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Commentary

Preservation of Biodiversity, Deforestation and Estuarine Ecosystem Degradation Sediments

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1. Commentary

In general, failure to fully recognize the importance of the positive functions offered by such systems is a major contributor to ecosystem degradation and loss. These include preserving biodiversity, holding back sediment, protecting against floods and storms, preserving water quality and supporting commercial coastal and marine food chains. We will concentrate on some of the immediate management implications of sustaining and restoring intertidal systems because many of the processes and functioning of estuarine systems have been detailed in earlier chapters of this volume [1].

It is well recognized that estuarine wetlands help to maintain the quality of the water. Intertidal deposits that are formed serve as sinks for both the silt and the metal and organic contaminants that are attached to it. Due to their high biological activity, wetlands are adept in converting many of the common pollutants found in coastal and estuarine waters into harmless byproducts or vital nutrients that may be used for further biological activity. Agricultural runoff is captured by estuarine sediments, which may help control planktonic blooms. Given the frequency and effects of toxic microalgae and heterotrophic dinoflagellate blooms, eutrophication has grown in importance as a management problem in recent years (burkholder). Reducing nutrient concentrations and the severity of phytoplankton blooms may be achieved by actions like coastline realignment to expand the intertidal area and the restoration of natural nutrient buffering systems [2]. By offering a substrate that enhances exposure to UV light, oxygen, soil water interactions and the presence of predatory protozoa, wetland habitats also speed up the pace of pathogen die off in coastal waters (gersberg). Wetlands may participate in global biogeochemical cycles that support the stability of nitrogen, sulphur, carbon dioxide and methane in the atmosphere [3].

An integral part of a fisheries policy is maintaining intertidal ecosystems. Up to 93 percent of commercial fisheries species in some places are dependent on coastal wetlands at some point in their life cycle, with the US fisheries industry's production valued at 19.8 billion dollars. For instance, saltmarshes and intertidal flats serve as a breeding ground and haven for a variety of fish and invertebrate species, contributing significantly to the productivity of the seas nearby. In addition to protection, marshes give inshore food webs a supply of carbon. Planning initiatives to restore estuarine habitat requires knowledge of these relationships [4].

For a very long time, people have looked for ways to slow down or stop environmental destruction. According to the national research council, ecological restoration is the practice of using management techniques with the objective of restoring the structure and function of a pre disturbance ecosystem. However, the term has expanded to include a wider range of

management interventions to improve ecosystem function, particularly when pre disturbance conditions cannot be restored (Hobbs). Scientists at the university of Wisconsin Arboretum started one of the first ecological restoration initiatives that included research in 1933. The objective was to assess different methods for regenerating natural prairie ecosystems through ecological experiments [5]. The resulting Curtis Prairie has gained notoriety as a key research location in restoration ecology (Jordan).

Due to how quickly and severely it changes the habitat's structure, forest devastation is probably the most well known kind of ecological degradation. About half of all tropical moist forests have vanished in the last several centuries and in Southeast Asia, most of the lowland moist forest has already vanished. Many temperate forests have been removed in large regions, yet in certain places (like the USA), there has been significant recovery. Deforestation affects a variety of ecosystem services, including the ability to manage floods, maintain an acceptable gaseous content in the atmosphere (particularly through carbon sequestration), regulate the climate in other ways, control disease vectors and provide timber. A rare and contentious benefit for homo sapiens is the decline in predator numbers, particularly lethal ones like tigers.

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