



Environmental Sensitivity of Talalla Coastal Beach: A Tourism Hotspot in Southern Sri Lanka

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Environmental sensitivity refers to the significance of an area in terms of its ecological and socio-economic indicators derived from nature, and how nature responds to ecosystem damage. Talalla coastal beach (1.7 km) is a tourist hotspot and a proposed site for infrastructure development. This systematic investigation aims to evaluate its environmental sensitivity under three main categories based on cleanliness, species distribution, and usage, which serve as essential baseline indicators. Five selected sites during the low tide period in September 2025 were surveyed along the coast. Different importance levels of indicators and their contributions to the sensitivity were hierarchically assessed under three categories: Ecological, Biological, and Utilization sensitivity. Accordingly, the maximum values for each sensitivity were pre-decided as 15, 20, and 25, respectively, by allocating a value of 5 for a considered indicator. The cleanliness status of the five sites was dirty and very dirty, with the abundance of bulky litter (>10 cm) ranging from 24 to 63 (/100 m²). The fine litter (<10 cm) abundance varied between 3–24 (/m²), representing dirty, moderate, and clean status. The distribution of coastal specific flora such as *Pandanus tectorius*, *Ipomoea pes-caprae*, *Premna serratifolia*, *Barringtonia asiatica*, *Scaevola taccada*, *Sesuvium portulacastrum*, *Senna alata*, and *Strophostyles helvola* added higher values to the biological sensitivity for relevant sites. Similarly, the presence of coastal-specific fauna such as *Coenobita cavipes*, *Littoraria irrorata*, *Platorchestia platensis*, *Hyllus semicupreus*, and *Dotilla myctiroides* enhances the ecological significance. The ecological, biological, and utilization sensitivity varied between 4–7/15, 09–19/20, and 06–20/25, respectively. Although the lowest ecological sensitivity value was observed at site 5, its utilization sensitivity was highest, reaching 20 out of 25 due to the presence of a mini harbour, hotels, and other social and recreational activities. The total value of environmental sensitivity at the five sites ranged between 40 and 24 out of the 60. Therefore, the location-specific coastal species need to be protected from external disturbances such as human economic activities, environmental degradation, and hazards. Mapping of the ecological, biological, and utilization sensitivity is recommended for future studies.

Keywords: Bulky litter, Coastal species, Environmental sensitivity, Fine litter