

D-06: Floristic composition sandy shore vegetation at selected sites in the Western Province of Sri Lanka

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Sandy shore vegetation is found in coastal habitats which cover an area of 242,024 ha and it is the most dominant natural vegetation type which occurs along 69% of the coast line of Sri Lanka. The habitat of this natural vegetation type is being reduced at an alarming rate due to human activities such as agriculture, tourism, urbanization, housing, constructing harbours, highways, railway tracks and environmental pollution.

A survey on this vegetation was carried out. The main objectives were to study the species composition and their zonation along the environmental gradient from sea towards inland. Comparisons were also made between sites.

Four sites based on the degree of disturbance were selected from the Western Province of Sri Lanka.

- Site I - Mattakkuliya (Garbage disposal and fishing are the disturbances, But vegetation is relatively undisturbed.)
- Site II - Mount Lavinia (Vegetation is disturbed due to housing, fishing, tourism and construction of railway stations.)
- Site III- Kalutara North (Vegetation is disturbed due to fishing, sand mining and construction tourist hotels and resorts)
- Site IV - Uswetakeiyawa (This is the most disturbed site due to fishing, tourism, garbage disposal and coconut cultivation.)

It has been reported that due to natural and man made causes, shore erosion occurs at each site, although average progressive erosion is 1 m /year at sites I and IV. Site III shows the least shore erosion. Seasonal accretion is not prominent among these sites.

Plant specimens were collected from each site and herbarium specimens were prepared following herbarium techniques. They were identified by comparing them with those deposited in the National Herbarium, Peradeniya. Their endemism and medicinal importance were also checked. Representative areas from each site were selected. Belt transects (4-5) were marked randomly from the boundary of litter accumulation towards inland to cover all zones along the gradient of vegetation (i.e. herbs -> shrubs -> trees). Length of transects varied from site to site, the average was 45m. The abundance of each species was estimated in terms of percentage frequency and percentage cover values by using 1.5 x 1.5 m² quadrat at 1.5m intervals along each transect. Relative frequency and relative cover values were then calculated.

Profile diagrams of the vegetation were constructed using the estimated data and also measuring other necessary data (e.g. height of plants, height of sites from sea level)

A total of 106 species belonging to 80 genera and 34 families were recorded. The majority of species (50 species) were herbs. 16% (17 species) shrubs, 10% (11 species) grasses, 10% (11 species) trees, 1% straggling herbs, 1% twining shrubs, 2% climbing shrubs, 2% grass like herbs, 2% twiners, 4% creepers and 5% climber species were found. 3% (species) were endemic and 55% (59 species) were medicinally important.

Site I - Four zones were recognized. Dominant Species:

- Zone I - *Ipomea pes-caprae* and *Eleusine indica* (relative abundance: 84% and 12%)
- Zone II - *Ipomea pes-caprae*, *Eleusine indica* and *Crotolarlia* spp. (relative abundance: 30%, 25% and 8%)
- Zone III - *Ipomea pes-caprae*, *Mikania cordata* and *Lantana aculeata* (relative abundances: 35%, 30% and 8%)
- Zone IV - *Annona glabra* and *Thespesia populnea* (relative abundance: 8.7% and 8.5%)

- Site II* - Three zones were recognized. Dominant species:
- Zone I - *Ipomea pes-caprae* and *Spinifex littoreus* (relative abundance: 70% and 16%)
- Zone II - *Tridax procumbens*, *Lantana aculeata* and *Passiflora foetida* (relative abundance: 16%, 11% and 11%).
- Zone III- *Brachiaria distachya*, *Lantana aculeata* and *Tridax procumbens* (relative abundance: 18%, 34% and 18%).
- Site III*- Three zones were recognized. Dominant species:
- Zone I - *Brachiaria distachya* and *Ipomea pes-caprae* (relative abundance: 37% and 47.5%)
- Zone II - *Ipomea pes-caprae*, *Desmodium* spp. and *Clerodendrum inerme* (relative abundance: 35%, 23%, 2%)
- Zone III- *Clerodendrum inerme*, *Pandanus odoratissimus* and *Ipomea pes-caprae* (relative abundance: 21%, 11.5% and 10%)
- Site IV* - Two zones were recognized. Dominant species:
- Zone I - *Spinifex littoreus*, *Zoysia matrella* and *Ipomea pes-caprae* (relative abundance: 26% 31% and 13%)
- Zone II - *Ipomea pes-caprae*, *Zoysia matrella* and *Brachiaria paspaloides* (relative abundance: 32%, 18% and 12%)

Floristic composition varied from site to site. The most abundant and dominant species was *Ipomea pes-caprae*. A common inhabitant of the sandy shore vegetation i.e *Spinifex littoreus* was found only in sites II and IV. Site I showed typical zonation with 4 zones. This could be due to the fact that the site has been conserved by NARA. Site II and III showed first 3 zones and no tree forms were found except *Cocos nucifera* which has been planted. This is due to construction of tourist hotels and fish landing sites. All zones of site III were also disturbed and zone IV has disappeared. Zone IV of site II was also disturbed due to construction of the Mount Lavinia railway station. Site IV showed only the first 2 zones and zone III and IV are occupied by houses and plantations.