



# Junior Ranger

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## Review

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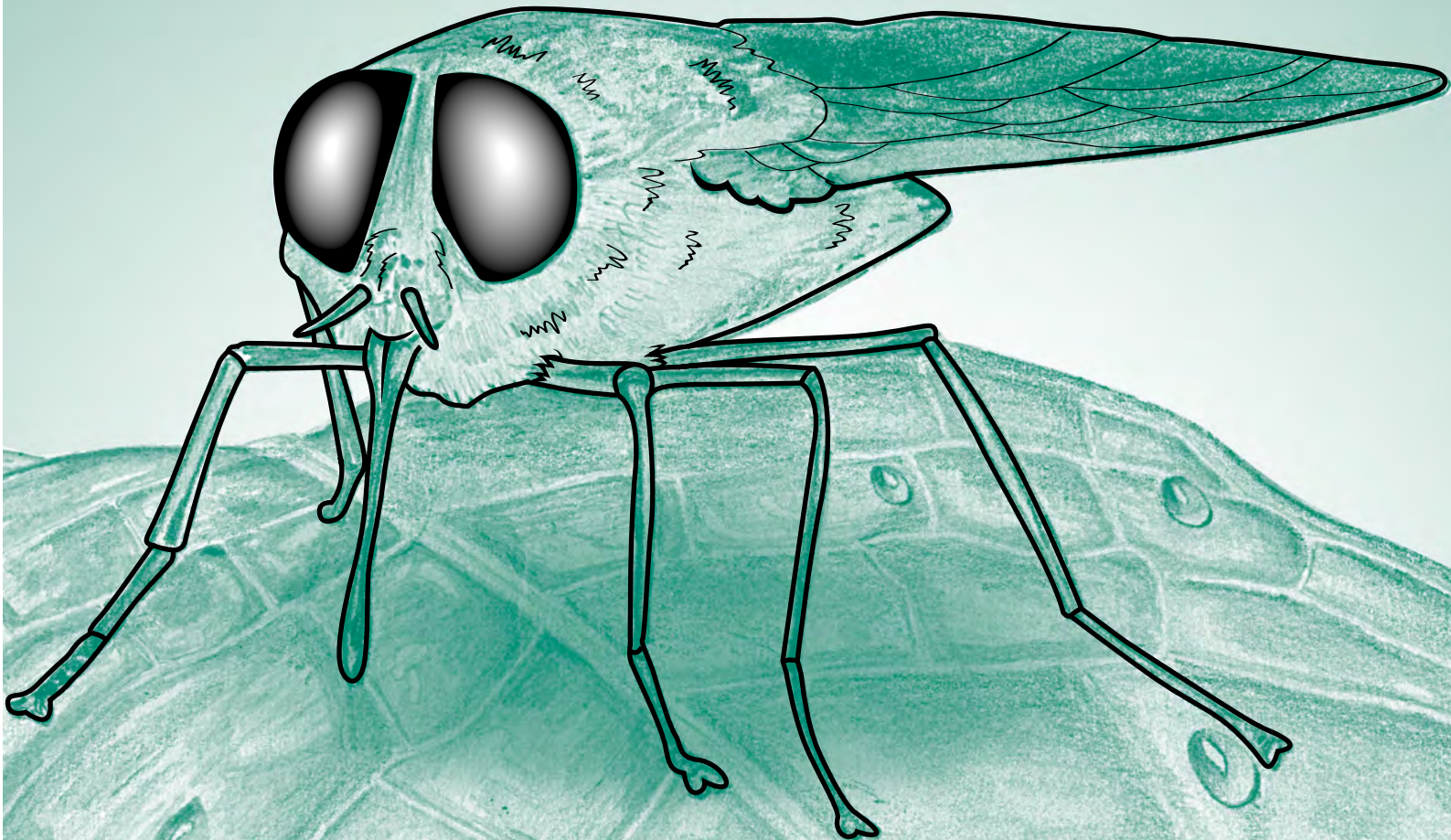
Issue 2, 2000



On the Brink  
The Green Turtle



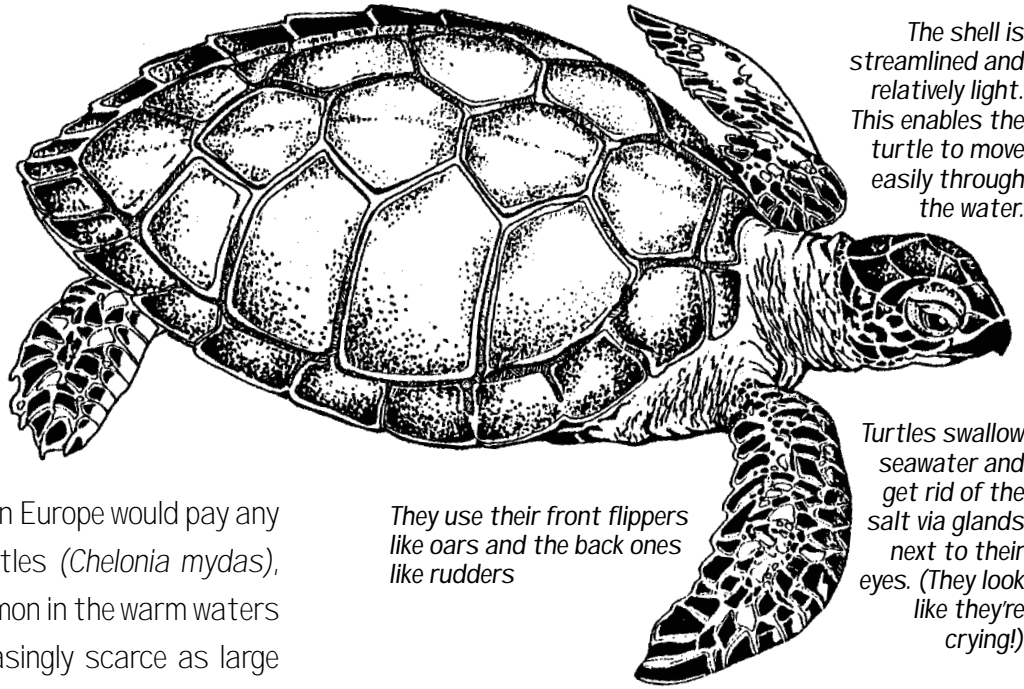
Creature Feature  
The Flat-headed Frog



# March Flies

# On the Brink

## The Green Turtle



The shell is streamlined and relatively light. This enables the turtle to move easily through the water.

They use their front flippers like oars and the back ones like rudders

Turtles swallow seawater and get rid of the salt via glands next to their eyes. (They look like they're crying!)

In the 19th century, restaurants in Europe would pay any price for turtle soup. Green Turtles (*Chelonia mydas*), made the best eating. Once common in the warm waters of the world, they became increasingly scarce as large numbers were slaughtered.

Turtles date back to the age of the dinosaurs. Originally they were land animals but took to living in water where the weight of their protective shell was more easily supported. Their legs were modified as flippers.

When a runaway asteroid, 10 kilometres in diameter, slammed into the Earth 65 million years ago, the dinosaurs were wiped out but the turtles and crocodiles were saved by their watery environment.

They did not adapt completely to life in the sea. Turtles are air breathers and must regularly come to the surface to catch a breath of air. They also continue to lay their eggs on land.

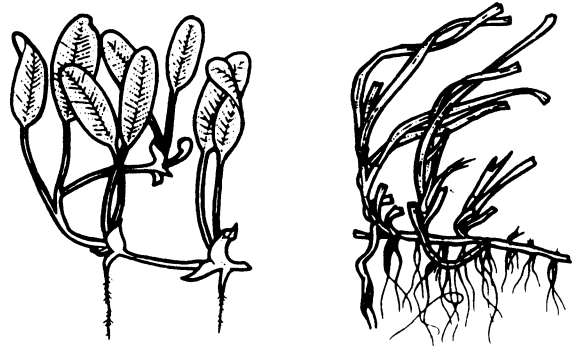
### An Endangered Species

- Turtle experts estimate that the slaughter of Green Turtles by Indonesia, Papua New Guinea, Australia and western Pacific nations could be as high as 100,000 per year.
- Green Turtles slaughtered in Indonesia are known to include individuals that breed in Australian waters.
- While commercial harvesting is now banned in Australia, Aboriginal people continue to hunt them, as well as other species.
- Significant numbers of turtles including Green Turtles drown each year after getting caught in the nets of fishing trawlers.

## Turtle Tales

The name Green Turtle refers to the animal's green body fat.

Green Turtles taste better than other turtles. This is because they're vegetarians. They feed on sea grasses and algae.



Green Turtles like warm waters which are shallow enough to allow a good growth of sea grass. However, they may be spotted far out to sea, when migrating. They don't eat during these long trips.

Scientists don't know why they undertake these long migrations.

An adult can stay underwater for up to 5 hours. Young turtles need to come up for air more often.

A Green Turtle cannot pull its head or flippers inside its shell. Nor can it climb out because its ribs and backbone are fused to the top of the shell (called the carapace.)

## Turtle Nesting

Turtle eggs are similar to those of lizards and snakes. The shells aren't waterproof. Instead, they're soft and porous so that the babies inside can breathe.

A female Green Turtle roams the oceans for over 10 years before she becomes sexually mature. (She might not breed straightaway. Green Turtles have been known to be as old as 48 years before they start!). But when it's time to reproduce, she will risk everything to come ashore and lay her eggs. While males wait in the safety of the water, females slowly drag



Major Green Turtle breeding areas in the NT.

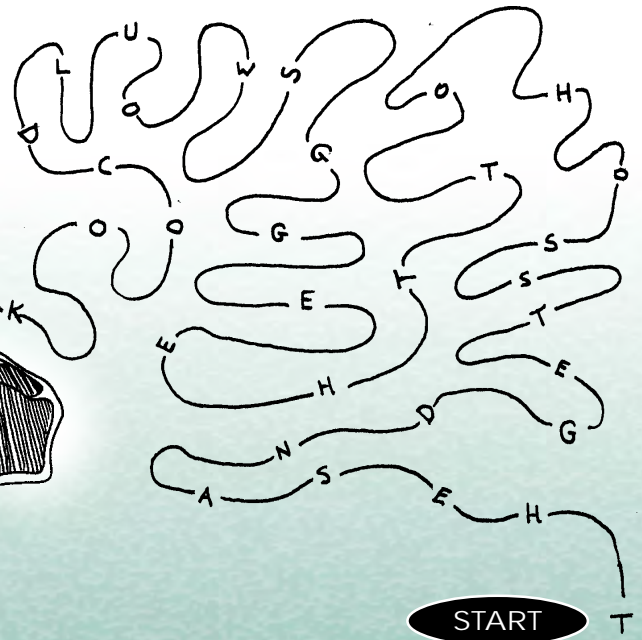
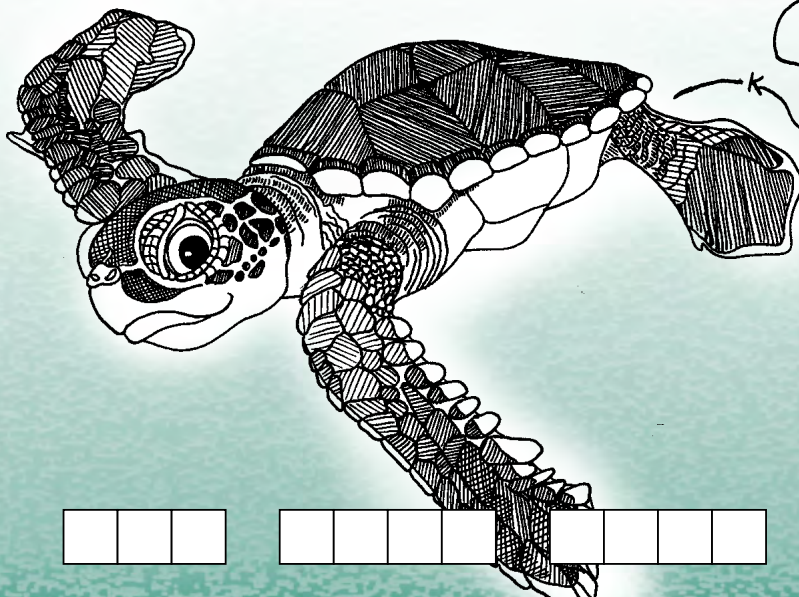
themselves up the beach, above the high water mark. They dig a hole 40cm deep with their hind flippers and lay around 100 eggs, which, in the case of Green Turtles are a little larger than table tennis balls, in half an hour. Over a 10 week period female

Green Turtles may lay 5 clutches of eggs at fortnightly intervals on the same beach.

Provided goannas, dogs or people don't dig up and eat the eggs, the babies will hatch about 7 weeks after being laid. Most will not survive for long. If they emerge by day, they may be snapped up by sea gulls or other birds. At night, they may be ambushed by ghost crabs, nocturnal birds and small crocodiles before reaching the water. Fish prey on many of those ones that do make it to the sea.

From 1,000 eggs, just one or two hatchlings survive their first year.

Green Turtles lay eggs along the east and west coasts of Australia from late November to January. In the Top End, however, egg laying occurs from late winter to early summer. To find out why they don't lay eggs in summer, follow the travels of this young turtle.




See page 11 for the answer.

# Plant Profile

# Ironwoods

The common name Ironwood has been given to a wide variety of trees throughout the world that have exceptionally hard wood.

In Central Australia the name refers to a member of the wattle family called *Acacia estrophiolata*. To people in the Top End, the name means a completely unrelated tree: *Erythrophleum chlorostachys*. Both have tough, termite-resistant timber that's hard to cut with an axe.

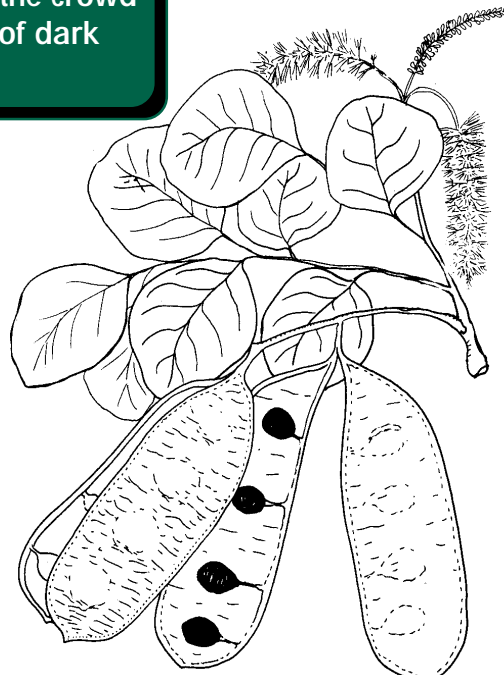
*Acacia estrophiolata* grows in the heavy, clay soils that form at the base of hills and ranges. It has distinctive drooping foliage and rough dark bark. In March and April it is covered with pale yellow balls of blossom.



In the eucalypt woodland of the Top End, Ironwoods really stick out from the crowd with a dense, spreading crown of dark green leaves and chunky bark.



*Erythrophleum chlorostachys*



hard, woody pods

The flat seed pods can be as long as 20cm.

The dark green leaflets are oval-shaped: 6cm X 5cm. The tree sheds many of them in the dry season to conserve water. Glossy, new ones grow just before the wet.

Small white flowers appear from August until November, arranged along a stalk like a bottlebrush.



## Aboriginal Use

Aboriginal people use the hard wood for spears, digging sticks and clapsticks.

Resin extracted from the roots of young plants is an important adhesive for attaching spearheads.

Green leaves are burned to repel mosquitoes and sandflies.

## Poisonous Plants

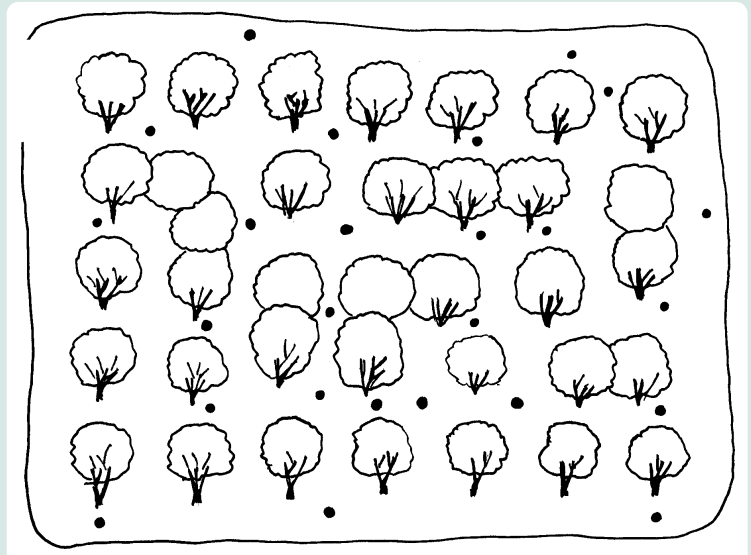
The leaves, seeds and pods of *Erythrophleum chlorostachys* are poisonous to mammals, such as cattle. However, birds seem to be immune to the poison and eat the seeds. There are 25 Ironwood seeds scattered on the ground among the shrubs in this patch of tropical woodland. The **Little Corella** has worked out a way she can walk around and collect all 25, without ever going along the same track twice, or passing the same track junction.



Little Corella



Can you work out the route she plans to take and return to her perch?



## A Terrible Awakening

In September 1870 two enterprising brothers, Ralph and John Milner, left Port Augusta with a mob of 4,300 sheep, 160 horses, 150 goats and 2 bullock wagons. Their plan was to walk them to the tiny settlement of Port Darwin.

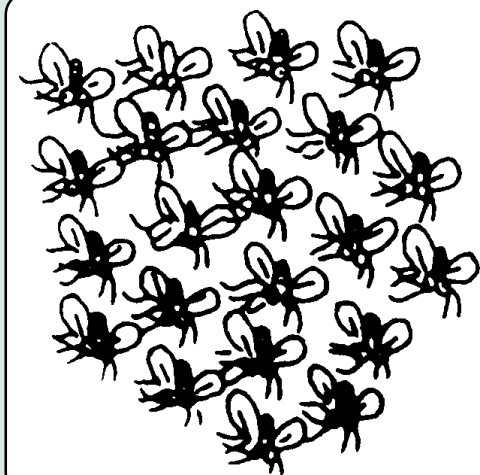
They were the Territory's first great drovers. Their aim was to supply fresh meat to the work parties involved in the huge task of building the Overland Telegraph Line from Adelaide to the north coast.

All went well on the first half of the journey. The flock increased in size when the ewes lambed in the MacDonnell Ranges but trouble struck when they reached the Devil's Marbles.

After bedding down for the night, they awoke in the morning to find large numbers of their stock were dead or dying. Over the next few days, their losses totalled 3,000 sheep and 100 goats. The animals had eaten a poisonous native pea called *Gastrolobium grandiflorum*.



# Urban Encounters



## Fly Fact File

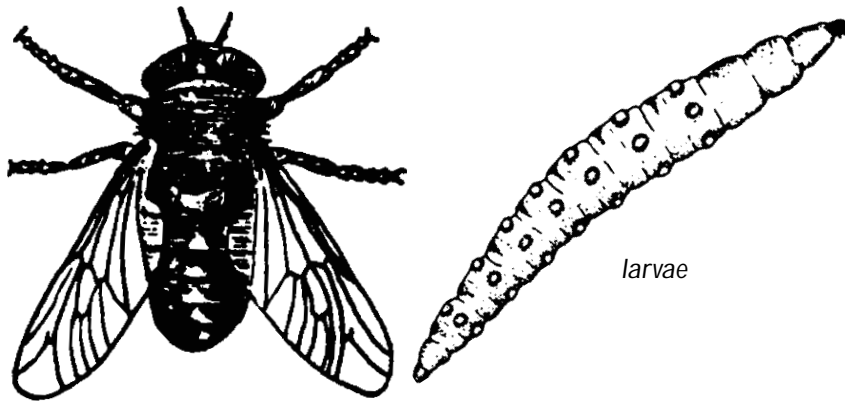
Flies are the 4th largest group of animals on Earth. There are 150,000 species. Flies belong to the insect order DIPTERA which means two-winged. Their hind wings are reduced to little, clubbed stalks. Housefly eggs hatch just 24 hours after they are laid.

Flies have a soft mouthpart called a proboscis. It's like an elephant's trunk. The fly has a pump in its head, like a set of bellows, so it can suck up fluid through its proboscis.

A fly's compound eye consists of around 4,000 individual eyelets. They can't form clear images but are good at detecting light changes and sudden movements.

# March Flies

*If there was a poll to choose Australia's most lovable insect, it is unlikely our march flies would get many votes.*



There are 240 species of them in Australia. All have a large head, short antennae, two wings and broad, hairy, bee-shaped bodies. Females are bloodthirsty little devils. They have sharp mouthparts, like little daggers, to slice open the skin of horses, cows and other animals. Bare human legs are a tempting target and their bite is always painful!

The males are not a problem. They feed on the nectar of flowers. Females lay their eggs on water plants. After hatching, the eggs drop into the water where they spend their childhood hunting small, aquatic animals in the shallows. If there's not much to eat then these delightful little carnivores will eat each other!

When fully grown, the larvae crawl out of the mud and tunnel into soft soil to sleep and pupate. They emerge in summer as fully grown adults.

## A case of mistaken identity.....

### .....Our march flies aren't march flies at all!

What Australians call march flies are known as **horse flies** in other parts of the world. True march flies are, in fact, a less fearsome creature, belonging to the *Bibionidae* family. (Horse flies belong to the *Tabanidae* family.) Someone got the name wrong in Australia's

early days and it has stuck!

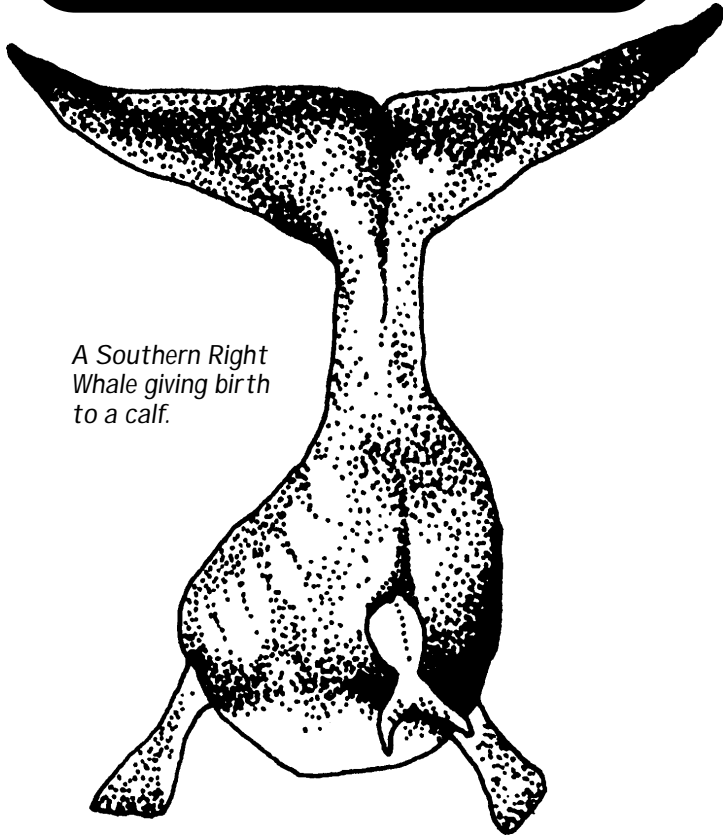
The true march flies of the northern hemisphere look a bit like our troublesome biters but don't crave blood. They are stout, hairy flies that inhabit open grassland. Their larvae spend 2 years in the soil eating the decomposing remains

of vegetation.

The adult flies emerge in March as the winter snows are melting. They are especially common in April and May, sucking the nectar of flowers. They have an ungainly way of flying with their legs dangling beneath their body.

# Nature Quiz

How many of these questions about Mums, Dads and babies can you answer?



A Southern Right Whale giving birth to a calf.



The nest is a small cup made of grass and covered with spider webs. The cheeky owner builds it on a horizontal branch or under the roof of a shed. She lines the inside with hair or feathers to make it cosy and comfortable.

1. Which animal gives birth to the tallest baby?

2. Which creature lays the most eggs in one go?

3. Which creature's eggs hatch the quickest?

4. Which bird carries its egg around on the top of its feet, until it hatches?

5. Which father gives birth to his children?

6. Why are whale babies born tail-first, rather than head-first (like humans)?

7. Which Australian snakes are the best mothers, (staying with their eggs until they hatch, rather than just laying them and leaving them)?

8. Which NT fish is a Dad until he's approximately 5 years of age or more and then becomes a Mum?

9. Which common garden bird builds this nest?

10. Which Northern Territory bird builds the biggest nest?

(You'll find the answers on page 11.)

# Creature Feature

## The Flat-headed Frog

Ian Morris is one of the Territory's top naturalists. Few people know as much about Top End wildlife as he does. In December 1997, in Keep River National Park, he heard frog calls that he did not recognize. He collected two adults for identification and found that they were one of Australia's rarest species: *Limnodynastes depressus*, the Flat-headed Frog.

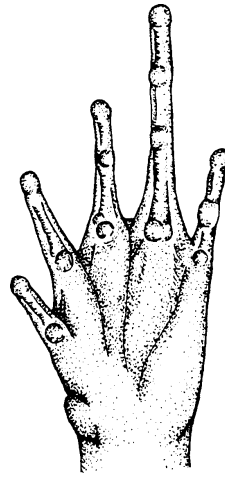


*Limnodynastes* is pronounced lim-no-die-nas-tees and means 'lord of the marshes'.

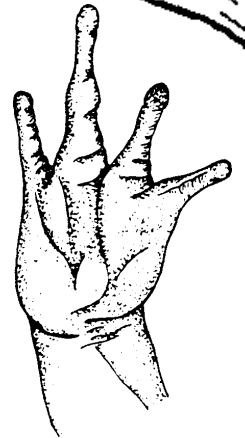
A characteristic of these frogs is that the females lay their eggs in a mass of foam which floats on the surface of the water.

She whips up the foam by thrashing the water backwards and downwards with her fingers. Air bubbles bounce off her abdomen, pass between her legs and then become embedded in the egg jelly emerging from her vent.

The Flat-headed Frog is similar in appearance to the NT's Northern Spotted Grass Frog *Limnodynastes convexiusculus*.

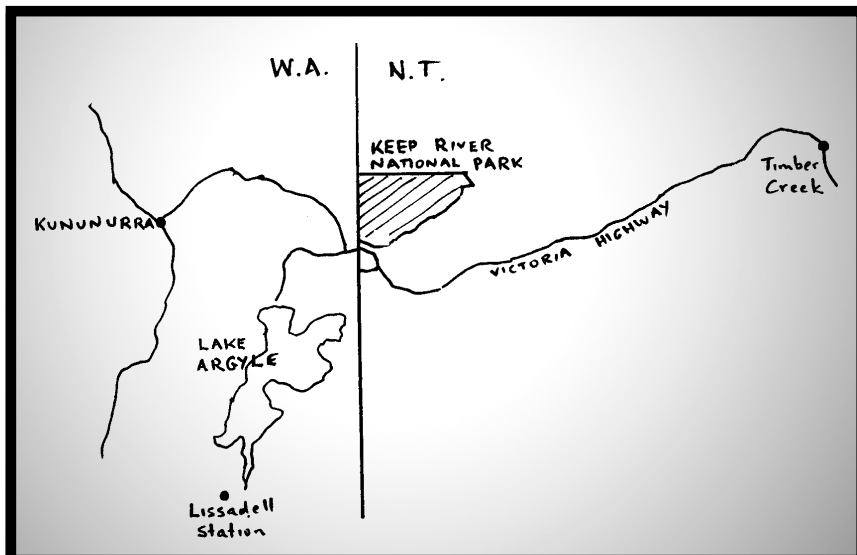


The fingers and toes of the Flat-headed Frog are long and unwebbed.



Frogs have 4 fingers on their hands and 5 toes on their feet.

This frog has an exceptionally flattened head. This is a handy feature for a creature that shelters in cracks in the ground during the dry season. As the country dries out, it digs below the surface, sometimes excavating a number of side burrows leading off the one vertical hole.



Apart from Keep River National Park, the frog is only reported from one other place: Lissadell Station, 100 km away in W.A. Extensive surveys in the region have failed to find any other sign of it.

In February 1999 rangers and wildlife researchers held a workshop at Keep River to examine what could be done to ensure the survival of this vulnerable species. This included ways they could involve community groups such as field naturalists and Junior Rangers.



## Frog Families

The two main frog families in Australia are the *Hylids* and the *Myobatrachids*.

The **Green Tree-frog** and the **Desert Tree-frog** belong to the *Hylid* family. The *Myobatrachids* family includes ground-dwelling frogs such as the **Northern Spotted Grass Frog** and the **Trilling Frog** of Central Australia. The *Hylids* have smooth skin, webbed feet and pads on their fingers and toes to help them climb. In contrast, the hands and feet of the *Myobatrachids* are designed for digging in the ground. Also, they often have bumpy skins and stumpy bodies.

### Did you know.....?

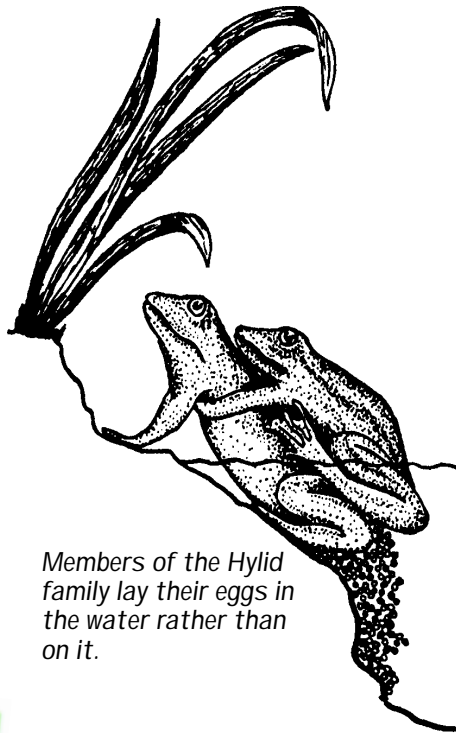
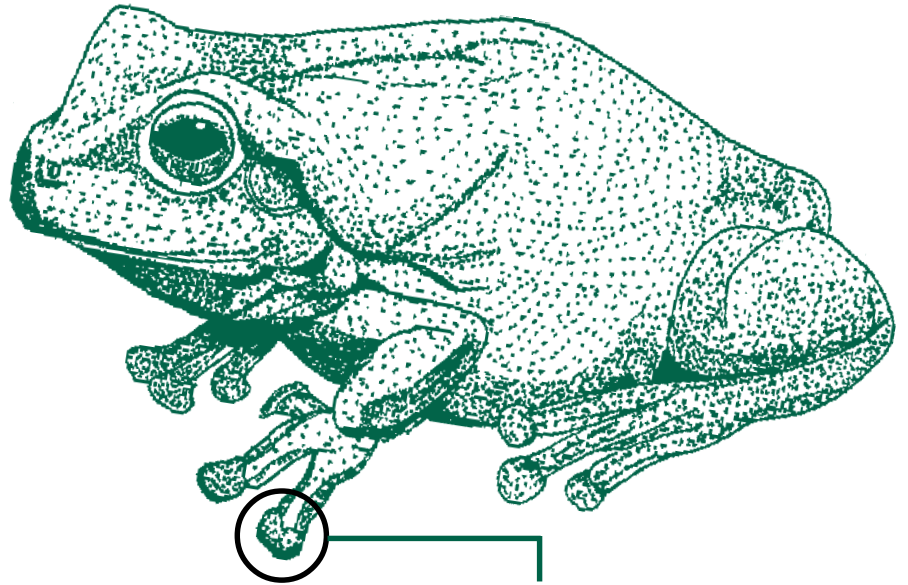
Frogs' ears are like radios. They are tuned to the frequency of their own species while filtering out the calls of other species.

Frogs don't drink. They absorb water directly through their skin.

The name amphibian comes from two Greek words: amphi (meaning double) and bios (meaning life). It refers to the way these animals live in two worlds.

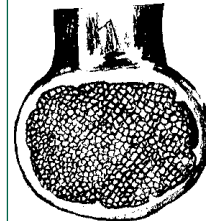
A frog doesn't chew its food but swallows it whole...with its eyes shut.

Its big eyes bulge out of its head but also poke down into the mouth. When the frog has food in its mouth, it pushes its eyes down several times to crush it. Then it swallows.



Members of the *Hylid* family lay their eggs in the water rather than on it.

The underside of a disc



What a microscope would show



If you examined a **Green Tree-frog's** pads with a microscope you'd see cells, arranged like bricks in a wall, with spaces in between. When the frog presses its fingers and toes against a hard surface, these cells squash down and act like tiny suction pads. At the same time, special glands in the pads secrete an adhesive material so the frog can get a firm grip on any surface.

# Project Page

## Raising Tadpoles

### A suitable container

You will need 2 or 3 flat-bottomed containers such as plastic washbowls (or foam broccoli boxes from a fruit and veg supplier).

You'll also need some mesh (such as flyscreen) to cover the containers.

Place them above ground, on an old table or trestle, in a spot with plenty of indirect light. (**Not in direct sunlight!** the water temperature needs to be fairly constant.)

### Water

Add **rainwater** to a depth of 10 cm.

Chlorine is added to our water supplies to kill bacteria and algae. It will also kill your tadpoles. So if you need to use tap water, then you must **dechlorinate** it by leaving it in full sun for 5 days. If you don't have that much time, you can buy dechlorinating drops at a pet shop. But at least leave the water overnight after using the drops.

Put clean river sand on the bottom of the container. Add some algae-covered stones if you can.

### The Eggs

The next step is to acquire your eggs or tadpoles. Frogs lay their eggs in clusters. They appear as black dots in jelly attached to water plants, or a little mound of foam floating on the water. **Don't take too many.** Remember, frogs must not be taken from parks or reserves.

Once the tadpoles are a week old, change half the water each week. Signs of trouble are cloudiness in the water and the taddies gobbling air at the surface.

Limit the number of tadpoles in a broccoli box to about 20. Otherwise they might eat each other.

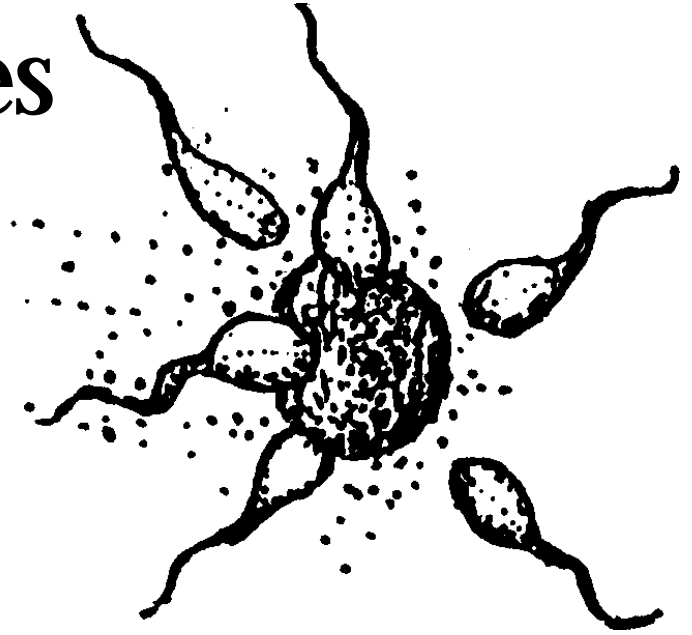


### Identifying Cane Toads eggs and tadpoles

Cane Toads are invading the Territory. If you live in an area that's already been invaded, here's how to recognize their babies:

The eggs appear as a row of little, black dots in long, spaghetti-like strands.

If you come across them, take them out of the water and leave them on the bank to dry. You'll have done your good deed for the day. Identifying the tadpoles is easy too. They are the only amphibians in Australia that have pure black tadpoles. Native tadpoles have light-coloured tummies and a great range of colours and markings.



### Feeding them

Feeding presents no problems. In nature, tadpoles feed on decaying plant material. Boiled lettuce is a good substitute.

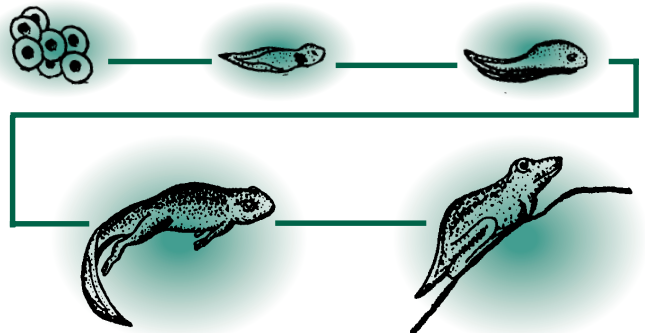
Supermarkets will happily give you the outer leaves they normally discard. Wash them to remove any pesticide residues and remove the centre ribs. Boil the leaves for 15 minutes. Drain them and let them cool. Roll the cooked lettuce into 2 cm balls and freeze them.

Feeding your tadpoles 2 fresh lettuce balls every second day should be plenty. They'll also enjoy the occasional bit of mango or a Meatybite.

### Releasing them

Put some water lily leaves or rocks in the container so that the tadpoles have something to rest on when they are changing to frogs. Once they've completed their metamorphosis, take them back to where you collected the eggs and release them.

## Metamorphosis

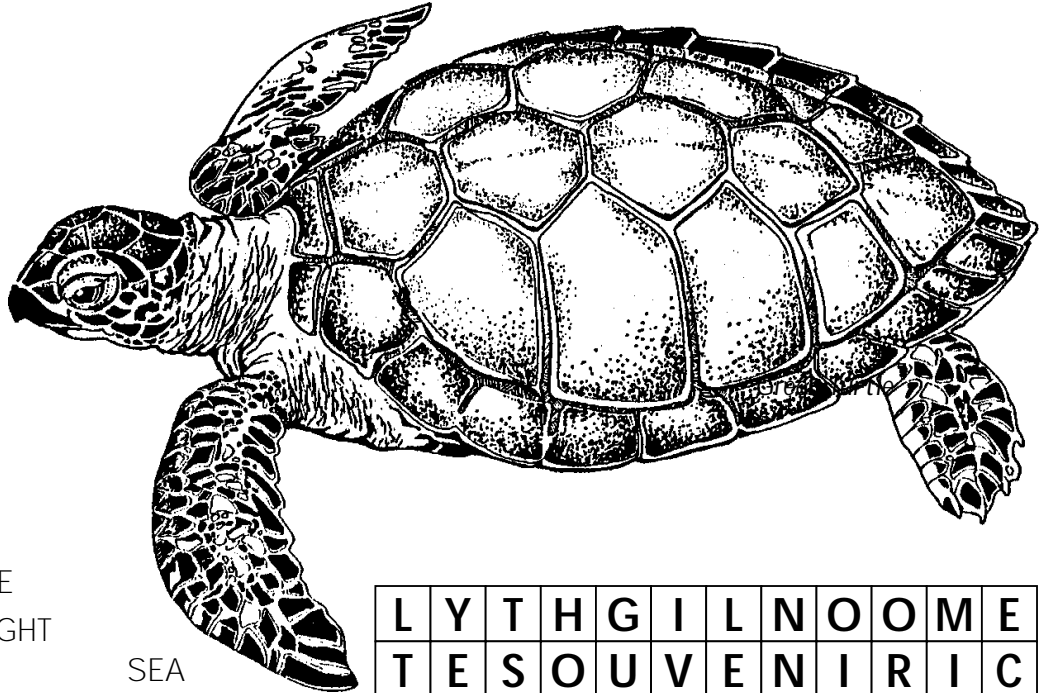


A frog's hind limbs develop before its fore limbs. The left fore limb grows before the right.

Once the first fore limb has grown, the tadpole stops eating. It won't start eating again until it has absorbed half the tail. It will then want to spend time out of the water.

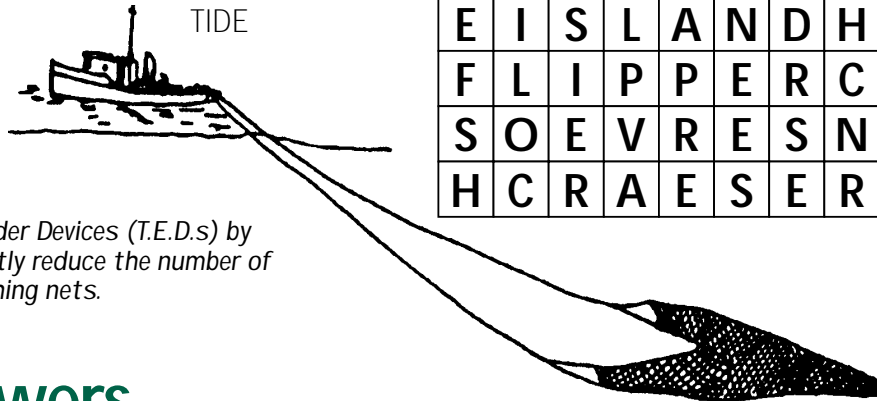
# Turtle Words

These hidden words go in all directions. Some are written backwards. Colour the boxes as you find each letter.



- |             |              |          |
|-------------|--------------|----------|
| CARAPACE    | MIGRATE      |          |
| COAST       | MOONLIGHT    |          |
| CONSERVE    | NEST         | SEA      |
| EGG         | NIGHT        | SHELL    |
| FAT         | OLIVE RIDLEY | SPEAR    |
| FLATBACK    | PREY         | SOFT     |
| FLIPPER     | REEFS        | SOUVENIR |
| GREEN       | RESEARCH     | TAG      |
| HATCH       | SAND         | TAIL     |
| HAWKSBILL   | SCALE        | T.E.D.   |
| HIDE        |              | TIDE     |
| ISLAND      |              |          |
| LEATHERBACK |              |          |

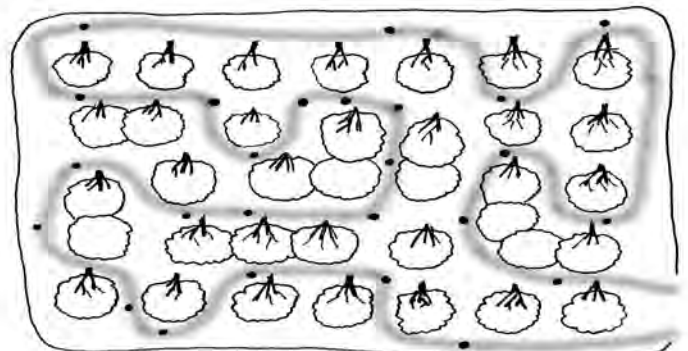
L	Y	T	H	G	I	L	N	O	O	M	E
T	E	S	O	U	V	E	N	I	R	I	C
F	L	A	T	B	A	C	K	T	A	G	A
O	D	O	T	H	G	I	N	F	G	R	P
S	I	C	S	H	E	L	L	E	A	A	A
G	R	E	E	N	E	P	R	E	Y	T	R
R	E	D	N	A	S	R	P	L	S	E	A
E	V	H	A	W	K	S	B	I	L	L	C
E	I	S	L	A	N	D	H	A	T	C	H
F	L	I	P	P	E	R	C	T	C	E	I
S	O	E	V	R	E	S	N	O	C	K	D
H	C	R	A	E	S	E	R	T	I	D	E



The use of Turtle Excluder Devices (T.E.D.s) by trawlers can significantly reduce the number of turtles drowning in fishing nets.

## Puzzle Answers

1. A giraffe is about 2 metres tall at birth.
2. Giant Clams release about one billion in a single spawning.
3. Houseflies hatch 24 hours after being laid.
4. The male Emperor Penguin.
5. The female sea horse lays her eggs in a special pouch in her mate's tummy. His pregnancy lasts 3 weeks.
6. So they don't drown.
7. Pythons are the only snakes that look after their eggs.
8. Barramundi.
9. Willie Wagtail.
10. The Top End's Orange-footed Scrubfowl lays her eggs in a giant mound that may be 10 metres in diameter and 2 metres high.



On the Brink (page 3)  
The sand gets so hot the eggs would cook.  
Plant Profile (page 5)

# Around the Traps

## Katherine

Hello again to all Katherine Junior Rangers. The main Junior Ranger Program has started for the year and Ranger Andrew is over-whelmed by the response we have had to the program so early in the year!! Captain Planet, with the super hero's, 'WATER, WIND, EARTH, and FIRE' are to be our main themes for 2000.

Each theme will be used as a time period in the year for us to get the most out of learning about the environment and our National Parks. The water theme follows on from the wet season. We will follow water from it's sources and follow it down stream from the high escarpments, down waterfalls and streams to the big river country below.

We will be looking closely at the life water supports, from tough survivors such as Euros and Short-eared Rock-Wallabies

that can go without drinking for a long time. Then we will be getting down on our hands and knees to look closely at little specialist animals that emerge just for the wet season, such as blind cave shrimps and molluscs.

The wind theme starts soon, and with the dry season comes the big south-easterly winds which head north from the inland Simpson Desert. This period will cover the drying out of our bush environment, bird flight and migration, dry season plants that actually flower and seed! Plus the Katherine Show which will be on the weekend starting 21st of July 2000. This years theme is all about our National Parks, and Ranger Andrew needs a hand putting it together so if you have some skills/time to spare you can contact me in the office. I hope to see you all soon.

## G'day from Ranger Bill

With blue skies, no humidity and cool mornings we don't need to consult the weather bureau to know the Dry Season has arrived at last. However, there are many subtle changes that also occur around us in our natural environment which let us know the wet has gone for another season.

You may have recognised some of these changes in your backyard, at school or in your local park. It could be the large numbers of dragonflies, flowering waterlilies, the presence of itchy grubs or the migration of certain bird species. Keep track of these changes to the natural environment in a nature diary, and you'll be surprised at how many changes there are.

These natural changes are also signals to our park managers to begin certain

park activities, such as dry season burning which helps to reduce the fuel loads to help minimise the risk of hot fires later in the year. These burns assist in managing conservation areas and help protect fire-sensitive vegetation such as monsoon rainforest. Also, it's the time of year when scientists conduct aerial surveys of magpie geese that can be found in their nests on the floodplains, in order to assess their numbers before the waterfowl-hunting season.

So, this Dry Season, get out and about, investigate our diverse natural areas and take a closer look at the natural systems that support us and provide the opportunities for fun and enjoyment.

Ranger Bill

Assistant Director Park Operations

## Darwin

Plants have the amazing ability to capture energy from the sunlight and change it into sugars and produce oxygen. Without oxygen the biodiversity of the Earth would be greatly reduced as so many organisms rely on oxygen for survival including us!! So Junior Rangers are going to spend the month of June discovering more about our fantastic flora including: finding out what Pandanus tastes like and how to use it for weaving on our Flora Feature activity, assisting park rangers with a fuel reduction burn to protect our plants and more..!

Then we focus on fauna in July and discover more about our Top End invertebrates, mammals and reptiles. We'll also be helping out some of our feathered friends by building them some sturdy nest-box homes.

## Alice Springs

Naturewatch has been at its best in the Centre over the last few months as Spearwood, a common plant on rocky hillsides has been covered with beautiful white flowers while the bloodwood trees have also been in flower. Bush coconuts around Alice Springs have been full of coconuts. Inside each one lies a yellow grub which is eaten by the Aboriginal people as well as the coconut meat. Ranger Kym has been very busy getting ready for the Tennant Creek and Alice Springs Show so make sure you come along and check out the Parks and Wildlife stand – see you there!

The Junior Ranger Review is produced 4 times a year by the Parks and Wildlife Commission of the Northern Territory. This edition was written by Stuart Traynor and design and layout are by Big Picture Graphic Art. The cover was drawn by Robbie Henderson. Illustrations in this edition are by Bob Whiteford, Sharon Hillen, Adi Dunlop, Robbie Henderson and Emily Ward.

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