Drivers of Land Use Land Cover Changes in Wilpattu National Park and the Surrounding Area

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Monitoring Land Use Land Cover (LULC) changes in protected areas is essential for assessing ecosystem health, guiding conservation strategies, and ensuring the effectiveness of protected area management in mitigating environmental degradation and biodiversity loss. The objective of this study is to evaluate LULC changes in and around Wilpattu National Park (WNP) using Landsat 5 and 8 images (year 2000-2021) using the GIS (ArcMap), while considering local perceptions of influencing factors using a community survey. The LULC changes indicate that the extent of waterbodies (0.6% of total WNP area) underwent a slight reduction (0.2%) from 2000 to 2010, and a slight increase (0.4%) from 2010 to 2021. Thick vegetation decreased in extent from 70% in 2000 to 65% in 2021. Other vegetation increased in extent from 23% in 2000 to 30% in 2021. Settlement areas expanded marginally in extent from 1% in 2000 to 2% in 2021. Open areas increased in extent from 0.2% in 2000 to 0.4% in 2021. Open sand areas decreased from 5.1% in 2000 to 4.7% in 2010, followed by a decline in extent to 2% in 2021. A questionnaire survey was conducted in 251 households across 16 nearby villages, revealed that farming, agriculture, timber harvesting, and settlements are perceived to be the main drivers of LULC changes while landfilling, natural causes, and garbage dumping were perceived to be the least influential. Chi-square testing showed significant associations (p <0.05) between several anthropogenic factors and respondents' distance from the core WNP. Additionally, 49% of respondents noted a reduction in the WNP extent during last 20 years, with 58% predicting a further decrease in the next decade, which supports the community experience in LULC changes. This study suggests considering the community perspective when proposing and implementing new policies and legislation for the WNP and buffer area while targeting sustainable development goals.

Keywords: *LULC, Wilpattu National Park, Community Perspective*