

FROG CALL

NEWSLETTER No. 93
February 2008

THE FROG AND TADPOLE STUDY GROUP OF NSW INC
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Limnodynastes tasmaniensis spawning photo Ben Harrington



*Frogmobile helpers are like gold dust. The future depends on you.
We need "Frog Explainers" No experience required.
Ring the Frogwatch Helpline on 0419 249 728.*

MEETING FORMAT for 1st February 2008

- 6.30 pm Lost frogs needing homes. Please bring your FATS membership card, donation & amphibian licence to home a froggy friend.
- 7.00 pm Welcome and announcements.
- 7.30 pm The main speakers are **Peter Harlow** and **Michael McFadden** (Taronga Zoo) Breeding Recovery Program for Booroolong Frogs and Coroborree Frogs at the Zoo.
Additional Speakers **Sarah Hower** Frogs of Thailand and Red-eyed Tree Frogs, Reptile and Frogs Show
Chloe Neumann Frogging at Coffs Harbour
Grant Webster When it rains out west, the frogs come out
- 9.30 pm 5 Favourite Slides. Tell us about your recent frogging trips or experiences. If you have slides or other images, bring them along as well. Evenings end with our regular guessing competition, light refreshments and pleasant conversation.

Join us at Homebush Bay
arrive 6.30pm for a 7.00 pm start
Friday 1st February 2008

Follow signs to Building 22
end of Jamieson St. off Holker Street,
Homebush Bay, (Sydney Olympic Park)
Public transport available by bus or train.
Call us the day before if you would like
to be collected from the train station.



CONTENTS

Last meeting's speakers	
George Madani - The Dingo Fence	p2
Matt and Brad McCaffery	p2
Grant Webster	p2
Annie Nielson	p2
Cage ethics - Lothar Voigt	p2 & 3
Chemicals linked to lost frogs	p4
Ensemble Theatre Frog and Toad	
Production	p5 to 8
Hop to it: frogs need a home	p9
Frogs jumping on the menu	p9
Genes shine light on	
mystery fungus	p10
Spinal disease may hold back	
toad invasion	p10
Darke Forest field trip	p11
Letter from Cumberland	
Bird Observers Club	p11
A shot in the arm for Frenchie	p11
Field trips and	
committee contacts	p12

Grant Webster opened the meeting and welcomed attendees. After announcements of recent frog events, updates on current research and happenings, Arthur White introduced George Madani who worked for National Parks in 2007.

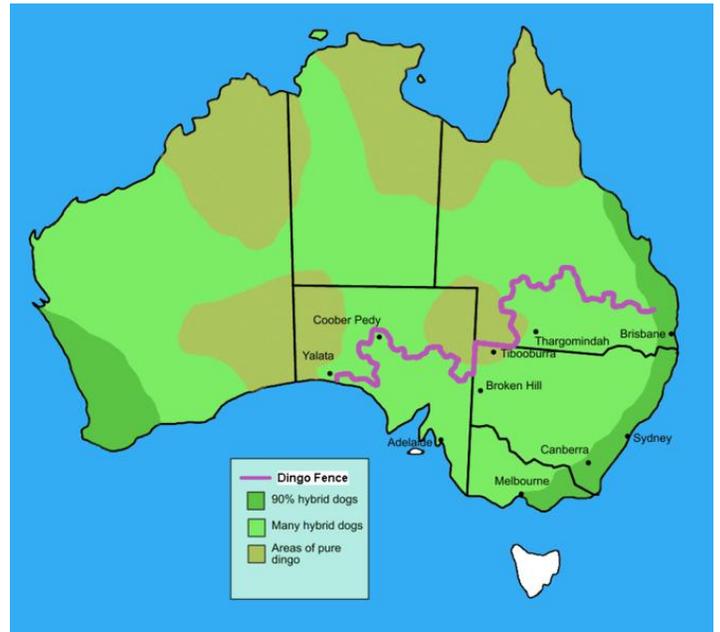
George Madani spoke about small animal diversity either side of the dingo fence, which is 5,320 K long. It is the longest man made structure on earth (see photo below). Dingos are thought to have arrived with sea traders, as hunting companions. They act as mesopredator suppressors, ie larger predators don't tolerate smaller predators such as cats and foxes. Dingos push smaller predators out to marginal habitats.

A dingos diet is large mammals and dead things, but cats hammer birds. Dr Mike Letne from Sydney University has been surveying either side of the dingo fence. South Australia is planning to electrify the fence.

George presented many great slides. *Notomys fuscus* a very rare dusky hopping mouse, which is listed as vulnerable, was photographed. Their numbers explode in good conditions. Another threatened species sighted was the Desert Short-tailed Mouse, *Leggadina forresti*, Forrest's Mouse.

Other animals slides shown were the tiny Stripe-faced dunnart *Sminthopsis macroura* which weighs less than 10 grams, the Fat-tailed Dunnart which stores fat in its tail, the Narrow-banded Sand-swimmer, Painted Dragons, *Ctenopus brooksi* skink that prefers tops of ridges and sand dunes, Beaded Geckos, Northern Spiny-tail, Trilling Frogs, Sand Goannas, skinks, geckos, Blind Snakes, the first record of a Western Hooded Scaly-foot and many more great slides.

On the NSW side of the fence there is woodification and loss of vegetation because kangaroos and sheep graze and there are no dingos. This has a profound impact on the landscape. Animals such as the Hopping Mouse are common in South Australia but endangered in NSW. In SA there was evidence of lots of dingo scat but not much fox scat. In NSW there was lots of cat and fox scat. There were many questions about possums and gliders which foxes prey on.



FATS is very fortunate to have regular, highly experienced and qualified, frog presenters, of which George Madani is one of the most interesting, knowledgeable and gifted speakers. Thank you once again George for another fascinating presentation.

Matthew McCaffery presented dozens of excellent slides from the October Smiths Lake field trip. Slides included the Red-backed Toadlet with eggs, Stoney Creek Frog, Leaf Green tree Frog, Whirring tree Frog, Common Eastern Froglet, a Three-toed Skink, Haswell's Froglet and many more. Brad McCaffery presented many superb slides including *Litoria revelata* and spoke about his Watagans trip and his search for the Green-thighed frog. Annie Nielson gave a short talk on animals from Galapagos, Venezuela and Peru. Grant Webster presented many outstanding slides from Barrington Tops. **BUYER BEWARE** Stuart spoke about the dangers of buying frogs from breeders. There are some (yet to be clarified) frog diseases affecting tadpoles and frogs, causing molecular changes and severe malformations. One possible cause is Redlynch virus. refer to the Deborah Pergaloti's Cairns Frog Hospital website <http://www.fdrproject.org.au/pages/disease/virusredlynch.htm> The meeting ended with the raffle and light refreshments. MW.

A FEW THINGS ABOUT CAGE ETHICS

I sometimes ask at a workshop "How many of you are interested in keeping a frog in a cage?" I might as well have shown them a very dead rat. They shudder at the cruelty, at the assault on nature. Times have changed, and sometimes that's good. So I rephrase that question: "How many of you are interested in adopting a homeless unreleasable frog?" Some hesitation at first, some digestion time, but then most of the hands go up. But how can a frog be homeless, can't it just squat somewhere? And why should it be unreleasable, especially if it still has the right number of legs and eyes? These things are quickly explained; thank goodness that keeping the right frogs is ok; and most importantly that I am not an ogre after all.

Do you remember when some ten years ago there was a concerted drive by no doubt well-meaning animal rights activists against keeping frogs and reptiles in captivity? There were irate letters to the Minister at the time, even a visit to the Minister, and we felt the Minister was sympathetic to them. We, the FATS Group and the herp societies, were only given access to the Minister's staff – and we had reason to be concerned. When public submissions closed, the animal rightsers had fired off 70-odd submissions against us. We didn't know that. We had gone into overdrive, had produced thousands of protest cards and pro-formas that could be individualised, had given prizes to those of our members who got 50 signed cards or letters from the public. There were cards to sign at the Australian Reptile Park and other places – we were everywhere. Perhaps most importantly, and let them never be forgotten, we got the bird keepers on side. They took up our cause, after all they didn't want to be next, and they have large memberships. In the end, we clocked up 11,300 submissions!

Sometimes you hear on the evening news that some cause or other generated 5 or 6,000 submissions, apparently a very newsworthy number indeed. Ten years ago we doubled that one. And we started the Frog Rescue Service and other programs. And we can keep the frogs. It was a turning point in our history. It should be taught in schools.

Very occasionally we still irritate those who come to see the FATS frogs. "That frog doesn't look happy!" was one passing comment – she hadn't even slowed down in her step. I must admit the frog probably wasn't smiling enough and that facial expressions can be misleading. But there are ways of telling whether an animal is stressed in its cage or not. One of them is called EID: Ethologically Informed Design. You might like to google it.

In EID, your actions are governed by being enduringly aware of a captive animal's needs. For example, you systematically give it choices of different substrates, hiding places, temperatures etc in different parts of the cage. You observe its preference, you keep the preferred substrate or whatever, and you replace the less liked on with a further choice in the next round. Because there can be so many variables affecting stress, acclimatisation, development, social dominance and reproductive and other behaviour, there are now data bases being compiled that list all the variables to look out for in different species. Hopefully, those data bases will stop some researchers from conducting those indescribable clangers we have all heard of: Tests where the author didn't have a clue the litter was raised to be morons and was nothing like animals from the wild; a growth test where the author had no idea his tadpoles were steeped in different concentrations of poisonous metabolic ammonia; experiments no end where confounding variables were blissfully ignored and where results were often useless and where none of the reviewers picked it up.

Some smidgin of EID will go a long way not only in research but also for us, in husbandry. When we have a frog with a scraped nose, do we not investigate where it could

have scraped it and then do something about it? If our frog is prone to wild panic attacks every time we go to the fridge in the middle of the night, do we not move its cage or give it a bigger or heavily planted one? If we can't extricate our frog from that hollow log without having to use a prodding stick, do we not replace the log with one that can be hinged open? Of course we do. That's EID, or at least the beginning.

Animal exhibitors need a special licence and have to meet certain welfare requirements, the most important one appears to be how big the cages are. But: As with de Bergerac's nose, it might be argued that it's not the size that matters but what's in it. Active or flighty frog species need a lot more space than ambush feeders or ground frogs or burrowing ones. Quarrelsome, territorial species need even more. Many don't mind each other's company most of the year round, density is no problem for them as long as you can keep them clean. Regulators can't go into such detail; sometimes one size has to fit all. Nevertheless, the idea is that animal welfare for caged animals is a requirement and that some attempt is being made to measure it.

More importantly than cage size, there should be a simple measure on how clean the frog's water is. Like, if you would drink it for \$10, that's clean. If you wouldn't even let your dog drink it, not even for \$100, that's bad. Prices could be established through eBay, and presto, we have a scale!

Turning this into practice is a different matter. Pet stores sell frog cages, and some of those make me wince. Not just the prices. Take a look at the lids: Do they let all the frogs out all at once when you open it? Have they got sharp corners at the edges where the scraped frog noses come from? Or do they come from the metal fly screen where the cricket ran along until the frog took a flying lunge at it and left part of its nose behind? Or is it a nylon fly screen which the crickets and woodies will chew holes into? Or a perforated metal sheet with holes so big that flies and small crickets get straight out? But where very little light from the fluoro gets through? Now look at the base: Has it got a low glass wall glued in where you are meant to put gravel on the land side and water in the rest, and where the only way of cleaning it is to scoop and mop the whole gravel out every week for the next 20 years? How about the back: Uninspectable hiding places? Don't buy it. A foam fake rock insert? As long as you can get it out, and don't put woodies in. A big hole for the cable with a plastic swivel cover that ought to stay firmly closed but doesn't? Now to the front: Hinged doors that when they pivot open they also open a gap on the hinge side, a gap so big that you need three hands to keep your frogs in? A ventilation strip with holes so large that full-grown crickets run straight out? And if they fit through, so does the Eastern Dwarf Tree Frog.

But most of all, has the cage been designed with cleaning in mind? Or do you have to strip the whole thing down every time? And how does your cage design address chytrid? And EID? And how about our own mental well-being? We get stressed, too.

If you happen to have a good frog cage design, please don't keep it to yourself. Send a note and a sketch to Monica. **L.V.**

CHEMICALS LINKED TO LOST FROGS

Agricultural chemicals have been linked to the collapse of frog populations, which experts have previously attributed to a combination of climate change and a deadly fungus.



Griffith University's Jean-Marc Hero says chemicals may have wiped out frog species in Queensland. Picture: Lyndon Mechielsen

Brisbane environmental consultant Glen Ingram, who has studied some of the eight Queensland frog species that have become extinct since the late 1970s, said: "There is a growing view that pesticides have a role in the extinctions of these frogs.

"People had assumed it was a fungus, probably being spread by global warming. Now, we're not at all sure."

Scientists have previously highlighted the extinctions of dozens of frog species worldwide as a dramatic indication of the consequences of climate change arising from increased greenhouse emissions.

Many frogs have been killed by the chytrid fungus, which infects their skin, impairing their breathing and nervous systems. However, the fungus can be harmless to frogs and some experts claim it has become deadly because of climate change. They suggest that increases in cloud cover, temperature or ultraviolet radiation have spread the fungus.

However, several recent studies in California implicated chemicals in frog population declines.

California has experienced similar collapses in frog populations to Australia.

Four pesticides and herbicides identified in the studies are used widely in Australia.

Californian biologist Gary Fellers, of the Western Ecological Research Centre, who has participated in some of the studies, said pesticides could be a more significant factor in frog declines than the chytrid fungus.

"The role of the fungus is not well understood in many areas, including some of the places where scientists have declared it to be the primary or only factor causing amphibian declines," Dr Fellers told *The Weekend Australian*. "The fungus might not be the whole story."

Queensland's wave of frog extinctions began in the late 1970s, at the same time as organochlorine chemicals such as DDT were being phased out.

The organochlorines were replaced by organophosphorus and other chemicals. The Californian studies have implicated three organophosphorus pesticides and the herbicide atrazine in frog population declines.

All four chemicals are used widely in Australia.

Limited sampling in Australian rainforest streams in the early 1990s where frogs became extinct failed to find evidence of chemicals. However, one of the scientists who collected samples, Ross Alford of James Cook University, said chemicals would not necessarily have been detected.

"Chemicals with potentially strong effects could be there at levels we wouldn't have detected," Dr Alford said.

"The studies we need haven't been done."

In California, chemicals were found to have drifted long distances from agricultural areas to pristine mountain frog habitats.

"It is plausible that this has happened here," Dr Alford said.

"There have been huge increases in the quantities of plastic PCBs, pesticides and all sorts of chemicals being generated."

Griffith University researcher Jean-Marc Hero, who has conducted several studies into chytrid fungus in Australian frogs, said he was convinced the fungus was not acting alone.

"Whether it's agricultural chemicals or climate, there is a good possibility that something else is going on," Dr Hero said.

By Greg Roberts 5/1/2008 Sent to FATS by From David Nelson

<http://www.theaustralian.news.com.au/story/0,25197,23008909-11949,00.html>

Ensemble Theatre presents

A Year With Frog and Toad

**Performances on Wed, Fri and Sat at
10am and 2pm. Ends 1/2/2008**

**Special concession tickets for FATS members
See below**

Music by Robert Reale

Book and Lyrics by Willie Reale

Based on the Books by Arnold Lobel

By arrangement with Hal Leonard Australia Pty Ltd
Exclusive agent for Music Theatre International (NY)

Director/Musical Director: Anna Crawford

Choreographer: Shondelle Pratt

Set Designer: Nicholas Dare

Lighting Designer: Martin Kinnane

Costume Designer: Mercedes Crawford

Pianist: Alexander Sussman

Sound Technician: Matthew Binnie

Stage Manager: Amy Firth

The Cast:

Frog.....Stephen Anderson

Toad.....Sean Hall

Bird/Snail/Lizard/Father Frog/Mole...Jonathon Freeman

Bird/Mouse/Squirrel/Young Frog/Mole...Lizzie Mitchell

Bird/Turtle/Squirrel/Mother Frog/Mole...Crystal Hegedis

Performance running time of 1 hour and 40 minutes including one 20 minute interval

The Ensemble Theatre in Kirribilli is a not-for-profit professional theatre company presenting a childrens production of "A Year With Frog and Toad", which started today for a 3 week run. It is a musical based on the books about Frog and Toad by American author Arnold Lobel. By the end of the season we will have seen about 2,000 people go through our doors to see the show.

We have an amphibian display in our foyer with details about FATS and Amphibian Ark, our endangered Australian amphibians and contact details to donate to Amphibian Ark. The activity sheets below are given to all the children.

Theatre patrons receive information about the FrogMobile at Centennial Park on the 27th of January. We have already had some families thank us for the info as they would be very interested to go!

The Theatre wish FATS the best of success with this Year of the Frog and for all our future good work. FATS members have been offered a special ticket deal for the final week of the show.

\$30 Adults

\$23 Concessions (Seniors/Pensioners)

\$19 Students (u/26yrs)

\$15 Children (u/12yrs)

\$80 Family Pass (2 adults/2 children)

That's \$5 off the full price of all Adults, Concessions and Student tickets (children are a flat \$15) Your members just have to say that heard about us through your newsletter and they will get the discount.

**Thanks and Kind Regards
Carmel May**

Ticketing Manager

Ensemble Theatre

78 McDougall St, Kirribilli NSW 2061

Ph. (02) 9929 8877

email. carmel@ensemble.com.au

www.ensemble.com.au

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The activity sheets below were sourced from various organisations and shared with FATS for our members enjoyment.

Today you are seeing a performance of **A Year With Frog and Toad** presented by The Ensemble Theatre. There will be lots of great music for dancing and funny adventures that will make you laugh.

The actors on the stage are very clever people because they can see and hear how much you are enjoying the show and make little changes according to your reaction for each and every performance! That's what makes going to a play like **Frog and Toad** different than going to a movie and the actors will do everything they can to make your experience unforgettable. You can reward them with your attention and laughter, so help them to tell the best story ever by being the best audience ever!

The Ensemble Theatre would like to extend our heartfelt thanks to Mercedes Crawford, Jessica Doyle and Emma Pfeiffer for all their help with this production.



All About Frog and Toad

Did you know that there are storybooks about **Frog and Toad** and all their friends that are written by a man called Arnold Lobel? He lived in America and during his life he wrote and/or drew the pictures in 70 books...Wow, that's a lot of stories and pictures!!

When Arnold Lobel was young he was sick a lot. He was absent many days in kindy, first and second grade. When he came back to school in third grade he drew pictures for his classmates and told them stories. He found this to be a good way to make friends. Arnold also said that taking books out of the library was one of the things he loved to do most when he was a child. Do you like to go to the library?

As a teenager he was still interested in children's books. He studied the pictures of many different authors. When he went to Uni, he attended art school and he listed "illustrating" (drawing pictures) as his main interest. At first most of his work was illustrating other authors' books.

His most famous books are about **Frog and Toad**. They are still loved as great books about friendship. They teach us about being great mates.

You might like to find a copy of Arnold Lobel's books after you have seen "A Year with Frog and Toad" today. You might find them at your local library or even in your school library. Ask your Mum or Dad if they can help you. The names of Arnold Lobel's books are:

Days with Frog and Toad, Frog and Toad Are Friends, Frog and Toad Together and Frog and Toad All Year. Arnold Lobel also wrote other books about animals such as **Owl at Home, Mouse Soup, Uncle Elephant** and many more.

Ensemble Childrens Activity Sheet

We hope you enjoy today's performance. To help you have even more fun, here are some activities you can do when you get home!

Fill in the blanks...

Frog and Toad are _____.

They eat _____ together.

They fly a _____.

Everyone laughs at Toad because he looks funny in a _____.

The birds go _____ for the winter.

_____ are the funniest fruit!

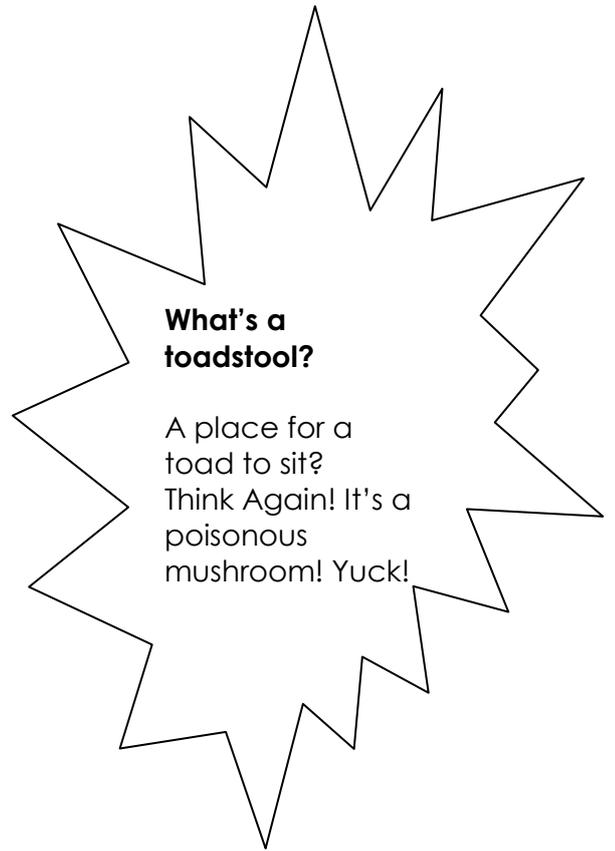
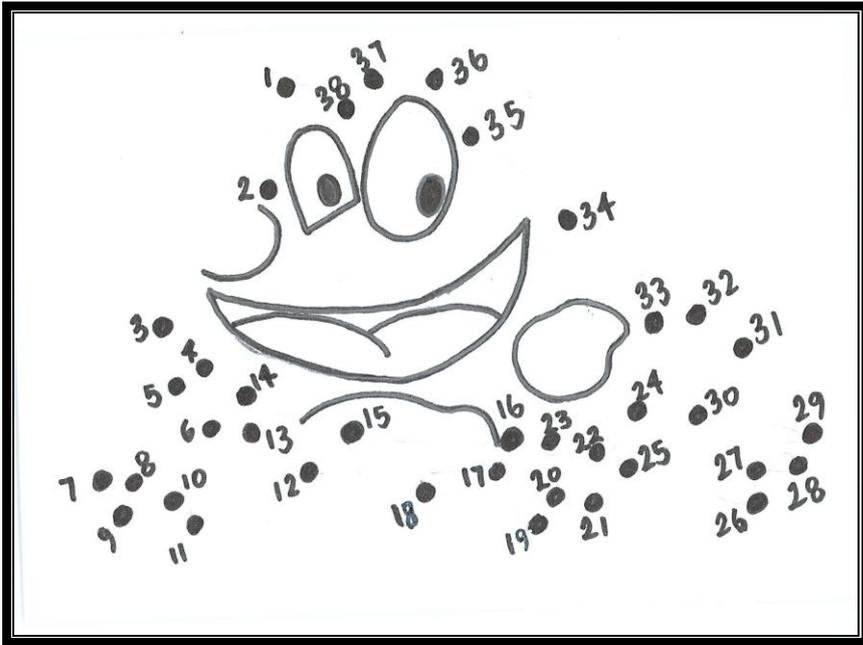
Snail delivers a _____.

We saw A Year with Frog and Toad at the _____.

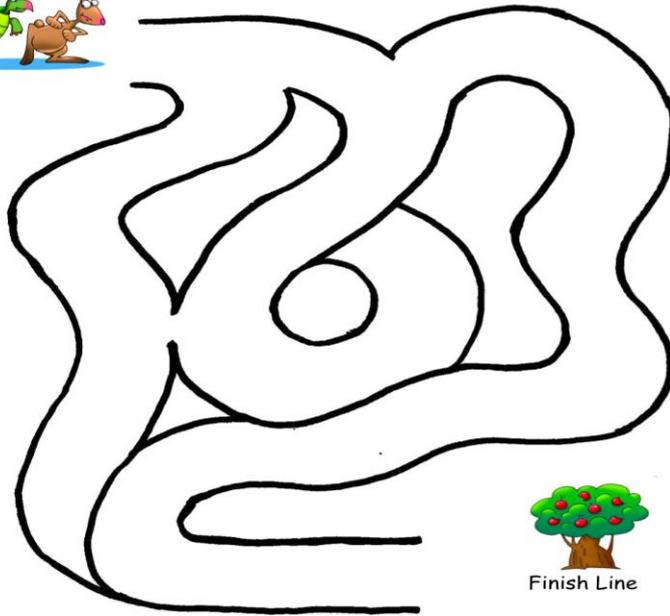
Tell your family about the play you saw:

- How many characters did you see?
- What were their names?
- What character was your favourite and why?
- What are the names of the 4 seasons of the year?
- What did Frog and Toad do in each of the seasons?
- What colours was the kite that Frog and Toad flew?
- What did Toad always say was broken?

Join the dots and colour me in!



Help Turtle and
Rabbit find their
way to Frog &
Toad's Tree...



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

Circle the hidden words

FALL	COOKIES	FRIENDS
FROG	LEAVES	MOUSE
MUSIC	SEEDS	SLED
SNAIL	SPRING	SUMMER
TOAD	TURTLE	WINTER



amphibian ark

2008 YEAR OF THE FROG

This year 2008, is the Year of the Frog!

Did you know that the frogs and toads around the world are sick? They are being attacked by a deadly fungus called 'chytrid' (you say it "kit-rid"). Frogs and toads breathe differently from us and instead of through their mouth, they breathe through their skin. Chytrid fungus works like a parasite, clogging the pores of frogs and toads until they die of thirst. The other thing that is hurting frogs and toads all over the world is climate change and the destruction of their homes.

In Australia, we have 2 types of frogs that are particularly in danger: The Southern Corroboree Frog and the Green and Golden Bell Frog. Here are some pictures of them:



It is very difficult to find a Southern Corroboree Frog except to see it at the zoo. The Green and Golden Bell Frog became famous during the Sydney 2000 Olympic Games because the place that they can be found is Homebush Bay, where the Olympics were held!

Taronga Zoo has a special program to look after endangered frogs and toads called the "Amphibian Ark". Taronga Zoo is one of many zoos worldwide who are helping to save frogs and toads all over the world. Maybe you could visit the "Amphibian Ark" next time you visit Taronga Zoo? The frogs and toads would be very happy to see you!

You can join the Amphibian Ark and help save Frogs and Toads from extinction by making a donation through **Amphibian Ark** online at <http://www.amphibianark.org/donations>

Useful websites

You can find out more about frogs and toads from these great websites:

Taronga Zoo - www.zoo.nsw.gov.au

Frogs of Greater Sydney Group or "FATS" - www.fats.org.au

Amphibian Ark - www.amphibianark.org

Go and see the FrogMobile!

The Frog Mobile is a portable educational display - a large trailer containing live frogs, information, and tended by knowledgeable FATS 'frog explainers'.



Where can you see it? Sun
27th January 2008, 11am-3pm
Centennial Park, by the Duck Pond



Green Tree Frog *Litoria caerulea*
in Birds' Nest Fern
Photo by Bronwyn Hudson

Frogs jumping on to the menu



WE don't know what you do with them either, but seeing is believing.

A sharp-eyed reader spotted this among the grocery specials in *The Straits Times* in Singapore. Live bullfrogs (Tian Ji) \$2.50 each or three for \$4.50.

Apparently, you eat them, but first you have to skin them. Toad in the hole perhaps?

Gold Coast Bulletin Fri Oct 12, 2007

sent to Frogcall by Kathryn Russell

It's time to ...

- Learn more about frogs and discover the species that live in your area at www.frogs.org.au.
- Stay out of the heat and browse bulb catalogues. Type "bulb catalogues" into your search engine, click Australian pages and you will be entertained for hours.
- Plant parsley seedlings in pots and gardens.
- Sow spring onion seeds.
- Compost lawn clippings.

Amphibians are under attack on all fronts but a simple pond can provide a refuge.

GARDENING CHERYL MADDOCKS

THIS has been declared the Year of the Frog by Amphibian Ark (AARk), a coalition of zoos, aquariums and natural history museums. We should all sit up and pay attention because frogs and other amphibians are rapidly dying out or are seriously endangered. They are in such a precarious situation, AARk says, that "one third to a half of the world's 6000 known amphibian species could go extinct in our lifetime - which would be the single greatest mass extinction since the disappearance of the dinosaurs". Unless we take action, our great-grandchildren may never see amphibians.

Frogs play a significant part in our world. They are prey for mammals, snakes and birds and as predators they keep insect populations in check, which in turn minimises the spread of diseases such as malaria.

These humble little creatures have been around for millions of years, so why are they disappearing now? We humans can take much of the blame. Land clearing has reduced the areas in which frogs live and breed. They are vulnerable to chemicals that enter water

Hop to it: frogs need a home

SMH 19 Jan 2008

Forwarded by Lothar Voigt

supplies and to introduced fish species such as carp, goldfish, plague minnows and trout, which eat native frog eggs and tadpoles. When climate change and pollution are added, the picture becomes bleak.

Frogs are also being attacked by a deadly water-borne pathogen called a chytrid fungus, which invades the outer layer of their skin.

You can help save frogs by signing a petition at www.amphibianark.org calling on governments around the world to support amphibians. AARk, as part of the Amphibian Conservation Action Plan, rescues endangered amphibian species and protects them until the threat can be controlled.

Gardeners can help to increase frog numbers by frog-scaping their gardens and creating habitats in which frogs can live and breed. While you can attract frogs, you need a licence to keep them in most states. This does not apply if you are not restricting their movement or treating them as pets. So if you lure them into your garden by providing ideal living conditions and allow them to come and go as they please, no licence is necessary.

You are not, however, allowed to collect tadpoles or frogs from ponds. The aim is to provide habitats for local frogs, not introduce strangers to the garden.

You should create a frog-friendly garden and wait for the amphibians to appear. Believe it or not, they usually do, especially

in established gardens full of greenery. You will also attract other wildlife such as lizards and birds. While frogs are cute, they can also be noisy at night. One that has recently moved into my garden is quite raucous compared with the existing pond dwellers. But give me frog calls over traffic or aircraft noise any day. The idea is to position your pond well away from your bedroom window and neighbours' houses.

Frogs need an environment in which adults can breed and tadpoles can develop. Frogs will find the prime living spots in their area and take up residence if you give

them the right conditions, including shelter, humidity, water and food.

Make a small, shallow pond that has two-thirds of its surface in the shade if possible. Some sunshine is needed to promote the growth of algae and other aquatic vegetation. Rocks at the pond's edge are essential to allow frogs to get in and out of the water.

Aquatic plants will provide extra shade and places for frogs to lay their eggs. Tadpoles feed on decaying matter and a well-established pond with a good supply of plants will produce enough food so that supplementary feeding won't be necessary.

The easiest way to make a pond is with a rubber liner purchased from a nursery. Using a liner allows you to make the pond the size and shape you desire. Keep in mind that most local councils require fencing around water deeper than 30 centimetres.

You can also buy prefabricated fibreglass ponds. If you are on a tight budget, an old baby's bath or similar sunk into the ground will provide enough water for breeding frogs. Place rocks around the edge and introduce native fish such as rainbow fish (available from aquariums) that will eat mosquito larvae.

It is important to cultivate particular types of plants near the pond. A combination of dense, low ground covers, grasses and other leafy plants will provide protection for the frogs as well as for the insects they eat. Frogs need shelter from the heat and plants should be placed on the margins of the pond. Frogs enjoy living around native plants, so grow as many of them as you can around your pool. You should also consider that the greater the diversity of plant life, the greater the variety of wildlife it will attract.

Mulch the area around the pond with leaf litter. Organic mulch will provide homes for insect prey as well as moist hiding places for the frogs. Rocks and dead branches placed around the pond will also provide shelter. Tree frogs will take shelter in brick or stone embankments or among taller plants.

GENES SHINE LIGHT ON MYSTERY FROG FUNGUS

Scientists have uncovered genetic markers of a deadly fungus that is wiping out frog populations worldwide. Researchers will now use them to pinpoint where on the globe the killer micro-organism originated. Lead researcher Dr Jess Morgan, an Australian scientist from the Queensland Department of Primary Industries, says evidence has emerged that the frog-killing fungus *Batrachochytrium dendrobatidis* reproduces sexually and may be creating resistant spores, which can survive for a decade.

The international research findings, published in the journal *Proceedings of the National Academy of Sciences*, suggests the pathogen will be harder to eliminate.

Dr Morgan, who was a post-doctoral fellow at the University of California, Berkeley at the time of the study, says little is known about the fungus. She says it was only identified in 1998 after a wave of frog population extinctions worldwide from chytridiomycosis, a disease caused by the fungus.

Scientists believe the fungus kills by attacking the frog's ability to absorb water through its skin, causing it to dehydrate to death.

But they still do not know exactly how the pathogen has spread around the globe.

In the paper, Dr Morgan says the team used genetic analysis of a well-studied population of mountain yellow-leg frogs in California's Sierra Nevada to determine whether the fungus was endemic or had been recently introduced.

Dr Morgan says of six sites studied, four were dominated by a single genetic make-up or genotype, suggesting the fungus had been recently introduced and spread through clonal reproduction.

But she says at two sites evidence of recombination was found with multiple genotypes present.

This indicates for the first time that the fungus reproduces sexually and may be producing resistant spores.

Dr Morgan says the presence of resistant spores helps explain the global spread of the disease and means the fungus can survive for long periods in areas where the frog population has been vastly reduced.

But it also means any attempts to reintroduce frog populations at sites of local extinction are likely to fail as the spores will re-infect the frogs.

Reintroduction

Dr Morgan says of 10 attempts at reintroducing frogs in the Sierra Nevada during the past four years, seven have failed and three are ongoing.

She says resistant spores help spread the fungus as they are easily transported in dirt on tyres and shoes, and can hitchhike on birds and other wildlife.

Dr Morgan says during the study researchers isolated 15 marker genes for the fungus, which will now be used in a

worldwide hunt to track the geographic origin of the killer fungus.

"The next thing in terms of genetics is to find out where this is coming from," she said.

"The area which is most likely the origin will not be suffering a decline in frog population. We are looking for a healthy population of frogs.

"If we can look at the frogs and find out how they are living with the disease then maybe we can [help] our frogs."

Dr Morgan says the study also found some frogs within one species are resistant to the disease and could survive a mass mortality.

"It could be the frogs and the fungus are evolving to be able to live together," she said.

But she says more research is needed on the factors, either physical or environmental, behind this phenomenon. **7Aug 2007**

<http://www.abc.net.au/news/stories/2007/08/07/1999070.htm> by ABC Science Online's Dani Cooper

SPINAL DISEASE MAY HOLD BACK TOAD INVASION

The cane toad's immune system may be its Achilles heel. Scientists have made an intriguing discovery that could help the fight to eradicate cane toads. They have found the fastest toads leading the westward invasion across Australia's Top End - the ones with the longest legs - have a remarkably high incidence of spinal disease.

<http://mpegmedia.abc.net.au/news/audio/am/200710/20071015am06-spinal-toads.mp3> audio file

And they are hoping with a bit of biological engineering they can take even more spring out of their step. Biology professor Rick Shine says the toads' fast-paced spread could help bring about their demise. Professor Shine says scientists in Darwin recently stumbled on a peculiar phenomenon: that the fastest, fittest toads - particularly the ones with the longest legs - often have huge lumps on their backbones. He says this suggests that those toads leading the invasion are developing serious spinal problems.

Professor Shine says the discovery is bolstering hopes that with a bit of biological tinkering, the toads could at least be slowed down, if not reduced in number. Professor Shine says researchers are now looking at a worm parasite that afflicts older toads and frogs, to see if it can be developed against the wider toad population.

EXTRACTS 15 Oct 2007

forwarded to FATS by Steve Weir

<http://www.abc.net.au/news/stories/2007/10/15/2059576.htm>

In what has been a relatively wet season, we again enjoyed a nicely timed break in the weather after a day of continuous heavy rain. Brad & Matt McCaffery stepped in at the last moment to lead the trip. We stopped off at a large soak & the noise of the *L. dentata* was deafening. We also picked up *L. freycineti* & *Uperoleia laevis*, which was also calling in good numbers. We also had an opportunity to look at *L. dumerilli dumerilli*.

Maddens Creek was raging with white water & the waterfall quite a spectacle. It did however, seem to keep the numbers of *L. citropa* down. Many of the quieter pools contained *Crinia*, spreadeagled & showing their variations in markings. On the way out we picked up *L. phyllochroa* & more *Uperoleia*. A total of ten species with two more heard. A good tally for the night. Thanks Brad & Matt for a great night out. RW

FROM CUMBERLAND BIRD OBSERVERS CLUB

Dear FATS Group,

Recently, following discussions with FATS, we were able to hold a combined birdwatching & frog fieldtrip for our members around the Olympic Park precinct. We were met in the evening by several people from the FATS Group and we were shown many of the wonderful frogs of Homebush Bay.

Our sincerest thanks to FATS, & particularly to members Brad and Matt McCaffery and Grant Webster for giving up their time so generously and for providing such wonderful tuition into the world of frogs. Our members enjoyed the experience immensely and certainly learned a lot. The Bell Frogs were definitely a highlight !

Thanks once again,
Kindest regards, Keith Brandwood,
Activities Officer, Cumberland Bird Observers Club.

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Gold Coast The Bulletin

Wednesday, September 26, 2007 www.goldcoast.com.au

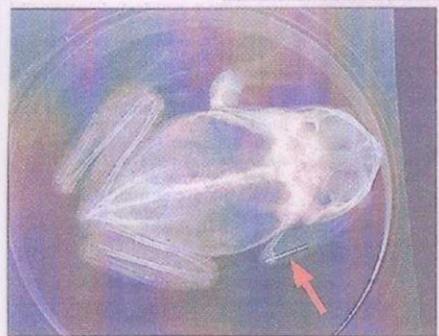
\$1.00 Inclusive of GST (by air extra)

from Kathryn Russell

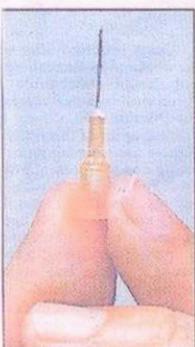


Meet the bionic frog

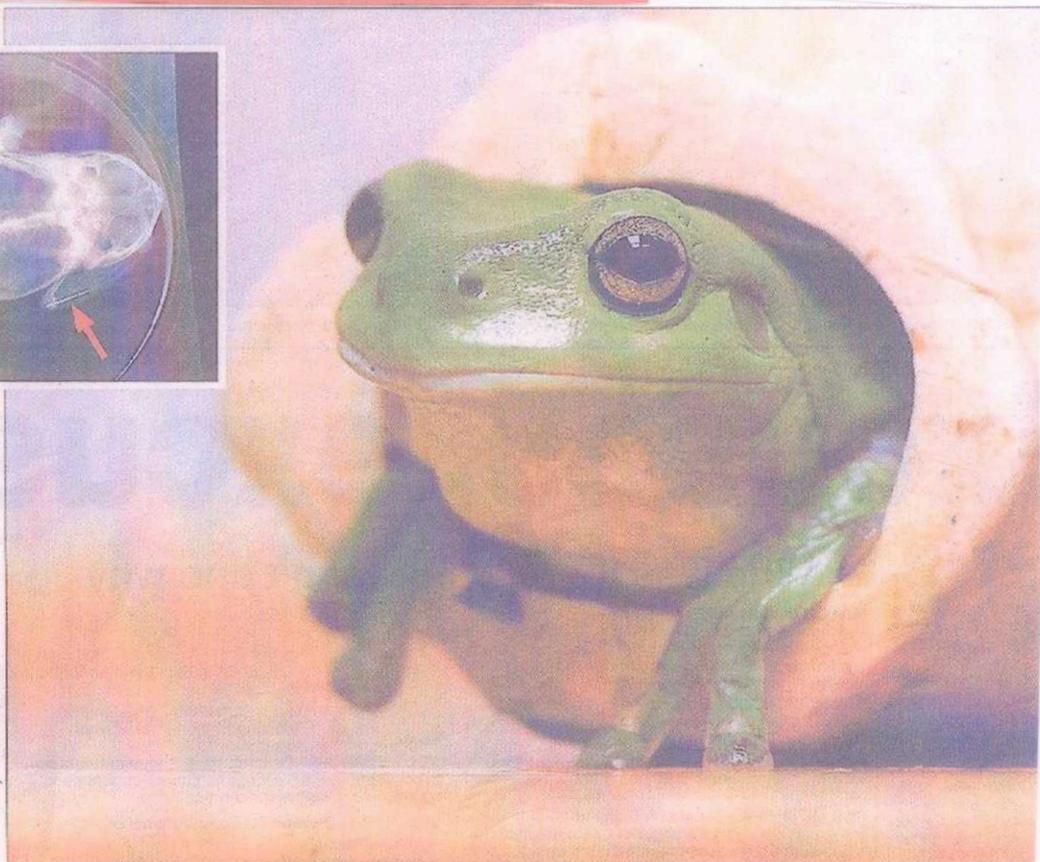
Page 3



An X-ray of green tree frog Frenchie shows his new 'bionic' arm in place after the delicate operation



Frenchie is recovering after his front leg was crushed by a wheelie bin. Left, a 16mm needle was used to pin the green tree frog's leg Picture: David Clark



FRENCHIE the frog cut a forlorn figure when he was taken to the Currumbin Wildlife Sanctuary four weeks ago. The green tree frog, named by sanctuary staff, was discovered under a wheelie bin at Pottsville, NSW, having fractured his left forelimb under the bin's wheels. The unfortunate frog was delivered to the sanctuary's wildlife hospital where some quick thinking by vets meant it wasn't long before little Frenchie had been made 'bionic' and was hopping along the road to recovery. "It was a pretty bad fracture," said Currumbin Wildlife Sanctuary veterinarian Erina

A shot in the arm for Frenchie

Young. "They've inserted a hypodermic needle into his arm to act as a pin to help the bones heal. "It's about a 16mm needle, which is the smallest gauge needle that we have here at the sanctuary. He was quite lucky. They don't make pins that small so we had to improvise. "We seem to do quite a lot of that here." Ms Young said, given the tiny nature of the patient, Frenchie's surgery was a prolonged procedure. "They worked on him for about two hours," she said. "Because it was so fiddly they had to take their time."

Four weeks have passed since the frog's micro-surgery and Ms Young said the patient was well on his way to recovery. "All he needed was the pin inserted and a couple of stitches. He wasn't able to move the forelimb at all when he came in but now he's got a bit of movement. "He's quite bright and chirpy." Ms Young said Frenchie was a couple of weeks away from full health but was making steady progress. He will be released back into the wild at Pottsville when he has recovered. "We're going to leave the pin in. That's what they do with people as well," she said. "It won't affect him at all. He'll have full movement."

FIELD TRIPS

Please book your place on field-trips; due to strong demand, numbers are limited (phone 9681-5308). Be sure to leave a contact number. Regardless of prevailing weather conditions, we will continue to schedule & advertise all monthly field-trips as planned. It is YOUR responsibility to re-confirm, in the final days, whether the field-trip is proceeding or has been cancelled. Phone Robert on ph. 9681-5308.

February 22-24.

Smiths Lake Camp-Out.

Leaders : Arthur & Karen White.

Many of our newer members may ponder the popularity of our regular camp-out to Smiths Lake. The venue is a University of NSW Field Studies Centre & they kindly make this facility available to FATS. Situated near Bulahdelah, & set on the shores of the beautiful Smiths Lake amongst magnificent bushland, this is the perfect venue for exploring the local rainforests for frogs & reptiles. Comfortable cabins or camping sites & hot showers ensure a relaxing weekend. There is a commercial kitchen & all crockery & cutlery is supplied as well as refrigeration facilities. Members are free to do as they wish during the daytime. Swimming is always popular as is surfing at nearby beaches. Karen & Arthur have studied the wildlife & geology of this area for many years & always know where to find all the nocturnal wildlife. A **non-refundable** fee of \$14 p.p. per night applies. Places are limited to 30 people. Bookings are necessary & this field-trip fills up quickly, so do book early. Phone Arthur or Karen directly on 9599 1161 for bookings & further details.

This concludes our 2007/2008 Spring / Summer Field Trips Programme. The next Spring / Summer Field-trips season re-commences in September.

In the event of uncertain frogging conditions (e.g. prolonged / severe drought, hazardous and/or torrential rain, bushfires etc.), please phone 9681-5308. Remember ! - rain is generally ideal for frogging ! Children must be accompanied by an adult. Bring enclosed shoes that can get wet (gumboots are preferable), torch, warm clothing and raincoat. Please be judicious with the use of insect repellent - frogs are very sensitive to chemicals ! Please observe all directions that the leader may give. Children are welcome, however please remember that young children especially can become very excited and boisterous at their first frogging experience – parents are asked to help ensure that the leader is able to conduct the trip to everyone's satisfaction. All field trips are strictly for members only - newcomers are however, welcome to take out membership before the commencement of the field-trip. All participants accept that there is some inherent risk associated with outdoor fieldtrips and by attending agree to; a release of all claims, a waiver of liability, and an assumption of risk.

FROGWATCH HELPLINE 0419 249 728

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INSURANCE DISCLAIMER FATS has public liability insurance for its various public functions. Members should be aware that this insurance does not cover FATS members (it covers the public & indemnifies FATS). We are currently checking with insurance firms to see whether a realistic group policy can be organised to cover FATS volunteers and people who attend field trips. **FATS MEETINGS** commence at about 7.00pm and end about 10.00pm, on the **first Friday of every EVEN month** (February, April, June, August, October and December), at Building 22, RANAD, Jamieson St, Sydney Olympic Park, Homebush Bay (accessible by car, train or bus). We hold 6 informative, informal, topical and practical meetings each year. Visitors are welcome. We are actively involved in monitoring frog populations, other field studies, produce the newsletter FROGCALL & FROGFACTS information sheets. All expressions of opinion and information are published on the basis that they are not to be regarded as an official opinion of the Frog and Tadpole Study Group Committee, unless expressly so stated. Material from FROGCALL MAY NOT BE REPRODUCED without the prior consent of the Editor or President of FATS. Permission from FATS and/or author/s must be obtained prior to any commercial use of material. The author/s and source must be fully acknowledged.

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