

# FROG CALL

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NEWSLETTER No. 126 August 2013

Photo by George Madani *Assa darlingtoni* - Marsupial Frog



Arrive 6.30 pm for a 7pm start.

## Friday 2<sup>nd</sup> August

**FATS meet at the Education Centre,  
 Bicentennial Pk, Sydney Olympic Park**

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

By car: Enter from Australia Ave at the Bicentennial Park main entrance,

turn off to the right and drive

through the park. It is a one way road.

Or enter from Bennelong Road / Parkway.

It is a short stretch of two way road.

Park in p10f car park, the last car park before the exit gate.

### MEETING FORMAT Friday 2<sup>nd</sup> August 2013

**6.30 pm** There are a few lost frogs needing forever homes with financial FATS members. Please bring your FATS membership card and cash \$40 - \$50 donation. Your NSW NPWS amphibian licence must be sighted on the night. Rescued frogs can never be released. Sorry we have no EFTPOS at meetings. Please call Monica or Lothar to confirm your interest in adopting.

**7.00pm** Welcome and announcements. FATS AGM

**7.45 pm** Main speakers: Karen Russell and Marie Callins  
 Frog Keeping – back to basics

**9.00 pm** Show us your frog images, tell us about your frogging trips or experiences, guessing competition, continue with frog adoptions, supper & a chance to relax and chat with frog experts.

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Striped Marsh Frog *Limnodynastes peronii* from Thornton near Newcastle. Probably coloured green by sitting in algae.

### 2013 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 photos, 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. So start painting, drawing, photographing or whatever you do to capture the essence of a frog. We look forward to seeing your entries.

All winners will be announced at the October 2013 meeting.

**9 Categories** Junior and Senior Best Frog Artwork (send photo), Junior and Senior Best Frog Image, Junior and Senior Best Pet Frog Image, Junior and Senior Most Interesting Image. Category winners to be decided by a panel of judges. **People's Choice** (Decided by the audience 4th October FATS Meeting) Entries close Wednesday 31st July 2013 All entries are by email to [photos@fats.org.au](mailto:photos@fats.org.au)

**Please state: your name, confirmation that you are a FATS member, age if under 18, whether the image is of a pet frog and contact phone number. Maximum six entries per person. Maximum attachment size 6 MB.** Fabulous prizes will be awarded for each category. Entries must be original and your own work. The winning entries may be featured in colour in Frogcall and other FATS publications. **Arthur White**

### DELAYS IN HERPETOFAUNA

**M**embers who subscribe to *Herpetofauna* will be aware that it is behind in its publication schedule. We have mailed out the most recent *Herpetofauna*, Volume 41 numbers 1 and 2 (June and December 2011 - as one combined edition) today to you. Please let us know if you did not receive your copy. We understand the delays in proof-reading and editing are being addressed. FATS are assisting with the catch up. We appreciate your patience.

FATS members who paid for two copies last year are still owed an issue. **To rectify this, if you paid for *Herpetofauna* last year you will not have to pay again this year.** So when you renew your FATS subscription tick the *Herpetofauna* box and note on the form that you paid last year. Only pay for your FATS subscription. **Arthur White**

### FATS AGM NOTICE FRIDAY 2 August 2013

**T**he FATS AGM will be held on 2<sup>nd</sup> August 2013, commencing 7pm. FATS meet at the Education Centre, Bicentennial Park, Sydney Olympic Park. If you would like to ask any questions about joining the FATS committee, please give us a call. Contact our secretary, committee members or myself for further information. We appreciate fresh ideas and new members on our committee. No experience required. We meet 6 times a year. No task commitments or time expected of committee members, other than what you are able to spare. See contacts on page 11. **Arthur White**

### LAST FATS MEETING 7 JUNE 2013

**P**unia Jeffery welcomed everyone to the June FATS meeting. She spoke about our Frog-O-Graphic competition, encouraging all FATS members not to be shy and to submit their entries as soon as possible. THE reference book, *Tadpoles and Frogs of Australia* written by Marion Anstis is available to order. Punia thanked Judy Harrington from SOPA for setting up the Education Centre for all our meetings there. FATS members are reminded not to pay for *Herpetofauna* this year, if they paid last year, as the editions are significantly behind in production.

Arthur White introduced Marcelle Douglas who spoke about her experiences with a dreaded chytrid fungus outbreak in her adopted frogs.

It is estimated that 8 species of Australian frogs have become extinct in the wild due to the chytrid blight and another 30 to 40 species are at serious risk of extinction. There is no known cure for chytrid in wild populations.



Marcelle spoke about her identifying, control and containment strategies for an outbreak of chytrid in her Striped Marsh Frogs *Limnodynastes peronii*. She described the challenges in noticing that they were unwell, finding those with experience and advice to help her treat the frogs and finding solutions for saving the frogs.

Strategies: Equipment, enclosures and frogs were separated from each other. **Continued page 6**

## FATS CALENDAR OF EVENTS

FATS have displays and talks at a variety of events and fairs throughout the year. Some are listed below. We would love to have you join us at our displays even for an hour or visit us on the day. Please contact Kathy Potter our hard working publicity and exhibitions officer 02 9456 6909 [kathy@the-pottery.org](mailto:kathy@the-pottery.org) to register your interest. No experience required to be a "frog explainer". It's mostly about listening to other frog enthusiasts whilst they tell you their frog stories. A frog expert will be on hand with you at all times to deal with complicated enquiries.

### Wolli Talks (speaker Marion Anstis) Thurs 1 Aug 7.30pm

Wolli Talks are held at Canterbury and Earlwood Caring Association (CECAL) 15 Clarke Street, Earlwood (entry Lewins St). Email [info@wolicreek.org.au](mailto:info@wolicreek.org.au) or call 0431 914 553 to book your place.

## Wolli Talks 2013



### Frogs of Sydney – are they in trouble?

*An introduction to some of Sydney's frogs and tadpoles, how they live and how they are surviving in present times.*

Marion Anstis, Frog and Tadpole Study Group NSW, author

Thursday 1 August 2013 at 7:30pm

#### About the speaker

Marion Anstis has had a lifetime career as a high-school music teacher while pursuing her passion for frogs and tadpoles in her spare time. Since retirement, she has written three books on frogs and tadpoles and several scientific papers, culminating in her latest publication "Tadpoles and Frogs of Australia", in which she lays out profiles of every Australian frog and the life histories (eggs and tadpoles) of most of them to help conservationists identify which tadpole/egg belongs to which frog. She has also written a book for children which has been very well received.

Marion helps with raising public awareness about frogs through her association with the Frog and Tadpole Study Group where she goes on field trips and gives talks at meetings and in the community.

Light Refreshments

Gold Coin Donation



Photo courtesy of Marion Anstis

### The Wildflower and Garden Festival Sunday 25 Aug.

10am to 4pm (Set up 6.30am to 9am) Wild Flower Garden, 240 Mona Vale Road, St Ives Dip-netting (below)



A range of guided bushwalks, lead by Ku-ring-gai Wildflower Gardens experienced Rangers, Expert talks/Celebrity Gardener, Children's entertainment and activities, Live music, Native plant sales, Wildflower displays, Environmental educational displays and demonstrations, A range of stalls relating to the environment, gardening, the outdoors and family and Food stalls and more.

### Science in the Swamp Sat 10 Aug. 11 - 3pm

Centennial Park Duck Pond, Lachlan Swamp and Education Precinct

### Wetlands Restoration Project Field Day Sun 8 Sept. Australiana Pioneer Village, Wilberforce

### Life in the Park Sun 8 Sept. 10am-12pm

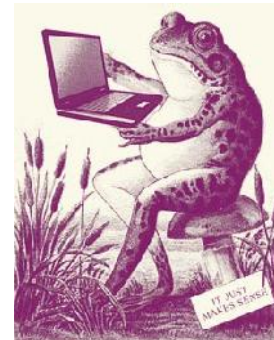
Sydney Olympic Park Education Centre, Bicentennial Park Join in a series of short talks on the biodiversity of Sydney Olympic Park.

Learn how monitoring programs and the community are ensuring that biodiversity continues to thrive in this unique urban environmental setting. 10.00pm – 'Counting birds at Sydney Olympic Park, what can the Spring Bird Census tell us?' Jen O'Meara, Sydney Olympic Park Authority 10.20pm – 'No me, no tree; an insight into flying-foxes, a keystone pollinator/seed disperser' Katherine Russell, Ku-ring-gai Bat Conservation Society 10.40pm – 'The nest and roost box project – fighting the housing shortage' Dr Tina Hsu, Sydney Olympic Park Authority 11.00pm – 'Tadpole tales' Maddie Saunders, University of Newcastle 11.20pm – 'Taking the bite out of biodiversity: Are mosquitoes good for anything?' Dr Cameron Web, University of Sydney & Institute of Clinical Pathology and Medical Research 11.40pm – 'Understanding microbats at Sydney Olympic Park' Marg Turton

Displays on reptiles, frogs and birds will be present and live footage, via EagleCAM, of our nesting Sea-Eagles will be available. A light morning tea will be provided. Parking available at Bicentennial Park P10 carpark. For directions see page 12 and visit [www.sydneyolympicpark.com.au](http://www.sydneyolympicpark.com.au)

### Summer Hill Public School Fair Sat 2 Nov 12 -6

Events recently attended by FATS include the Pittwater Food and Wine Festival. **Kathy Potter**



[www.thequeensberry.co.uk](http://www.thequeensberry.co.uk) Bath UK

## ANCIENT FUNGUS HAS WORLD'S FROGS IN ITS DEADLY GRIP



Amphibian keeper Raelene Hobbs holds one of the stuttering frogs at Melbourne Zoo. Photo: Jason South

**R**esearchers have sequenced the genomes of 29 strains of a deadly fungus responsible for the extinction of four Australian frog species and the mass killing of frogs worldwide. Inadvertently introduced to Australia when the African clawed frog was imported for use in a pregnancy test, chytrid fungus is a global problem threatening all species of frogs, including Australia's critically endangered southern corroboree frog and the stuttering frog.

Published in the journal, *Proceedings of the National Academy of Sciences*, the research indicates the fungus is older than scientists previously thought. A genome-sequencing project led by US researchers shows the disease is related to a pathogen that originated 26,000 years ago. "We found a lot more genetic variation than people knew about," said Kelly Zamudio, professor of ecology and evolutionary biology at Cornell University. "Once we know the genetic make-up of a pathogen, maybe we can understand what makes it such a powerful killer."

One-third of the world's frog species are threatened with extinction - either from chytrid fungus or global warming. "Every frog in Australia, that we know of, is affected by chytrid fungus," said Melbourne Zoo amphibian keeper Raelene Hobbs. "And with the corroboree frog, chytrid fungus is the biggest threat, as it is with most of the critically endangered and endangered frogs in Australia."

A senior research fellow at James Cook University, Dr Lee Skerratt, said in addition to the four frog species already lost to the disease, at least another three were presumed extinct as a result of chytrid fungus. There is currently no treatment or effective infection control for the fungus in the wild.

A water-borne disease, chytrid fungus attacks the keratin in the skin around the animal's feet and under the mouth. The theory is that this affects the iron balance in the body, which has neurological effects. Infected frogs become lethargic and unable to eat but probably die from cardiac arrest.

Listed as a notifiable disease, the fungus was first discovered in 1993 in dead and dying frogs in Queensland. Chytrid fungus is also found in Africa, Europe, the Americas, New Zealand and Asia, where it has had a devastating impact. "Some species have become less susceptible than others, so we need to work out why that is and also learn more about

chytrid fungus," Ms Hobbs said. The disease entered many countries after it was discovered a female African clawed frog injected with urine from a pregnant woman began ovulating within 12 hours. It was the first well-documented method of pregnancy testing and was used in the 1940s and 1950s.

It is believed the fungus entered the ecosystem either through coming in contact with other amphibian species in laboratories or when the African clawed frog was disposed of after testing. Matt West, a spotted tree frog researcher at Melbourne University, said most of the data suggested the disease originated from Africa and came to Australia via the US.

### How chytrid fungus arrived in Australia

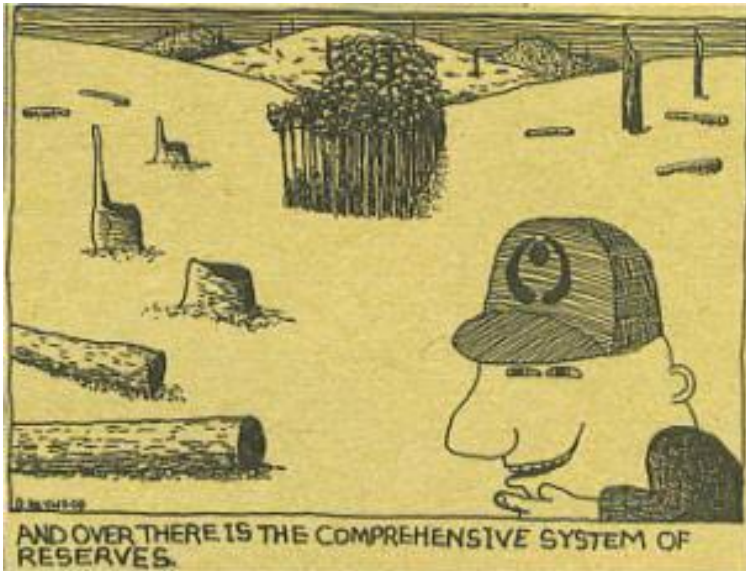
African clawed frogs were the first well-documented way to test if a woman was pregnant. They were imported for use in Australian pregnancy tests, known as the Hogben Test, in the 1940s and 1950s.



However, the African clawed frog carried the chytrid fungus. It is believed the fungus entered the ecosystem either through coming in contact with other amphibian species in laboratories or when the African clawed frog was disposed of after testing.

### How chytrid fungus arrived in Australia.

<http://www.theage.com.au/national/ancient-fungus-has-worlds-frogs-in-its-deadly-grip-20130604-2nodj.html> June 5, 2013 Bridie Smith Science and Technology Reporter, The Age Forwarded to Frogcall by Katherine Wangmann and Wendy Grimm



Who will manage our precious forests?

### PROTECT THE NSW LAWS THAT PROTECT THE PLACES YOU LOVE

Recently the *Sun Herald* reported that NSW taxpayers paid \$671 a hectare subsidizing the loss-making native forests logging of the Forestry Corporation. If that was not bad enough, in order to cut their losses the timber industry has now called to allow logging in our beautiful National Parks so they can meet unsustainable timber supply contracts.



This is going on while the NSW Government is conducting a secret review of forestry regulations and timber supply options. There is a very real risk that forestry regulations will be weakened and protected areas within our state forests revoked, placing native species and rare forest types at risk. It is unthinkable that they would allow the destruction of areas like Nightcap National Park so the Forestry Corporation can turn a profit. **Send an email to Premier O'Farrell today!**  
<http://nccnsw.org.au/>

### CANE TOAD PROBLEM HAS WARTS AND ALL

Residents of Bellingen are being warned to look out for cane toads after one of the pests was recently captured in the south of the city. Pest Management Officer at the National Parks and Wildlife Service (NPWS), Brad Nesbitt said it was not known how the cane toad arrived in Bellingen but they were known to hitch rides under vehicles and in building and landscaping supplies that came in from cane toad infested areas in Queensland and northern NSW.

“Although cane toads are occasionally found on the Coffs Coast, there are no breeding populations here and it is important that we keep it that way,” Mr Nesbitt said. “There has also been reports of a cane toad found near the shopping centre in Toormina so it is a timely reminder for us all to be vigilant during the remainder of this summer period.” He said with the exception of an isolated breeding colony in Sydney, the southernmost known distribution of cane toads was in the Brooms Head-Ashby area of the Clarence valley. “To stop the southern march of cane toads we need to make sure no breeding colonies establish here,” he said. “Be familiar with the appearance and call of cane toads and if you suspect you may have found a cane toad locally please contact your nearest NPWS office.”

Mr Nesbitt said cane toads could also be accidentally spread in mulch, soil, pot plants, building material, camping equipment, fruit packages and boxes of agricultural produce. He said they posed a major threat to both native animals and domestic pets with their dry warty skin loaded with toxic compounds known to kill dogs within 15 minutes if eaten. “There are many important native frog species that look similar to cane toads,” he said. “If you believe you have found a cane toad it is important to properly identify the species before killing it. “Cane toads should only be handled with rubber gloves and should never be squeezed.”

[http://nsw.psnews.com.au/Page\\_NSWpsn31310.html?utm\\_source=NSWpsn313&utm\\_medium=email&utm\\_content=news10&utm\\_campaign=newsletter\\_nsw](http://nsw.psnews.com.au/Page_NSWpsn31310.html?utm_source=NSWpsn313&utm_medium=email&utm_content=news10&utm_campaign=newsletter_nsw) Edition 313, 10 April 2013  
 More information on how to identify cane toads is available from

<http://www.environment.nsw.gov.au/pestsweeds/CaneToads.htm> Sent to Frogcall by Martyn Robinson Australian Museum

### FATS DONATION TO TARONGA ZOO

FATS have donated 4 rescued Green Tree Frogs *Litoria caerulea* and 2 *Litoria gracilentia* to Taronga Zoo.





## THE FATS SPRING/SUMMER FIELDTRIP PROGRAM COMMENCES IN SEPTEMBER!

**S**pring is just around the corner and our frogs will soon be on the move. That means the FATS fieldtrips programme is not far away!

Our 2013/2014 Fieldtrips Programme will commence in September. Each month we will visit a new frogging site to check out the local frogs. These fieldtrips are safe, family-friendly and lots of fun. It is an ideal way of seeing our frogs in the wild. Our fieldtrips are led by experienced members who are happy to answer any questions you may have. We would urge all members to enjoy at least one evening looking for frogs.

Fieldtrips are free, only available to members but do require a booking. Check each issue of Frogcall for upcoming trips. Our first couple of fieldtrips are announced in this issue on page 12.

**For any enquiries, please phone Robert (Fieldtrips Co-ordinator) on 9681-5308.**

### FATS MEETING 7 JUNE 2013 continued

Tanks and enclosure items were all sterilized, including the use of bleach, Betadine and drying it all thoroughly in the sun. Moist tank substrate is to be avoided as it breeds pathogens. Heat gradients were added to suit frog needs in winter. Disposable gloves should be used when handling cages and frogs.



The frogs were treated with an iodine (Betadine) solution 2-3 drops per 250 ml., White Spot Remedy and Calcium lactating syrup (Novartis – for calcium deficiencies). Electrolyte solutions could be considered when using additional heat for frogs. Air circulation and the use of a good substrate such as coconut palm is helpful.

There are a variety of treatments suggested internationally, see <http://www.amphibianark.org/the-crisis/chytrid-fungus/>, articles by Pessier and Mendelson (2010) and the Smithsonian National Zoo which recommends using a series of baths in itraconazole.

How did the chytrid infect Marcelle's frogs? Was it brought in by insects or cockroaches? I have barely touched on the topics Marcelle covered in her talk. We thank Marcelle very much for taking the time to record, describe and present the challenges she faced and sharing her approach with us on the strategies to save her frogs. Despite being told by some organisations that there was nothing she could do for her sick frogs, she researched the disease and valiantly went into battle to save them.

Arthur White spoke about The Lazarus Project. An ironic follow up after Marcelle Douglas' account of frogs in trouble. What do you need to bring back an extinct species? Intact DNA, genomic template, a living relative, to name a few. Technical work is underway to bring the Gastric Brooding Frog back from extinction. The "de-extinction" technical hurdles continue. Arthur's talks are always interesting and informative. We are very lucky to have Arthur White as a regular speaker at FATS meetings. Find out more at: <http://www.cfzaustralia.com/2013/07/michael-archers-ted-talk-resurrecting.html>

Arthur presented images and spoke about his trip to the remote Western Macdonnell Ranges.

Jilli Streit presented photos from FATS' April trip to Smith's Lake. Several FATS members including Phillip Grimm and Punia Jeffery lent Jilli some additional wonderful images. Thank you Jilli for your excellent presentation and entertaining field trip accounts. MW

### FROGBITS AND TADPIECES

#### AUSTRALIAN MUSEUM WILDLIFE PHOTOGRAPHER OF THE YEAR

<http://info.austmus.gov.au/disclaimer.htm>

By the first Thursday in September 2013, Pets magazine will have a short article about keeping *Litoria gracilentia*, Dainty Tree Frogs.

Frogmusic forwarded by Wendy Ivanusec <http://linseypollak.bandcamp.com/album/frogmusic>

**DARKES FOREST FIELD TRIP  
6 OCTOBER 2012**

**LEADER KEN GRIFFITHS**

**PHOTOGRAPHS ON THIS  
PAGE BY MICHELLE TOMS**

Ken Griffiths lead FATS adventurers through Darkes Forest to look for the impressive collection of frogs and reptiles found there. They spent some time photographing. Ken discussed the challenges of wildlife photography and how to overcome them.



*Litoria fallax*

**T**he advances in affordable digital technology have seen photography become an important tool for wildlife researchers. Photography is now used extensively to identify wildlife, verify field records and to embellish scientific presentations.



*Litoria peronii*



*Crinia signifera* in amplexus

Many of the most impressive FATS talks are now given by members who are armed only with a sense of adventure and a cheap camera!

**FATS MEMBERS**  
It's time to look through your photos and submit a few to the 2013 Frog-O-Graphic competition which is closing very soon.



*Litoria nudidigita*

<http://frogs.org.au/frogs/species/Litoria/nudidigita/>



*Litoria citropa*



*Limnodynastes dumerilii*



*Litoria nudidigita*

Ken, author of 'Frogs and Reptiles of the Sydney Region' and 'Nature Photography' is a well-known herpetologist and wildlife photographer. He also has extensive experience with the wildlife of the Darkes Forest area.



*Litoria fallax*



Male *Litoria lesueuri*



*Litoria lesueuri*

## SIZE MATTERS FOR 'SEX CHEAT' FROGS



**Smaller tree frogs are more likely to "cheat" their way to a mate, French scientists have found.** The team studied the response of differently sized European treefrogs to a chorus of mating calls. They found that smaller males lurked near the sound of an attractive call, rather than calling more frequently than their larger rivals. Research suggests that "cheat" tactics are mainly caused by the intrinsic disadvantage of being small.

The study, which is published in the journal **Animal Behaviour**, was carried out by a team from the University of Lyon, France. The scientists wanted to learn more about what causes animals to use "parasitic tactics" rather than "bourgeois tactics" during the mating season. "Bourgeois" or "classic" tactics involve a high-energy investment and competition for reproduction, whereas "parasitic" or "sneaking" tactics involve exploiting the energy invested by another male.



In treefrogs these tactics manifest themselves in either calling for a mate - a bourgeois tactic - or loitering near an attractive calling male - the sneaky approach.

The scientists wanted to discover whether it was food deprivation or body size that caused the frogs to resort to this behaviour. "The most important finding of this work is that the energetic constraint imposed by a relevant starvation period does not impact significantly the probability to switch from one tactic to another when compared to the inherent disadvantage of being small," said Loic Brepson, PhD student in behavioural ecology at the University of Lyon. "For the first time in this study, thanks to an experimental approach, we can compare quantitatively these two effects and assert that one is completely negligible in front of the other," he said.

The study took 100 differently sized male European tree frogs from ponds outside Lyon, France. After having their stomachs flushed, half of the frogs were fed bluebottles and house crickets, while the other half were starved for a week. They were then placed in a makeshift pond and the sound of both "attractive" and "unattractive" calls from their own population was played to them through loudspeakers.

"Attractive" calls have a different amplitude and were more frequently made during each round of calling. The frogs responded to the chorus by calling back, remaining near the sound, or doing nothing.



The results may affect our understanding of the mating systems of other frogs and toads according to Mr Brepson. As well as finding that smaller males being more likely to "cheat" the scientists also found that "males were more likely to act as a satellite if confronted with an attractive competitor than if confronted with an unattractive one".

The food-deprived males were not more likely to use "sneaking" tactics than the frogs that were well fed, according to the study. In many species, "extravagant" male attributes have been linked with attracting females or competing with other males. Examples of extravagant attributes are the luminescent plumage of peacocks or the ornate antlers of deer stags.

According to Mr Brepson there has been much scientific interest in what role alternative reproductive tactics such as these "parasitic tactics" might play. "Some individuals exploit the investment made by other individuals in reproduction, sometimes leading to great behavioural and/or morphological differences between individuals using the two tactics," he said. "The adoption of one or the other tactic basically depends on the costs/benefits balance that each individual can expect when using one or the other tactic."

He believes that his study may have important implications for study in this area. "This result probably applies to many anurans," he said referring to the animal group that includes frogs and toads. "And probably also to many other taxa with this kind of mating system." **Join BBC Nature on Facebook and Twitter: @BBCNature. By Matt Bardo Reporter, BBC Nature <http://www.bbc.co.uk/nature/19886131> sent to FATS by Andrew Nelson**





### POND ALGAE ENQUIRY TO FATS

**D**o any of you have any suggestions for reducing green algae on a small garden pond? It's in the shade and has pond plants, tadpoles and whiteclouds. No pump used. The pond owner has added half strength algaecide.

<http://www.apifishcare.co.uk/product.php?p=details&id=140>  
API algaecide today and all are still alive. Pond Care Algaefix Pond Algaecide Algae Killer 480ml API PondCare Algaefix effectively controls many types of green or green water algae, string or hair algae and blanketweed in ponds that contain live plants. Controls existing algae and helps resolve additional algae blooms. Keeps ornamental ponds and water gardens clean & clear. Can be used in ponds with plants.

*Compatibility: Before using AlgaeFix, make certain that the pond has vigorous aeration, (a fountain, waterfall or aeration device) especially during hot summer months. In summer heat, pond water contains very little oxygen. In sunlight, algae and submerged plants produce oxygen, and in some cases may be the major source of oxygen in the pond. At night, however, submerged plants and algae actually consume oxygen. Decomposing organic matter also consumes oxygen, even after it is removed by the filter. Until the filter is changed, decomposing organic matter may still cause the oxygen level to drop to harmful levels if adequate aeration is not provided. Therefore, when using AlgaeFix, especially during the warm summer months, adequate aeration is required to keep oxygen levels healthy for your fish. Do not shut off pond pumps or aeration devices at night! Aeration must be provided to pond life at all times. **Cautions:** Do not use in ponds containing fish intended for human consumption. Do not use AlgaeFix with crustaceans, including: crabs, shrimp, freshwater shrimp, and freshwater lobsters."*

### RESPONSES FROM MARTYN ROBINSON AND LOTHAR VOIGT:

Remove and rinse in some pond water, as much of the algae as you can, and then plant with some vigorous growing other plant immediately afterwards – e.g. Papyrus, Cumbungi, anything that grows vigorously and it will starve the algae of nutrients and light. **Martyn Robinson, Educator, Australian Museum**  
<http://info.austmus.gov.au/disclaimer.htm>

Algaecides work well only when:

- (a) you then oxygenate the water as described by that supplier, and
- (b) you do lots of partial water changes afterwards, to remove the killed algae that would otherwise release their nutrients back into the water, starting yet another algae bloom. But: If you do regular partial water changes anyway, you usually don't get a build-up of nutrients to start with and hence no algal bloom.

I mentioned usually because there are also other ways of loading your pond up with nutrients which the algae thrive on: mostly dead leaves rotting in the pond; also dead pond plants that decay before getting pulled out; grass clippings, dust, dog poo that get blown into or roll into the pond; and soil from insufficiently covered pot-plants in the water.

The more stuff you have decomposing in your pond, the more partial water changes you need to do, and / or:

Grow lots of submerged water plants in your pond – the cheapest ones are best because they happen to be the fastest growing ones, which lock up your dissolved nutrients you want to get rid of. And remember to regularly pull a portion of those plants out of the pond, because you want those nutrients out, and not rot back into the water again. (With some understanding of what's going on, you need neither filtration nor aeration for a frog pond – the animal biomass is minimal; it's not a koi pond. For example, adding a small amount of potassium in spring and summer should get the good water plants to grow further until they have exhausted the phosphate – and algae are more phosphate-limited than water plants and can't compete with them in such water.)

Shading a pond in summer helps against algae, but not if the leaves all fall into and stay in the water.

If you have string algae and otherwise clear water, you can wind some of the algae up on a rough stick and throw them out. Leave some in for next time, because they are good for the water too. Hope this helps. **Lothar Voigt**

### EASY WAY TO RENEW FATS MEMBERSHIP

**C**onsider paying your membership by direct bank transfer BSB 082 342 account name Frog and Tadpole Study Group account 285766885 Identify yourself by name if there is an option and if possible membership number then advise Karen White by email [1arthur@tpg.com.au](mailto:1arthur@tpg.com.au) **MW**

## FROG FUNGUS SHEDS LIGHT ON DISEASE SPREAD



Just one of many Costa Rican frogs whose numbers have been decimated by the chytrid fungus  
(Robert Puschendorf)

**P**athogens may become more virulent as they spread from one area to the next, say the authors of a new study of the frog-killing chytrid fungus. They say the findings could have implications for how we study the spread of human diseases. Evolutionary ecologist Dr Ben Phillips, of James Cook University and Dr Robert Puschendorf of Plymouth University, report their findings today in the *Proceedings of the Royal Society B*. "The spread of disease is a very common phenomenon. What we've noticed here with the frogs is that the process of spread can actually change the virulence of the pathogen," says Phillips.

The chytrid fungus is believed to be responsible for the decline of frog populations all around the world since the 1970s, especially in Australia and Central America. "It's quite likely that it contributed to the extinction of quite a few species of frog in Australia and it certainly contributed to the extinction of plenty of species of frog in Central America," says Phillips. Phillips and Puschendorf took advantage of good records kept on the spread of the fungus and the decline of frogs in Central America to investigate the relationship between the two. "We found that the lag time between the arrival of the pathogen and the decline of the frog population diminished over time," says Phillips.

The researchers found that when the fungus first arrived in Mexico in the late 1960s/early 1970s, it took around nine years for the frog population there to show a decline. But, as the fungus spread southward via Costa Rica, the lag time got smaller.

**Increasing virulence** By the mid-2000s the chytrid fungus was in Panama and the decline in frog population happened within a matter of months. Phillips says it is possible that the environment is becoming better for the fungus as it moves south, but he says the "more interesting possibility" is the fungus is evolving to become more virulent as it spreads. He says this would be possible because at each new invasion front

it reaches, the fungus would be presented with a high density of non-infected frog hosts. This would make transmission between hosts easier so the pathogen could evolve to become more virulent without fear of killing one host before it managed to transmit to another. "In those situations virulence would tend to increase," says Phillips. "I think that's actually probably the best explanation for what we've seen in Central America."

**Further research** While the pattern uncovered by the researchers strongly suggests evolution of the pathogen towards virulence, they would need samples of live fungus to confirm the hypothesis (rather than the dead fungus samples collected to date from frog toe clippings). One idea would be to compare the virulence of samples from Panama, Costa Rica, and all the way up to Mexico. "If [the hypothesis] turns out to be true for a lot more than chytrid fungus, that might have profound implications for how we manage emerging diseases and the spread of even common diseases."

Phillips says most studies tend to look at how the virulence of a pathogen changes over time. Such studies, for example of the rabbit disease myxomatosis, suggests there is a co-evolution between pathogen and host so the pathogen gets less virulent over time. But, he says, perhaps over space this is not necessarily the case. "At the moment it's an idea. We have just one observation that fits very nicely with that idea and I guess time will tell how general a pattern it is," says Phillips.

**'Intriguing idea'** Infectious disease expert Dr Rod Givney, from the University of Newcastle describes the hypothesis is a "very intriguing idea". "You can't just think of a homogenous population being attacked by a homogenous organism and bit by bit the organism becoming more benign," says Givney. "You've now got to think about what's happening at the edges of the population, and how much nastier it might be at the edge than it is in the middle." He says the hypothesis has been around for some decades and could explain the virulence of smallpox infections after the first fleet landed in Australia, and even the virulence of some current day infections. But, says Givney, it is difficult to carry out equivalent studies in humans, not least because humans are so mobile and are constantly exposed to pathogens, which is likely to reduce the effect proposed by Phillips and Puschendorf.  
**10 7 2013 Anna Salleh ABC Science Updates**  
<http://www.abc.net.au/science/articles/2013/07/10/3799098.htm> Forwarded to Frogcall by Wendy Grimm

**UNWANTED VISITOR FROM WEST HOPS INTO SA**



**Spotted-thighed frog hops into SA (WA Museum)**

Ecologist Greg Kerr said there was a danger the frogs might displace other species. He says the frogs were easy to identify but were poisonous and should not be handled without gloves. "If you actually do look on the inside of the thigh you'll see a large black area which has very distinctive yellow or sometimes white spots across the inside of the thigh," he said. "If you see that then it can only be that species, there's no other frog like it." He said there could be a risk to other frog species.

"It may be that there are some rarer frogs in the Murray-Darling Basin that they could impact on. They may start to, for example, interbreed with something like the green and golden bell frog or the growling grass frog and that would have further consequences for an already-threatened species and they may displace some frogs from their normal habitat."

**<http://www.abc.net.au/news/2013-06-20/unwanted-frog-species-from-western-australia-found-in-part-of-s/4767444> ABC Online 20 June 2013 Forwarded to Frogcall by Pam Strykowski**

**A**n unwanted visitor from the west has prompted environmental concern on Eyre Peninsula in South Australia. Authorities believe spotted-thighed frogs reached SA by road, in someone's vehicle. They are becoming established in the Streaky Bay area and a recent sighting was reported at Port Lincoln.

**FATS MEETINGS** commence at 7 pm, (arrive 6.30pm) and end about 10pm at the Education Centre Bicentennial Park, Sydney Olympic Park, Homebush Bay. They 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. 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.



Thank you to the many Frogcall supporters. Your articles, photos, media and webpage links, membership administration and envelope preparation is greatly appreciated. Special thanks to regular newsletter contributors, including Lothar Voigt, Robert Wall, George Madani, Karen & Arthur White, Wendy & Phillip Grimm, Grant Webster, Peter Spradbrow, Marion Anstis, Andrew & David Nelson, Barbara Bohdanowicz and Bill Wangmann.



**FROGWATCH HELPLINE 0419 249 728**

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## Field Trips

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

**28 September 5-30 p.m.**

**Scheyville National Park.**

**Leader: Grant Webster.**

Meet at the corner of Scheyville Rd and Dormitory Hill Rd, Scheyville. Today, the remnant Cumberland Plain Woodlands are listed as an endangered ecological community. This once-vast woodland plain, encompassing most of western Sydney, has largely succumbed to urban development. Remaining fragments such as Scheyville reveal an astonishing array of biodiversity. The frogs of this shale country endure quite different conditions to their cousins of the coastal sandstone (Hint: refer to Frogfacts sheet #7 for further discussion of these differences). Tonight we will look in the field for some of these differences. We will also meet slightly earlier than usual to take advantage of the last light of the day so that we may take a closer look at those elements of botany and ecology that distinguish the Cumberland Plain as a unique community. Bring a light tea (such as a sandwich or thermos of soup and a fold-up chair). Grant has been part of an ecological team researching the biota of the Cumberland Plain, and we are fortunate to have his extraordinary expertise available to us tonight.

**19 October 7-30 p.m.**

**Castlereagh Nature Reserve.**

**Leader: Peter Spradbrow.**

Meet at the Shell Service Station, Richmond Rd, Berkshire Park (opposite Windsor Downs Estate). It is between St Marys Rd and Llandilo Rd.

Tonight we return to our Cumberland Plain Woodlands theme. During the Tertiary period (65- 2 million years ago) the ancestral Hawkesbury River coursed its way through present-day Castlereagh and Agnes Banks, depositing sequential layers of sand, silt and gravel. The Castlereagh Woodlands is the name given to the pocket of vegetation that grow along these low-nutrient alluvial deposits. The Castlereagh Woodlands are also listed as an endangered ecological community, as they only occur along the shallow, ancient drainage lines of the Hawkesbury. In a curious anomaly, these woodlands, despite being surrounded completely by Cumberland Plain vegetation, has more affinity with the Sydney sandstone woodlands of the coast. This is due to the similarity in nutrient-poor sands. Tonight, we will spend some time looking for any subtle differences that may occur in the frog populations of the Castlereagh area. We will attempt to uncover any unusual patterns evident in these frog populations. Peter today has a distinguished reputation in herpetology, and has spent much time as a professional wildlife educator. Castlereagh is the area where he acquired his great appreciation and understanding of Australia's herpetofauna.

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

### DARKES FOREST FIELD TRIP

PHOTOS BELOW BY MICHELLE TOMS

LEAD BY KEN GRIFFITHS OCT 2012



*Paracrinia haswelli* in amplexus



Male *Litoria lesueuri*



*Litoria peronii*