GREAT ADVENTURES

# Green Island

## SELF GUIDED ECO WALK

With a circumference of just 1.6km, Green Island is home to over 120 species of plants, including a unique mixture of coastal and rainforest plants.

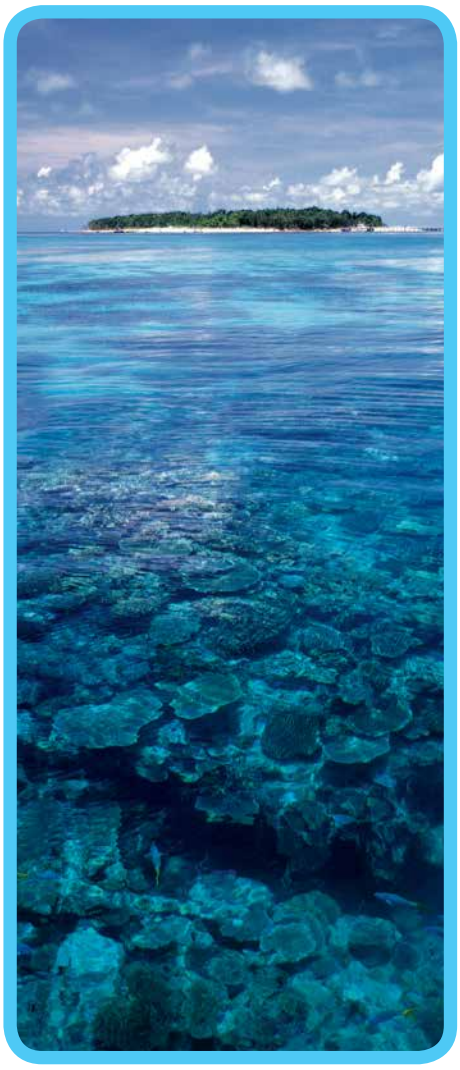
The coastline is ringed by short, scrubby coastal vegetation that can survive drier conditions along the beach. But, step a few feet in to the centre of the island, and the vegetation changes abruptly to a dense, shady vine-thicket rainforest. In fact, of the 300 coral cays on the Great Barrier Reef, Green Island is the only one with a rainforest.

**Please return this booklet to the Information Counter (or Dive Shop).**
Copies are available to download from our website at www.greatadventures.com.au


If you would like to learn more about Green Island's amazing history, take some time to visit the colourful Interpretive Boardwalk, past Marineland Melanesia (marked on the map).

These booklet also highlights some of Green Island's interesting facts and commonly found bird species, so take the time to enjoy this unique Great Barrier Reef island. To discover more about the native trees and their seeds, follow the map to find the numbered locations.

# Green Island in Brief



**There are over 900 islands within the Great Barrier Reef Marine Park. They fall into two different types - continental islands and coral (or sand) cays.**

**Green Island is a very unique island. It is one of 300 sand cays on the Great Barrier Reef, but it is the only one with a rainforest.**

## Location

Green Island and its reef is very close to the mainland, lying only 27 km (16 miles) from Cairns. The island sits on the north-western edge of the reef flat. The surrounding reef is classified an 'inshore patch reef '.

## A Protected Area

The Australian government recognises that Green Island is a very special place and has protected it in several ways:

- The island is a National Park and all commercial activities are regulated by permits.
- The reef and underwater habitats are part of the Great Barrier Reef Marine Park.
- Both Green Island and its reef are included in the Great Barrier Reef World Heritage Area, which gives it international protection under UNESCO.

## Island Formation

Sand cays are islands that form on top of existing reef structures - they are basically large piles of sand, coral rubble, broken shells and other reef debris.

Wave action pushes the rubble debris into a pile on the leeward, or calm side, of a reef flat. If conditions are just right, this pile of rubble grows into a small sand island.

Seabird droppings help cement the sand together so that it will not wash away with tides. They also provide nutrients for germinating seeds that wash onto the island. Over time, if conditions remain 'just right', the island can develop a complex ecology.

## Age

The exact age of Green Island is unknown, but best estimates are about 6,000 years old.

Scientists know that all sand cays on the Great Barrier Reef formed since the last Ice Age, about 8,000 years ago, when low sea levels destroyed all previously existing sand cays.

## Marine Life

The reef surrounding Green Island supports a diverse range of habitats and marine life.

There are two significant habitats:
1. The seagrass beds in the shallows
2. The reef that starts shallow and continues into the depths.

Seagrass beds support a wide range of animals, from juvenile fish that use the grass for protection from predators to large sea turtles and dugong that feed on the seagrass.

The reef around Green Island has over 190 different types of hard corals and over 100 types of soft corals.

## Climate

Green Island's climate is tropical, with a wet season (January to March) that brings an average yearly rainfall of over 2 metres (86 inches).

Mean air temperatures vary between 24°C - 31°C in summer (November – April) and 19°C - 23°C in winter (June – August).

Prevailing winds come from the southeast and can reach speeds of over 35 knots. They are usually strongest in winter.

## Green Island Facts & Figures

| | |
|---|---|
| Island Size | 12 ha (30 acres) |
| National Park Area | 7.93 ha |
| Reef Area | 1,200 ha |
| Length | 660 m |
| Width | 260 m |
| Circumference | 1.6 km |
| Maximum Height | 4 m |

# Bird life on Green Island

**Green Island attracts a wide range of birds, including land birds, seabirds and migratory birds that pass through the Great Barrier Reef on the way to nesting grounds. Over 55 species are seen regularly on Green Island. Of these, 13 are seabirds and 38 are shore and land birds.**

**About 15 types of birds regularly nest on the island. Here are some of the birds you may see...**

## Silvereye

Silvereyes are small gregarious birds. Their tiny cup-shaped nests are made from grasses and coconut fibres that are held together with cobweb strands.

They start breeding when they are very young, and if they are successful with their first mates, they remain with that mate for life.

## Ruddy Turnstone

These small shorebirds migrate every year between the Artic Circle and Great Barrier Reef (many thousands of km). They arrive on Green Island about September and leave mid-March.

Their name comes from their habit of using their beaks to flip over rocks and shells looking for worms, sand fleas and small crabs to eat.

## Osprey

Ospreys catch fish with their talons, not their beaks. Their feet have sharp spicules to help grip slippery fish. Strongly muscled legs allow them to carry fish up to 2 kg, which is more than the bird itself weighs.

Mating pairs of osprey stay together for life. The pair on Green Island has been here for many, many years.

## Torres Strait Pigeon
(also Pied Imperial Pigeon)

These large migratory doves spend winter months in Papua New Guinea and summer in the Great Barrier Reef. They come to Green Island to nest and feed on tropical fruits.

Up to 3000 birds nest on the island yearly. Their nests are poorly constructed piles of twigs. Both males and females produce 'milk' to feed their young chicks. Although nearly impossible to see in the foliage, their soulful coos are heard throughout the day.

## Reef Heron

Reef herons come in two colours – white and grey, but never pied (both colours on one bird). Although they look different, they are the same species. It is a lot like humans having either blue or brown eyes.

These birds are ambush hunters, able to stand at the water's edge for long periods waiting for prey (crabs, fish) to come to them. They use their beaks to stab the prey, then toss the food into the air and swallow it (fish are swallowed head first to avoid choking on spiky fins).

## Buff Banded Rail

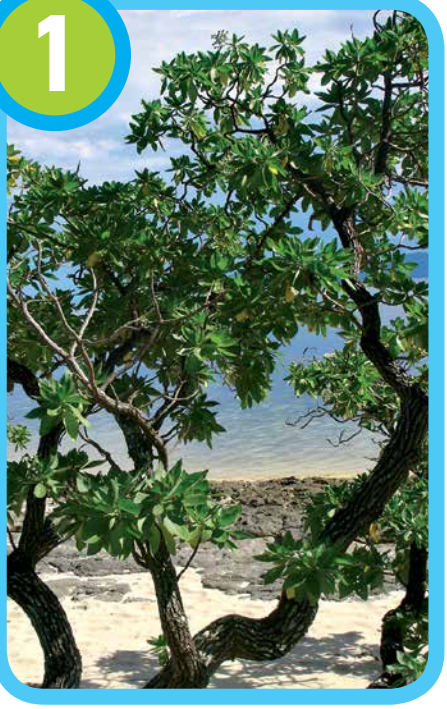
These birds are ground dwelling and nesting birds. It has a distinctive grey eyebrow and an orange-brown band on its streaked breast.

Adults are well camouflaged, but chicks are small black balls of fluff. Both parents incubate the young who will leave the nest within 24 hours. The female parent may feed the chicks but they usually feed themselves.

They forage in the ground litter, using their feet to stir up leaves in pursuit of insects and small lizards.

Starting at the Helipad at the end of the southern walking track, you will find the Octopus Bush. Look toward the beach...

1



## Messerschmidia argentea
## Common name: Octopus Bush

### Plant

Compact rounded shrub. The root system tends to be very expansive, much bigger in area than the visible part of the plant. The root system supports the plant and also minimises erosion in the immediate area.

### Leaves

The leaves are crowded towards the ends of branchlets and are thick, strong and covered in a fine 'fuzz' of silvery hairs. These fine hairs reflect the worst of the harsh sunlight and prevent salt from sea spray contacting the surface of the leaf and damaging it.

### Flowers

- Periodically.
- Tiny (0.2cm) white stalkless flowers form dense clusters at ends of stems that look very similar to octopus arms, giving rise to the common name of Octopus Bush.

### Fruit & Seed

- Periodic fruiting, very small (0.2cm) smooth and fleshy fruits enclosed in small hairy lobes, which turn black when ripe.

### Uses

- Good fire wood.
- Leaves used for handling food.
- Young leaves edible raw or cooked.

Follow the path back (toward the jetty) and near the entrance to the helipad you will soon discover the Beauty Leaf.

2

## Calophyllum inophyllum
## Common name: Beauty Leaf

### Tree

- Short large trunks.
- Found mostly on high water mark with low spreading branches overhanging the beach. Resilient to cyclones and tolerant to salt, able to grow right on the shoreline.
- The trees are a favoured site for the green ants that fold and stick the leaves together to make their nests.

### Leaves

- Large, 10 - 20cm long oval, very glossy dark green.
- Leathery and tough.
- Identifiable by their closely parallel veins extending from the centre to the outside of the leaf.
- Milky sap exudes from broken stems and is poisonous.

### Flowers

- November to February.
- Large bunches of white flowers (2.5cm across) with a very fragrant smell.
- Clusters of yellow stamens.

### Fruit & Seed

- May to August.
- 2.5 - 5cm long.
- Hang singly or in small bunches.
- When ripe the flesh is pale yellow.
- When dry, it looks like a hard brown ball - about golf ball size.

### Uses

- Mixture of ground nut kernels and red pigment to treat body pain.
- Nut oil (poisonous) used for lighting.
- Can be made into a bright yellow soap.
- Can be used as a laxative.

## Caring for Green Island

ECO CERTIFIED advanced ecotourism

Ecotourism Australia HALL OF FAME

Great Adventures is recognised as a High Standard Operator by the Great Barrier Reef Marine Park Authority and has attained Australia's highest level of ecotourism certification, and climate action accreditation.

This ensures visitors the opportunity to learn about and appreciate this environment, while as an operator, being committed to sustainability and the preservation of this beautiful and important World Heritage area. On Green Island, we now generate around one-quarter of the island's energy needs by solar power. That's pretty impressive for a rainforest covered island!

Near the entrance to the helipad you will see an example of the Cardwell Cabbage.

3

## Scaevola sericea
## Common name: Cardwell Cabbage or Sea Lettuce

### Plant
Bushy spreading shrub 2 to 3 metres high with dense foliage and semi-woody stems.

### Leaves
- Shiny light green leaves with a very rounded tip.
- Waxy coating on upper surface and the ability to curl leaves reflects sunlight and avoids evaporation.

### Flowers
- Periodically.
- Small white flowers, five fringed petals form "half" a flower.

### Fruit & Seed
Small round fruits on short stalks turn from green to white as they ripen, enclosing a hard, ridged, one to two seeded stone.

### Uses
- Young leaves are edible both raw and steamed.
- Smaller stems hollowed and used to make pipes.
- Juice from fruits used to treat sores, tinea and sore eyes.
- Heated leaves placed on swollen joints.

Continue along the path (toward the jetty) and follow the first path to the left. Look toward the beach and you will see a grove of Casuarina Trees.

4

## Casuarina equisetifolia
## Common name: Coastal She-Oak or Whistling Pine

### Tree
- Casuarinas start life as a fairly thin scraggly tree which grows tall and thick.
- Although looking like a type of pine, they are actually not related.
- Casuarinas have an extensive root system that provides a stable base and also stabilises the immediate environment. They are the only non-legume plants in Australia which are able to access atmospheric nitrogen.
- The name Casuarina refers to the similarity of the hanging branchlets to the feathers of a cassowary. The common name, She-Oak, comes from the similarity of the worked timber to northern hemisphere oak, however early settlers did not think it was very good. Back in those times, the word "she" was given to anything inferior. Whistling Pine comes from the sound of the wind through the foliage.

### Leaves
The long weeping 'leaves' are actually a modified branch called a 'branchlet'. The leaves are small spikes visible in each segment of the branchlet. Their small size minimizes surface area and consequently any moisture loss.

### Flowers
The male flowers appear on the ends of the branchlets as tiny catkins, which shed pollen into the air. The inconspicuous female flowers are carried on the main branches and after fertilisation swell into a small woody cone.

### Fruit & Seed
The seeds are small and winged, meaning they can be carried to new areas by the wind as they drop from the cone.

### Uses
- Timber used for making spears and woomera pegs.
- A preparation of inner bark and young sapwood used to treat toothache or sore mouth.

Head back along the main walking path and continue (toward the jetty) to the Pandanus.
Another good example can be seen near the top of the jetty.

5

## Pandanus tectorius
## Common names: Pandanus Palm or Walking Tree

### Tree

A Polynesian story says if the male tree is not close enough to a female tree, he simply walks closer to her. Actually, the trees lean over to get as much sunlight as possible, often sending down new roots and releasing other roots - in this way they can move along in a direction, up to two metres in five years.

- Screw Palm - for the way that the tree grows by spiralling upwards.
- The root system is distinctive and easily observed. The roots start quite high on the main trunk and spread out to make a wide base which helps the tree stay upright in unstable sandy or swampy environments. Special cells on the roots' surface dispose of unwanted salt. The trunk and branches are covered in small pointed nodules which are dormant roots, ready to shoot if the tree becomes unstable.

### Leaves

- 1.5-2 metres long and quite thin, tapering to a point.
- Grow in a bunch at the end of each branch and look similar to a palm. They have a series of thorns along the central rib and the leaf edge.

### Flowers

Male and female flowers on separate plants, small white and inconspicuous.

### Fruit & Seed

- June to October.
- The fruit looks like a round pineapple about the size of a soccer ball, made up of many of loose, wedge shaped segments. Each segment has a woody base and a fibrous tip containing fruit pulp. The fruit is theoretically edible but without correct preparation it can cause sores and ulcers in the mouth. The woody base contains edible seeds. The segments are buoyant so the tree can spread through watercourses and across oceans.

### Uses

- The leaves have tough fibres growing along their length that can be woven to make ropes, nets, mats and baskets.
- Fruit kernels eaten raw or roasted, or pounded to make bread.
- Medicinal:
  - Inner core of young trees eaten for stomach pains, diarrhoea and colds.
  - Preparation from core of stem drunk or applied for mouth sores, toothache and wounds.
- Trunk has a fibrous buoyant core that can be used to make rafts after being skinned.

Just before the jetty on the left side of the path, you will find the Strangler Fig.

6

## Ficus virens
## Common names: Strangler Fig or Banyan tree

### Tree

Large to enormous spreading deciduous tree up to 30 metres high producing large aerial and prop roots.

Strangler Figs almost always germinate in the hollow of another tree, where the seed, having passed through a bird, lodges in a spot where leaf litter gathers providing nutrients. The fig thrusts a small shoot into sunlight while growing slender unobtrusive roots toward the ground. When the roots reach the ground and have access to water and nutrients, the fig accelerates its growth, sending more roots around the trunk of the tree and attempting to shade the crown of the host tree with its own leaves. As the roots grow, the host tree is constricted, eventually choking. When the host tree dies, it leaves the canopy space vacant and the fig tree then occupies the space. The decaying host also provides the fig with nutrients.

### Leaves

- Smooth, slightly leathery oblong shaped 6 to 14cm long.
- Dark green and shiny when new.

### Flowers

- Very small male and female flowers enclosed in fleshy receptacles.
- The reproductive strategy is one of the strangest and most dependant symbiotic relationships found in nature. Fig wasps are only able to reproduce in the hollow spaces inside the fruit and the fig can only be pollinated by the wasp, which is covered in pollen when it leaves the fruit. Each is completely dependant on the other. Due to the wasp having a short life cycle, the fig must fruit often and one type of wasp will only use one particular species of tree. In order to ensure their survival, the figs must fruit throughout the year and in doing so support many animals.

### Fruit & Seed

- Mainly March to September.
- Dark purple 3 to 6cm long, each contains a seed.

### Uses

- Fruits are edible and tasty.
- Bark from aerial roots used to make fishing line, nets, bags and baskets.

Follow the path to the other side of the jetty where you will find the Fish Poison Tree, on the right side of the path.

7

## Pongamia pinnata
## Common names: Fish Poison Tree or Indian Beech

### Tree

Deciduous dense crowned spreading tree 5 to 20 metres.

### Leaves

Glossy dark green thin textured distinct veins and pointed tip.

### Flowers

- September to November.
- Clusters of pale cream-blue or pinkish-white flowers 2cm long.

### Fruit & Seed

- June to October.
- Smooth oblong woody pods containing one or two round red/brown seeds.

### Uses

This is one of many trees (not all related) which are used to stun fish. Inner bark and roots are grated and dispersed onto the surface of pools of sea water. A chemical reaction takes place which depletes the oxygen causing the fish to float to the surface "stunned" where they are collected. Unwanted fish can be released away from the pool where they revive and swim away.

Continue walking along the path to see the Beauty Leaf, on the left side of the path.

8

## Hibiscus tilliaceus
## Common name: Beach Hibiscus

### Tree

- Grows to approximately 5 to 8 metres.
- Beach Hibiscus tends to grow a couple of metres in from the sand line on the beach, they tend to form a thick tangled growth that seems to act as a windbreak for the taller trees further into the island.

### Leaves

Broad heart shaped with a short pointed tip, dark green and smooth above whitish and densely hairy underneath.

### Flowers

- Periodically.
- The flowers are a true hibiscus, large yellow with a dark purple/maroon centre.
- Blooms last 24 hours, turning reddish before dropping off.

### Fruit & Seed

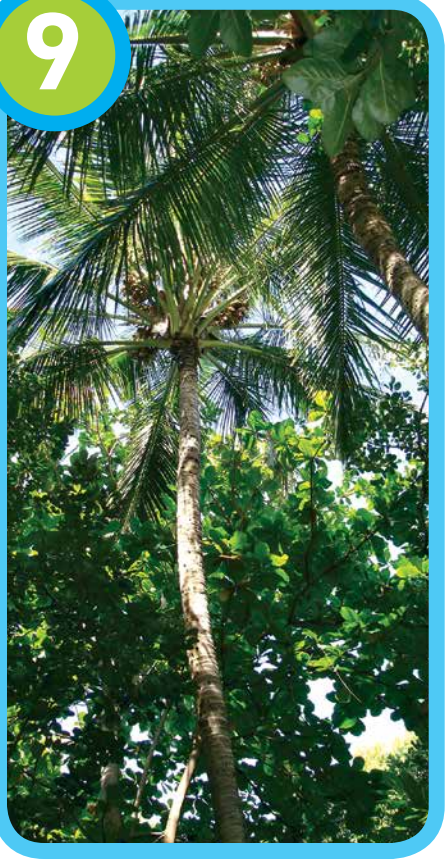
- January to April.
- Hairy semi-woody capsules approximately 2cm long, turn brown and split when ripe revealing several small kidney shaped seeds.

### Uses

- Food:
  - Flowers can be used to make tea and the buds to make jam.
  - Roots, shoots and leaves of young plant edible.
- Medicinal:
  - An infusion of the inner bark and sapwood used as an antiseptic to treat boils and wounds.
  - Strips of inner bark used to bind wounds.
- Wood used for spears, woomeras and fire sticks.
- Bark fibres used to make string, ropes, fishing line and nets.

Continue walking along the path and to the right you will see a Coconut Palm.

9



## Cocos nucifera
## Common name: Coconut Palm

### Tree

- A member of the Arecaceae or palm family.
- The tree appears to have evolved in the Indonesian archipelago and came to grow throughout the Pacific as a result of its buoyant fruit being carried by ocean currents and early human migrants.
- Slender, segmented flexible trunk rising up to 25m from a thick base and dense mat of roots that anchor the tree in loose sandy soil. It is extremely well adapted to withstanding winds of cyclonic strength and directional variability.
- The coconut trees on Green Island are not native trees. They were planted by a European botanist in 1889 to provide food on the island for shipwrecked sailors.

### Leaves

Fronds of large feathery leaves sprout from top of the trunk.

### Flowers

Small white flowers sprout from top of trunk.

### Fruit & Seed

The oval shape fruit is a single seeded nut up to 45cm in length and 20cm in diameter encased in a thick fibred husk. This nut has a rich kernel high in oil content and also contains around half a litre of liquid. Coconut Palms generally produce a first crop of fruit when they are five or six years old and can continue to bear fruit for up to fifty years.

### Uses

- Oil derived from boiling coconut flesh used on skin to protect it from drying and cracking in harsh climate.
- Internal meat of the nut is edible. Fluid in nut (called milk) is drunk.
- The stringy husk has many uses:
  - Burned for mosquito repellent.
  - Stuffing for mattresses and pillows.
  - Individual strands of the husk as threads for sewing (as strong as cotton thread).

Follow the path and turn left at the second side path. Follow to the end and you will see a good example of a Sea Trumpet tree.

10

## Cordia subcordata
## Common name: Sea Trumpet

### Tree

The sea trumpet is a thick trunked spreading tree most common on the northern side of Green Island. The sea trumpet tends to have a characteristic 'lean' out towards the sea, sometimes at a remarkable angle. Sea Trumpet have an important role in stabilising the Island topsoil, as they have a thick, extensive root system and grow close to the beach.

### Leaves

Heart shaped glossy leaves.

### Flowers

- The flowers, 2.5–4 cm in diameter, are an attractive orange colour and trumpet shaped, which leads to the common name.
- Blooming occurs throughout the year, but most flowers are produced in the spring.

### Fruit & Seed

The ripe fruits are a dry, extremely lightweight round 'nut' a little bigger than a marble, and containing four seeds.

The seeds are encased in a rigid capsule within the fruit. Being light the seed is easily spread by floating through the ocean, and remains viable after up to two years in the water.

In fact the woody capsule is only softened by salt water, which means the seeds can only germinate after leaving the parent tree. This protects the parent tree from competition from its own progeny and gives the seed a chance to germinate in a new area. The fruits are very common among the flotsam found on the beaches.

### Uses

The seeds are edible but are very difficult to extract from the fruit body and have a bland taste. They are often found on the ground with the seeds eaten, usually by Emerald doves or Bar Shouldered doves who use their beaks to lever open the woody fruits.

Go back to the main walking path and then turn left at the next side path. To the right side of the track you will to see a Bloodwood Tree.

11

## Macaranga tanarius
## Common names: Bloodwood, Bleeding Heart or Spear Tree

### Tree

Very fast growing, vigorous small tree up to 8 metres tall.

### Leaves

- Large, heart-shaped leaves, attached to stem almost in middle of underside leaf.
- Dark green with soft texture.
- 20-15cm long.

### Flowers

- November-January.
- Flowers are green/yellow in bunches from leaf axils and branchlet ends.
- Separate male and female trees.

### Fruit & Seed

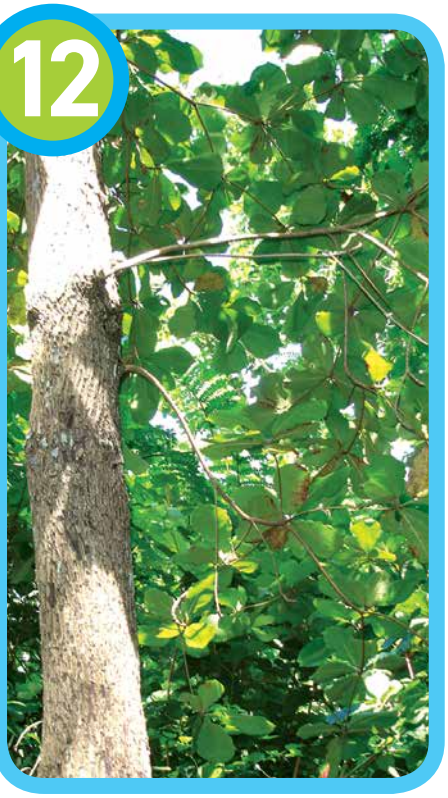
- January to February.
- Fruit is a green/yellow capsule splitting to reveal a shiny black seed.

### Uses

- The leaf ash was eaten as a cure for enlarged bellies.
- Twine was made from the bark.
- The wood was used for fishing spears and fire sticks.
- The leaves were used to wrap food when being cooked in the fire.
- Many birds eat the ripe fruit.

Back on the main walking path, turn left into the next pathway. Toward the beach and picnic tables, you will find examples of the Beach Almond.

12



## Terminalia arenicola
## Common names: Beach Almond or Dead Dog Tree

### Tree

As part of the rainforest they are a great example of the growth patterns of a rainforest tree. A broad base is provided by the root system, small buttresses grow from the lower trunk to the ground to add strength and stability. Long, straight bare trunks lead to a crown erupting into the canopy. Another example is In front of the Information counter.

Beach Almonds that grow near the beach, while still a large tree, have a different growth pattern, being shorter and more spread out with a bushier appearance and thicker trunk. This is a response to the windier conditions and the lack of competition for sunlight.

Beach Almonds appear to be vulnerable to both benign and aggressive epiphytes and parasites. They are often targeted by strangler figs, which will in time overwhelm and kill the host tree and by parasitic mistletoe that tap into the host tree and steal water and nutrients.

### Leaves

- Dark green, 'pear' shape with pointed tip.
- 10-20cm long.

### Flowers

- November to February.
- Small and white. When in bloom, it has a strong "sickly" sweet smell, leading to the name "Dead Dog Tree".
- Pollinated by flies which are attracted to the rotten smell.

### Fruit & Seed

- The seeds have a thin layer of juicy pulp that attracts fruit eating mammals, which on Green Island are only fruit bats. The capsules contain a small tasty nut which give the tree the name "Beach Almond".
- The ground under a tree bearing a lot of fruit usually shows a lot of evidence of bat activity, and such a tree is best avoided at night. The seeds are very tough and buoyant and easily spread by the ocean.

### Uses

- Inner kernels (nuts) are edible (high in protein and thiamin) - hard shells must be cracked open.
- Purple pulp of the ripe fruits are squeezed to produce a pink/purple dye.

Go back out to the main walking path. Walking toward Marineland Melanesia, you will see a large specimen of a Coral Tree to the left.

13

## Erythrina variegata
## Common names: Coral Tree or Flame Tree

### Tree

- Coral Trees are a legume, meaning they are a part of the bean or pea family. They grow to be the most massive trees on Green Island. They are found on all parts of the island except for the exposed beaches.
- The trunk of the mature tree has a fairly smooth pale bark. Coral Trees have no buttress roots, but a very thick and extensive root system can often be seen radiating outwards from the base of the tree.

### Leaves

- Smooth, broad blade deeply divided into 3 large lobes, with the central one being the largest and elongated.

### Flowers

- July to November.
- Coral Trees drop all their leaves around the same time in September/ October. The tree remains almost completely bare for a few days before a spectacular growth of large red pea flowers occurs. The combination of the large red flowers and bare branches is an irresistible lure to nectar feeding birds and insects that the tree uses as pollinators.

### Fruit & Seed

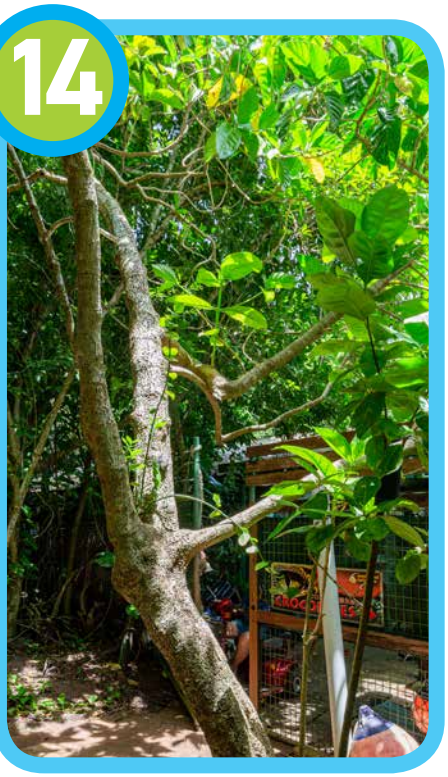
- August to October.
- Bean shaped seed pods can be seen most of the year, either on the tree itself or on the ground nearby.
- Dull red seeds inside.

### Uses

- As it has a waxy waterproof bark, the trunks can be used for canoes.
- Roots of small seedlings roasted and eaten.
- Inner bark used as a disinfectant.
- Seeds strung into necklaces and headbands.

To the other side of the path, you will see a Cheesefruit Tree.

14



## Morinda citrifolia
## Common name: Cheesefruit

### Tree

The Cheesefruit is a slender, small tree with dense foliage.

### Leaves

Smooth and large, leathery, glossy dark green slightly wavy leaves with prominent veins and pointed tips.

### Flowers

- July to December.
- A sweet scented white tubular flower about 1cm long with five star like petals.

### Fruit & Seed

- July to December.
- The fruits start as a small warty growth growing directly from the smaller branches and produce numerous white, sweet smelling flowers. Each flower produces

one seed within the ripe fruit.
- The fruit is edible, actually is extremely healthy but the trick is getting past the smell which is very strong, much like a well aged blue cheese. No matter what you think of the smell, it's difficult to ignore. It has a consistency similar to a very ripe kiwi fruit.

### Uses

- Ripe fruit eaten raw to treat colds, flu or diarrhoea.
- Infusion from leaves drunk for diarrhoea or applied as liniment to treat flu, fever and pains.
- Leaves used to wrap and cook food.
- The dye in the roots was used for colouring weaving and baskets.

If you would like to learn more about this amazing island, you can continue onto the Interpretive boardwalks. Follow the signage along the boardwalk past Marineland Melanesia.