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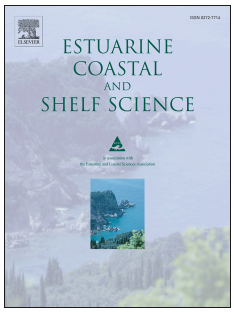

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Mangrove plantation over a limestone reef – good for the ecology?

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Abstract

There have been efforts to restore degraded tropical and subtropical mangrove forests. While there have been many failures, there have been some successes but these were seldom evaluated to test to what level the created mangrove wetlands reproduce the characteristics of the natural ecosystem and thus what ecosystem services they can deliver. We provide such a detailed assessment for the case of Olango and Banacon Islands in the Philippines where the forest was created over a limestone reef where mangroves did not exist in one island but they covered most of the other island before deforestation in the 1940s and 1950s. The created forest appears to have reached a steady state after 60 years. As is typical of mangrove rehabilitation efforts worldwide, planting was limited to a single *Rhizophora* species. While a forest has been created, it does not mimic a natural forest. There is a large difference between the natural and planted forests in terms of forest structure and species diversity, and tree density. The high density of planted trees excludes importing other species from nearby natural forests; therefore the planted forest remains mono-specific even after several decades and shows no sign of mimicking the characteristics of a natural forest. The planted forests provided mangrove propagules that invaded nearby natural forests. The planted forest has also changed the substratum from sandy to muddy. The outline of the crown of the planted forest has become smooth and horizontal, contrary to that of a natural forest, and this changes the local landscape. Thus we recommend that future mangrove restoration schemes should modify their methodology in order to plant several species, maintain sufficient space