

Junior Ranger

ISSN 1036-966x



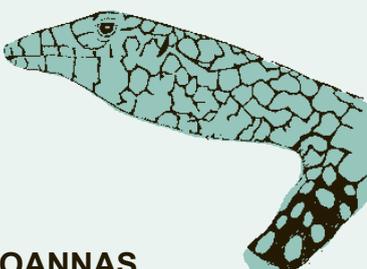
Review

ISSUE 1, 2004

CANE TOADS - *a special edition*

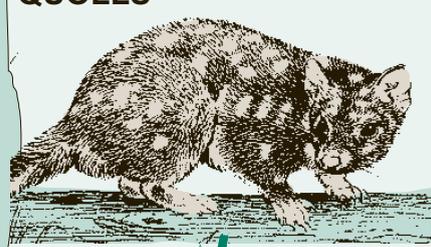


URBAN *encounters*



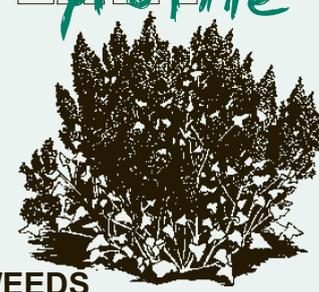
GOANNAS

QUOLLS



on the
BRINK

PLANT *profile*



WEEDS

CREATURE

feature



Cane Toads

Australia does not have any native toads. One hundred and one Cane Toads (*Bufo marinus*) were brought to Queensland from Hawaii in 1935 to control cane beetles, a pest of sugar cane. The toads did not control the beetle. Instead they spread overland.

People in Queensland and northern NSW have been living with these creatures for years. In 2001 they reached the wetlands of Kakadu National Park. Now those of us in the Top End have to live with them too.

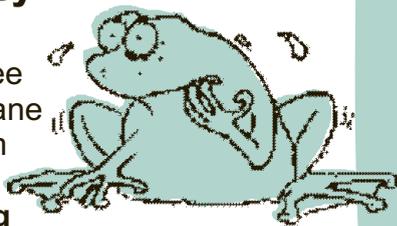
Why are there so many?

Female Cane Toads can lay 4 000 to 36 000 eggs. Adults, eggs, tadpoles and toadlets are all poisonous. They lay the eggs in long spaghetti-like strands of clear jelly which can be over 10 metres long.

Toad tadpoles are black and much smaller than most tadpoles of native frogs. They have pointed arrow-like snouts, thin tails and are black underneath. If you are unsure, check with the Parks and Wildlife Service.

Why are they so bad?

There are three ways that a cane toad can harm our native wildlife: **eating** them; **competing** with them for food and shelter sites, **poisoning** the animals that eat them.



Adult Cane Toads will eat almost anything that fits in their mouth. They love ants, termites, millipedes and beetles and can eat up to 200 food items in one night. In urban areas they love eating pet food, but they won't poison it. The animals most threatened by cane toads are frog eaters such as snakes, goannas and northern quolls.

Where do they come from?

Find these toad terms in the grid. The letters leftover will spell out where the natural home of the Cane Toad is.

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

BONY RIDGE

COMPETITION

PREDATION

TOXIC EGGS

BUFO MARINUS

OBVIOUS EAR

QUEENSLAND

WARTY SKIN

CANE TOAD

POISON GLAND

TADPOLE

WEBBED FEET

Telltale features of a Cane Toad



Mistaken Identity

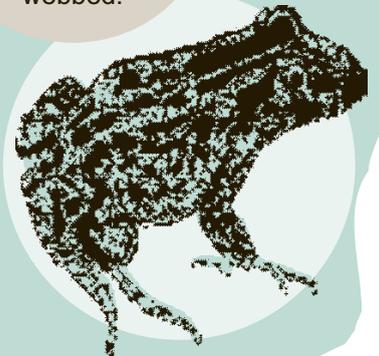
It is easy to mistake a Cane Toad for some of our native frogs. Most of the frogs that look similar to Cane Toads are smaller. Cane Toad colouring ranges from grey to olive brown with a belly that is pale with dark, irregular spots. Cane Toads can also be identified by their obvious ears, raised (parotid) poison glands on the shoulders, a high bony ridge over the eyes, circular pupils and partially webbed feet. If it is smaller than 55mm and has no bony ridge, it could be an Ornate Burrowing Frog, a Marble Frog or a Northern Spade Foot Frog.

KNOW YOUR NATIVES



Giant Frog - up to 100mm, obvious ear, horizontal pupils and feet not webbed.

Marble Frog - up to 55mm, ear not obvious, horizontal pupils and feet partially webbed.



QUESTIONS & ANSWERS

Can I keep them out of my backyard?

Installing a 500mm high barrier of fine mesh or smooth sheeting around your perimeter (including the gate) could help to keep them out. Cane Toads can burrow a bit, so you will need to sink the barrier about 150mm into the ground. You will also need to watch out for toads that enter through your gate.

Are my pets safe?

Cats are usually too cautious to attack Cane Toads, but dogs may try to eat them. If the dog is taken to a vet straight away, it will probably survive.

What else can I do?

Avoid leaving containers of water around for toads to breed in. Keep your pet's food out of reach. If you have a pond, remove any cane toad eggs you see. Be careful you don't accidentally help Cane Toads travel - they are great hitchhikers and will find their way into pot plants, trailers and swags.

How can I find out more?

These websites are useful:
www.frogwatch.org.au

www.nt.gov.au/ipe/pwcnt/

www.csiro.au

What effect will they have?

Many native animals will die and some species may become much rarer, possibly even extinct in their regions. We will see Cane Toads (dead and alive) on roads, in parks and gardens and in bodies of water like drains and swimming pools. Once their presence has peaked after a couple of years, we won't see quite so many of them.

What should I do if I see one?

Make sure you have a Cane Toad first! You can reduce Cane Toad numbers on your property by killing any that you see. The most humane way is to use a plastic shopping bag to pick the toad up, double bag it, tie it tightly and freeze it overnight. You can bury it or put it in your wheelie bin.

URBAN encounters

Goannas - going, going, gone?

Australia is the land of the lizard. We have more lizards than any other place on Earth. For thousands of years our goannas have sat at the top of the lizard pile.

So what makes the goanna so interesting?

Goannas are not dinosaurs but they are ancient creatures.

Goannas survive in all the habitats within Australia.

They are ferocious hunters, and are an important part of Australia's bush ecology.

For thousands of years, Aboriginal people have eaten them as traditional food.

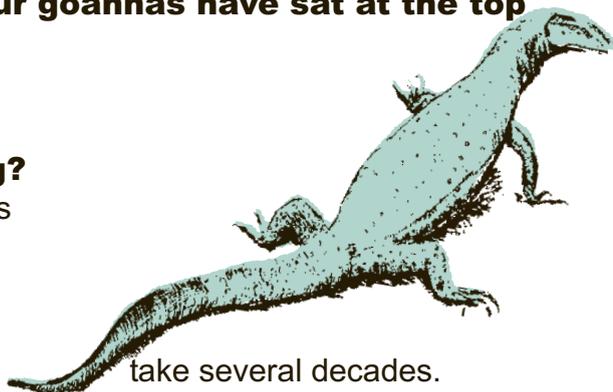
For all of these reasons Goannas are special and just like all of our wildlife, they need looking after.

Then, out of the blue, hopped a poisonous toad...

As cane toads have spread from Queensland across the top end of Australia, Goanna numbers have crashed. These great Aussie hunters cannot cope with poisonous prey. And as the Goannas go, a hole forms in the web of life.

The long road to recovery

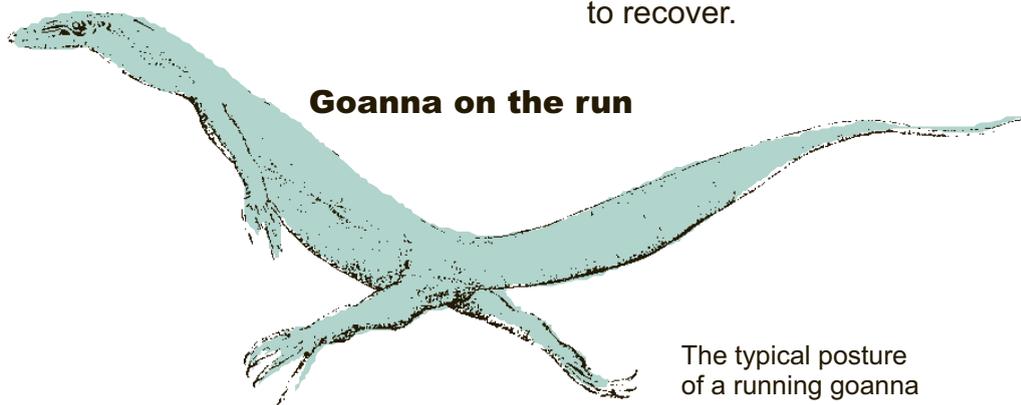
So what happens now? Are the Goannas gone for good? Scientists think not. They believe that most populations will recover, but they may



take several decades.

Widespread species will fare better than ones that live in isolated pockets. Isolated populations occur where a species cannot or will not venture out of a particular habitat. Once the cane toads overrun their areas, these Goannas cannot rely on reinforcements to replace their dead.

Sadly, cane toads are here to stay. The Goannas must learn not to eat them. This will not be easy because they are attacking machines. They are opportunistic feeders that will try to overpower anything that moves close to them.



Goanna on the run

The typical posture of a running goanna

G'day from Ranger Bill.

Welcome to the first edition of the 2004 Junior Ranger Review.

This edition has lots of information about the cane toad and its impact on Territory wildlife. Toads are already in Kakadu National Park, Katherine and Pine Creek and will probably reach Darwin this year. I encourage all Junior Rangers and their families to learn about cane toads and make sure you know how to tell the difference between the introduced toad and our important native frogs.

You may also notice the Review has got a fresh new look, including a new back page Discover a Territory Park. This page will help to introduce you to the many different Parks and Reserves we have in the NT and I think will be great when planning your next family holiday.

Ranger Bill

Some Goannas may be lucky because the cane toads will not reach their habitat. These surviving populations will then help other populations to recover.

Goannas are great survivors because...

They're not fussy eaters...and don't mind dead stuff that's a bit on the nose!

The females are good at digging holes and hiding the eggs.

They have water tight skins so they can go with out water for a long time.

They're very energy efficient. Being partly solar-powered and slung low to the ground is a big advantage. They can warm up fast and cool down just as quickly.

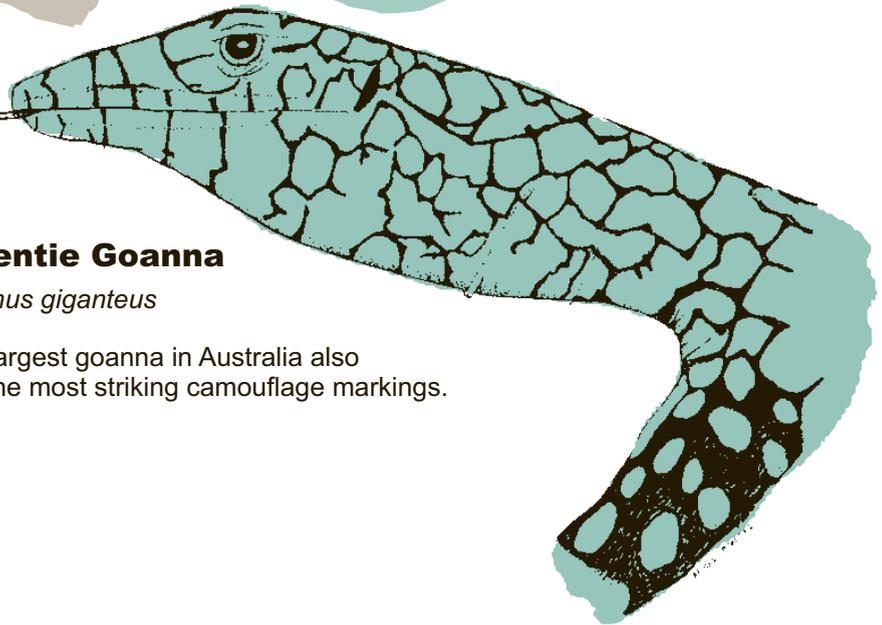
They are not easy to see. They often have interesting markings that provide great camouflage.

They can go into a form of hibernation, called aestivation, when times get tough.

Make a stand and then hit the road

Goannas aren't dangerous (unless you're small enough to be potential tucker.)

If it is cornered, it has good weapons in the shape of a mean set of teeth, sharp claws and a tail it can swing like a whip, with surprising accuracy. In defence, a goanna may stand on its hind legs, with its mouth partially open, hissing loudly. More often than not however, even the largest creatures will run for cover or scamper up a tree.



Perentie Goanna

Varanus giganteus

The largest goanna in Australia also has the most striking camouflage markings.

Use this grid to decode one of the best ways the goanna survives.

	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

Check your answer on page:

It uses its ^{C2} ^{C5} ^{C4} ^{B2} forked ^{D5} ^{C5} ^{C4} ^{B2} ^{E1} ^{A5} to

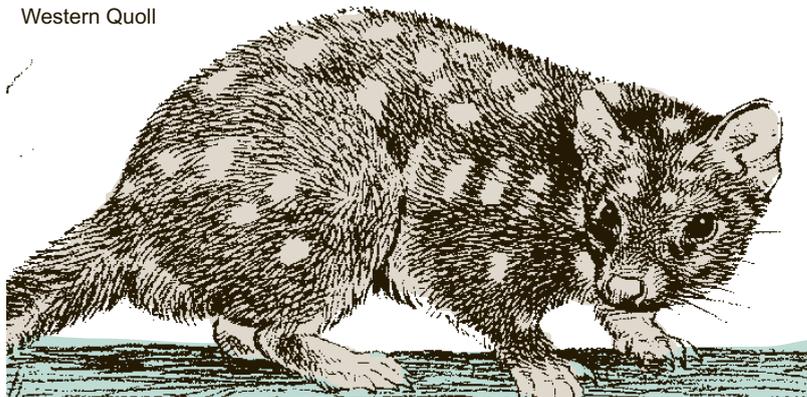
^{D3} ^{A5} ^{A1} ^{A4} all about their surroundings by using special

chemical sensing ^{C5} ^{D3} ^{B2} ^{A1} ^{C4} ^{D4} on the roof of their mouth.

on the DRINK

Northern Territory Quolls

Western Quoll



Two hundred years ago, two of Australia's four species of Quoll could be found throughout the Northern Territory.

Now the Western Quoll is gone and the Northern Quoll is **ON THE BRINK** of extinction.

Quolls are ferocious nocturnal hunters. They are a similar size to domestic cats and easily recognisable by the white spots on their back. They will eat anything from insects up to mammals the size of small kangaroos.

They live fast and die young. In the wild, females live for a maximum of three years while males are lucky to live for two. Females will have about six babies that spend six to eight weeks in her small pouch. After that she has to leave them in some sort of den while she ventures out to hunt.

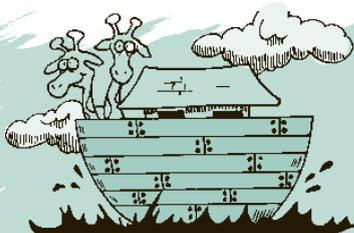
What's threatening their survival?

The Western Quoll (*Dasyurus geoffroii*) has suffered the same fate as many medium sized mammals from Central Australia. A complex combination of changed fire regimes, land clearing, disease, predation and competition for food from cats, foxes and dogs, as well as droughts have all taken a toll. People have also killed them for breaking into chicken coups. Many have also been accidentally poisoned by baits meant for foxes and wild dogs.



Did you know?

- The Eastern Quoll (*Dasyurus viverrinus*) is **extinct** on the mainland and the Spotted-tailed Quoll (or Tiger Quoll) (*D. maculatus*) is **barely hanging on**. Thankfully they are both fairly common in Tasmania.
- Male Quolls only ever mate for **one season**. Then they usually **die!**
- All Quolls are fairly **good climbers**, but the Northern Quoll is the best. You might even find one **living in your roof!**
- Although many Quolls have accidentally been **poisoned** throughout Australia, the remaining Western Quolls are **immune** to the commonly used fox and dog poison.



Project island Ark

The scheme to move Northern Quolls to the relative safety of our offshore Islands has been named Project Island Ark. Not as in an arc, or ring of islands, but as in the biblical story of Noah's Ark.

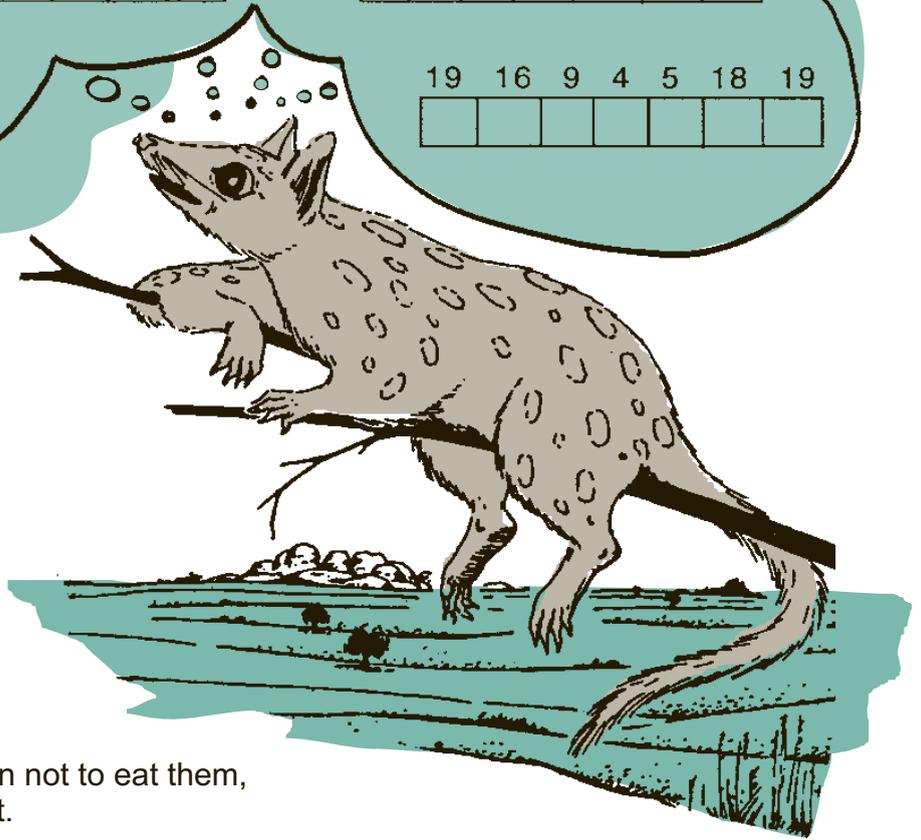
The story goes that Noah took two of every animal onto his ark (boat) so that they could repopulate the earth after the Great Biblical flood. Now we are saving Quolls from a 'flood' of cane toads!

Have a go at this puzzle.

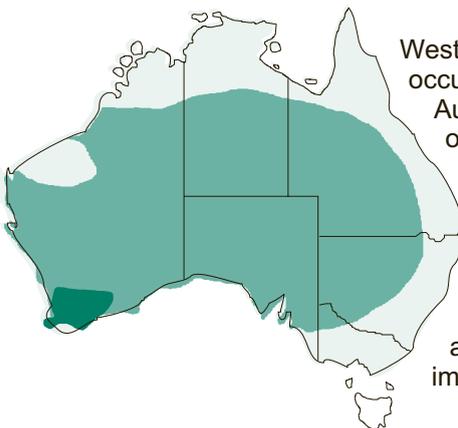
What is Chilpa the Quoll thinking about as she sits on the branch of the tree?

Code: A= 1, B =2 etc.

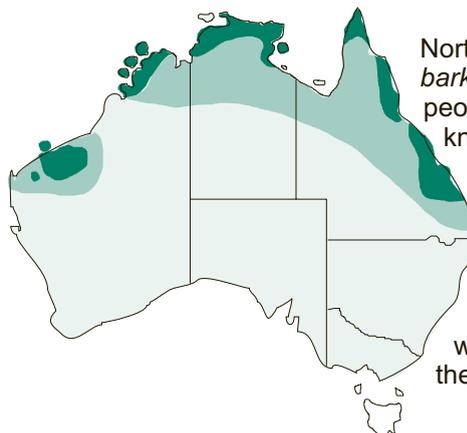
The Northern Quoll (*Dasyurus hallucatus*) faces many of the same problems. On top of that they now have to deal with cane toads. Cane toads seem to be an irresistible meal to a Quoll, but unfortunately even just mouthing a cane toad is enough to bring death within twenty minutes. Some studies have shown that many other animals that eat cane toads eventually adapt and learn not to eat them, but so far it looks like Quolls have not.



Parks and Wildlife, in conjunction with traditional land owners and other agencies are catching Quolls on the mainland and taking them to Islands off our north coast. This is not just to give them a holiday! It is hoped that by taking them to places that cane toads cannot access, we should be able to keep them safe until we work out a way to rid Australia of the dreaded toad.



Western Quolls used to occur over most of Australia. Now they are only found in the south west of WA. Central Australian Aboriginal people know them as *chilpa* or *kuningga*, and they are still associated with many important ceremonies.



Northern Quolls, or *barkuma*, as the Yolgnu people of Arnhem Land know them, were much more common before European settlement. They prefer to live in broken, rocky country or open woodlands closer to the coast.

LEGEND: then now

PROJECT

page

Triangulation

Communication is very important in the animal world. Animals use a variety of methods to send messages about aggression, territories, danger, or attract mates.

Male frogs use sound to attract mates and to tell other frogs that they have ownership of a territory.

Females frogs don't call. The males are trying to attract the nearby females who listen attentively for the best call.

All species of frog have a distinctive call. This way, various kinds of frog can live together and not accidentally search for members of the wrong species.

Most frogs call at night when they are safer from predators.

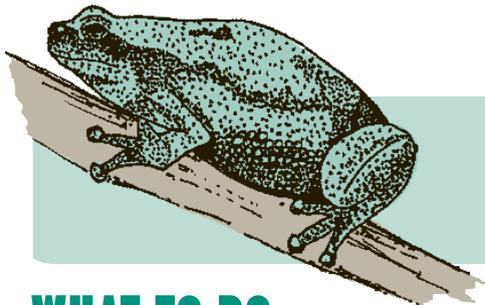
Most frogs are nocturnal spending the day sheltering from the sun, wind and predators like snakes and birds.

Have you ever wondered how scientists or others locate them? Frog experts have worked out a clever way to help them find a calling frog, called **triangulation**.



Spencers Burrowing Frog

Desert Tree Frog



WHAT YOU NEED:

- two friends (plus you makes three!)
- three torches



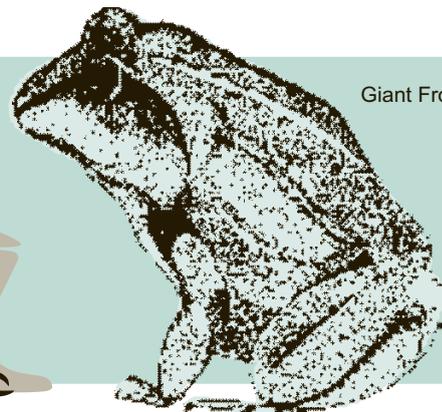
*Red cellophane over torch beams will disturb the frogs less.

WHAT TO DO:

You need to start with your torch off, so it is important to know the area where you are looking. It is best to check out the area in daylight so you know what dangers might be around.

IT'S IMPORTANT:

It is also important to wear closed-in shoes, like runners or gumboots, to protect you from stepping on anything in the dark.



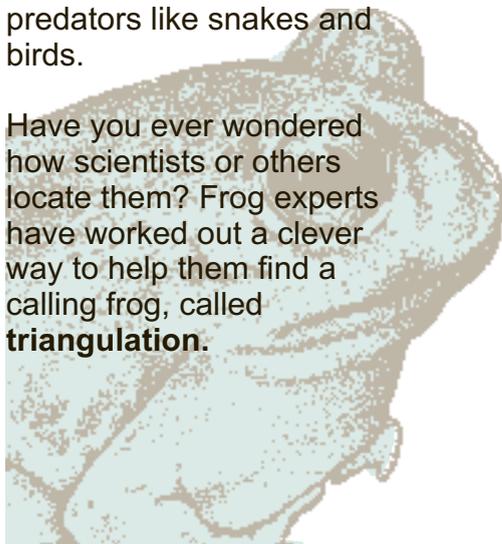
Giant Frog

LISTEN:

Once you have heard a frog calling, all three of you need to move around the spot you think the noise is coming from (with your torches off). It is best to spread out a little and form a loose triangle shape around the spot.

DON'T MOVE A MUSCLE:

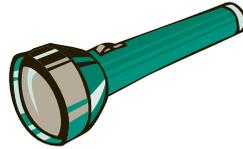
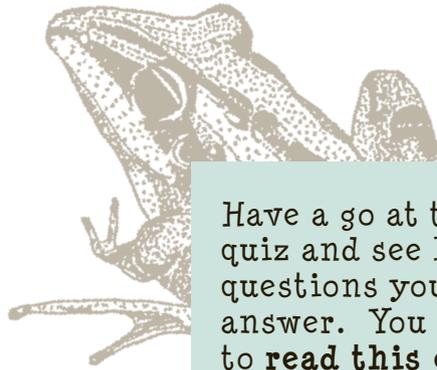
Now you must be very still and wait in total silence until the frog starts calling again. When you think you know where the frog is point your torches in that direction and switch them on. If you look carefully on the ground or in the foliage at the spot where all three torchlights meet, you should find the frog.



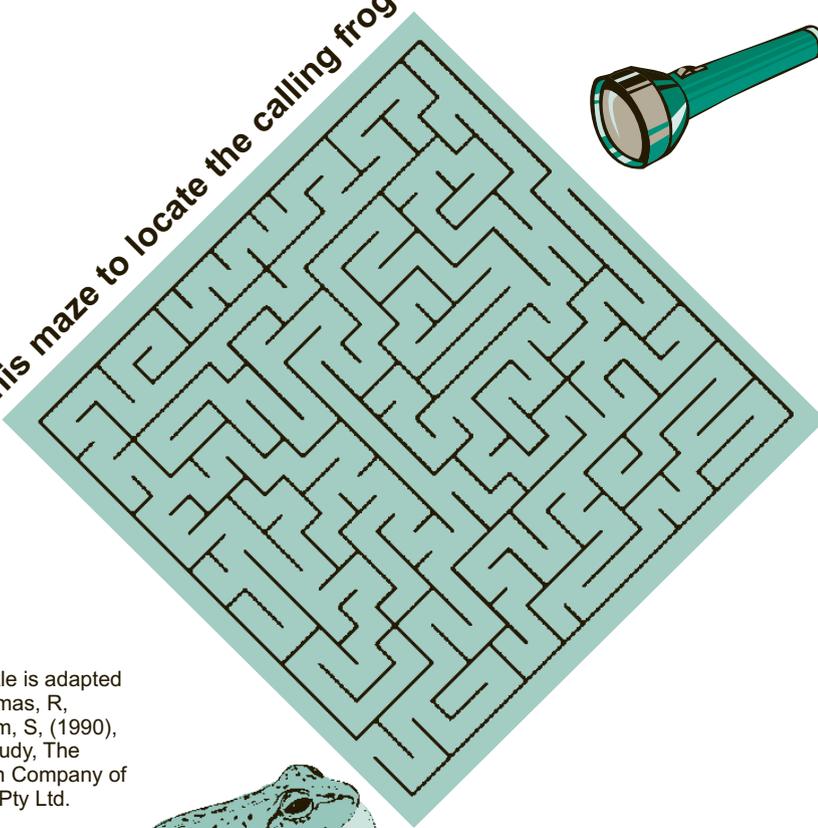
NATURE

quiz

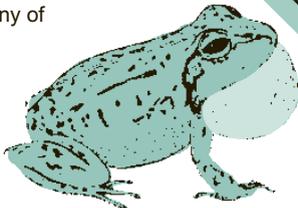
Frogs, Facts & Fun!



Use this maze to locate the calling frog



This puzzle is adapted from Thomas, R, Sydenham, S, (1990), Nature Study, The Macmillan Company of Australia Pty Ltd.

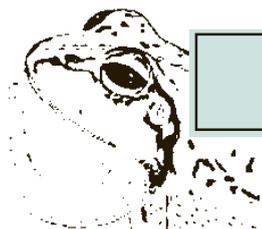


Cyclorana maini

Have a go at this picture crossword. Use the pictures to help you fill in the missing letter in this Froggie crossword.



			F		
			R		
			O		
			G		
			S		



Have a go at the nature quiz and see how many questions you can answer. You might have to **read this edition** of the Junior Ranger Review **carefully**.

- Which group of animals do frogs and toads belong to?
 - Mammals
 - Reptiles
 - Amphibians
- Which frogs and toads have the loudest call, the males or the females?

From which place were cane toads introduced?

 - Fiji
 - Hawaii
 - India
- The cane toad was introduced into Australia to control a beetle problem for what crop growing in Queensland?

Although it is sometimes called a native cat, quolls are more closely related to:

 - Dogs
 - Kangaroos
 - Tigers
- Northern Quolls are said to be particularly *arboreal*. This means they like to live where?

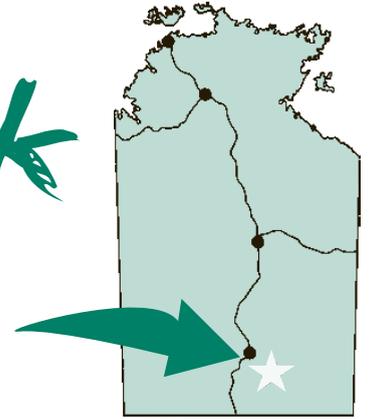
Do goanna lay eggs or have live young?

What is another name that goannas are known as?

 - Monitors
 - Dragons
 - Skinks

DISCOVER a territory park

Chambers Pillar Historical Reserve



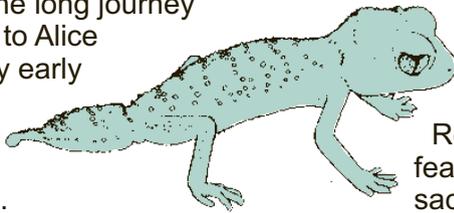
WHERE IS IT?

Chambers Pillar is 160 km south of Alice Springs on the edge of the Simpson Desert. You will need a 4WD if you want to explore this park.

HISTORY

Explorer, John MacDouall Stuart, was the first white man to visit the pillar. He was heading north on his earliest attempt to cross Australia in 1860 when he first saw it. He named it after James Chambers, his friend and financial supporter.

John Ross was the next white man to visit the area in 1870. Ross led an exploring party to determine the route of the Overland Telegraph Line. Chambers Pillar was a landmark on the long journey from Adelaide to Alice Springs. Many early visitors carved their names into the sandstone.



ABORIGINAL SIGNIFICANCE

In Aboriginal tradition, Chambers Pillar is *Itirkawara*, a Knob-tailed Gecko spirit ancestor. *Itirkawara* was a warrior who traveled widely and killed many. He broke the strict rules about marriage taking a wife from the wrong skin group. Angry relatives sent him and his wife into the desert. Soon they became tired, *Itirkawara* sat down to rest and turned to stone, becoming the Pillar. The girl crouching with her face turned away in shame became *Yayurara* or Castle Rock. Today both features are registered sacred sites.

WHAT CAN YOU DO THERE?

Chambers Pillar is a great place to go camping. There is a walking track where you can join a board walk to climb a short way up the Pillar. Signs tell of some of the early pioneers whose names can still be seen in the sandstone today.

HOW THE PILLAR WAS FORMED

Chambers Pillar is made of sand, silt and clay laid down about 340 million years ago on the edge of an inland sea. Most of the iron-rich layer that once covered the entire area has been eroded away. Chambers Pillar is one of the last parts of the old land surface. The pillar has a iron-rich red cap that is harder than the white rock underneath.

Puzzle Answers

Creature Feature: Central and tropical South America.

Urban Encounters: It uses its long forked tongue to read all about their surroundings using special chemical sensing organs on the roof of their mouths.

On the Brink: mice, grasshoppers, frogs, geckos, eggs and spiders.

Nature Quiz:

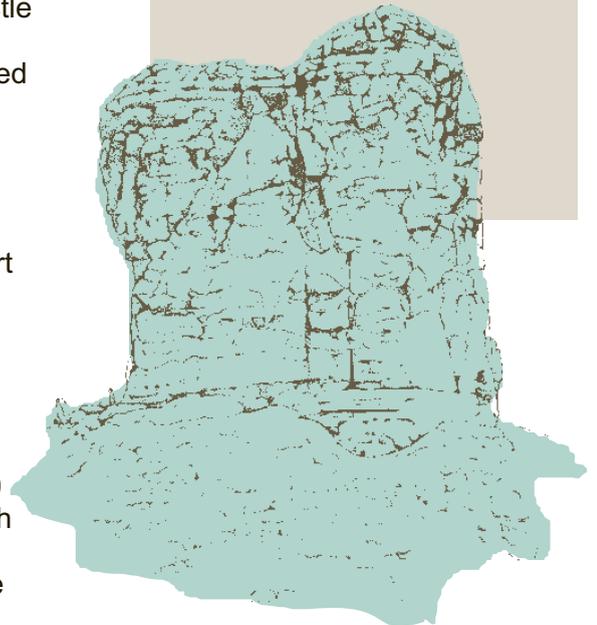


1.c 2.Males 3.b 4.sugar cane 5.b 6.in trees 7.lay eggs 8.a

Plant Profile: 1.bark 2.eucalyptus 3.flood 4.finch 5.gecko 6.leaves 7.goanna 8.crow 9.water 10.sand 11.sun

BUFFEL GRASS

What's my name: Gamba Grass
What's the bird: Galah
What's the runaway plant: Rosy Dock



The Junior Ranger Review is produced 4 times a year by Parks and Wildlife Service of the NT. Design and layout by Nanet Pagsanjan, front cover drawn by Andrew Pickering, written by Andrew Pickering, Dean McAdam, David Rochford, Stuart Traynor, & Emily Findlay. Illustrations from Andrew Pickering, Robbie Henderson, Kay Kessing, Bob Whiteford, and Nick Pike.

Contributions are welcome and should be sent to:
**The Editor,
Junior Ranger Review
Po Box 496
Palmerston NT 0830**

Please note: You are welcome to photocopy the text & illustrations in this book without prior permission for non-profit educational purposes only. If text is reproduced separately it must not be altered and Parks & Wildlife Service of the NT must be acknowledged as the source. (If you wish to use the illustrations, permission must be sought). Please contact the editor if in doubt.