

Impacts of Anthropogenic Disturbances on Macroinvertebrate Communities in Streams of Catanduanes Watershed Forest Reserve, Catanduanes, Philippines and the Need for Conservation

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ABSTRACT

Macroinvertebrate communities at nine streams located in three towns (Virac, Bato, and San Miguel) spanning the Catanduanes Watershed Forest Reserve in Catanduanes, Philippines, were assessed in terms of their responses to three anthropogenic disturbances: domestic, agricultural, and quarry. Macroinvertebrate sampling was done using a 1m² bottom kick net. A total of 62 macroinvertebrate taxa distributed to 53 Families were identified. Insect orders Ephemeroptera, Trichoptera, and Plecoptera which are known indicators of good water quality, were relatively abundant in most streams compared to other groups. Macroinvertebrate density and richness in relatively undisturbed stations were significantly higher ($p < 0.05$) than those recorded in streams with quarrying activities, which fall in Q3 of SIGNAL 2 biplot, suggesting negative effects of quarrying. Macroinvertebrate density showed positive correlation with dissolved oxygen and stream depth, width, and velocity, and was found to increase upstream with increasing stream width. Macroinvertebrate taxa richness generated a negative correlation to stream width and temperature. Overall, most streams in Catanduanes Watershed Forest Reserve are still in good condition however, with the negative effects of anthropogenic activities, condition of streams may change without proper watershed management. This study demonstrates the need to further strengthen policies on stream management to protect and conserve them.

Key words: anthropogenic disturbance, macroinvertebrates, stream condition, watershed