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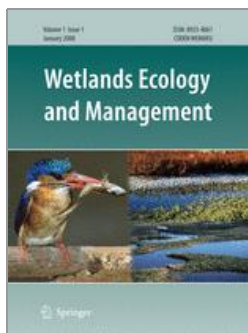
Wetlands Ecology and Management

December 2008, Volume 16, Issue 6, pp 441-450

## Valuing mangrove ecosystem services: linking nutrient retention function of mangrove forests to enhanced agroecosystem production

### Abstract

Mangroves are highly productive wetland ecosystems strategically located at the interface between land and sea. They play an important role in the biogeochemical cycles of the coastal environment, acting as sources of nutrients to adjacent marine and terrestrial ecosystems through active and passive transport. We examined the nutrient contents in mangrove and nonmangrove soils in and around the Bhitarkanika National Park, India and assessed whether the local agricultural producers were aware of and placed a value on this contribution of mangrove forests in enhancing agroecosystem productivity. Soil samples from both mangrove and nonmangrove areas were analysed and quantity of organic carbon, total nitrogen, available phosphorus and potassium were derived. The replacement cost method was used to derive the value of nutrients in mangrove soils. We estimated that each hectare of mangrove contains additional nutrients worth US **232.49** in comparison to nonmangrove areas. The difference in nutrient content in mangrove versus nonmangrove areas for the nutrients in 145 km<sup>2</sup> of mangrove forests. The agricultural producers were aware that mangrove forests act as a source of nutrients and were willing to pay a higher price for the land adjoining mangrove forests. Around 92% of the producers ranked nutrient retention as a secondary function of mangrove forests. Despite crop depredation from wild ungulates and conflict with salt water crocodiles the agriculturist finds the benefit to cost ratio of mangrove forests high and more than 76% were in favour of mangrove restoration. This study provides an opportunity to highlight the importance of mangrove ecosystems to the livelihoods of the local people and the urgent need to sustain these through proper policy and market interventions.



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Valuing mangrove ecosystem services: linking nutrient retention function of mangrove forests to enhanced agroecosystem production

### Journal

Wetlands Ecology and Management  
Volume 16, Issue 6 , pp 441-450

### Cover Date

2008-12-01

### DOI

10.1007/s11273-008-9080-z

### Print ISSN

0923-4861

### Online ISSN

1572-9834

### Publisher

Springer Netherlands

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