



Junior Ranger

Review

Issue 4 2005



PLANT profile



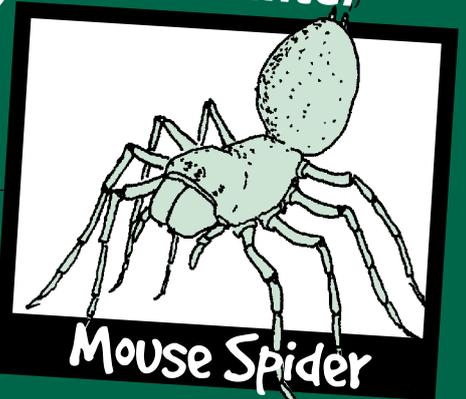
Pandanus

on the BRINK



Gouldian Finch

URBAN encounter



Mouse Spider

Creature Feature

Crocodiles!



Male Salties can grow up to 7 metres in length, but this is rare.

Extra! Extra! Read all about it! 'Living dinosaurs' found in Top End water ways!

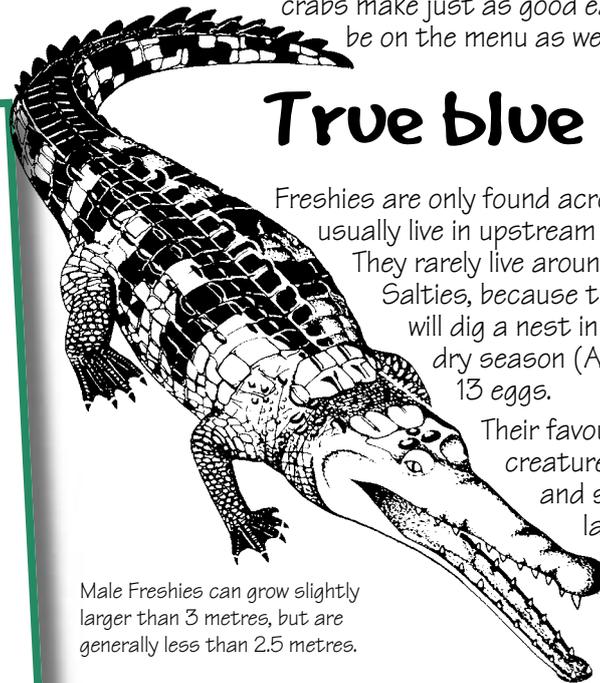
Well.... sort of! Australian Freshwater Crocodiles, *Crocodylus johnstoni* and their infamous cousins the Saltwater or Estuarine Crocodile, *Crocodylus porosus* have hardly changed their body plan from the first modern crocodiles of 160 million years ago! While the real dinosaurs died out about 65 million years ago, these guys are still going strong. Let's look at why they've been so successful.

The supreme saltie

The Saltie is the largest, strongest and most fearsome of the world's crocodilians. They occur throughout South East Asia and the Pacific, but North Australia is their stronghold. They spend much of their time in the tidal reaches of rivers, where the water is salty. However, they also occur, and usually breed in freshwater habitats, such as billabongs and floodplains. The mums will build a nest of mud and grass or reeds during the wet season (November-May) and lay about 50 eggs.

Large Salties will eat anything that they can catch. They will attack animals as large as horses, but things like fish and crabs make just as good eating. And beware!! Humans can be on the menu as well!

True blue little aussie



Freshies are only found across Northern Australia. They usually live in upstream freshwater rivers and billabongs.

They rarely live around the larger, more aggressive Salties, because they know who's boss! The mums will dig a nest in a dry sandy river bank during the dry season (August-September) and lay about 13 eggs.

Their favourite foods are actually small creatures like spiders, insects, frogs and small fish. But they'll also tackle larger animals like turtles, birds and mammals. They rarely attack humans, but they can inflict a nasty bite if harassed.

Male Freshies can grow slightly larger than 3 metres, but are generally less than 2.5 metres.

G'day from Ranger Bill

Welcome to the last edition of the Junior Ranger Review for 2005. We hope you've enjoyed the new look and content that we've tried out this year. Remember, if you've just come across this magazine, you can contact us to receive a free subscription for all of next year. Details are on the back page.

The Junior Ranger Programs are now finishing up across the Territory for 2005 as well. A big thankyou to all staff involved - well done! Thanks also to all of the Junior Rangers and their parents who helped make 2005 such an enjoyable year. Through this program, over 200 young Territorians have experienced the breathtaking beauty of our Parks and learnt about our amazing plants and animals.

Stay safe and festive throughout the holiday season, and we hope to see you out and about in the bush again in 2006.

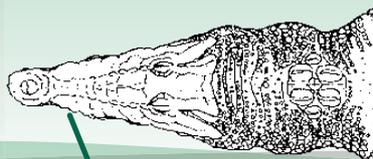
Ranger Bill

Spot the difference

There are a few ways to tell a Saltie from a Freshie.

- Anything over 3.5 metres long is a Saltie.
- Adult Freshies have a narrow snout while adult Salties don't. However, babies and juveniles of both species have narrow looking snouts.
- Freshies have a row of four large scales just behind the head.

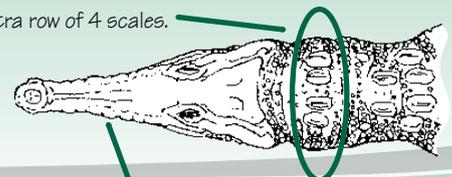
Saltie



Broad snout in adults.

Freshie

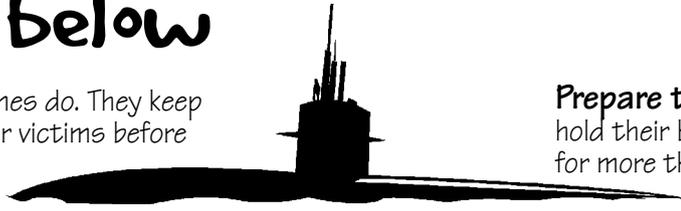
Extra row of 4 scales.



Narrow snout in adults.

Death from below

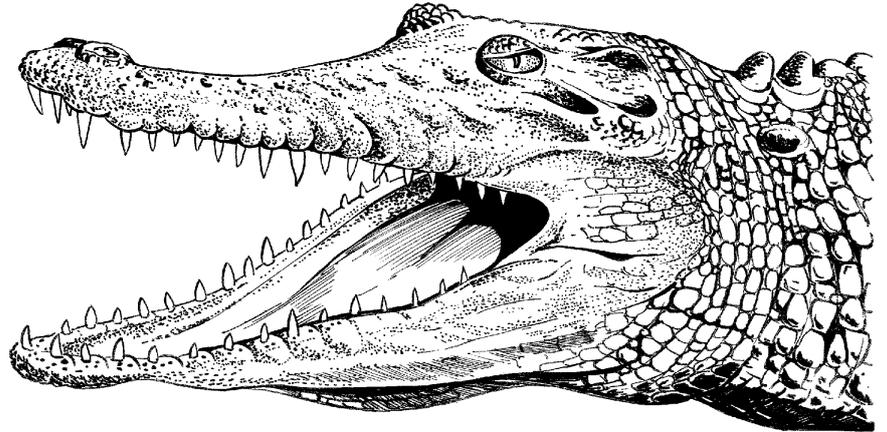
Crocodiles hunt much like submarines do. They keep out of sight and silently track their victims before launching a surprise attack.



Prepare to dive! Large crocs can hold their breath and stay under water for more than an hour.

Sonar: They have excellent hearing and sensors on the snout that can pick up tiny water vibrations.

Periscope up! Their eyes, nostrils and ears are on top of their head. They can poke their head just above the water surface to see, breathe, smell and hear while the rest of their body remains hidden below. They have excellent 'night vision' and they also have a second set of eyelids that act like built in goggles, so they can see pretty well underwater as well.



Attack speed! Once they have snuck close enough to attack, death can come suddenly and violently. Their strong tails can launch them forward with surprising speed. Smaller to medium sized crocs can even launch themselves almost completely out of the water to grab prey from over hanging branches. Incredibly strong jaw muscles and long sharp teeth that interlock mean that there is little chance of escape.

Never smile at a crocodile

Saltwater Crocodiles can pose a real danger to unwary people. Try and spot the dangerous human behaviour in this picture and check your answers on the back page. There are at least 12 of them.



On the Brink



Mostly black faced.

Graceful Gouldians

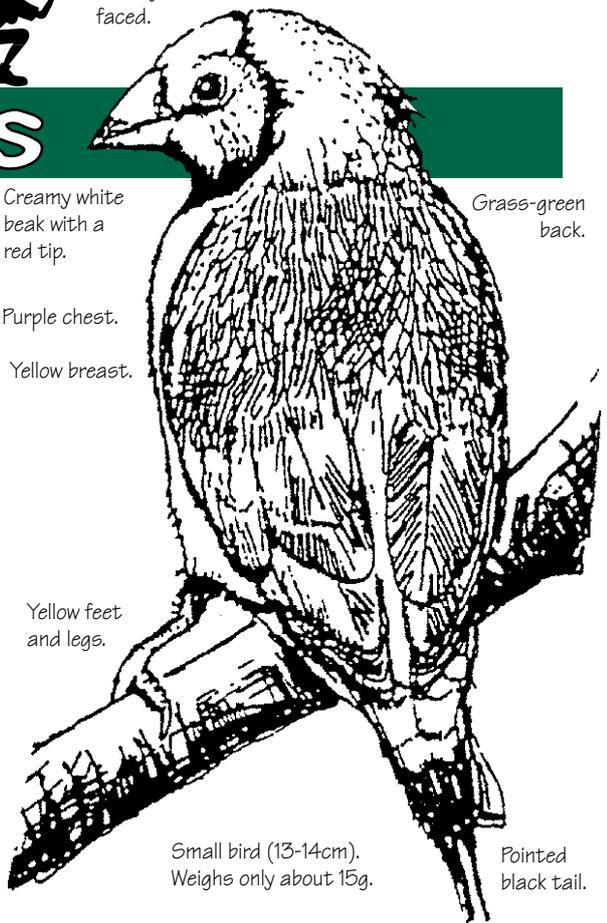
The Gouldian Finch *Erythrura gouldiae* is a spectacular colourful bird which was once common in flocks of thousands in grasslands across northern Australia.

Creamy white beak with a red tip.

Grass-green back.

Purple chest.

Yellow breast.



Yellow feet and legs.

Small bird (13-14cm). Weighs only about 15g.

Pointed black tail.

Did you know?

The discoverer of this bird, John Gould, named it after his wife:

"It was with feelings of the purest affection that I ventured to dedicate this lovely bird to the memory of my late wife" - John Gould, 1865.

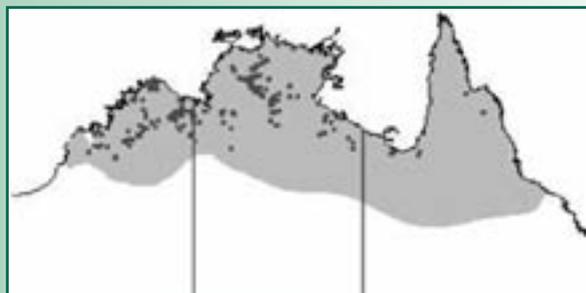
Changing Faces

If you see their beauty you are not likely to forget it! They have brilliant purple chests, bright yellow breasts and vibrant grass-green backs and wings. Most have black faces but there are also red faced and sometimes yellow-faced ones. The boys are better looking, because they are much more brightly coloured than the girls, which is often the way with birds.

Hide and seek

Gouldian Finch numbers have now dwindled. Scientists suggest that there may now be only a few thousand left in the wild, so they have officially been declared **ENDANGERED**.

They are only found in a few places in the Top End. The largest known breeding population lives in the Yinberrie Hills, just north of Katherine. If you are really lucky you may see them in the wild if you visit Nitmiluk, Limmen or Gregory National Parks.

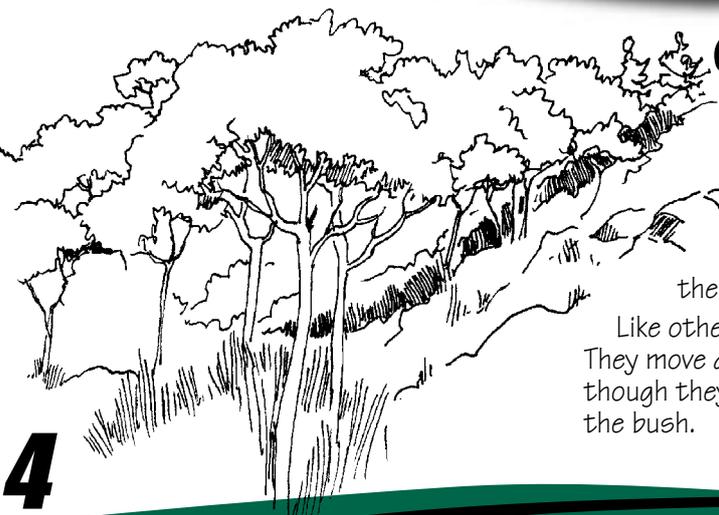


Where the Gouldian Finch once lived (grey) and where it lives now (dark grey).

Grass seed gobbleguts

Gouldian Finches live and feed on grass seeds, but they are fussy eaters! In the dry and part of the late wet season (Feb.-Oct.) they live in grassy woodlands, often in hilly areas. Here they dine on Speargrass (*Sorghum*) seeds. During the wet, as these seeds become scarce, they move homes from the hills to eat other types of grass seeds in the low lands.

Like other seed eating birds, Gouldian Finches have to drink each day. They move down to waterholes at dawn and quickly suck water up as though they were drinking through a straw before disappearing back into the bush.



Hollow homes amongst the gum trees

Unlike other finches, the Gouldian Finch lays its eggs in hollow trees. But again it is very choosy. It prefers hollows within smooth-barked species of gum tree such as Snappy gum (*Eucalyptus brevifolia*) and Salmon gum (*E. Tintinnans*).

Both parents take care of their babies (nestlings) which have brightly shining green spots either side of their mouth. These are thought to be like 'landing lights' to help the parents 'home in' on the nestlings' gaping mouths in the dark of the hollow.



Different names!

This little beauty is known by other names Find out by using the grid to decode our finch facts.

	1	2	3	4	5
A	A	B	C	D	E
B	F	G	H	I	J
C	K	L	M	N	O
D	P	Q	R	S	T
E	U	V	W	X	Y



They are sometimes known as the

D3 A1 B4 C4 A2 C5 E3

Finch.

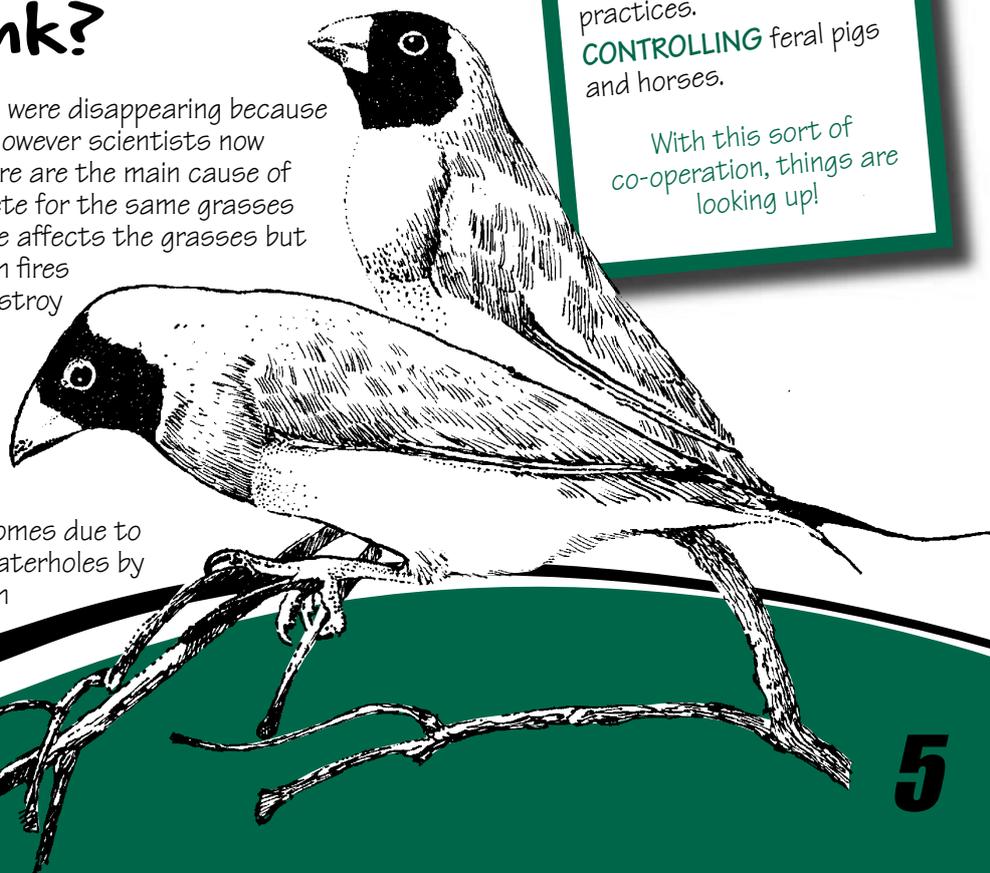
The Jawoyn traditional owners of the Katherine area where they live know them as

C4 B2 A1 C2 C3 A1 E5 B3 E3 C5 D3 C2 C5

Why on the brink?

Early on it was thought that these finches were disappearing because they were being trapped for use as pets. However scientists now believe that cattle, horses, feral pigs and fire are the main cause of their decline. These animals eat and compete for the same grasses that Gouldians rely on. It is unclear how fire affects the grasses but it seems that avoiding late, hot dry-season fires is best for this bird. These wildfires also destroy nesting hollows.

As if that was not enough, hungry Gouldians can become even sicker if infected by a parasitic mite which affects their breathing. They may not die but they will not be strong enough to breed successfully. Along with the loss of their homes due to land clearing and destruction of drinking waterholes by cattle and buffalo, you have one little bird in need of a big helping hand!



Road to recovery

Gouldian Finch recovery involves government agencies (like Parks & Wildlife), scientists, birdwatchers, traditional owners and volunteers working together to first find the causes of their decline and then to do something about them.

Ways to help the Gouldian include:

- PROTECTING** the grassland where the birds feed and the trees where they nest.
- DEVELOPING** good grazing and fire management practices.
- CONTROLLING** feral pigs and horses.

With this sort of co-operation, things are looking up!

Urban Encounter

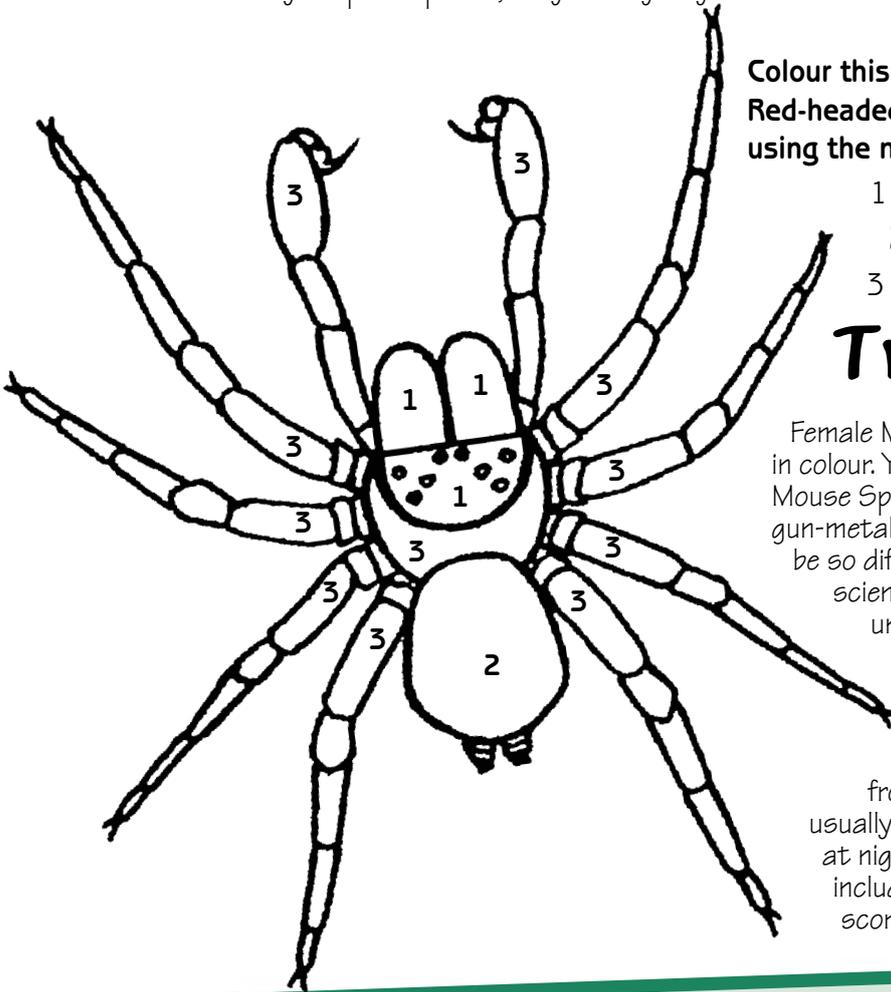
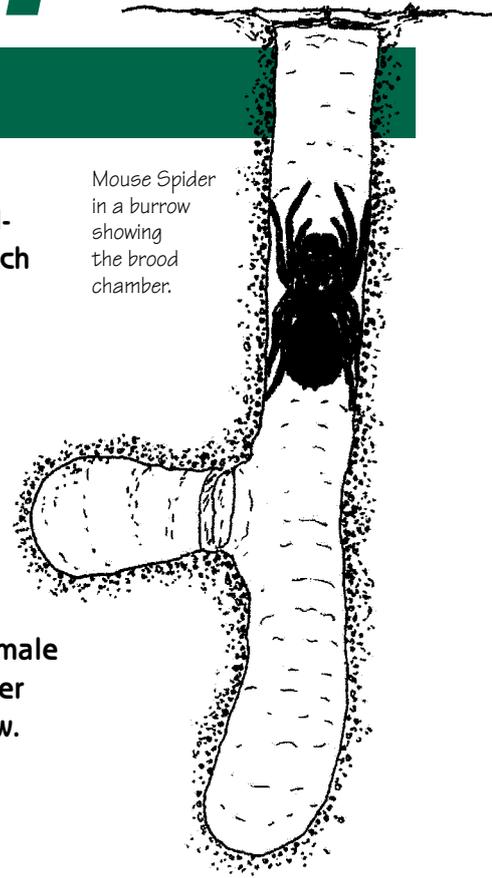
Mouse Spiders

Australia has eight species of Mouse Spider. At least two are found in the Northern Territory, the Northern Mouse Spider, *Missulena pruinosa* and the Red-headed Mouse Spider, *Missulena occatoria*. All are bulky trap-door spiders which can grow as big as a fifty cent piece.

Digging deep

Like other trap-door spiders, Mouse Spiders live in burrows in the ground. They are common in many suburbs, but are hard to find because their burrows are well hidden. They get their common name 'Mouse Spider' because it was incorrectly thought that this spider could dig a mouse-like burrow up to 1 metre deep. Although Mouse Spider burrows are unusually deep for spiders, they usually only reach about 30 centimetres.

Mouse Spider in a burrow showing the brood chamber.



Colour this picture of a male Red-headed Mouse Spider using the numbers below.

- 1 = red
- 2 = blue
- 3 = black

True colours

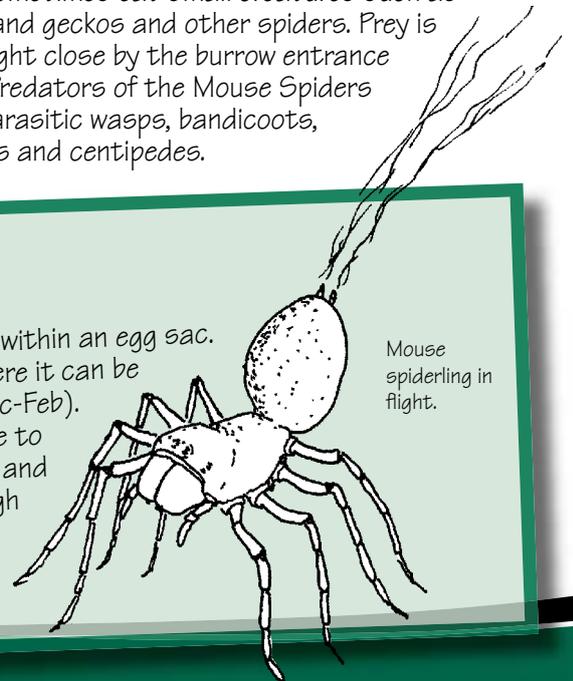
Female Mouse Spiders have a wide body and are black in colour. You can easily identify the male Red-headed Mouse Spider by their bright red jaws and 'head' and gun-metal blue abdomen. The brightly coloured male can be so different from the female that for many years scientists thought they were two different species, until a pair was discovered mating! The Northern Mouse Spider has a dark head and legs with an obvious white or bluish-white abdomen.

Mouse Spiders mostly eat insects but will sometimes eat small creatures such as frogs and geckos and other spiders. Prey is usually caught close by the burrow entrance at night. Predators of the Mouse Spiders include parasitic wasps, bandicoots, scorpions and centipedes.

Arachnid aeronauts

After mating with the male spider the female lays 60 or more eggs within an egg sac. She places them into a chamber off the side of the main burrow where it can be kept safe. The spiderlings hatch from the egg sac over summer (Dec-Feb). They remain with their mother until autumn (March) when they leave to start their own burrows, and to avoid being eaten by their brothers and sisters! On a warm day with light winds, the spiderlings float through the air on strands of silk drawn out from their spinnerets, just like in the children's story *Charlotte's Web*. This is called 'ballooning'. Mouse Spiders are the only trap-door spiders that do this.

Mouse spiderling in flight.



Bite like a bull terrier

Females usually remain in or near their burrows for their whole life, so they hardly ever come into contact with people. Male Mouse Spiders can be found wandering around at night especially after rain searching for a mate. Males will try to make themselves look as frightening as possible if disturbed. They will tilt back their body and raise their front legs so that you can easily see their long fangs. They do this to warn an enemy to leave them alone.

A Mouse Spider bite has been described as being like a bite from a 'bull terrier'. They bite very hard and deep and they don't let go. Scientists believe their venom is very toxic, but is rarely injected. Only one serious bite has been recorded. Most other bites recorded have not caused serious reactions.

Although Mouse Spider venom is intended to kill insects and small prey, not humans, it is best to avoid being bitten.

A male Red-headed Mouse Spider takes a defensive position when threatened. Photo by: Alan Henderson, Museum Victoria.



Science snippet

Scientists have a lot of special words that describe different parts of a spider. Take a look at the picture below to discover some of these 'spider science' words

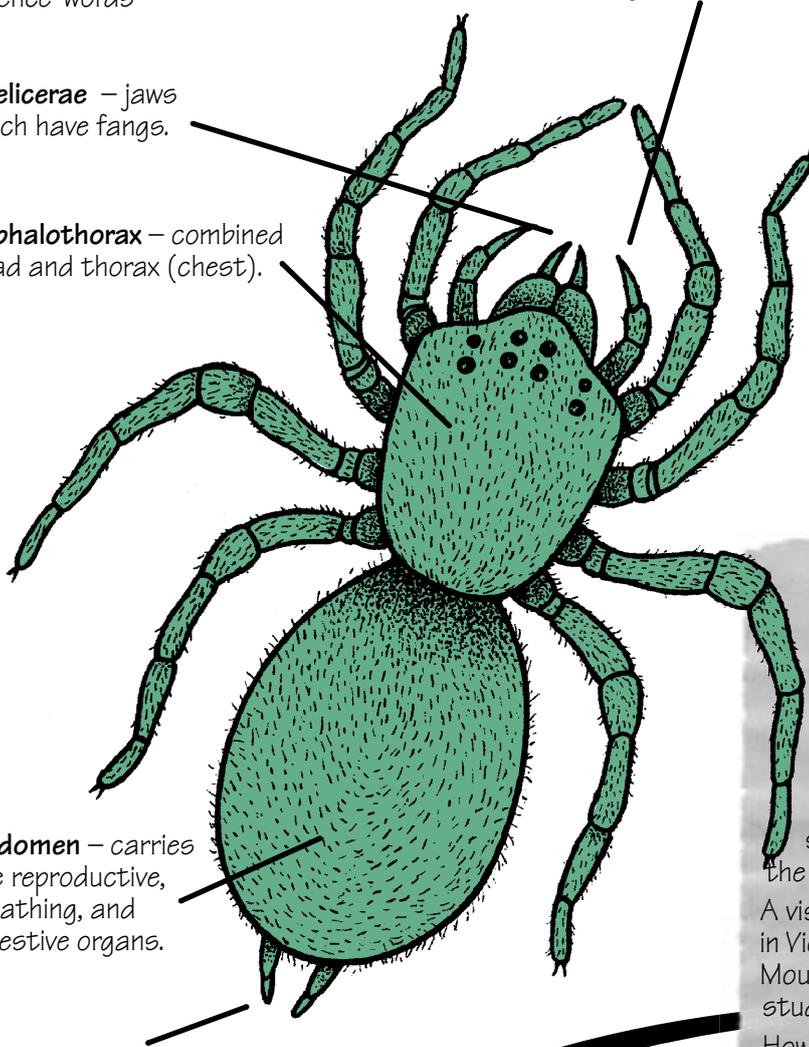
Pedipalps – used in mating by males and for sensing and moving objects

Chelicerae – jaws which have fangs.

Cephalothorax – combined head and thorax (chest).

Abdomen – carries the reproductive, breathing, and digestive organs.

Spinnerets – silk-producing organs or spinning tubes.



Did You Know?

- Mouse Spider mating usually takes place in the females burrow.
- Mouse Spider burrows can have a single or double trap-door.
- Trap-door spiders may live for up to 20 years in their burrows.
- Trap-door spiders can grow new palps, fangs and spinners when they moult (shed their skins).
- Scientists believe the first spiders lived about 400 million years ago.

Wanted - male Mouse Spiders!

Scientists have recently been studying spider bites in the Top End, and are now working with scientists from Victoria to find out more about the venom of the Northern Mouse Spider.

A visiting Scientist from a venom research group in Victoria is collecting venom from live male Mouse Spiders in Darwin to be used in this study.

However this collection of venom is proving to be difficult, with only tiny amounts collected from each male. This appears to support the theory that most bites from a Mouse Spider tend to be 'dry' or only contain tiny amounts of venom.

Plant Profile

Pandanus

Pandanus are a well known symbol of the Northern Territory. Their palm like appearance and graceful leaves give them tropical appeal, making them one of the Top End's most photographed plants. They are extremely useful and important plants for Aboriginal people, a 'one stop shop' with different parts being used for craft objects, food and medicine. Many animals also use them as a home.

Pandanus belong to a large group of similar plants, with 37 species (different kinds) found in Australia. They are generally confined to coastal regions. *Pandanus spiralis* is the most widespread and common in the Top End. It occurs wherever there is reliable monsoon rainfall.

Pandanus grow up to 10 metres tall. They constantly grow upward, producing new green leaves at the top. The old dead leaves stay attached to the trunk for some time looking like grass skirts that offer shelter to various creatures. Bird species such as Long-tailed Finches and Crimson Finches often nest in these protective layers of vegetation, whilst tree snakes hunt frogs and geckoes.



Pandanus spiralis gets its name from the spiral or corkscrew appearance of the leaves at the base of the trunk, that form as the plant grows.



A tough nut to crack

Pandanus spiralis produces tough fibrous fruit. Each cluster of fruit has about 10 to 25 individual nut-like fruits which each contain 7 to 10 seeds. Aboriginal people eat the fruit once they have ripened to a deep orange-red colour, but getting into the seed is another thing! If you want to try eating the seeds from inside the fruit, wait until they have changed to a brown colour. Place them in a vice and use a saw to gently cut into the nut-like fruit. The reward is worth it though; they're delicious, tasting a little bit like peanuts and coconut together.

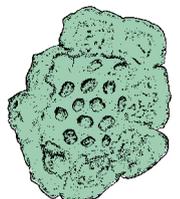
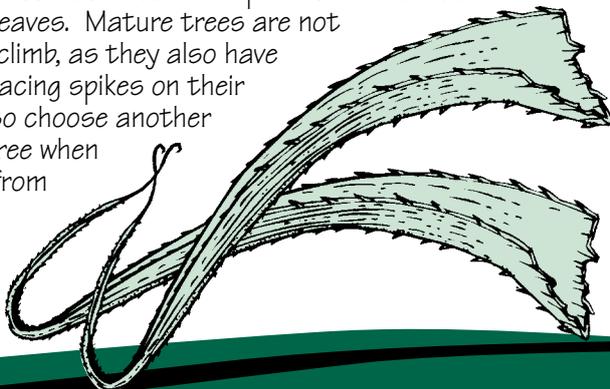
The Red-tailed Black-Cockatoo and the Black-footed Tree Rat are some of the only wildlife that have what it takes to open the nuts. A powerful beak and long strong teeth are the tools of their trade.

Did you know?

- The name *Pandanus* was derived from the Malay name *Panden*, used on their own South East Asian species.
- There are over 17 different growth forms of *Pandanus spiralis* in the Northern Territory. They all have different growth habits such as having no branches, to huge spreading trees.

Ouch !!

Pandanus come armed with spikes on three sides of their leaves. Mature trees are not good to climb, as they also have upward facing spikes on their trunks, so choose another sturdy tree when running from buffalo!



Pandanus spiralis fruit

Up in Flames



Old, dry, dead leaves that build up on the Pandanus and on the ground below can turn them into living fire balls when bush fires occur. Once alight they quickly become a huge burning torch, hurling flames, smoke and burning material high into the air. This makes fire fighting difficult, as burning leaves can be carried for hundreds of metres, jumping roads, fire breaks and even rivers. Amazingly, the Pandanus often survive these hot fires!

To avoid having to re-light fires with rubbing sticks, Aboriginal people carried slow smouldering Pandanus branches to transfer fire from camp to camp when they travelled.



Bon Voyage

Pandanus spiralis form large dense thickets from where their seeds fall. Some seeds are moved around by animals, but like most Pandanus species their seeds are able to float. Rivers and streams carry the seeds vast distances, even out to sea. They survive well on the land ward side of beach sand-dunes. However, their preferred habitat is on soil that doesn't drain very well, such as along the edge of flood-plains, rivers and streams.

Puzzle

A resourceful plant

Aboriginal people found many uses for most parts of the *Pandanus spiralis* plant. Draw a line to match up the plant parts to the objects produced from them. Be careful though, some parts have more than one use. Have fun.



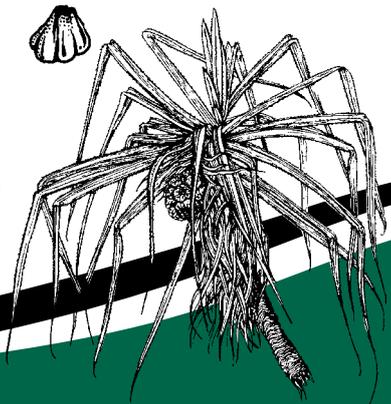
1 Pandanus stem.



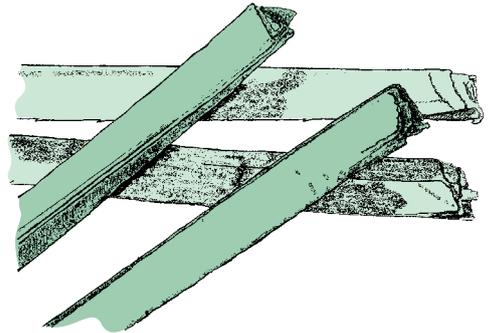
2 Pandanus prop roots.



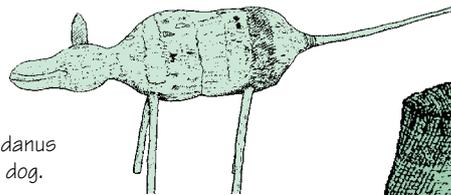
3 Pandanus fruit and pod.



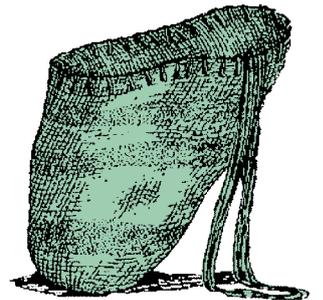
4 Pandanus leaves.



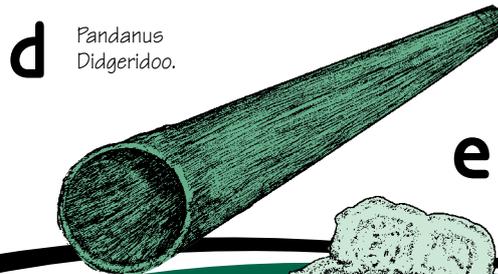
a Pandanus cabbage used as wound treatment.



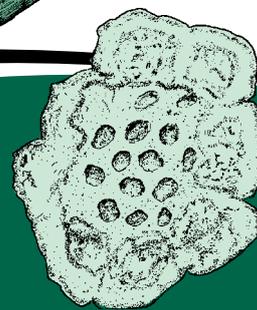
b Pandanus doll dog.



c Pandanus string dilly bag.



d Pandanus Didgeridoo.



e Dissected Pandanus fruit cut with saw, showing edible seeds.

Check it out!



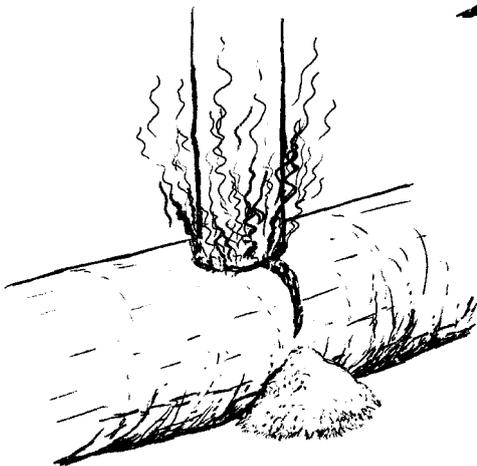
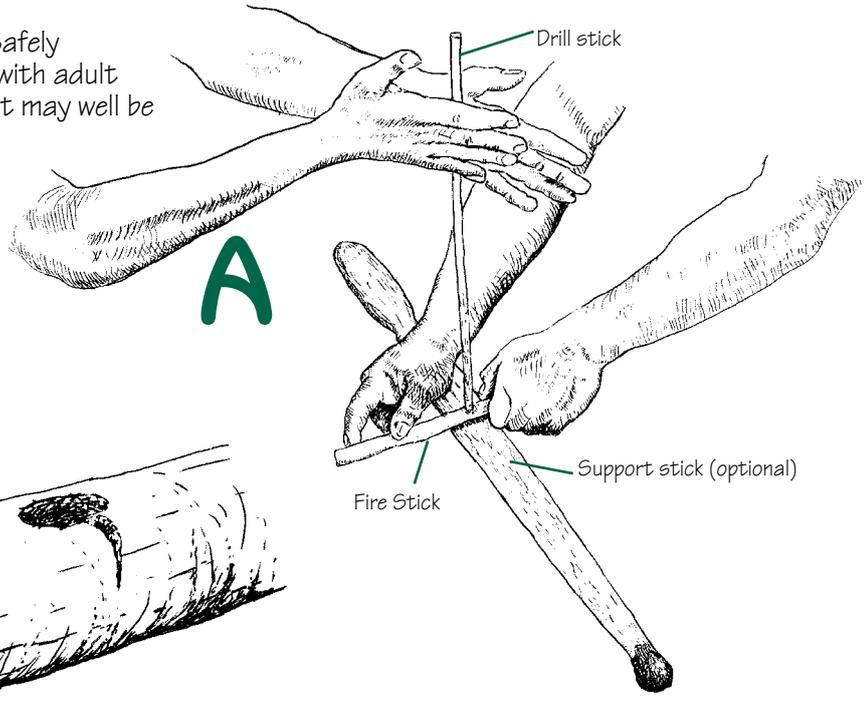
Survival skills - Fire

Fire is a powerful tool. We use it for lighting, warmth and cooking. Today's technology enables us to light fires with ease through the use of matches and gas lighters. However it can also be an extremely destructive force. We have all seen or heard about the devastation caused by wildfires - and these are generally deliberately lit. Fire is not a toy. It can cause death and destruction when misused.

The aim of this activity is to learn how to light fire safely using traditional methods. Always try this activity with adult supervision; this is not an easy activity and an adult may well be a better fire stick grinder, as it is very hard work.

Equipment

- Yourself and at least one adult.
- A straight, smooth, hard, drill stick.
- A fire stick. Preferably a softer type of wood than the drill stick.
- A file or small knife.
- A handful of tinder, eg. crushed bark or grass.



Getting started

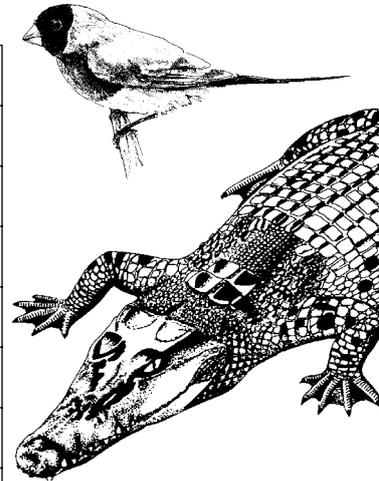
- Make sure you are working on cleared ground - fire can spread very easily.
- Get your adult to make a notch in the fire stick with the knife. Then cut a little slit in the hole (see picture B).
- Sit down and place a foot on the fire stick or get someone to hold it (picture A).
- Place the drill stick into the notch. Drill gently at first as you need to form the hole. Once there is a hole, start drilling harder by pressing down at the same time that you are drilling. Your hands will work from the top to the bottom of the stick as you twitch it between your palms (picture A).
- Your drilling should be forming a small pile of glowing wood shavings that will collect to the side of the cut on the fire stick (picture C).
- Place your tinder on the glowing embers (picture D) and start to gently blow on it. You may need to pick it up to get the maximum amount of oxygen to it. Add this to more tinder and kindling, and you're away.
- Have someone photograph this as no one will believe you did it without matches.

Nature Quiz

Giant Junior Ranger word search

So, you think you're pretty good at Word Searches? Well have a go at this monster! It has 50 words from all of this editions articles. The words go in all directions, even backwards, so beware - it has already caused several people to go insane! Good luck!!!

X	O	R	G	G	E	R	E	D	I	P	S	R	E	V	I	R	H
C	Y	T	S	N	K	N	U	R	T	R	A	E	J	K	R	Q	T
S	W	S	P	T	O	X	I	C	N	U	L	R	V	C	V	C	M
P	T	J	L	S	M	B	X	T	T	A	T	I	B	A	H	S	R
I	G	R	A	S	S	L	A	N	D	S	I	F	G	T	E	E	A
N	D	N	P	T	M	J	R	L	F	O	E	D	P	T	M	L	W
N	D	E	I	S	C	A	O	R	L	N	M	L	L	A	S	A	K
E	N	N	D	N	R	B	H	C	O	I	K	I	A	U	G	C	G
R	A	I	E	O	O	D	T	S	O	D	B	W	N	R	O	S	Q
E	L	R	P	U	C	O	O	M	D	S	S	A	T	L	W	G	G
T	T	A	E	T	O	M	L	G	P	W	D	W	F	O	A	N	E
S	E	M	F	C	D	E	A	L	L	N	P	E	O	A	I	I	O
P	W	B	I	D	I	N	H	C	A	R	A	D	E	L	H	K	G
I	O	U	L	T	L	L	P	P	I	B	L	L	D	S	L	O	P
K	R	S	D	D	E	R	E	G	N	A	D	N	E	S	T	O	N
E	R	N	L	E	S	O	C	H	N	E	I	R	F	I	N	C	H
S	U	T	I	N	D	E	R	D	C	K	F	L	A	M	E	F	Z
T	B	O	W	C	C	T	S	R	E	B	M	E	M	O	N	E	V

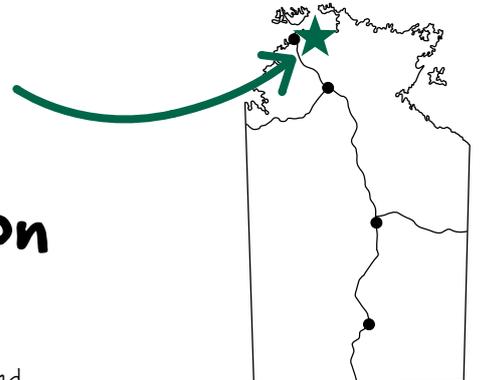


ABDOMEN	DINOSAUR	GOULDIAN	PLANT	SUBMARINE
ARACHNID	EGG	GRASSLANDS	RIVERS	TINDER
ATTACK	EMBERS	HABITAT	SALTIE	TOXIC
BALLOONING	ENDANGERED	HOLLOWS	SCALES	TRUNK
BILLABONG	FINCH	KINDLING	SEEDS	VENOM
BURROW	FIRE	LEAVES	SMOKE	WARMTH
CEPHALOTHORAX	FLAME	NEST	SNOUT	WETLAND
CHELICERAE	FLOCK	NUT	SPIDER	WILDFIRE
COOKING	FLOODPLAIN	PANDANUS	SPIKES	WILDLIFE
CROCODILES	FRESHIE	PEDIPALPS	SPINNERETS	WOODLANDS

Discover a Territory Park

Fogg Dam Conservation Reserve

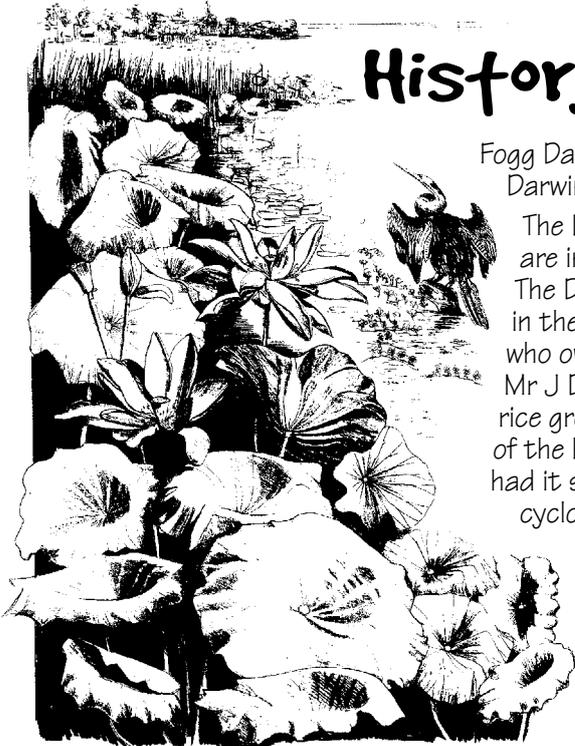
Fogg Dam Conservation Reserve provides a haven for wildlife on the outskirts of Darwin's rural area. It's a fantastic place to get up close to a spectacular wetland habitat that is easily accessible all year round.



History and location

Fogg Dam is located about 65km east of Darwin along the Arnhem Highway.

The Limilngan-Wulna people speak for and are involved in the protection of this land. The Dam itself is man-made and was built in the mid 1950's. It is named after the man who owned the earth moving equipment, a Mr J D Fogg. It was to provide water for a rice growing project that would have been one of the biggest farming projects in the world, had it succeeded. In the end, unreliable rains, cyclones, birds and insects all conspired to make it a massive farming failure. However, our native animals loved it, so it was turned into a conservation reserve that everyone can come and enjoy.



What to do and see

You don't even have to get out of your car to enjoy Fogg Dam as you can drive over the dam wall to see some of the sites. To get a better view, walk across and check out the various shaded viewing platforms. On the other side of the dam wall is an elevated lookout; spectacular at sunrise and sunset! Otherwise, two other walks take you through various habitats that include a monsoon forest and an elevated platform that winds out amongst the water lilies!

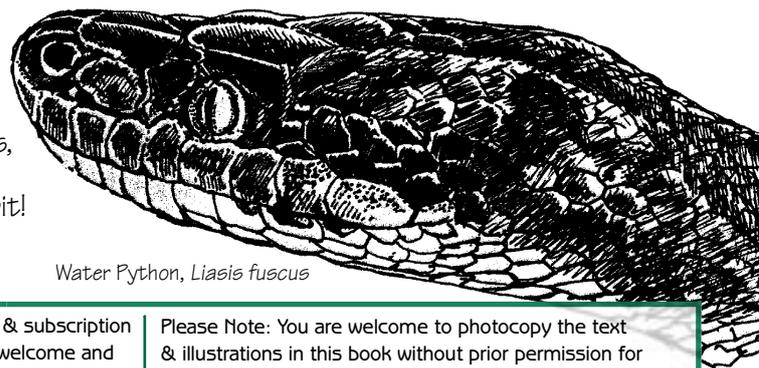
During the dry season (April - September) all sorts of waterbirds gather at Fogg Dam as water becomes scarce elsewhere. And it's a great spot to see all sorts of spectacular flowering water lilies during the Wet.

Did you know that it has been estimated that this Reserve is home to about 2,500 Water Pythons? They mainly eat Dusky Rats, whose population can explode to about 100,000 rats per square kilometre during good years!

Amazing stuff, but if mum or dad don't like snakes or rats, then don't tell them about this bit!



The Dusky Rat, *Rattus colletti*



Water Python, *Liasis fuscus*

Puzzle Answers

Creature Feature:

Cleaning fish at waters edge. Fishing in water. Hand out of boat. Snorkelling. Washing up in water. Kids swimming. Dog tied next to water. Camping next to water. Baby at waters edge. Lying on mattress. Bird watching in water. Boat overloaded.

On the Brink:

Rainbow.
Ngal-mayh worlo.

Plant Profile:

1d, 2b, 3e, 4a & 4c.

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