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Floral Diversity in the Manalkaadu Sand Dune, Jaffna, Sri Lanka

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Abstract

Coastal sand dunes are one of the most important ecosystems in the coastal areas. These dune ecosystems are sensitive and breakable ecosystems which are habitable to different varieties of specific floral species. The present study was conducted to assess the floral status of the Manalkaadu sand dunes, which is spread from Katkovalam to Aliyawalai (approximately 46 km in length) in Jaffna Peninsula from September 2022 to September 2023. The study area was divided into nine sites, namely Katkowalam (A), Manalkaadu (B), Kudathanai (C), Ampan (D), Nagarkovil (E), Mamunai (F), Chempianpattu (G), Thalayadi (H) and Aliyawalai (I) and 50×5 m belt transects were used to obtained data (5 belt transects for each site, covering 50 m from the shoreline to landward side). Floral identification was done using available keys and guides of Sri Lanka. A total of 110 species of dune flora belonging to 94 genera and 49 families were identified. The highest number of species belonged to the family Fabaceae. Studied dune flora consisted of variety of vegetation types including, herbs, shrubs, trees, creepers and climbers, the herbs were the most abundant floral type which was about 70% and climbers were the least present vegetation type which was about 3%. The Shannon Wiener diversity index, species richness and evenness were also calculated. The Shannon-Wiener diversity indices (H) from site A to I were 1.72, 1.51, 2.07, 2.43, 1.86, 1.31, 1.33, 1.23 and 1.75 respectively, while species richness was ranged from 3 to 28. The evenness was ranged from 0.59 to 0.80. Highest Shannon Wiener diversity and the highest species richness were found at site D. According to the National Red list of Sri Lanka 2020, from the identified 110 species, three species are critically endangered, four species are endangered, three species are vulnerable, seven species are nearly threatened, and two species fall under the data deficient categories. Since the dune ecosystems create a variety of mixed environments, which are important for maintaining and creating food webs, for the dune dwelling species, protection of these delicate ecosystems from habitat destruction is recommended in order to protect their inherent biodiversity and ecological functions.

Keywords: Coastal ecosystem, Dune flora, Floral diversity, Sand dunes, Sri Lanka