



The Spread, Density and Associated Plant Species of *Leucaena leucocephala* (Lam.) de Wit in an Accelerated Natural Regeneration Mangrove Site at Anawilundawa Sanctuary, Sri Lanka

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Invasive plants are a major challenge in mangrove restoration because they alter vegetation structure and reduce native biodiversity. This study aimed to provide baseline data on the distribution, density, and ecological associations of the invasive species *Leucaena leucocephala* in the Accelerated Natural Regeneration of Mangroves (ANRM) site at Anawilundawa Sanctuary, Sri Lanka. Field sampling was conducted from September 2025 to February 2026 using stratified sampling based on four canopy cover levels: high, moderate, low, and none. A total of 51 transects, each 1 m wide and of varying lengths, were established along pond dykes and divided into five zones. Data were collected on plant density, diameter at breast height (DBH), canopy height, salinity, associated plant species, and faunal observations. Species diversity was assessed using Shannon-Wiener, Margalef's Species Richness, and Dominance indices, while statistical comparisons were performed using ANOVA. Results showed no statistically significant difference in *L. leucocephala* density between areas with high (± 1.75) and moderate (± 2.12) canopy cover. Small and medium plant densities differed significantly between high- and low-canopy-cover areas ($p < 0.05$), while seedling densities did not differ among strata ($p > 0.05$). The species tended to occupy dyke tops at higher densities, reaching 53 plants m⁻² ($p < 0.05$), although soil salinity varied only slightly (0.0-1.6 ppm). Species diversity was higher in low-density plots than in high-density plots, indicating that severe invasion may reduce native plant diversity. Native plant species coexisted with *L. leucocephala*, while faunal activity, recorded through direct observations and footprints, suggested that the site still provided habitat value. Therefore, this study highlights the need for appropriate *L. leucocephala* management to support mangrove restoration, maintain native biodiversity, and protect ANRM site functions.

Keywords: Biodiversity, Density distribution, Invasive species, Mangrove restoration, *Leucaena leucocephala*