

# MANGROVES OF FLORIDA

**„Z Ohia, ktoré sme navštívili v prvej časti môjho rozprávania o rastlinách Severnej Ameriky, sa dnes prenesieme južnejšie, na Floridu. Na prelome rokov 2003 a 2004 som mala jedinečnú príležitosť stráviť niekoľko dní vo Vero Beach, na východnom pobreží polostrova. Bolo to moje prvé stretnutie so subtropickou flórou a nadchla som sa pre mnohé z rastlín nevidaných tvarov a farieb. Najsilnejší dojem však vo mne zanechali mangrovy. Odolávajú prílivom a odlivom a dokážu osídľovať nové lokality vzdialené mnoho kilometrov v iných častiach oceánu. Mangrovové porasty dávajú charakteristický vzhľad celému pobrežnému ekosystému a plnia v ňom mnoho dôležitých funkcií,“ spomína DANIELA MICHÁLKOVÁ a umožňuje vám dozvedieť sa viac v anglickom jazyku.**

When I swam on New Year's Day, 2004 in the Atlantic Ocean on the east coast of Florida, I found an extraordinary thing. It was a green stick about 20 cm long floating in the water. I was quite scared of it, because I had no idea what it could be. Later I found out it was a mangrove seedling. It is a powerful messenger of a new life. A seedling can float for months, unaffected by salt water, waves, and hot sun, traveling from place to place in the ocean. If it reaches shallow waters, and contacts soil, the seedling starts to grow into a new mangrove tree.

I was impressed by how powerful a plant can be. I heard about coconuts, traveling long weeks in the ocean until they finally find a new piece of land to live in. But I did not know a lot about mangroves. I found these plants very exciting.

The very surprising fact is that there are four similar kinds of mangroves, which are not closely related. Each of them is a different species from a different genus and even from three different families! It is unbelievable, how the adaptation to the similar life style can give a similar look to four absolutely different plant species.

The four mangrove species are Red, Black, White, and Button mangroves. Certain mangrove species tend to grow in different positions in relation to the water conditions. Red mangrove grows closest to and in the salt water. Black mangrove is less tolerant of living in salt water, so it usually grows along the edge of the water. The two related trees, the White mangrove and the Button mangrove, are generally found above the tideline. These preferences are not strict and occasionally all kinds of mangrove can be found growing together.

The mangrove forests are found in the tropical and subtropical zones of the Earth between latitudes of 30° N and 30° S. The geographical distribution of the four mangrove species within North America is quite similar. All four species live on the east and west coast of Florida. Because mangroves are sensitive to freezing temperatures, they grow better in central and southern Florida. Black mangrove also grows along the shore of the Gulf of Mexico and on the Pacific coast of Mexico. Outside of Florida, the Red and Button mangroves are present on the Atlantic and Pacific coast of Mexico and on the Baja peninsula.

**Red mangrove** (*Rhizophora mangle* from the Mangrove family, Rhizophoraceae), (Fig. 1) is sometimes called „walking tree,“ or „tree on stilts,“ because it grows seaward with arched aerial roots that turn downward

from the trunk. The aerial support roots may send up new trunks wherever they touch ground. The trees are rarely over 6 m tall in Florida, but they are up to 25 m tall in the tropics.

The evergreen leaves are leathery, opposite, elliptical, and 6 – 10 cm long. The Red mangrove's four-lobed flowers are pale yellow, 2 cm in diameter, and grow in pairs. Red mangrove has an interesting form of reproduction. A flower produces up to 25 cm long, fully germinated seedling, called a „propagule“. It is a long elliptical brown berry with a short apical yellow tube, through which the green stick-like radicle of the developing embryo protrudes. It was that strange thing, I found floating in the ocean.

**Black mangrove** (*Avicennia nitida* from the Verbena family, Verbenaceae) (Fig. 2) is the most cold resistant of the four species. For this reason the Black mangrove trees are much larger than the other species of mangroves growing in the same location. The black mangrove shrubs or trees can be up to 9 m tall and form a nearly solid canopy. It has opposite, leathery, 5 – 7 cm long leaves with

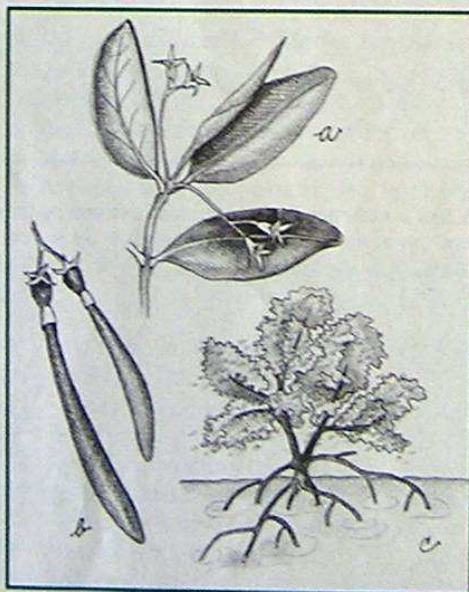


Figure 1: Red mangrove (*Rhizophora mangle*), a) a twig with flowers, b) propagules, c) a tree growing in the water with the aerial support roots

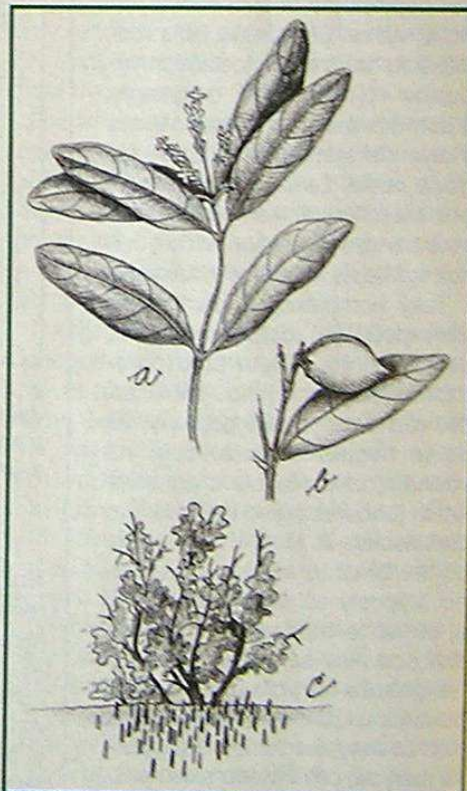


Figure 2: Black mangrove (*Avicennia nitida*), a) a twig with flowers, b) a seedling, c) a shrub with the pencil-like roots (pneumatophores)



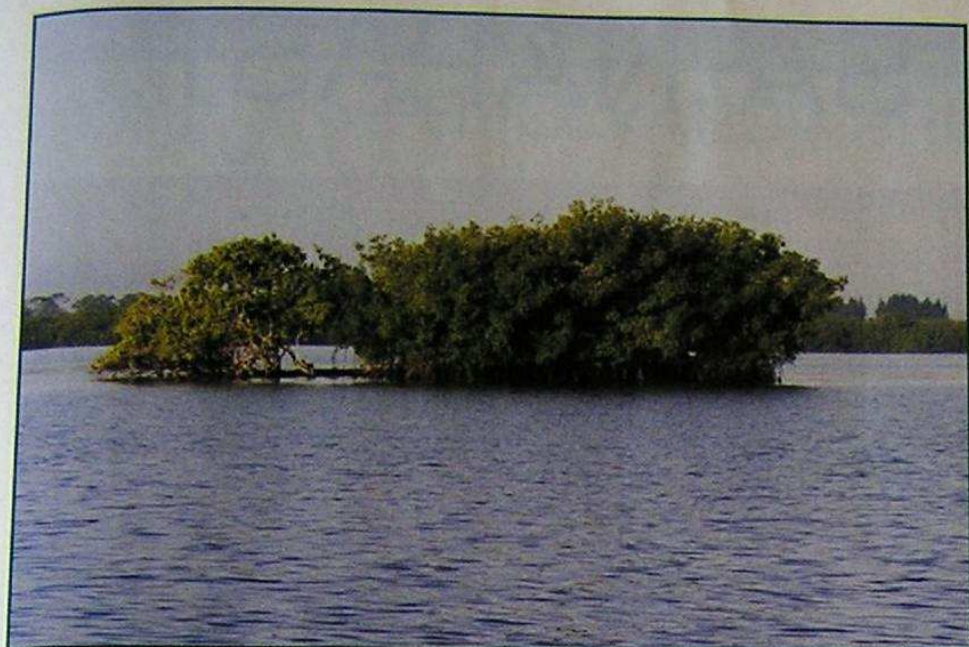


Figure 5: A mangroves made island

smooth, curly margins that are hairy below. Salt glands on the under side of the leaves secrete salt which can be tasted on the tongue. Little white flowers are in terminal clusters, which are up to 4 cm long. Beekeepers set out hives among these trees because the flowers produce good honey. Fruit of Black mangrove is a compressed, one-seeded, fully-germinated seedling.

Black mangroves have unique, numerous, pencil-like roots (pneumatophores) which grow upwards from the water or soil as vertical extensions on underground

propagules. White and Button mangroves reproduce through seeds.

The White mangrove (Fig. 3) has simple, opposite, 3 – 7 cm long leaves with a rounded apex. In the end of the red-brown stems are clusters of greenish-white flowers. Fruit is a 10-ribbed ovoid capsule about 1.5 cm long.

The Button mangrove (Fig. 4) has simple, alternate, 5 – 10 cm long leaves with a pointed apex. Flowers are in dense globular heads. The reddish button-like heads of tiny leathery fruits are about 1.5 cm in diameter.

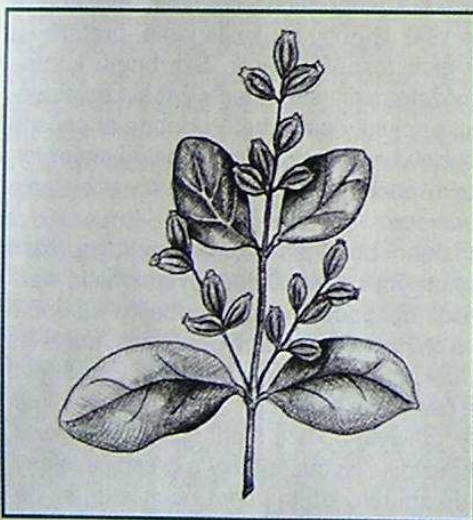


Figure 3: White mangrove (*Laguncularia racemosa*), a twig with the fruits

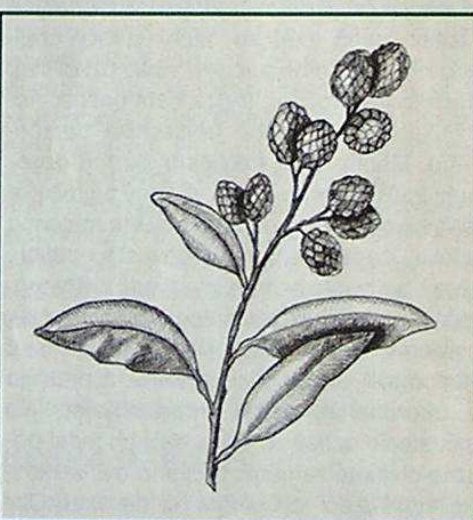


Figure 4: Button mangrove (*Conocarpus erectus*), a twig with the fruits

roots. They provide oxygen to the mangrove root system and may also provide extra support for the plant in the soft, wet soil.

**White mangrove** (*Laguncularia racemosa*) and **Button mangrove** (*Conocarpus erectus*), both from the Combretum family (Combretaceae), do not have aerial roots or root outgrowths. They grow at a higher elevation in brackish water (a mixture of salt and fresh waters). Unlike Red and Black mangroves which reproduce by forming

Mangrove swamps are extremely important to the coastal environment. The growth of mangroves along the coast breaks the waves of storms and hurricanes and prevents erosion. Pneumatophores form a network collecting soil and debris and creating new land in the muddy saline areas (Fig. 5). The roots of mangrove trees provide nursery grounds for young fish, crabs, and shrimp. In addition, hundreds of kinds of fish, birds, mammals, reptiles and amphi-

## VOCABULARY:

- **Aerial support roots** – vzdušné podporné korene
- **Arched** – oblukovitý
- **To cast** – hodit návnadu
- **Game fish** – druhý ryb, ktoré sa chytajú pre šport alebo na prípravu jedla
- **Hedge** – živý plot
- **Hive** – včeli úľ
- **Nursery ground** – miesto, kde sa rodia a vychovávajú mláďata
- **Outgrowths** – výrastky, odnože
- **Raccoon** (*Procyon lotor*) – severoamerický cicavec podobný mačke
- **Redfish** (*Sebastes marinus*) – ryba červenej farby
- **To rear** – chovať, vychovávať
- **Seedling** – semenáčik (mladá rastlina rastúca zo semena)
- **Shrimp** – jedlý morský kôrovec
- **Snook** (*Centropomus undecimalis*) – štíhla ryba s čiernou bočnou čiarou
- **Stilts** – chodule
- **Tideline** – zóna prílivu a odlivu
- **Trout** – pstruh
- **To trim** – strihať, orezávať stromy

bians use mangrove forests to nest, feed, and rear their young.

Much of the marine life around Florida is dependent on the food chain provided by mangroves. Oysters attach to the mangrove roots to be covered by water during high tide. At night, raccoons eat the oysters. Crabs bury themselves in the mud beneath the roots. Birds that nest in the mangrove's branches feed on the crabs. Small fish feed on the algae attached to the roots and larger game fish, like the redfish, snook, and trout feed on the little fish. Fishermen know that an area with mangroves that borders on deeper water will provide a good catch if they cast close enough to the roots.

The mangroves in Florida are now legally protected. Although Florida's coastline does not have the wider, denser mangrove jungles like other areas of the world, the vast majority of the coastline is covered by vegetation important to the ecosystem. Water-front owners complained for a long time of the dense mangrove growth which hinders the beautiful sea view and occupies the space that might be used for beaches. Finally, the legislature has changed the laws and the former policy of removing mangroves was replaced by the trimming. It seems to be a good solution. A trimmed mangrove grows thick and hardy just as other „hedges“ will if care is taken. And remember, a white sandy beach is beautiful but not if it is washed out to sea from a hurricane...

■ Kresby a foto autorka

## WEBSITES:

- <http://www.floridacconservation.org/fltrails/habitat/mangrove.html>
- <http://www.fl-ag.com/forest/mangrove.htm>
- <http://www.webcoast.com/environment/mangroves.htm>