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Recovery of a Rocky Shore at Mount Lavinia Following Extirpation of its Biodiversity

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Abstract

In 2020, the Coast Conservation Department conducted a 'beach nourishment' project with the aim of widening the beach at Mount Lavinia Bay. During this exercise, sand was dredged offshore and dumped on the beach, burying all the rocks. Over time, wave action washed away the sand, and the rocks emerged, revealing that all the intertidal fauna and flora of the rocky shore had been killed. Compounding this event was the episode of the ship X-Press Pearl catching fire on May 20, 2021 and sinking off the west coast of Sri Lanka on June 2, 2021. There were concerns that the surrounding water would be affected by chemical substances in the ship's cargo, which could have an adverse impact on the marine biodiversity of the area. Therefore, with the objective of documenting the recolonization of flora and fauna, a Qualitative Visual Observational survey was conducted from February 2021 to March 2023 along the rocky shore between the base of the hotel promontory to the south and the northernmost rock group (6°50'3.84" N, 79°51'44.68" E-6°50'10.11" N 79°51'46.23" E, a distance of 200 meters). This survey consisted of nine random visits. During the survey, specific notes were made about pioneer species and the species that followed. Furthermore, the species observed during the secondary ecological succession process were compared with historical records of species documented at the same site by one of the authors (MF) since the nineteen-eighties (unpublished personal records). MF identified the species during sampling sessions, and photographs captured by data collectors were also used in the identification process. Throughout the survey, 11 species of algae, 14 species of molluscs, and 6 species of other fauna were recorded. All of these species had been previously recorded at this site, indicating the reestablishment of biodiversity. The pioneer species during the reestablishment process included the algae *Chaetomorpha antennina*, *Grateloupia lithophila*, the limpet *Cellana rota* and a hermit crab species. Associated findings on the beach were nudles washed ashore from the X-Press Pearl. The results indicate that there were no lasting ill effects of the burial, and there was nothing to suggest lasting toxicity of the waters in the surrounding area following the sinking of the X-Press Pearl.

Keywords: Mount Lavinia, Rocky shore, Recolonisation