FROG CALL

THE FROG AND TADPOLE STUDY GROUP OF NSW INC.
ABN 34 282 154 794

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Our meeting will commence at 7.30 PM, FRIDAY

6th October 2000 at the AUSTRALIAN MUSEUM, WILLIAM ST ENTRANCE

HELP

Field Trip Co-ordinator

NEEDED

Our Web site http://members.nbci.com/frog_group/ is being upgraded at last © note that xoom has been replaced by NBCi

MEETING FORMAT for 6th October 2000

7.30pm: Glenn Muir and Trent Penman from the Australian Museum
"Before the Games -
the story of the Green & Golden Bell frog and the Sydney Olympics"

8.15 pm Dominic Borin -
" Frog quarantine techniques for large numbers of frogs"
Lou Petho
" The Chytrid fungus conference held in Cairns in September 2000"
Anne Miehs " What's in frog guts"

8.45pm Panel Question Time

9.00pm 5 favourite frog slides or 5 minutes
Guessing competition and Auction

9:45pm Finish for tea, coffee & biscuits

CONTENTS

THE LAST MEETING 4th August 2000

A full, action – packed meeting. Barbara Bohdanowicz welcomed a theatre full of members and friends with a special welcome to all new members. Apart from FATS regular meetings, field trips and training sessions, a regular newsletter and fact sheets, there are a number of projects in which members may like to become involved. These include:

The Australian Frog Count

finding endangered frog sites

learning how to record field data

adopting a pond or constructing your own pond and raising frogs (license from NPWS required)

restoring a Green and Golden Bell frog habitat

Those interested please contact the president or committee.

Our guest speaker was Dion Hobcraft, a staff member at Taronga Park Zoo. He spoke about the Captive Breeding Program for Green and Golden Bell Frogs at the Zoo.

Frogs at the Zoo are representatives from two main breeding populations at Rosebery and Arncliffe. Dion showed slides that indicated the wide variation in colouring and marking in this species. The frogs have a nervous disposition in comparison with other commonly kept native species. They are kept in modified glass tanks in clean water and fed on crickets. The Zoo has had this population for eight to nine years. Chytrid fungus has never been detected, thanks to strict hygiene protocol.

The frogs are not difficult to breed. A pair is put into a large food tub, serenaded with Bell Frog recordings … The tadpole has a beautiful pink iridescent colour.

Dion then gave us a brilliant, brief Cook's Tour of frogs, toads, newts and salamanders from other parts of the world. (Australia has no living representatives of newts or salamanders, however some 55 million-year old fossils have been found,)

Especially notable were the Fire-Bellied Newt from Japan and Central Asia and the "ribbit - ribbit - ribbit " Pacific Tree Frog from California. We also enjoyed numerous slides of our native species from most parts of the country. We saw representatives from most genera including Barred frogs, Burrowing frogs, Brood frogs, the diverse *Litoria*, Torrent frogs, *Nyctimystes* and two *Microhylids, Cophixalus ornatus* of toy trumpet call and the cute *Sphenophryne pluvialis* which like other *Sphenophryne* lays eggs out of water and has no free-swimming tadpole stage.

GOLDEN BELL FROG × ½

A new feature of FATS meetings was introduced: Panel Question Time. Everyone present was invited to submit questions to our panel of experts: Lothar Voigt, Arthur White and Stan Orchard.

Q: What temperature is needed to breed Green and Golden Bell Frogs?

A: 20 – 22 degrees.

Q: Do frogs change sex during a lifetime?

A: In general, no, but it is possible to do it surgically to any frog as each retains remnants of the opposite sex. (Arthur) environmental hormone blockers (oestrogen-like compounds) can cause "feminisation" (Stan).

Q: Are any trees or plants toxic to frogs?

A: Oleander, camphor laurel, acacia. Some bromeliads, although not toxic, are unsuitable for frog ponds because of their spines. (Lothar).

Q: Do frogs hibernate in winter?

A: They don't hibernate, but they lower their activity levels. Australian frogs are opportunistic. They behave according to temperature variation.

This question raised other points of interest:

Canadian Wood Frogs can withstand below-zero temperatures without ill effects. Any frog stops eating at very low temperatures. Digestion ceases and food remains in the stomach.

Arthur mentioned that the Department of Agriculture has strict ruling on disposal of Cane Toads. They may be killed only by cooling then freezing. All other methods are inhumane.

Q: What is safe to use to wipe down the inside of frog tanks?

A: Hands must be washed before touching the tanks. Clean the glass using a spray-bottle of water. Dry it with any chemical-free paper.

Q: Can more than one species be kept in the same tank?

A: No.

The Five Favourite Frog Slides segment featured the Red-crowned Toadlet, *Pseudophryne australis*. This small species (1.8-2.7cm) is found in a few sandstone areas in the Sydney region. The crown and dorsal markings are orange rather than red. Dorsal markings are variable, but the black and white marbled belly patterns are different in each individual.

Announcements from the last meeting:

Karen Thumm still has copies of "Threatened Frogs of NSW". This book is based on five years fieldwork. It is a scientific work with information on 25 species. It has been reduced from $56 to $35. It is no longer available for sale except from Karen. Contact Karen through FATS email address.

FROG PLANT SERVICE

At the August meeting Danie Ondinea brought in 5 more native species of frog plant (or suspected frog plant!) which grow in and around Sydney's wetlands.

The wonderfully named Woolly Frogmouth *(Philydrum lanuginosum*) with woolly stems and showy, yellow flowers shaped a bit like a frog's mouth (surprise, surprise!) is not known as a frog plant (yet!), but we're keen for your feedback about how your frogs take to it.

Knobby Club-Rush (*Isolepis nodosa*) and one of the sedges (Carex species) are attractive, hardy sedges which provide shelter for small frogs when planted in clumps. They are also attractive to insects such as butterflies and native bees.

Red-fruited Saw Sedge *(Gahnia sieberiana*) is a tall, elegant, sharp-leaved rush which provides excellent shelter for small tree frogs and attracts seed-eating birds as well a butterflies.

One of the native Knotweeds (*Persicaria strigosa*) is a dense groundcover with lovely white flowers which provides good cover for Striped Marsh Frogs and Peron's Tree Frogs and may attract seed-eating birds.

There will be more frog plants for your pond and bog garden available for sale at the October meeting. For further information about the frog plant service, contact Danie Ondinea on (02) 9569 5447 (ph/fax) or danieo@pacific.net.au.

These plants all come from the Randwick Community Nursery. If people would like to deal with the Nursery direct, they are open Mon - Fri, 9.00 am to 3.00 pm. They are a wholesale nursery situated in Kingsford and can be contacted on (02) 9399 0933. Dave Bateman is the Nursery contact person for frog plants.

Fernando Ravello from National Parks and Wildlife reminded all Licensed Amphibian Keepers their Fauna Record Book(s) were due in August. He has already sent out reminder letters to all current Amphibian licensees.

Please note, that if any licensee has not acquired any frogs in approx the last 12 months (current fauna return period) or if they have recently obtained a licence and have not acquired any frogs as yet, they will have to notify the Service (Wildlife Licensing) in writing and explain the circumstances for a NIL RETURN.

Fernando Ravello
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NPWS Wildlife Licensing
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Allie Mokany, an honours student at USYD. Made an announcement at the last FATS meeting. She needs frog ponds for fieldwork. Her honours project involves looking at competition between tadpoles and mosquito larvae. The species that she will be examining primarily is *Limnodynastes peronii* (the striped marsh frog). She will be conducting various laboratory studies on tadpole-mosquito interactions, and will need to supplement these with field studies. She would like to examine tadpole ponds to determine what densities mosquitoes and tadpoles occur at and see if this changes over time. It would be great if she could get some people with frog ponds to let her count the tadpoles and mosquitoes in them. Email: amok2465@mail.usyd.edu.au

Congratulations to our raffle winner Chris (who drew his own ticket!) Warmest thanks to everyone who donated the raffle and auction items.

(Please note; if you have any froggy items that you would like to donate for auction or raffle, just bring them to meetings.) **Punia Jeffery**

A trap for the marauding cane toad may result from the discovery that a native frog species produces a sex pheromone.

AUSTRALIAN GEOGRAPHIC

ESTHER BEATON

A cure for cane toads?

Microbits, AUSTRALIAN GEOGRAPHIC,

As the introduced cane toad continues its relentless southerly and westerly march (AG 44), and efforts to find a biological control are being wound down, hope of a new solution to this amphibian menace has appeared on the horizon.

Paul Wabnitz, a PhD student at the University of Adelaide, has for the first time isolated a sex pheromone from a frog. Sex pheromones are used by a diverse range of animals to attract mates, but no-one had found any evidence that frogs produce them until Paul found one in the magnificent tree frog, a species living in the Kimberley region of Western Australia.

Paul is now looking for a similar substance in cane toads. If he's successful, the substance could be used to draw them into traps or disrupt their breeding behaviour.

Saving the green and gold

It has all the hallmarks of an Olympic fairytale – fading star makes triumphant comeback against incredible odds. But in this case the central character is a frog.

But as the games approach, the frogs appear to be thriving, thanks to careful day-to-day management of the site, the creation of new habitat and the use of "frog fences", which provide a barrier between the frogs' ponds and construction activity.

And the many management lessons that have been learnt at the site are being communicated to the NSW National Parks and Wildlife Service for use in putting together a State-wide management plan for the frogs.

Thanks to the creation of 19 new ponds, the green and golden bell frog is thriving in a disused brick pit at the Olympic site at Homebush Bay in Sydney.

50mm Green Tree Frog
photographed by Paul Speirs
Katherine in NT September 2000

http://pspeirs.bpc-users.org/images/trip104.jpg

THE GREEN TREE FROG–

Litoria caerulea

Other common names – White's Tree Frog, Dumpy Tree Frog, Great Green Tree Frog, Dunny Green Tree Frog Other scientific names – *Rana caeruleus, Hyla caerulea, Pelodryas caerulea*

HISTORY

The original description of the Green Tree Frog is dated 1790, and credited to John White, a ships surgeon who visited NSW with Capt. James Cook in 1770. This is where the alternative common name of White's Tree Frog comes from. Whilst no type locality is recorded, it is highly likely that the specimen was collected from the coastal surrounds of Sydney.

The origin of the specific name *caerulea* bears explanation. The green colour of the frogs is due to the combination of two factors, the first a yellow pigment, the second a light scattering effect similar to that which makes the sky blue. The first specimens upon which the scientific description was based were collected then preserved in alcohol. The alcohol dissolved the yellow pigment, leaving the frogs looking blue, hence the name *caerulea*, which means sky-blue.

Word of these blue frogs spread throughout Europe, and Louis XVI is reported to have sent an expedition to Australia to bring back blue frogs for the French court.

DISTRIBUTION

Litoria caerulea is distributed across northern and eastern Australia, the islands of Torres Strait, southern New Guinea and parts of Indonesia. An introduced population is also reported from New Zealand. They are still to be found within the Sydney metropolitan area, but in nowhere near their former numbers or distribution.

HABITAT

After *Litoria rubella, L. caerulea* is the second most widespread frog in Australia. As would be expected from a frog with such a vast distribution, it is found in a wide range of habitats ranging from Rainforest to Dry Temperate Forest.

The common factor in all suitable habitats is permanent water, and the availability of cool moist microhabitats suitable as diurnal retreats. They are an arboreal frog so will often be found at some height above the ground. *L.caerulea* is commonly found in many man-made retreats that suit its needs. These have included public toilet blocks, toilet cisterns and bowls, downpipes and guttering, water-tanks, laundries and letterboxes. It is not uncommon to find aggregations of them in the best retreats.

IDENTIFICATION

The Green Tree Frog as an adult is a large robust frog with stout limbs and a Snout-Vent Length (SVL) for wild specimens of up to 125 mm for females and 75 mm for males. Frogs from southern localities are reported to be smaller and squatter than those from the north. In the north western area of its range (Western Australia, Northern Territory, north-western Queensland) the colouration on the back of the thigh is yellow to orange, whereas those from the east have dark red to maroon. This may end up proving to be a separate species.

The typical colour is a bright jade green, although sometimes they will be a darker olive green. Occasionally there are scattered white spots along the flanks of the frogs. These are not pigment or a lack of it, but guanine crystals, the same substance that gives fish scales their iridescence. Frogs from arid areas are reported to have larger more numerous white spots. Whether this observation refers to frogs from all arid areas is unclear, since *L. gilleni,* a species recently split from *L. caerulea*, has the identifying feature of numerous white spots on its back.

The skin is smooth and often appears glossy due to a liquid fatty substance the frog excretes from its head and neck, which it then coats itself with to limit water loss. *L. caerulea* can also secrete a whitish substance from it's skin that is poisonous to prey and other frogs alike. Recently the skin secretions of *L. caerulea* have been investigated, and these chemicals, called caerins and caeridins, have been found to have antibiotic properties.

The stomach is white to cream and slightly granular. The tympanum is distinct, and there is a large fold above the eye. The iris is golden, and the pupil horizontal. The feet are three-quarters webbed, the hands about one-third webbed, and the discs are large. Contrary to popular belief, the discs of Tree-frogs are not 'suction cups', the frog actually exudes a sticky substance from its toes that helps it stick to vertical surfaces.

Differentiating the sexes is not easy, but males are typically smaller and have a dull green coloured throat skin. The throats of females are always white/cream. During the breeding season the males throat darkens and nuptial pads form on the inside of the 'thumbs' (the inner digit of the front legs).). In common with all frogs, the males are also the only ones who call, which is a loud raucous croak that has been variously described as reminiscent of a dog barking, a goose honking, or someone sawing wood. The tadpoles are dark green to black in colour, and up to 45 mm in total length. The denticle configuration is two rows on either side in front of the horny beak, and three undivided below.

Only two other frogs, *Litoria splendida* and *Litoria gilleni*, could possibly be confused with adult *L. caerulea*, but neither of these occur in Queensland or New South Wales. Distinguishing features are yellow spots on *L. splendida* and prominent glands on the top and back of the head, and a smaller size and more numerous white spots on the back of *L. gilleni*.

DIET

In common with just about all frogs they rely on the movement of prey to recognise it as food. The diet consists primarily of insects such as moths, cockroaches and crickets. Spiders, smaller frogs and lizards, and small mammals and birds will also be eaten if the opportunity arises, as *L. caerulea* is an opportunistic feeder that consumes just about anything that will fit into its mouth.

They do not chew their food but swallow it whole, forcing it into their mouth with their hands and then into the stomach with their eyes, which they push downards through the soft palate of the upper jaw. If a meal is distasteful or unwanted, *L. caerulea* will invert its stomach and use its hands to remove the offending item. When it assumes a diurnal resting position, the frog will often slough a slime skin, which it then eats before heading off to forage the next night.

During the cooler months the frogs go into a state of brumation where they limit their activity to conserve energy. Being ectothermic they are unable to maintain a temperature high enough for effective digestion, and so do not feed during this cooler period.

BREEDING

L. caerulea is one of the first frogs to breed at the onset of the warmer spring rains. In higher rainfall areas, the breeding season typically commences around October, and can last until February in more southern localities. If there is insufficient rain there is no breeding.

The males descend from their usual higher perches to take up a slightly elevated position around the pond on a rock or log. They spawn in static water of at least 17°C, with a minimum depth of at least 75 mm. Each spawn typically consists of 200-2000 eggs, which are expelled with such force by the female that they can end up half a metre away. The eggs are 1.1 - 1.4 mm in diameter, and sink to the bottom of the water body in large clumps after spawning. Metamorphosis is completed in 38 days at 30°C.

CAPTIVE CARE

L. caerulea is probably not only the most popular Australian native frog for a pet but also the most suitable. They have an unassuming placid nature with a disregard for humans that allows them to adapt readily to captivity. The longest reported lifespan for a captive *L. caerulea* is over 23 years. The requirements for keeping a healthy, happy Green Tree Frog are set out in Frogfacts 1, available from the FATS Group, and in several books, the most noteworthy being Frogs as Pets by Michael J. Tyler. **Steve Weir**

BIBLIOGRAPHY

Australian Frogs – a natural history, Michael J. Tyler (1999)

Reptiles and Amphibians of Australia – 6th Edition, Harold G. Cogger (2000)

Frogs as Pets, Michael J. Tyler (1996)

Encyclopaedia of Australian Animals – Frogs, Michael J. Tyler (ed.) (1992)

A Field Guide to the Frogs of Australia, Martyn Robinson (1993)

Urban Wildlife of New South Wales, John Pastorelli (ed.) (1990)

Frogs of the Northern Territory, Michael J. Tyler and Margaret Davies (1996)

Frogs and Toads, Steve Grenard (1998)

Frogs, Toads and Treefrogs, R.D. Bartlett and Patricia P. Bartlett (1996)

Reptiles and Amphibians, David Alderton (1986)

Fauna of the Blue Mountains, Judy and Peter Smith (1990)

Banksia awards 2000 (extract)

IN what may be a perfect example of synchronicity, the Olympic Co-ordination Authority (OCA) took out this year's Banksia Gold Award in the Olympic year and at the first ever awards held in the Olympic-city — Sydney.

At Saturday night's Darling Harbour black tie presentation — hosted by the ABC's Adam Spencer — OCA was awarded the major prize for its Golden Bell Frog project.

Chairman of Judges, Dr Brian Robinson, said the project clearly demonstrates that large-scale developments can successfully integrate ecological sustainability.

"Throughout the most intensive construction program in Australia, the existing frog habitat has been protected, extensive new habitat created and workplace protocols put in place to conserve the endangered frog species," he said.

The Banksia Gold Award, sponsored by the Ford Motor Company, recognised the OCA's successful integration of measures such as species and resources conservation and control.

The Banksia Awards are recognised as the nation's leading environmental awards program.

For OCA, the award is recognition for seven hard years of site redevelopment.

The project utilised multi-disciplinary teams and expertise from the Australian Museum herpetologists which has resulted in a flourishing Green and Golden Bell Frog population.

The Australian 5-6-2000 5

Green and gold victory

Survivor: the Golden Bell frog now has a more secure future thanks to the Olympic Co-ordination Authority (OCA)

CHYTRID AND YOU

The news is not very good: The frog diseases conference in Cairns last month hasn't come up with a magic cure; the frog fungus appears to be spreading - both in the wild and in collections - and where it's once been it won't go away. And it almost seems that less is known about it now than there was last year. Yes, spraying or bathing frogs in this or that helps, but once you stop it could come back again.

Here is some still very PRELIMINARY advice on what to do if you keep captive frogs, even if you think they're ok, and especially if you have acquired any in the same cage over the last six months:

1. Spray them and their cages daily with 0.05 % saline; that's 5 g salt (one levellish teaspoon) to a 10 litre watering can. From that, fill your 1/2 litre spray bottle and add one drop aquarium fungicide. I use 'Broad Spectrum' from CPV, and if I can't get that I use 'Aqua Remedy' from Alive-O which is stocked e.g. at K-Mart. The one drop per 1/2 litre is half the recommended concentration for fish.
2. If you have bell frogs, you can safely quadruple the amount of salt.
3. If your tank has a water bowl instead of a bio-filtered pond area, fill it with 4 parts tap water and one part mix from your spray bottle.
4. If your tank has a filtered pond, do weekly partial water changes with dechlorinated tap water that has 0.01 % salt in it, i.e. 4 parts from the tap and 1 part from your watering can. (Building up the salt slowly will allow your various nitrification bacteria to establish a different species composition, so you won't trash your bio-filtration.) If your water plants are Java Moss or Java Fern, they won't mind that much salt, but if you have sensitive plants like Water Sprite or if you have tadpoles (other than bell frog ones), halve the salt again - which brings you down to 50 mg/l which is good practice in any case and counteracts nitrite poisoning if nothing else).
5. If you had a frog death in that tank in suspect circumstances, double the concentration of salt and fungicide, both for the spray and the water bowl. If you have convinced yourself that your frogs have chytrid, double the concentration again because you have nothing to lose. If your set-up has a bio-filtered pond, it might be a good idea to drain it and put in a water bowl instead so you can put in the fungicide.
6. If you can, get yourself some benzalkonium chloride from the FATS Group or from a vet, dilute it to 10 mg/l and spray with that daily as well. We think that this, and at this concentration, has in the past probably not cleared chytrid but held it at bay.
7. Keep you paws out of the tank, and especially if you have more than one tank. Amphibian chytrid fungus won't harm you, for all we know, but it's water-borne and spreads easily. (It also survives in fish tanks without frogs.)
8. Likewise, don't infect the frogs in your garden or that may come passing through. Pour all waste liquid down the loo, not into or near your garden, and put solid waste wrapped up in the rubbish, not on the compost.
9. Follow the NPWS frog hygiene protocol which you would have got with your licence renewal.
10. None of the labs we know of are keen to check your dead frogs for chytrid fungus; they are struggling to keep up with checking wild specimen, and those have a higher priority. Until and if the FATS Group gets the capability to do our own histologies, there is little point in pickling any casualties.

May the frog (hopefully still) be with you. **Lothar.Voigt**

FROG ADOPTIONS

At the October meeting there will probably be enough of the smaller frogs to go around amongst our members: Dainties (*Litoria gracilenta*), Dwarf Tree frogs (*L. fallax*), and young White-lips (*L. infrafrenata*). We were going to have heaps more, but some didn't make it through quarantine, for some we had to extend their quarantine period, and some tankfuls of the home-bred frogs couldn't be released for adoption.

Only two or three Green Tree Frogs have come in over the last three months, and they looked chytrid-infected. We are getting quite worried about that species now. Regretfully, we now have to cancel the waiting list for Green Tree Frogs, and those that will come in we are going to save to help re-stock the Australian Reptile Park.

Please continue to treat your new frogs, including those that have gone through the FATS Group's quarantine, as described in the 'Chytrid and You' article in this issue. You may need to spray them with very weak salt water and fungicide indefinitely, or until somebody comes up with a definite cure. **L.V.**

HEY - FROGWEEK'S COMING UP

Remember, the first week in November? And greedy as we are, Frogweek straddles both weekends: from Saturday, 4.11. to Sunday, 12.11.

When it all started in 1993, we wanted to tell everyone about the plight of frogs and how they suffer when we (a) pollute or (b) steal their environment. That is still true of course, but now there is also a (c) for chytrid! And more disasters may be looming.

Our society's polluting habits; well, we the FATS Group and all the other frog friends and zoos and other institutions and community groups may have had a bit of influence. Certainly many schools took up the message. After all, lots of children like frogs enough to forego some of our polluting habits and to grow up frowning on those who don't. If we could only get kids to like frogs even more, and if more schools became involved, we'd be on a winning streak.

Now there are two major frogs/kids/schools initiatives: Taronga Zoo is producing a great CD-ROM on Australian frogs that they are going to send out to all the schools in Australia for free. And it may come out just in time for Frogweek! (Taronga have also persuaded many of the other zoos in Australia to do something for Frogweek.)

The other initiative comes from NPWS: Schoolkids in NSW will be allowed to catch and raise tadpoles and will be encouraged to do it right, with posters and guidelines and ethics committee blessings. Sure, conditions apply, but the conditions themselves are educational and responsible and environmentally sound.

About us stealing frog environments, that's a harder nut to crack. We have given a little bit of urban gardens back to frogs - for example, many if not most of our members have frog ponds now. Urban battlefronts may not be where most of the threatened species are - Green and Golden Bell Frog and Red-crowned Toadlet habitats excepted - but urban biodiversity is also pleasing and educational and an antidote to alienation from nature.

Where we could do more conservation-wise might be to ask and help farmers, schools and townships to identify and protect critical frog habitats such as drought refugia. Protect them from drying out, from livestock, Gambusia, development, yes and now also from chytrid fungus.

Which brings us to item (c). The trick here is to do some good without setting folks up against frogs. Sick frogs don't make a loveable image. Parents' reaction could well be not let their nice little children anywhere near such yucky and unhygienic slimy monsters.

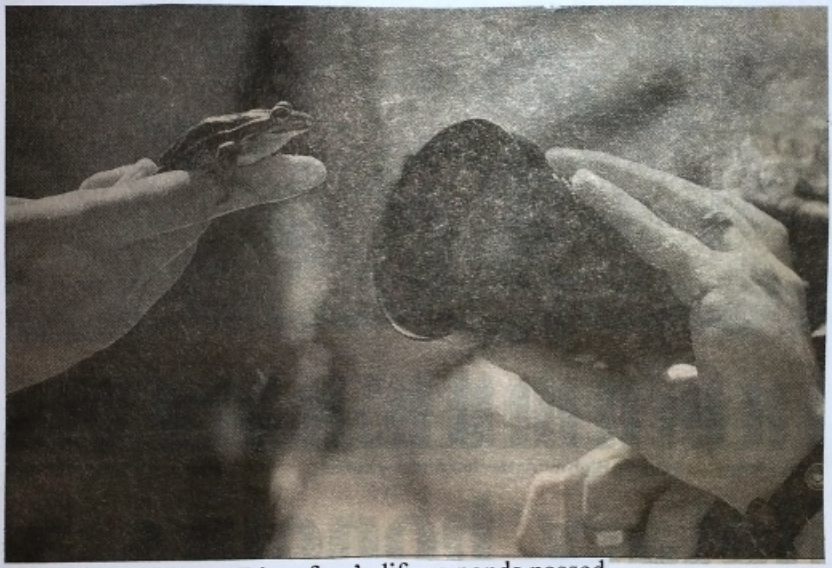
We must stress in any publicity and advice that the amphibian chytrid fungus affects frogs, not people.

Would you, dear FATS member, yourself, please, just this time, talk to your local school or scout meeting or MP or council or farmer or newspaper or talkback station about (a), (b) or (c) for Frogweek? Bounce it off one of the committee members if you feel the need. And while you're at it, write a letter to some poor unsuspecting editor. Make them aware of the plight of frogs. Get them to join the FATS Group at the very least.

As for us, how can we help frogs directly? How about this: Learn to breed one or two species. Keep them alive for the next decade or two, if need be with chytrid and all. There are already crops that have been genetically engineered to be immune to the herbicide Roundup. By then, technology should be off the peg to make frog breeding pairs immune to chytrid, right down to their germ cells, so that their offspring can sally forth and multiply in a hostile world.

What will your great-grandchildren remember you for, long after your photo album and stamp collection got turfed out? Maybe let them remember you for that species you saved!

Have a Hoppy Frogweek. **LV**



Always in the spotlight . . . the green and golden bell frog

It's a frog's life as ponds passed

The Glebe and Inner Western Weekly
31 May 2000

with complimentsRichardNewman

by NATHAN McILROY

A SERIES of ponds at Greenacre designed to re-populate an endangered frog species have been described as mutual pools with all the mod cons by an environmentalist group.

Strathfield Council last week approved the construction of three ponds at the former brick pit on Juno Pde to provide a breeding habitat for the green and golden bell frog.

Hannas Civil Engineering will install the artificial ponds along with associated earth works and fencing amid speculation about its long-term plans for the site.

The proposal comes before two separate development applications for the site, which include the filling in of the frogs natural habitat.

In his submission to council, Cooks River Coalition spokesman Gary Blaschke said the site was home to one of three key frog populations in Sydney.

The other two at Homebush Bay and Enfield Marshalling Yards are under threat from a virus, a waste water scheme and industrial development.

"The brick pit is the only site of three habitats [illegible] strated as a positive breeding area," he said.

"The degraded condition of the site is only typical of the needs of this particular species and the construction of a Mutual Pool with all the mod cons is far from what is needed."

Designer Dr Arthur White said the pools used recommended designs, the same as those at a major development for the M5 East Motorway.

"We had immediate success with frogs moving in and breeding on their own accord and are confident of repeating the process at the brick pit," he said.

"When you change the habitat of any endangered species there is a certain element of risk and we are in the business of minimising the risk. One way council is trying to do this is to have a period of two years to observe the frog population."

A spokesman for the developer said the future of the site would be decided in three to five years.

Scientists unite to stop frogs croaking

Helping hand: Professor Halliday hopes scientific breakthroughs can halt a decline in the world's frog population

Picture: Steve Brennan

Cathy Pryor

FOR the past decade, Tim Halliday has been attempting to unravel one of the greatest mysteries facing scientists around the world — what is causing frog populations to decline and what can be done to save some species from extinction?

Professor Halliday, director of the British-based Declining Amphibian Populations Taskforce, is in Australia for the first international conference examining diseases that target amphibians and what can be done to prevent them spreading. After four days of workshops in Cairns, representatives from the likes of Spain, South America, Britain and Australia will hand down their recommendations today. It is hoped the international community can unite to save the world's frogs, which are vital to freshwater ecosystems.

THE AUSTRALIAN — Tuesday August 29 2000

In Costa Rica in the late 1980s, scientists discovered that half the country's native species had "just disappeared" in the space of about three or four years. In Australia and other countries around the world, reports were filed of entire populations being wiped out in a matter of weeks. A number of species, such as north Queensland's white-lipped tree frog, have since been affected by fungal disease.

According to Professor Halliday, there is no evidence the frog decline is slowing, with one recent study from the Frogwatch program in Western Australia finding fungal disease as far away as the north-west Kimberley region. The ailment affects the skin of frogs and is thought to impair their breathing.

There are fears it could spread into the precious frog populations of Kakadu.

Ken Aplin, frog curator at the West Australian Museum and co-ordinator of the program, said it was clear that diseases, particularly the chytridiomycosis fungus, were at least partially responsible for fewer frogs in Australia.

Mr Aplin's team has completed a study of historical records from the 1950s across a number of species and has found it was only from 1985 that fungal disease had been present.

It is now believed the disease was introduced by the pet and livestock trade.

"We don't know how it actually kills frogs," Mr Aplin said.

"We do have one record now from the Kimberley district, which is connected by continuous wetland habitats through to the Northern Territory, so that is really very concerning."

Professor Halliday said while scientists believed global warming, diseases and changes in ultra-violet patterns played a significant role in depleting frog numbers, it was clear the destruction of natural habitats had been a factor.

"There is no vested interest in small freshwater habitats. There are no fisheries, no forestry, no hunting or anything like that," Professor Halliday said.

"But in some habitats, frogs are the major component of the ecosystem and provide food for other species, such as snakes, so the loss of frogs would threaten them as well."

'Frogs are the major component of some ecosystems and provide food for others'

Professor Tim Halliday
Director of Declining Amphibian Populations Taskforce

Science finds culprits of frog decline

Daily Telegraph 13-4-2000

By SIMON BENSON
Environment Reporter

DISEASE, increased ultraviolet radiation, fish, climate change and chemicals have all been blamed for the mysterious frog deaths that have rung scientific alarm bells over the past five years.

New research may have put the jigsaw puzzle together and found the real culprit — us.

The deaths of frogs the world over may, in fact, be part of a massive evolutionary decline in global amphibians which scientists have traced back to the 1950s. The first study of its kind, which has looked at more than 900 species of frogs around the world, has found a rapid downward trend in populations which began in the early '50s and has continued.

Australia was singled out as being a country which had experienced one of the most rapid declines, and where evidence of species decline had been the strongest.

The study, which will appear in today's issue of the science journal *Nature*, suggests that the loss of frogs around the planet could be an evolutionary reaction to a dramatically changing world in which frogs have not been able to genetically adapt fast enough to cope with human-induced change.

Scientists from Canada, Switzerland and Russia collaborated in the study, which investigated data on 936 species of amphibians from Europe, Australia, North America and South America.

"Although there is growing concern that amphibian populations are declining globally, much of the supporting evidence has been anecdotal," the paper claimed.

Australian Museum herpetologist Allen Greer said studies of this kind were of huge importance because of the lack of historical data on amphibians.

"We need this kind of population biology knowledge," said Dr Greer.

"It sounds like it confirms the general scientific opinion about the decline in frogs.

"All extinctions have some sort of cause and it could be an evolutionary response of either a natural or non-natural origin.

"It is also known that frogs are early warning indicators about the state of an environment and there is a lot to be said for that."

During the past decade there have been reports of "catastrophic" declines of amphibian species in Australia, South America and Central America, the report claimed.

"Ancillary evidence has pointed to several possible underlying causes, including changes in local climate, acid rain, disease, increased UV radiation or combinations of all," it says.

Until now it has not been possible to extrapolate the isolated causes into a global phenomenon.

FROG PROFILE

Scientific Name: ***Litoria raniformis***

Common Names: Southern Bell, Frog/Warty Swamp Frog

DISTRIBUTION:

The Southern Bell Frog is located in areas of permanent water in south-western NSW, central and western Victoria, the Murray Valley of SA and Tasmania. It has also been introduced to New Zealand. The population in NSW was known to have declined markedly in the late 1970s, but there is some indication that this species has recovered somewhat in the Murray Valley of NSW. This may be a result of the development of crops such as rice that maintain long-term flooded areas that these frogs can use as habitat. The Southern Bell Frog also appears to have also declined in Victoria and perhaps Tasmania. The populations in New Zealand were reported to have been doing very well until recently when they too may have undergone some significant declines. The reasons for these losses are uncertain, but the Chytrid fungus is suspected again to have played some role.

PHYSICAL DESCRIPTION:

This is another large frog. Males grow to 65 mm and females can reach just over 100 mm. Individuals have a green back with varying degrees of gold, brown and black spotting. There is a noticeable pale stripe running down the side of the head and upper flanks and usually a stripe down the centre of the back. The belly is a white or creamy and the hind side of the thighs blue with, very occasionally, yellow spots. The sides are noticeably warty as can be the back which gives the frog one of its common names.

BREEDING BIOLOGY (INCLUDING CALL):

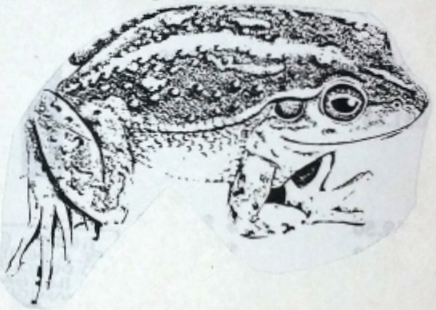
The male southern barred frogs call whilst floating in water amongst emergent vegetation. They can be heard from between August and April and probably have a peak period of September to February. The call is deep and unmusical and something like "wha aa aa aa aa, whaa aa aa aa aa".

GENERAL HABITAT REQUIREMENTS:

This species prefers to live in large swampy areas with emergent vegetation (eg, billabongs or large river flats), but can also use farm dams and slow flowing sections of rivers. As noted above, the Southern Bell Frog has recently colonised agricultural areas within the Murray Valley using flooded fields as breeding sites. Individuals will bask and shelter within the reeds and other emergent vegetation and can also be found hiding under debris or in the base of vegetation surrounding the water bodies. Adults are unlikely to leave their home water body once they have established themselves there.

SIMILAR SPECIES: The Southern Bell Frog is similar to all of the other Bell frogs. Generally, their ranges do not overlap, but in some cases this species was found at the same sites as Green and Golden Bell Frogs (*Litoria aurea*) and possibly the Tablelands Bell Frog (*Litoria castanea / flavipunctata*). The Southern Bell Frog is much wartier than the green and golden bell frog and usually has the mid-dorsal strip which the latter usually lacks. It can be distinguished from the Tablelands Bell Frog by the lack of yellow spotting on the flanks. **Frank Lemckert**

Editor ERROR and APOLOGY: the Last frog profile was for *mixophyes* (not *raniformis)* apologies to Frank for the mixup during emailing data.



The Australian 15-8-2000

Cool frogs could land US survivors in hot water

I SEE that the producers of the hit American TV series Survivor intend "stranding" 16 people in far north Queensland's outback later this year in an attempt to test the Americans' survival skills in the Australian bush.

Good for them. All those into watching the epitome of bad-taste television are welcome to it. What should concern most people, though, is a statement from the manager of the production team concerning our wildlife found in that area. She advises that in the first series, survivors ate rats and fish as a supplement to rice, and that "in far north Queensland, you've got some really cool frogs, mammals, possums and some unique Australian insects that I think they [the survivors] will pick up on".

Well, I have news for you, madam. All Australian flora and fauna, including the aforementioned "cool frogs", are protected, and unless you have been given some sort of special permission from the Environmental Protection Agency, killing these animals is illegal and will incur hefty fines.

By all means help yourself to as many of the local cane toads and rabbits you can find, but hands off our "cool frogs".

RAY DUNCAN
Smithfield Heights, Qld

FROGBITS AND TADPIECES

RED LEG ANYONE?

Anyone out there unpublished experiences with red leg in their study populations? I'm curious to know if others have observed red leg episodes but did not publish because it was only observed or bacteria cultured and not scientifically documented.
Also is anyone aware of observations of the disease that might have been mentioned in passing in published studies (Not, for example Nyman 1986 or Hunsaker and Potter 1960- which are specific about it).
Christine geist@wwfus.org

I am diagnostic virologist with the U.S. Geological Survey, National Wildlife Health Center in Madison Wisconsin. How many of the "red leg" specimens were tested for the presence of viruses, specifically iridoviruses? Here at the Center we have isolated iridoviruses from many cases of apparent "red leg" with and without the isolation of *A. hydrophila.* I am suggesting that it would be a good idea to attempt virus isolation on suspect "red leg" cases. There is a discussion of the association of iridoviruses with "red leg" in: Cunningham, A.A., et al. Pathological and microbiological findings from incidents of unusual mortality of the common frog (*Rana temporaria*). Phil. Trans. R. Soc. Lond. B (1996) 351, 1539-1557. In the summary of that publication the authors state " Specifically, we hypothesize that primary iridovirus infection, with and without secondary infection with opportunistic pathogens such as *A. hydrophila,* may cause natural outbreaks of "red-leg", a disease considered previously to be due to bacterial infection only." There is a further discussion of this hypothesis in the discussion section of the publication.
Doug Docherty doug_docherty@usgs.gov

Just to add more data to the issue at hand ... this past spring I found *Rana dalmatina* (Agile Frog) with apparent "red-leg" syndrome in the Matra hills in north central Hungary. The specific individual was barely alive in a small pond, and in a relatively untouched area. Although I did see other *R. dalmatinas* in the area, no other seemed to be affected. **Discussions Related to Monitoring Amphibians" amp@rana.er.usgs.gov From: Brandon Anthony BRANDONA@CEU.HU**

I do recall your talk from the meeting. I agree that red leg bacterial infection is most likely a secondary infection in chytrid die off episodes. All the data I've seen and heard indicates that pathogenic bacterial infections occur following exposure to some stressor (in the wild or the laboratory). Your information indicates that if there are others out there who have had these same experiences, they might want to examine preserved specimens for chytrids. This may help to broaden our understanding of where this fungus is located. For example, should we worry that it is on the east coast somewhere and might hit at any time?

It seems likely that there may be more of these episodes out there than have been reported to the scientific community. **CHRISTINE.GEIST@WWFUS.ORG**

Between 1992 and 1997, I studied "red-leg die offs" in 6 populations of Arizona leopard frogs, mostly lowland leopard frogs (*Rana yavapaiensis*). These die offs occurred at sites with known (e.g. mark-recapture study sites) and unknown (e.g. a bunch of dead frogs in a pond) population sizes. *Aeromonas hydrophila* and other bacteria associated w/ red-leg were almost always isolated from freshly dead and moribund specimens. At that time red-leg was blamed as the likely cause of death.

Since the publication of Berger et. al (1998), for all "red-leg die offs" that I had specimens suitable for histology, chytrid fungus was been found and implicated. To date, Phil Rosen, Greg Bradley, and I with the help of the Tucson Herp Society have collected field data from 40 "die-off events" at 24 localities. This count includes the re-diagnosed red-leg events and those that have been observed in Arizona from 1998 to the present. I presented an oral paper at the Herp meetings in La Paz on this stuff.

Most pathologists I've talked to think chytrids are primarily responsible for these episodes and Aeromonas & company are secondarily infecting the frogs. This thinking fits with our data. We studied 16 cases in which we had specimens suitable for both histology (chytrids) and cultures (bacteria). In no case, did we find animals positive for bacteria, but negative for chytrids. We found 4 cases where specimens were positive for chytrids, but negative for bacteria. Phil, Greg, and I are in the process of writing this work up.
Michael J. Sredl Ranid Frogs Projects and DAPTF SW USA Working Group Coordinator,msredl@gf.state.az.us

Editor: concerns have been raised in some fields :"It is interesting but it still worries me that we have seemingly all accepted the 'easiest cause' and the 'easiest solution' scenarios even though they're still difficult ones to try to fix ie. 'it's diseases that're killing off the worlds amphibians so we can try to treat the diseases and stop their spread'!

This means that we won't look further for other causes which might be weakening the frogs so they succumb to whatever diseases happen to be around at the time.

The Emails above about 'Redleg' are classic examples - they initially found 'redleg' and looked no further until quite recently. Redleg was considered by most people to be the killer and that was that. We should still be looking for what is the overall cause because it still seems too much of a co-incidence that 20 years ago amphibians from a variety of places around the world all started to die off almost simultaneously. 20 years ago quarantine was already better than it had ever been prior to that time so why around then did a global problem emerge? Global warming, climatic changes, ozone depletion, acid rain - all could be possible stress causes to weaken amphibian populations, either in isolation or combinations. It seems, however, as far as most herpetologists are concerned the cause has been identified - look no further it's solved?"

FATS MEDIA BITS

2 Aug. "Build your own frog pond" AM Shift Ch 7 Syd..

5 Aug "Frogs in Urban Areas" Uni of Western Sydney.

11 Aug Opening of frog ponds at Kitty Creek, North Ryde. North Western Times.

WHAT IS HAPPENING TO GREEN TREE FROGS IN THE WILD?

There have been recent reports of massive deaths of Green Tree Frogs in northern NSW and southern Queensland. In addition, Green Tree Frogs have apparently declined around Sydney and central coast areas. The NSW National Parks and Wildlife Service (NPWS) is worried and so are we. NPWS is preparing to initiate some surveys into the status of Green Tree Frogs and is hoping that FATS can help as survey liaison people and support staff. At the next FATS meeting we will be asking the attendees to report all recent Green Tree Frog sightings. Other help will be asked for later. **Arthur White**

GETTING THE JUMP! ON FROG DISEASES

Frog experts from around the globe gathered in Cairns to plan ways of dealing with the mass deaths of frogs from a recently discovered fungal infection and other amphibian killer diseases.

"The loss of frogs is one of the most significant global biodiversity problems facing us today," says CSIRO's Dr Alex Hyatt. "It is an indicator of what is happening to the environment and shows the impact of man in the realm of disease pollution," he says. Among the speakers at the conference:

Mr Gerry Marantelli from the Amphibian Research Centre in Melbourne takes us into the suburban backyard, where lost frogs and tiny tadpoles are spreading chytrid fungus around Australia – and suggested how the community can become involved in preventing the spread of this silent killer.

Dr Lee Berger, a PhD student from CSIRO who first discovered the chytrid fungus in frogs, discussed the evidence that the fungus has caused declines in frog populations.

Associate Professor Rick Speare, from James Cook University, prompted the search for diseases that could be responsible for mass mortality in frog populations in pristine rainforest areas. He spoke about strategies for monitoring chytrids in amphibian populations and describing how the pieces of the amphibian disease puzzle are coming together.

Mr Stan Orchard from the World Wide Fund for Nature Australia talked about funding frog protection and how Australia is becoming a model for the world.
Extracts from CSIRO media release www.csiro.au

FROZEN MOMENTS

Australian Wildlife Paintings and Prints by Lee Daynes 2pm Saturday 7th October until 30th October 2000.

View at www.bluemts.com.au/thegallery
98 Lurlinr Street Katoomba 2780 02 4782 6546
Email gallery@mountains.net.au

There are 4 frog paintings amongst the collection. Frogs are my favourite subjects to paint. My green T F, Leonardo was the model - 3 times! If anyone would like any more info you are welcome to email me. **Cheers Lee**

Brads Aquarium Service 02 49598 597

ARP RE-OPENED

The Park re-opened its doors to the public on 9th Sept 2000 after being closed for a mere eight weeks - not a bad feat. A ten-part modular building houses what ended up being a fairly substantial and impressive reptile exhibition area. The 30 displays will move to the main building when it is otherwise ready to re-open in mid December. (extract)
John Weigel (with compliments Stewart Macdonald smacdonald@chac.qld.edu.au)

FISHY COMPANIONS FOR TADPOLES

Rhadinocentris ornatus or the Southern Soft Spined rainbowfish is a good companion for tadpoles. Another very good though very hard to get species is the Dwarf Jollytail *Galaxiella pusilla* - now an endangered species in Victoria (feral fish, pollution, pond draining) but still available in SA If you can get those they're ideal as they only grow to 3 cm and have tiny mouths.

Add in some aquarium fungicide into the container with the fish (at the appropriate dosage rate) and let it sit for a little while before adding it to the pond if they're worried about Chytrid fungus. That should help comply with the frog handling protocols and remove worries about spreading diseases via fish! **Martyn Robinson**

TOAD SUICIDE STUNS COMMUNITY

Snake Whisperer wrote: A local toad from the small community of Lochloosa Wildlife Preserve, died last night [apparantly on or about 12 August, 1991] at the junction of CR 346 (River Styx Rd.) and CR325 (Cross Creek Rd.). The Alachua Co. Sheriff's Office said that it appeared to be a suicide. Interviewed by officers at the scene was one Rex Rowan, 34, a Gainesville bird expert. Mr. Rowan states, "I was driving my car east on CR 346, approaching the stop sign at the crossroads, when this toad just appeared out of nowhere. I had to miss hitting 3 or 4 times before he finally committed suicide by diving under my front wheel. It was dark and foggy and I never would have hit him if my passenger hadn't shined a Q-Bream on him". The passenger declined to be identified. No charges are pending.

Family members said they couldn't believe it was suicide and said that foul play MUST be involved. Friends are stunned. A neighbour stated, "He was a quiet toad, kept to himself, a loner. Never bothered anybody. The body can be viewed at the Wind-In-The-Willows Mortuary and Worm Farm. Mortuary Director B. Marinus stated, "The funeral services will be short as the coffin is only a half-inch thick, and won't be that hard to cover with dirt. It is the wish of the family that invertebrates be given in lieu of flowers, and can be sent to the Hyla Home for Habitat-Endangered Amphibians. **Michael Shrom shrommj@ptd.net**

Care Sheets and Scientific Papers on Captive Husbandry
Herpetological Goods Online ...//www.herpshop.com.au

Mealtime: the green tree frog is not averse to eating its own

TO TURN SOMEONE INTO A FROG

Editor: this item has been offered to Frogcall by a Wiccan. The apocryphal link between witches and frogs must be true - we have a witch on at least one Australian frog internet mailing list!".

Equinox Blessings

SUPPLIES

Four blue candles (represent water, the frog's home)

Incense (lotus or another flower incense is good)

A small aquarium or a clear glass bowl with a screen lid (you can use a cake rack)

Picture of the person to be turned into a frog

Bugs or mealworms (preferably alive)

One live frog

METHOD:

Put the frog and a little water in the aquarium or bowl. Place the candles around the bowl and light them. Light the incense. Slip the picture face up under the container where it will absorb frog energy. Stop laughing.

Stand facing east and say, "I call upon the spirits of the frogs from the lakes and ponds and swamps in the east to come and witness a birth of one of their own." Face south, west, and north in turn and recite the words aloud again, substituting the proper direction into each incantation.

Now concentrate on the frog. See the frog's energy, and the picture under the glass. See the energy oozing from the frog into the picture, becoming the picture. See the person in the picture slowly changing until he (or she) takes on the form, habits, and personality of a frog.

Now take the picture and face the east, saying, "Frogs in the east, hear my voice! Behold! Another is born into the watery realm of your kingdom!"

Repeat this affirmation for south, west and north, substituting the name of the proper direction each time. Feed the bugs to the frog in thanks for his help.

Return the frog. Send the picture to the person upon whom you have placed your spell and who now has frog habits.

Send him/her pictures of frogs. He/she will dream of being in a swamp and eating bugs. He/she will begin doing froggy things. He will get a reputation of being weird.

Unfortunately, my records don't include the original author's name, just the person who posted it to the list I saved it from, who claimed that it was to be as widely spread as possible. the beauty of it, is that, ridiculous as it is, it actually uses principles of real magic, ie, the idea that energy and characteristics can leak from one object or symbol (in this case, the living frog) into a nearby object or symbol (in this case the photograph as a symbol of the target).

As above, so below.

Editor: Remember touching, moving and taking frogs from the wild is a no no. ☺

Thank You to all those who contributed to this newsletter.

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We hold six informative, informal, topical and practical meetings each year at the Australian Museum, Sydney (William Street entrance). Meetings are held on the first Friday of every **even month** (February, April, June, August, October and December) at 7 pm for a 7:30pm start. **NO MEETINGS ARE HELD ON GOOD FRIDAY so check newsletter for alternate dates.** Visitors are welcome. We are actively involved in monitoring frog populations and in other frog studies, and we produce the newsletter *FROGCALL* and *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.