

Mangroves Maligned or Magical?



EDMUNDS BAY



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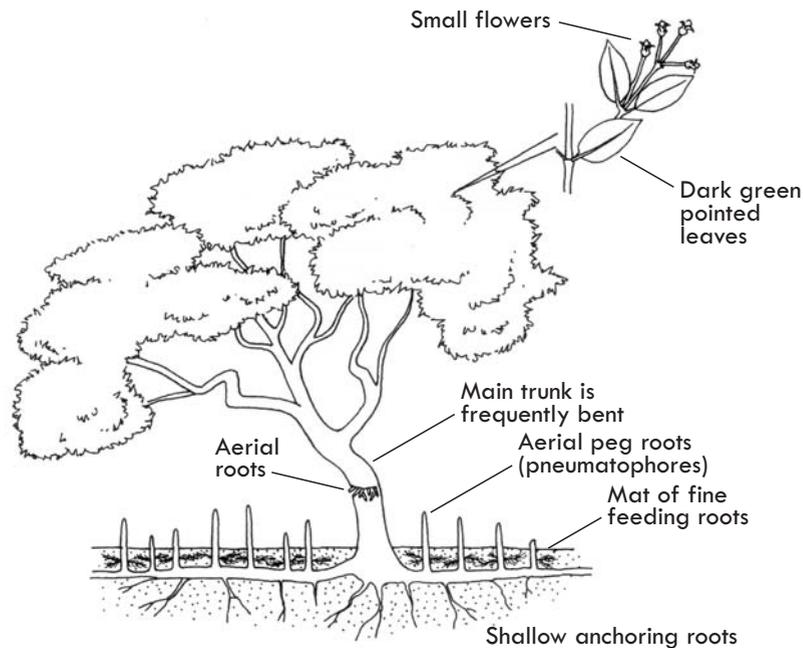
Unfortunately many people have mistakenly regarded mangroves as unproductive wastelands, a nuisance to waterfront development, and an impediment to waterway access. The consequence of such attitudes has been the removal of vast tracts of mangroves in the past.

In some countries 70% of mangroves have been destroyed by human action. Fortunately Australia still retains relatively large areas of its tallest and best-developed mangroves.

Our destruction of mangroves in large part derives from a lack of knowledge about the role mangroves play in the aquatic ecosystem and the ecological and economic value derived from their preservation.

What are Mangroves?

Mangroves are trees and shrubs which grow on the intertidal mud flats along the shores of sheltered estuaries, rivers or bays. They occupy the transitional zone between the land and the sea and usually grow in the region between the saltmarsh and the seagrass. They often form mangrove forests and are usually inundated by tidal salt water twice a day.



Mangroves and Seagrass Beds

Mangroves and seagrass beds are linked together by the water masses that move in and out with the tide, and by the animals that move between these habitats. Tides and currents transport nutrients from the mangroves to seagrass beds. These nutrients enrich the seagrass environments which are important habitats for seahorses, fish and sometimes turtles.

Are Mangroves Protected by Law?

- Indiscriminate cutting of mangroves is prohibited. Any activity that may affect a mangrove must be referred to NSW Department of Primary Industries.
- Any dredging or reclamation work must have the consent of the NSW Department of Primary Industries (DPI) and/or other relevant authorities. The DPI consent will include conditions to protect nearby mangroves.
- NSW Department of Primary Industries encourages habitat restoration wherever past damage can be repaired and habitat protection above all else.

- Mangroves provide an important nursery ground for juvenile fish, crustaceans, and shellfish - offering them food, shelter and protection from predation. It is estimated that 75% of commercially caught fish and prawns depend directly on mangroves at some time in their lives, or feed on food chains which can be traced back to these forests.

Sea mullet, king prawns, barramundi, snapper, bream and mackerel all inhabit mangroves as juveniles. So the mangroves around Edmunds Bay are contributing to the diversity of quality fish habitat in the area.

- Crustaceans (barnacles, shrimps, prawns and crabs) are abundant in mangrove forests. Mud crabs spend most of their lives in the mangroves but move to the open sea to spawn.

Next time you are near a mangrove look for the distinctive large mud towers of the Mud Whelk which indicates the entrance to its burrow, and if you have ever noticed the sound of loud clicks when you are in a mangrove forest, that sound belongs to the Pistol Shrimp.

Hercules' Club Whelk



Dark-mouthed Conniwink

Common Mud Oyster



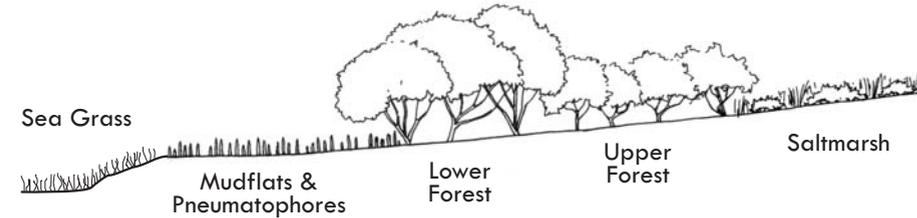
Gold-mouthed Conniwink

Semaphore Crab



Mudskipper

On the landward edge of the mangrove community you often find a fringe of terrestrial forest consisting of paperbarks and she-oaks. Where the land is low lying saltmarshes can develop.



Mangrove trees only live where there is shelter from strong waves because they are shallow rooted and large trees can be easily dislodged in storms. Edmunds Bay is ideal habitat for mangroves. It is sheltered and has low wave energy.

Mangrove trees, like seagrasses, are true plants. They have roots, stems and leaves that have become adapted to tolerate regular inundation by salt water. The most distinctive characteristic of many mangroves is their dense thickets of peg roots or pneumatophores (exposed breathing roots raised above the mud). These roots look like open-ended pipes or long knobby fingers poking out of the mud. These above ground roots enable the mangrove to draw in oxygen from the atmosphere and transfer it to the subterranean root system.



New seedlings amongst mangrove roots in Edmunds Bay

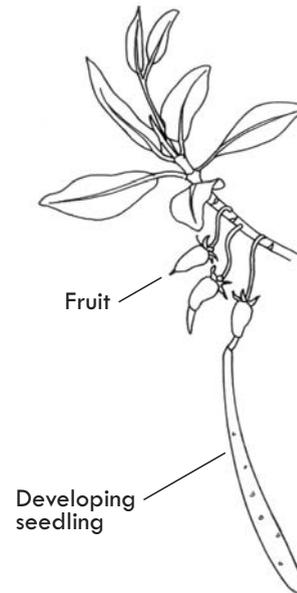
How do Mangroves Reproduce?

Due to the specialised nature of their seed dispersal and propagation, mangroves are quite opportunistic colonisers of mud banks. Rather than germinating in the soil, the seeds of many mangrove plants germinate and develop into viable seedlings while still attached to the parent tree.



The seedling can get quite large before it is dropped from the tree. Once dropped the seedling can take root in the soft sediment around the base of the parent tree or it may be transported away by currents and tides to lodge and take root elsewhere.

The seedling is buoyant and able to travel for a number of days in the water until it finds a suitable place to lodge. The accumulation of silt along the sheltered banks of shallow estuaries such as Edmunds Bay provides a soft substratum in which the mangrove seedlings can anchor their roots.



The advanced development of the seedling means that once it lodges in the mud it can sprout roots and begin to grow rapidly provided it has enough light. In this way mangroves can colonise suitable habitat which has not previously or does not currently feature mangroves.

The Magic of Mangroves - Why are Mangroves so Special?

- Mangroves act as a buffer for the waterway, absorbing polluted runoff and filtering food for marine mammals.
- By trapping sediment, the mangrove's dense root system prevents the silting of adjacent marine habitats.
- Mangroves protect banks from erosion by absorbing the energy of wind and storm driven waves.
- Mangrove forests support an abundant and diverse array of life. Because they are located between the salt water and the land, mangroves are home to both aquatic and terrestrial species. Most animals use the mangrove as a passageway between the two environments and are visitors rather than permanent residents of the mangrove forest. Mudskippers are one of the few animals to be restricted to the mangrove environment.
- The decomposing mangrove litter (organic matter) plays a crucial role in nutrient recycling and makes a massive contribution to the food chain. Mullet, prawns and crabs eat the decomposing litter and are common on the mangrove floor. Fungi and bacteria break the litter down into small particles (detritus) which other animals, such as snails, mud whelks, oysters, crustaceans and fish, can eat. These animals in turn become the food source for larger animals.

Next time you visit a mangrove have a look for these creatures they are usually visible on the muddy sediment around the base of mangrove trees.