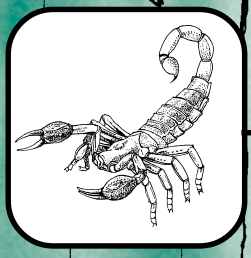
Junior Ranger Review

Issue 2, 2001

Home Sweet Hollow



Urban Encounters
Scorpions

On the Brink
The Kowaris

Nature Quiz

WORLD ENVIRONMENT DAY 5 JUNE

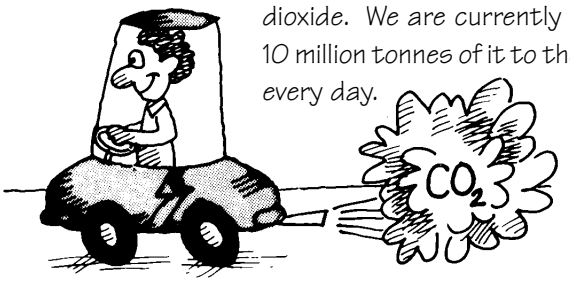
WED

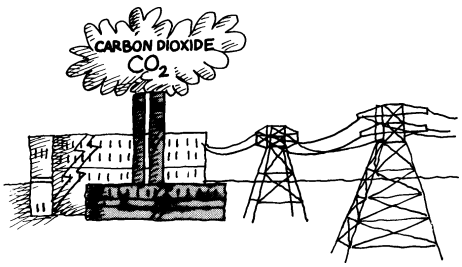
Tuesday 5 June is World Environment Day. It is a day for taking stock of the state of the environment and what we can do to tackle our problems. How many of these questions concerning the state of the environment can you answer? (You'll find the answers on page 11.)

1. Cane Toads, unfortunately, have now reached the Kakadu wetlands. When were they released in the Queensland canefields?
   (a) 1900
   (b) 1935
   (c) 1970
2. Wildlife experts estimate that the number of feral cats in the NT could be as high as
   (a) 10 000
   (b) 50 000
   (c) a quarter of a million
3. Until recently there were possibly 200 million rabbits running wild in Australia. However, their numbers have fallen significantly since the 1995 release of a virus called
   (a) calicivirus
   (b) lyssavirus
   (c) Escherichia colivirus
4. Australia has a terrible record for mammal extinction. Nine NT mammals have become extinct in the last 100 years. Recently, however, one thought to be extinct has been rediscovered. It is the
   (a) Long-tailed Hopping-mouse
   (b) Central Rock-rat
   (c) Pig-footed Bandicoot
5. The Earth's population has now reached
   (a) 1 billion
   (b) 6 billion
   (c) 10 billion
6. Global warming, due to the greenhouse effect, is likely to significantly reduce the rainfall in
   (a) Perth and the southwest
   (b) Darwin and the Top End
   (c) Tasmania
7. The biggest contributors to rising levels of carbon dioxide in the atmosphere, per head of population, are
   (a) USA and China
   (b) USA and Europe
   (c) USA and Australia
8. The rate of forest clearing around the world every minute is equivalent to
   (a) 2 suburban house blocks
   (b) 20 suburban house blocks
   (c) 200 suburban house blocks
9. Approximately how many albatrosses are killed each year in the Southern Ocean as a result of longline fishing?
   (a) 4 000
   (b) 14 000
   (c) 44 000
10. If all the garbage we throw away in Australia each year was stored in the Melbourne Cricket Ground, how high would the pile be?
    (a) to the top of the stands
    (b) twice the height of the roof
    (c) the height of a 100 storey skyscraper

Did you know...

The main greenhouse gas is carbon dioxide. We are currently adding about 10 million tonnes of it to the atmosphere every day.





Plastic nappies were invented in 1961. Australians throw away 1 300 000 of them a day. Scientists calculate that they take 500 years to break down when buried in the dump.

Three easy things you can do to help our natural environment...

- Recycle paper at school, home and at work. If all Australians recycled paper we could save more than 40 million trees each year!
- Choose products at the supermarket which have less packaging or has packaging which is recyclable, this puts less pressure on the natural environment.
- Take your own bag when you go shopping. Plastics can choke marine life such as whales and seals if they get into the oceans.

Creature Feature

The sun has set across the Top End of Australia. A yellow glow lingers briefly in the west. **Agile Wallabies** are grazing in grassy parts of the forest. **Northern Brown Bandicoots** are scratching among the leaf litter for juicy insects.

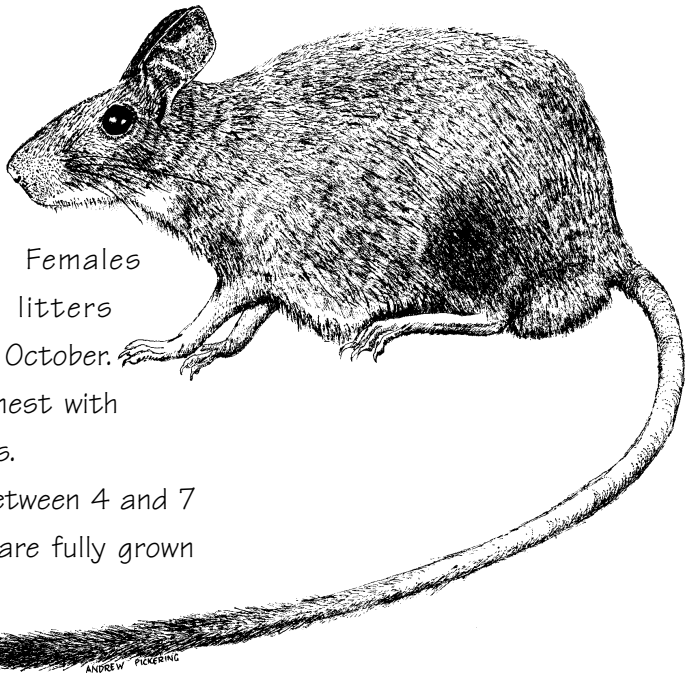
As the birds settle down for the night, small nocturnal mammals slowly and silently emerge from their hiding places.

While the ground-dwellers find it near impossible to move about without rustling the leaves, the animals of the trees can move in total silence. The **Fawn Antechinus** runs along from branch to branch without a sound. It sniffs the undersides of leaves and feels behind bark with its sensitive paws. Occasionally it will plunge head first into clusters of flowers, snatching and crunching insects between its sharp teeth.

Sugar Gliders spread the membranes on each side of their body and leap from tree to tree.

In the hollow limb of an old Stringybark tree a **Brush-tailed Tree-rat** attends to the needs of her babies. She lets them drink from her for a while but then gently pushes them away and prepares to leave the tree hollow. With her huge eyes, she looks around for possible danger. Judging that the coast is clear, she descends the tree head first. Once on the ground, she bounds about with her bushy-tipped tail held up in the air. She searches the ground for seeds and juicy grass stems. The huge black whiskers on the sides of her nose twitch up and down as she feeds.

Brush-tailed Tree-rat



The Brush-tailed Tree-rat *Conilurus penicillatus* is one of three species of tree-rat inhabiting Top End forests. The others are the Black-footed Tree-rat and the Golden-backed Tree-rat. The Brush-tailed Tree-rat is the smallest of the three. Its biggish ears, large bulging eyes, broad blunt head and long back feet give it a rabbit-like look.

As a result, it is sometimes called a rabbit-rat.

It is similar in size to the introduced Black Rat *Rattus rattus*.

The Brush-tailed Tree-rat has quite a long breeding season. Females produce several litters between March and October. Dad stays in the nest with Mum and the babies.

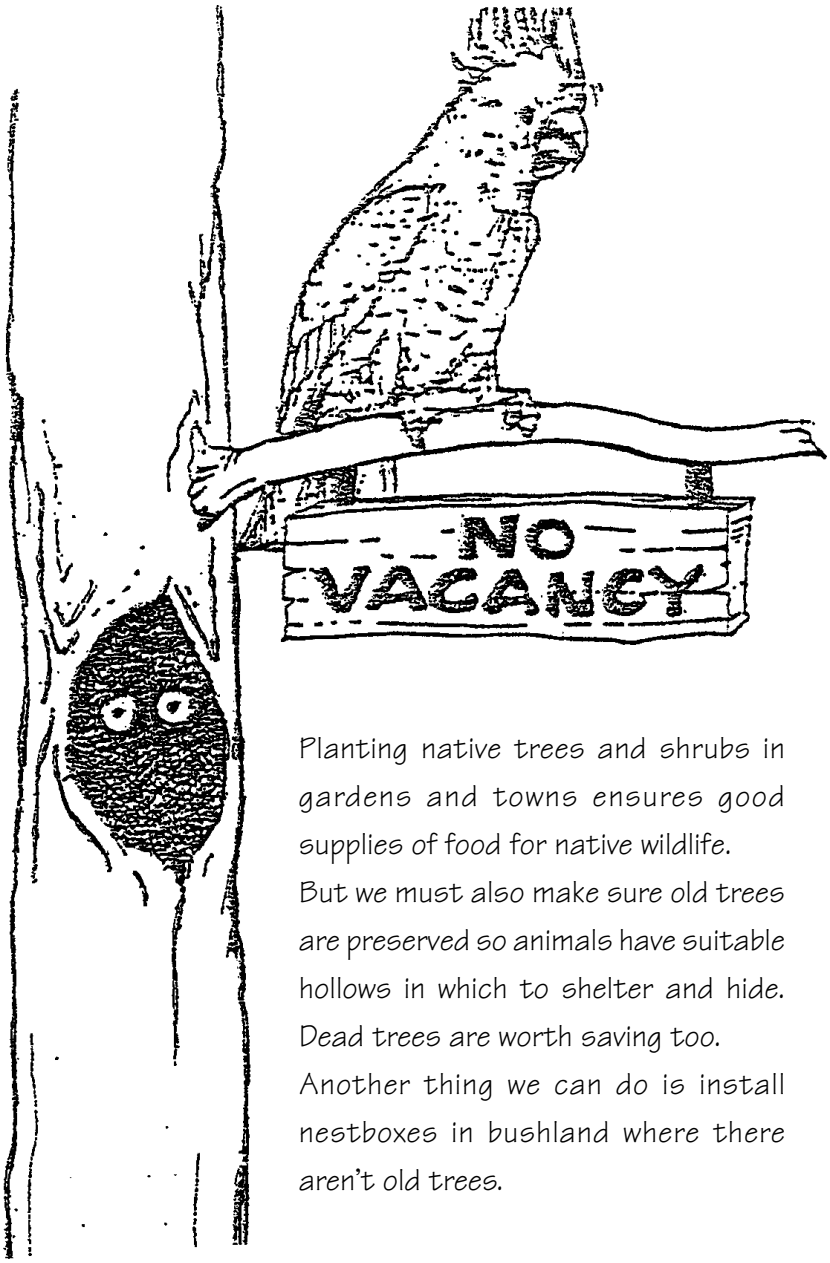
They are weaned between 4 and 7 weeks of age and are fully grown by 11 weeks.

The animal is found across the Top End and in the Kimberley region of WA. However, it has a very patchy distribution and appears to have very specific habitat requirements.

Although it is not endangered at the moment, local extinctions could occur if its habitat is altered or destroyed.

Cover Story

Home, Sweet, Hollow



Many Australian birds and mammals rely on tree hollows for shelter or breeding. These include bats, possums, sugar gliders, phascogales, cockatoos and parrots.

Tree hollows form when the insides of trunks or branches rot or are eaten by termites. This may take many years.

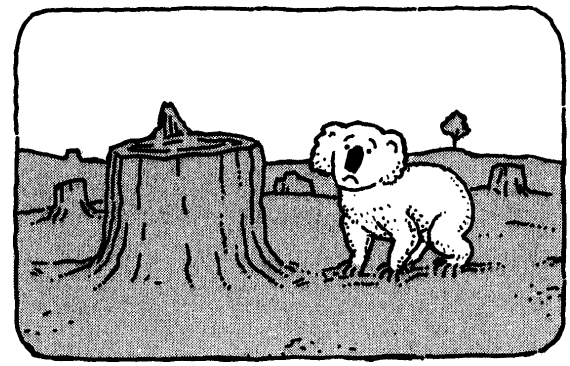
It's the oldest trees that have the best hollows and are most important for native wildlife.

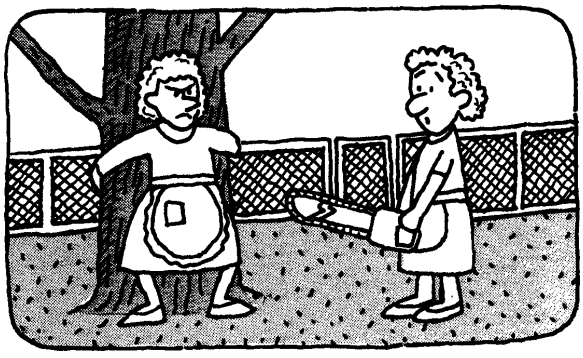
Planting native trees and shrubs in gardens and towns ensures good supplies of food for native wildlife.

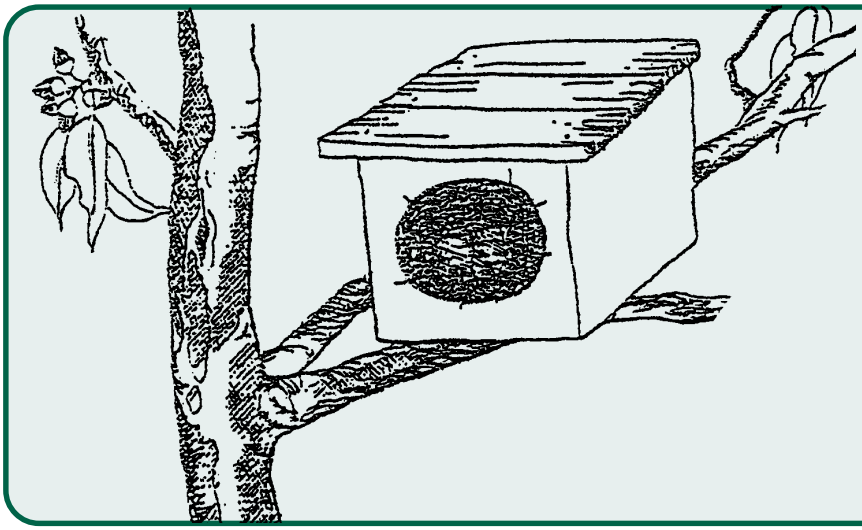
But we must also make sure old trees are preserved so animals have suitable hollows in which to shelter and hide. Dead trees are worth saving too.

Another thing we can do is install nestboxes in bushland where there aren't old trees.

The vegetation may grow back after the bush has been cleared but the wildlife might not.







Want to know more about nestboxes?

The Australian Nestbox Company, in Brisbane, makes nestboxes for a range of different-sized animals.

Their address is 81 Haig St Gordon Park QLD 4031 or visit their website at: www.powerup.com.au/~ozbox

Hollow Words

Bats like hollow branches that point down. When night falls, they just fall out of bed and fly out the front door.

In this puzzle are the names of some other Australian animals that hide in tree hollows and some words relating to tree hollows. Can you find all the words in this list?

ACROBATES
AIR
ANTS
BAT
BEES
COCKATOO
CONILURUS
CUSCUS
EGG
EUCALYPT
GLIDER
HOLLOW
HONEY
LIGHT
MOTH
NESTBOX
NESTLING
OPEN
OWL
PARROT
PHASCOGALE
POSSUM
PYTHON
RINGTAIL
SLEEP
STRINGYBARK
TERMITE
TREE RAT
TRUNK

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

Who am I?

I'm a nocturnal Australian.

People rarely see me but I'm very common in the forests down the east coast of Australia.

I need mature trees with lots of hollows where I can hide during the daytime and raise my family.

I eat high energy foods like nectar and pollen. I visit many flowers at night and am an important pollinator.

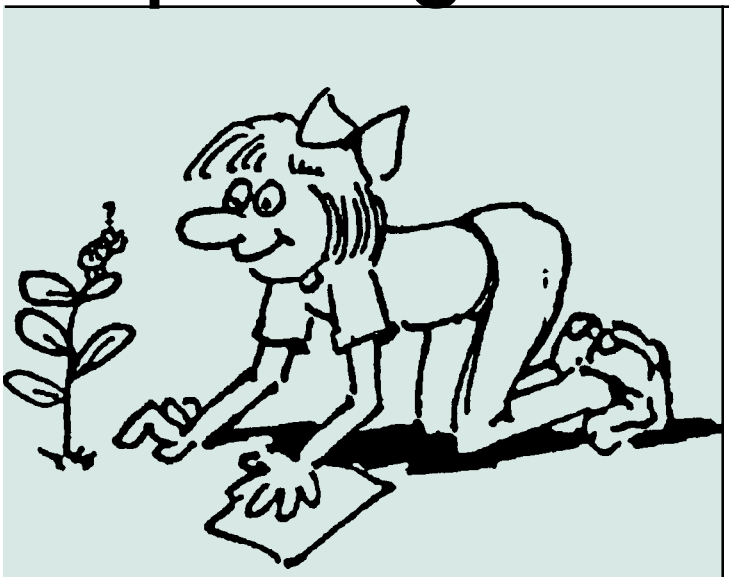
I may be small but I'm fearless and athletic. My scientific name is *Acrobates pygmaeus*.

I'm a great runner and jumper, with heart-shaped pads on my fingers and toes.

My picture is on the old one cent coin. The Government scrapped it and the two cent coin in 1991. The Frill-necked Lizard and I were not impressed!

Answer and picture on page 11

Project Page



Wherever there's a tree, a patch of bush, garden, old log or flower bed you'll find them: insects, spiders and a range of other **tiny creatures**.

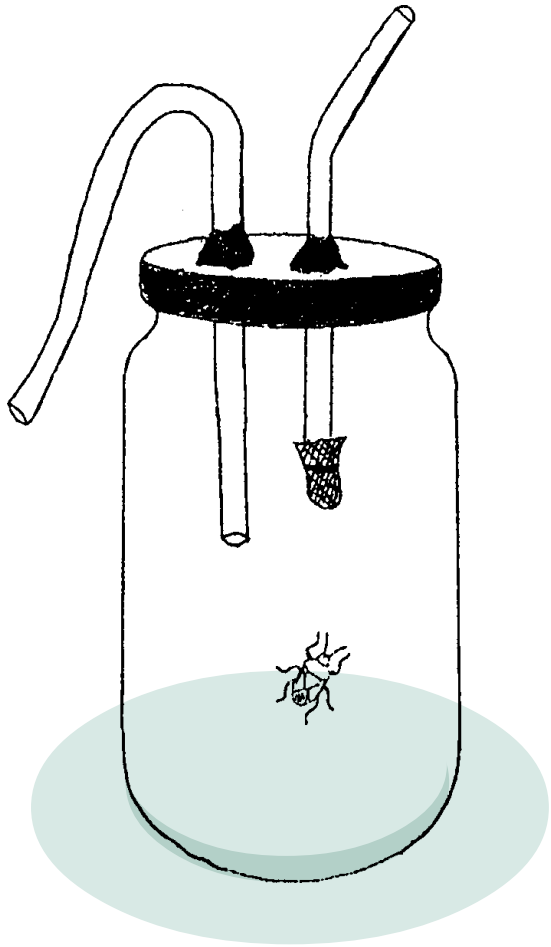
A number of them are great builders or diggers. Some have amazing strength and can pull many times their own weight. Others are better swimmers, divers or runners than the greatest Olympic champions.

You can learn a lot by looking at live ones close up. But trying to catch them, without causing any harm, can be infuriatingly difficult. However, there is something you can use and it's easy to make.

Make a pooter.

What you will need:

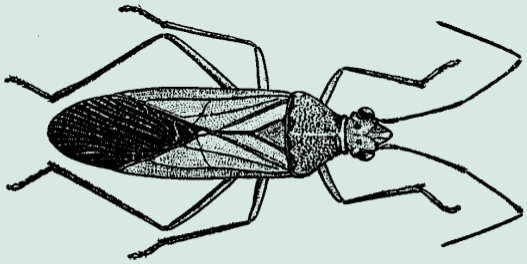
- medium sized glass jar with a screw on lid
- flexible plastic tubing or a plastic straw
- plasticine or blu tack
- a scrap of gauze or very thin material such as stockings
- hammer and hole punch (or an electric drill, for which you will need adult supervision.)
- rubber band



What to do:

1. Take the lid off the jar. Use the hammer and hole punch (or the electric drill) to make two holes in the lid. They need to be big enough so the tubing just fits through.
2. Cut 2 pieces of tubing. Make one reasonably long so it will reach almost to the bottom of the jar. The other one should be shorter.
3. Use the rubber band to secure the gauze to the end of the shorter piece of tubing.
4. Use plasticine or blu tack to ensure an airtight seal where each tube goes through the lid.

   To catch a minibeast, point the end of the long tube at the creature and quickly suck through the short tube. It's fun and doesn't hurt the animal! Once you have finished observing the creature gently release it where you found it.

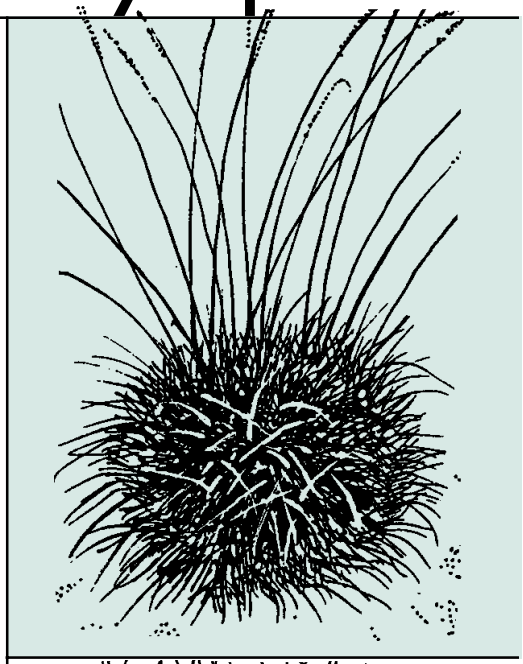


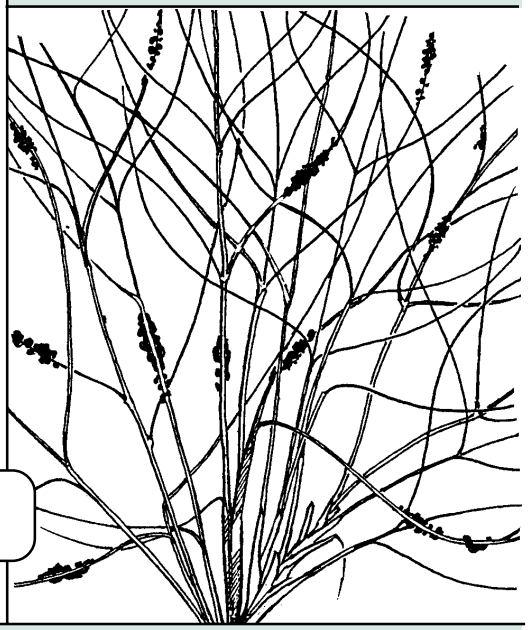
Did you know...

People often use the word bug to mean any insect. However, to entomologists (people who study insects), bugs are the members of the order *Hemiptera*.

These are insects with mouthparts adapted for sucking: aphids, scale and lerp insects, cicadas, harlequin bugs, etc.

The Desert Dairy Farmer





Gummy Spinifex *Triodia pungens* grows on the sand plains to the north and west of Alice Springs.
Its leaves are not as tough as other spinifex grasses but still too hard for our cattle and kangaroos.
The only creatures that feed on it are tiny insects called Prorsococcus. They love the sweet spinifex sap. They suck so much, the excess comes out the other end! (It's called honeydew.)
Spinifex ants have been farming the little sap-suckers for centuries. They 'milk' them for the honeydew. Like all good farmers, they look after their 'cows'. They build 'cow sheds' from sand and spinifex resin to protect them from the scorching desert sun.

'Sheds' made from sand grains cemented with spinifex resin.

Minibeast Match-up

To decode the answer, you must first draw a line from each minibeast's number to the matching statement on the right. This will give you the code.

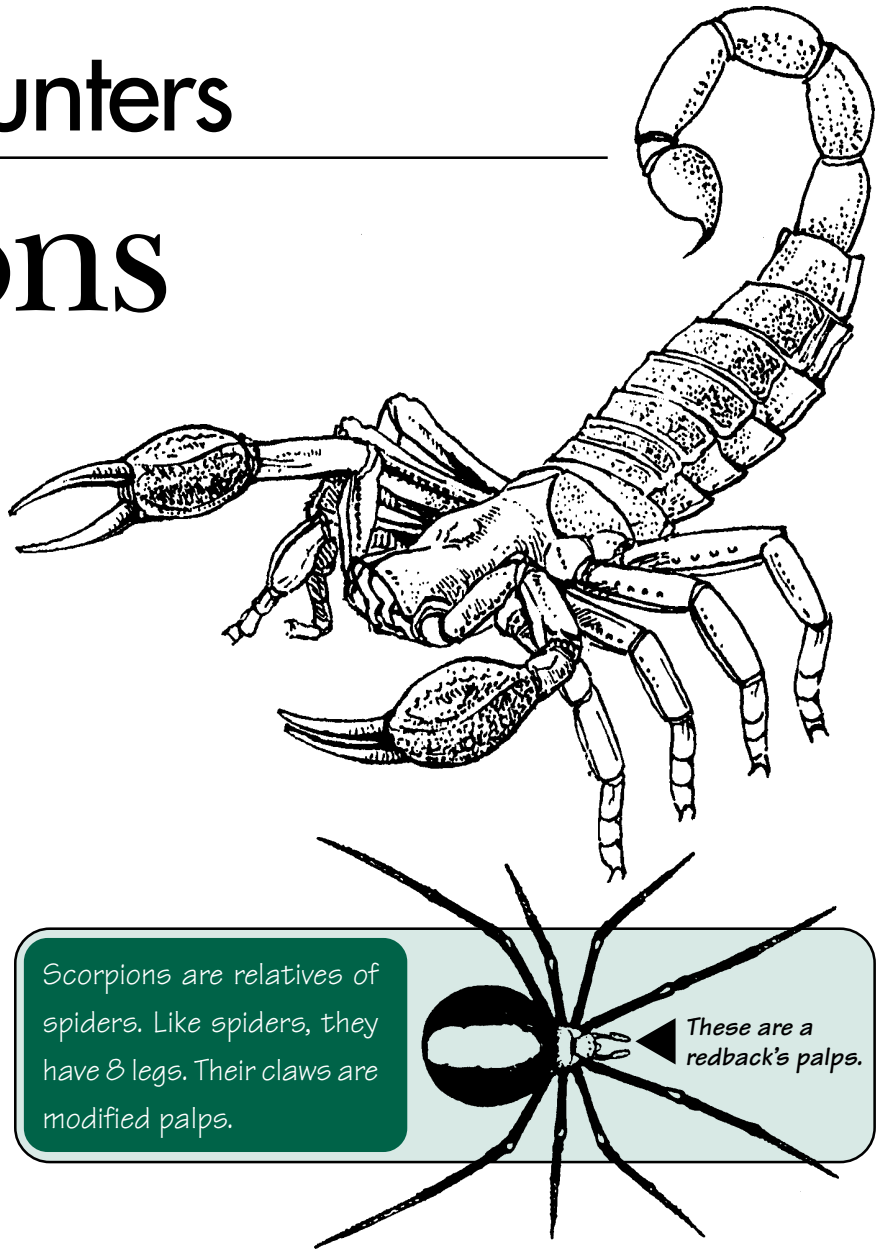
What kind of insect is Prorsococcus?

6	7	3	5	1	8	2	4
It's a								

cockroaches	1	G	travel in a line head to tail
marchflies	2	L	are one of nature's best recycling agents
huntsmen	3	Y	have been on Earth for 320 million years
itchy grubs	4	E	can reach speeds of 50 kph
termites	5	U	are biting insects
baby ants	6	B	sometimes migrate long distances
dragonflies	7	A	are sometimes called tarantulas
butterflies	8	M	are called larvae.

Urban Encounters

Scorpions



In some parts of the world scorpions have been responsible for many deaths. In Mexico, for example, many people die each year following scorpion stings. However, Australian scorpions are relatively harmless. Their sting is painful but no worse than a bee sting.

The worst thing about Australian scorpions is their dreadful table manners. They eat spiders, insects and small lizards. They tear up their victims with their jaws and then drool saliva over them. They like their tucker to be partly digested before they eat it!

They have a slow rate of metabolism. So a meal can last them for months. Their skin is so waterproof, they can go a long time without drink.

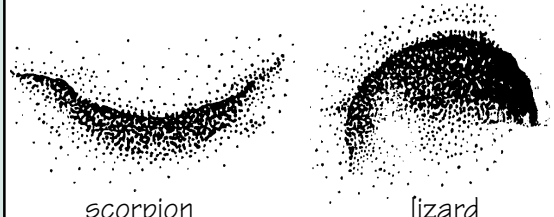
Scorpions are relatives of spiders. Like spiders, they have 8 legs. Their claws are modified palps.

Australia has more than 20 different species of scorpions. The little **Marbled Scorpion** *Lychas marmoreus* is common down Australia's east coast. It occurs under bark and is often found in gardens with lots of native trees and shrubs.

Scorpions from northern Australia tend to be bigger. The **Inland Robust Scorpion** *Urodacus yaschenkoi* is about 10 cm long.

It lives in a spiral-shaped burrow in sand country. The entrance is easy to recognise. It is crescent-shaped, with a lip over the top.

burrow openings



Courtship

On warm nights males go in search of a mate. They rely on smell because their eyesight isn't all that great. When two prospective mates meet, the male holds her palps and they begin to dance. This dance may last quite a long time as they move backwards, forwards and sideways across the ground.

The male leads his lady in the dance until he has found a suitably smooth patch of ground on which to deposit his spermatophore. This is a package containing his sperm. It has a sticky pad to hold it to the ground.

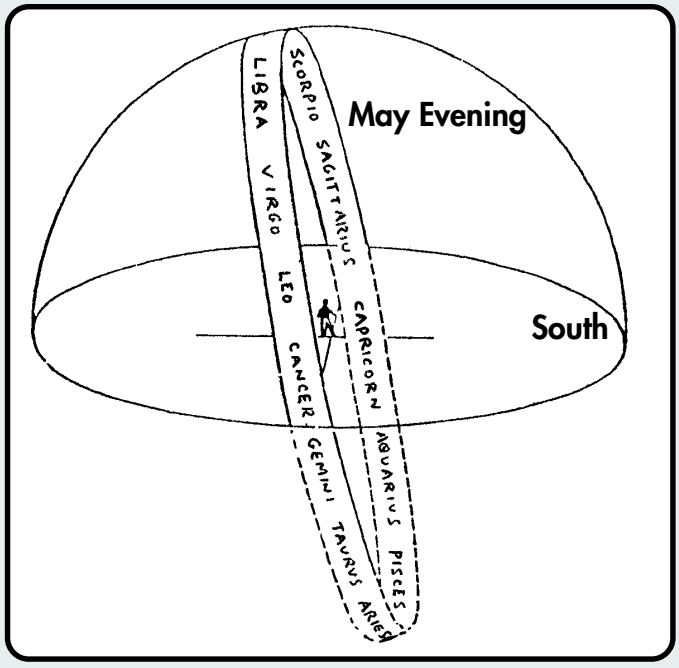
He manoeuvres her over the spermatophore until it breaks and the sperm enters her body.

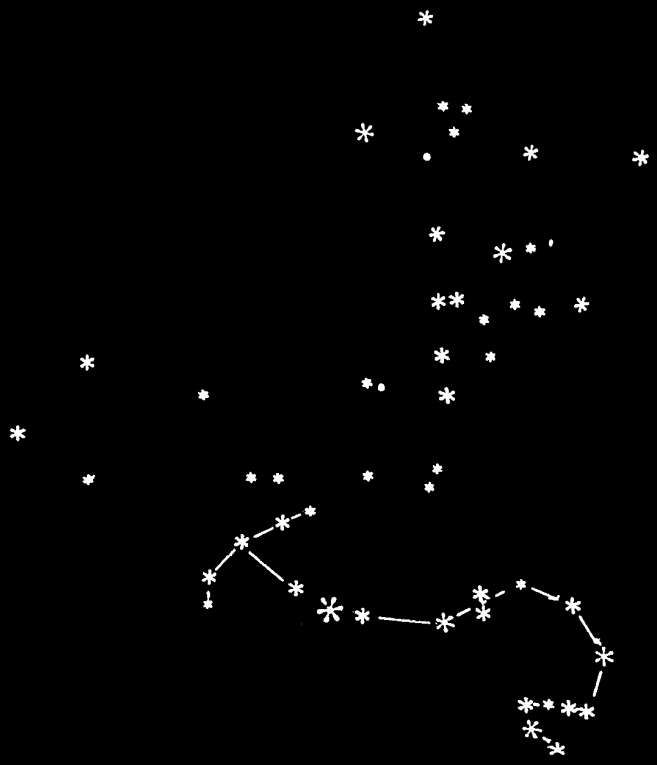
Birth

Unlike spiders, scorpions don't lay eggs. Mum gives birth to a large number of live young. She doesn't feed them but she protects them for a few days by carrying them on her back.

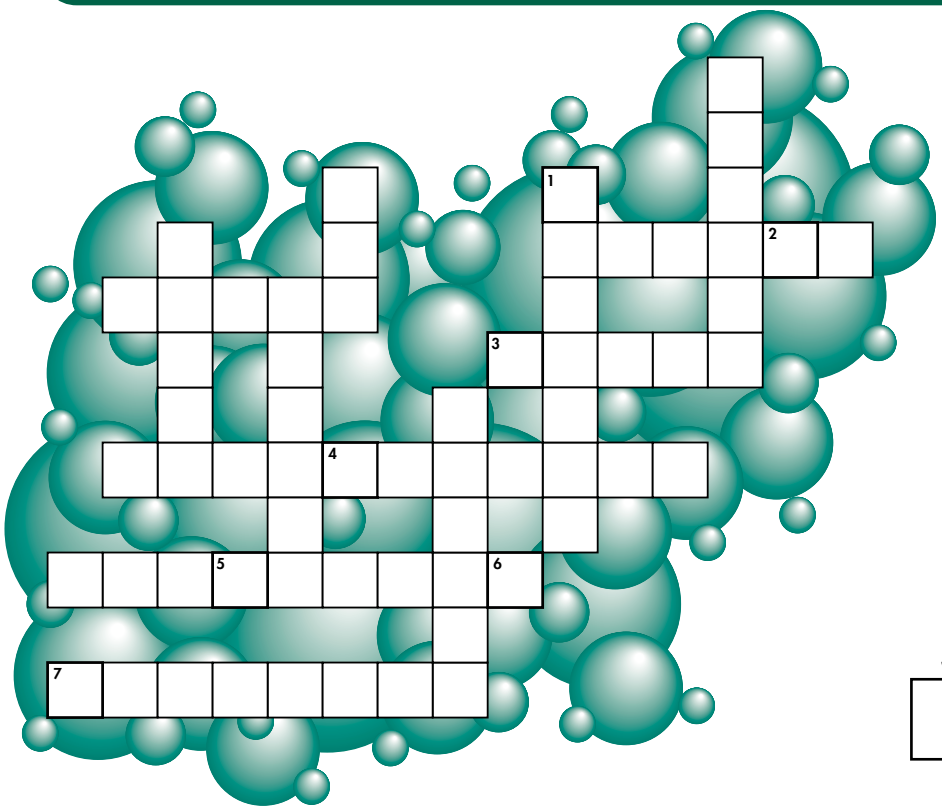
The Scorpion in the Night Sky

Scorpio the Scorpion is one of the 12 constellations of the ***zodiac belt***. Zodiac means *path of the animals*. The Sun, Moon and planets move through this part of the sky in their daily journey from east to west.





The Scorpion is a large Constellation. See if you can find it in the night sky.
Look for it rising high in the southeast on May evenings.
By July, it will be above your head in the evenings.



Zodiac Crossword

Build a crossword using the names of the 12 constellations listed above.
The numbered boxes spell the name of Scorpio's brightest star. It is a red giant with a diameter 500 times that of our Sun. It's one of the largest stars known.

3	6	4	7	5	2	1

Plant Profile

Fringed Spider Flower

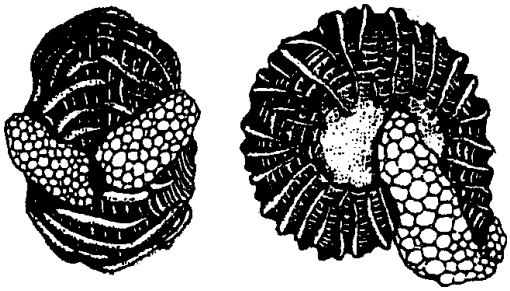
The foliage consists of 3 leaflets on a stalk up to 5 cm long. The leaflets are 2 to 5 cm in length.

A new threat to Australia!

The Fringed Spider Flower *Cleome rutiderperma* grows in tropical Africa, southeast Asia and Central America. It is a troublesome weed in rice fields and farms in those countries. Infestations of this unwanted plant have recently been found in the Darwin rural area. The Department of Primary Industries and Fisheries is keen to eradicate the plant before it becomes a problem here. Contact your local office for suspected infestations.

Geographical distribution of the Fringed Spider Flower

The flowers have 4 petals each a centimetre long. They are initially crimson, fading to pink.



The plant produces numerous dark, ribbed seeds that are spread by ants.

Kowaris inhabit the stony gibber deserts of sourtheast Northern Territory, southwest Queensland and the northeast corner of South Australia. Mulgaras live in the sandy deserts further west.

PUZZLE ANSWERS

Nature Quiz (page 2)

1. b 6. a
2. c 7. c
3. a. 8. c
4. b 9. c
5. b 10. c

Who am I (page 5)

Feathertail Glider

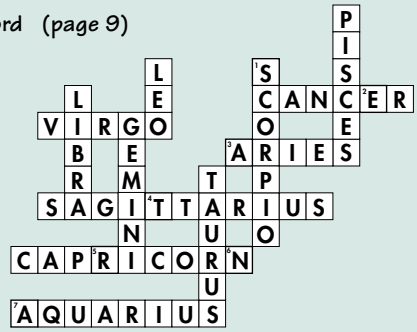
Hollow Words (page 5)

Desert Dairy Farmer (page 7)

Prorsococcus is a mealybug.

Zodiac Crossword (page 9)

Antares



The Kowari *Dasyuroides byrnei*

The Mulgara and Kowari are similar looking, rat-sized, carnivorous marsupials from Australia's desert regions. They have similar habits and diets. The main distinguishing feature is the Kowari's bushy tail.

Diet and habits

Kowaris are carnivorous. Their diet includes insects, spider, scorpions and occasionally mice.

They are unsociable creatures, preferring to live on their own. Males and females only come together to mate.

They are active diggers but may take over the burrows of other animals. They are mainly active at night but may bask in the sun on winter days.

They bound along the ground on all fours but may stand up on their hind legs if disturbed.

Breeding

The Kowari is one of the few marsupials without a fully-formed pouch. Instead, two loose folds of skin form around the nipples of a mother's tummy after mating. In good seasons, Kowaris usually produce 2 litters between May and September.

The babies are only about 3 mm long at birth.

Status

The Kowari is rarely seen in the wild, except in very good seasons. It is probably now extinct west of Lake Eyre and only present in small numbers elsewhere.

Grazing cattle, sheep, horses and rabbits have probably affected the Kowari in a number of places. When the vegetation gets eaten out, the numbers of insects, spiders and other small animals also decline. So there is less prey to support a healthy population of Kowaris and other marsupial carnivores.

Around the Traps

G'day from Ranger Bill

One of our articles in this issue looks at the arrival of a new weed species to the Territory - the fringed spider flower. Any weed species is of concern to the Territory. Weeds can disrupt our natural ecosystems by competing with native species for space, light and food, increase the flammability of vegetation and reduce the native food source for animals - and that's just to mention a few.

So what is the Commission doing to help prevent the spread of weeds? In 1999/2000, weed control plans were prepared and implemented for all Parks and Reserves in the Territory.

Major control works undertaken included aerial spraying of the weed Mimosa in Mary River and Adelaide River District Parks, treatment of Olive Hymenachne in Djukbinj National Park and Gamba Grass in Litchfield National Park.

In the Katherine region staff continued their efforts in the eradication of lions tail in Nathan River whilst in the Victoria River District staff and volunteers removed 3365 Devil's Claw plants from Gregory National Park during the Annual Devils Claw Festival.

In the Southern region Mexican Poppy in the West MacDonnell National Park and Buffel Grass at Simpsons Gap were also targeted.

Each of us can help to stop the spread of weeds by becoming familiar with what these weeds look like and reporting infestations of them on our Parks and Reserves to the Commission. You can ensure that you don't accidentally spread weeds to new areas yourself by brushing off any seeds from your shoes and clothes before you leave a Park. Many people also enjoy being part of a volunteer group or lending a helping hand at activities such as the Devils' Claw Festival outlined above.

I hope you enjoy this issue and don't forget to send us in your stories about any plants and animals you may have come across on your travels so we can publish them in upcoming issues of the Junior Ranger Review.

Darwin

Junior Rangers celebrated our cultural and historical identity in April. Members were taken on a historical tour of the leprosarium ruins at Channel Island Conservation Reserve. Simulated activities such as carrying a day's water ration from the old stone jetty to the well helped to highlight the harsh life endured by residents of the Island.

Members learnt about morse code and sent their own secret messages to each other and discovered the amazing construction of the overland telegraph. They also picked up some hints for tracking people and animals and discovered the art of dot painting.

Bush planning and navigation were the topics for May with Junior Rangers learning how to make the perfect campfire, plan their own camp menu, discovering techniques to judge distances and how to navigate in the bush.

National Science Week was celebrated with Junior Rangers taking part in three Great Marsupial Nightstalk activities at our Parks and Reserves. Data collected was forwarded to the Perth Zoo for input into their national database on marsupials.

Katherine

2001 has gotten off to a great start, and boy have the Junior Rangers been busy! In April Junior Rangers have been getting their feet wet doing 'Frog watch', using their best night vision out 'Spotlighting by the River' for wildlife at night, netting ponds for aquatic life, jumping on unsuspecting insects at a 'Bug Lights' activity and squashing plant cuttings in a 'Preserving Plants' activity.

With the year just starting there is a lot more yet to come. Some exciting events to look out for are 'Environmental Puppets', 'Making a Pond' and 'Spotlighting in the Hills'. The next spotlighting will be an adventure up into the rocky hill slopes around Katherine to see what comparisons there are with our previous activity of 'Spotlighting by the River'. Although they are within a few kilometres of each other we are going to see what different types of species are found living in these areas. Two-year studies have been set up to monitor the changes that occur as the dry season progresses. One activity looks at a natural pond and the other is a dry land habitat. These will be monitored and surveyed throughout the year to find out how the seasons will affect them and what happens to the wildlife that live in them.

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