larvae is limited, however, due to the inability to identify larvae to the species level (Sangpradub & Boonsoong 2006, Zhou et al. 2007, Geraci et al. 2010, Geraci et al. 2011). Describing the aquatic insect fauna is an important step toward establishing biomonitoring protocols (Geraci & Morse 2008).

In this work, we investigated the caddisfly fauna in the Phetchabun Mountains. This study describes and illustrates five new species of the genus *Cheumatopsyche* from two national parks and a wildlife sanctuary. Describing hydropsychid species is important for studying diversity and distribution, but research is necessary also to associate larvae and adults and provide descriptions of the larvae for use in freshwater biomonitoring programs to detect pollution.