

STAND CHARACTERISTICS AND TREE SPECIES DISTRIBUTION ALONG A MICROTOPOGRAPHIC GRADIENT IN A LOWLAND RAINFOREST LANDSCAPE IN SOUTHWEST SRI LANKA

**B.G.D. Thilanga¹, N. Geekiyanage¹, M.M.G.I.N.M.B. Madawala², A.
Perera² and S. Nanayakkara²**

¹*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka.*

²*Dilmah Conservation, Dilmah Ceylon Tea Company PLC, Negombo Road, Peliyagoda, Sri Lanka.*

The lowland rainforest in southwest Sri Lanka has highly diverse micro-habitat heterogeneity. These habitats are imperative for many endemic and threatened tree species to thrive. Natural and anthropogenic reasons contribute to the degradation of tropical lowland rainforests. In this study, plant species composition, diversity, and variance of stand structure along the elevation gradient by selecting five habitats within Endane Biodiversity Corridor of Southwest Sri Lanka were evaluated. A total of six transect lines (150 m x 5 m) and 45 plots (20 m x 20 m) were sampled. Vegetation data including canopy cover, abundance, diameter at breast height ≤ 5 cm (dbh), and stand density were compared using linear mixed effect model. Results revealed a significant difference in canopy cover closeness with variance of structural heterogeneity among the habitats ($p < 0.05$). According to the cumulative diameter class frequency distribution, higher stand density was distributed under 5-14 cm dbh class among the habitats. Moreover, high stand density was represented in *Walankanda* forest. The abundance of *Mesua ferrea* increased along the elevation gradient. Findings contribute to advance the knowledge on forest stand characteristics and species distribution patterns with micro-topography gradient. These results inform the ongoing forest restoration activities through characterization of forest stand structure for matching species to sites.

Keywords: Forest degradation, Micro-topography, Natural regeneration, Stand structure