DEVELOPMENT OF A LAND SUITABILITY MAP FOR THE PROPOSED *ENDANE* BIODIVERSITY CORRIDOR, KAHAWATHTHA, SRI LANKA

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The pristine rainforests of Southwestern Sri Lanka are severely fragmented and degraded due to the expansion of plantation agriculture and human settlements. We developed a land suitability map for the proposed *Endane* biodiversity corridor that aims to connect a pheripharal forest to *Sinharaja* forest complex. The boundary of the corridor was delineated in ArcGIS software, using multispectral images obtained from a drone. Maps of flow direction, flow accumulation, streames, sub-catchments, and a digital elevation model were prepared using elevation data obtained by a Spectra mobile mapper, a portable GPS device. Land use and land cover (LULC) were classified using the drone images following ISO cluster unsupervised classification. Moreover, a soil erosion hazardous map was developed using the revised universal soil loss equation. The buffer zone map of the study area was developed based on the streames map. The digitized polygon area for the biodiversity corridor was 57.3ha. The elevation and the slope within the proposed corridor varied from 251.5m to 472.8m and from 0 to 169% respectively. Three major streamelets, three major sub-catchments, and five sub-catchments were delineated. Higher spatial variability of soil erosion rate ($0 - 0.594 \text{tha}^{-1}\text{year}^{-1}$) was estimated within the corridor. The area allocated as buffer zones was 3.5ha in the land suitability map. Moreover, 6.5ha was identified as high erosion risk areas for which active soil conservation methods are proposed. Some homegardens (2.6ha) and tea lands (1.9ha), where tree cover is low are proposed to be restored following the principles of relay floristics, enrichment planting, and assisted natural regeneration as appropriate. These interventions may support controlling soil erosion, establishing buffer zones for streams, reforestation of marginal tea lands, and enrichment of home gardens with low forest cover in the proposed corridor.

Keywords: Digital elevation model, Land suitability map, Land use land cover (LULC), Proposed Endane biodiversity corridor