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Larvae of *Amphipsyche* species (Trichoptera: Hydropsychidae) from Thailand

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Abstract

Morphological characters and scanning electron microscope images of the larvae of *Amphipsyche meridiana* and *A. gratiosa* are given. Pupal identifications are based on genitalic features in common with described adults, and larvae were associated with the pupae based on residual larval sclerites captured in the pupal case. Herein, the final larval instar is described, diagnosed, and photographed for each species.

Key words: description, *Amphipsyche meridiana*, *Amphipsyche gratiosa*, morphology, scanning electron microscope

Introduction

Various studies (Dohet 2002; Lenat & Resh 2001; Resh 1992) have noted that the need for diagnostic keys to identify immature stages of caddisflies has become increasingly important with regard to understanding their potential as water quality indicators. Larval association and descriptions of species of Hydropsychidae have been improved and made available over the last few decades. Although much greater progress is still needed, larval descriptions are indeed available for species of this group, including some from the poorly understood fauna, such as that of Southeast Asia (e.g., Thamsenanupap *et al.* 2005; Prommi *et al.* 2006a, 2006b, 2006c; Zhou 2009). Studies on caddisfly larval taxonomy are not only important for the realization of their potential as water quality indicator organisms, but are also vital for a number of other reasons. Firstly, such studies may be used as a starting point from which natural history and a wide spectrum of ecological investigations may be based. Any such studies hinge on correct species determination. Secondly and most importantly, from the trichopterologist's point of view, such studies give a new dimension of characteristics (the larva) from which diagnostic and phylogenetic data may be gleaned. Knowledge of the immature stages may enable a greater understanding of the systematics and phylogenetic relationships within Trichoptera. Ultimately, these may give rise to a better understanding of the entire order Trichoptera (Schuster & Etnier 1978).

Studies on Thai caddisflies have been confined mainly to descriptions of the adult stage, and relatively few larvae have been characterized adequately. Descriptions of several Thai caddisfly larvae were given in papers by Malicky & Chantaramongkol (1991; *Trichomacronema paniae* Malicky & Chantaramongkol 1991), Malicky (1999; *Ugandatrichia maliwan* Malicky & Chantaramongkol 1991), and Thamsenanupap *et al.* (2005; *Arctopsyche hynreck* Malicky & Chantaramongkol 1991; *Arctopsyche variabilis* Schmid 1968; *Eoneureclipsis* sp.; *Psilotreta trimeresuri* (Malicky 1989), as *Inthanopsyche trimeresuri* Malicky 1989; *Himalopsyche acharai* Malicky & Chantaramongkol 1989). The diversity of Trichoptera larvae was first studied in Doi Suthep-Pui by Silalom (2001). This work attempted to identify caddisfly specimens to the most refined possible taxonomic level, namely to morphospecies-group in *Chimarra*, but to family level in most taxa. Descriptions of additional hydropsychid larvae were recently published, including those by Prommi *et al.* (2006a; *Hydatomanicus adonis* Malicky & Chantaramongkol 1996, and *Hydatomanicus klanklini* Malicky & Chantaramongkol 1993); Prommi *et al.* (2006b; *Pseudoleptonema quinquefasciatum* Martynov 1935 and *Pseudoleptonema supalak* Malicky & Chantaramongkol 1998), Prommi *et al.* (2006c; *Potamyia phaidra* Malicky & Chantaramongkol 1997), and Laudee (2008; *Ugandatrichia* spp.) .