16th Annual Research Symposium Proceedings

Faculty of Agriculture
Rajarata University of Sri Lanka

2024

DIVERSITY OF POACEAE FLORA IN *ENDANE* BIODIVERSITY CORRIDOR IN SOUTHWESTERN SRI LANKA

K.T. Weerarathna[1], H.D. Jayasinghe[2], A. Perera[3], M.M.G.I.N.M.B. Madawala[3], I.M.S.S. Karunarathne[1], P.N.K. Fernando[1] and N. Geekiyanage[1]

[1]Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.
[2]Plant Taxonomy and Conservation, National Institute of Fundamental Studies, Kandy, Sri Lanka.
[3]Endane Field Research Station, Dilmah Conservation, Dilmah Ceylon Tea (Pvt) Ltd, Nivithigala, Sri Lanka.

Despite the high biodiversity among lowland rainforests of Sri Lanka, assessment of Poaceae flora remains limited. The diversity of Poaceae flora in *Endane* Biodiversity Corridor within the Sinharaja forest landscape was assessed. This landscape features various habitats including scrub, woodlands, marginal tea, *Fillicium* vegetation, *Calliandra* vegetation, riverine and home gardens that differ in successional stage, elevation, dominant species, canopy openness, and light and soil conditions. In addition to recording of soil pH, electrical conductivity (EC), elevation and photosynthetic photon flux density (PPFD) of the habitats, the Shannon diversity, richness and evenness indices for Poaceae flora among those habitats were assessed using 5×5 m quadrats with field and herbarium identification of voucher specimens. The abundance and Poaceae ground cover were best explained by the PPFD ($p<0.001$) in linear mixed model analysis. Although soil pH, EC and elevation differed among habitats, these were not significantly contributed to the diversity parameters. Tukey's test was used to compare means and low-shade home gardens exhibited the highest Shannon diversity whereas *Fillicium* vegetation recorded the lowest ($p<0.01$). Among the 43 species identified, there were 21 exotics, 20 natives and two endemics. According to the IUCN, the conservation status of these species were: Not Evaluated (22), Near Threatened (2), Least Concern (15), Endangered (2) and Vulnerable (2). The two endangered species were reported from riverine habitats and low-shade home gardens. These species were *Digitaria fuscescens* and *Dimeria ballardii. Megathyrsus maximus*, the invasive guinea grass dominated the Poaceae community across the entire landscape. The most common Poaceae genus was *Digitaria,* with four recorded species. These results contribute to the conservation of threatened Poaceae and other flora in *Endane* Biodiversity Corridor.

Keywords: Evenness index, Grass, Photosynthetic photon flux density, Richness index, Shannon diversity index