

**LAND USE AND LAND COVER CHANGE AND ECOSYSTEM SERVICES OF
HORAGOLLA NATIONAL PARK, SRI LANKA**

H.D.S.C. Jayarathna¹, D. Wickramasinghe¹, G. Dharmarathne¹ and S. Woroniecki^{2*}

¹*Department of Zoology and Environment Science, University of Colombo, Colombo, Sri Lanka*

²*Linköping University, Sweden*

**shermilaresearch@gmail.com*

Many natural habitats in urban areas are under anthropogenic pressure. Protected areas (PA) are no exceptions in the long run. Changes in Land Use and Land Cover (LULC) often affect Ecosystem Services (ESs) provided by PAs. This study attempted to investigate the impacts of changing LULC from 2000-2020 on ESs in Horagolla National Park (HNP) in the Gampaha District, where human activities are increasingly evident. LULC analysis was performed in and around (4 km buffer zone) Horagolla NP using Remote Sensing (RS) and Geographical Information System (GIS) approach. A questionnaire survey was carried out using 75 households to obtain their perception. A total of 22 prominent ESs (10 provisioning, 10 cultural ESs, and 2 supporting services) are currently provided by the HNP. According to Principal Component Analysis (PCA), the provision of fresh water, fresh air, recreation, and education were the prominent ESs. Vegetation around the HNP has declined by 18.9%, and paddy field area (16.8%) and built-up area (1.7%) have increased by 2020. The most prominent conversions of land use were the conversion of vegetation to built-up areas (5.1%) and paddy fields (18.7%). Over the two decades, the provision of food and firewood has declined while the opportunities for recreation and educational activities have increased. This study reveals ESs provided by PAs could change due to LULC changes and highlights the importance of developing novel approaches to manage PAs and their surrounding lands for future use. This study is significant in policy implications as the understanding of ESs impacts how natural forests are utilized and, thus, management strategies of forest ecosystems.

Financial assistance from the Department of Zoology and Environment Science of the University of Colombo is acknowledged.

Keywords: Ecosystem services, GIS, Land use and land cover change, Protected areas, Public perceptions