



Factsheet

Mangroves in the Pacific

What are mangroves?

Mangroves are amazing trees which live halfway between the land and the sea. Unlike other plants, mangroves grow with their roots in an alternating environment of sea water and fresh water runoff from the land.

Mangroves usually grow in flat muddy ground through which it is hard to walk. Many think of mangroves as insect-ridden areas hardly worth saving. As a result, mangrove areas are sometimes used as rubbish dumps or their trees are cut down and the land filled in for housing or other development.

But, mangroves play an essential role in many coastal environments. As well as providing food and shelter for a large number of birds and marine animals, mangroves protect and build up coastlines.

Why are mangroves important?

Mangroves provide an important source of food for fish and other marine creatures

Mangroves take up nutrients (dissolved food material) through their root systems. Many of these nutrients are dissolved in water running off the land. Like other plants, mangroves convert the nutrients to plant material by using sunlight in a process called photosynthesis. Parts of the mangrove, such as fallen leaves, rot to form decomposed material called detritus.

About 10 tonnes of mangrove leaves are produced each year by one hectare of mangrove trees (about four tonnes per acre).

The decaying leaves and detritus form a constant supply of food for crabs, prawns and some fish. Many large fish live in, or visit, the mangroves to feed on these smaller creatures. Much valuable organic material is "exported" to other areas such as nearby seagrass beds and coral reefs.

Mangroves are a valuable and renewable resource for coastal people

Mangroves are used to provide dyes, or colouring material, and wood for cooking and building. They can continue to

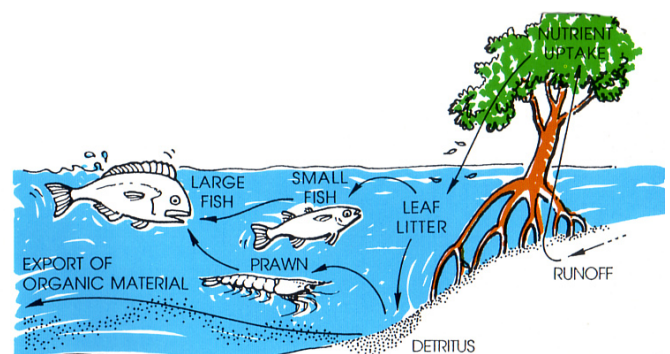


be used this way forever, as long as the quantity of mangroves cut down is no more than can be replaced by natural growth. This quantity is called the sustainable yield.

Mangroves provide a home for many marine species used by people as food

Many important food species use the mangroves for at least part of their life-cycle. Mangroves provide:

- permanent homes for some species such as oysters (which grow on mangrove roots) and mud crabs;
- nursery areas (areas where the young grow up before moving out to deeper water) for animals such as prawns. Some fish such as the mangrove mullet stay in mangrove nursery areas for three to four years before moving out to the sea to spawn; and
- feeding areas for larger fish (like the black-spot sea perch) which visit mangrove areas to feed on smaller fish and other creatures.

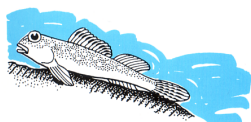


Mangroves protect and build up shorelines

Mangroves form an underground network of roots which hold the earth together and prevent it from being washed away. Above the ground the roots act like a comb by trapping particles and sediment. In these ways mangroves build up and extend shorelines. Mangrove seedlings grow in the newly-formed ground as the mangrove front advances toward the sea.

Mangroves provide shelter for plants, animals and birds

Like the mudskipper, a small fish which can climb trees. The mudskipper is just one of many unusual creatures living in mangrove areas.



Ways of protecting mangroves

Mangrove areas have been used as rubbish dumps or places to fill in and use for housing development. This destruction is usually called reclamation – the claiming back of useless wasteland. But, as we have seen, mangroves are certainly not wasteland!

Mangroves are also destroyed by indirect human activities – activities which alter the environment in which mangroves live. The mangroves in the diagram below have been killed by the construction of a coastal road. The road has cut off the flow of freshwater runoff from the land. As a result, the water to the left of the road is too salty while the water to the right of the road contains too much fresh water.



The mangroves in the above example could have been saved by building the road inland behind the mangroves, or perhaps by burying pipes under the road to allow the flow of tidal sea water and freshwater runoff.

Mangroves are particularly affected by climate change; changes to the tidal flow or salinity of the water in which they live; construction, which causes sediment to build up

or to be washed away from mangrove root systems; and pollution from chemicals, oil or sewage in the water.

We should regard mangroves as a vital part of the coastal environment. Mangrove areas can be managed by cutting down no more than the sustainable yield and by designating some areas as protected reserves.

Mangrove species and distribution in the Pacific

The word “mangrove” is used to refer to over 90 different types of trees, many of which are unrelated.

Mangroves occur throughout the Pacific region with a general decrease in species diversity as one moves from west to east. There are some 33 different species of mangrove in Papua New Guinea, 8 in Fiji, and only 3 in American Samoa (the easternmost limit of indigenous mangrove occurrence in the region).

Three broad types of mangroves often found in the Pacific are:

White mangrove (*Avicennia*)



This mangrove has underground cable-like roots growing from the trunk. Slender, pencil-like roots called pneumatophores grow up from the ground.

Red mangrove (*Rhizophora*)



This mangrove has stilt roots which grow like arches from high up in the tree. The stilt roots enable it to survive changes in the level of the mud and sand.

Orange mangrove (*Bruguiera*)



This mangrove has buttress roots – thick vertical slabs – growing around the trunk. Knee-like pneumatophores grow up above the surface of the ground.



For more information, contact:

Vainuupo Jungblut, Associate Ramsar Officer (vainuupoj@sprep.org)
Secretariat of the Pacific Regional Environment Programme (SPREP)
P. O. Box 240 • Apia, Samoa • +68-5-21929 • www.sprep.org

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