

NDVI BASED LAND COVER CHANGES ANALYSIS OF FIVE VILLUS IN WILPATTU NATIONAL PARK FROM 2019 TO 2022

R. D. T Rajapaksha^a, D.D.G.L. Dahanayaka^b, U.K.G.K. Padmalal^b,
W.M.D.N. Wijeyaratne^{a*}

^a*Department of Zoology and Environmental Management, Faculty of Science,
University of Kelaniya, Sri Lanka.*

^b*Department of Zoology, Faculty of Natural Science,
The Open University, Sri Lanka.*

**dimuthu.wijeratne@kln.ac.lk*

Abstract

National parks could be considered as the heart of a country's bio network. This study attempts to identify and analyze the changes of water area and vegetation in and around selected Villus in the Wilpattu national park of Sri Lanka. The utilization of remote sensing satellites and techniques has provided a reliable and near real time possibilities to characterize terrestrial ecosystem properties. In this study a series of sentinel 2 imagery, ranging from the year 2019 to 2022 were used for the analysis. Vegetation indices of Normalize Difference Vegetation Index (NDVI) was used to separately extract the surface water area, sand and soil area, shrub and grassland, sparse vegetation and dense vegetation respectively. The study reported a similar pattern of water and vegetation area changes throughout year. High percentages of water area (Borupan Wila villu – 0.58%, Kumbuk Wila villu – 0.99%, Lunu Wila villu – 3.43%, Mahapatessa Wila villu – 4.39%, Kokkare Wila Villu – 11.67%) were observed in January to February from 2019 to 2022. Highest area percentages of dense vegetation (Borupan Wila villu – 89.14%, Kumbuk Wila villu – 89.16%, Lunu Wila villu – 86.35%, Mahapatessa Wila villu – 84.83%, Kokkare Wila Villu – 75.89%) were observed in July to August while showing lowest area percentages of dense vegetation (Borupan Wila villu – 29.41%, Kumbuk Wila villu – 25.28%, Lunu Wila villu – 21.59%, Mahapatessa Wila villu – 20.70%, Kokkare Wila Villu – 27,70%) between March to April from 2019 to 2022. This study concluded that high percentages of sparse vegetation area at inter-monsoon. Accumulation of precipitation may have been a reason for increase of sparse vegetation during the monsoon period.

Keywords: *NDVI, vegetation cover, water area*