

Investigation on biodiversity of native and introduced fish fauna with water quality characteristics in selected minor tanks of the Badulla district

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This study was focused on investigating the biodiversity of native and introduced fish species and to evaluate possible impacts of introduced fish on native fish in minor tanks of the Badulla district. Two minor tanks, Ballawidda Wewa and Mapakada Wewa, were selected and the main sites were subdivided into different sub-sites considering different environmental characteristics for sampling. Sample collection was carried out monthly using a repeated measures approach from each sub-site, during May to November 2016. Gill nets, cast nets, and scoop nets were used to catch fish samples, while collected water samples were preserved to analyze DO, BOD, chlorophyll content and pH in the laboratory. Sample analysis was done using *in situ* and *ex situ* methods. A total of 19 species (12 native and 7 introduced) were recorded from the two tanks, belonging to nine families. The order Cypriniformes in Family Cyprinidae was dominant, with nine fish species including native and introduced fish. Shannon-Weiner Indices of native and introduced fish diversity in Ballawidda Wewa were 1.22 and 1.03 respectively, while 1.05 and 1.11 were recorded for native and introduced fish respectively in Mapakada Wewa. Statistical analysis of diversity indices have identified a significant negative Pearson correlation between native species and introduced species for both the Ballawidda Wewa (-0.852) and Mapakada Wewa (-0.982) site ($p < 0.05$), indicating possible negative impacts on native fish communities by introduced fish species. However, detailed investigations are recommended to understand the niche-overlapping pattern between native and introduced fish groups. Environmental conditions with respect to physico-chemical parameters of water have confirmed that those tanks have suitable habitat characteristics for the survival of fish species (DO >6 mg/L, pH: 6.0 – 8.5). These scientific data would be useful as reference/baseline data in future biodiversity monitoring programs in the minor tanks of the Uva Province.

Key Words: Native fish, introduced fish, diversity index, correlation, Cypriniformes.