

## Marine alien invasive species: records from Pigeon Island Marine National Park

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Invasive Alien Species (IAS) have proliferated in marine environments as a consequence of ballast water discharge, pollution, eutrophication, and climate change. In Sri Lanka, AIS records from marine waters are very low compared to terrestrial habitats. The shallow, fringing reef of the Pigeon Island Marine Protected Area (MPA) is being degraded profoundly due to the combined effects of natural and man-mediated stressors. This study was conducted in 2015 to ascertain potential candidates as AIS and their abundances in the coral community of the Pigeon Island National Park. The reef was monitored using the permanent transect method at 14 sites covering shallow and deep iso-depth contours. The percentage cover of sessile benthic categories and densities of mobile fauna were estimated by line intercept transect (LIT) and fish belt transect methods respectively. Evidence of coral damage was seen as a result of recent outbreaks of Crown of Thorns (COT) Star fish (*Acanthaster planci*). In areas with high coral diversity, the damage was 17% dead coral cover per transect. However, observed COT densities were under the risk level, mainly due to frequent manual COT cleanup programs. The resilience of the affected coral thickets seems to be retarded, promoting secondary infestations of other opportunistic species such as filamentous algae. Development and expansion of calcareous algae (*Halimeda* sp.) and turf algae were significant, and their invasion is favored by low densities of grazers, particularly of the Families Scaridae (0-1.2% m<sup>-2</sup>) and Siganidae (3.8 - 1.7% m<sup>-2</sup>). The corallimorpharians (*Discosoma* sp.) were observed out-competing all other benthic species resulting monospecific corallomorpharian carpets. Occasional sightings of Lion fish (*Pterois volitans*) and gastropod snails (*Drupella* sp.) were made. All of these species are considered as 'invasive' in many marine environments around the globe. This study highlights the need to implement management strategies to control the spread of invasive species. However life histories, root causes for population expansion of invasive species, and the factors which affect the resistance and resilience of the ecosystem should be understood for better management strategies.

**Key words:** marine alien invasive species, Pigeon Island Marine Protected Area Sri Lanka, coral damage.