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Species Diversity and Distribution of Odonata in Selected River Systems of North Cotabato, Philippines**Rampola R.B.^{1*}, Nuñez O.M.², Villanueva R.J.T.³**

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Abstract

Odonata has long been studied as an insect order that plays an important role in the balance of aquatic environment. The order represents one set of insects that is potential in indicating environmental quality. In this study, the species diversity and distribution of Odonata in selected river systems of North Cotabato, Mindanao, Philippines was assessed. Four rivers were sampled in the study: Mirasol River in Alamada and Nicaan River in Libungan which are relatively disturbed and Raradangan River in Alamada and Kimarayag River in Pigcawayan which are relatively undisturbed. Opportunistic sampling was employed through sweep netting in visual encounter surveys. The association of environmental factors to species distribution was evaluated using Canonical Correspondence Analysis (CCA). Geographic Information System (GIS) was used to create a distribution map of Odonata species in the sampling sites. Fifteen species belonging to five families were recorded of which four (26.67%) species are Philippine endemic. High species diversity ($H' = 2.13$) was recorded in Raradangan River (Site 1). Kimarayag River (Site 4) is considered high in diversity ($H' = 2.02$) next to site 1. Moreover, Sites 2, Mirasol River ($H' = 1.62$) and site 3, Nicaan River exhibited moderate diversity ($H' = 1.53$) inspite of the human disturbances. The Oriental species, *Pseudagrion p. pilidorsum* (Brauer) is the most abundant distributed in all sampling sites. The values for all the parameters (water temperature, pH, dissolved oxygen and relative humidity) in all sampling sites are within the Philippine standard of water quality. Eight species were identified to be affected by high dissolved oxygen, three species were positively affected by relative humidity, and four species were found to have tolerance to change in water temperature. GIS mapping clearly showed spatial aggregation of species within the surrounding habitat. Results indicate that Odonata appears to be associated with habitat variables.

Keywords: Endemicity, Environmental factors, Habitat assessment, Oriental species