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PARKS AND WILDLIFE SERVICE NORTHERN TERRITORY

Junior Ranger Review

Issue 1 2005

PLANT profile

Cabomba

creature FEATURE

Bandy-bandys

URBAN encounters

Pied Imperial Pigeons

Creature Feature

Beauty in black & white

Bandy-bandys (*Vermicella spp.*) are fascinating black and white banded snakes which live in most parts of Australia. There are five different species of Bandy-bandy and four of them live in the Northern Territory!

They are amazing not only because of their unique appearance, but also because of their interesting behaviour.

Give your foes the flick!

Being black and white has its advantages! A Bandy-bandy will slowly move its body up and down in loops which creates an illusion that the snake is going one way, then it quickly escapes in the opposite direction.

The movement of the black and white bands confuses the Bandy-bandy's attackers. The same method of escape is used by Zebras in a herd (group) situation.

Apart from this method Bandy-bandys has little means of defence against predators. This confusing trick is called 'flicker fusion.'

Science Snippet

The *spp.* which follows the scientific name *Vermicella*, tells you that there is more than one species of Bandy-bandy.

G'day from Ranger Bill

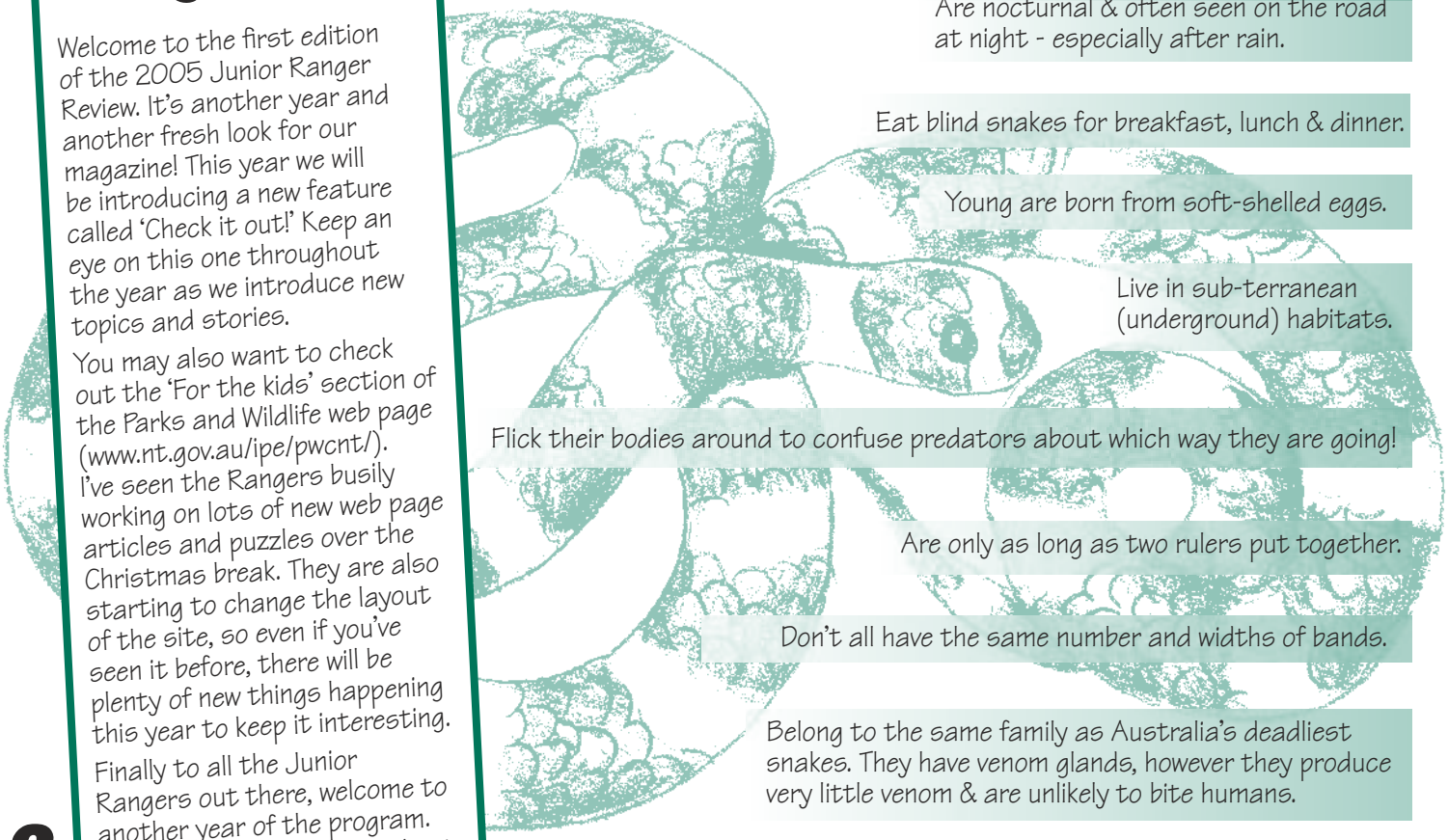
Welcome to the first edition of the 2005 Junior Ranger Review. It's another year and another fresh look for our magazine! This year we will be introducing a new feature called 'Check it out!' Keep an eye on this one throughout the year as we introduce new topics and stories.

You may also want to check out the 'For the kids' section of the Parks and Wildlife web page (www.nt.gov.au/ipe/pwcnt/). I've seen the Rangers busily working on lots of new web page articles and puzzles over the Christmas break. They are also starting to change the layout of the site, so even if you've seen it before, there will be plenty of new things happening this year to keep it interesting.

Finally to all the Junior Rangers out there, welcome to another year of the program. Hope to see you out and about in the bush.

Ranger Bill

Bandy-bandys ....



Can swallow prey (food) almost as large as their own body!

Are nocturnal & often seen on the road at night - especially after rain.

Eat blind snakes for breakfast, lunch & dinner.

Young are born from soft-shelled eggs.

Live in sub-terranean (underground) habitats.

Flick their bodies around to confuse predators about which way they are going!

Are only as long as two rulers put together.

Don't all have the same number and widths of bands.

Belong to the same family as Australia's deadliest snakes. They have venom glands, however they produce very little venom & are unlikely to bite humans.

A blind meal for a Bandy-bandy!

Did you know that there is a group of snakes that are blind, live underground and only feed on ant eggs and termites?

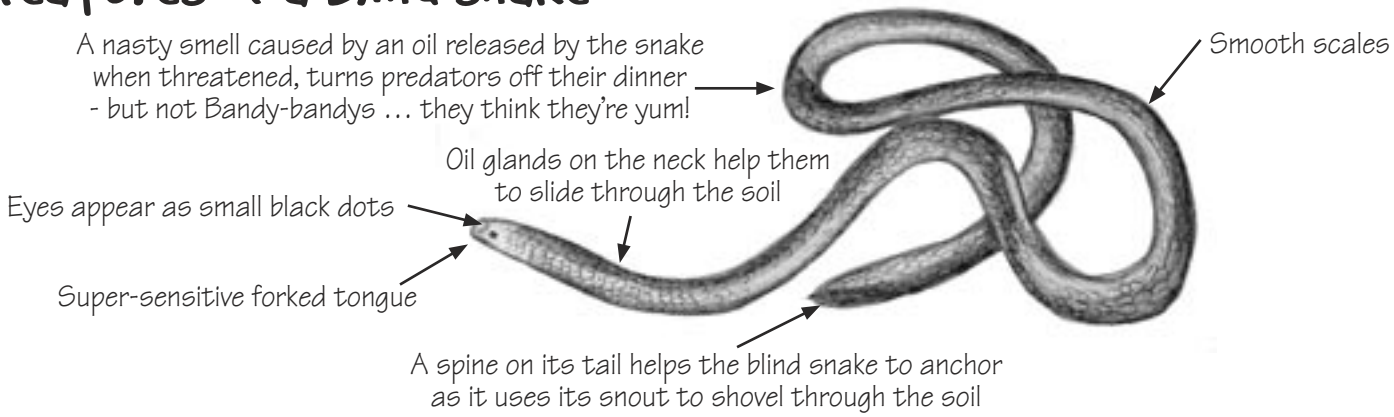
Blind snakes have a worm like body and a forked tongue. They are not totally blind, as their name suggests, but can probably only tell the difference between light and dark.

There are many species of blind snake. They are non-venomous, harmless to humans and you might see them above ground in your garden after rain.

Did you know?

Herpetologists (people who study reptiles) believe that Bandy-bandys only eat blind snakes!

Features of a blind snake

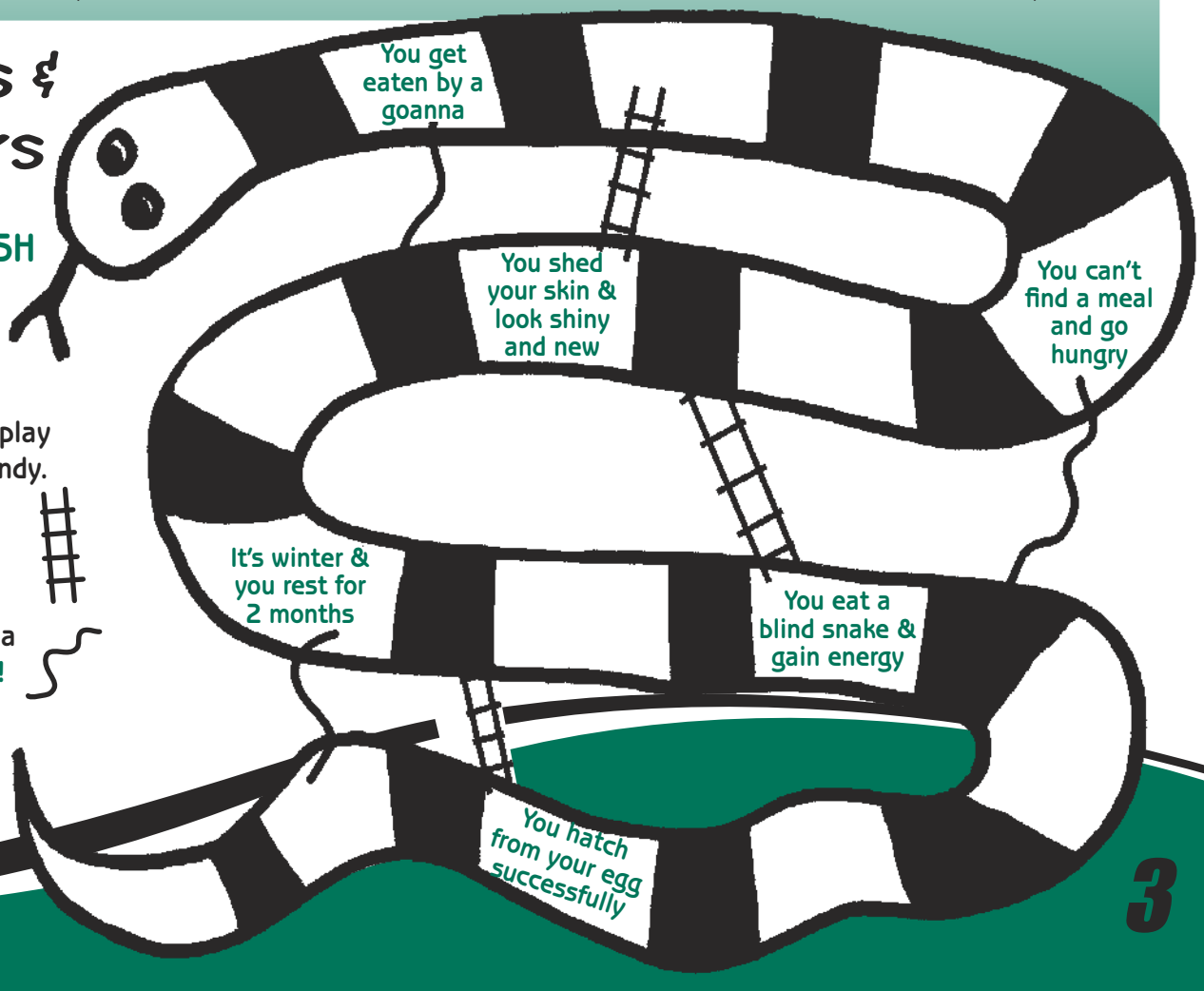


Are Bandy-bandys 'on the brink'?

Because they are nocturnal and live underground people don't see Bandy-bandys very often. This doesn't mean they are endangered - it just means that like many other animals they have a place in the environment (a niche) that is not very obvious to people.

Bandy-bandys are another animal in the Northern Territory that are one of our best kept secrets! Learning about these creatures and spending time in the outdoors will increase your chances of sighting these amazing reptiles.

Snakes & Ladders



Use a marker to play on the Bandy-bandy.

If you land on a ladder – go up

& if you land on a snake - go down!

On the Brink

Frogs in Peril !

Spencer's Burrowing Frog
Limnodynastes spenceri

Rainfall wouldn't be the same without the sound of frogs. These strange, ancient little creatures have a very important job to do and our wetlands simply wouldn't be the same without them. Incredibly though, across Australia, frogs are now disappearing! We may be witnessing a frog disaster!! Read on to find out just what is going wrong.

Eco-shock

In the 1990s, four species of frog simply vanished in Australia. Most were well known and in healthy numbers before they suddenly disappeared. Amazingly, other frogs around the world became extinct at around the same time. Scientists knew that frog numbers had been declining for some time worldwide, mainly due to the loss of their wetland homes and the effects of pollution. But this was something new! What had gone wrong? Eventually, through frog forensics (looking carefully at frogs that had died to see what killed them), the culprit was identified as a major outbreak of a frog disease. The disease was the '*Chytridiomycosis fungus*', pronounced (kit-RID-ee-oh-my-KO-sus) *Batrachochytrium dendrobatidis*, shortened to chytrid. Even today we still know very little about it.

Look but don't touch

The palms of your hands are loaded with salts and acids which can burn a frogs skin. Too much damage to a frogs skin will kill it. If you want to touch a frog wash your hands thoroughly in fresh water first - DON'T USE SOAP!

Fleeing Frog Facts

Camouflage

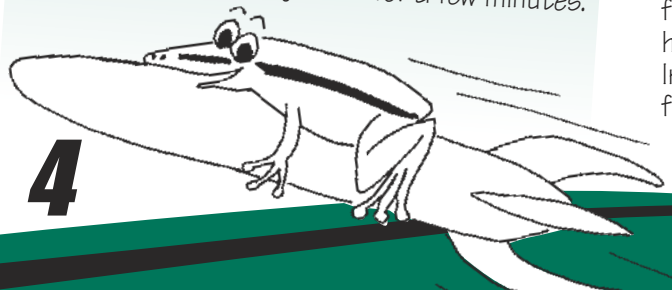
To avoid detection some frogs rely on camouflage. Burrowing frogs such as the Ornate Burrowing Frog *Limnodynastes ornatus* are ground dwelling frogs and so have patterns and colours similar to the earth colours they live on.

Within the frog group (Genus) *Litoria*, quite a few species live in trees (arboreal). Most of these frog species are either green to blend in with the tree leaves, or they are a more mottled grey in colour allowing them to blend in with the tree bark.

Quick get away

To avoid being eaten most frogs can jump. They have powerful muscled rear legs. Some species are so good at this they are named after their ability. The 'Rocket Frog' *Litoria nasuta* is one such species. In a single bound it can cover 2 metres, so it is very good at getting away.

All frogs can swim, some better than others. If threatened many species will dive to the bottom and can stay there for a few minutes.



Green Tree Frog
Litoria caerulea

What do we know?

The chytrid fungus was first recorded in Australia in the 1980s, but it wasn't causing mass die-offs at the time. It affects frogs by living on keratin (pigment cells) found in their skin. However the disease affects the skin in different ways and in some cases it isn't obvious at all. In its advanced stage frogs behave strangely. They sit out in the sun, poking their tongues out and arching their backs. Signs of the disease are damage and redness of the skin surface. When they die their limbs are outstretched in awkward positions. Because frogs breathe and absorb water through their skins, sadly they die a horrible death. Frog tadpoles are not affected as they lack keratin. Infected habitat areas stay that way forever because the chytrid fungus spores are left behind.

The Good News

Fortunately there are no reports of the chytrid fungus in the Northern Territory, making us the only disease-free area in Australia. Some infected frog species in southern states are slowly making a recovery from the affects of chytrid fungus. Scientists have been working hard to find a cure. They have found that the chytrid fungus prefers temperatures constantly below 27°C. This occurs mostly in areas of high altitudes, such as mountain ranges like the Atherton Tablelands in Queensland and the Great Dividing Range along the east coast of Australia. Affected frogs taken from this environment recover better in warmer climates.

What can we do?

A real fear is that this disease can easily be transported anywhere. People accidentally carry it from infected areas on their footwear, clothing, vehicles and hitch-hiking infected frogs to wetland areas that are not affected. It can spread just like the Cane Toad has, so lets be careful! Caring for our wetlands is important for the future survival of frogs.

Frogs are important because...

. . . they are very sensitive to environmental change. They need to live in a healthy habitat. Because of this we can use them as indicators of the health of a wetland. If they start dying there is a good chance that their home is sick too. Chemical pollution such as oil, detergents, soaps, plant and insect poisons may be poisoning the water. Because frogs drink through their skins they cannot help it if they absorb pollution from their water.

. . . their eggs and tadpoles are an important food source for many native animals, such as Water Rats, fish, snakes, goannas, young crocodiles and quolls. They are also eaten by carnivorous birds such as Black-necked Storks (Jabirus), Kookaburras, Frogmouths, Coucals, egrets, kites, hawks, butcherbirds and owls.

. . . they feed on the vast amount of insects that breed in the wet helping to control these plagues.

Puzzle time

Use a small pebble or stick to mark your spot and a dice to get you going. Roll the dice and move the designated number of spaces. Follow the clues and answers to the puzzle here and on the back cover. This is a game for two people or more. Have fun!

Marble Frog
Limnodynastes convexiusculus

Start

1 Frogs are a type of a_ _ _ i _ _ _ n.

2 You touch a frog that doesn't look well and has flaking skin, and you do not wash 'everything' that you took to the site, plus yourself. **RETURN TO START**.

3 What is the name of a deadly frog disease in Australia?

4 True or false. The chytrid fungus is only affecting frogs in some types of habitats?

5 Is the chytrid fungus only found in Australia?

6 Why are people concerned about the chytrid fungus?

7 You informed other friends about the chytrid fungus. **Go to 9**

8 **Return to start**

9 You informed the Parks and Wildlife Service about a sick frog you found. **Roll the dice again.**

10 Frogs can suffocate or dehydrate if their _ k _ _ is badly damaged.

11 The chytrid fungus has been found in all states in Australia - except the _ _.

12 What are the ways that the chytrid fungus is spread?

Urban Encounter

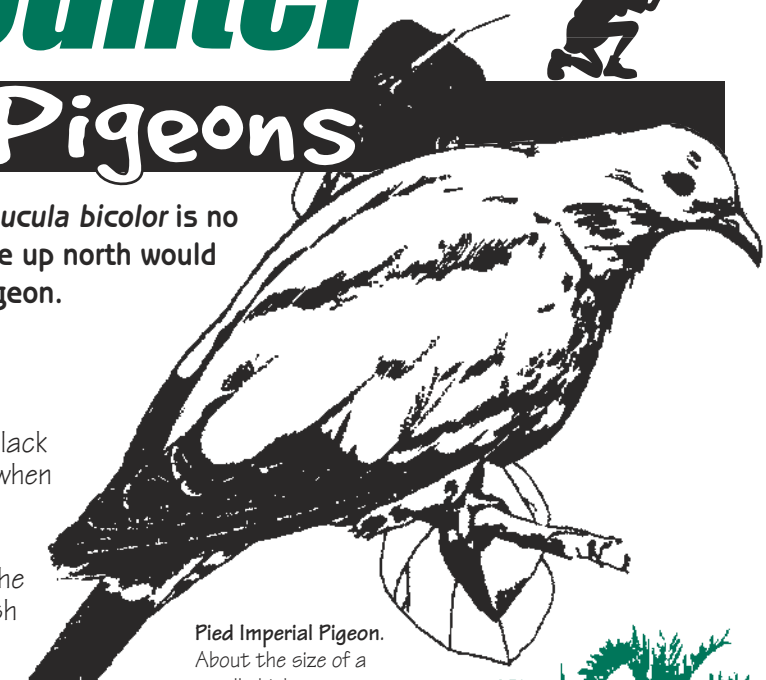
Pied Imperial Pigeons

For most Top End residents the Pied Imperial Pigeon *Ducula bicolor* is no stranger, but the name certainly might be. Most people up north would know this bird by its former name, the Torres Strait Pigeon.

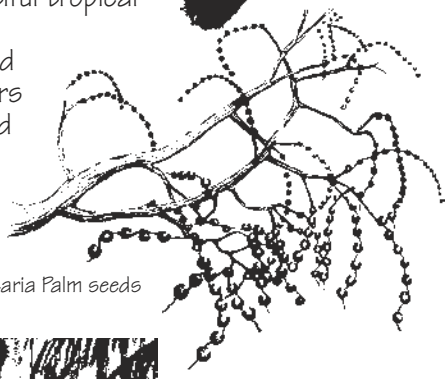
Plump pigeon

This is a large mainly white pigeon with a black tail-tip and black flight feathers at the wing tip. If you look closely, especially when it is flying, there are also black bars under the tail. The Pied Imperial Pigeon calls with a deep "coo-woo" sound.

These pigeons visit (migrate) here in large numbers during the wet season when nature's supermarket provides lots of fresh monsoon forest fruits to eat. During the dry season (April to August) they fly back to Papua New Guinea, however some birds do live here all the time. The beautiful tropical palm gardens of Darwin, that are watered throughout the year, provide them with a good home. You may see these beautiful fruit-eaters in a backyard happily swallowing the bright red fruits of a native favourite, the Carpentaria Palm. They also gorge themselves on the ripe fruits of figs. So watch out below!



Pied Imperial Pigeon.
About the size of a small chicken



Carpentaria Palm seeds

Carpentaria Palm
Carpentaria acuminata

Patches & poo!

Around Darwin you may also see them in small monsoon forest patches like those in Holmes Jungle and Howard Springs Nature Parks. In the Northern Territory there are about 15,000 of these mostly small forest patches and they don't take up much of the land (just 0.2 %). These patches are important as homes and supermarkets for a whole lot of other fruit eating birds such as Rose-crowned Fruit-doves, Figbirds, Yellow Orioles, Common Koels and Great Bowerbirds, as well as flying foxes.

Just as animals rely on the forest patches, so the patches need animals. As animals fly from one patch to another they are spreading seeds when they poo.

Scientists have found that about 190 seeds are deposited each day from visiting birds alone. AMAZING! These researchers also predict that if we lose these patches there would be no food - and the animals will disappear. Without them, in turn, there would be less types and number of plants (biodiversity) and, eventually, we would lose the remaining patches.

Figbird
Sphecotheres viridis

Caring & sharing parents

When the many flocks of Pied Imperial Pigeons return to Australia they want to breed. They may choose to nest offshore on mangrove covered islands or onshore, even in Eucalypt woodland. Here they build a flimsy platform nest of twigs and leaves on leafy tree branches. Onto this they lay one or two white eggs. Both parents then take turns to sit and warm the eggs (incubate) and continue sharing the housework and feeding of their babies when they are born, after about 27 days. The parents also take it in turns having a day off and fly to the mainland to collect their food.

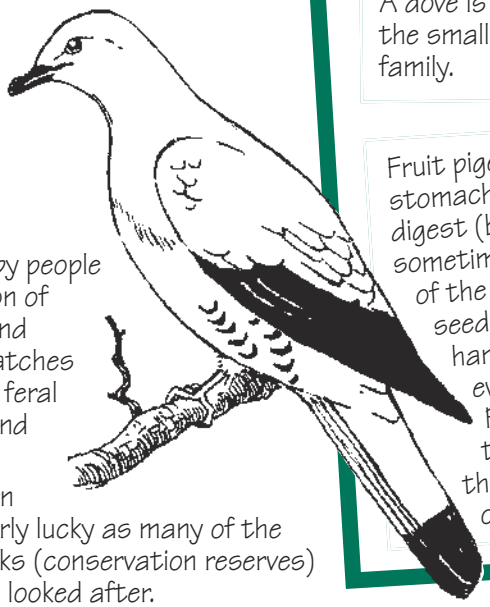
Did you know?

Australia has 22 different kinds of native pigeons and doves. There are also three feral kinds, the Feral Pigeon, and the Spotted and Laughing Turtledoves.

A dove is usually the name given to the smaller members of the pigeon family.

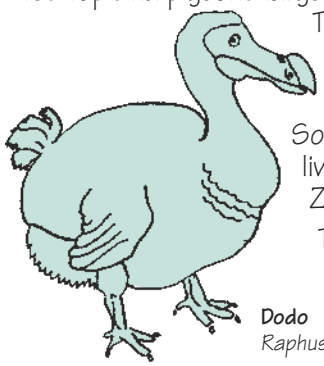
Fruit pigeons have a special stomach which helps them to digest (breakdown) the fleshy, sometimes acidic or caustic parts of the fruit and pass out the seeds without causing any harm to the bird. Have you ever touched a Carpentaria Palm fruit? Be careful not to as the juices will irritate the skin. Not so the stomach of the Pied Imperial Pigeon.

Perilous Plight of the Pigeon



Around the world pigeons are mostly threatened by people hunting them for food and through the destruction of the places they like to live (habitats). In the Top End some causes of destruction of monsoon forest patches include: lots of hot bushfires, invasion by weeds or feral animals like pigs as well as humans clearing the land for farming activities.

Yet Top End pigeons largely survive. In the Northern Territory we are particularly lucky as many of the patches are within parks (conservation reserves) and are protected and looked after.



Dodo
Raphus cucullatus

Some American cousins were not so lucky. During the nineteenth century the Passenger Pigeon lived in flocks of about 2000 million birds. Unfortunately the last one died in 1914 at Cincinnati Zoo.

The Dodo was a much larger flightless pigeon that apparently had tasty flesh. It lived on an island called Mauritius. It tasted so good that it became extinct by 1665.

What's on the menu!

Ever wondered what a baby pigeon is called? Interested in what these young eat? Find out by using the grid to decode our pigeon paragraph.

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

Baby pigeons are called ☐☐☐☐☐☐. They ☐☐☐', ☐
D4 D2 E1 A1 A2 D4 A4 C5 C4 D5

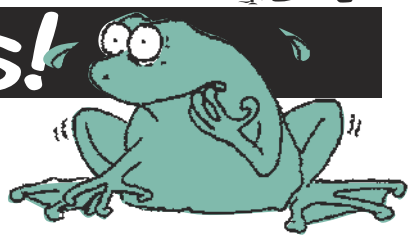
eat ☐☐☐☐☐ right away but are fed on a special ☐☐☐☐
B1 D3 E1 B4 D5 C3 B4 C2 C1

diet that their parents make in their ☐☐☐☐.
A3 D3 C5 D1

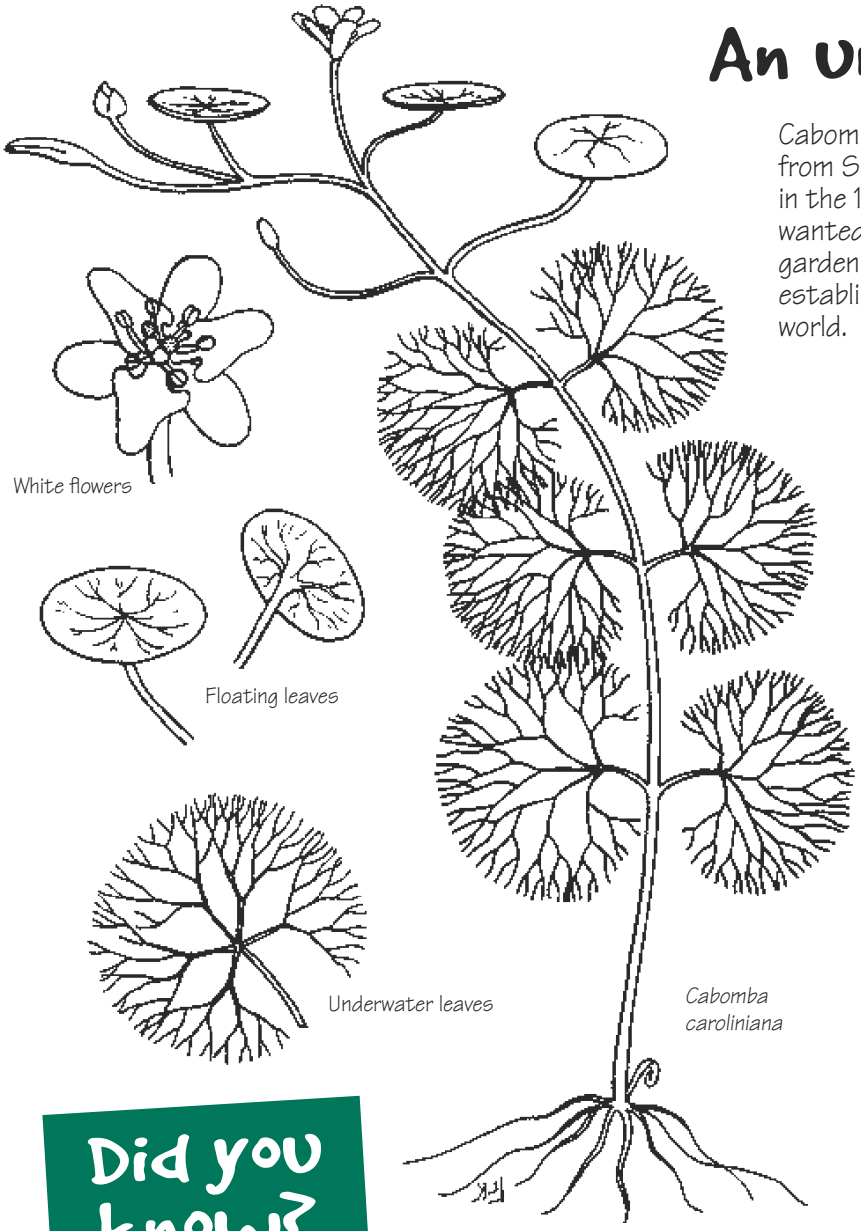
It looks a bit like ☐☐☐☐☐ ☐☐☐☐☐☐.
A3 D3 A5 A1 C3 A3 B3 A5 A5 D4 A5

Plant Profile

Waterborne invaders!



Late last year, Darwin River had a big scare. One of Australia's worst weeds, *Cabomba caroliniana* was found just down stream from the massive Darwin River Dam (Darwin's major source of drinking water). If this weed becomes established in Top End waterways, it will have enormous environmental and economic impacts!



An unwanted visitor

Cabomba, or fanwort is an aquatic plant that comes from South America. It was brought into Australia in the 1960's for the aquarium trade. That is, people wanted to buy and sell it for use in fish tanks and garden ponds. Unfortunately the plant has become an established weed in many parts of Australia and the world.

This is one nasty plant!

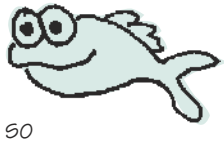
Cabomba grows almost completely underwater. Only the flowers poke up above the surface and the floating leaves are almost never seen in Australia. It can grow up to 5 centimetres (cm) a day, and a piece as small as 1 cm can re-sprout. This allows it to rapidly take over rivers and lakes, and even if you try to remove it, the smallest remaining piece can re-infest the area.

Not only does it choke out native plants and animals, it also gives drinking water a foul smell and taste. If it gets into Darwin River Dam, it has been estimated that the cost of weed control and water treatment will cost $40 million, and a new Dam will probably have to be built!

Did you know?

Cabomba was discovered in Marlow Lagoon, Palmerston (on the outskirts of Darwin) in 1996. It took 6 years and $400,000 to finally eradicate it. And this was in a small, closed lagoon, not much bigger than a football field!

Unwanted help

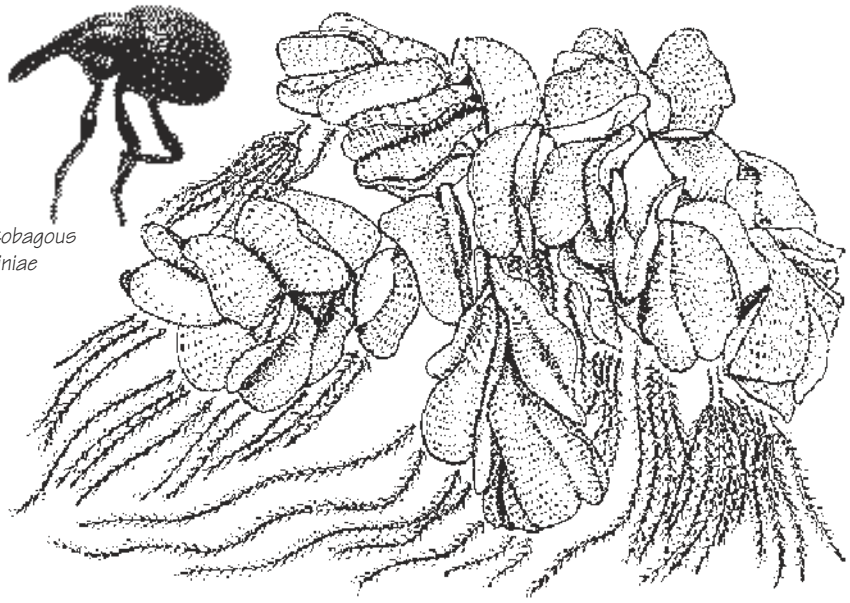


Unfortunately, over the years Cabomba has received plenty of help to spread. It is still a popular aquarium plant (although now illegal in most of Australia), and many people have accidentally released it when releasing fish into the wild, or when cleaning out their tanks. Unbelievably, some people have even deliberately spread it to the wild so that they always have a fresh supply to either sell or use for themselves!

Not another one!

Salvinia molesta is another aquatic invader from South America that has become established in Australia. It too was used and sold widely as an aquarium plant. It floats on the surface but it grows just as quickly and causes the same sorts of problems as Cabomba. Like Cabomba, it is illegal to keep it in the Territory, even in your own fish tank or pond.

However scientists have discovered a weed busting friend in the fight against Salvinia. It's a tiny (up to 2mm long) black bug with a big appetite and its scientific name is *Cyrtobagous salviniae*. It can destroy huge infestations of Salvinia in about 2 months. This is what scientists call a biological control.



Cyrtobagous salviniae

Salvinia molesta

WANTED! DEAD OR ALIVE (but preferably dead!)

If you think you may have Cabomba or Salvinia in your fish tank or pond, or you know someone who is selling it, call your local Weed Branch officers for advice on how to safely dispose of it.

Their numbers are:

DARWIN	8999 2020
KATHERINE & THE GULF	8973 8107
ALICE SPRINGS	8951 9210
TENNANT CREEK & BARKLY	8962 4491
Or call the	
CABOMBA HOTLINE ON	8999 8954

War of words

Can you find these 'waterborne invader' words in the puzzle? They go in all directions, even backwards! Starting from the top, take the first 6 letters that are left over and place them in the spaces below the puzzle. This will reveal what kind of bug *Cyrtobagous salviniae*, the Salvinia busting bug is.

AQUARIUM
AQUATIC
BIOLOGICAL
BUG
CABOMBA
CONTROL
COST
DAM
FISH
FOUL
GROW
ILLEGAL
IMPACT
INFESTATION
INVADER
LAGOON
LAKE
POND
RIVER
SALVINIA
SMELL
TASTE
UNDERWATER
WATER
WEED

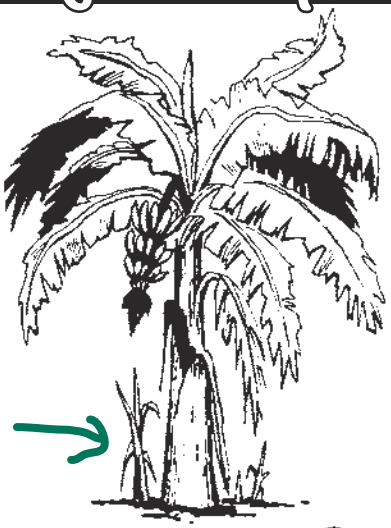
S L U O F R E T A W R B
M L A K E D E E W T I I
E G R O W W N D S E V O
L O R T N O C O A E E L
L V I M P A C T P V R O
I N F E S T A T I O N G
U N D E R W A T E R B I
M U I R A U Q A A H U C
A I N I V L A S D S G A
A Q U A T I C I A I T L
A B M O B A C L M F G E
I L L E G A L A G O O N

Check it out !

There's more than one way to grow a plant

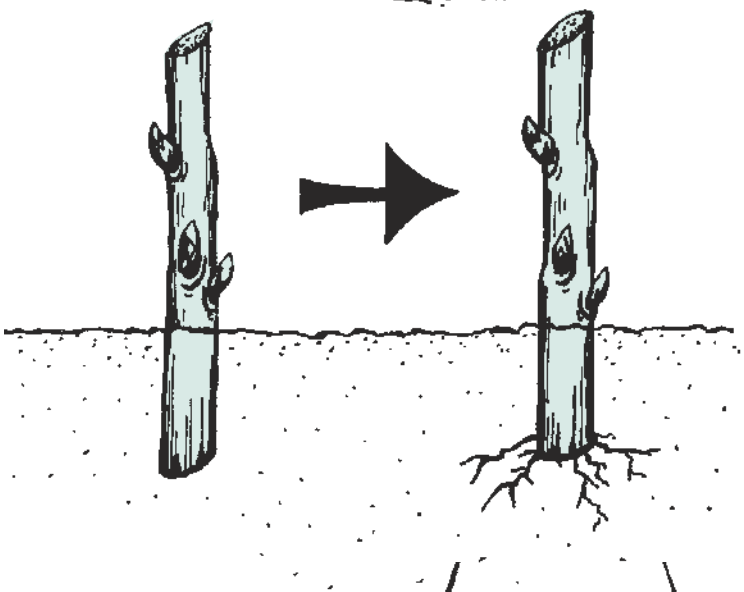
If you've read the story about Cabomba weed, you may have noticed that it can reproduce and grow from pieces of itself. This is called vegetative reproduction. Follow these simple steps and you too can vegetatively grow your own plants!

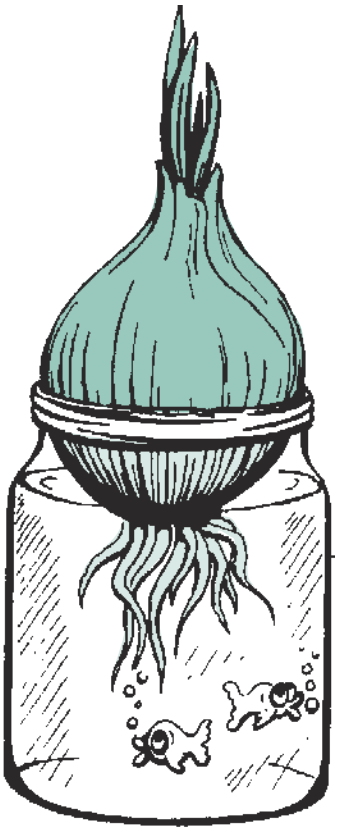
Plants can basically grow in one of two ways; from seeds or vegetatively. You may already be familiar with some types of vegetative reproduction. Some plants, like banana trees can send up 'suckers' from their roots. Gardeners often take advantage of another form of vegetative reproduction and grow plants from cuttings and grafts.



Grow your own cuttings!

Try growing your own plants from cuttings. Pick the end of a fresh growing branch, cut sticks generally no longer than 10 cm and put the cut end into some potting mix as shown. Cutting off the leaves will also help. Keep it moist and out of the direct sun and see if it grows. Generally plants with softer branches work better. Vines and creepers are often the easiest and dry woody timbered trees, like gum trees are the hardest to grow.





You could also try growing an onion in a jar of water. Set it up as shown and new leaves should grow from the top and new roots from the old base.

Or try growing an old carrot. Cut it across near the top and scoop it out as shown. Hang it upside down in a sunny spot and fill it with water and observe what happens over the next week.

The onion and carrot are food storage systems (tubers) for the plants. They can have all of the above ground leaves die off and then re-sprout new leaves using the energy stored in the tuber. Many local plants can do this. Think of the native yams, ground orchids and lilies that shoot up when water becomes more plentiful. And some larger trees like eucalypts can resprout from lignotubers (type of root) when they have been seriously damaged above ground.

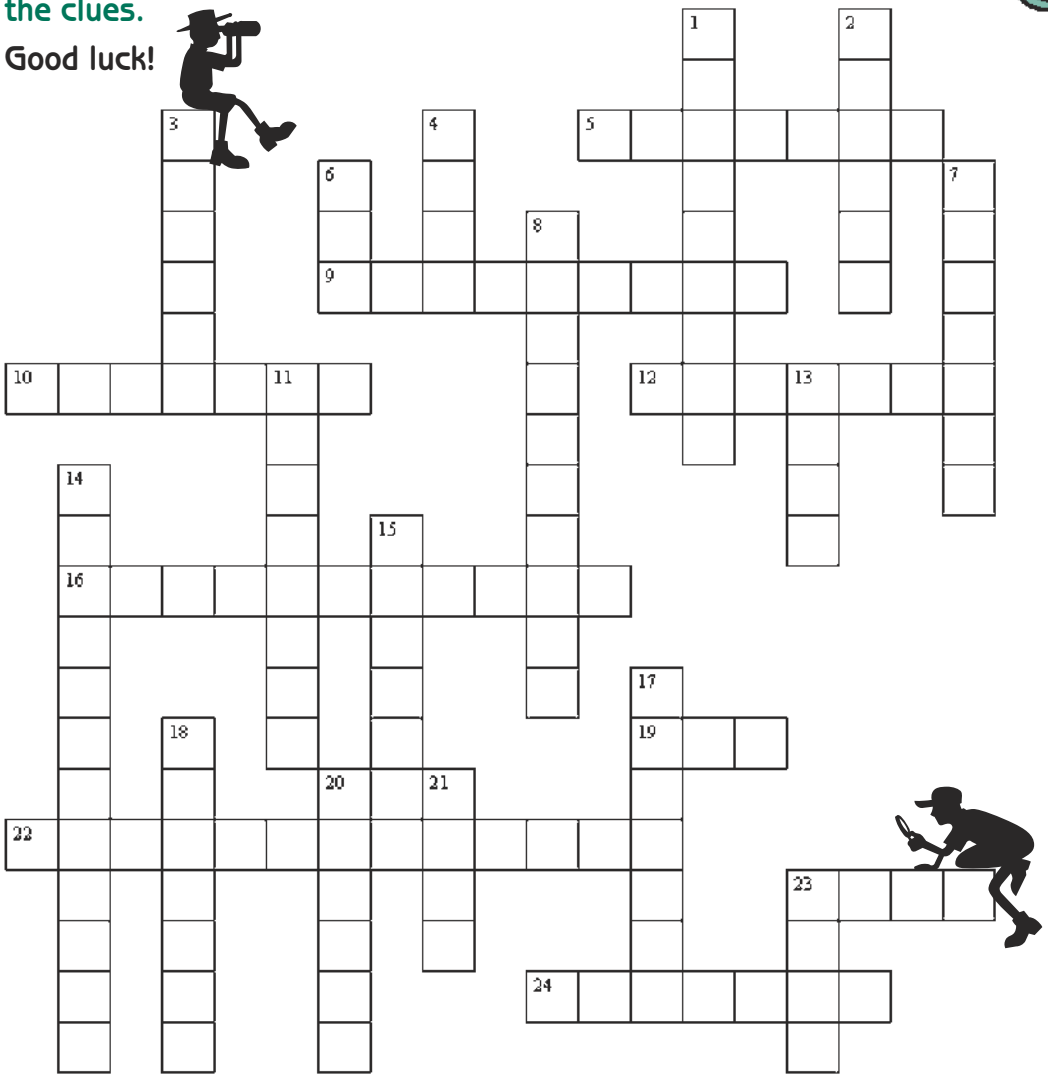
Nature Quiz

Giant Junior Ranger Crossword

See how you go with this super sized crossword.

You'll need to read all of the articles in this edition to help with the clues.

Good luck!



ACROSS

5 Banana trees send up _ _ _ _ _ _ _

9 Birds that fly overseas

10 Not legal

12 Common name of Cabomba

16 Subterranean

19 Jump like a frog

22 A person who studies reptiles

23 A protected reserve is a National _ _ _ _

24 A baby frog with a tail

DOWN

1 Out at night

2 Lagoon found at Palmerston

3 Avoid attackers

4 A type of amphibian

6 Drinking water storage

7 Of or in water

8 Black and white snake

11 Fish tank

13 Unwanted or pesky plant

14 Country where Cabomba and Salvinia were from

15 Edible flesh covered seed

17 Frog killing fungus

18 Snakes and lizards are a type of _ _ _ _ _ _ _

20 Holmes Jungle has a monsoon _ _ _ _ _ _

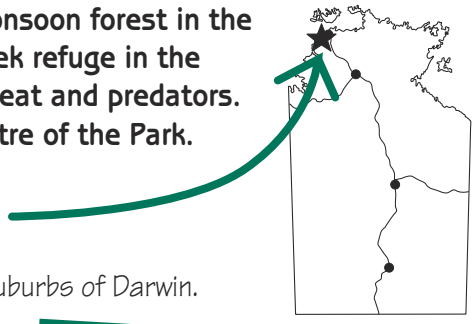
21 Large extinct flightless pigeon

23 *Carpentaria acuminata* is a type of _ _ _ _

Discover a Territory Park

Holmes Jungle Nature Park

Holmes Jungle Nature Park protects one of the few remaining areas of monsoon forest in the Darwin area. Large numbers of birds, mammals and reptiles breed and seek refuge in the monsoon forest, with the dense vegetation offering protection from the heat and predators. This Park covers 250 hectares. Palm Creek winds its way through the centre of the Park.



Where is it?

The Park is located in the northern suburbs of Darwin. Access is by turning north off Vanderlin Drive to the Shoal Bay Recycling Centre. Then enter the Park through the second gate on your right. Signs show the way.

When is it best to visit?

A pleasant place for walks and picnics any time of the year, it is best to visit in the dry season (April - September). However, the Park is closed to vehicles between 7 pm and 7 am and some roads are closed to vehicles during the wet season (October - April).

What can you do there?

From the main hilltop picnic area there are panoramic views of the wetlands to the north, monsoon forest to the east and undulating ridges and savannah woodlands to the south. The lower picnic area provides easy access to Palm Creek.

The Jungle Walk winds along Palm Creek and through the magnificent monsoon forest. A further section of track connects the Jungle Walk with the main picnic area. Tracks are also available for cyclists and horse-riders, but please observe signs and do not use the walking tracks.

Keep an eye out for Spangled Drongos and the Pied Imperial Pigeons in the wet season. The tiny Red-backed Fairy-wren is commonly found in clumps of pandanus throughout the Park.

Red-backed Fairy-wren
Malurus melanocephalus

Spangled Drongo
Dicrurus bracteatus

Puzzle Answers

Plant Profile:

Weevil.

Urban Encounter:

Squabs, don't, fruit, milk, crop, cream cheese.

On the Brink:

1. Amphibian. If wrong miss a turn.
3. Chytrid fungus, move ahead one space. If wrong return to start.
4. True - move ahead 2 spaces.
5. No, it is found in many places in the world - roll the dice again. If wrong, go back 2 places.
6. As it has caused the extinction of 4 species and threatens many others.
10. Skin - if wrong, miss a turn.
11. The 'NT' - if wrong, miss a turn.
12. As spores the fungus can spread on vehicles, footwear, clothing, transporting infected frogs, flowing water.

Nature Quiz:

Across:
5 - suckers, 9 - migratory, 10 - illegal, 12 - fanwort, 16 - underground, 19 - hop, 22 - herpetologist, 23 - park, 24 - tadpole.

Down:
1 - nocturnal, 2 - Marlow, 3 - escape, 4 - frog, 6 - dam, 7 - aquatic, 8 - Bandybandy, 11 - aquarium, 13 - weed, 14 - South America, 15 - fruit, 17 - Chytrid, 18 - reptile, 20 - forest, 21 - Dodo, 23 - palm.

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