

Present Status of mangroves and sea grasses in the upper Western border of Puttalam Lagoon, Sri Lanka

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A study was conducted in 2021 to gather baseline information on species composition, density and diversity of mangrove and seagrass ecosystems and structural parameters of mangroves in the upper Western border of the Puttalam Lagoon, which is a potential area for coastal development. Belt transect method was employed to measure the diameter at breast height (DBH), height, density and diversity of mangroves. Seagrass coverage was obtained at four sampling stations (Uchchimunai, Bottuwadiya, Kirimudal and Mohottuwaram) where 50 m transects were deployed perpendicular to the shore and two quadrat samples were obtained haphazardly within every 5 m distance from the both sides of the transects. Seven true mangrove species belonging to five families were identified during the survey. Additionally, the Important Value Index (IVI) indicated that *Rhizophora mucronata* IVI=136.60 and *Ceriops tagal* IVI=130.63 were structurally most important. *Thespesia populnea* and *Phoenix* sp. were the most abundant mangrove associates. Also, the results revealed that mangroves were dominated by small sized trees, showing 70% of them with thin stems (<10.0 cm) and 54% of height of the mangroves were <1.0 m; hence the structural complexity of the forest (CI=0.16) was low. The calculated values for Shannon diversity index, evenness and dominance were 1.22, 1.01 and 0.57 respectively. These values depicted that the mangrove forests were dominated by few major species; coincided with low species diversity. The seagrass coverage of the study area was *Oceana serrulata* (13.92%), *Cymodocea rotundata* (12.93%), *Enhalus acoroides* (9.22%), *Halodule uninervis* (2.08%), *Thalassia hemprichii* (11.68%), *Halophila decipiens* (0.07%) and *Halophila ovalis* (0.16%). The estimated values for Shannon diversity index ranged from 1.03 to 1.45 and evenness ranged from 0.64 to 0.81. This study revealed that the area is an ecologically important and effective plans are essential to conserve the seagrass and mangrove ecosystems while considering future developments.

Keywords: diversity, mangroves, Puttalam Lagoon, seagrass, species coverage

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