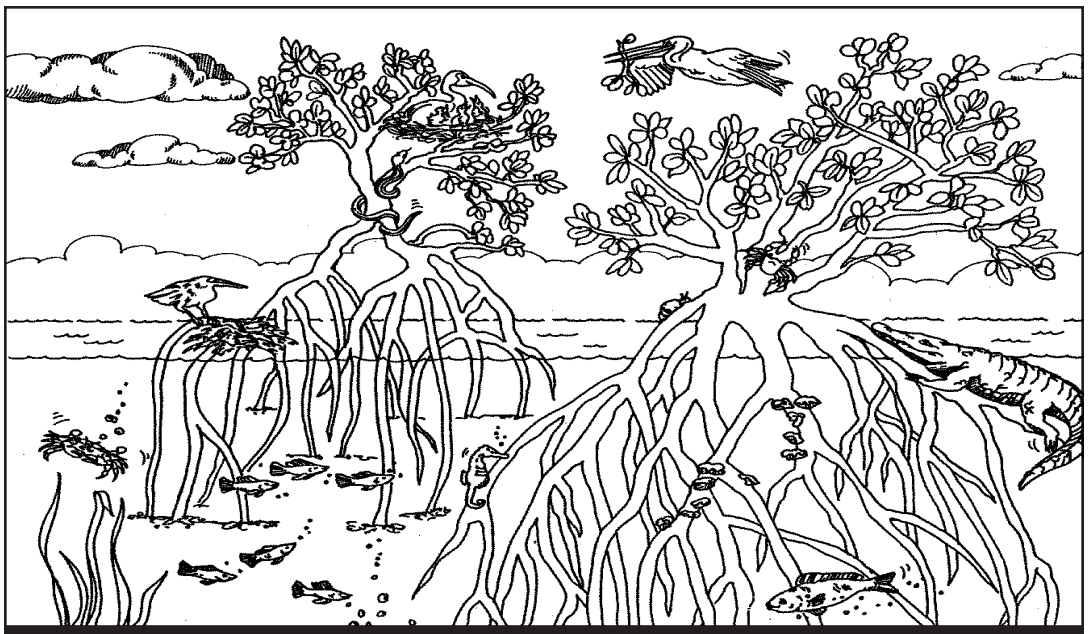
Ecosystems of The Bahamas



MANGROVE ECOSYSTEM

SCIENTIFIC NAME

The term 'mangrove' is applied to four species of trees. They are Red mangrove *(Rhizophora mangle)*, Black mangrove *(Avicennia germinans)*, White mangrove *(Laguncularia racemosa),* and Buttonwood *(C. erectus)*. Each species of mangrove can tolerate specific environment conditions which the others cannot.

DESCRIPTION

On approaching a mangrove wetland from the water, the first thing to catch the eye is the "true" mangrove, the Red mangrove. Numerous prop roots extend downward from its trunk to anchor the tree in the mud of the wetland. The Red mangrove is one of few flowering plants which are specially equipped to live in the ocean. As an adaptation to living in salt water, Red mangrove have evolved unusually dense wood which sinks in water. The wood has special chemicals which gives it its characteristic red color. Leaves from the Red mangrove accumulate on the bottom of the water and eventually become sufficiently permanent to support the mud dwelling Black mangrove.

Black mangrove are relatives of Teak and are easily recognized by their trademark tubes called pneumatophores which penetrate the surface of the mud. These make the mud look like a bed of nails. There is very little oxygen in the mud where Black mangroves grow and so the pneumatophores provide life-saving access to the open air. They also hold the mud firmly together, preventing erosion from rain and waves and building up the shore further. The mud is slowly transformed to hard ground and the next in the line of plant succession, the White mangrove, takes over.

White mangroves colonize areas in the upper reaches of the tides. They can develop pneumatophores below the mud but have their breathing pores in their trunks. White mangroves are recognized by their succulent green leaves which have two conspicuous salt-secreting glands on the leaf stem or petiole. In its turn the White mangrove surrenders to the Buttonwood.

Buttonwood are able to live in dry saline areas. Their satiny leaves are familiar to most Bahamians. The flowers are small but the fruits that the flowers form are the most characteristic being small, brown and in clusters looking like buttons.

STATUS

Mangroves occur in tropical and subtropical wetlands all over the world. At one time it was thought that more than 60% of the world's shorelines were lined with mangroves. Coastal development, land reclamation and erosion throughout the tropics have greatly reduced this coverage. In The Bahamas there is unfortunately no law that prohibits the destruction of mangrove wetlands.

THREATS

Many view mangroves as being dark, impenetrable, stagnant and insect-ridden. These misconceptions have humans to shun the mangrove wetland and abuse them through their destructive activities. Man has damaged these fragile areas through coastal development and associated dredge-and-fill operations, pollution and alteration of natural water systems.

IMPORTANCE

Despite the uninviting conditions inhuman terms, mangrove wetlands have proven to be among the most biologically productive of marine ecosystems. Mangroves are rich in animal life and serve as nursery ground to many economically important marine species. Scalefish (groupers and snappers), crabs and young crawfish seek refuge among the roots. Below the high-tidemark, Red mangroves are overgrown with algae, sponges and tunicates. Among the branches of the mangroves birds such as herons, egrets and pelicans build their nests.

Their maze of roots produce a living seawall making mangroves effective barriers against stones and help prevent coastal erosion. Additionally this network of roots stifles water currents, increases the debris and sediment that settles at the bottom of the water, and actually leads to land-building.

The mangrove has many commercial uses. "Clutch" a chemical extract from the Red mangrove, is widely used as a tanning agent for leather and as a red dye for fabrics. Also, mangroves supply leaves for tea and medicines among other things.

Mangroves supply indirect nutrition to coral reefs through the breakdown of its fallen leaves into tiny particles, called detritus, on which fungi reside. The protein content of mangrove detritus actually increases as the decay progresses. The resulting detritus is a rich banquet for the wetland's smallest inhabitants, attracting shellfish, shrimp, crabs and tiny fish, and accounting for the bulk of their diet. These animals in turn become prey for larger fish and birds. In this way mangrove leaf detritus winds up in oceanic food chains. The productivity of the Red mangrove and its contribution to the local marine environment cannot be underestimated.