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Assessment of tsunami damage on the coastal vegetation in 3 selected locations in Yala National Park

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Tsunami, the killer wave swept nearly two thirds of the coast of Sri Lanka on 26th of December, 2004. About 40,000 people died and around 500,000 people were displaced, more than 119,000 houses damaged either fully or partially. About 13 coastal districts were directly affected, the north and east suffered the brunt of the blow accounting for about 2/3 of deaths and 60% of displacements. In terms of ecological aspects, with the exception of few species, most of the vegetation suffered total or partial death, lagoons, estuaries, coral reefs, sea grass beds, salt marshes and mangroves experienced the damage at varying levels.

A study was conducted in 3 Tsunami affected locations in Block 2 of the Yala National Park with a view to assess the condition of the vegetation more than 1.5 years after the incident. In each site, 3 plots which were 10 x 10m were demarcated the vegetation including trees, shrubs and ground vegetation was assessed. A tsunami non affected site in close proximity to the study sites was taken as the control. Direct observations were also made on the dead plants, regenerated one, other external differences observed (color changes etc.). Shannon's Diversity Index (Diversity, Evenness and Dominance) and Stand Variables such as Relative Frequency and Relative Density were calculated using the data. In addition to the vegetation, soil and water were also assessed for pH, conductivity, salinity etc. The measurements were repeated twice in the experimental period of 6 months.

51 species which belongs to 30 families were observed (without ground vegetation) in the 27 plots studied. The stand variables did not differ significantly between the 3 sites studied. However, some species had higher proportional abundances in Tsunami affected sites compared to those which were not affected. Kathurupila (*Tephrosia purpurea*), Lunuwarana (*Crateva religiosa*), Ranawara (*Cassia auriculata*) were more prominent in the Tsunami affected sites in Mahaseelawa compared to the non affected sites in the same location. Patassa was seen abundantly in non tsunami affected sites. Korakaha (*Memecylon umbellatum*) and Katupila (*Tephrosia purpurea*) were most abundant among the shrubs in tsunami affected areas while Wal pichcha (*Momordica diocia*) was prominent in unaffected areas. In the Patanangala site, among the trees Elabatu was seen quite prominently (*Solanum xanthocarpum*). Attana (*Datura metel*), Wal kochchi (*Croton bonplandianus*) recorded the highest proportional abundance. In non tsunami affected areas Gandapana (*Lantana camara*) and Maduruthala (*Hortinia horibunda*) recorded the highest abundance. In Buthawapitiya site Lunuwarana (*Crateva religiosa*), Ranawara (*Cassia auriculata*), Katupila (*Tephrosia purpurea*), and Pila (*Tephrosia purpurea*). Andara (*Acacia leucophloea*) was seen in both tsunami affected and non affected areas.

In general, four species were observed to be dominant in the vegetation in the Tsunami affected areas ie, Walkochchi (*Croton bonplandianus*), Attana (*Datura metel*), Kathurupila (*Tephrosia purpurea*). Leguminosae and Euphorbiaceae were the most dominating families in species of this Tsunami affected sites and Rubaceae and Oleaceae were the most dominant species in Tsunami not affected areas.

The water quality showed significant variation between the sites studied while soil parameters were not significantly different. The electrical conductivity of water was highest in Bathuwapitiya site pH did not show significant difference between sites. Buthawapitiya recorded high salinity values compared to other sites. Soils did not record values which were significantly different.

(SME's were considered to be business that had employed less than 25 workers and less than Rs.5 Mn turn over in immediately preceding 12 months period.)