



## About Bahamian Mangroves

Mangroves, a type of salt-tolerant tree, grow in shallow salt or brackish waters in creeks and along the coast of Bahamian islands. They form mangrove wetlands which provide nursery grounds for over 100 species of fish and marine invertebrates. The wetlands are a home to many animals such as: crawfish, snappers, land crabs, bats and birds, to name a few. Mangrove wetlands also serve another important role: they help trap pollutants washed from land and sediments that would otherwise flow into the ocean and could potentially suffocate corals. In addition, they act as buffers between the land and sea and provide protection to coastal shorelines and the nearby coastal communities.

Mangrove wetlands in The Bahamas are threatened because, unlike other areas of the world, they are not protected by law. One of the biggest threats to the mangroves is the demand for coastal development. As more development occurs, the wetlands are cleared away to make room. It is vital that we help conserve this unique habitat. Mangrove wetlands in The Bahamas serve important economic roles. They not only help prevent destruction of coastlines, but they also enhance eco-tourism, one of the fastest-growing aspects of the tourism industry in The Bahamas. In addition, scientific studies have proven that healthy mangrove systems are directly linked to healthy coral reefs and off-shore fisheries.

Four different types of mangroves can be found in The Bahamas: red, black, white and buttonwood. On the following pages you can find more information about each individual species, as well as a comparison chart for your reference.

### Red Mangrove (*Rhizophora mangle*)

Red mangroves grow in brackish areas along shorelines or in shallow water and are the most salt-tolerant species of mangrove. They can easily be distinguished by their high prop roots (*Figure 1a*) which support the tree, supply air to the underlying roots and help stabilize the substrate. The red mangrove's high prop roots also provide hiding spots for juvenile fish, providing a labyrinth for them to hunt and seek shelter. Because red mangroves have an especially high salt tolerance, they are often found closer to the water than the other mangroves in the community. Red mangroves are unique in their reproductive habits. These mangroves have 15 cm (6 in) propagules (*Figures 1b and 1d*) that hang from the trees year-round and germinate while still attached to the mangrove. After germinating, the propagules fall from the tree and remain in the water for at least 40 days before roots begin to emerge.



*Figure 1a*



Figure 1b



Figure 1c



Figure 1d



Figure 1e

Red mangroves have 7-13 cm (3-5 in) long leaves that are 2-5 cm (1-2 in) wide and oppositely arranged (Figure 1b). The leaves are elliptical in shape, with dark green coloring on top and a paler coloring below. These mangroves have pale yellow flowers that appear in the spring (Figure 1c). They also produce a rusty-brown conical berry (Figure 1d). The red mangrove's bark is a gray or grayish-brown color that is ridged and scaly (Figure 1e).

### Black Mangrove (*Avicennia germinans*)

Black mangroves (Figure 2a) can be found slightly higher up in the intertidal zone than red mangroves and can be easily distinguished by their pneumatophores. Pneumatophores are thin, vertical projections that grow from the black mangrove's roots underground and extend outwards around the tree; the pneumatophores serve as "vents" for air exchange to the roots (Figure 2b). Black mangroves also have distinctive leaves; their leaves are 5-8 cm (2-4 in) long by 2-4 cm ( $\frac{3}{4}$  -  $1\frac{1}{2}$  in) wide and oppositely arranged (Figure 2c). The leaves are oblong shaped and usually have a shiny upper surface coated with salt crystals and an under surface that is hairy. The base of the leaf is wedged and the tip is rounded.



Figure 2a

Black mangroves also have egg-shaped fruits that are green and are about 4 cm (1.5 in) long by 2.5 cm (1 in) wide (Figure 2d). Its bark is dark-brown with long, vertical furrows (Figure 2e). They have white flowers that bloom in June and July (Figure 2c). When in bloom, the nectar from black mangroves is used to produce "mangrove honey." Because black mangroves help hide small fish and crabs amongst their root structures, night herons and other sea birds are often seen prowling around them in the mangrove swamps.

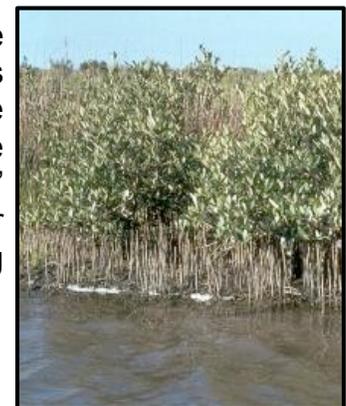


Figure 2b



Figure 2c



Figure 2d



Figure 2e

White Mangrove (*Laguncularia racemosa*)

White mangroves occur on higher land than both the red and black mangroves and can grow as tall as 15 m (50 ft) in height. These mangroves are fast growing in fertile habitats and can be easily identified by their leaves and root system. White mangroves may have either prop roots or pneumatophores, though many have neither (*Figure 3a*). The species can be distinguished from black mangroves because its pneumatophores (if present) will be fewer in number, wider, and often more branched. Its leathery, elliptical leaves are yellowish-green, oppositely arranged, and 2.5-8 cm (1-3 in) long (*Figure 3b*). The leaves are rounded at the base and tip and are smooth underneath. Each leaf has two glands at its base that excrete sugar. These glands are called nectarines and the sugar they excrete is popular with many insects. The white mangrove's bark is reddish-brown, ridged and scaly (*Figure 3c*). Its fruit is gray-green, pear-shaped and has a dark red seed (*Figure 3d*); its flowers are small and pale green in color (*Figure 3e*).



Figure 3a

Not only do white mangroves attract insects with their sugar secretions, but they also attract many small lizards that use their branches and trucks as perches to bask or hunt. Several bird species, including gulls and kingfishers, also hunt and perch on and around the white mangroves.



Figure 3b



Figure 3c



Figure 3d



Figure 3e

Buttonwood (*Conocarpus erectus*)

Buttonwoods get their name from the button-like appearance of the dense, rounded flower heads that grow in branched clusters (*Figure 4a*). These trees are sometimes considered “mangrove associates” because they are less salt tolerant than “true” mangroves and are therefore found further inland than red, black or white mangroves. They are usually low-branching and multi-trunked (*Figure 4b*).



Figure 4a

Buttonwoods can be distinguished from other mangroves by their leaves. Red, black and white mangroves all have oppositely arranged leaves, but the buttonwood’s leaves are alternately arranged. The leaves are oblong-shaped with dark, shiny green upper surfaces and paler, smooth, hairy under surfaces (*Figure 4c*). They’re about 2.5-10 cm (1-4 in) long and 1-3 cm (½-1½ in) wide; they’re the smallest and least robust of the mangrove wetland trees. At the base of each leaf are two salt-excreting glands. The fruit of the buttonwood is tiny and reddish (*Figure 4d*). Its bark is dark-brown to black and has flat, interlacing ridges (*Figure 4e*).



Figure 4b



Figure 4c



Figure 4d



Figure 4e

	Red Mangrove	Black Mangrove	White Mangrove	Buttonwood
<b>Leaves</b>	<ul style="list-style-type: none"> <li>• Large, broad leaves (~13 cm or 5 in), elliptical shape, end in blunt point</li> <li>• Waxy, dark green on top; pale yellow underneath</li> <li>• Oppositely arranged leaves</li> </ul>	<ul style="list-style-type: none"> <li>• Oblong-shaped (~8 cm or 4 in)</li> <li>• More narrow than red mangrove leaves</li> <li>• Green, shiny upper surface, often coated with salt crystals</li> <li>• Underside coated with dense hairs</li> <li>• Oppositely arranged leaves</li> </ul>	<ul style="list-style-type: none"> <li>• Broad, flat, oval (~7.5 cm or 3 in)</li> <li>• Rounded at both ends, leathery, flattened</li> <li>• Two glands at the base of each leaf that excrete sugar</li> <li>• Oppositely arranged leaves</li> </ul>	<ul style="list-style-type: none"> <li>• Pointy, oblong-shaped leaves</li> <li>• Dark, shiny green upper surface; paler, smooth, hairy under surface</li> <li>• Two salt-excreting glands at the base of each leaf</li> <li>• Alternately arranged leaves</li> </ul>
<b>Roots</b>	<ul style="list-style-type: none"> <li>• High prop roots from trunk grow downwards</li> </ul>	<ul style="list-style-type: none"> <li>• Aerial roots (pneumatophores) grow upwards from ground</li> <li>• Extensive network of finger-like projections around base of the tree</li> </ul>	<ul style="list-style-type: none"> <li>• Can have prop roots or pneumatophores; many have neither</li> <li>• In oxygen-deprived environments, will develop peg roots (short, stout pneumatophores)</li> </ul>	<ul style="list-style-type: none"> <li>• Low-branching and multi-trunked</li> </ul>
<b>Bark</b>	<ul style="list-style-type: none"> <li>• Grayish-brown bark; covers dark red wood</li> </ul>	<ul style="list-style-type: none"> <li>• Dark brown, scaly bark</li> </ul>	<ul style="list-style-type: none"> <li>• Reddish-brown, ridged and scaly bark</li> </ul>	<ul style="list-style-type: none"> <li>• Dark-brown to black, rough bark with interlacing ridges</li> <li>• Often covered in epiphytes</li> </ul>
<b>Location</b>	<ul style="list-style-type: none"> <li>• Shoreline, from upper subtidal to lower intertidal zones</li> </ul>	<ul style="list-style-type: none"> <li>• Immediately inland from red mangroves</li> </ul>	<ul style="list-style-type: none"> <li>• Prominent in high marsh areas; typically upland of both red and black mangroves</li> </ul>	<ul style="list-style-type: none"> <li>• Silty, muddy shorelines of tidal bays; generally the most landward of the mangroves</li> </ul>
<b>Size</b>	<ul style="list-style-type: none"> <li>• Tallest (24.4 meters or more; 80+ ft)</li> </ul>	<ul style="list-style-type: none"> <li>• Second tallest (reach a max of 19.8 m; 65 ft)</li> </ul>	<ul style="list-style-type: none"> <li>• Second smallest (reach a max of 15 m; 50 ft)</li> </ul>	<ul style="list-style-type: none"> <li>• Smallest (reach a max of 12.2 m; 40 ft)</li> </ul>

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