

Aquatic insect faunas and communities of a mountain stream in Sapa Highland, northern Vietnam

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Abstract: Aquatic insect communities were investigated from the Muonghoa Stream in the Sapa Highland (highest peak 3,143 m), a subtropical mountain stream in northern Vietnam. Field investigations for quantitative (Surber net 50 cm × 50 cm, mesh size 0.2 mm, riffle and pool/run) and qualitative (hand net, mesh size 1 mm) sampling were conducted at nine sites along the watercourse between 27 November and 2 December 2005. As a result, a total of 216 species (the majority of them undescribed) belonging to 139 genera, 61 families, and nine orders were recognized: 53 Ephemeroptera species (24.5%), nine Odonata species (4.2%), 15 Plecoptera species (6.9%), seven Hemiptera species (3.2%), 35 Coleoptera species (16.2%), one Megaloptera species (0.5%), 29 Diptera species (13.4%), 66 Trichoptera species (30.6%), and one Lepidoptera species (0.5%). Trichoptera, Ephemeroptera, and Coleoptera represented the major aquatic insect groups with regard to taxonomic and individual richness, whereas Hemiptera and Odonata were relatively less diverse and abundant than in studies of other tropical Southeast Asian streams. The dominance, richness, and diversity indices (H') fell within the following ranges [mean ± standard deviation (SD)]: 0.18-0.76 (0.42 ± 0.19), 4.13-9.19 (7.06 ± 1.45), and 1.61-3.22 (2.67 ± 0.55), respectively. Riffle habitats generally yielded numbers of aquatic insect species and individuals approximately twice that sampled in pool/run habitats. Shredders were relatively larger in proportion within the headwater reach, whereas scrapers and collector-gatherers were more abundant in the middle and lower stream reaches. This functional feeding group composition is characteristic of temperate streams in East Asia. The results of detrended correspondence analysis and Bray - Curtis cluster analysis indicated that aquatic insect compositions at the sampling sites were very reflective of the reach characteristics, which evidence gradual changes with altitude and stream order along the stream watercourse. This is the first comprehensive investigation of aquatic insects in highland Southeast Asian regions. ?? The Japanese Society of Limnology 2008.

Author Keywords: Aquatic insect fauna; Biodiversity; Community composition; Southeast Asia; Tropical stream

Index Keywords: biodiversity; cluster analysis; correspondence analysis; diversity index; insect; mountain stream; species diversity; species richness; species-area relationship; Asia; Eurasia; Sapa; Southeast Asia; Viet Nam; Arthropoda; Coleoptera; Diptera; Ephemeroptera; Hemiptera; Hexapoda; Lepidoptera; Megaloptera; Odonata; Plecoptera; Trichoptera

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