

NEW CALEDONIA

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Introduction

Mangrove wetlands in New Caledonia cover a total area of 200 km² (Thollot 1987), which is 1.2 % of the total area. Mangrove wetlands are mostly located on the west coast fringing over 79% of the coastline, and fairly uncommon on the east coast covering only 14 % of the coastline, where they are concentrated at the mouth of large rivers. Few mangroves are found at Pines, Loyalties and Belep Islands. It appears that the extent of mangroves has not been significantly reduced since 1987, apart from the greater Noumea area where analysis of SPOT Images indicates loss of over 200ha.

Four types of mangrove assemblages are found in New Caledonia:

- estuarine mangroves
- inner embayment mangroves
- lagoon mangroves
- coastal mangroves

Mangroves in New Caledonia are found to extend to the 1.2 meter contour below the high tide depth (sea level difference between high and low tide: 1.7 meter). Mangroves forest height ranges between 8 and 20 meters. No endemic plants have been found.

Table 1: Taxonomic list of New Caledonian mangrove trees and associated species (Veii, Lon, pers.comm).

Pteridophytes Pteridaceae	<i>Acrostichum sp</i>
Angiospermes Acanthaceae	<i>Acanthus ilicifolius</i>
Apocynaceae	<i>Cerbera manghas</i>
Avicenniaceae	<i>Avicennia sp.aff.officinalis</i>
Bigotaceae	<i>Dolichrarulone spathulata</i>
Chenopodiaceae	<i>Salicornia australes</i>
Combreaceae	<i>Gumnitzera littorea</i> <i>Lumnitzera raceosa</i>
Euphorbiaceae	<i>Excoecaria agallocha</i>
Leguminoseae	<i>Cynometra ramiflora var. bijuga</i>
Lytbraceae	<i>Pemphis acidula</i>
Meliaceae	<i>Xylocarpus granatum</i>
Rhizophoraceae	<i>Bruguiera gymnorrhiza</i> <i>Ceriops tagal</i> <i>Rhizophora apiculata</i> <i>Rhizophora lamarckii</i> (hybride F1 from <i>R.apiculata</i> x <i>R.stylosa</i>) <i>Rhizophora mangle var. samoensis</i> <i>Rhizophora selala</i> (hybride F1 from <i>R.mangle</i> x <i>R. stylosa</i>) <i>Rhizophora stylosa</i>
Rubiaceae	<i>Scyphiptora hydrophyllacea</i>
Sonneratiaceae	<i>Sonneratia alba</i> <i>Sonneratia caseolaris</i>
Sterculiaceae	<i>Heritiera littoralis</i>

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Other plants

In New Caledonia, landward of the mangroves, other halophytes can be found (Virot, 1956; Baltzer, 1969) including:

- *Sporobolus virginicus*
- *Acrostichum aureum*
- *Salicornia australis*
- *Acanthus ilicifolius*
- *Exocoecaria agallocha*
- *Derris trifoliata*

A survey of Greater Noumea's mangrove avifauna, carried out in 2000 by Barre and Dutson, found 28 birds species some of which were endemic.

Threats and Impacts

There are two major categories of threats to mangrove systems in New Caledonia:

- Traditional threats due to extractive activities such as fishing and wood harvesting. However, outside the wider Noumea area, thanks to the sparse populations, these threats are not serious. Mangrove crab populations in these areas have not decreased, and there appears to have been an increase in populations.
- Threats due to urbanization and economic development

Fifty percent of the population live in the Greater Noumea Area, that includes the cities of Mont Dore, Paita and Dumbea. In this area, urbanization and economic development are major issues. Landfilling and construction of seawalls represent the main threat to mangroves. Between 1960 and 1989, at least 230 ha of mangroves, out of the 666-797 ha first measured, have been destroyed in the Greater Noumea Area. Initially, as people migrated to the city, more traditional threats such as wood harvesting and rubbish dumping have increased. Now, landward mangrove areas such as salt marshes are used for shrimp aquaculture. To date, there appears to have been no adverse ecological effects on *Avicennia* and *Rhizophora* communities (IRD-ORSTOM). Despite the well known essential function of mangroves, the lack of space in cities leads, even now, to the filling of mangroves for developments such as main roads and public buildings. EIAs are not compulsory, but are often undertaken.

Institutional Arrangements for Mangrove Wetland Management

According to the Matignon Agreements, the three regions in New Caledonia have responsibility for managing their environment. The Environment Unit of the Natural Resources Management Division of the South Region is in charge of mangrove wetland management and conservation. Several research institutes such as IRD, University of New-Caledonia, Caledonian Agronomic Institute and some research consultancies have contributed to improving knowledge on mangroves and wetlands.

There are no specific legislations/regulations relating to mangroves. Mangrove management falls under the general regulation covering environment protection and their conservation is included in the town planning process.

In town planning, governed by the town council, mangroves are considered a “natural protected area”. This means that mangroves have to be preserved and only development for public visitation can be undertaken. “Natural protected areas” are classified into three types. Mangroves are classified as ‘ND’ areas where any construction is forbidden. Most of the coast, called Coastal Public Area, is also classified as ND.

Town Plans cover Greater Noumea, (Noumea, Mont Dore, Paita and Dumbea) and several inland towns: Bourail and La Foa. These Town Plans are reviewable and can be modified every 5 years.

In general, regional regulations group together all legislative texts dealing with environment protection and sustainable resource use. Concerning mangroves, the main regulations that can be used for their management and conservation are those that:

- Define protected areas for which a research organisation or NGO must be consulted,
- Specific fishery regulations, notably, limits on nets size (75 meters) and forbidding the use of nets less than 100 meters from mangroves.

Note that several small mangrove areas are part of marine reserves like the Ducks Island or the Bailly Island reserve.

Tenure

Since 2000, the Public Coastal Area (81.2 meters inland from the highest tide level) which was the state responsibility, has become the responsibility of the region. Thus, the region’s planning department, in consultation with the technical department, is in charge of giving permission for construction in the Public Coastal Areas. Permits are often given for “public interest” developments such as roads.

There is no specific community-based management structure (institutionalised or informal) for mangrove wetland management.

Mangrove Wetland Monitoring Systems

In 2001, a regional budget for the south region wetland inventory by aerial photos (SPOT) was estimated. The purpose of this survey is to identify and characterize mangroves and continental wetlands in order to carry out management and conservation plans for several priority areas.

Community Awareness

Mangrove protection has only become an issue quite recently, starting with the NGO initiative “New-Caledonian Nature Preservation Association”. Since then, the Introduction to Environment Center and regions environment department have taken over from this first initiative. Several publications, films and school lecture programs have been developed.

A preliminary proposal for a “discovery pathway” is in process. This should lead to the selection of a site in 2001 where an educational and recreational pathway will be built.

A third NGO, “Racine” (roots) is also getting more involved in mangrove issues. Together with the two other NGOs, this association has taken many steps towards

mangroves protection such as guided tours, press meetings, and newspaper articles dealing with mangrove functions and importance, in order to make people sensitive to their importance.

Use Patterns

Mangroves are not considered an eco-touristic product yet. The “discovery pathway” tour, opening soon, should compliment other tours, for example, the Noumea aquarium tour.

Only back-mangroves areas (salted fields with *Salicornia*) are used for aquaculture with no apparent environmental impact

The socio-cultural importance of mangroves to people from the Greater Noumea area is difficult to assess because of a lack of data. Observations indicate that this ecosystem is used for several traditional activities such as subsistence and recreational fishing, medicinal plant collection, firewood and timber harvesting.

Conventions

Signatory to Ramsar Convention.