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Diversity and Structure of Trichoptera Communities and Water Quality Variables in Streams, Northern Thailand

Authors : T. Prommi, P. Thamsenanupap

Abstract : The influence of physicochemical water quality parameters on the abundance and diversity of caddisfly larvae was studied in seven sampling stations in Mae Tao and Mae Ku watersheds, Mae Sot District, Tak Province, northern Thailand. The streams: MK2 and MK8 as reference site, and impacted streams (MT1-MT5) were sampled bi-monthly during July 2011 to May 2012. A total of 4,584 individual of caddisfly larvae belonging to 10 family and 17 genera were found. The larvae of family Hydropsychidae were the most abundance, followed by Philopotamidae, Odontoceridae, and Leptoceridae, respectively. The genus Cheumatopsyche, Hydropsyche, and Chimarra were the most abundance genera in this study. Results of CCA ordination showed the total dissolved solids, sulfate, water temperature, dissolved oxygen and pH were the most important physicochemical factors to affect distribution of caddisflies communities. Changes in the caddisfly fauna may indicate changes in physicochemical factors owing to agricultural pollution, urbanization, or other human activities. Results revealed that the order Trichoptera, identified to species or genus, can be potentially used to assess environmental water quality status in freshwater ecosystems.

Keywords : Caddisfly larvae, environmental variables, diversity, streams
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