

**PRELIMINARY STUDY ON FACTORS  
INFLUENCING THE MANGROVE DISTRIBUTION  
AROUND SELECTED COASTAL  
LAGOONS IN SRI LANKA**

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## ABSTRACT

Mangroves are unique and valuable ecosystems, but vulnerable to various natural and anthropogenic threats. Knowledge of the present status of these ecosystems and their distribution is a prerequisite in achieving conservation and management goals. The present study was conducted to find out whether there is a dissimilarity of mangrove distribution between different coastal sectors in Sri Lanka and the most influencing factor(s) for mangrove distribution. In this study, eight coastal lagoons representing eight coastal segments in the island were mapped using freely available Landsat satellite images for the year 2017. A supervised image classification technique in ERDAS IMAGINE 2011 was used to identify mangroves and other land use patterns in the area. From each classified map, the present mangrove extent was derived in ArcMap 10.1. Present mangrove extent of each coastal sector showed dissimilar distribution patterns. Then mangrove distribution influencing factors such as rainfall, maximum wind speed, humidity, temperature, fetch length and freshwater inflow were collected for each lagoon for the past two years. Pearson correlation of factors and the current mangrove extent showed that none of the considered individual factors are statistically significant to influence the distribution pattern and the occurrence ( $P > 0.05$ ). As these considered factors influence on flora distribution as collective rather than individually, regression analysis was conducted. Results revealed that none of the factors has collective influence over the mangrove distribution ( $P > 0.05$ ). Hence, the present study arrives at the conclusion that the mangrove distribution in eight coastal sectors in Sri Lanka is different. Even though, rainfall, relative humidity, temperature, fresh water inflow or wind speed of the environment has no effect on the distribution dynamics of selected coastal lagoon's mangrove extent. If the sample sizes and the number of considered factors increased more significant results could have been obtained.

Keywords: Mangroves, Lagoons, GIS, Remote sensing