

Pinny the Bahama pintail duck says:



- Wetlands are one of the most threatened ecosystems in the world.
- In the Bahamas they are suffering heavily from the effects of unsustainable development, illegal dumping and invasive species.
- 80% of the Bahamian people believe that wetlands need further protection.
- You can help wetlands in the Bahamas by supporting cleanup events and sustainable development through the BNT's wetland adoption program.

Quick reference



Mission of the BNT

To conserve and protect the natural resources of the Bahamas, through stewardship and education for present and future generations.

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Preserving our Bahamian wetlands

Bahamas National Trust

Field guide to the

Wetland plants of the Bahamas



Introduction

The chain of islands of the Bahamas are typically flat and are also found in relatively shallow waters. Therefore, the Bahamas is largely dominated by wetland ecosystems making them the most important ecosystems ecologically, economically and socially in the Bahamas. This booklet is to serve as a guide to the flora that dominate the different wetlands of the Bahamas with particular concentration on the mangrove trees that inhabit these hostile places.

What is a wetland?

A wetland is any area that is regularly flooded with fresh, salty or brackish water. They are often referred to as Marshes (containing herbaceous plants) or Swamps (containing woody plants) but in the Caribbean alone, more than 100 different types of wetlands have been described. Although the common denominator of a wetland tends to be water, they are not always wet. Many wetland areas become completely dry either during a very dry year, seasonally or daily due to tides. Therefore, wetlands can be considered either permanent or temporary.

Types of wetlands in the Bahamas?

The governing factor that determines the type of wetland is dependent on the frequency and quality of water coming in and out of the wetland. This is referred to as its **Hydrology**. The hydrology of a wetland therefore largely determines the species of plants that can grow in that area.

Wetlands of the Bahamas fall under two main categories: **coastal wetlands** and **inland wetlands**.



It grows very quickly and eventually replacing native plants in an area. It particularly likes moist environments such as wetlands and is very common around wetlands of New Providence.

HAWAIIAN GRAPE (*Scaevola sericea*)

A native to Asia, this tree was accidentally introduced into Florida in the 1970's and in the 80's it was encouraged as a sand dune restoration plant but now it is considered the opposite.



MELALEUCA (*Melaleuca quinquenervia*)

A native of Australia, this plant was introduced to the America's in the early 1900's as an ornamental and erosion control.

This tree particularly likes wetland areas and will quickly replace the native wetland plants and drinks up lots of water. It is a particular problem in Grand Bahama and increasingly so for New Providence.

Invasive plants of wetlands

An alien invasive species is an organism from another region that is so reproductively successful and aggressive that when it is introduced to a new region it can dominate an area, often to the point of completely taking over and interfering seriously with the natural functioning and diversity of the system where it becomes established.

Habitats and certain native species are at risk in the Bahamas due to invasive species. The main invasive plants affecting wetlands in the Bahamas today are listed below.

CASUARINA (*Casuarina equisetifolia*)



Native to Australasia (Asia and Australia combined). This tree was first introduced to the Americas in the late 1800's either as an ornamental, for shade or firewood.

It grows very well in all terrestrial environments in the Bahamas and that include the wetland areas. Wherever it grows, eventually replacing the vegetation native to that area. However, it is not well adapted to hurricanes and other such phenomena

typical of the Bahamas and therefore reduce the mangrove plants that are.

BRASILIAN PEPPER (*Schinus terebinthifolius*)

A native of South America that was introduced to the Americas in the 1800's as an ornamental.

COASTAL WETLANDS

These wetlands typically are found along the coast and are influenced heavily by the tides. The plants that are associated with these wetlands are very salt tolerant and the soils are often sandy. As they are connected to the sea, they are extremely important as nurseries for many different types of commercially important seafood. They are also important buffer zones between the land and the sea, as they protect the coastline from storm surges as well as slow down the amount of runoff into the sea.

INLAND WETLANDS

Inland wetlands are wetlands that are cutoff from the sea. Their hydrology is then influenced more from rainfall, rivers (not applicable to Bahamas as it lacks rivers) or ground water. Areas that receive a lot of rainfall or have a large supply of fresh ground water will often have wetlands with brackish water. Whereas, inland wetlands with little rainfall and salty ground water have a higher salt concentration than sea water, often referred to as hypersaline ponds.



Hypersaline pond on Little Inagua

What is a mangrove?



Mangroves are the trees that occupy wetlands. There are more than 50 species of mangroves world-wide of which four are found in the Bahamas. The different mangrove trees grow in slightly different conditions from one another but they do have many similar adaptations to help them survive in the harsh conditions that are shunned by most other plants.

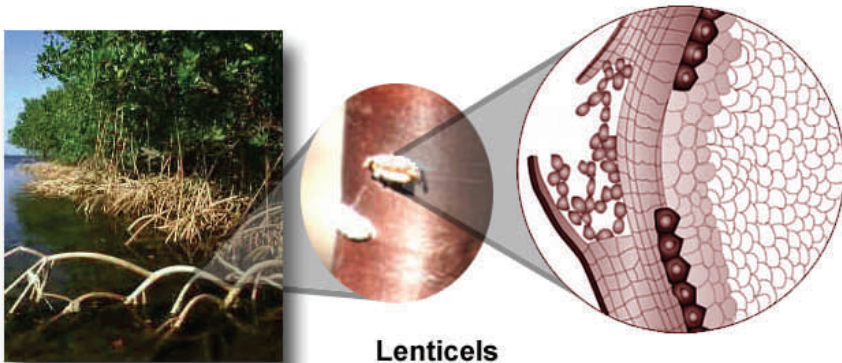
Red Mangrove

Rhizophora mangle

The Red Mangrove is the most water-loving of all the mangrove trees in the Bahamas and so it is the first mangrove tree you would encounter while traveling from the sea to land. It is considered a “land builder” as it stabilizes and traps sediment allowing other plants behind to take hold.



Easily identified by its reddish colored, branching out roots known as **Prop roots**. These roots are covered in tiny “*air breathing*” holes known as **Lenticels**. The Red mangrove can thrive in the salt water as it actively excludes the salts at their root surfaces via reverse osmosis.



Lenticels

SAWGRASS (*Cladium jamaicense*)



POND APPLE (*Annona glabra*) “Custard apple”



SEA PURSLANE (*Sesuvium portulacastrum*)



MANGROVE VINE (*Rhabdadenia biflora*)

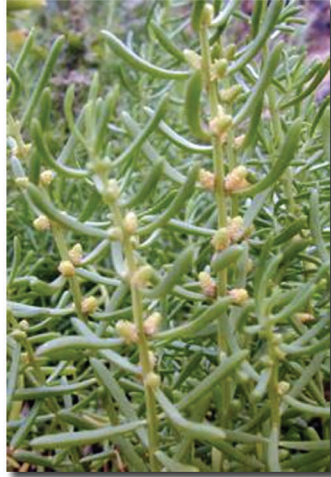


Other wetland plants

LEATHER FERN (*Acrostichum aureum*)



SALTWORT (*Batis maritima*)



WILD CORAL (*Salicornia virginica*)



CATTAIL (*Typha domingensis*)



The leaves are oval in shape, bright green and grow opposite from each other. The Red Mangrove flowers year round but more frequently in the Spring and Summer months. The flowers are yellow-cream with four pointed petals (yellow sepals, white petals).



The flower germinates into an elongate, torpedo-like seedling called the **propagule**. This propagule remains on the plant until it reaches about 12 inches in length where it falls into the water, often floating down stream to another suitable location.



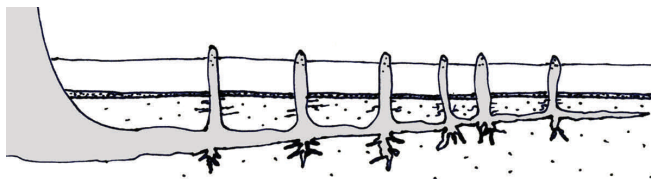
Black Mangrove

Avicennia germinans

This is the second mangrove that is normally encountered when traveling from the sea into the land. It is often seen growing just behind the Red Mangrove but it is also the most salt tolerant of the mangrove trees and so it is often the dominant mangrove associated with hypersaline ponds.



Black mangroves are easily identified by their roots. They extend long horizontal roots that have many small, vertically growing “**breathing roots**” that rise from them. This forms a carpet of finger-like structures around the plant called **pneumatophores**. The pneumatophores contain lenticels and are usually long enough to stick up above the water surface at high tide to help “breathe”. Generally, the more water logged the surrounding sediment is, the more pneumatophores the plant produces.



The leaves of the buttonwood are alternate from one another on the stem making the Buttonwood very different from the other mangrove trees.



They also have the presence of glands on either side of the stem which are also now accepted as sugar secreting nectarines. Like the White Mangrove, it is thought that these glands are to attract certain insects such as ants and wasps which would also defend the tree from herbivorous attacks by other insects.

On the underside of the leaves are tiny pockets located where the main branching veins meets the main middle vein (**midrib**). These pockets are known as **domatia**, inside which mites can live. This again attracts beneficial insects to defend the plant from herbivorous attacks.



Buttonwood

Conocarpus erectus

The Buttonwood, also known as the Grey Mangrove, has a regular root system, unlike the other mangrove trees. It prefers the drier land and well drained soils, therefore is found further inland than the other mangroves. However, it is very salt resistant and it can be found around salinas and along sandy or rocky shores.



In the Bahamas there are two color forms of Buttonwood, the Green Buttonwood and the Silver Buttonwood. The Silver coloration is produced from many tiny hairs on the leaves called **trichomes**. These hairs aid in reducing water loss through the leaves but also reportedly make the leaves more resistant to herbivorous attacks.

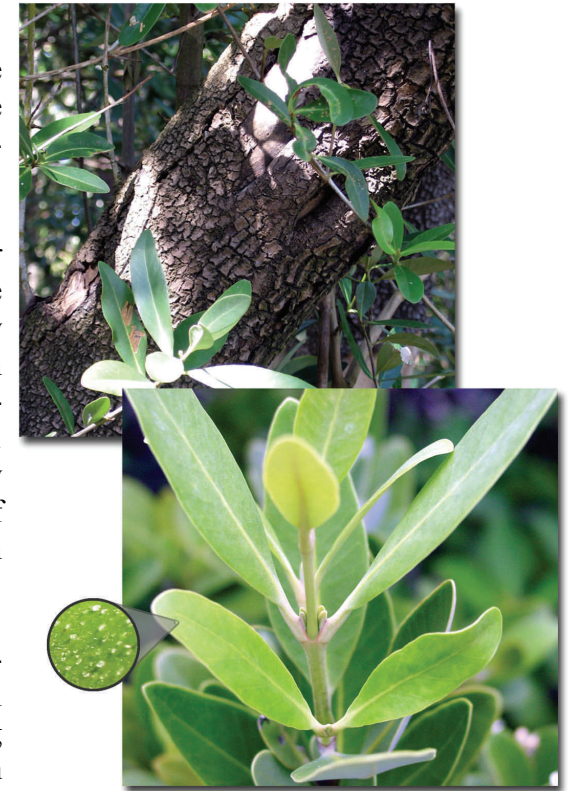
The flowers are produced year round and are described as being “button-like”, lending the plant its name. Later developing into brown fruits.



The Black mangrove gets its name from the dark, and often blackened bark.

The leaves are longer and narrower than the other mangroves. They are opposite, dark green on top and the underneath has short hairs. Salt secretion usually takes place on the leaf service at night or on cloudy days.

Black mangrove produces clusters of small white flowers in spring and summer which then grow into flattish propagules about 1 inch long.



White Mangrove *Laguncularia racemosa*

White mangrove is the least salt tolerant of all the mangrove trees. It also prefers drier conditions compared to the Red or Black mangroves and so it is usually found growing more inland, just behind the Black mangrove. The white mangrove can be easily confused with the Black mangrove as it often has pneumatophores growing vertically out of the sediment to help the plant obtain oxygen to take to its lower roots. However, as the white mangrove prefers drier conditions, it has much fewer pneumatophores than the Black mangrove. Similarly, the White mangrove on the rare occasion produces aerial roots that resemble the prop roots of the Red mangrove, however, these are not as dramatic as the Red mangrove prop roots.



White mangrove is most easily distinguished from the others by its leaves. The leaves are opposite but are much more rounded than the Black mangrove. They are usually a lighter green with a

red or pinkish stem and at the very tip of the stem are two visible glands. It has been previously believed that these glands were salt secreting but it is now accepted that they are sugar secreting glands called **nectaries**. It is thought that these nectarines attract certain insects such as ants and wasps that could help to defend the plant against herbivorous attacks.



The flowers are very small, white and bell shaped, produced in late spring and early summer. From the flowers form the propagules which is more flat in shape, green and ribbed.

