

**DETECTING TRENDS IN FOREST DISTURBANCE AND RECOVERY USING LANDSAT TIME SERIES OF HORTON PLAIN NATIONAL PARK, SRI LANKA**

**T. Lakkana<sup>1</sup>, M. Ashton<sup>2</sup>, G.A.D. Perera<sup>3</sup> and S. Ediriweera<sup>1\*</sup>**

<sup>1</sup>*Department of Sciences and Technology, Faculty of Applied Sciences, Uva Wellassa University, Badulla, Sri Lanka.*

<sup>2</sup>*Yale School of Forestry and Environmental Studies, New Haven, USA*

<sup>3</sup>*Department of Botany, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka*  
*\*ediriweera2007@gmail.com*

Changes of vegetation cover over a landscape are important for sustainable management of forest landscapes. Remote sensing is a powerful tool for investigating variation in forest cover beyond traditional field surveys. This study aims to examine gradual changes occurring throughout a range of natural ecosystems (tropical montane cloud forest and *wet patana* grassland) in Horton Plains National Park (HPNP) using thirty years of Landsat Thematic Mapper (LTM), Enhanced Thematic Mapper Plus (ETM+) and Operational Land Imager (OLI) time series data. Normalized Difference Vegetation Index (NDVI) time series data stack was generated using the Landsat images from 1988 to 2019 for the HPNP. Through analyses of time series data, the results of this study indicated that gradual systematic change in forest and grassland communities in the HPNP. The greenness of montane forest areas (by means of NDVI) in the HPNP is showing slow changes after the sever canopy dieback, but very few forest patches are showing evidence of improvement at a high rate or increased greenness. During the period from 2005 to 2019, forest covered area (collectively both disturbed and undisturbed) in the HPNP showed progressive increase from 2,285.4 ha (73.7%) to 2,493.4 ha (80.2%). *Wet Patana* grassland covered area showed decrease from 653.4 ha (21%) to 481.2 ha (15.4%) due to colonization of early successional tree species. The change in marshland land cover area highly fluctuates and depends on seasonal and climatic conditions. Analyses of time series data using many scenes and covering multiple years are required to develop better impressions and representations of the changing ecosystem patterns and trends that are occurring in the HPNP. This information and maps will be very valuable for forest managers and other decision-makers at different levels, providing early warning on potential risk areas.

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