Encyclopedia of Earth

Mangrove swamp

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Introduction

Mangrove swamps are coastal wetlands found in tropical and subtropical regions. They are characterized by halophytic (salt loving) trees, shrubs and other plants growing in brackish to saline tidal waters. These wetlands are often found in estuaries, where fresh water meets salt water and are infamous for their impenetrable maze of woody vegetation. In North America, they are found from the southern tip of Florida along the Gulf Coast to Texas. Florida's southwest coast supports one of the largest mangrove swamps in the world. Extensive mangrove systems are found in the Caribbean and Indo-Pacific regions.

Four species of tropical mangroves can be found around the Gulf of Mexico. Their extensive root systems protect the coast from erosion and storm damage. The mangrove here is a red mangrove.

Black mangrove ("Avicennia germinans") is the most common mangrove in the United States outside of the everglades. The straw-like spikes surrounding this plant are pneumatophores.

Mangrove trees dominate this wetland ecosystem due to their ability to survive in both salt and fresh water. In the continental United States, only three species of mangrove grow: red, black, and white mangroves. Red mangrove (*Rhizophera mangle*) is easily recognized by its distinctive arching roots. Black mangrove (*Avicennia sp.*), which often grows more inland, has root projections called pneumatophores, which help to supply the plant with air in submerged soils. White mangroves (*Laguncularia racemosa*) often grow even farther inland with no outstanding root structures. A greater diversity of mangrove species is found in the Indo-Pacific region.

A wide diversity of animals is found in mangrove swamps. Since these estuarine swamps are constantly replenished with nutrients transported by fresh water runoff from the land and flushed by the ebb and flow of the tides, they support a bursting population of bacteria and other decomposers and filter feeders. These ecosystems sustain billions of worms, protozoa, barnacles (*Balanus spp.*), oysters (*Crassostrea spp.*), sponges, and other invertebrates, some of which live attached to the roots. These organisms, along with those living in the mud at the bottom, in turn feed fish and shrimp, which support wading birds, pelicans, and the much endangered crocodile. Many fish species that live as adults on coral reefs live in mangroves as juveniles. Mangroves are sometimes referred to as "nursery habitats" for these species, and their presence increases the populations of these fish on the nearby reefs. Other species of fish inhabit mangrove areas for their whole life cycle.

Functions & Values

The importance of mangrove swamps has been well established. They function as nurseries and adult habitat for shrimp and recreational fisheries, exporters of organic matter to adjacent coastal food chains, and enormous sources of valuable nutrients. Their physical stability helps to prevent shoreline erosion, shielding inland areas from severe damage during hurricanes and tidal waves.

The snowy egret ("Egretta thula"), now common, was hunted almost to extinction in the early 20th century for its fine feathers which were used to adorn hats.

Status

As these wetlands are increasingly threatened by the damming of upstream sources, significant decline in their integrity and productivity has been observed. Mangrove swamps have experienced loss of 3.2 percent since the 1950s. In some countries mangroves are cleared to make way for shrimp aquaculture facilities or for hotels and condos. However, efforts are underway to enhance the protection of these valuable ecosystems. It was clear after the Indian Ocean tsunami of late 2004 that areas that still had mangroves along the coast were less damaged than areas from which the mangroves had been removed.

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