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### Comprehensive vegetation analysis and floristic communities in Walawwewaththa Waturana swamp forest

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Walawwewaththa Waturana swamp forest in Bulathsinhala is the only remaining fresh water swamp forest in Sri Lanka. This forest contains a rich floristic diversity and provides the habitat for two point endemic tree species; *Stemonoporus moonii* and *Mesua stylosa*. The objective of this study was to determine the floristic diversity and structure of the Waturana swamp forest. Sampling was carried out in 15 randomly placed plots, each 20 × 20 m<sup>2</sup>. Within each plot, diameter at breast height of all individual trees (dbh > 10 cm) was measured. In each main plot four 5 × 5 m<sup>2</sup> sub plots were demarcated to enumerate the understorey species and four 1 × 1 m<sup>2</sup> subplots to enumerate number of individuals in the ground layer. A line transect of 140 m was laid out to produce the profile diagram. Floristic diversity of the tree, understorey and ground layers were determined separately by calculating the species richness, relative density, relative frequency, relative basal area, important value index (IVI), ecological indices and identifying conservation status. Cluster analysis was used to determine the floristic communities.

In the present study, a total of 141 plant species belonging to 98 genera and 51 plant families were identified. The tree layer contained 67 species in 48 genera of 29 plant families. The understorey layer comprised 114 species belonging to 81 genera of 44 plant families while 66 plant species in 55 genera of 34 families were recorded in the ground layer. Of the total species 51% was endemic to Sri Lanka. Based on IVI, *Mallotus fuscescens* was recorded as the most dominant species in the tree layer. *Quessia indica* and *Humboldtia laurifolia* were the dominant plant species in understorey and ground layers respectively. Euphorbiaceae, Dipterocarpaceae and Calophyllaceae were the three most abundant plant families in Waturana swamp forest. Margalefs' index value and Shannon index value of the tree, understorey and ground layers were 10.97, 14.83, 10.42 and 3.325, 3.795, 3.207 respectively. Dominance following Simpson index and evenness values of the tree, understorey and ground layers was 0.08276, 0.03535, 0.07356 and 0.4149, 0.39, 0.3744 respectively. Cluster analysis identified two distinct floristic communities based on species abundance. Community 1 in small hillocks represents the *Dipreocarpus-Myristica* community while community 2 in inundated areas of the forest represents the *Mallotus- Mesua- Vatica* community.

Keywords: Waturana, swamp forest, floristic diversity, communities