



Junior Ranger

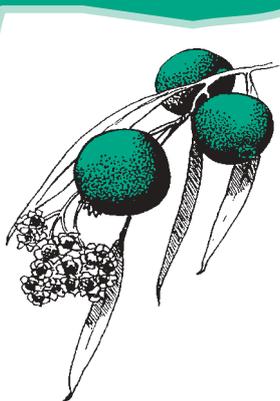
Review

ISSUE 4, 2002



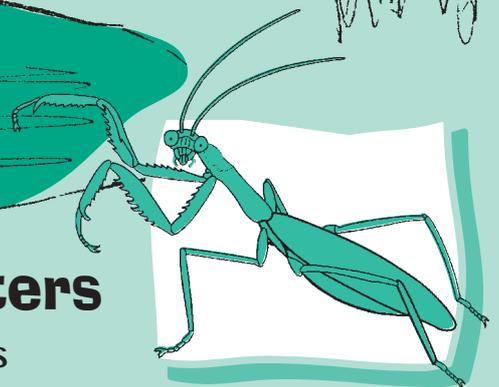
On the Brink

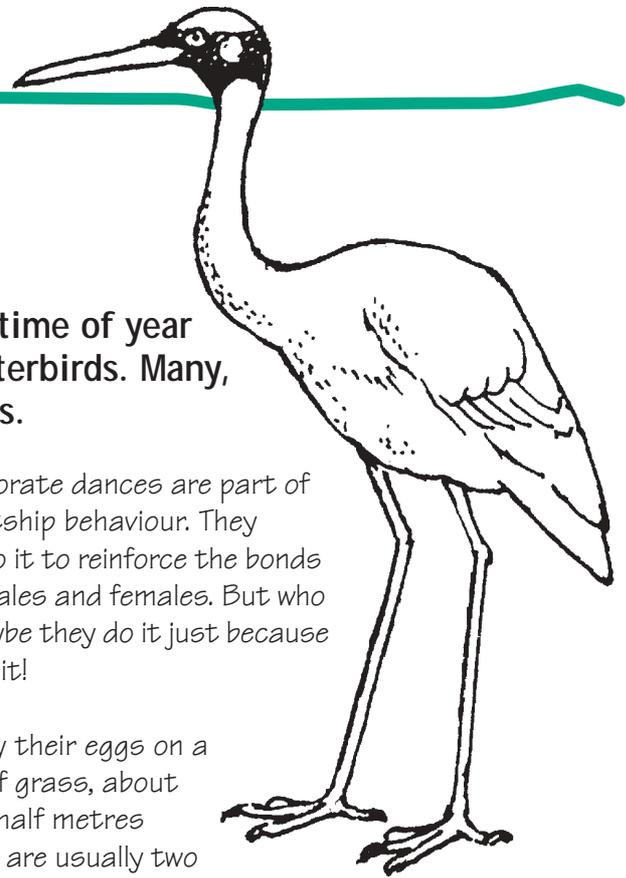
Quandongs



Urban Encounters

Praying Mantis





Dancing Brolgas

The build-up to the wet season is a uncomfortable time of year for people in the Top End but a special time for waterbirds. Many, like the stately Brolgas, have mating on their minds.

Brolgas are members of the crane family. They have long legs, beautiful grey feathers and a reddish-orange head.

They flock to swampy areas in October and November where they perform elaborate dances.

The birds line up opposite each other and then step forward, shaking their half-open wings. Bowing and bobbing their heads, they advance and retreat.

Now and then one will stop, throw back its head and trumpet wildly. Others will then spring a metre into the air, open their wings fully and then glide gently to the ground.

The dancing then continues until the next trumpet call.

These elaborate dances are part of their courtship behaviour. They probably do it to reinforce the bonds between males and females. But who knows! Maybe they do it just because they enjoy it!

Brolgas lay their eggs on a platform of grass, about one and a half metres wide. There are usually two eggs and both Mum and Dad take turns sitting on them.

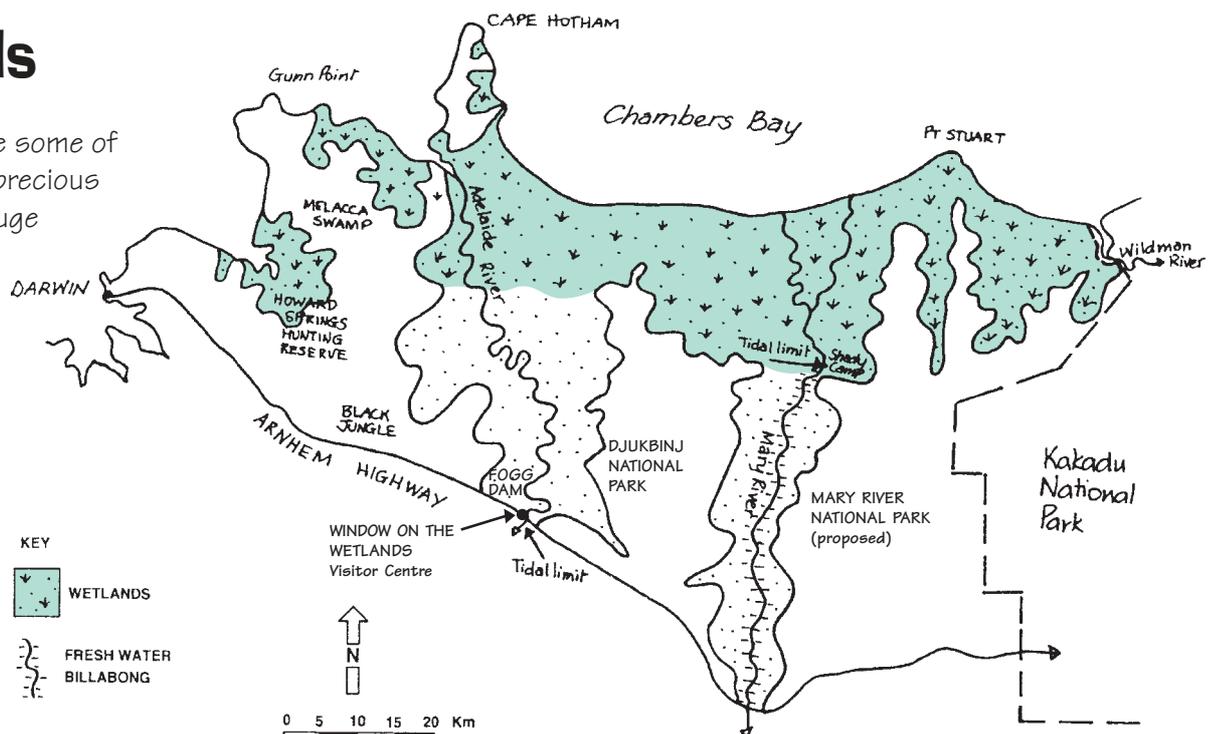
The babies hatch after 30 days incubation and can run within hours. They stay with their parents until they are about a year old.

Top End Wetlands

East of Darwin are some of Australia's most precious wetlands. It is a huge expanse of river floodplains, mudflats and billabongs.

The area is home to thousands of magpie geese, whistling-ducks, jabirus, brolgas, herons and egrets.

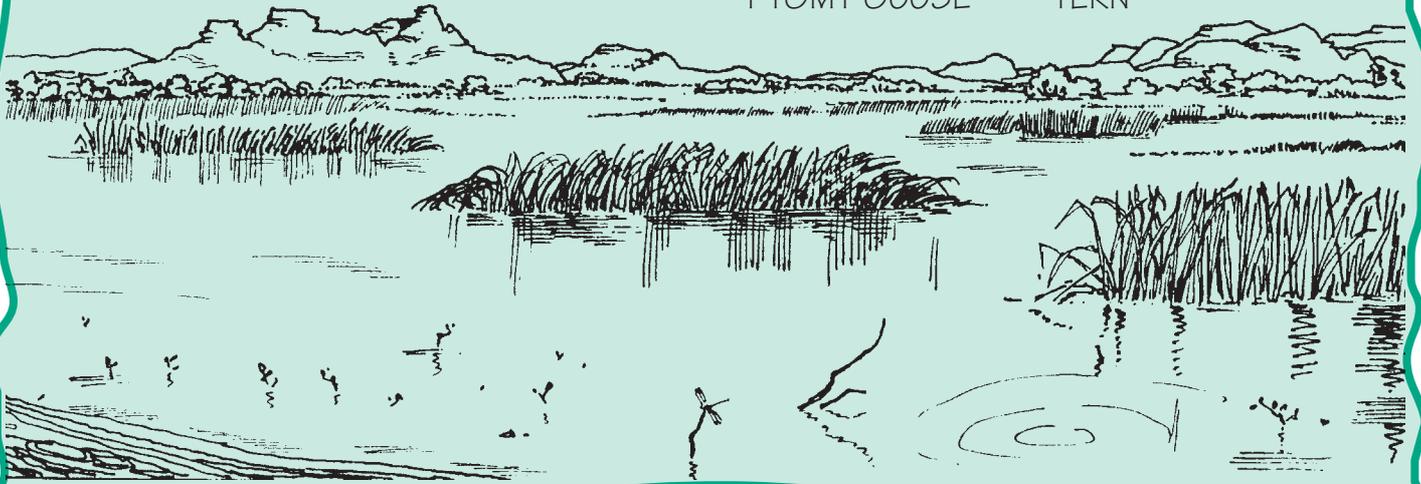
In the wet season they are joined by migratory waders from Siberia, northern China and Japan.





Waterbird Words

- | | | | |
|-----------|-------|-------------|-----------|
| BROLGA | DUCK | IBIS | SPOONBILL |
| COOT | EGRET | JABIRU | STILT |
| CORMORANT | GREBE | JACANA | SWAMPHEN |
| DARTER | GULL | KNOT | SWAN |
| DOTTEREL | HERON | PELICAN | TEAL |
| | | PYGMY GOOSE | TERN |



The Top End's wetlands are renowned for their birdlife. The wetlands shrink in the dry season and the birds congregate at permanent billabongs and waterholes. They disperse in the wet season when the rivers break their banks and flood the coastal plains.

Can you find the names of 22 Top End waterbirds in this grid?

These hidden names go in all directions and some are written backwards. Colour the boxes as you find each letter.

You should have 14 letters left over. String them together and you'll get the name of a bird. (It used to be called the Burdekin Duck but has had a name-change.)

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

These birds are very vocal, with a harsh, rattling call. They swim well but you don't usually see them on the water. They prefer to spend the day on mudbanks, in the shade of paperbark trees, feeding on worms, snails and insect larvae.



Most Top End waterfowl lay their eggs between January and March when water levels are high. However, these ducks breed at the tail end of the wet season. The eggs hatch when the floodwaters are receding and there is plenty of food in the mud for the ducklings.



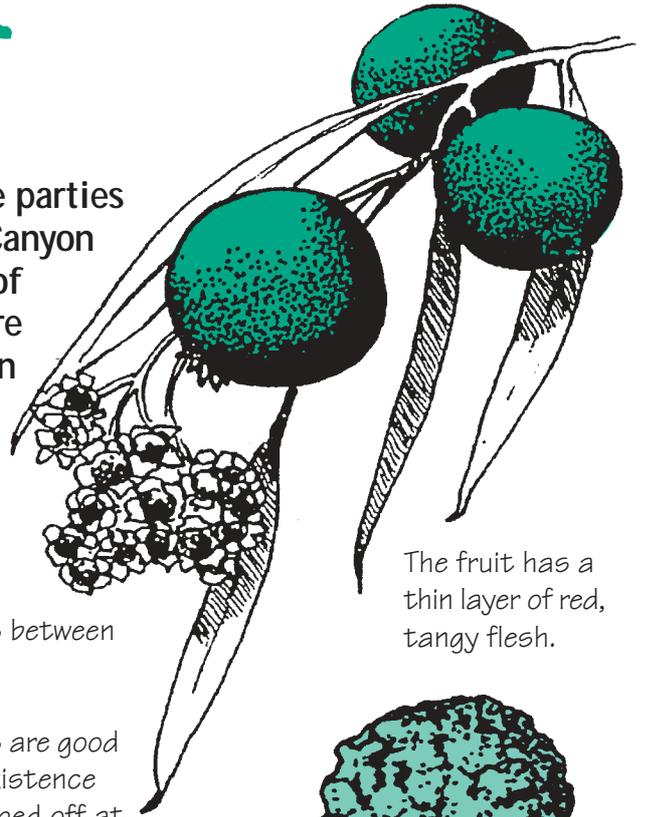
Quandongs

Ernest Giles and William Christie Gosse led separate parties exploring the country around Ayers Rock and Kings Canyon in the 1870s. Both of them found large numbers of Quandong trees growing in the area. The trees were still common in the 1930s but are now very rare in the Northern Territory. What happened to them?

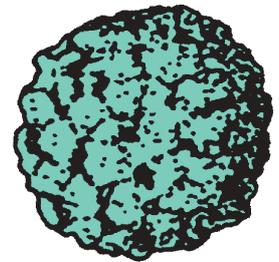
Quandongs *Santulum acuminatum* are small, slow-growing, desert fruit trees. They have thick, olive-green leaves and small, white flowers.

Quandongs are good bush tucker. Red fruits grow on the trees between July and December. They make terrific pies and tangy jam.

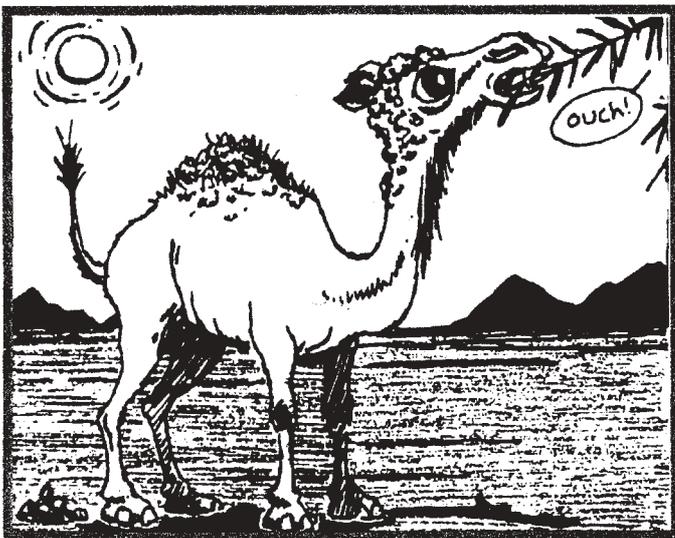
Unfortunately, camels, cattle and rabbits also think Quandongs are good tucker. They love the leaves and have eaten the trees out of existence in many places. As soon as new seedlings sprout, they get nipped off at the roots. New trees are not growing and replacing the ones dying of old age.



The fruit has a thin layer of red, tangy flesh.



The seeds are hard and round.



Bushfires have also killed many trees. Quandongs don't like fire.

In addition, there aren't as many Emu as there used to be and this has probably affected seed dispersal. Emus also liked the fruits and dropped the seeds as they wandered about the country. Quandongs were frequently seen growing near waterholes which suggest that the birds were dropping them there when they came for a drink.

Did you know....

Camels were brought to the Northern Territory in the 1870s.

There are now about 400 000 of them running wild in Central Australia. (20 years ago there were 60 000.)

Their numbers are doubling every 6 or 7 years.

Each camel eats about 25 kilograms of vegetation a day.

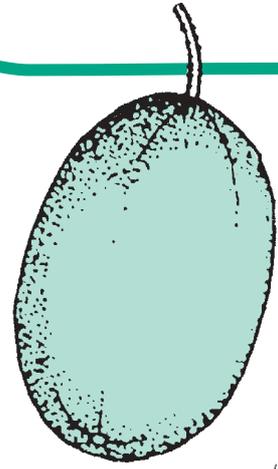
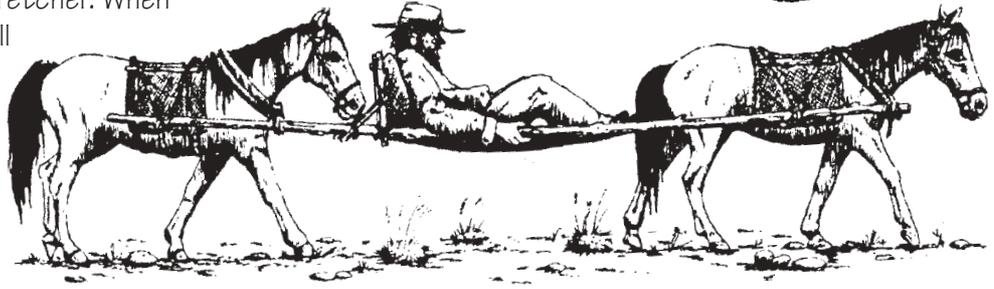




Another Rare Fruit

In 1862, the great explorer John McDouall Stuart led the first party to cross Australia from Adelaide to the Top End.

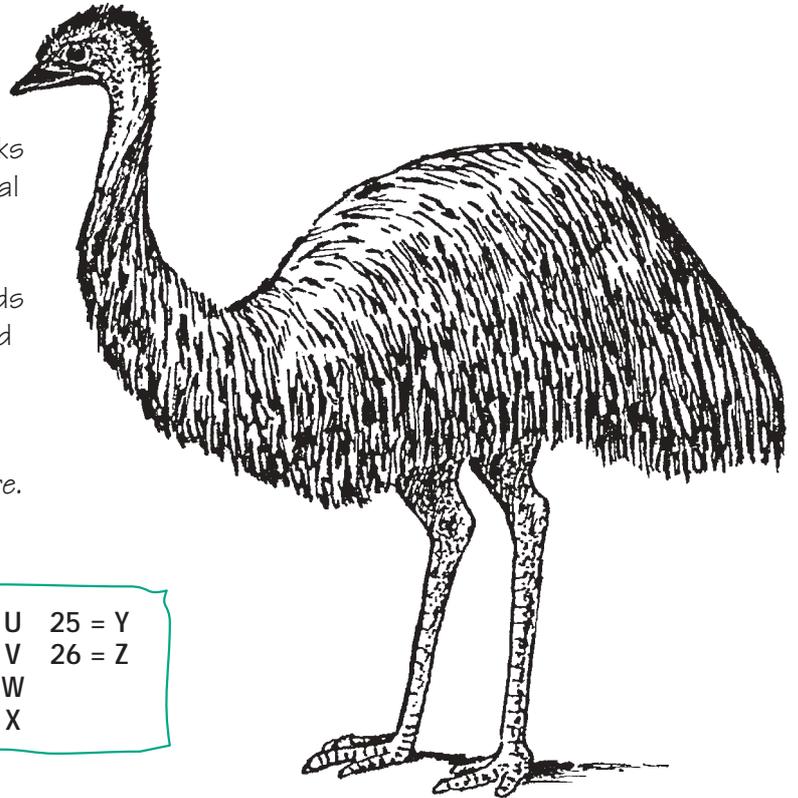
On the return trip, Stuart was so sick from scurvy that he had to be carried on a stretcher. When the men got to the MacDonnell Ranges they collected some small native melons for him to eat. The vitamin C in the fruit saved his life.



The Ulcado Melon *Cucumis melo subsp. agrestis* looks like a little cucumber. The Arrernte people of Central Australia call it *ilkwarte*.

Like the Quandong, it's a favourite of Emus. The seeds passed through the intestines of Emus undigested and scattered around the country as the birds wandered.

Like the Quandong, these melons are now quite rare. Decode this puzzle to find out why.



1 = A	5 = E	9 = I	13 = M	17 = Q	21 = U	25 = Y
2 = B	6 = F	10 = J	14 = N	18 = R	22 = V	26 = Z
3 = C	7 = G	11 = K	15 = O	19 = S	23 = W	
4 = D	8 = H	12 = L	16 = P	20 = T	24 = X	

3 1 20 20 12 5	1 12 19 15	12 9 11 5	20 8 5
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13 5 12 15 14 19	2 21 20	20 8 5	19 5 5 4 19
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1 18 5	4 5 19 20 18 15 25 5 4	1 19	20 8 5 25
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16 1 19 19	20 8 18 15 21 7 8	20 8 5	1 14 9 13 1 12
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The Praying Mantis

The Praying Mantis get its name from the way it holds its front legs upright in front of its body as if it is praying. Mantis is a Greek word that refers to the way these creatures hold up their front legs.

Hidden terror

Mantises are classic ambush predators. They spend their time sitting perfectly still among the leaves or bark of trees, waiting for insects to stray within their reach. Quick as a flash they grab them with their front legs.

Almost all mantises are shaped and coloured to help them to blend in with their surroundings. Many are green or brown, matching the living or dead leaves where they sit. They need to blend into their surroundings. They don't chase their prey. They sit and wait for it to wander close enough for a strike! They are also slow-moving and need to remain hidden from predators like lizards and birds.

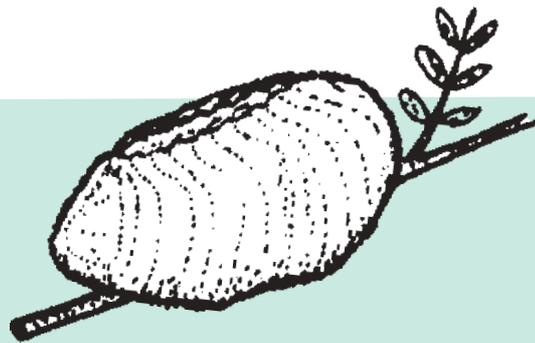
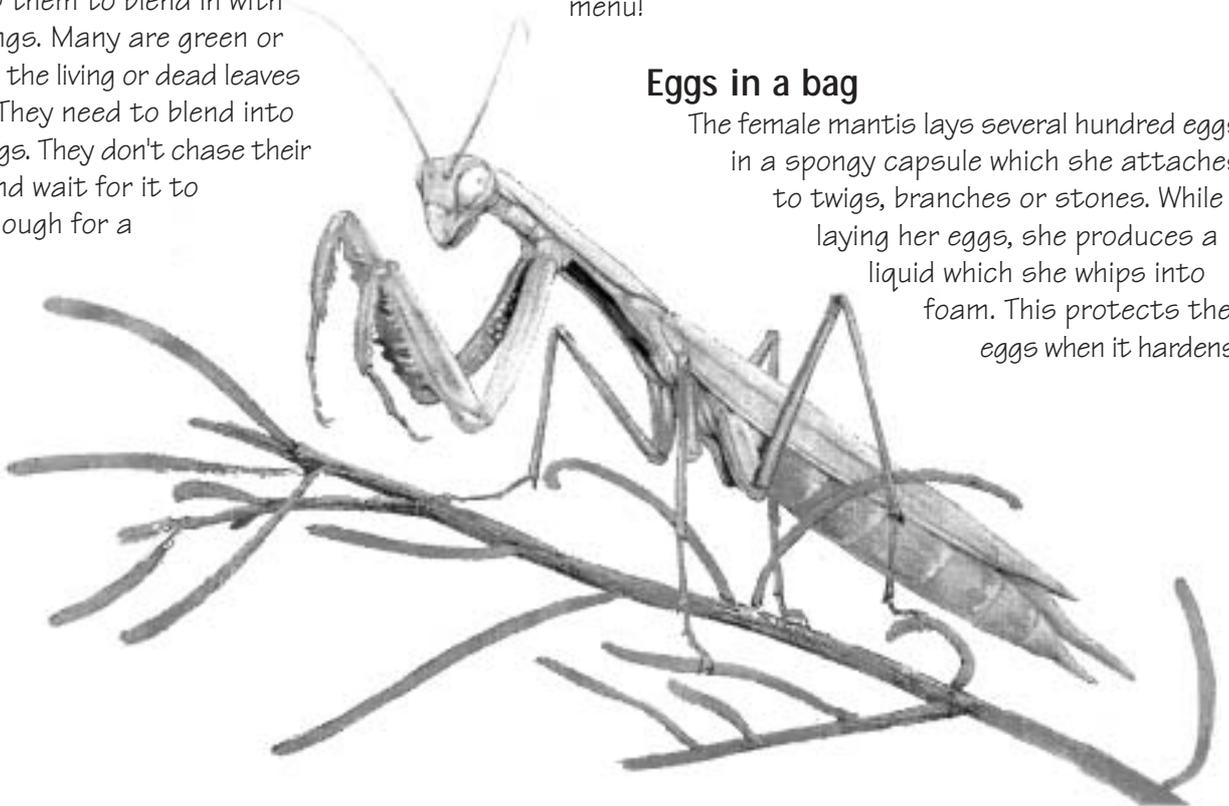
Unusual mating habits

Males must be very careful that the female doesn't mistake him for her next meal! He approaches her head-on, wagging his abdomen and stamping his feet to tell her he is looking for a mate.

Only when he thinks it's safe will he make a flying leap onto her back! Even then he may still end up on the menu!

Eggs in a bag

The female mantis lays several hundred eggs in a spongy capsule which she attaches to twigs, branches or stones. While laying her eggs, she produces a liquid which she whips into foam. This protects the eggs when it hardens.



Can you work out the name given to the distinctive egg case produced by female Praying Mantis?

★5 ★5 ■5 ▲3 ●5 ●3 ●1

--	--	--	--	--	--	--

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

Did you know.....

Some mantises are beautifully coloured to resemble flowers.

The mantis sheds its skin twelve times before it is full-grown.

Mantises are easy to handle and don't harm people.

Female praying mantises are some of the biggest insects in the world.

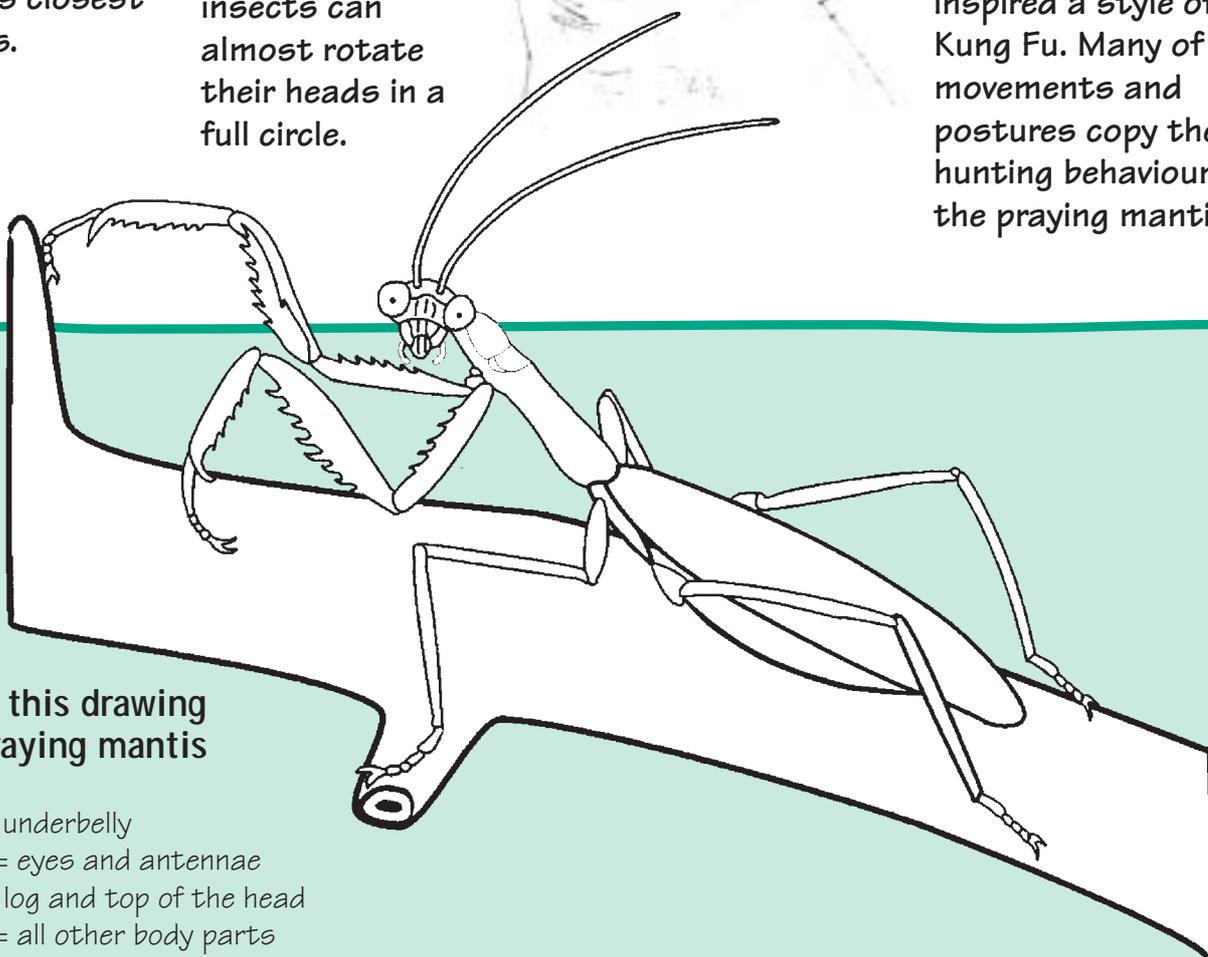
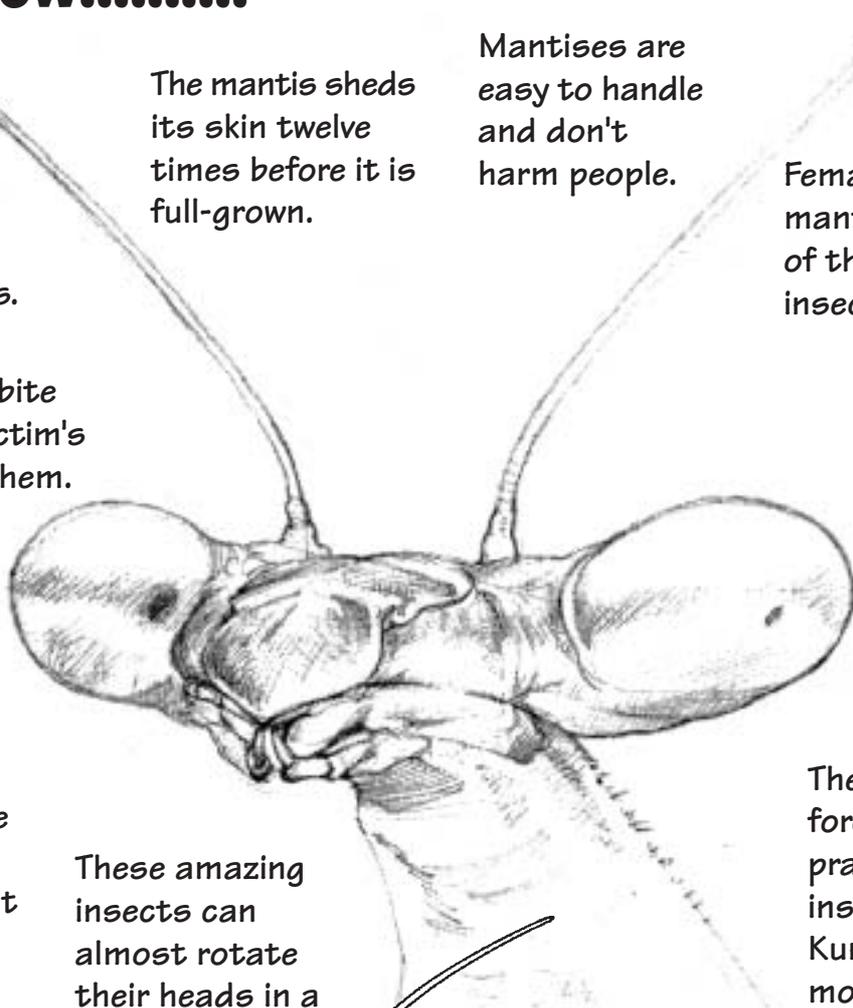
Praying mantises bite the back of their victim's neck to paralyse them.

Most mantises can fly when adults.

Cockroaches are the praying mantis's closest relatives.

These amazing insects can almost rotate their heads in a full circle.

The sudden and forceful strike of the praying mantis has inspired a style of Kung Fu. Many of the movements and postures copy the hunting behaviour of the praying mantis.



Colour this drawing of a praying mantis

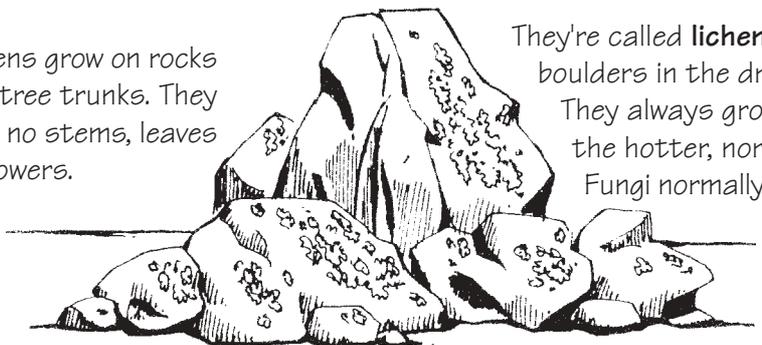
- yellow = underbelly
- black = eyes and antennae
- brown = log and top of the head
- green = all other body parts



A Remarkable Partnership

When the heavy rains of the wet season tumble down on the Top End, a wide variety of fungi and moulds come to life. We normally associate these simple plants with wet, shaded rainforests. But the dry Centre is also home to some close relatives.

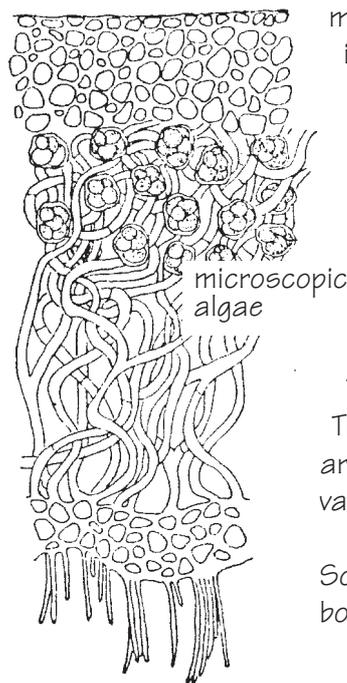
Lichens grow on rocks and tree trunks. They have no stems, leaves or flowers.



They're called **lichens** and you'll find them growing on rocks and boulders in the dry hills around Alice Springs and Tennant Creek. They always grow on the southern sides of the rock, rather than the hotter, northern sides.

Fungi normally grow on moist, rotting material which they slowly breakdown to get their nourishment. So how do the lichens cope on dry, bare rock?

lichen



microscopic algae

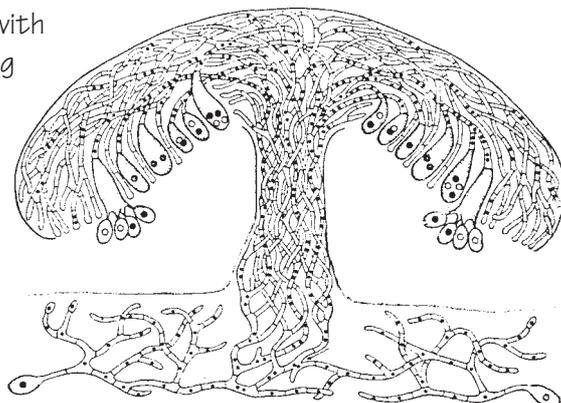
hair-like roots

The answer lies in an amazing partnership with microscopic plant cells normally found living in water.

If you examine a fungus such as a mushroom under a microscope, you will see that it consists of a mass of spaghetti-like threads woven together. Lichen is much the same but interspersed among its threads are green or blue-green algae cells.

This is a mutually satisfying arrangement.

The algae makes food to feed the fungus and, in exchange, the fungal threads wrap around the algae cells to protect them from dehydration. They also absorb water vapour from the air or dew that forms on the rock.



mushroom

Scientists have a word to describe a relationship in which two things live together and both benefit from the arrangement.

Use the grid on page 6 to decode this word.

■ 4 ◆ 5 ★ 3 ● 2 ▲ 4 ★ 5 ■ 4 ▲ 4 ■ 4



Did you know...

On 26 and 27 August 1883 the Indonesian volcano Krakatoa erupted. The explosions were heard 3 500 kms away in Australia.

Ash was blasted 80 kms up into the atmosphere and the surrounding islands were plunged into darkness for 2 days. A tsunami (or tidal wave) 40

metres high killed 36 000 people in nearby Java and Sumatra.

All life on the volcano was destroyed. Today, however, it is covered by rainforest once again. The first plant to come back was lichen.



Australian Deserts

How many of these questions can you answer?

You may need to visit a library and check in a few reference books.

(You'll find the answers on page 11 but don't peek!)

1. The most common tree growing in deep red sand.

_ _ _ _ _ **o** _ _ _

2. Common name for the reptile *Varanus gouldii*

_ _ _ _ _ _ _ _ _ **a**

3. A beautiful pink cockatoo **Major M** _ _ _ _ _

4. A tiny nocturnal insect that eats spinifex _ _ _ **m** _ _ _ _

5. Often found in claypans after rain

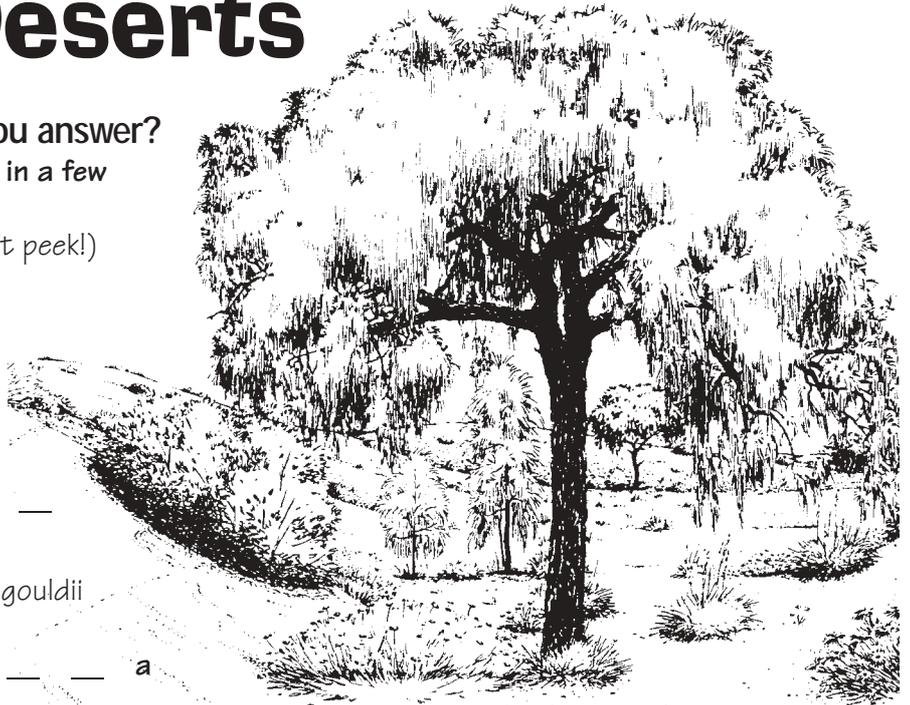
_ _ _ _ _ _ **shrimp**

6. Australia's largest salt lake **Lake** _ _ _

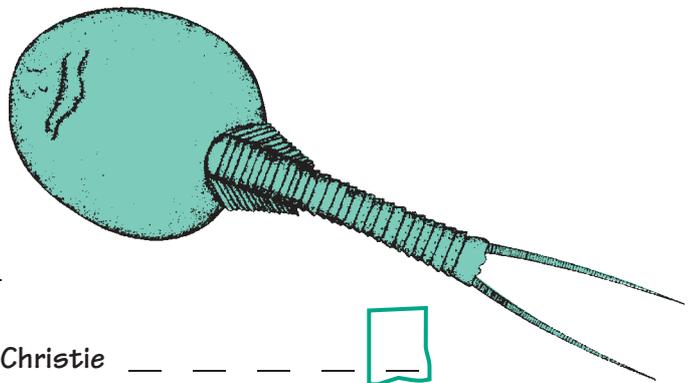
7. Explorer who discovered Ayers Rock in 1873 **William Christie** _ _ _ _

8. Blind mammal that swims through the sand a few centimetres below the surface

marsupial _ _ _



Its botanical name is *Allocasuarina decaisneana*.

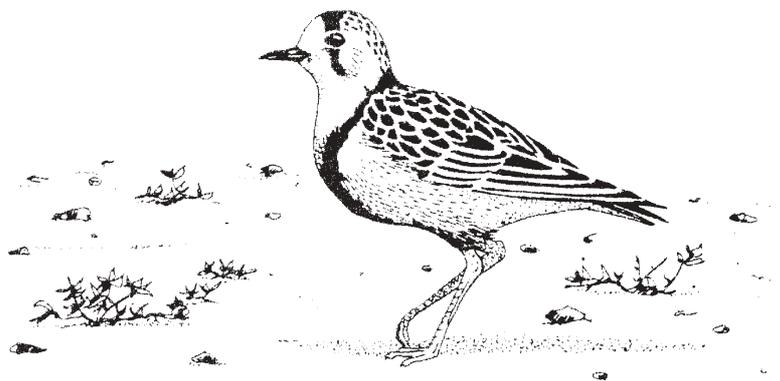


8. Blind mammal that swims through the sand a few centimetres below the surface

marsupial _ _ _

The 8 letters in the boxes spell out the name of this desert bird.

Inland



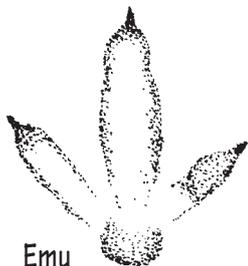
Preserving Prints

A lot of Australia's wildlife is difficult to find. Their elusiveness is both due to their nocturnal living habits, and that they are always keeping a keen eye out for danger. Some of our wildlife is so good at avoiding contact that photographs of them are scarce. One way of getting around this is to find their tracks (footprints or signs of movement), and then record these by making plaster castes.

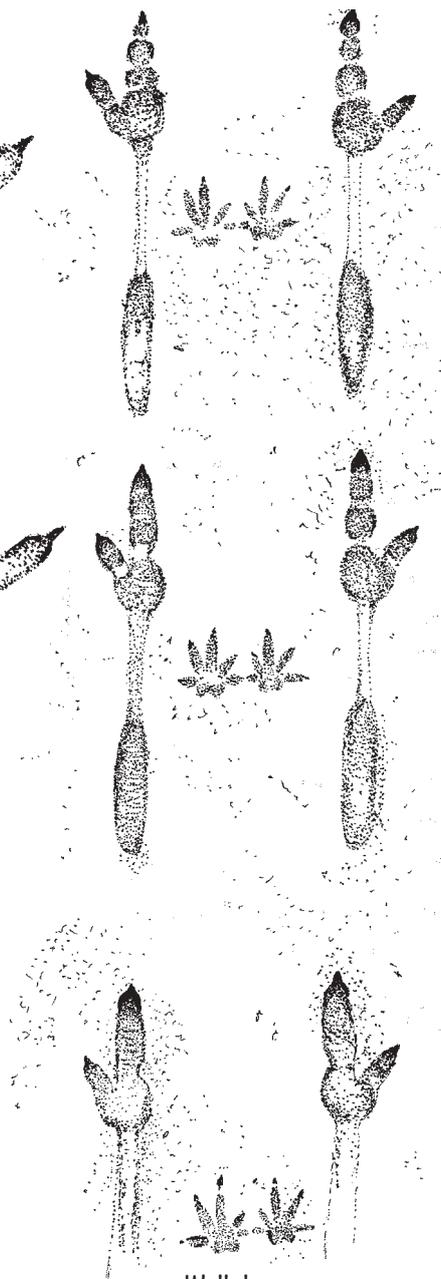
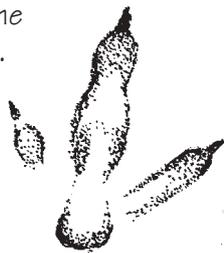
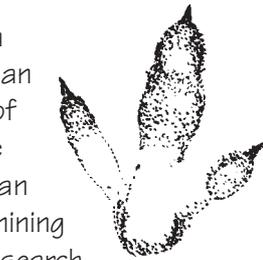
Tracks are the proof that a certain animal species is in an area. Another advantage of plaster caste tracks is the accuracy and detail that can be obtained. By closely examining and measuring the tracks, research scientists can reveal individual specimens of a certain species.

In the Top End this is a great time of the year to find animal tracks. Waterhole's and billabongs have dried up as we await the wet season rains, and wildlife may leave a variety of tracks along the muddy banks. If you live closer to the desert areas of the Northern Territory you can find animal tracks in the sand, especially in sand dunes.

By following these simple instructions you can learn how to make plaster caste tracks, it is great fun! By experimenting a little with the amount of plaster of Paris and water you use, you will be able to perfect your results.



Emu



Wallaby



Marine Turtle

You will need:

scissors
stapler
hair spray

mixing container
water
plaster of Paris

cardboard
string
acrylic paint

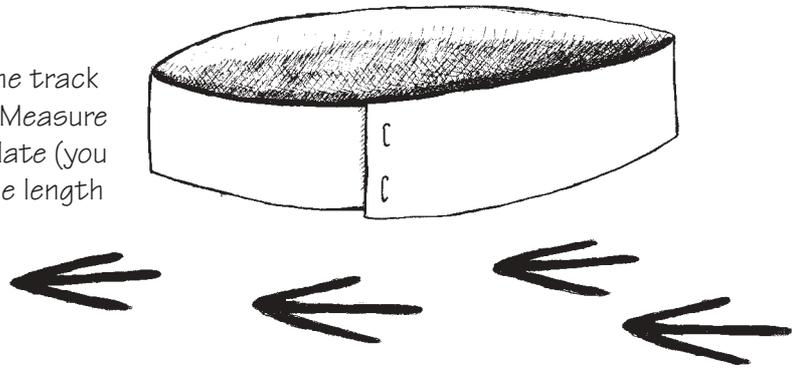
paint brushes
varnish or resin

STEP 1

Once you have found some good tracks, clean them out by gently removing any debris. Blow out any dust with your eyes closed. If the track is in sand, spray it with hair spray, so that the footprint stays together.

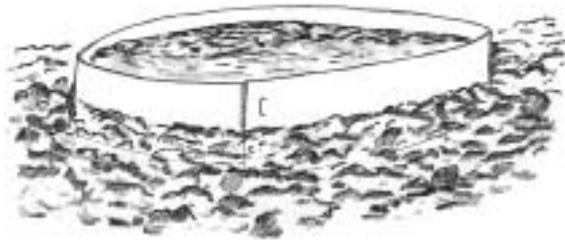
STEP 2

Place the string around the outside of the track to see how much cardboard you will need. Measure the cardboard, using the string as a template (you will need a strip about 75mm wide and the length of the string, cut it slightly oversized for stapling). Overlap the ends and staple them together. If possible push the cardboard into the soil to stop any leaks.



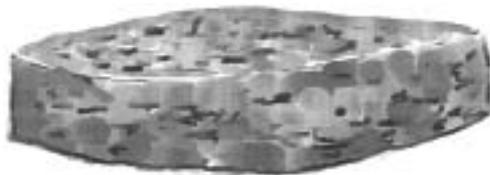
STEP 3

Mix approximately 2 cups of plaster of Paris to 1 cup of water. The mix needs to be able to run as well as being quite thick. Stir it up thoroughly before pouring. Pour the plaster of Paris as close as possible to the track surface so that the track isn't affected.



STEP 4

Your mould needs to set and this can vary from 30 minutes to 2 hours. Test it by scratching it lightly with a stick. When it is hard take the cardboard support off and gently clean off any attached debris.



STEP 5

Finally, for this last step you may need an adult to help. To further enhance and protect your plaster caste track specimen, you can paint the mould with black acrylic paint and then use lacquer to protect the plaster of Paris.



PUZZLE ANSWERS

Creature Feature

(page 3)

Radjah Shelduck

On the Brink

(page 5)

Cattle also like the melons but the seeds are destroyed as they pass through the animal.

Urban Encounters

(page 6)

ootheca

Plant Profile

(page 8)

symbiosis

Nature Quiz

(page 9)

1. Desert Oak
2. Sand Goanna
3. Major Mitchell
4. termite
5. Shield Shrimp
6. Lake Eyre
7. William Christie Gosse
8. Marsupial Mole

Inland Dotterel

Around the traps



G'day from Ranger Bill

Well, we have reached our 4th and final issue of the Junior Ranger Review for 2002. I hope you have enjoyed the variety of articles and activities that we have presented to you throughout the year. We certainly found it interesting gathering the information. No matter how much you know about a topic, you can always discover new and exciting facts.

This issue is packed with pictures to colour, puzzles and articles, and a great Project Page that will help you make your own castes of animal tracks.

We've had fun this year sharing with you our knowledge on Territory fauna and flora. However, if there is any information or a story that you want to tell us about, write them down and send them to the address on this page. We hope to include some of the best stories on our website in the New Year.

If you have been an active member of the Junior Ranger Program in 2002, I hope you enjoyed the experience and are keen to join us again in 2003. If you would like to become a Junior Ranger or would like to know more about the program, contact the coordinator in your area (**Darwin - 8999 4565, Katherine - 8973 8865, Alice Springs - 89951 8247**).

Have a safe and happy Christmas and New Year and we look forward to bringing you four new and exciting issues of the Junior Ranger Review in 2003.

Darwin

The last couple of months have seen some busy times for both the 9-11 year old and the 12-14 year old groups that take part in the Junior Ranger Program in the Darwin Region.

Throughout August and September the 9-11 year old group were involved in learning about geology, landforms and monsoon forests. In August we discovered rocks and fossils at the Museum and in the CSIRO lab; then made our way down to Lee Point beach to look at the coastline and the way it is formed. September saw us getting creative and decorating bags, which were inspired by our many exciting activities this year. Then we spent some time in the monsoon forests of Holmes Jungle and Territory Wildlife Park discovering the plant and animal inhabitants - it was definitely getting warmer.

The 12-14 year old group met in August for a spotlight tour of Howard Springs. The water was by far the best place for 'spotting the wildlife'. The September activity was spent planning their end of year camp, to be held at Litchfield National Park Education campground. The camp was held in early October, and for those who attended was thoroughly enjoyable. Although our spotlight tour here revealed nothing, we managed to capture 4 melomys and a young northern quoll in the traps we set overnight. Releasing them was an event in itself.

Arranging the 'end of year' celebrations for the 9-11 year old group in October was a major event. 120 Junior Rangers and family members enjoyed an activity trail, BBQ and certificate presentation with the Honourable Kon Vatskalis (Minister for Parks & Wildlife) and our own Ranger Bill. A great time was had by all.

We would like to take this opportunity to thank all members of this year's program for their support and attendance, and to wish you all the best for Christmas and the New Year. Hopefully many of you will join us again in 2003.

Ranger Vanda & Ranger Dean.

Alice Springs

The hotter weather has arrived in Alice Springs and Tennant Creek and so has the end of the Junior Rangers Program for the year.

Spring is in the air in Central Australia and it is one of the best times of the year to be planting trees and shrubs. Junior Rangers in both Alice Springs and Tennant Creek have been getting their hands dirty and doing some spring planting.

Early one Saturday morning recently, Tennant Creek Junior Rangers headed down to the local Catholic Church - on a mission, a mission to plant trees! By planting native trees and shrubs, Junior Rangers not only helped to beautify the grounds in front of the Church, but also help to increase biodiversity in Tennant Creek, providing homes and food for native birds and insects. Everyone did a great job and did not mind getting a little dirty for such a great cause.

Alice Springs Junior Rangers recently visited the Greening Australia Bushcare Nursery, where they helped out on a tree-planting program at a local primary school. There was time left over to do a tour of the nursery and lend a hand sowing seeds that will be grown by Greening Australia for planting projects next year.

If you would like to get involved with Greening Australia in your town contact them on alice.springs@nt.greeningaustralia.org.au, info@nt.greeningaustralia.org.au or katherine@nt.greeningaustralia.org.au.

Have a fun and safe Christmas and I look forward to seeing you all again out in the bush in 2003!

Ranger Emily.

Katherine

I'd like to take this opportunity to thank all the Junior Rangers and their families who helped out with the Junior Ranger 'Flying Fox Festival Parade Float' in Katherine. For those that managed to attend all the preparation activities, a big thank you. Our parade float was fun, and it stimulated many queries about the Junior Ranger Program.

Following our Katherine Junior Ranger theme for the year (the Jawoyn seasons) we have now entered **Jungalk**, which covers the months of October and November. To Top End residents, this hot time of the year is often referred to as the 'build up'. This is because it is the time when the hot weather increases until the relief comes in the form of rain. The end of the 'build up' is marked by the arrival of the monsoon. The Jawoyn people call the first rain period **Guran**, which is still hot weather because there is little rain. The arrival of the true monsoon period occurs in the season of **Jiyowk**. The seasons of **Guran** and then **Jiyowk** occur in the months of November through to April.

In the season of **Jungalk** Junior Rangers had great fun seeing how the bush environment is able to survive this big drying out period. We have been finding out what happens to billabongs and the life within them as they dry out, and how sticky and muddy they become.

Bright lights and white sheets made for a great insect catching night. We were investigating how many species of local insects are attracted to Katherine's warm humid

air, and we were not let down. Twenty-seven different species of insects came to the lights. Most of these were kept for the Junior Ranger insect display. Junior Rangers can continue to contribute to the display by bringing in the insects they are able to catch at home.

ARBOR week activities were run earlier this year, as the Junior Ranger Program in Katherine will end before ARBOR week's proper date. However the same spirit and motivation was applied. This year Junior Rangers established a special sandstone species garden with the help of Greening Australia. The seeds had been grown from seeds collected by Junior Rangers and Greening Australia in the escarpment in Nitmiluk National Park earlier in the year.

On other Junior Ranger activities we honed our bush skills in the areas of rope knots and did navigation skill test games with maps and compasses. A big wildlife quiz was run with great results and prizes.

Like you, Ranger Andrew looks forward to the seasons of **Guran**. Because **Guran** is the time when the air is filled with the sound of thousands of well tuned male frogs. And it is Frogwatch time. I will be taking a long break over the wet season, but the Frogwatch program will continue. When it rains the frogs and frog watchers come out, so keep an eye and an ear out for the Frogwatch program.

See you all soon. Ranger Andrew

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