

**Preliminary Study on Floral Distribution, Abundance and Diversity of Mangroves in Vankalai, North-west Coast of Sri Lanka****Madhushani K.G.S<sup>1,2\*</sup>**<sup>1</sup>*Department of Bioscience, University of Vavuniya, Vavuniya, Sri Lanka*<sup>2</sup>*Post Graduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka*\**sanjeewanimadhushani@gmail.com***Abstract**

Sri Lanka harbors a remarkable amount of mangrove habitats. Northern Province shares about 16% of the total mangrove extent of the country. Vankalai consists of several ecosystems which range from arid-zone thorn scrubland, arid-zone pastures and maritime grasslands, sand dunes, mangroves, salt marshes, lagoons, tidal flats, sea-grass beds and shallow marine areas. Due to the integrated nature of shallow wetland and terrestrial coastal habitats, this sanctuary is highly productive, supporting high ecosystem and species diversity. The research was aimed to identify the distribution, abundance and diversity of mangroves in Vankalai of the Northern Province, Sri Lanka. Ten 25m wide belt transects with 10m intervals were randomly arranged in the small patch of mangrove vegetation perpendicular to the 350m of shoreline across the water-land gradient. Each transect was divided into five 5m x 5m subplots for convenience of sampling. True mangrove species in each transect were identified and counted. The quantitative data has been used to compute the Shannon diversity index (H), Simpson Index (D) and Shannon Evenness (E), which were used to compare the diversity of the study sites. Ten different mangrove species including *Avicennia marina* (n=115), *Avicennia officinalis* (n=73), *Rhizophora apiculata* (n=33), *Rhizophora mucronata* (n=102), *Sonneratia alba* (n=3), *Pemphis acidula* (n=4), *Excoecaria agallocha* (n=40), *Lumnitzera racemosa* (n=91), *Bruguiera cylindrical* (n=97), *Ceriops tagal* (n=31) were identified and they were belonging to five families; Avicenniaceae (n=2), Rhizophoraceae (n=5), Lythraceae (n=1), Euphorbiaceae (n=1) and Combretaceae (n=1). Further, based on the IUCN status, two mangrove species (*Sonneratia alba* and *Bruguiera cylindrical*) were identified as endangered species. The highest Shannon diversity index (H=2.21) and the lowest Simpson index value (D=0.14) were observed in the transects of point 1 due to minimal disturbances. The least Shannon diversity index and evenness were recorded in the point 5 as 1.65 and 0.85 respectively at the point 5 since fishing and tourism activities take place in the proximity of this place. The Shannon diversity index varied at the points of 1 (H=2.21) > 2 (H=2.10) > 3 (H=1.89) > 4 (H=1.84) > 5 (H=1.65) whereas Simpson index value were varied at the points of 1 (D=0.14) < 2 (D=0.17) < 3,4 (D=0.18) < 5 (D=0.19) respectively. Pollution and human interaction would have degraded the environmental quality of the mangrove habitats. Based on the observations it was found that the extent of disturbances was minimum at the points of 1 and 2 whereas anthropogenic influence was increased at the points of 3 < 4 < 5 respectively. Further, use of mangrove poles and sticks to build fish baits and fishing rods by the anglers could possibly destroy these small patches of mangroves. Hence, actions should be taken for conservation of existing patch and replenishment of new mangroves.

**Keywords:** Mangroves, Diversity, Shannon Diversity Index (H), Simpson Index (D) and Shannon Evenness (E)