

# AQUATIC PLANT DIVERSITY IN A SEASONAL TANK DURING DRY SEASON: A CASE STUDY IN POLAGEWILLA TANK IN PALANKULAM CASCADE, ANURADHAPURA, SRI LANKA

K.M.H. Piumal<sup>#</sup>, K.G.S. Chathurangani, K.G.S. Nirmanee,  
N. Geekiyanage, W.C.P. Egodawatta, and R.H.G.R. Wathsala\*

Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura,  
Sri Lanka

\*Correspondence E-mail: wathsala@agri.rjt.ac.lk, Phone: +94701747491

<sup>#</sup>Presenting Author

**Abstract:** Small seasonal tanks with the tank cascade systems of Sri Lanka are highly threatened by anthropogenic disturbances. The aquatic plant diversity within Polagawilla seasonal tank during the dry season was estimated. Concentric line transects extending from the tank bund up to the inundation area during the dry season were drawn in a digital topographic map. Along these transects, three sub-divisions were made: lower, middle, and upper, from which quadrat sampling was done to cover 10% of the total area. The land area that would be inundated during the rainy season was also sampled following the same method. The Shannon Weiner index (H), and Jaccard index (SJ) were calculated and compared between the lower, middle, and upper areas. The overall diversity (H 1.08), the center locale of the tank represented a diversified aquatic population. The lower and upper sections follow H 0.84 and H 0.71 respectively exhibiting lower diversity. The similarity between the three sections of the tanks was less than 50%, indicating each of the two sections showed few similarities. The overall tank encompassed 12 distinct taxa from 10 families, including 25% exotic species and 67% native species. *Salvinia molesta* and *Ceratophyllum echinatum* are the most abundant species in the three areas of the tank. Endemic *Cryptocoryne beckettii* was observed in the middle section of the tank. The inundated area during the rainy season of that tank showed less diversity (H 0.29), of which 70% of the area was dominated by *Paspalum vaginatum*, a perennial weed while 15% was covered by *Persicaria attenuata*. Severe grazing due to livestock rearing and cultivation within Thaula in the catchment area has severely affected the ecosystem.

**Keywords:** Diversity; Dry spell; Seasonal tank; Similarity; Tank zones