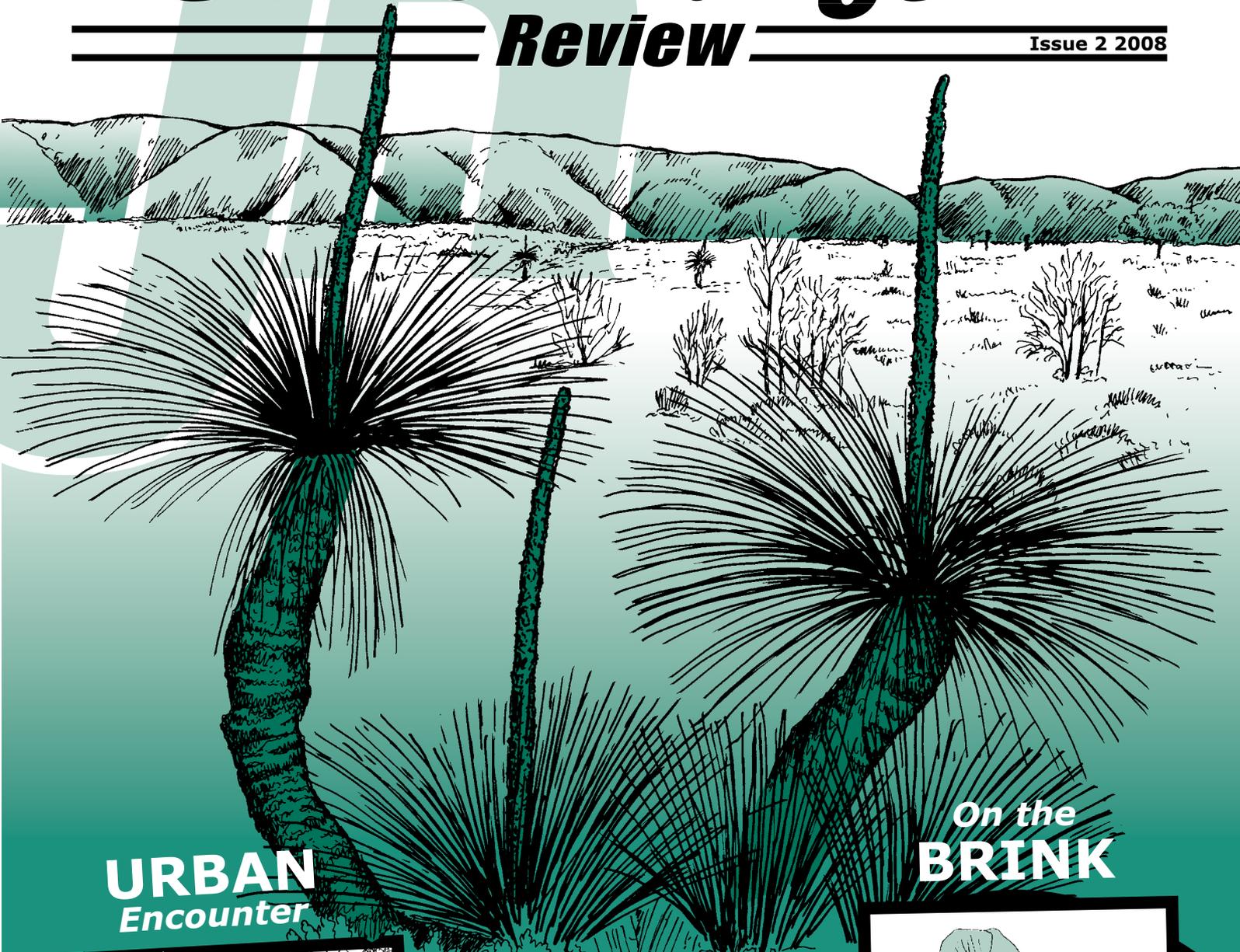




# Junior Ranger

## Review

Issue 2 2008



**URBAN**  
*Encounter*

*On the*  
**BRINK**

*Discovering*

**OUTDOORS**



**Saint Andrew's  
cross Spider**



**Bats**



**Hibiscus**



# Creature Feature

## Nimble Northern Nailtail

Not many people have heard of the Northern Nailtail Wallaby, *Onychogalea unguifera*. Are you one of them? If so, read on to find out about this remarkable 'roo relative'.



### Most Common of three

There are three nailtail wallaby species in Australia. Each has a horny spur at the end of its tail, but we do not know exactly why they have it. What we do know is that this group of macropods have struggled since Europeans arrived.

The small, beautifully marked Crescent Nailtail Wallaby, *O. lunata*, is extinct. It was once found over large parts of south-west and central Australia. Its cousin the Bridled Nailtail Wallaby, *O. fraenata*, is now endangered. It was once common in the arid inland but is now restricted to a small area, near Dingo, in central Queensland.

Unlike its relatives, the Northern Nailtail Wallaby has fared better. It is found right across the Top End. In fact, it is common and appears to be under no immediate threat. However, not many of the places it likes to hang out in (habitats) are protected in National Parks so we must take care. One park where you may see one is Bullwaddy Conservation Reserve, along the Carpentaria Highway to Borroloola.

### Science Snippet

**Macropod** is the name used to describe the kangaroos and their relatives. It comes from two Greek words and means that they are 'great-footed'; that is they have powerful back legs with long feet.

### G'day from Graham

Welcome to the second issue of the Junior Ranger Review for 2008. It is fantastic to see so many young Territorians involved in the Junior Ranger Program for another year. Junior Rangers is a great way of learning about the natural environment as well as having heaps of fun along the way. With the cooler weather upon us, now is a great time to get out and about and explore some of our fantastic Northern Territory Parks. Why not take advantage of the 'Territory Parks Alive' program? The 2008 program has just started and it includes a whole range of FREE Ranger guided walks and talks throughout the Northern Territory. A free brochure is available from your local tourist information office, or on our website [www.nt.gov.au/parks](http://www.nt.gov.au/parks).

See you out in the Bush!

Graham

### Getting to know a NT Nailtail

The Northern Nailtail Wallaby is by far the largest of the three species. Yet it is smaller than the much better known Agile Wallaby, *Macropus agilis*. It is a sandy ginger colour, giving rise to its other common name, Sandy Nailtail Wallaby.

Males grow to about 0.7m high and weigh up to 9kg. The girls are a bit smaller.

Look for the pale cream hip and cheek stripes.

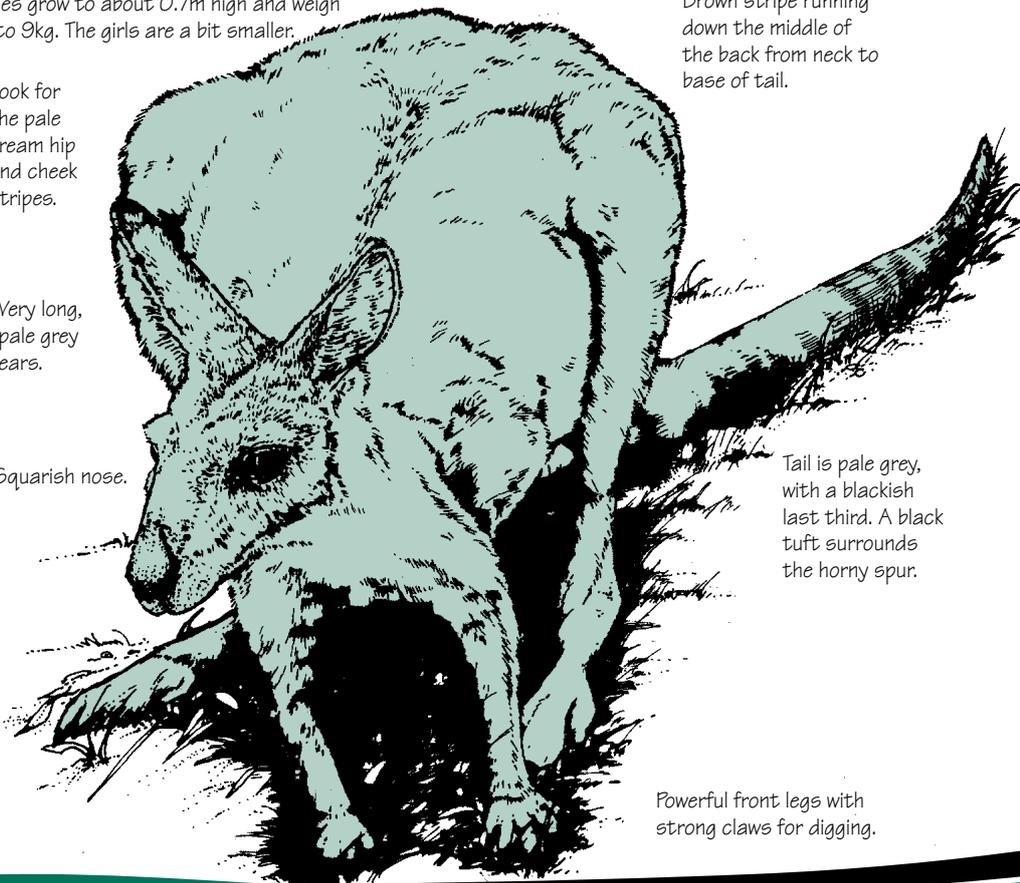
Very long, pale grey ears.

Squarish nose.

Brown stripe running down the middle of the back from neck to base of tail.

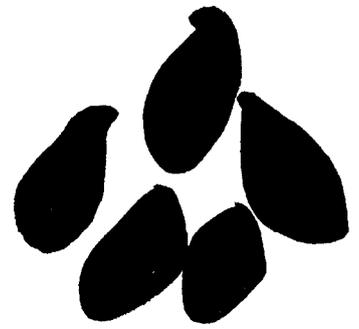
Tail is pale grey, with a blackish last third. A black tuft surrounds the horny spur.

Powerful front legs with strong claws for digging.



# Nailtail nibbles

Northern Nailtails usually eat alone at night (nocturnal) or sometimes in small groups (3-4). They graze from dusk until dawn on a variety of food - mostly herbs, but also green grass shoots and fruits. Like all macropods, they have special teeth for cutting at the front of their mouth and molars for grinding up plants at the back.



Northern Nailtail poo (scats) is tear-drop shaped. If you look closely, you can see what they eat...grass! Their poo smells like compost.

## Where's this wallaby?

In the north of the Territory, Northern Nailtails live on lightly wooded floodplains where they may hide amongst paperbark trees during the day. They are also common around the edges of black soil plains, like in the Barkly Tablelands, where tussock grasses provide plenty of food. In the south, they prefer open woodlands and tall shrublands. If you look for them during the day, they will be hard to spot! They spend most of their time lazing about in a shallow hole (called a scrape) hidden beneath the dense shade of a tree or shrub.



Paperbark - a favourite home of Northern Nailtails.

## Did You Know?

Early settlers called Nailtail Wallabies 'organ-grinder' wallabies. This was because their long, stiffly held arms moved almost in a circular motion when they were hopping at speed. This action looked a lot like winding up a musical organ from years gone by.

## Nailtail nursery



We know very little about the breeding of nailtails. However, all macropods have babies in much the same way. Mum gives birth to a tiny, bald 'jellybean-looking' baby whose eyes, ears and hind legs are not yet grown. The baby then climbs up its mother's belly and into her pouch. Once inside the baby latches onto one of four nipples and suckles on her milk. It remains attached this way until it is too big for the pouch and leaves it permanently.

## Wallaby words

To learn more about kangaroos and wallabies turn each letter into the one that comes before it in the alphabet.

A group of macropods is called a

N P C

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A cute little baby is called a

K P F Z

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A male is known as a

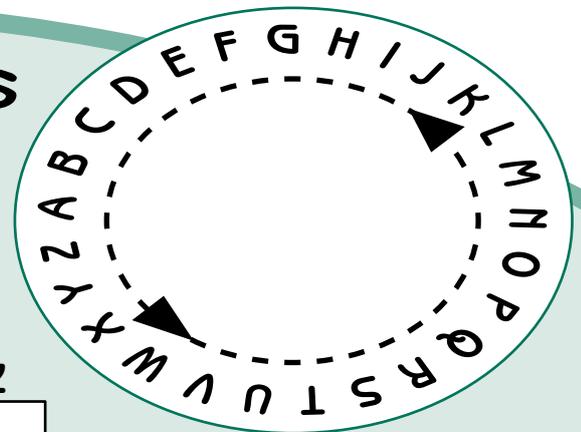
C V D L

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A female is known as a

E P F

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# On the Brink



## Hidden Hibiscuses

There are more than forty species of native *Hibiscus* in the NT, and some of them are very common. However, *Hibiscus brennanii* and *Hibiscus cravenii* are two rare species that most people will have never even heard of. Let's take a look at them and see why scientists have listed them both as vulnerable to extinction.

### Hidden in Kakadu

You'll only find *Hibiscus brennanii* in Kakadu National Park on the sandstone slopes and gullies of Mt Brockman. The problem is that studies have only found 441 mature plants. What's more, they only occur in a very small area. Such a small number of plants in such a tiny area are enough of a worry for scientists to list it as **vulnerable**.

### Science Snippet

*Hibiscus cravenii* was named by an American scientist after Australia's *Hibiscus* guru, Lyn Craven. Lyn named *Hibiscus brennanii* after Kym Brennan, a NT scientist who helped him collect it in 1990.

*Hibiscus brennanii* is a woody shrub with soft hairy, grey/green leaves that grows to about 3 metres tall. Its beautiful pink flowers come out between March and May.

Fires every year or two are probably bad news for these lovely hidden *Hibiscuses*.



### Too hot to handle?

Most Australian plants have some sort of strategy to cope with bushfires. For instance, some plants 'die-off' during the hot, dry fire season and re-sprout from underground tubers when the rains return. Some plants have thick bark to protect them. Others, like *Hibiscus brennanii*, rely on growing back from seed after a fire has killed off the parent plant. This is a good strategy - unless another fire kills the new plant before it can grow its own seeds.

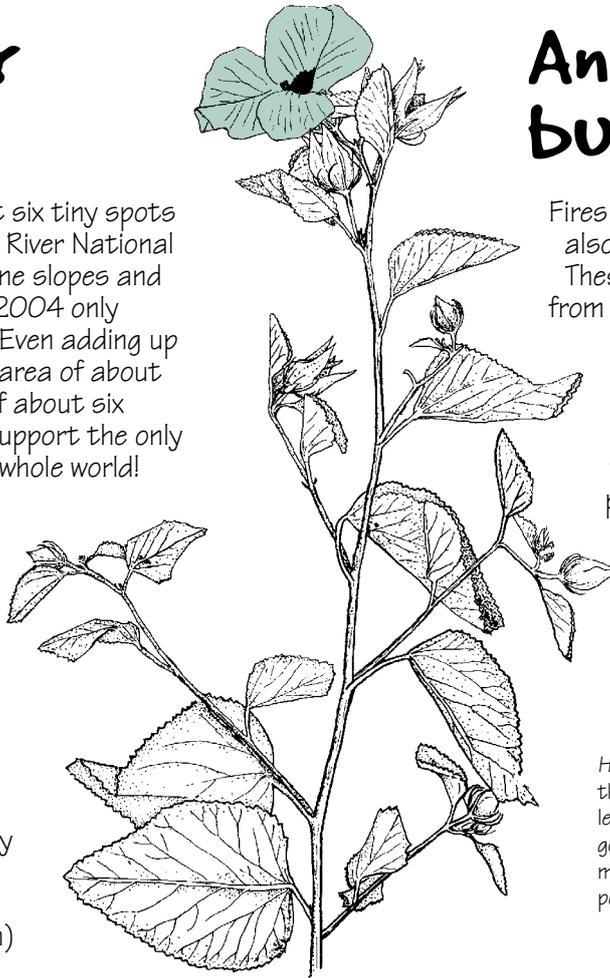
Scientists worry that fires are now burning more often than they used to in many parts of the NT. And they're not sure how long this little plant needs to grow seeds. They may need 3-5 years, so they'll be in serious trouble if Mt Brockman now burns every year or two.

# Few and far between

You'll only find *Hibiscus cravenii* at six tiny spots way out on the WA border in Keep River National Park. It also lives around sandstone slopes and gullies. Unfortunately, a study in 2004 only found about 500 mature plants. Even adding up all six spots, they only occupy an area of about 0.03 km<sup>2</sup>. That's the equivalent of about six soccer fields - not a big area to support the only population of these plants in the whole world!

# Helping the hibiscuses

Scientists are studying these two hidden treasures to work out how fire affects them. Luckily, they both occur in National Parks, so if we can get the amount of fire right (not too little, not too much) then they should be pretty safe.



# Another burning issue!

Fires occurring more frequently could also be a problem for *Hibiscus cravenii*. These guys can sometimes re-sprout from the base of the stem after a fire.

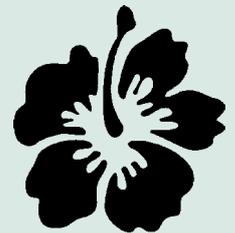
However, scientists worry that if another fire comes along before they have recovered and set seed, they'll die and there will be no seed to replace them. Studies of other plants with this type of strategy for coping with fire have shown that fires every year or two can cause them to disappear.

*Hibiscus cravenii* is a woody shrub that grows to about 2 metres. Its leaves and stems are very hairy. The gorgeous flowers have an intense maroon spot in the middle, with mauve petals that turn blue when dry.

# Familiar flowers?

Does the hibiscus flower look familiar? Chances are, you're thinking of the flowers of *Hibiscus rosa-sinensis*. It is probably native to Southeast Asia, but people have spread it across the tropics of the world. Nearly every garden in the Darwin area has one!

It has become a widely used symbol for the tropics, and it's a central part of surfing culture. Have a look in your local surf wear shop - you'll see it everywhere!



*Hibiscus rosa-sinensis* and an example of one of the many stylised hibiscus logos you see around the place.

***Hibiscus rosa-sinensis* has many common names. In Australia, an often-used one links it with a tropical island that has a strong tie to surfing. To decode the answer, you must first draw a line from the words on the left to their matching statement. Then, place the letter at the start of the statement into the correct numbered box.**

- |                               |   |   |                                      |
|-------------------------------|---|---|--------------------------------------|
| <i>Hibiscus rosa-sinensis</i> | 1 | A | is next to the WA border.            |
| Sandstone                     | 2 | W | species of Hibiscus occur in the NT. |
| Mt Brockman                   | 3 | I | is a type of rock.                   |
| Keep River NP                 | 4 | A | are common around Darwin.            |
| <i>Hibiscus cravenii</i>      | 5 | H | is in Kakadu National Park.          |
| More than 40                  | 6 | I | is forever.                          |
| <i>Hibiscus brennanii</i>     | 7 | N | has pink flowers.                    |
| Extinction                    | 8 | A | is named after Lyn Craven.           |

3    1    6    4    8    2    5    7

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**Hibiscus**

# Urban Encounter



## Saint Andrew's Cross Spider

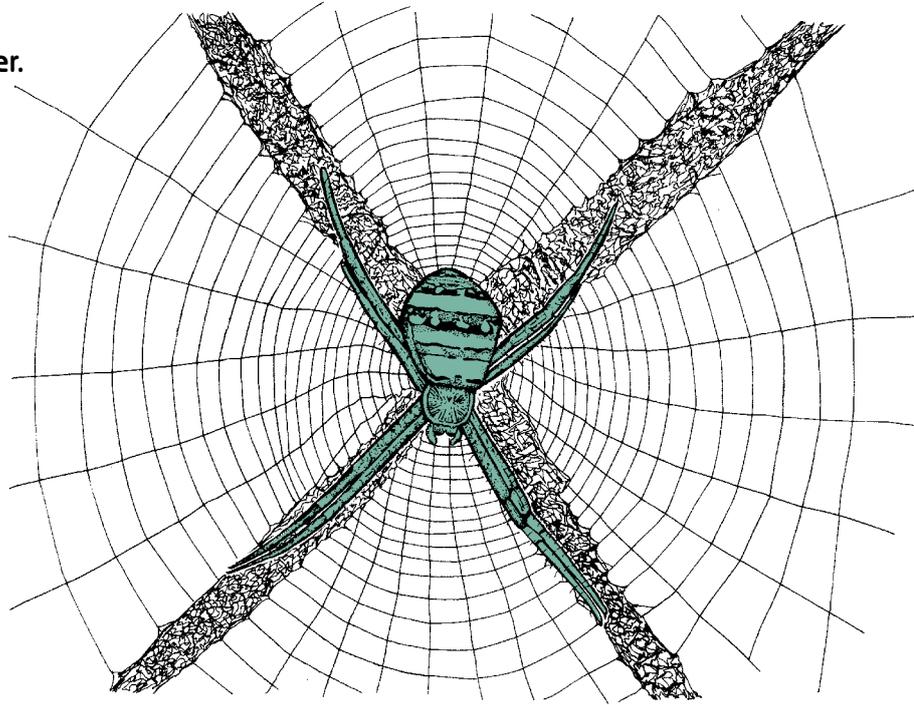
The Saint Andrew's Cross Spider, *Argiope* sp., is a well recognised Australian backyard spider. Not only is it common, but its colourful body and boldly decorated web make it a sight to remember!

### X marks the spot

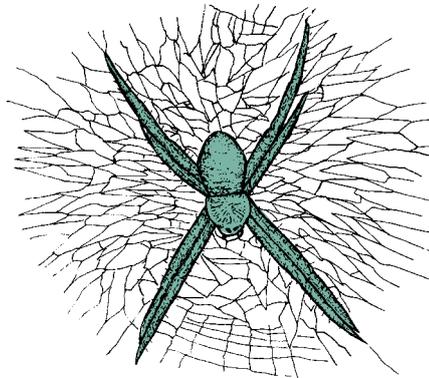
There are at least 25 species of *Argiope* spider in Australia. They are usually identifiable by the zigzag silk decorations they place on their web. It is often in the shape of a cross, or 'X', but they vary widely, depending on the species, their age, and where the web is.

Scientists aren't completely sure why they build these fancy web decorations (called stabilimentum). It was originally thought that it simply strengthened, or 'stabilised' the web. Now there are other theories:

- The zigzag silk does reflect ultraviolet (UV) light. UV light attracts many insects, so maybe it helps catch more yummy food items, like flies, butterflies, bugs and bees.
- Maybe the 'X' is just a good place to hide or shelter against.
- Maybe it makes the spider look bigger and scarier.
- Maybe it acts as a warning to large animals, especially birds, not to crash into the web.



The Saint Andrew's Cross Spider often sits with its legs in pairs, lined up with the 'X' on the web.



Young Saint Andrew's Cross Spiders are light brown in colour. They don't make an 'X' on their web. Instead, they make a circular squiggle to hide behind.

### Science Snippet

Venom from the Saint Andrew's Cross Spider is considered harmless to humans. However, they may bite if handled or teased, so it's best to look, but don't touch.

### A saintly spider

The Saint Andrew's Cross Spider gets its common name from the way it sits on its 'X'. Saint Andrew is one of the Twelve Apostles in the Christian Bible. He was put to death on an 'X' shaped cross. Now he's the patron saint of Scotland, and the Scottish flag features a white 'Saint Andrew's Cross' on a navy blue background. This cross also features on several other flags, including part of the Australian flag. Check it out and see if you can spot it!



A painting of Saint Andrew being put to death on a cross, and the Scottish flag.

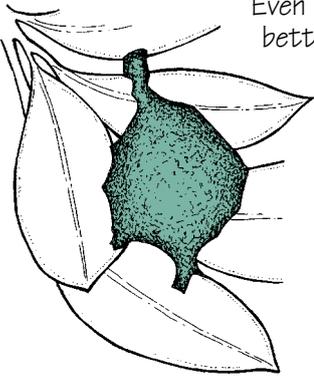


# Dull but daring dads

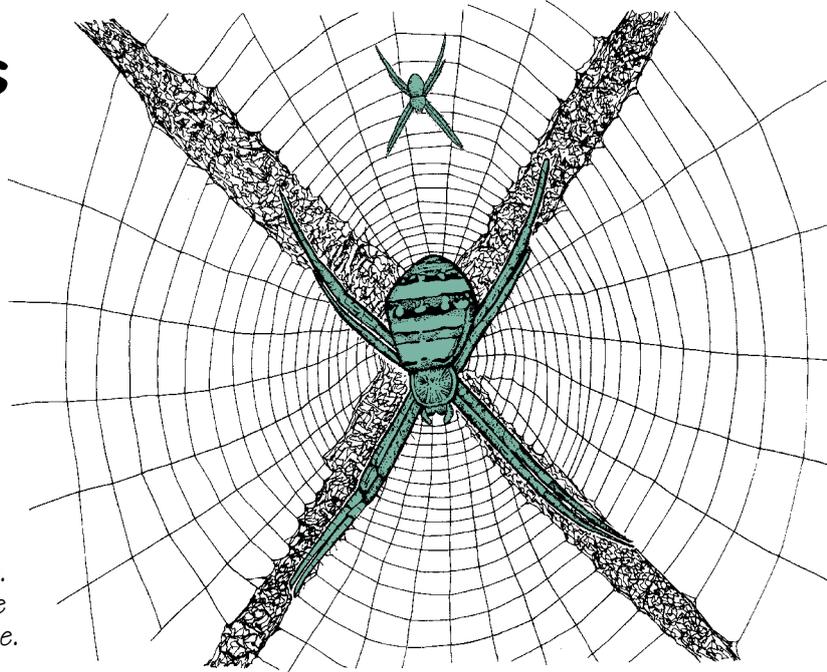
The female Saint Andrew's Cross Spider is the large beautiful one that you usually see sitting in the middle of a web. The plain little males usually keep a low profile. But come mating time, they risk their lives for the chance to be a dad.

They hang around the top of a female's web and build a 'mating thread' onto it. They vibrate this thread to attract the female, but if she is not in the mood, they had better run, otherwise she'll actually try to eat them!

Even if he is successful, he had better not hang around. She'll still eat him if he doesn't make a speedy exit! Look for males that are missing a leg or two. This is probably due to a close encounter with a cranky female.



The female builds an egg sac to house her several hundred eggs. She makes it out of greenish coloured silk to hide it amongst the leaves near her web.



The beautiful females can have red, yellow, silver, black and white body decorations. They are about 10-16 mm long. The plain little male is a boring light brown colour and has a much smaller body length at about 3-4 mm.

# Staying off the menu

Help our little saintly spider flee a dreaded parasitic wasp to the safety of its hide-out.

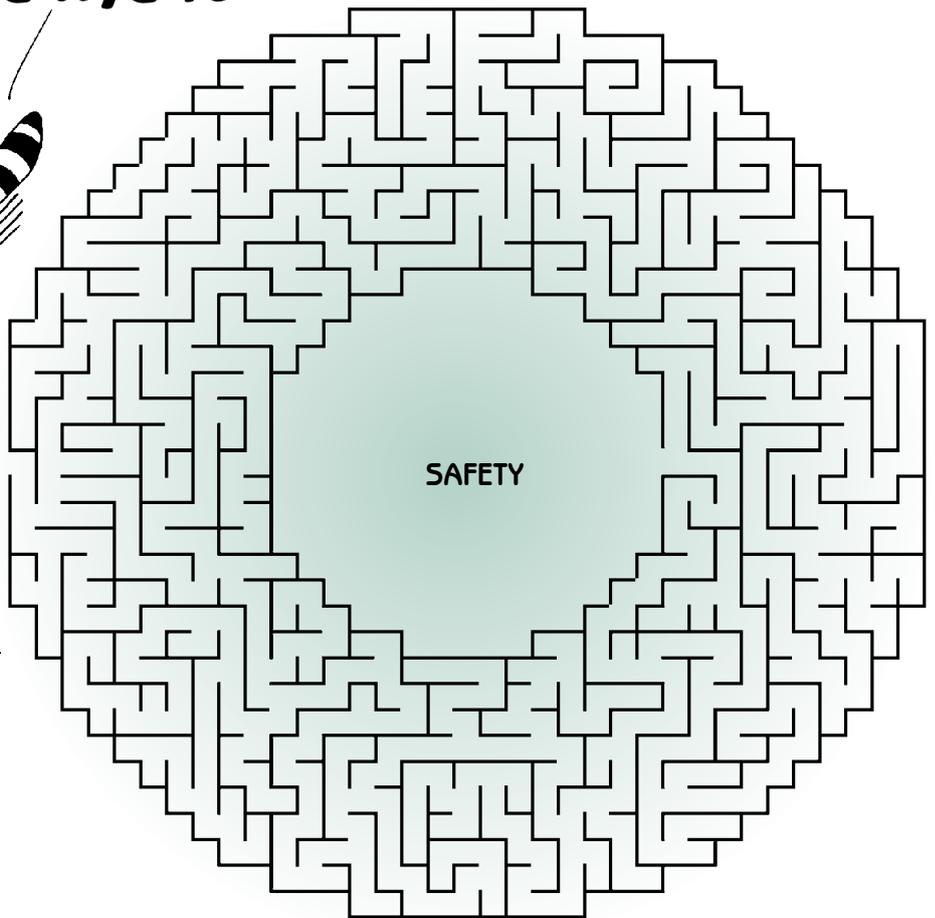
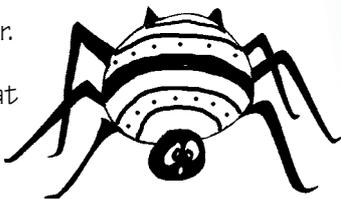
A number of animals hunt the Saint Andrew's Cross Spider, but the scariest ones are the parasitic wasps. These winged terrors paralyse the poor spider with their sting and drag them off to a mud nest tomb. But the worst bit is that they lay their eggs on the helpless spider. These hatch into grubs that devour our eight-legged friend alive.

What a horrible way to go!

However, our little hero has a few tricks to avoid enemies. One is to shake the whole web, so it and the 'X' become a confusing blur. Another option is to bail out - they will simply drop off the web, run away, and hide.



Start here →



## Want to know more?

Check out this cool web site for pictures of Argiope spiders from around the world.

[www.xs4all.nl/~ednieuw/australian/Spidaus.html](http://www.xs4all.nl/~ednieuw/australian/Spidaus.html)

# Plant Profile

## The Desert Grass Tree - neither grass nor tree

The Desert Grass Tree, *Xanthorrhoea thornstonii*, is a unique plant in Central Australia ... but it is neither a grass nor a tree! It only grows to about 2 metres high, with a rough fibrous trunk (a bit like a palm tree) and a large tuft of spiky grass-like leaves on the top. The leaves are thin, stiff and whip-like and can grow to over a metre long.

### Home amongst the Grass Trees!

Desert Grass Trees grow in scattered groups in areas with shallow sand. They can be seen growing in the red sand country to the south-west of Alice Springs. One of the best places to see them is along the Mereenie Loop Road west of Hermannsburg. There are also some beautiful stands as you drive along the four-wheel drive track into Tnorala Conservation Reserve (Gosse Bluff). Desert Grass Trees also grow in north-west South Australia and central-east Western Australia.

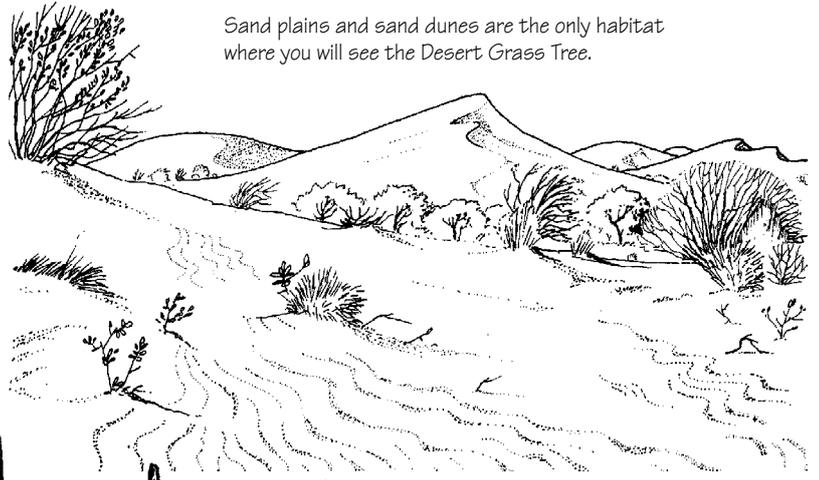
### Just one of many

There are 28 species of grass tree in Australia but only the Desert Grass Tree grows in the Northern Territory. Other species of grass tree grow in coastal areas or near coastal regions in all the States of Australia. There are many differences between the species. Some can grow to over 6 metres tall whilst others have hidden trunks that grow below the ground.

### Life after burning

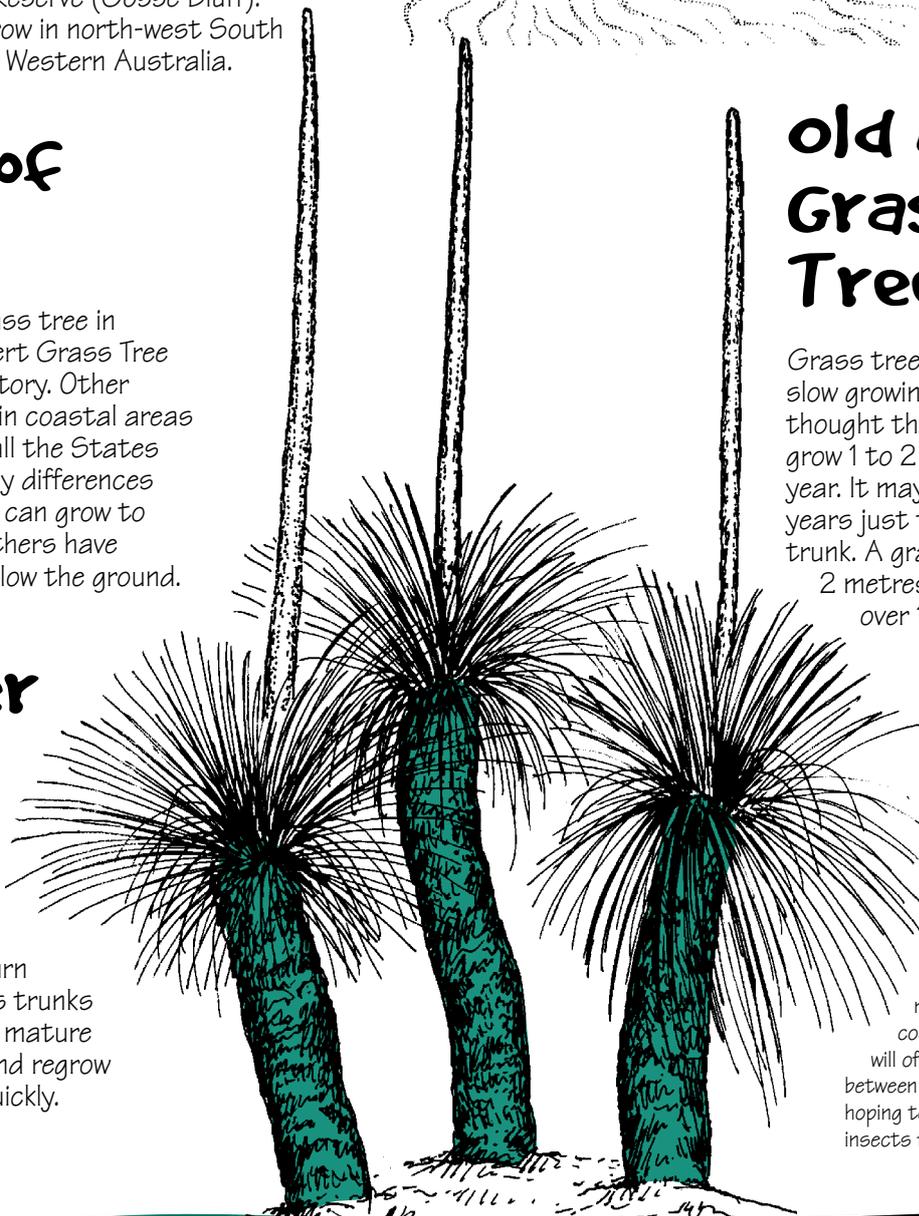
Grass trees often have fire-blackened trunks. This gives us a hint that this is one tough plant! It can survive fires. Their leaves burn easily but the dense fibrous trunks do not. The trunks of most mature grass trees survive a fire and regrow new grassy crowns quite quickly.

Sand plains and sand dunes are the only habitat where you will see the Desert Grass Tree.



### old Mr Grass Tree

Grass trees are very slow growing plants. It is thought that they only grow 1 to 2 centimetres a year. It may take over 20 years just to develop a trunk. A grass tree that is 2 metres high could be over 100 years old.



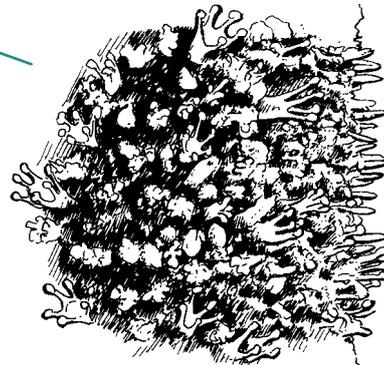
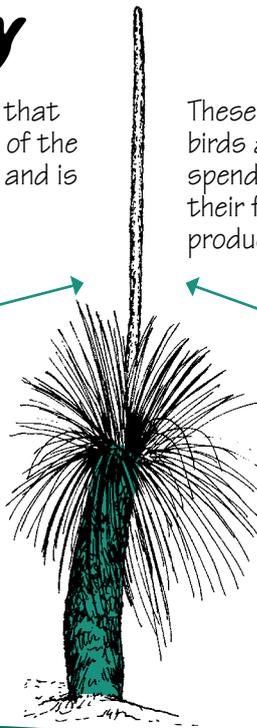
The dense leaves of grass trees provide homes for a variety of invertebrates including spiders, moths and cockroaches. Spiders will often string webs between the thin leaves, hoping to catch smaller insects flying past.

# Spikes of energy

Grass tree flowers grow on a long thick spike that grows up from the top of the plant. The spike of the Desert Grass Tree can be over 2 metres long and is covered with tiny creamy-white flowers.

These produce lots of nectar, which attract honey-eating birds and insects. Honeyeaters and nectar feeding moths spend a great deal of time feeding on grass trees during their flowering period. Each of the flower spikes can produce up to 10,000 seeds in a good season.

Flowers of the Desert Grass Tree are densely clustered along the spike.



The seeds of other grass trees are eaten by cockatoos - we are not sure whether this happens with the Desert Grass Tree.

## Sweet and sticky

Resin is used to secure the cutting stone to the stone axe handle.



A sticky resin produced by the Desert Grass Tree is collected by Aboriginal people and used as glue in tool making. However, it does not make the best bush glue. It is only used when resin from spinifex is not available. Aboriginal people also collect honey from the flower spikes, which provide them with energy as they roam the central deserts.

## Science Snippet

The scientific name, *Xanthorrhoea*, comes from the Greek words, **Xanthos**, meaning 'yellow' and **rheo**, meaning 'flow'. This name refers to the yellow resin that oozes from the trunk of some species of grass tree. However, the Desert Grass Tree has a reddish-coloured resin.

## Prickly problem

Find the grass tree words in this puzzle. When you've found them all, start at the top left hand corner and work your way down each column and place the leftover letters in the spaces provided. This will reveal a Desert Grass Tree word.

- |           |           |        |
|-----------|-----------|--------|
| COCKATOOS | RED       | TOUGH  |
| DESERT    | SAND      | TREE   |
| FLOWERS   | SEEDS     | TUFT   |
| GRASS     | SPECIES   | UNIQUE |
| HABITAT   | SPIKY     | YELLOW |
| MEREENIE  | SURVIVE   |        |
| NECTAR    | TERRITORY |        |
| OOZES     |           |        |

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# Discovering Outdoors

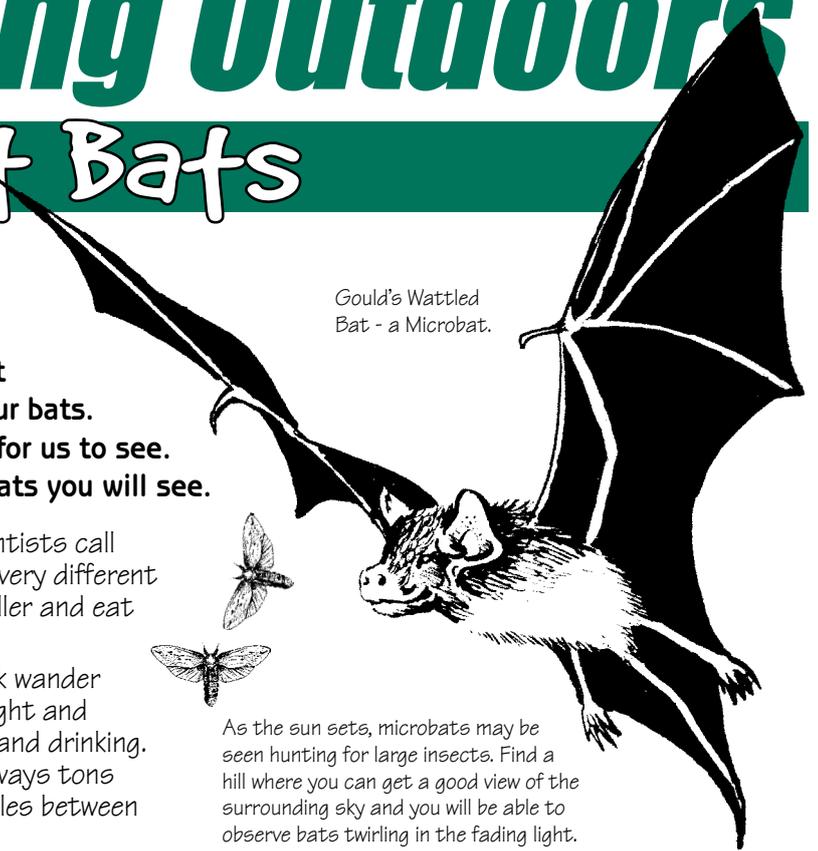
## Batty about Bats

The Northern Territory has 36 different species of bats, so chances are you have already seen some in your local area! We are very lucky, because changes to our environment in the past 200 years seemingly have had little affect on our bats. Therefore, there are still plenty of them around for us to see. Remember, the warmer the weather, the more bats you will see.

Flying foxes and blossom bats belong in a group scientists call **Megabats**. Most Australian bats belong to another very different group called **Microbats**. These are usually much smaller and eat mostly insects.

If you are out camping near a waterhole, river or creek wander down to the water's edge with a good torch or spotlight and chances are you will get a great view of bats feeding and drinking. Bats like to hang around water because there are always tons of insects hovering around. Check out the aerial battles between bats and insects above the water.

Gould's Wattle Bat - a Microbat.

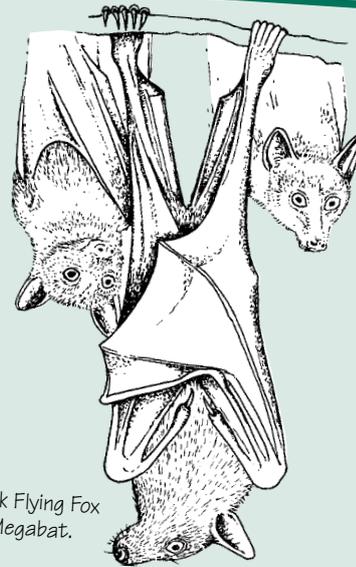


As the sun sets, microbats may be seen hunting for large insects. Find a hill where you can get a good view of the surrounding sky and you will be able to observe bats twirling in the fading light.

## Tree dwellers

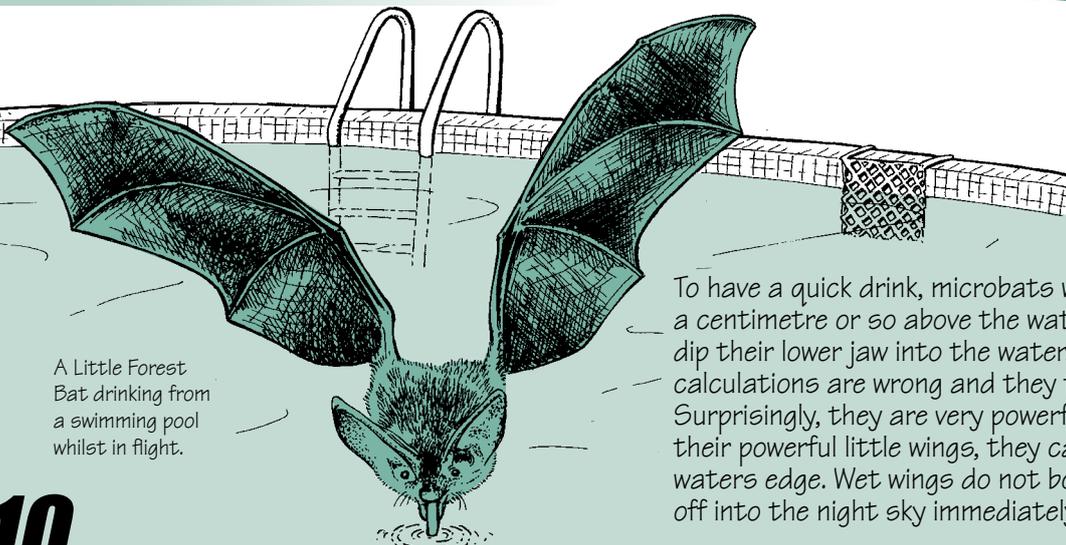
Some of our microbats love to live in tree hollows or under the bark of some larger trees. If you see a tree hollow and want to know whether it's a bat home just look down on the ground directly beneath. If bats live there, you should see small black bat poo sprinkled all over the ground. Other microbats prefer the warmth and security of caves.

The River Red Gums of Central Australia often have hundreds of bats living inside their hollow branches.



Black Flying Fox - a Megabat.

The Top End's rivers are home to our fruit bats. Here they feed upon the fruits and nectar of rainforest trees, which you will find along the river's edge. Large colonies of these bats roost there, hanging upside down, in the trees. Such colonies can sometimes number in their millions, but the best way to find them is by using your nose... they have a very strong 'stinky' smell.

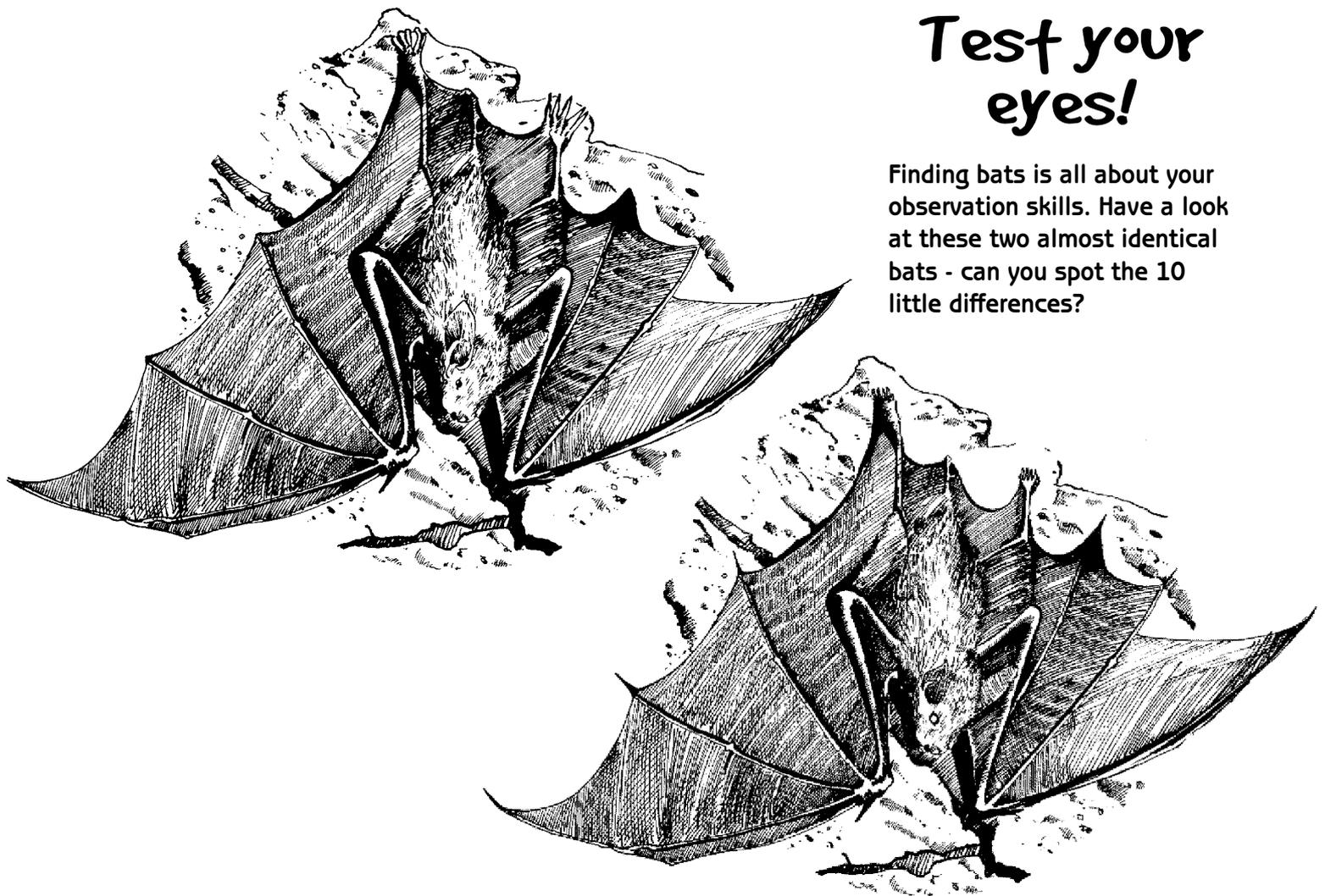


A Little Forest Bat drinking from a swimming pool whilst in flight.

To have a quick drink, microbats will fly just a centimetre or so above the water's surface and carefully dip their lower jaw into the water. Sometimes their calculations are wrong and they tumble into the water. Surprisingly, they are very powerful swimmers and by using their powerful little wings, they can paddle quickly to the waters edge. Wet wings do not bother them; they can take off into the night sky immediately.

# Test your eyes!

Finding bats is all about your observation skills. Have a look at these two almost identical bats - can you spot the 10 little differences?



## Hunting for bats

Watching bats can be heaps of fun. See how many different bats you can find in your local area by using the guide below.

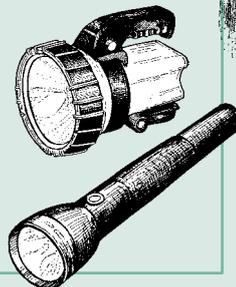


Wander down the Katherine River and see if you can spot some Little Red Flying Fox colonies or wait until sunset to see them fly to their feeding grounds.

Visit Litchfield National Park and pop into Tolmer Falls at dusk. You will see thousands of small Orange Leaf-nosed Bats heading out for a night of feeding.



Essential equipment for spotting bats at night time is a good powerful spotlight or torch. Remember spare batteries!



Climb Anzac Hill in Alice Springs at sunset a watch the Little Forest Bats battle for insects.



Picnic at the Casuarina Coastal Reserve cliffs at sunset, and you will see a variety of small microbats flitting about.



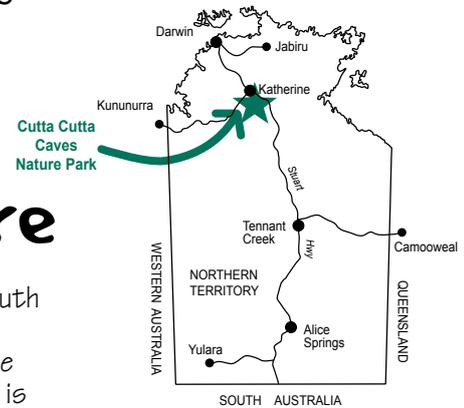
**Please remember, it is very important that you never touch bats that you may come across.** Bats can carry diseases that can make you very sick so never ever attempt to pick them up. It only takes a bite or a scratch to pass on disease. If you find a sick or injured bat, it is better to call an expert. Call one of these Wildlife Rescue numbers:

Darwin 0409 090 840  
Tennant Ck 8962 4599  
Katherine 0407 934 252  
Alice Springs 0419 221 128

# Discover a Territory Park

## Cutta Cutta Caves Nature Park

Cutta Cutta Caves Nature Park protects a large area (1499 ha) of limestone landscape which scientists call *karst*. As the name suggests, the main adventure activity here is investigating the complex cave networks.



### Getting there

The Park is located about 30 km south of Katherine. Turn off the Stuart highway and travel about 1 km to the carpark and visitor centre. The Park is open from 8.30 am to 4.30 pm daily, all year. However, the caves may be temporarily closed in the wet season (October - April) due to flooding. The best time to visit the park is probably between May and August.

### What to see and do

The caves are the highlight of the Park, although you can also enjoy a short woodland walk nearby. To see the caves you will need to pay for a tour. These operate every day except Christmas day (unless the caves are closed due to flooding between December and April). Tours start on the hour, every hour from 9 am to 3 pm. Bookings are not required. Call 8972 1940 for further information.

An interpretive display is located in the small kiosk. Tour tickets, cold refreshments and souvenirs are on sale here. The kiosk may be temporarily closed while a tour is being conducted. Near the kiosk are toilets and sheltered picnic tables.

### Puzzle Answers

#### Creature Feature:

Mob, joey, buck, doe.

#### On the Brink:

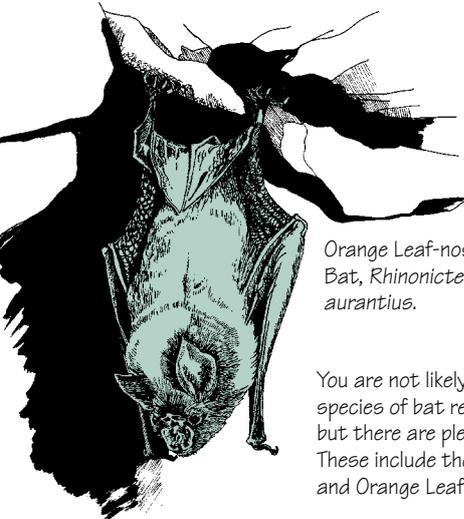
Hawaiian.

#### Plant Profile:

THORNTONII

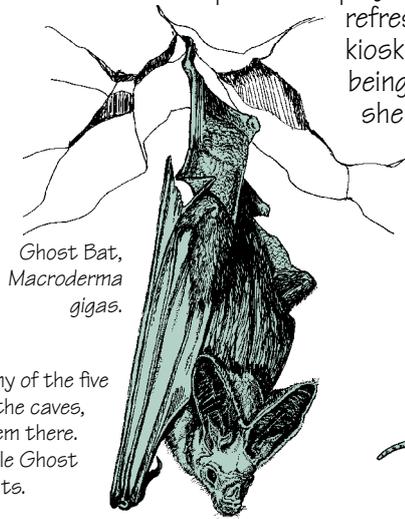
#### Discovering Outdoors:

3 wing tips on the left side,  
2 wing tips on the right side,  
tail, left foot, right foot, ear  
and eye.



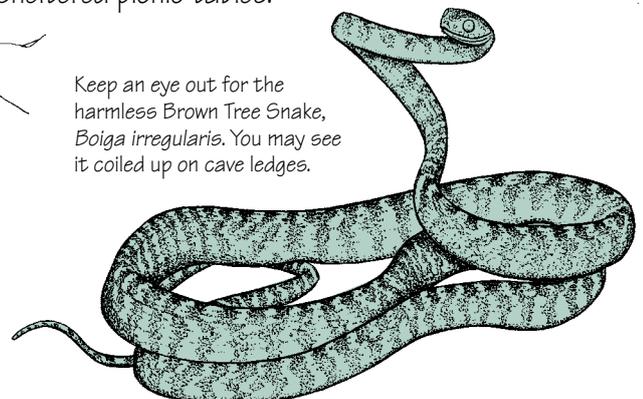
Orange Leaf-nosed Bat, *Rhinonictis aurantius*.

You are not likely to see any of the five species of bat residing in the caves, but there are plenty of them there. These include the vulnerable Ghost and Orange Leaf-nosed bats.



Ghost Bat, *Macroderma gigas*.

Keep an eye out for the harmless Brown Tree Snake, *Boiga irregularis*. You may see it coiled up on cave ledges.



The Junior Ranger Review is published four times a year by the Parks and Wildlife Service of the NT. This edition was written by Dean McAdam, Michael Barritt & Dave Rochford. Editor Vanda West. Design and layout by Graphics'll Doo. The front cover by Leonie Richards. Illustrations by G. Betley, K. Day, L. Richards, A. Schoots, A. Williams, D. Evans, Azure Graphics & B. Whiteford.

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