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Structural complexity of strand vegetation and coastal erosion along the South, South West, and West coasts of Sri Lanka

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Structural complexity of coastal vegetation at eight different coastlines (Weligama, Unawatuna, Hikkaduwa, Ambalangoda, Induruwa, Kalutara, Moratuwa, and Uswetakeiyawa) was analyzed to determine the effect of structural complexity of coastal vegetation on coastal erosion. Vegetation samples were obtained along the belt transects laid perpendicular to the shoreline at each study site. Biomass, cover, density, basal area, diversity, and species richness of coastal vegetation were analyzed to determine the structural complexity of coastal vegetation. Coastal vegetation structure varied among different coastlines with varying erosion rates. An ordination was performed using principal component analysis to examine the relationship between coastal vegetation structure and erosion rates of different coastlines. Analysis revealed that there is a statistically significant relationship between erosion rate and the structural parameters of the coastal vegetation in the zone close to the shoreline (0-10 m). Which means erosion rates decreased with increasing values of structural parameters (indicating structural complexity) of coastal vegetation in the zone (0-10 m) close to the upper limit of the wave breaking area of the coast.

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