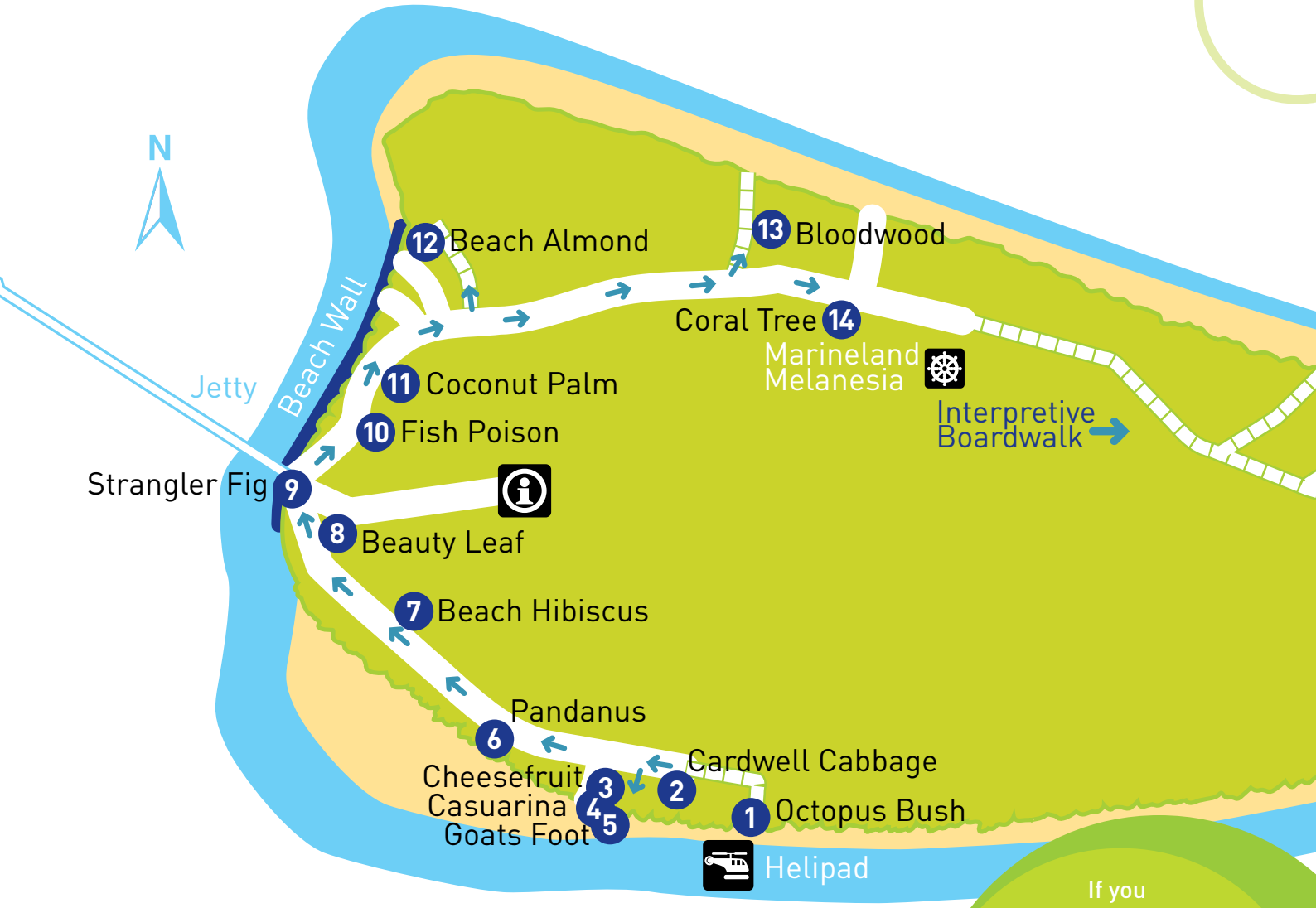
GREAT ADVENTURES

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.
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 information sheets highlight some of Green Island's interesting facts and commonly found bird and plant 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 however best estimates are that it is 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:

- The seagrass beds in the shallows.
- 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).

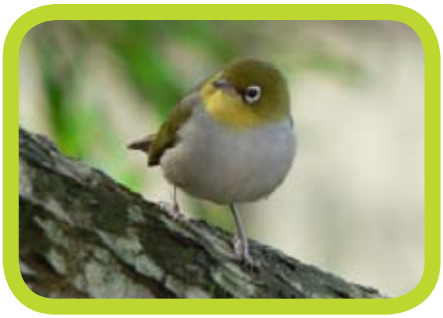
Green Island Facts and Figures

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. There are over 55 species of birds regularly seen 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 the Great Barrier Reef (many thousands of kilometres). 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 as they look for worms, sand fleas, and small crabs to eat.

Image courtesy Commonwealth of Australia (GBRMPA).

Buff Banded Rail

These birds are ground dwelling and nesting birds.

Adults are well camouflaged, but chicks are small black balls of fluff. They forage in the ground litter, using their feet to stir up leaves in pursuit of insects and small lizards.

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 still at the water's edge for long periods of time waiting in one place for prey (crabs, fish, squid) to come to them. They use their beaks to stab the prey, then they toss the food into the air and swallow it (fish are always swallowed head first to avoid choking on spiky fins).

Torres Strait Pigeon (also Pied Imperial Pigeon)

These large doves are migratory birds, spending winter (April – August) in Papua New Guinea, and summers (September to March) in the Great Barrier Reef. They come to Green Island to nest and feed on tropical fruits.

Over 3000 birds nest on the island every year. Their nests are poorly constructed piles of twigs. Both males and females produce 'milk' in their digestive crop that they use to feed the very young chicks.

While difficult to see in the foliage, their soulful coos are heard throughout the day.

Image courtesy Commonwealth of Australia (GBRMPA).

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 have been here for many years.

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

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 Cardwell Cabbage...

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.

Caring for Green Island

Great Adventures is proud to have achieved

- Advanced Ecotourism Certification – the highest eco certification attainable in Australia.
- 15 year operational permit awarded by the Great Barrier Reef Marine Park Authority.

Together, this ensures visitors the opportunity to learn about and appreciate this environment, while as an operator, being committed to the ongoing conservation of this beautiful and important World Heritage area.

Continue toward the jetty and follow the first side path to the left and you will see the Cheesefruit Tree, at the right side of the boardwalk...

Morinda citrflora
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.

Look toward the beach and you will see a grove of Casuarina trees...

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 fertilization 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.

Near the picnic tables in the "Casuarina Grove" and toward the beach, you will find examples of Goats Foot. You will also see many more examples around the island between established vegetation and exposed sand. The Goats Foot may be difficult to see unless in flower.

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Ipomoea pes caprae
Common name: Goats Foots Convulvus

Plant

- Goats Foot is a true pioneer plant on Green Island, often the first plant seen above the beach. It spreads across the ground in open areas but has not been observed to climb and tends to disappear in areas where taller plants become established. It is vitally important on the exposed beaches, as it is the first line of defence against beach erosion. The plant grows from a tuber in the sand and in extended dry periods may actually disappear, only to reappear from the tubers with the arrival of rain.
- Closely related to the sweet potato.

Leaves

The leaves are ovoid with an indent in the centre, much like the outline of a goat's footprint on the ground.

Flowers

- Periodically.
- The flowers are a trumpet shaped rich purple/mauve colour and very conspicuous on the beach in wetter months.

Fruit & Seed

- Mainly May to August.
- Smooth semi-woody capsules containing four hairy seeds.

Uses

- Tap root edible when roasted in ashes, high in energy.
- Heated leaves applied to treat sores, boils muscular aches and stings (including marine stings).

Head back to the main walking path and continue (toward the jetty) to the Pandanus.

6

Pandanus tectorius
Common names: Pandanus Palm or Walking Tree

Tree

- A Polynesian story says that 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 actually 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 very 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 an unstable sandy or swampy environment. 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

Pandanus leaves are about 1.5-2 metres long and quite thin, tapering to a point. The leaves grow in a bunch at the end of each branch and look somewhat similar to a palm. The leaves 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 that contains the fruit pulp. The fruit is theoretically edible but without correct preparation it can cause a reaction that causes 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.
- The trunk has a fibrous buoyant core that can be used to make rafts after being skinned.

Continue walking up the main walking path to see the Beach Hibiscus on the right side of the path.

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 up the path [near the jetty] to see the Beauty Leaf, on the right side of the path.

Calophyllum inophyllum
Common name: Beauty Leaf

Tree

- Short massive trunks.
- Found mostly right 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.
- Very obvious large bunches of white flowers (2.5cm across).
- Each flower has a cluster of yellow stamens.
- Very fragrant smell.

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.

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

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 ample 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 swell and grow, the host tree is constricted in its growth, 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 for many years.

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 own survival, the figs must fruit throughout the year and in doing so support many animals through otherwise lean seasons.

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 find the Fish Poison Tree.

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 up the main walking path to see the Coconut Palm.

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.
- The tree has a slender segmented and flexible trunk rising up to 25 metres from a thick base and dense mat of roots that anchor the tree in loose sandy soil. The tree is extremely well adapted to withstanding winds of cyclonic strength and directional variability.
- Coconut trees on Green Island are not native. 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 45 centimetres in length and 20 centimetres 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 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 used as threads for sewing (as strong as cotton thread).

Continue following the main walking path and then turn into the third pathway on the left. Toward the picnic tables, you will find examples of the Beach Almond tree.

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. In front of the Green Island Information counter is another example.

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.

The 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 hence the name "Beach Almond".
- The ground under a tree bearing a lot of fruit usually shows 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 and turn left. Turn left into the next boardwalk to find the "Bloodwood" Tree.

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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.

Go back out to the main walking path and head toward Marineland Melanesia where you will find a large specimen of the Coral Tree.

14

Erythrina variegata
Common names: Coral Tree or Flame Tree

Tree

- The 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.

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