

# FROG CALL



THE FROG AND TADPOLE STUDY GROUP NSW Inc.

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NEWSLETTER No. 112 April 2011

Photo: Karen White, Fiorella Nelson and Henry Cook

Arrive 6.30 pm for a 7pm start.

**Friday 1<sup>st</sup> April**

**FATS meet at the  
Education Centre, Bicentennial Park**

Easy walk from Concord West railway station and straight down Victoria Ave.

Take a torch in Winter.

By car: Enter from Australia Ave at the

Bicentennial Park main entrance, turn off to the right and drive through the park. It's a one way road.

Or enter from Bennelong Road / Parkway.

It's a short stretch of two way road.

Park in p10f car park - the last car park before the exit gate. See map inside.

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DECCW amphibian licences must be sighted, to adopt frogs.

### **MEETING FORMAT Friday 1<sup>st</sup> April 2011**

**6.30 pm** Lots of lost frogs including White-lips, Perons and Green Trees needing homes. Please bring your FATS membership card and \$\$ donation. **DECCW amphibian licence must be sighted on the night.** The frogs can never be released.

**7.00 pm** Welcome and announcements.

**7.30 pm** The main speaker is Jodi Rowley who has just returned from another frogging trip in Vietnam and Cambodia. Her talk is called "Vampire Flying Frogs and other Wonderful Frogs from South-east Asia".

**9.30 pm** Show us your frog images, tell us about your frogging trips or experiences, guessing competition, light refreshments and a chance to relax and chat with frog experts.



Vale

Fiorella Nelson

All FATS members who have met Fiorella will be shocked to learn of her sudden passing. Fiorella was a staunch supporter of FATS and a lovely person to know. She will be greatly missed by friends and family.

Photo: center, front page

## FATS AUGUST 2010 AGM AND MEETING

**P**unia Jeffery opened our AGM and ordinary meeting in August 2010. She spoke about field trips, the successful campaign to save New Zealand frogs from mining proposals. FATS sent the Save the Frogs, NZ campaign, a \$1,000 and a letter to the NZ government asking them not mine in the Coromandel Peninsular of NZ. The NZ frogs won! see map below  
[http://en.wikipedia.org/wiki/File:NZ-Coromandel\\_P.png](http://en.wikipedia.org/wiki/File:NZ-Coromandel_P.png)



Arthur commenced our AGM and gave his presidents report, see October 2010 Frogcall. Judy Harrington was the lynch pin in the successful move to our new home at the Education Centre, Bicentennial Park at Sydney Olympic Park. Thankyou Judy.

**D**avid Hunter, an expert on frogs, who works for the Department of Environment, Climate Change and Water, was our main speaker last August. He talked about the threatened frog species programs in southern NSW and the recent discovery of *Litoria castanea*. All the recovery work is a result of the commitment of a large group of people and organisations.



Photo David Hunter Mating Booroolong Frogs

Dave spoke about the interesting Booroolong Frog, *Litoria booroolongensis*. Its entire life cycle is tied to the river environment. See <http://www.environment.nsw.gov.au/determinations/BooroolongFrogEndSpListing.htm>. It likes to mate in rocky stream environments. Rock crevices are particularly critical to its survival, as this is where the frog lays its eggs (photo below, left). It manages to coexist in farmed land. Rural communities have been engaged and responded positively to its habitat needs by promoting regeneration of native river plants and controlling weeds.

Weeds are a major threat to the Booroolong Frog. Willows and other riparian invasive plant species, spread their roots over and inside the rocky crevices needed for spawning. In addition to controlling weeds, restricting stock through fencing is also important to protect stream banks from erosion. This work is critical to the survival of the Booroolong Frog as the majority of populations are on private property. The Department of Environment, Climate Change and Water (DECCW) have been assisting several Catchment Management Authorities (Murray, Murrumbidgee, Lachlan and Namoi) in a program to help private property owners protect and enhance riparian zones for the Booroolong Frog.

Targona Zoo, including Michael McFadden, has come on board the Booroolong Frog Recovery Program. In addition to undertaking a captive reeding program, they brought community engagement skills and ran a very successful community awareness programs in the Tumbarumba region. Children visited the zoo over several days and returned to the region to educate the broader community. The school children talked on the local radio, ran leaflet drops and made a mural in the center of town. The broader community became very aware of the landscape conservation needs in their region.

Another major threat to the Booroolong Frog is stream drying. Between 2003 and 2008, severe droughts had dried streams that had not been known to dry since European settlement. With most females only living for two years, and males only one, populations require successful breeding each year to maintain good numbers. As such, the severe droughts have caused many populations to decline dramatically. Apart from not being able to get their tadpoles through, some individuals were observed becoming very distressed as their stream dried, including one male frog observed chewing its own arm. Thankfully, the majority of populations are bouncing back now that more consistent rainfall has returned.

Dave pointed out that as we do more surveys there are more populations being discovered. It highlights the value of looking for species. Property owners are being engaged in the process, especially once species are rediscovered in areas where they were thought to have become extinct.

The Southern Corroboree Frog has had a very active recovery program in place for the last 15 years to fight the primary cause of decline, chytrid fungus. This species is in a continued state of decline and is about to blip out. Last season there were only 38 males recorded across its entire distribution. There is basically no viability in the wild for this beastly. We are entirely reliant on the captive colony



being successful. Fortunately, Taronga Zoo, the Amphibian Research Centre, and Zoos Victoria are all starting to have success breeding of this species in captivity. At the moment the recovery program is also trialling and successfully releasing adults and eggs back into the wild.

The program has thousand of Southern Corroboree Frogs in captivity and is trialling different techniques to increase the efficiency of the captive breeding and reintroduction program, such as assisted reproductive technologies and acquired resistance to the fungus prior to release.

There are also conservation concerns for the Northern Corroboree Frog, as this species is continuing to decline. In addition to the ongoing threat of chytrid fungus, the conservation management of this species will depend on addressing additional threats such as feral animals (horses and deer) and blackberry infestations.

Dave also outlined the conservation efforts for the Spotted Tree Frog in New South Wales. In 1998 at Kosciuszko National Park the last male Spotted Tree Frog was found and collected for a captive breeding program. He was named Dirk Diggler, from the movie *Boogie Nights*. Due to the work of Gerry Marantelli at the Amphibian Research Centre, Dirk was successfully bred with captive females from a Victorian population. A reintroduction since 2005 has successfully re-established a population in NSW, with the children of Dirk successfully surviving and breeding in the wild (photo on right). Hopefully this population remains viable into the future.

**Photo David Hunter *Litoria castanea* Yellow-spotted Bell Frog**



Another positive finding for frogs in southern New South Wales was the discovery of a remnant population of the Yellow-Spotted Bell Frog *Litoria castanea* (photo above). In March 2009 New South Wales Fisheries field scientist Luke Pearce located a population of the Yellow-spotted Bell Frog while searching for threatened fish. Luke's discovery highlights the importance of people undertaking surveys across the landscape, as species might exist in small pockets. This population, which appears to only contain about 50 calling males, was thought extinct for over 30 years. Taronga Zoo have come on board to collect a group of late stage tadpoles, to commence a captive breeding program, as insurance against extinction and to produce progeny for reintroduction. Fortunately the private land owner is very supportive of the protection of the newly discovered wild

colony. Research is also being carried out at the South Australian Museum to determine the taxonomic status of this species, as it is clearly closely related to the Southern Bell Frog. Unfortunately, the Northern population is still "missing in action". Many questions from the floor continued.

We thank David Hunter for the fine images, excellent presentation and detailed responses to questions from our members.



**One year old spotty Jan. 2011 Generation next . .... one of Dirk's progeny. Photo David Hunter**

The fate of many frog species will come down to how well the community attracts the interest of politicians, publicises frogs and their habitat's plight and gains the attention of decision makers. Hence, the survival of many frog species will depend on the broader community and groups such as FATS, promoting the funding of frog recovery programs, to avoid many frogs facing their last gasp. MW

**O**ur next speaker was Jason Luke . He entertained us with many fine photos and stories of Borneo critters in a variety of terrains. Fabulous photos such as those of Green Paddy Frog, a fiery spitting Cobra, Rough Guardian Frog *Limnonectes finchi* (males transport tadpoles on their back to a pools of water), geckos, Greater Swamp Frogs, Common Grass Frogs, uncommon pythons, very common Cricket Frogs *rana nicobariensis* found close to where Jason was staying, Borneo Bull Frogs *Kaloula baleata*, Frilled Tree Frogs *Rhacophorus appendiculatus*, Asian Caecilian and Yellow-bellied Puddle Frogs amongst many other wonderful photos. It's a place where you are constantly taking photos. Thank you for sharing that wonderful experience with us, Jason.

**Photo George Madani Booroolong Frog *Litoria booroolongensis***





**M**arion Anstis who is a dedicated FATS member spoke about frogs from the Microhylidae family. They have no aquatic tadpole stage. Marion wrote the field guide *Tadpoles of South eastern Australia* in 2002. It is an amazing project and is THE book on tadpoles. There is nothing so comprehensive on tadpole identification and development anywhere in the world.

She is studying rainforest dwellers as part of her PHD, which will be a new book on Tadpoles and Frogs of Australia. Marion's August and October talks were on "From egg to frog in a jelly capsule"! These frogs do not have an aquatic tadpole stage, are entirely terrestrial and are very small. Some are only just over a centimetre long as adults. They lay their eggs in the river banks, under leaf litter, even in palm axils or under boulders.

The males protect the eggs right through until they are hatched. The eggs are large - the ovum measuring 3 mm for a 13 mm adult frog, in the case of one species! The photos of a Hosmer's Nursery Frog, Ornate Nursery Frog and their eggs in a palm axil or in the soil were fabulous.



*Cophixalus ornatus* Photo Marion Anstis 2/2010

Ornate Nursery frog males court the females and lead them to their nest. One photo showed two egg clutches, where spawn had been fertilised on separate occasions in one nest and had one male caring for both clutches, each at a different stage. The Rain Frog *Austrochaperina pluvialis* also has large eggs. These have never been looked at in the embryo stage before. Some eggs are all connected by a jelly cord and others are in strings without the cord.

Marion is researching the point where they lose the tadpole stage in their life cycle and comparing these direct developers with the only other frogs in Australia that have a similar life history, from south-western Australia. The embryo photos we saw were in extremely fine detail, showing stages of growth over 28 days and features such as blood vessels, eyes, limbs, gut and mouth development, the body wall pigmented skin (epidermis) as it grows, calcium deposits on the head and other fine features.

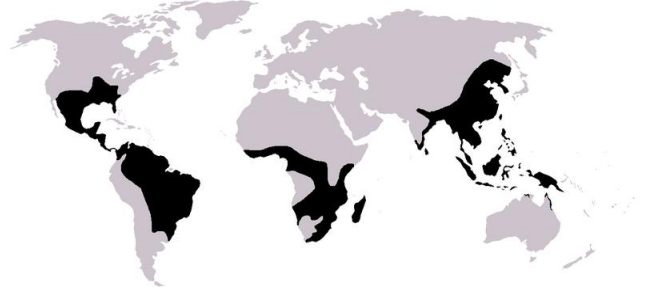
There was also a new tree frog species named, the Kimberley Rockhole Frog *Litoria aurifera* from the Kimberley region shown to us by Marion, which she and a team of authors have just described. It is closely related to the Rockhole Frog

*Litoria meiriana* from further east and across the Top End. These two species can only be told apart by the brilliant black and gold tadpole of the new species which differs greatly in colour from the tadpole of the Rockhole Frog.

Thank you Marion Anstis, for the fascinating presentations in August and October.

#### Distribution of Microhylidae

[http://en.wikipedia.org/wiki/File:Microhylidae\\_map-1-.png](http://en.wikipedia.org/wiki/File:Microhylidae_map-1-.png)



Arthur White spoke about the Cane Toad muster at Taren Point. We have had interest from a chap who trains sniffer dogs at the airport. He has dogs specifically trained to find reptiles, other animals and many different items of interest to quarantine and customs. The dog quietly comes up and sits beside the bag. He donated and trained two dogs to sniff out the Cane Toads. This will be very helpful because we are really interested to know where the toads are sheltering.

Judy Harrington showed us the photos of the two Sea Eagle chicks hatched on 30 July at Sydney Olympic Park. These chicks and the adults can be seen on the live camera at SOP. The August meeting finished with a raffle, tea, coffee and talk. MW

#### OCTOBER 2010 FATS MEETING

**P**unia Jeffery opened the meeting and gave a special welcome to new members. She spoke about our field trips, frog-o-graphic competition and other activities. Every year FATS carry out 2 night's auditory surveys at Sydney Olympic Park, counting the number of frog species. We are calling for volunteers to help.

Marion Anstis' presentation was covered in the previous article. Despite sound problems, we showed the "Little people of the forest" DVD about NZ frogs. Grant Webster shared his frog images with us from the Border regions of NSW and Queensland including Washpool and Main Range National Parks, Coombadjha and Dalrymple Creeks. Despite a large assortment of excellent finds and photographs, the Peppered Tree Frog *Litoria piperata*, which is possibly extinct, evaded his search. Grant's imagines are fine quality and a treat to see. Thanks Grant. Arthur White spoke about the Rosebery Green and Golden Bell frogs and the SOP auditory surveys. Arthur's talks are always entertaining. Jillie Streit displayed her fine frog images, such as the Tomato and Citronella Frogs. She talked to us about her trip to Madagascar, that is thought to have around 300 species of frogs. Thanks Jillie. The meeting ended with a raffle, tea, coffee, free lemons from the Nelsons and gas bagging. MW

## FATS MEETING 4<sup>th</sup> FEBRUARY 2011

**Punia Jeffery opened our February meeting, spoke about our field trips and items for sale, such as Lou Petho's \$15 DVD "Still Croaking" (Green and Golden Bell Frogs), our \$10 2011 calendars, T Shirts (see front cover of this Frogcall) and gave announcements.**

**Arthur discussed our 12 page black and white newsletter Frogcall, which is mailed out 6 times a year to members - the December copy being 16 colour pages. We are trialling the emailing of current colour copies of Frogcall and perhaps back copies later.**

Please email Monica at [wangmann@tig.com.au](mailto:wangmann@tig.com.au) if

1 You would like to receive an electronic colour copy of Frogcall 111, 112 and in future, as an email attachment. We are not intending to stop posted copies of Frogcall and Herpetofauna (twice a year), unless you ask us.

2 Please advise us if you would like an emailed colour version of Frogcall as well as or instead of the posted copy.

We understand that some members may have trouble downloading a 2.86 MB email attachment or may not have the internet. Please let us know what you think we should do. We may be researching other ways to electronically transmit colour copies of the newsletter, such as the web based style used by Ku-ring-gai Council.

Arthur White spoke about the arrival in Australia of a devastating fungal disease, called Myrtle Rust. It may have come in on cut flowers and first established on the central coast. It attacks many of the well known Australian plants and has the potential to cause significant damage to our ecosystems. The microscopic spores are easily spread. Great care in sterilisation should be taken when travelling within national parks to avoid translocating the spores. See article to the left.

Well known naturalist and wildlife photographer, Ken Griffiths presented his slideshow of *A Naturalist's wanderings through Ecuador and the Galapagos Islands*. Ken has been very generous in leading some of our field trips in the past. He gave us a historical, evolutionary and geographic perspective of the area including pest species like castor oil plants and pigs. Charles Darwin landed there in 1831 and published *The Origins of the Species* in the 1860's. Ken's images spanned wonderful animal shots such as camels in the water, eagles, monkeys, tropical birds, orchids, spiders, owls, ducks, waterbirds, fungi, ants that carry leaves, hummingbirds, crabs, lizards, butterflies with see through wings, parrots, maps, landscapes, the cloud forest lodge, Bellavista and of course frogs such as marbled frogs with vivid eyes. Thank you Ken for a fabulous slideshow – not given true justice in this write up.

Bill Koutsamanis talked to us about the use of digital frog call recorders "*Voice recognition for frogs*". He was the recipient of a small research grant from FATS, assisting him to complete his NSW Uni. honours project. Bill compared the accuracy of the use of people who carry out auditory surveys of frog calls at sites, compared to automated recording systems, using for example songscope

software to detect frog vocalisations. The cost of the equipment is about \$2,485, so short surveys of less than 27 hours are better done manually using people but surveys requiring more than 27 hours work may be less expensive if using sound metres. There are many of variables between the accuracy of digital recorders compared with people manually recording frog calls. Frogs with variable calls cause higher recorded errors but as people get older their hearing may be less accurate. Recorders have a limited period they can operate. I have not attempted to describe his project in this newsletter. There were many questions from the floor. Thank you Bill for presenting your interesting findings and answering all our questions.

Arthur White spoke about Mantellas, the highly coloured ground frogs, known as the fading jewels of Madagascar. They are often referred to as the most beautiful frogs in the world. The island is 400 K off Africa, isolated from the mainland for 40 million years and supports 25 genera of frogs, some undescribed. These frogs are unlikely to survive another ten years. They face challenges of over-collecting (no restriction in collections in the last five years), habitat destruction, agricultural grazing, mining, growing palm oil, exotic diseases and predation from introduced species. There are no conservation plans for any frog on the island and their habitats are not protected. The meeting ended with raffles, tea coffee and chat. **MW**

### MYRTLE RUST

**Myrtle Rust *Uredo rangelii*, is a plant fungal disease that was first diagnosed in NSW in Myrtaceae family plants in April 2010. Myrtle Rust can be spread by people moving infected plant material, contaminated equipment, clothing and vehicles. It can also spread by wind, insects and other animals.**

Myrtle Rust has been identified on hosts in nurseries, residential properties and bushland. It will continue to spread where conditions are favourable and where Myrtaceae hosts are present, which may include your backyard. People can limit the spread of this disease by following the measures outlined in the information See <http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust/zones> and <http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust> Consider how you can reduce its spread. It is known to affect 68 species of Myrtaceae in the wild. This number will continue to increase. Myrtle rust is now known from the south coast of NSW to Cairns in Far North Queensland. Treatments available include applying fungicides; removal of host plants or doing nothing.

It looks like a white or yellow powdery substance on the plant and leaves have brown blotches. If you find infected plants, seek advice. Refer to the photos on the Myrtle Rust website. Take a photo to your local nursery or send a photo to [I&I NSW biosecurity@industry.nsw.gov.au](mailto:I&I_NSW_biosecurity@industry.nsw.gov.au) Affected plants include willow myrtle (*Agonis*), turpentine (*Syncarpia*), bottlebrush (*Callistemon*), scrub turpentine (*Rhodamnia*), broad-leaved paperbark (*Melaleuca*), *Austromyrtus* 'Aurora' and 'Blushing Beauty'. New growth of soft plant material is the most vulnerable to infection. **Thank you Wendy Grimm for researching, compiling and forwarding the information to Frogcall.**



## WHAT'S AT THE BOTTOM OF YOUR GARDEN?



Andrew Nelson's Peron's Tree Frog  
*Litoria peronii* Sydney



Gino Fregnan's pond



Mystery frog in back yard agapanthus, we think is a peculiar piebald Whistling Tree Frog, *Litoria verreauxii* Photo from Nathan of Oakville (near Windsor). In an area with 5 acre properties. Scheyville National Park and Longneck Lagoon are nearby. He hasn't seen larger green frogs for a while, sadly, but there is a healthy population of little (~1inch) brown (mostly) and green (occasionally) frogs that make their presence known when it rains and which live around the house. This little guy above looks to be about 4cm long but what took Nathan is the amount of white on him. He seemed happy enough.



This is the 4th year in a row that our little friends, the Green & Gold Bell Frogs have come back to live at Davistown, NSW Central Coast, in our little Frog grotto (above). Another frog that has now joined us, the Bleating Tree Frog (both photos below). Virginia



Photo George Madani Can I help you?



## POSTCARD FROM THE FROG VET

**A**ctually, it's the "Bird and Exotics Vet" in Hunter Street in Waterloo. Lee Peacock specialises in animals that are a touch too exotic for many other vets and she has been extraordinarily helpful to FATS in the past. This time the patient is a translocated large female Green Tree Frog with a badly broken leg – bone sticking out, wouldn't heal over. After all the surgery Lee did to her, the frog's name is now Pinnie. Since then, Pinnie has had a full recovery and has joined the ranks of FATS Demonstration Frogs. Here is what Lee wrote:

**The affected leg prior to surgery  
(the blue sheet is the surgical drape)**



The protruding white tissue is likely to be mostly cartilage and because it protrudes so far from the edge of the wound the skin was unable to heal over it. At this point the frog could not use the affected leg without annoyance and discomfort

**Radiographs of the leg prior to pinning**



The 'gap' between the two fractured pieces of bone represents a cartilaginous bridge as the bone attempted to heal. This excessive cartilage bridge builds up especially in amphibians if a fracture is not kept still during healing.

**Radiographs of the leg after pinning.**



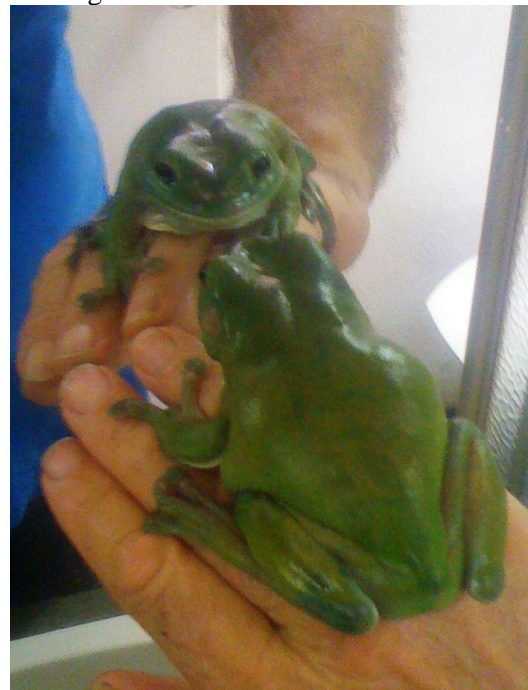
The leg was re-fractured with some of the excessive cartilage removed. The pin is intramedullary. The apparent 'gap' is still visible as not all of the cartilage was removed however the two ends of the fractured pieces are touching. The frog could use the pinned leg 2 hours after surgery and pain relief was given for the first few days as well as strict confinement to minimise use of the leg.

**A radiograph of the leg after the pin was removed.**



Despite the apparent 'gap' of cartilage still visible on radiographs there is evidence of some ossification. It is unlikely to completely ossify partly due to the sheer volume of cartilage still left and partly because of the time that lapsed between the injury and surgery. This is still considered to be healed as the leg can function well enough, with minimal to no discomfort, for a captive frog. It is unknown what affect the subtle shortening of the leg would have on a wild frog and its ability to hunt.

Fractures are easier to treat and more successful if treated early (within 3days of the injury) after which pinning is likely to be the only way to give normal function back to the affected leg.



**Pinnie the Green Tree Frog**

Regards, Lee Peacock BSc(vet) BVSc(hons)  
MACVSc(Avian Health) Bird and Exotics Vet



## HERPDIGEST

### NATURALISTS' WALL OF THE DEAD

**We go to great lengths commemorating soldiers who have died fighting wars for their countries. Why not do the same for the naturalists who still sometimes give up everything in the effort to understand life? Neither would diminish the sacrifice of the other. In fact, many early naturalists were also soldiers, or, like Darwin aboard HMS. Beagle, were embedded with military expeditions.**

With that in mind, I have started to construct a very preliminary Naturalists' Wall of the Dead, to at least assemble the names in one place. If I have missed someone, or made other mistakes, please suggest changes in the comments. <http://strangebehaviors.wordpress.com/2011/01/14/the-wall-of-the-dead/>  
**Posted by <http://strangebehaviors.com> Richard Conniff on January 14, 2011 HerpDigest.org: The Only Free Weekly Electronic Newsletter That Reports on the Latest News on Herpetological Conservation, Husbandry and Science Volume # 11 Issue # 5 2/2/11 (A Not-for-Profit Publication) Publisher/Editor- Allen Salzberg**

### CAIRNS FROG HOSPITAL & FDR PROJECT

**D**eborah Pergolotti Founding President of the FDR Project, Inc. and Cairns Frog Hospital, has announced the availability of the FDR revamped website. This project has taken over a year to complete to this stage but there will be more to be added in the future. There are two sections she hopes you will find helpful, the Australian Diseases and the How to Help Frogs sections. The section on the link between soil health and frog decline is also quite useful.  
[www.fdrproject.org.au](http://www.fdrproject.org.au)

### FATS AGM NOTICE

**T**he FATS AGM will be held at the beginning of the 6<sup>th</sup> August 2010 meeting, at 7pm, at the Education Centre, Bicentennial Park, Sydney Olympic Park, Homebush Bay. If you would like to ask questions about joining the FATS committee, please give any of us a call. Contact our secretary for further information or a nomination form. There are a diversity of roles within the committee to accommodate your interests, skills and available time. You only need to devote whatever time you can spare. We meet six times a year either in the evening or on Sunday afternoon depending on the preference of those attending. New committee members help develop fresh ideas and keep our organization interesting and fun. No previous experience or qualifications are required. **Monica Wangmann**

### STERILITY IN FROGS CAUSED BY ENVIRONMENTAL PHARMACEUTICAL PROGESTOGENS, STUDY FINDS

**F**rogs appear to be very sensitive to progestogens, a kind of pharmaceutical that is released into the environment. Female tadpoles that swim in water containing a specific progestogen, levonorgestrel, are subject to abnormal ovarian and oviduct development, resulting in adult sterility. This is shown by a new study conducted at Uppsala University and published in the journal *Aquatic Toxicology*.

Many of the medicines that people consume are released into the environment via sewage systems. Progestogens are hormone preparations used in contraceptives, cancer treatment and hormone replacement therapy for menopausal discomfort. Different kinds of progestogens have been identified in waterways in a number of countries. Associate professor Cecilia Berg and doctoral student Moa Kvarnryd at the Department of Environmental Toxicology at Uppsala University have shown that levonorgestrel can cause sterility in female frogs at concentrations not much higher than those measured in the environment. The research group is part of MistraPharma, one of the world's largest research networks focusing on pharmaceuticals and the environment. "The findings represent important initial evidence that an environmental progestogen can adversely affect frogs," says Cecilia Berg.

Female tadpoles that swam in water containing low concentrations of levonorgestrel exhibited a greater proportion of immature ovarian egg cells and lacked oviducts, entailing sterility. The African clawed frog *Xenopus tropicalis* served as the model organism. It is during the tadpole stage that development of frog reproductive organs begins. The process is governed by the hormone system. The findings underscore the importance of studying how pharmaceuticals affect animals in our environment, which is one objective of MistraPharma. "Our findings show that pharmaceuticals other than estrogen can cause permanent damage to aquatic animals exposed during early life stages," says Cecilia Berg. **HERPDIGEST ScienceDaily 16 2 2011**

### JURASSIC LOUNGE AT AUST MUSEUM

**E**very Tuesday night this summer, the Australian Museum opens its doors for after-hour sessions featuring art, live music, drinks + new ideas. Drink in hand, have a wander + check out Sydney's hottest new artists, performers + DJs. Check out amazing live acts + exhibitions against a spectacular backdrop of dinosaur skeletons, precious gemstones + native animals. It's the Australian Museum as you've never seen it! **See Australian Museum Jurassic lounge event on Facebook Every Tuesday this summer. 1 February to 19 April 2011 \$15 at the door incl one free drink [jurassiclounge@thefestivalists.com](mailto:jurassiclounge@thefestivalists.com) Phone 02 9320 6000 Website <http://www.jurassiclounge.com> forwarded to Frogcall by Jan Rush**





Wallum Froglet underbelly,  
Swamp behind Smith's Lake Field Station, Myall Lakes NP,  
near Seal Rocks March 2005 photo by Grant Webster

### DECCW FROG LICENCES & RECORD BOOK RENEWALS



nsw.gov.au  
Your gateway to information  
& services in New South Wales

**T**he Department of Environment Climate Change and Water would like to announce that you can now submit an application for a class 1 Native Animal Keepers' (frog) Licence or Import/Export Licence online at <http://www.license.nsw.gov.au/>

and submit annual electronic record books (FBRs) at [www.animalkeepers.environment.nsw.gov.au](http://www.animalkeepers.environment.nsw.gov.au). FBRs for yearly record books returns - **due by mail or ebook no later than 30 April 2011.**

You can also renew all classes of your AKL licence online at <http://www.license.nsw.gov.au/> To renew your licence on-line you will need to have lodged your fauna record book and be in receipt of a **renewal number** which will be sent to you by Wildlife Licensing and Management Unit as part of the renewal reminder process.

Once received, your application will be processed and a licence sent to you in the post. There is a **discount** on fees for people who use the online facility. Please email [wildlife.licensing@environment.nsw.gov.au](mailto:wildlife.licensing@environment.nsw.gov.au) if you have any problems with this service.



Photo by George Madani *Litoria freycineti* Wallum Rocket Frog

### FATS GRANTS TO STUDENTS

**T**he FATS committee invite students to apply for a grant to assist them with frog related projects.

Requests for grants can be made at any time. For further details please contact, our president Arthur White, see page 12. On completion of the project students may like speak about their work at a future FATS meeting.



Photo by George Madani *Litoria moorei* Motorbike Frog

### CSR & ECO-INNOVATION INSPIRED BY FROGS

**J**udges at this year's Earth Awards gave the top prize to a carbon dioxide-absorbing foam inspired by a South American frog. The photosynthetic foam can be installed in the chimneys of coal-fired power stations to capture carbon dioxide before it reaches the atmosphere. The Earth Awards, a gem of a CSR idea, were founded in 2007 to bring together green start-ups with potential investors. The awards also come with a cash prize (\$50,000 for the first prize and \$10,000 for the other entrants). However, as one of this year's judges, Rick Fedrizzi of the US Green Building Council, said the cash is not the main advantage of the awards. Mr Fedrizzi pointed out the value to green innovators of meeting venture capitalists who might want to invest in their ideas. It is the type of grass roots CSR which can help to generate tangible results for both investors and entrepreneurs.

This year's 'fake foam' provides real opportunities for owners of coal-fired power stations and a chance for them to put CSR into practice in a notoriously controversial industry.

Professor Wendell, was inspired to create his foam by the Tungara frog which builds a foamy nest which can float on water. The frog uses a type of protein to make the nest which allows bubbles to form so the nest can float, but doesn't destroy the membranes of the frog's eggs. This foam contains a mixture of over 11 different enzymes taken from bacteria, plants and fungi. It transforms carbon dioxide into sugars such as fructose and glucose. The foam does this much faster than plants are able to do, making it ideal in capturing carbon dioxide in an industrial setting. The next step in the process for Prof Wendell, his colleague Carlo Monetmagno and research student Jacob is to work out how to convert the sugars produced into biofuel. Prof Wendell sees this as a key opportunity as it reduces the need to annexe land for the growth of biofuels. If he is successful it means land can remain in use for staple food crops. **EXTRACTS Just-Means.com by Sarah Brown, September 19, 2010 HerpDigest.org**



## FROGS RE-EVOLVED LOST LOWER TEETH



**F**rogs re-evolved "lost" bottom teeth after more than 200 million years, according to new research. Tree-dwelling *Gastrotheca guentheri* are the only frogs with teeth on both their upper and lower jaw. The reappearance of these lower teeth after such a long time fuels debate about whether complex traits are lost in evolution or if they can resurface. Scientists suggest this new evidence identifies a "loophole" in previous theories.

Commonly known as "marsupial frogs", the *Gastrotheca* genus carry their eggs in pouches.



Unlike marsupial mammals such as kangaroos however, the frogs' pouches are on their backs. The species *Gastrotheca guentheri* is even more unusual, being the only known frog to have teeth on its lower jaw. Dr John Wiens led a team of scientists from Stony Brook University, New York to investigate this exceptional feature. Their findings are reported in the journal *Evolution*. "I combined data from fossils and DNA sequences with new statistical methods and showed that frogs lost their teeth on the lower jaw more than 230 million years ago, but that they re-appeared in *G. guentheri* within the past 20 million years," explains Dr Wiens. In the past, scientists have argued that traits "lost" in evolution cannot return, an assertion known as Dollo's law. The return of lower jaw (mandible) teeth in *G. guentheri* after more than 200 million years could make evolutionary biologists reconsider this law.

"The loss of mandibular teeth in the ancestor of modern frogs and their re-appearance in *G. guentheri* provides very strong evidence for the controversial idea that complex anatomical traits that are evolutionarily lost can re-evolve, even after being absent for hundreds of millions of years," Dr Wiens says. Dr Wiens believes that this re-evolution can be considered a "loophole" in Dollo's law". He suggests that because the frogs have always had teeth on their upper jaw, the "mechanisms for developing teeth" have always been present.

"What *G. guentheri* did was to put teeth back on the lower jaw, rather than having to re-evolve all the mechanisms for making teeth 'from scratch'," says Dr Wiens. "This "loophole" may apply to many other cases when traits appear to re-evolve, such as in the re-evolution of lost fingers and toes in lizards," Dr Wiens tells the BBC. According to Dr Wiens, this theory could be applied to other recent studies that have suggested the re-evolution of lost traits.

In the last decade, scientists have identified and debated several attributes that have apparently "re-evolved" over time including stick insect's wings, coiling in limpet shells, larval stages of salamanders and lost digits in lizards. *G. guentheri* live on the forested slopes of the Andes in Colombia and Ecuador. The IUCN lists the species as vulnerable due to their "extremely fragmented" habitat.

By Ella Davies Earth News reporter

[http://news.bbc.co.uk/earth/hi/earth\\_news/newsid\\_9365000/9365076.stm](http://news.bbc.co.uk/earth/hi/earth_news/newsid_9365000/9365076.stm) Forwarded to Frogcall by Andrew Nelson

## FATS FROG-O-GRAPHIC COMPETITION

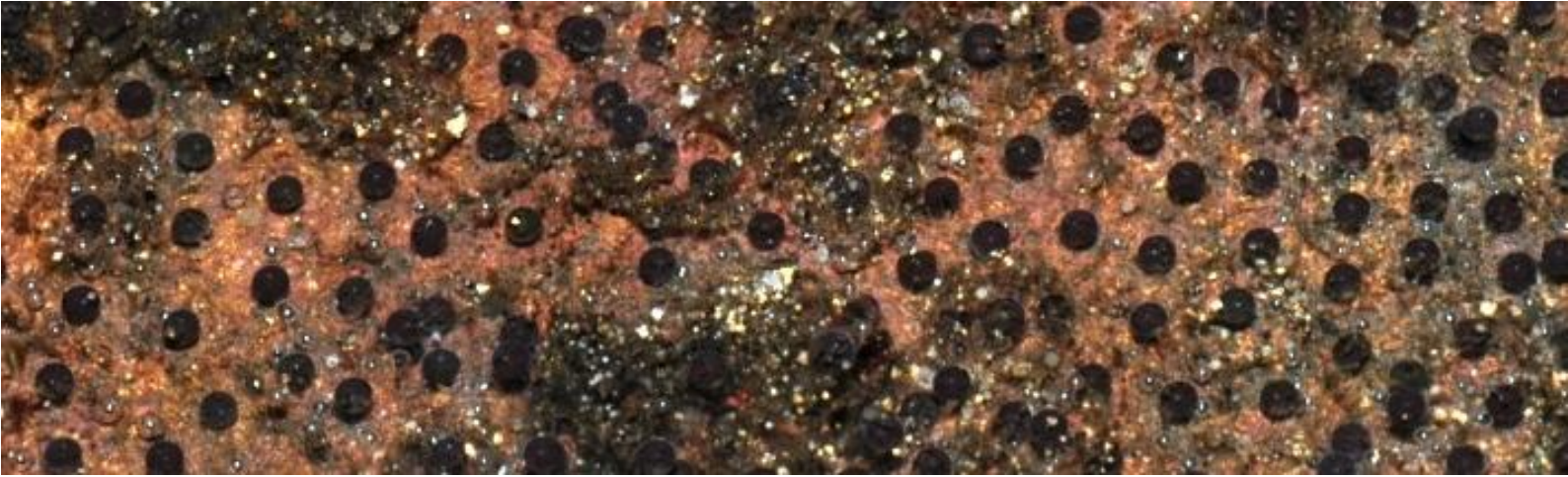
**I**n 2008 FATS conducted the first Frog-o-graphic competition. This proved very successful as we have many creative people in the group who take marvellous photo, do incredible drawings and art works, can sculpt, potter or create frog do-dahs from just about anything. Here is your chance to show off your skills.

There are several categories in this competition: Best Frog Image (Adult), Best Frog Image (Junior), Most Interesting Frog Image (Adult), Most Interesting Frog Image (Junior), Best Frog Artwork (Adult), Best Frog Artwork (Junior) and the People's Choice Award. The first six awards will be selected by a specifically hand-picked panel of judges while the People's Choice will be decided by the audience at the October 2011 FATS meeting. **How many times can you enter?** Maximum six entries per person. **Please include name and age if under 18 and contact number.** **Is there a Prize?** Fabulous prizes will be awarded for each division winner. No correspondence will be entered into the judge's decision. Please note: the entries must be original and your work. The winning entries will also be featured in a colour supplement in FrogCall. **Entry Date: Entries may be submitted until the 1st of September 2011.** So start painting, drawing, photographing or whatever you do to capture the essence of a frog. We look forward to see your entries. Winners will be announced at the October 2011 meeting and may appear in the December edition of Frogcall. **Arthur White**

Photo below by Ben Brown  
Green & Golden Bell Frog *Litoria aurea*







**Blue Mountain Tree Frog Spawn**

**Photo by Bradley McCaffery**

**INSURANCE DISCLAIMER** FATS has public liability insurance for its various public functions. This insurance does not cover FATS members, it covers the public and 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 pm, end about 10pm **at the Education Centre Bicentennial Park, Sydney Olympic Park, Homebush Bay** and are usually held on the **first Friday of every EVEN month February, April, June, August, October and December (but not Good Friday)**. Call, check our web site or email us for further directions. Easy walk from Concord West railway station and straight down Victoria Ave. Take a strong torch in winter. By car: Enter from Australia Ave at the Bicentennial Park entrance and drive through the park (one way road) turn off to the right if entering from the main entrance or enter from Bennelong Rd/Parkway. It's a short stretch of 2 way road and park in p10f car park (the last car park before the exit gate).

We hold 6 informative, informal, topical and practical free meetings each year. Visitors are welcome. We are actively involved in monitoring frog populations, other field studies, 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. Material from FROGCALL MAY NOT BE REPRODUCED without the prior consent of the writer, photographer, 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 sources must be always fully acknowledged.



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All three photos are by George Madani



*Litoria adelaidensis* Slender Tree Frog



*Lt. barringtonensis* Barrington Tops Tree Frog



*Lt. daviseae* Davies Tree Frog



<http://www.oreillys.com.au/>  
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## FIELD TRIPS

### Winter Recess.

**No fieldtrips scheduled.**

The Spring/Summer Fieldtrips Programme recommences in September.



Spider case St Ives  
 Photo by Wendy Grimm

## FROGWATCH HELPLINE

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