

First structural and functional study of unexplored mangroves in the Iles Eparses, Southwest Indian Ocean

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Abstract

The Iles Eparses, literally scattered islands, are a collection of French overseas territories off the coast of Madagascar, Southwest Indian Ocean. Without permanent inhabitants and preserved from human activities, these remote islands, currently placed under a strict environmental protection policy, are of a considerable ecological interest. Privileged sites for marine biodiversity, the Iles Eparses constitute also a unique natural lab for mangrove, largely unexplored until now.

- On Europa Island (22°20' latitude north, 30 km²), the mangrove ecosystem develops in very constrained conditions due to substrate characteristics and scarce arrival of freshwater. In this particular context and a reduced number of mangrove species, the mangrove establishes however in a wide range of facies, displaying an apparent imbalance between mangrove structure and functioning and current environmental context.

- On Juan de Nova Island (5 km²), 600km further up north, it is very recently (2010) that mangrove has been discovered. Disconnected from the seaside, different mangrove communities exhibit very peculiar functioning and structural parameters, i.e. natural enrichment in nutrients and monospecific composition for each mangrove stand. On the other hand, if the *current* biodiversity of mangrove is poor on Juan de Nova Island (2 species), the *potential* biodiversity appears to be high since all mangrove species characteristics of the western Indian Ocean region are present among the strandline debris, including viable disseminules, deposited all around the Island.

Thanks to an interdisciplinary boat trip conducted by CNRS-INEE in 2011, we did have the opportunity to analyze for the first time mangrove ecosystem of the Iles eparses, from biodiversity, structural and functional points of view. Preliminary observations and results are exposed in this communication.

Keywords

environmental protection, ecological imbalance, mangrove discovery