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Revealing the Outstanding Floristic Value of Hatton-Nallathanniya Area of the Adam's Peak Wilderness, Sri Lanka**Gamhewa. H.^{1*}, Kathriarachchi H.¹, Attanayake A.²**¹*Department of Plant Sciences, University of Colombo, Colombo 03, Sri Lanka*²*Department of National Botanic Gardens, Royal Botanic Gardens, Peradeniya, Sri Lanka***hasankitg@gmail.com***Abstract**

Adam's Peak Wilderness is one of the three UNESCO world heritage sites in Sri Lanka having an enormous floral diversity. Scientific investigation of the floristic wealth of the Hatton-Nallathanniya area is a crucial prerequisite for its protection, conservation, and management as the most popular Sri Pada (Adam's Peak) route; Hatton-Nallathanniya trail, which is subjected to continuous disturbances, lies through this area. Field survey was carried out from August to October, 2018 within an altitudinal range of 1224-1952 m in the Hatton-Nallathanniya area to achieve the following objectives; (1) to prepare an inventory and explore the floristic richness, (2) to study the relationship between altitude and endemic species, (3) to determine beta diversity (β) between sub-montane and upper-montane forest formations. The stratified random sampling method was used as the primary sampling method, while opportunistic sampling was also performed to get a superior representation of flora in the area. A total of 35 plots, each 10x10 m (0.55 ha) were sampled to enumerate tree and understory layers. The ground layer was sampled in four 1x1 m plots, randomly located within each of the 10x10 m plots. Objectives 2 and 3 were achieved only through plot data. To exhibit the altitudinal distribution pattern of endemic and non-endemic species, boxplots were obtained using R version 3.4.1 software, and Pearson's correlation coefficient was used to ascertain the relationship between altitude and endemic species at 5% significance level. Jaccard similarity index (SJ) and Sorensen similarity index (Ss) were used to calculate β diversity between sub-montane and upper-montane forest formations. Based on the results, the number of plant species found either in the plots or in the general collection was 235, representing 135 genera and 55 families. Out of the total recorded plant species, 112 (48%) were endemic. A total of 107 (45%) plant species were nationally threatened, and 27 (11%) of the total species were globally threatened. Among the 112 endemic species, 68 (56%) species were listed as nationally threatened. The obtained p-value and Pearson's correlation coefficient (r) were 0.04 and 0.4 accordingly, which indicates a moderate positive correlation between altitude and endemic plant species. SJ and Ss values were 0.29 and 0.45, respectively. Low similarity and high β diversity highlight the heterogeneity between two forest communities. Our findings provide insights for the effective conservation management and further protect the critical habitats of this fragile, biologically diverse ecosystem.

Keywords: Adam's Peak Wilderness, Floristic richness, β Diversity, Endemic species, Altitude