ECOLOGICAL CONSEQUENCES OF REALLOCATING LANDS FOR ANTHROPOGENIC ACTIVITIES FROM A LONG-ABANDONED TANK CASCADE

W.C.P. Egodawatta[1*#], M.P.T. Wijewickrama[1], R.H.G.R. Wathsala[1], W.A.D. Nayananjalie[1], M. Ranagalage[2], N.S. Abeysinghe[1], and M.G.T.S. Amarasekara[1]

[1] Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka

[2] Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale, Sri Lanka

**Correspondence E-mail: egowcp@agri.rjt.ac.lk, Phone: +94718010883*

 # Presenting Author

Abstract: Years of civil war and unsupportive infrastructure forced most of the cascade systems in the northern regions of Sri Lanka to be abandoned for decades. Absence of anthropogenic activities, chiefly agriculture, let these regions to flourish towards late pioneer to climax successional state, and reestablish as a secondary forest landscape. The objective of this study was to identify ecological impact of human settlement plans with a crop-animal based agroecosystem in a late successional landscape in a tank cascade. The study area was located in the upper catchment of Padaviya tank cascade system bordering the Northern Province. A Visual Encounter Survey was conducted for identifying ecological resources, floristic and faunal richness and vegetation/habitat types and a bio-diversity survey was carried out by opportunistic and randomized walks within the area. The flora species were recorded against their habitats. Vertebrate fauna species of mammals, reptiles, birds, and amphibians were recorded separately, while some visible invertebrate groups were recorded based on both direct and indirect evidence. The majority of the vegetation belongs to secondary forests, tropical dry mixed evergreen forests, tropical scrubs, and rock-out crops. The vegetation comprised with 187 floral species, while 157 were found to be native and eight were identified as endemic. Within the region, 20 threatened or nearly threatened species were observed, and the 20 exotic species found uncovered the footprints of past anthropogenic activities. *Diospyros nummulariifolia*, *Cryptcoryne wendtii* and *Polyalthia suberosa* were exclusively found within the region. Recorded faunal species number was 126 with 22 mammal species, which included eight threatened or nearly threatened mammal species. The habitat stretched over 500 hectares, thus human settlements would inevitably lead to loss of forest cover and faunal habitats, depletion of threatened and endemic species, interference to migratory pathways including elephants, soil erosion, water pollution leading to human-elephant conflict.

Keywords: Endemic; Faunal richness; Floral species; Human-elephant conflict; Threatened and nearly threatened