

Plants

with Bakuru & Basheera Bon'du





Developed for Educational Development Centre, Ministry of Education, Republic of Maldives by:



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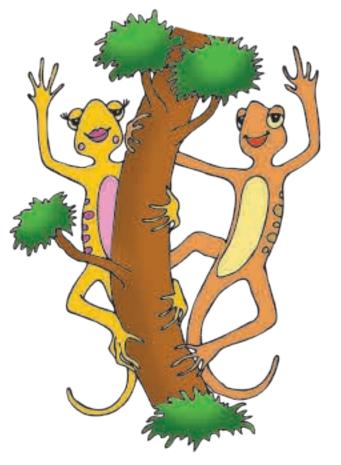
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Information from several botanical websites was also summarized including: www.floridata.com/ref/l/ipom_pes.cfm, www.daleysfruit.com.au, www. botanical-online.com, enchantedlearning.com, www. en.wikipedia.org. Information from the Maldives summarised from: Ministry of Environment and Construction (2004) 'State of the Environment: Maldives 2004', Ministry of Home Affairs and Environment (2002) 'First National Report to the Conference on the Parties to the Convention on Biological Diversity', Ministry of Fisheries and Agriculture (1992) 'Catalogue of Plants'.



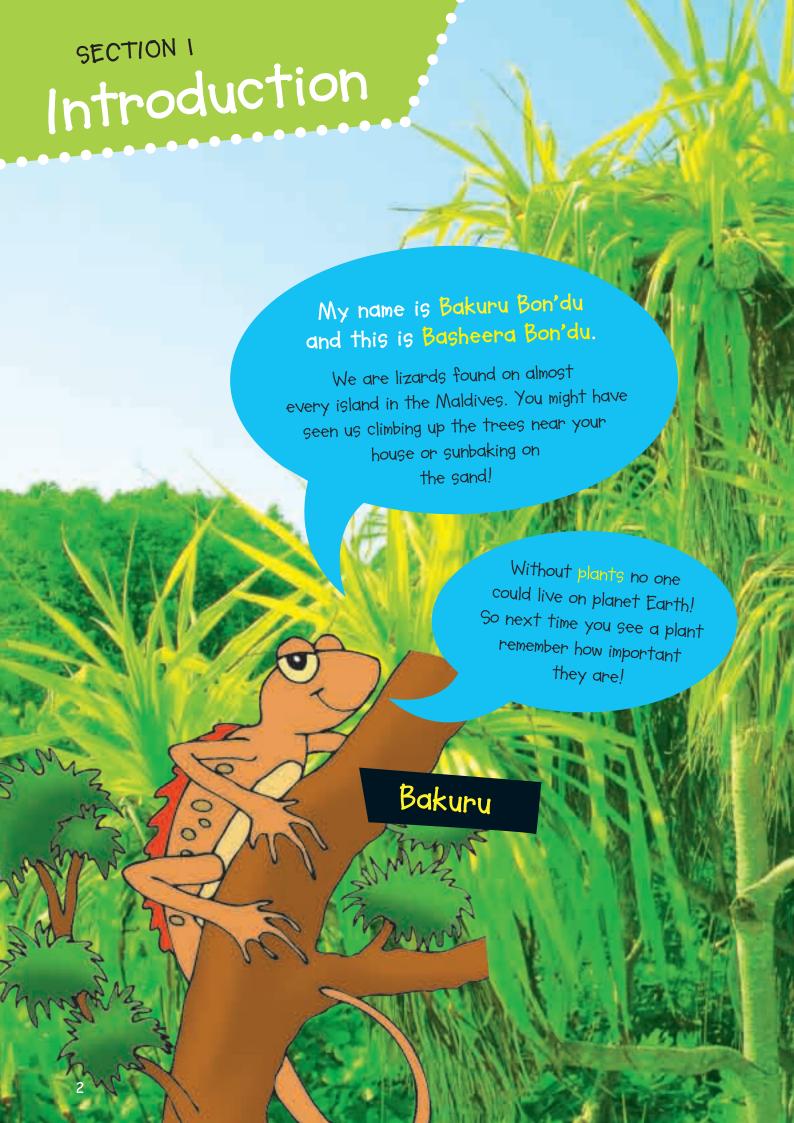
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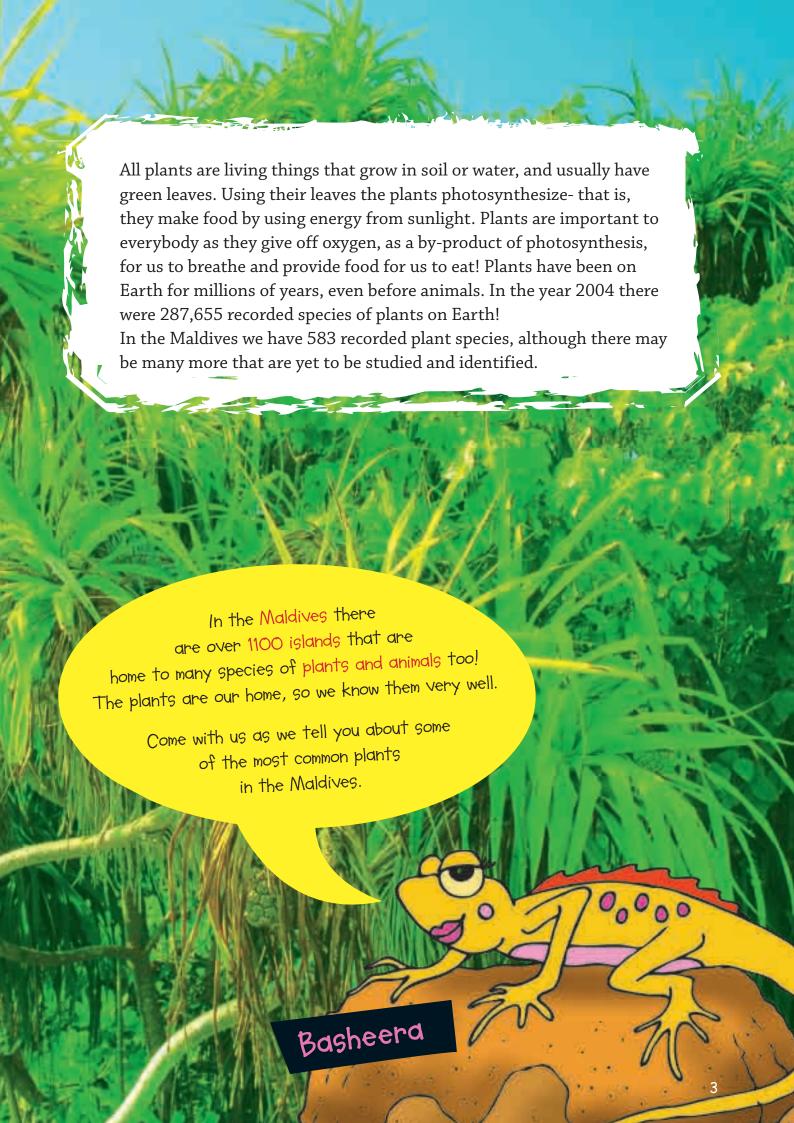
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Benefits of plants

Plants give us food to eat! Animals everywhere need food from plants to survive. Plants also give off oxygen during photosynthesis, which allows humans and other animals to breathe. Plants also give provide a lot of other things, such as shade, wood for buildings, furniture, firewood and many medicines.

Types of land plants

There are a number of different types of land plants such as herbs, shrubs, vines and trees. Other types include grasses, epiphytes, algae, ferns and mosses; however these are not included in this field guide.

← Trees have trunks to support their branches and leaves.
e.g. Coconut Palm/Dhivehi Ruh



↑ Herbs have soft stems. e.g. Periwinkle/Malikuruvaa



↑ Shrubs have many woody stems that branch out from near the ground. e.g. Sea Lettuce/Magoo



↑ Vines have long twisty stems. e.g. Goat's Foot Vine/Thanburu

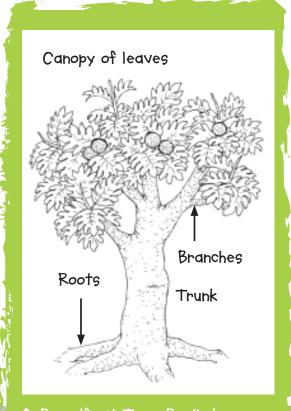
Main features of plants

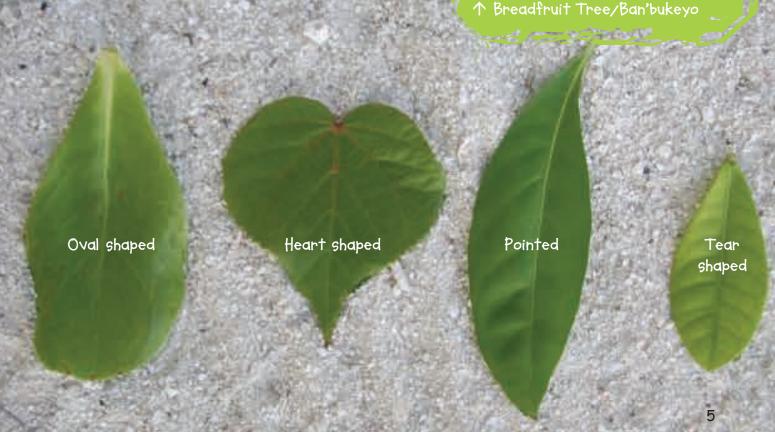
Plants come in many **shapes** and **sizes** but most have the same basic structure. They have a central column called the **trunk**. The trunk is often covered in **bark** and supports the **branches**. From the branches **leaves** grow. The top of the tree is called the **canopy** or **crown**. A tree stays in the ground by **roots** that obtain food and water from the soil and store energy. Lastly, plants have either **flowers** or **cones** (from conifers or pine trees) which help them to produce new plants.

Leaves

Leaves are important parts of plants as they are the place where photosynthesis happens; that is, the place where plants make food using energy from sunlight. Leaves take in carbon dioxide from the air and release oxygen through tiny holes in the leaves.

Leaves come in many sizes and shapes; they are often used to help identify plants. Some leaves are flat and wide; others are spiky and thin. For example, the Breadfruit tree has lobed shaped leaves like an Elephant's ear, (as shown in the diagram) while the Beach hibiscus has heart shaped leaves. Have a close look at some of the different shapes of leaves:



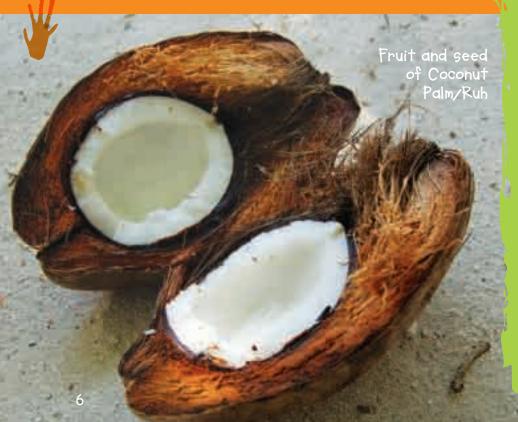


The Flower

The flower is often the most beautiful part of a plant. People like to smell them and grow them around the house. However the main reason that plants have flowers is to attract pollinators (e.g. insects or birds) so that seeds can be produced that will grow into new plants. When identifying a plant it is important to look at the flower. Look at the size, colour and shape of the flower. Also try and smell whether the flower has a scent or not. There are many different types of flowers, such as shown on this page.

Fruits and Seeds

The fruit of a plant is usually fleshy and inside it contains seeds. The fruit is usually brightly coloured and tastes nice. This is the clever way by which the plant attracts animals to eat the fruit so that the seeds can be transported away and grown in other places. Some fruits, such as bananas, papayas, water melons and breadfruit, can be eaten by people. But remember that some fruits that grow on plants can not be eaten by humans! With water, the right temperature and the right location (e.g. soil) the seed begins to make a new plant. This is called germination.



→ Bee pollinating the flower of Tree Heliotrope/Boashi



There are many different types of flowers





↑ A growing seedling of Ball
 Nut/Funa



Names of Plants

A plant is given:

- An official common name e.g. Breadfruit tree
- A scientific name written in italics e.g. Artocarpus altilis
- 3 Unofficial local names e.g. Ban'bukeyo

Scientists give all living things on the planet a unique name- called a scientific name. In fact they are given 2 names to identify them using the **binomial classification system**. The classification system starts from largest to smallest: Kingdom, Division, Class, Order, Family, Genus, Species.

For example: Kingdom: Plantae, Division: Magnoliophyta,

Class: Magnoliopsida, Order: Asterales, Family: Goodeniaceae,

Genus: Scaevola, Species: taccada

SAFETY ISSUES WITH STUDYING PLANTS & ANIMALS

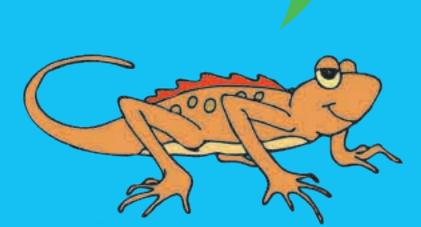
Don't damage plants

- it took a long time for them to grow and they might be a home for an animal, just like us!

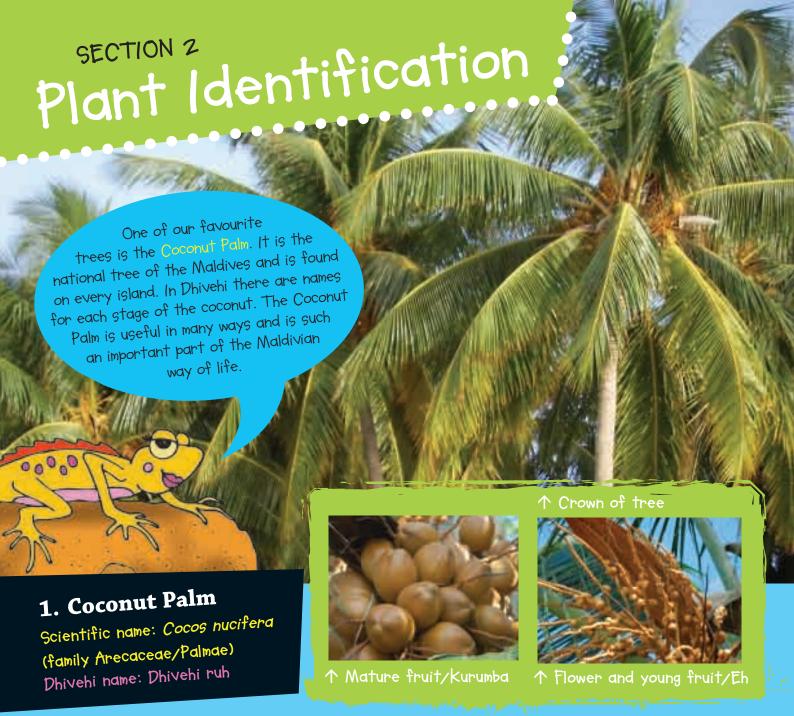
from plants if you do not know whether you can eat them! Be careful when touching leaves, they might be spiky or they might have sap that can sting your eyes!

If you are going to at all.

If you are going to study plants on your island, take water, put on sunscreen and tell someone where you are going.







Distribution: Coconuts are found throughout the Maldives and are one of the first trees to grow on new islands (**pioneer** species). The coconuts can drift a long way in seawater and this is why they are found all over the world.

Description: You can recognize the Coconut Palm because it has a single trunk and at the top there is a crown of feather-like fronds (a large leaf divided into many thin sections). You will often also see bunches of large fruits called coconuts. The coconut consists of a thin hard skin, a thicker layer of husk, the

hard (coconut) shell, the white kernel and a large cavity filled with coconut milk. Coconut palms can be up to 30 m tall.

Use: It can be used for so many different things that sometimes people call the Coconut Palm "the tree of life". Some of the things it gives us include: food, drink, oil, medicine, fiber, timber, thatch, mats, fuel, domestic utensils and handicrafts. Some Maldivian islands still spin the coconut fibre to make a traditional rope (coir). Also it is a home for many animals, just like us!

Distribution: The Screw Pine is very common along the coasts of the Indian and Pacific Oceans.

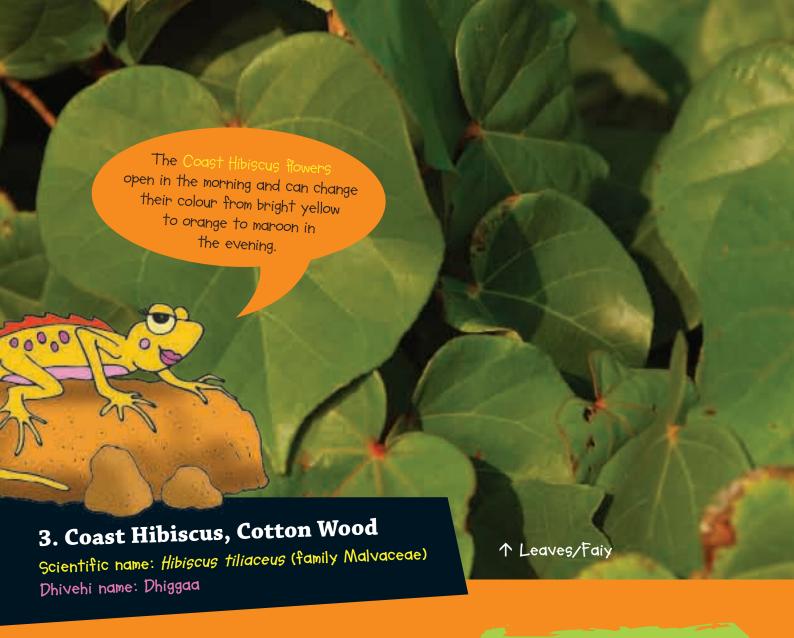
Description: You will know the Screw Pine because it has many thick and branched roots (called 'prop' roots) that hold the tree into loose sand and keeps the tree standing up straight. The large long leaves have small upturned spines along the leaf edges. The fruits look like an orange-coloured pineapple, and consist of many small parts.

Use: In the Maldives, the dried leaves are used for mat-weaving. The fruits of one of the Screw Pine species can be eaten and made into a popular juice drink.

The screw pine leaves have spines along the edge, go be very careful when you touch this plant or it might bite you!







Distribution: This plant is found throughout the Maldives. They get their name because they are often found on the coast throughout the tropics. Like the coconut, the seeds float in seawater and are carried around the world.

Description: Coast Hibiscus is an **evergreen** tree (i.e. it keeps its leaves all year round) or tall **shrub** with a short, crooked trunk. You will know this tree because the flowers only last for one or two days and then drop to the ground.

Use: The bark contains strong fibres, which are used for mat-weaving and for making ropes used on boats. The wood of the plant is hard and rich in colour and widely used in household furniture.



4. Portia Tree, Tulip Tree

Scientific name: Thespesia populnea (family Malvaceae)

Dhivehi name: Hirun'dhu/ Huren'dhi

Distribution: The Portia Tree is found in the tropical Indo-Pacific region.

Description: With its large, yellow to orange flowers, the Portia Tree looks like the Coast Hibiscus. However, the centre of the flower is much lighter in colour in the Portia Tree. The leaves are also more pointed at the tips, have clear veins, and the fruits are round/spherical.

Use: The plant is important as a shade and **ornamental** tree on many local islands and for traditional medicine. The rich, dark wood of the fast-growing tree is carved into bowls, tools and figures.

个 Flower/Maa ↑ Leaf of Dhigga (left hand side) Leaf of Hirun'du (right hand side) 11

In the Maldives the wood

from this tree can also be used for boat building.



5. Sea Lettuce, Half Flower Tree

Scientific name: Scaevola taccada

(family Goodeniaceae)

Dhivehi name: Magoo/Gera

Distribution: Sea Lettuce is a very common **shrub** in the Maldives and grows along the high-tide mark of sandy beaches. Sea lettuce can also be found across tropical countries in the Indian and Pacific Oceans.

Description: The **shrub** is easily identified by the shiny leaves and the "half-flowers", whose white petals are arranged in a semicircle. This tree has a special feature on the leaves. It has a wax layer which helps it to survive the salt spray. The seeds are carried by birds and can float in seawater for more than a year.

Use: Branches cut off from the **shrub** are widely used as firewood and for making fences, while the leaves are said to be edible when cooked. The juice of the ripe fruits is used for curing red eye.

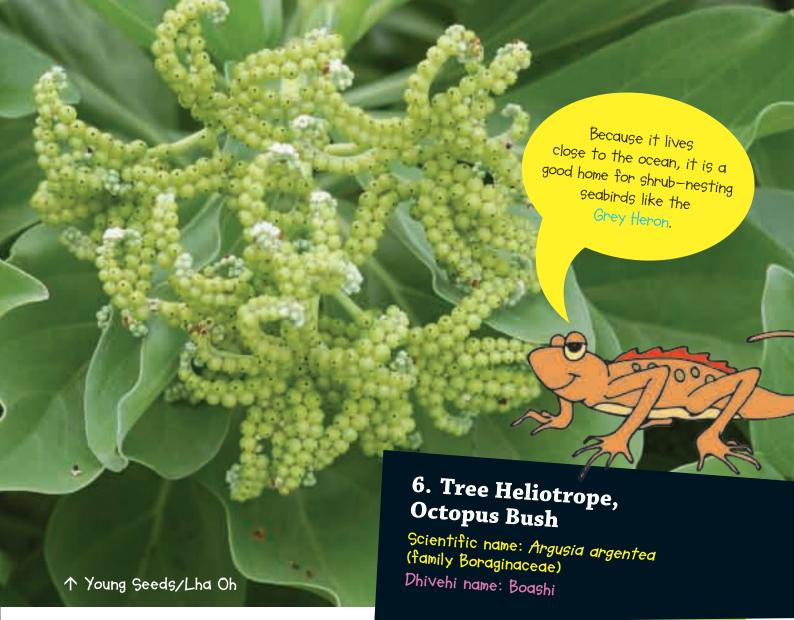


个 Flower/Maa



↑ Fruit/Meyvaa





Distribution: The Tree Heliotrope is found in the tropical Indo-Pacific region. It usually grows slowly in coastal environments and in sandy and rocky soils.

Description: This tree, like Sea Lettuce, has a special feature on its leaves. It has a wax layer which helps it to survive the salt spray. If you touch the leaves you will feel that it is soft. There is a good reason why this plant is also called 'Octopus Bush'- have a look at the flower and seeds, they look a lot like the tentacles of an octopus!

Use: The Tree Heliotrope is important in handicrafts, tools and traditional medicine. The wood is also an important source of firewood.





8. Beach Gardenia

Scientific name: Guettarda speciosa

(family Rubiaceae)
Dhivehi name: Uni

Distribution: The Beach Gardenia is found in the Indo-Pacific region and grows along sandy and rocky coastlines.

Description: This small, **evergreen shrub** has white trumpet-shaped flowers, which smell very sweet, especially in the evening. The plant flowers at night and has very fragrant flowers to attract night pollinators such as bats and large moths. The flowers **wilt** and fall off shortly after the sun rises in the morning. The small 2 cm round fruits can float in water and this allows the **species** to spread out to other islands.

Use: The wood of this tree is used in lacquer work, for which Baa Atoll is famous.







10. Ball Nut, Alexandrian Laurel, Beauty Leaf

Scientific name: Calophyllum inophyllum (family Clusiaceae/Guttiferae)

Dhivehi name: Funa

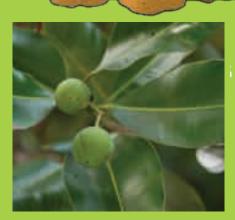
↓ Fruit/Meyvaa

This plant is often grown on beaches because it can survive strong winds and salt spray.

Distribution: The tree is able to survive wind and salt spray and grows in the tropical Indo-Pacific region along coastlines.

Description: This large, **evergreen** tree has leathery leaves, fragrant white flowers and ball-shaped fruits.

Use: The wood of this tree is used in carving, furniture-making and boatbuilding. The oil taken from the nuts is said to relieve pain and is widely used for medicine and cosmetics.



1 Leaves/Faiy



↑ Flower/Maa



11. Banyan Tree

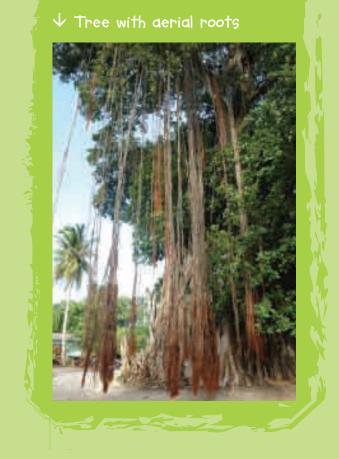
Scientific name: Ficus benghalensis (family Moraceae)

Dhivehi name: Nika/ Kiri

Distribution: The Banyan Tree is from India, but is now found across tropical Asia and is an important tree in the Maldives.

Description: Due to its many aerial roots, the plant can be very BIG! The seeds of the Banyan Tree **germinate** on the branches of other trees, from where they send aerial roots to the ground. These roots quickly become very strong and squeeze the host tree to death. The Banyan Tree produces small red fruits that are a favourite of the local birds and bats, which helps to spread the seeds to other places.

Use: Straight and uniform roots of this tree can be used for making the 'yard' on the sailing dhoni's because they are very strong.



Distribution: The Breadfruit Tree is found on islands in the Indo-Pacific region and widely across the Maldives.

Description: This tall **evergreen** tree is up to 20 m tall with a trunk as large as 2 m in diameter. You will know this tree because of its wide, deeply lobed leaves (like the ear of an elephant) and the large, prickly fruits. White milky sap is found in all parts of the tree.

Use: Even though the Breadfruit Tree provides many things such as medicine, timber and food for animals, it is best known for its delicious

12. Breadfruit Tree

Scientific name: Artocarpus altilis (family Moraceae)

Dhivehi name: Ban'bukeyo



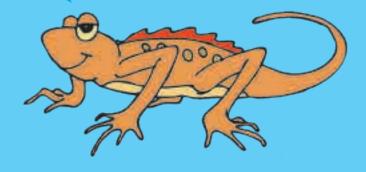


Description: You will know the Indian Almond Tree because of its green almondshaped fruits. The fruits turn yellow or red when ripe. The leaves also turn from green to yellow or red before falling off. This plant is called a **deciduous** tree, because it loses its

leaves.

Use: The Indian Almond Tree is a good shade tree. The nuts can also be eaten and used in cooking curries and other delicacies. The hard wood is good for buildings and furniture.

Unlike the almond you buy in shops, the Indian Almond seeds can be eaten raw. They are also eaten by birds and flying foxes.



14. Chinese Lantern Tree

Scientific name: Hernandia nymphaeifolia

(family Hernandiaceae) Dhivehi name: Kan'dhu

The wood of Chinese Lantern Tree is quite soft and is used in woodcraft, while the leaves are used for traditional medicine.

Distribution: The Chinese Lantern Tree is found along coastlines of the Indo-Pacific region.

Description: In this large **evergreen** tree **species** with glossy leaves, separate male (3 petaled) and female (4 petaled) flowers grow on the same plant; they open at different times of the day. The hard black seed is found inside a white to pink sac (vesicle), which floats in seawater.

Use: The wood is quite soft and used in woodcraft, while the leaves are used for traditional medicine.



15. Noni Tree, Indian Mulberry, Cheesefruit

Scientific name: Morinda citrifolia (Rubiaceae)

Dhivehi name: Ahi

Distribution: You will probably know this plant because it grows widely on Maldivian islands. It is a native from South-eastern Asia and Australia and now can be found throughout the tropics in many countries. This small tree can survive in a wide range of environmental conditions, but usually grows in close proximity to shorelines.

Description: The Noni Tree can grow up to 9 m tall, and has large, shiny dark green leaves. The plant flowers and fruits all year round and produces a small white flower with 5 petals. The fruit has a strong smell when ripening. The fruit is oval and reaches 4-7 cm in size. At first green, the fruit turns yellow then almost white as it ripens.

Use: All parts of the plant have traditional and/ or modern uses, including roots and bark (dyes, medicine), trunks (firewood, tools) and leaves and fruits (food, medicine). The leaves and fruits of this tree are also used in health and cosmetic products.

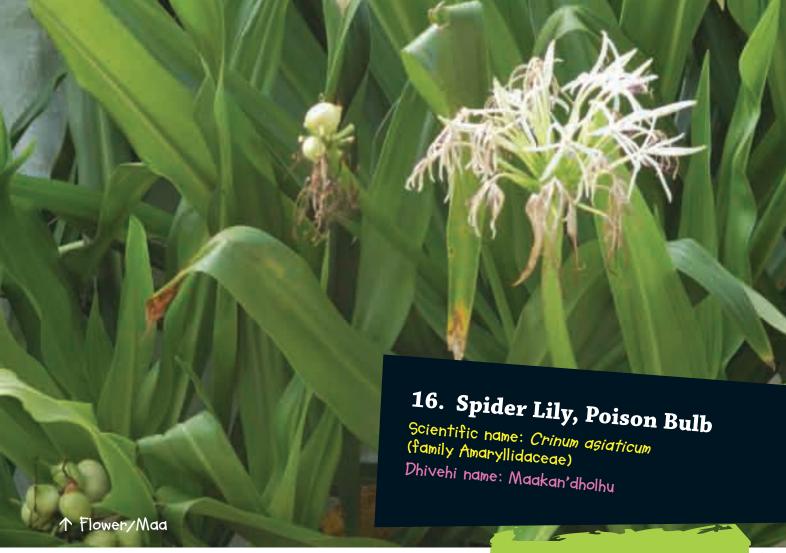
In the Maldives Morinda is used in traditional medicine. But try not to smell the fruit, when it is ripe it smells really bad!



↑ Flower/Maa

↓ Fruit/Meyvaa





Distribution: This **species** is from South East Asia but grows all over the tropics. It grows in swamps or along the coastline.

Description: The Spider Lily can be easily recognised by its long slender leaves and its big white spider-like scented flowers. The **shrub** is up to 2 m tall and grows from an underground bulb. The fruit is round which turns shiny white when ripe and then splits open to show irregularly shaped seeds.

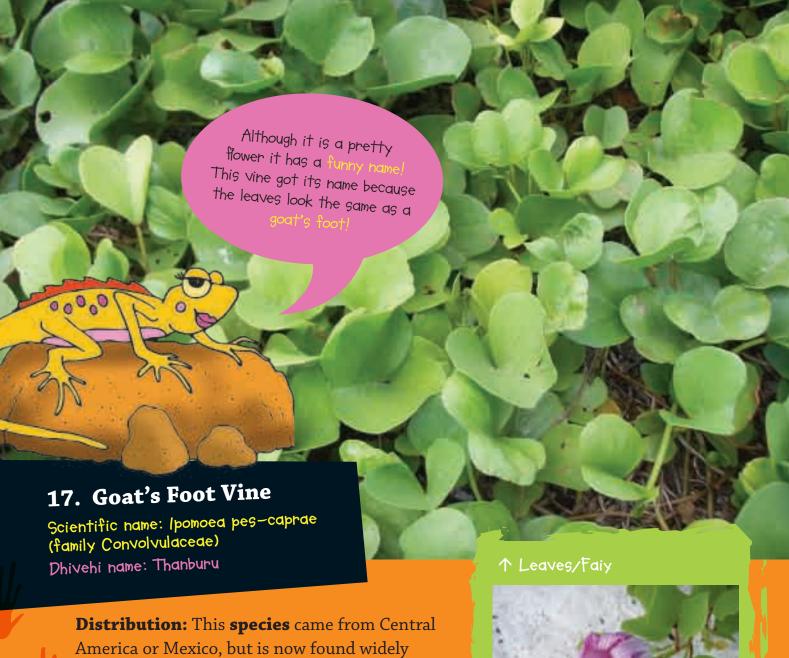
Use: The entire plant is poisonous but the crushed leaves and juice from the bulbs are widely used in traditional medicine.







个 Leaves/Faiy



across the tropics.

Description: The flowers open in the morning, letting them be **pollinated** by butterflies, bees, and other daytime insects and birds. The purple flower is funnel-shaped, but only lasts for a single morning and wilts in the afternoon (this is why it is sometimes called Morning Glory). There are new flowers each day. The flowers usually start to fade in colour a couple of hours before the petals start to curl around the edges. The vine grows quickly across bare sand and helps keep the sand in place and prevent wind erosion on the beach. It is a very tough plant and can survive heat, salt and wind.

Use: In other countries the juice from the leaves has been used as first aid to treat jellyfish stings.



↑ Flower curling/Maa



个 Flower/Maa

Final comments

We told you we knew a lot about the plants of the Maldives. Now so do you! Next time you are walking around your island with your friends or classmates, have a close look at the plants and see if you can name them.

From this field guide you can see that every plant is special in its own way. In fact they are so special that we could not live on this planet without them! So don't forget to look after the plants and keep learning about them at school and from your family and friends. We hope you enjoyed reading this field guide. See you around...

Bakuru & Basheera

Other books in this series

Field Guide to Maldivian Birds and Beach Ecosystems with Baaree Baraveli.

Field Guide to Maldivian Mangroves with Minna Mas.

Further Reading

V. Selvam (2007) 'Trees and Shrubs of Maldives' Ministry of Fisheries, Agriculture and Marine Resources, and Food and Agriculture Organisation Environment Research Centre (2008) 'Identification of Mangroves in the Maldives' Ministry of Fisheries and Agriculture (1992) 'Catalogue of Plants' Ministry of Environment, Energy and Water (2007) 'Flowers' (Dhivehi only)



Table 1: Summary of plant names

Common Name	Dhivehi name	Scientifi c Name
Coconut Palm	Dhivehi ruh	Cocos nucifera (family Arecaceae)
Seashore Screw Pine	Boa-kashikeyo	Pandanus fascicularis (family Pandanaceae)
Coast Hibiscus, Cotton Wood	Dhiggaa	Hibiscus tiliaceus (family Malvaceae)
Portia Tree	Hirun'dhu	Thespesia populnea (family Malvaceae)
Sea Lettuce, Half Flower Tree	Magoo/Gera	Scaevola taccada (family Goodeniaceae)
Tree Heliotrope, Octopus Bush	Boashi	Argusia argentea (Boraginaceae)
Indian Almond Tree	Midhili /Meedheli	Terminalia catappa (family Combretaceae)
Ball Nut, Alexandrian Laurel, Beauty Leaf	Funa	Calophyllum inophyllum (Clusiaceae)
Banyan Tree	Nika/ Kiri	Ficus benghalensis (family Moraceae)
Breadfruit Tree	Ban'bukeyo	Artocarpus altilis (family Moraceae)
Sea Trumpet	Kaani	Cordia subcordata (family Boraginaceae)
Beach Gardenia	Uni	Guettarda speciosa (family Rubiaceae)
Ironwood	Kuredhi	Pemphis acidula (family Lythraceae)
Chinese Lantern Tree	Kan'dhu	Hernandia nymphaeifolia (family Hernandiaceae)
Noni Tree, Indian Mulberry, Cheesefruit	Ahi	Morinda citrifolia (Rubiaceae)
Spider Lily, Poison Bulb	Maakan'dholhu	Crinum asiaticum (family Amaryllidaceae)
Goat's Foot Vine	Thanburu	Ipomoea pes-caprae (family Convolvulaceae)

Glossary

Deciduous Trees and shrubs that drop their leaves.

Erosion Wearing away of the earth's surface by wind or water.

Evergreen A tree or shrub that keeps its leaves throughout the year.

Germinate To start to grow from a seed into a new individual.

Habitat The area where an animal, plant or micro-organism, lives

and finds the nutrients, water, sunlight, shelter and other

essential needs for survival.

Herb A seed-producing plant that does not produce woody

stems and that forms new stems and leaves each season.

Herbivore An animal which eats only plants.

Ornamental tree An ornamental plant is a plant that is grown because of

how it looks (especially the flowers), not because of any other reason (e.g. wood or food). Ornamental plants are often grown in the flower garden, or as house plants.

Photosynthesis The process by which green plants use energy from

sunlight to make food (sugar). Oxygen is released because

of photosynthesis.

Pioneer species An animal or plant species that grows in a place before

other species.

Species A group of organisms that has a unique set of

characteristics that distinguishes them form other

organisms.

Succulent A plant with thick fleshy leaves and stems that can store

water.

Thickets Thick growth of shrubs: a dense or tangled growth of

small trees or bushes.

Wilt To droop or shrivel up.

Dhivehi glossary

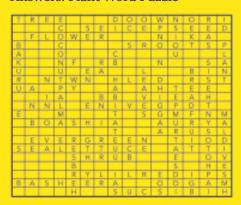














Now that you know all about some of the common plants of the Maldives, see how many plant words you can find

hidden in the following puzzle.

There are more than

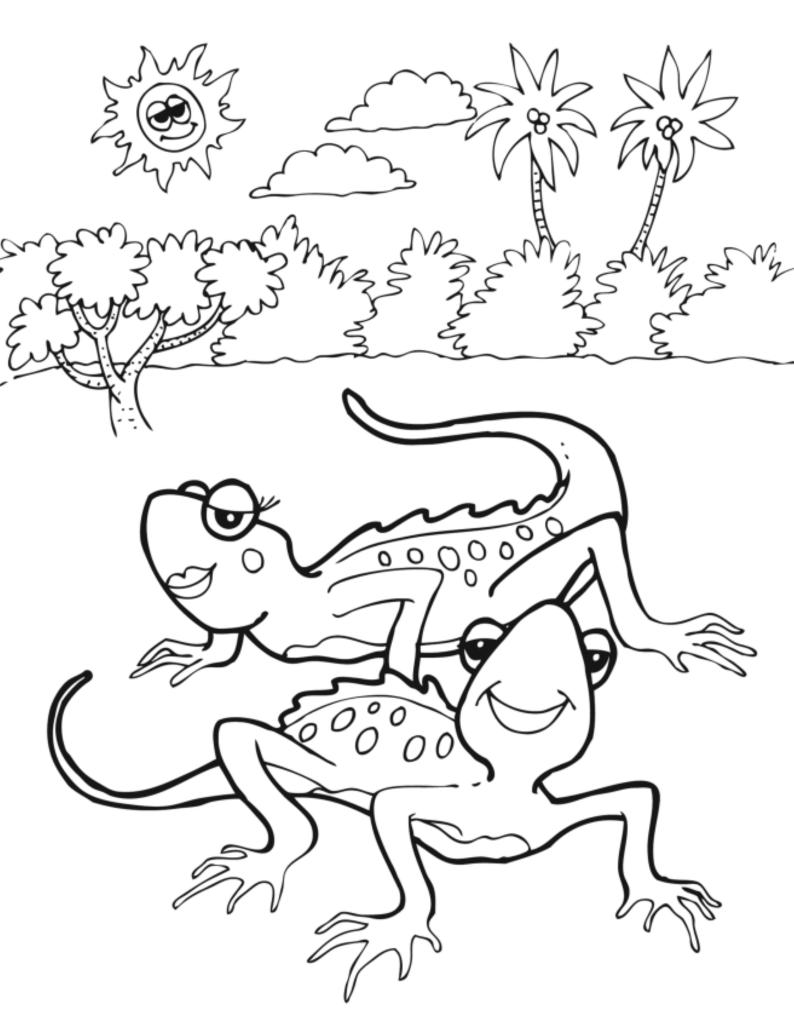
20 hidden words.

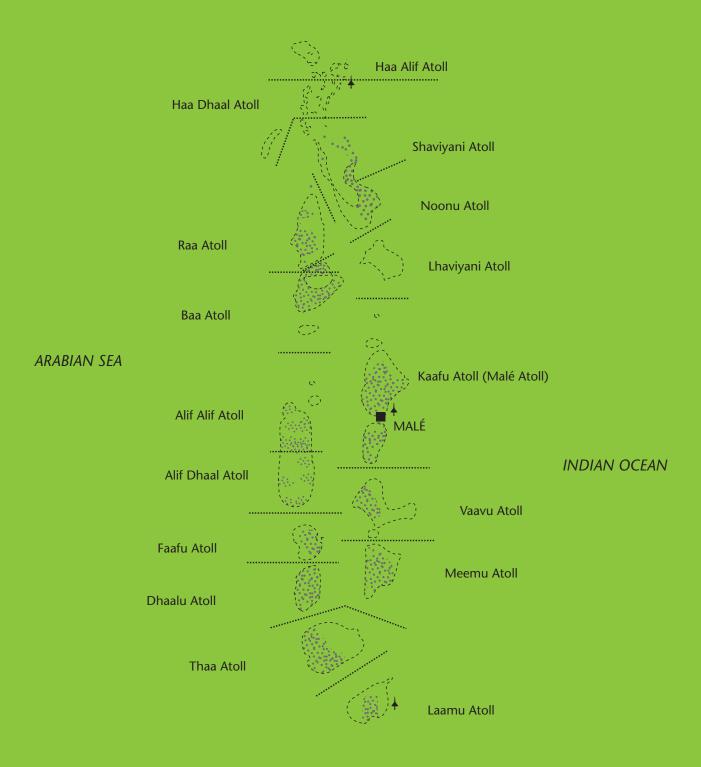
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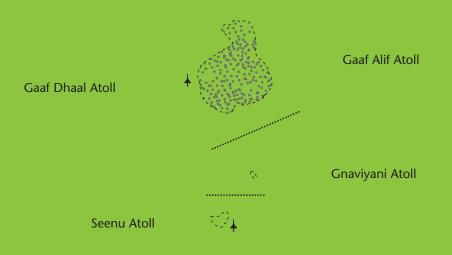
PLANT WORD PUZZLE

Т	R	Е	Е	А	Q	W	D	О	О	W	N	0	R	I
Т	Y	I	С	0	S	Е	I	С	Е	Р	S	Е	Е	D
P	F	L	0	W	Е	R	A	S	D	N	I	K	А	F
В	G	Н	С	J	K	L	Z	S	R	О	0	Т	S	P
A	X	С	0	В	V	В	С	N	M	Q	U	Q	W	L
K	I	Р	N	F	0	R	В	U	Т	N	R	Е	S	A
U	M	N	U	V	Е	A	С	X	L	Z	A	В	I	N
R	F	N	Т	W	N	D	Н	L	Е	D	S	R	S	Т
U	A	G	Р	Y	Н	J	A	K	A	Н	Т	Е	Е	L
R	Т	I	A	Y	U	В	В	I	V	I	Е	A	Н	0
Е	N	N	L	Q	Е	N	I	V	Е	G	P	D	Т	W
Е	I	U	M	Т	R	Е	Т	W	S	G	M	F	N	M
0	В	О	A	S	Н	I	A	M	N	A	U	R	Y	A
P	U	D	Е	S	W	Е	Т	F	G	A	R	U	S	L
R	Е	V	Е	R	G	R	Е	Е	N	О	Т	I	О	D
S	Е	A	L	Е	Т	Т	U	С	Е	Т	A	Т	Т	I
Q	W	Е	R	S	Н	R	U	В	Т	Y	Е	U	0	V
A	S	D	F	В	Н	J	K	L	Р	О	S	I	Н	Е
Z	X	С	V	R	Y	L	I	L	R	Е	D	I	Р	S
В	A	S	Н	Е	Е	R	A	В	N	О	Ο	G	A	M
X	С	V	В	Н	N	M	S	U	С	S	I	В	I	Н

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See you around....

Bakuru & Basheera

