

## **An overview of the biodiversity of Village Tank Cascade Systems (VTCS): A case study in Kapiriggama VTCS**

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### **Abstract**

Village Tank Cascade Systems (VTCS) are anthropogenic wetland ecosystems used by dry zone inhabitants of Sri Lanka since 3-4 B.C. These tanks are not independent units, they are interconnected with each other by natural drainage. Biological aspect of VTCS and their ecological importance as an integral component of the VTCS are poorly documented. The study area which is located in Rambewa Divisional Secretariat Division, in the Anuradhapura district consisting of 22 small and medium-sized tanks collectively feeding 522ha of paddy. The main objective of this study was to document the biological aspects of Kapiriggama VTCS in order to facilitate ongoing cascade restoration work. The diversity of different habitat types, higher plants, all groups of vertebrates and selected invertebrate taxa were identified, and documented. Primary data was collected through rapid biodiversity assessment methods by using 50mx10m belt transects. Tanks and their proximate habitats including both natural as well as managed habitats including *Gasgommana* (catchment forest), *Kattakaduwa* (swamp forest at the dam toe), littoral vegetation (peripheral shallow tank bed area), tank bund vegetation, and open water zone were investigated. Paddy, home gardens and chena cultivations are the agricultural areas of the VTCS. Dry mixed evergreen forests and scrublands are natural/semi natural components of the cascade systems. It is observed that the species diversity as well as the structure of each habitat differ considerably influencing their biotic and abiotic factors. The floristic survey revealed the presence of 347 plant species belonging to 84 families which included nine endemic, three endangered and 22 vulnerable species. Overall, a total of 285 faunal species including 24 endemics were recorded. This includes seven land snails; 20 dragonfly species; 46 butterfly species; one freshwater crab; 25 freshwater fish; 13 amphibians; 26 reptiles; 118 birds and 29 species of mammals. All documented habitat types and their native species diversity are well connected with each other creating a self-sustaining semi natural ecosystem. Disturbing or destruction of one element of this system may lead to a collapse of the entire system. Therefore, ecosystem based approach is recommended to manage and restore VTCS to obtain their service in sustainable manner.

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