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HUMAN INFLUENCE ON STRUCTURE OF MANGROVE VEGETATION IN NEGOMBO ESTUARY

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Mangrove areas of Negombo estuary, particularly those located near the seaward end, are extensively used to extract twigs and branches for the construction of 'brush parks', a fish aggregation device in the estuary. Paucity of mangrove resources for the purpose is augmented with cultivation of mangroves in small woodlots in the mud flats.

Depending on the extent to which the mangroves are used and the nature of their management, mangrove stands in the estuary were grouped and studied under four categories, i.e. mangrove monocultures, managed multi-species plantations, relatively undisturbed and degraded mangrove areas. Vegetation structure of representative areas of the above categories were studied using 10m wide belt transects. Structure was characterized with plant density, tree height, basal area, mean stand diameter and mangrove species diversity.

Nine true mangrove species were encountered in the study area and the relatively undisturbed stand recorded the highest diversity, while the multi-species plantations ranked second (Shannon-Wiener Index values, 2.477 and 2.158 respectively). Plant density was highest in the monocultures of *Rhizophora mucronata* (17,420 stems/ha) while it was lowest (1,100 stems/ha) in the degraded (unmanaged) stand. Except for the degraded stands, stand basal area has not shown variation among other stands. Cultivated stands were taller than the rest which could potentially be due to the small distance between the two plants. *Rhizophora mucronata* showed the highest relative dominance (54.27) in the monoculture as that is the most preferred species for cultivation due to its long hypocotyle which makes manual planting convenient. *Avicennia marina* dominates the natural (relatively undisturbed) areas (relative dominance value = 78.15).

This study shows that the vegetation structure of the mangrove stands in Negombo estuary is affected by the extent of human intervention on them, either through uncontrolled direct use or controlled/managed use of mangrove plant resources.