FRESHWATER BIODIVERSITY IN THE LITTORAL ZONE OF NIKINIYAWA WEWA WITH SPECIAL REFERENCE TO ITS WATER QUALITY PARAMETERS

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Most of the tanks in the Kekirawa are heavily infested with aquatic plants, but the factors governing such massive production of aquatic macrophytes in these tanks are overlooked. Nikiniyawa wewa is one of such tanks situated within Kekirawa. No studies have been conducted to investigate whether the people in the study area use these natural resources sustainably. Therefore, this study was conducted to document the diversity and abundance of freshwater macro fauna and flora in littoral zone of Nikiniyawa wewa with special reference to its water quality parameters. The present study was carried out in three different sites near the Nikiniyawa wewa, namely polluted, moderately polluted and non-polluted site from June 2012 to November 2012. Line transects, point counts and opportunistic survey methods were used to sample fauna and flora in the study site. Physio-chemical parameters of water including temperature, pH, hardness, DO, BOD was determined monthly. Socio-economic data on utilization of wewa and problems associated with aquatic plants were collected by interviewing 50 people, using a structured questionnaire. Twenty one aquatic plant species, 38 bird species, 11 fish species, 3 amphibian species, 2 reptile species, one mammal species and 12 dragonfly species were recorded during the study. High species richness and diversity were recorded in the non-polluted site, which is more favorable for large number of plant and animal species and the least species richness and diversity were recorded in the polluted site with more anthropogenic activities. There was a significant difference ($P<0.05$) in temperature, colour, turbidity, electrical conductivity, pH, chloride content, total alkalinity, total hardness, total phosphate and sulphate among the three sites. It implies that those factors have influence in distribution of plant and animal species within the tank. Nitrate, nitrite, total iron, fluoride content had no effect on plant and animal distribution in the tank ($P> 0.05$). The diversity of fish and aquatic plants was mainly influenced by the physiochemical parameters like DO, pH, colour, electrical and chloride content and was not influenced by temperature and phosphate content. Pollutant mixing, illegal encroachment of catchment area, usage of small mesh sized illegal nets and illegal fishing methods, introduction of exotic fish species were identified as threats to the biodiversity of Nikiniyawa wewa.

Key words: Nikiniyawa wewa, littoral zone, freshwater, macro fauna, macro flora, species diversity, water quality parameters