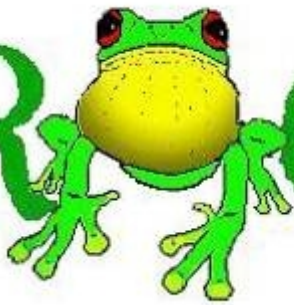


# FROG CALL



THE FROG AND TADPOLE STUDY GROUP NSW Inc.

Facebook: <https://www.facebook.com/groups/FATSNSW/>

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PO Box 296 Rockdale NSW 2216

Frogwatch Helpline 0419 249 728

Website: [www.fats.org.au](http://www.fats.org.au)

ABN: 34 282 154 794

NEWSLETTER No. 156 AUGUST 2018



*Litoria xanthomera* Orange-thighed Tree Frog Photo by Brad McCaffery

*You are invited to our  
FATS meeting. It's free.  
Everyone is welcome.*

Arrive from 6.30 pm for a 7pm start.

**Friday 3 August 2018**

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

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

Take a torch.

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 Rd / Parkway.

It is a short stretch of two way road.

Park in P10f car park, the last car park before the Bennelong Rd. exit gate.

## FATS AGM and ordinary meeting, Friday 3 August 2018

**6.30 pm** Lost frogs seeking forever homes: 7 cheery Green Tree Frogs *Litoria caerulea*, one *Litoria infrafrenata* White-lipped Tree Frog and one shy *Litoria gracilentata* Banana Box Frog aka Dainty Tree Frog. Priority to new pet frog owners. Please bring your membership card and cash \$50 donation. Sorry, we don't have EFTPOS. Your current NSW NPWS amphibian licence must be sighted on the night. Rescued and adopted frogs can never be released.

**7.00 pm** Welcome, Annual General Meeting and announcements

**8.00 pm** Our main speaker Michael McFadden  
"Keeping critically endangered frogs afloat – an update on Taronga's amphibian conservation programs."

Arthur White will present a synopsis of the NSW Office of Environment and Heritage (OEH) proposed changes to frog keeping legislation.

**9.00 pm** Show us your frog images. Tell us about your frogging trips or experiences. Guessing competition, frog adoptions continue, supper, relax and chat with frog friends and experts.

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**OEH NSW BRIEFING SESSION  
FOR FROG KEEPERS**

**A** briefing session for NSW native frog keepers was held on Friday 29 June at the Hurstville Entertainment Centre, OEH NSW has issued the discussion paper on wildlife licensing reforms. It describes all current wildlife licence classes and proposed changes, including whether licensing should be retained or replaced by a code of practice or exemption. Also issued for public consultation are draft codes of practice for keeping native birds, frogs and reptiles and a revised NSW Animal Keepers Species List. The discussion paper, draft codes, species list for animal keeper draft codes and species are available on the NSW [OEH website](http://www.environment.nsw.gov.au/licences-and-permits/wildlife-licences/wildlife-licensing-reforms/wildlife-licensing-changes-public-consultation). The consultation period is open until 24 July 2018. <http://www.environment.nsw.gov.au/licences-and-permits/wildlife-licences/wildlife-licensing-reforms/wildlife-licensing-changes-public-consultation>

**M**arion Anstis welcomed everyone to the meeting. She spoke about frog rescue, the Frog-O-Graphic competition, animal keeping laws, FATS events, the possible change of frequency of FrogCall newsletters and the upcoming FATS AGM in August. Kathy Potter talked about future FATS events. August is our busiest month. We need your help to be present at the various consecutive August events around Sydney. See pages 6 & 7.

Arthur White posed the question: Are frogs primitive? As he had previously presented to veterinary students, he spoke about the miracle of metamorphosis (including gills to lungs, herbivore to carnivore, change of eyes etc, ie total body rebuild, the enormous survival value of babies that are completely unlike the adult form (no competition for food or space), the advantage of a permeable skin, flexible bones and the efficient use of energy by ectotherms. Frogs are definitely not primitive, just different!

**2018 FATS FROG-O-GRAPHIC COMPETITION**

**T**en years ago FATS conducted our first Frog-O-Graphic competition. This proved very successful as we have many creative people in the group. So start photographing. We look forward to seeing your entries.

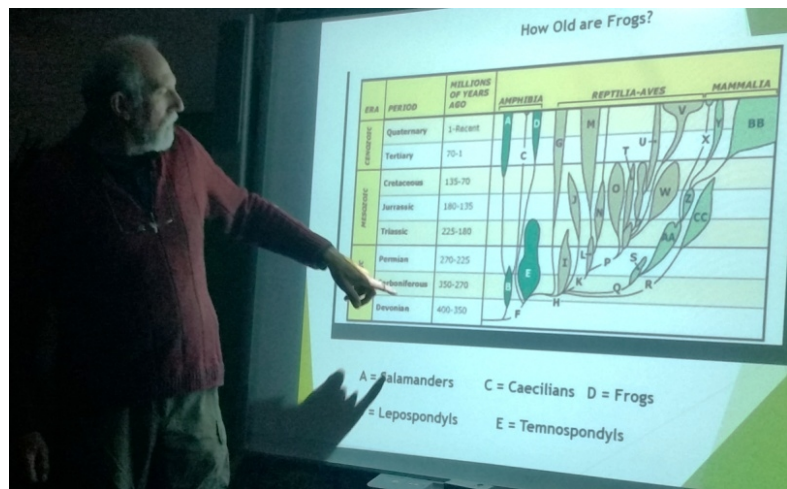
**The FATS 2018 Frog-O-Graphic competition  
closes 31st August, 2018**

**CATEGORIES**

- Best Frog Image,
- Best Pet Frog Image,
- Most Interesting Image,
- People's Choice.

Category winners to be decided by a panel of judges.

**People's Choice** will be decided by everyone present at the October FATS meeting. All entries are by email to [photos@fats.org.au](mailto:photos@fats.org.au) Please state: your name, confirm that you are a financial FATS member, scientific species name if known (added to the file name please), whether the image is a pet frog and your contact phone number. Max 6 entries per person. Max attachment size 6 MB. Fabulous prizes awarded. Entries must be original and your own work. The winning entries may be featured in FrogCall and other FATS publications. **Arthur White**



Punia Jeffery gave us a detailed insight, images and video clip into another amphibian, "Patch" the axolotl.

Andre Rank played his very professional and inspiring 2010 Smith Lakes Fieldtrip 5.19 minute video. Hopefully you can watch and hear it using the link below. The meeting ended with raffles, supper and chat. Thank you again, to our talented and interesting presenters. **MW**

<https://www.dropbox.com/sh/64j4je2wy2nxyi8/AADJepptRZP6CSAfaNji-Afha?dl=0&preview=SmithsLakes2010.wmv>

**FATS AGM NOTICE FRIDAY 3<sup>rd</sup> August 2018**

**T**he FATS Annual General Meeting will be held on Friday 3 /8/2018, 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 President Arthur White at least two weeks before the meeting for further information and to submit items. We appreciate fresh ideas and new members on our committee. No experience required. The FATS committee meet 6 times a year. No task commitments or time expected of committee members, other than what you are able to spare. See contacts details on page 11. **Arthur White**

**FATS ON FACEBOOK:**

**F**ATS has about 2,430 Facebook members from almost every continent. Posts vary from husbandry and frog identification enquiries to photos and posts about pets, gardens, wild frogs, research, new discoveries, jokes and habitats from all over the world. The page includes dozens of information files.

<https://www.facebook.com/groups/FATSNSW/>



*Litoria caerulea* “Benson” 2012  
Christian Hofmann’s pet Green Tree Frog



## FATS POSITION ON ANIMALS IN CAPTIVITY

### Summary

**T**he Frog and Tadpole Study Group of New South Wales Inc (FATS) has a particular interest in the welfare of frogs. Ideally, all native animals should be maintained in the wild, however humans interact with animals for a wide range of reasons. Some of these interactions are critical for our survival and well-being: animals may provide food and valuable products and they also provide companionship. This association with people should not be a justification for cruelty or the demeaning of animals.

FATS is not a society for animal collectors. We promote animal experiences in the wild. However, frogs are regularly brought into captivity as accidental stowaways in fruit and produce consignments and we do our best to treat and cater for these frogs’ needs. A captive frog can be a wonderful pet, a great teaching aid as well as an ambassador for environmental awareness. Captive or domestic animals may be the only experience that many people have with non-human creatures; we see this association as mutually beneficial to both the animal and the owner. Awareness of environmental matters such as habitat loss are more likely to be appreciated by a person who has had first-hand contact with animals than someone who has not. The interaction between humans and animals can be vital for the welfare of both groups.

### Rationale

As a group interested in native animals and their welfare, the Frog and Tadpole Study Group of New South Wales Inc (FATS) has a considered opinion about the interaction between animals and people and

how this should be best achieved so that both groups benefit from the association.

### Animals for People

People have interacted with animals throughout recorded history. Some animals have had a long association with people: dogs have been living with people for at least 13,000 years. The initial association may have been one of mutual benefit (the dog acts as a lookout for danger while the people feed the dog and encourage it to stay around). Somewhere in history, people have accepted animals such as dogs into their homes as pets. The great joy that people get from pet animals, be they dogs, cats, mice or frogs, is enormous and is recognised in Australia in the Companion Animal Act. Medical studies have repeatedly shown that many people fare much better when they have a companion animal, they suffer fewer mental problems, recover from disease or injury quicker and are generally more content in their lives. So animals provide a great service to humanity.

In addition, many animals provide more than companionship, they provide food and produce for our consumption. As frogs are generally not eaten in Australia this discussion will be confined to the use of frogs as companion animals and as educative tools.



## EDUCATION OPPORTUNITY, FAGAN PARK GALSTON

**FATS frogs on display. Kathy and Harriet Potter  
Hornsby Council, plant give away event.**

The above points highlight the services that animals provide for people but what do people do for animals? Or are we simply users of animals? Many of you will be aware that people have interfered with the breeding of many agricultural and domestic species of animals, sometimes resulting in animals that can no longer survive in the wild. Some people are cruel to animals, some people neglect their animals (by not keeping them healthy, by not restricting breeding events, by not controlling their animal so that it does not harm other species).

Keeping animals in a highly urban environment poses special problems, especially for animals that need to range.

## What do animals get out of this relationship?

Humans clearly benefit from the interaction with animals but do animals also benefit? Animals may benefit through regular feeding, the provision of a safe living space and care when sick or injured. Animals in the wild typically live a shorter life span, are usually infested with parasites and contagion, are always on the alert for danger. The stresses of life in the wild are great and it is hard to know how often wild animals get the chance to relax and enjoy life. It would appear that pet animals are safer, better fed and live longer because of their easier life.

## Frogs as Captive Animals

Frogs are typically solitary animals in the wild. They do not associate with other frogs except at breeding events. They normally remain solitary because food resources are limited and food is quickly depleted if an area is overcrowded with rivals. Frogs do move around, usually at night after rain, when they search for food or a mate or a new shelter site. For most of the year frogs are reasonably immobile, remaining hidden during dry or cold weather or at times when food is not available.

It is only in the last 200 years that frogs have been kept routinely as pets. They have been kept in medieval times for medical and witchcraft purposes, but these frogs were rarely fed or treated well.

A captive animal requires many things; the main requirements being:

1. A diet that provides all of the essential requirements for a healthy life.
2. Living conditions that allow the animal to be healthy.

The second condition is the one that often causes the greatest amount of discussion amongst animal fanciers. One extreme view states that no animals should be captive because they can never act or behave normally when confined. The opposite view states that animals are adaptive and as long as they are well fed and kept healthy the living conditions do not need to resemble life in the wild at all.

## Animals and People Share the Same Planet.

The Earth has finite resources, especially living space. Human populations are already unsustainable and forecast predicts that much greater populations increases are still to come. For animals in the wild, this means greater and greater losses of habitats and ecosystems. Some biologists have gone so far as to predict the day will come when most species on Earth will be extinct because humans will have modified so much of the planet that it is uninhabitable for many other species. The current rates of extinction are the highest ever recorded in our planet's history; they exceed the rates of extinction in the Cretaceous and

Permian when massive numbers of species were exterminated.

If human populations continue to expand as they are, the future for many animal species is dire. Perhaps their only real future will be as captive species- the choice of which species will be kept will probably depend on the "cuteness" of the animal, the ease of feeding and looking after it, how much space it requires and its monetary or other value to us.

Some species have already disappeared in the wild and are only known from captive sources.

## FATS and Frogs

FATS is a specialist interest group with a fascination for frogs (and other living creatures). We are not frog keepers or frog traders. This does not mean that we oppose the keeping of frogs in captivity.

Most FATS members would far prefer to see frogs in the wild rather than in a cage. However, many members also do not have the opportunity to go into the wild to see frogs and so for them captive frogs are the next best solution. Our members who have captive frogs often go to extraordinary lengths to create cage environments that provide all of the essential requirements for the frogs:

1. Enough space to move around (when the frog wants to)
2. Shelter sites so that the frog can remain hidden when it feels the need to do so.
3. Reliable clean water and food.
4. Regular cage cleaning.
5. Regular checks on the animal to ensure that it is not sick or injured.
6. Vet or pathology checks when required.

These measures require a high financial cost- most of our members think that the frogs are worth it.

We discourage members from breeding frogs without a purpose. Some of our newer members think that frogs will get lonely if they are by themselves and need a mate. This is generally untrue-especially in captivity. Too many frogs in one cage will result in some aggression between frogs, causing some frogs to lose weight, become reclusive or to become restricted to some back corner of the cage. Stress behaviour becomes apparent and fights become common if captive conditions are not correct. In addition, many Australian frogs are cannibalistic so placing a small male in a cage with a larger female may be a sure way of feeding the female but will not result in spawning.

Breeding frogs is a major undertaking, mainly because of the large number of offspring that could result. We do not advocate breeding frogs unless there is a plan prepared in advance dealing with the ultimate fate of the offspring. Killing off surplus offspring is not an acceptable option.





***Litoria aurea* Green and Golden Bell Frog**  
**Photo Josie Styles**

### How do FATS use Frogs?

FATS interacts with frogs in three main ways:

1. We use frogs as educational tools - FATS does a lot of community, school and teaching engagements where we promote frogs as special animals worthy of conservation. In an increasingly urban world, we see this as the most important role that we have. Fewer and fewer people have any familiarity with frogs (or other native animals) and therefore have no commitments to their conservation. By providing the contact with frogs we are trying to stir up the necessary conservation will to protect these delicate animals.
2. We study frogs in the wild. FATS does regular field trips whereby members can experience frogs in the wild and get a chance to appreciate them better. In addition to helping our own appreciation of these animals, we are also collecting data that can be used to assist the frogs. FATS prepared the first comprehensive list of threatened frogs in New South Wales and was foremost with the early trials on treating chytrid-infected frogs. Today we have several regular study sites where we record frog abundances and diversity so that any long-term changes (such as due to climate change) can be better assessed.
3. FATS runs a Frog Rescue Service. This service was created when we discovered (in the early 1990s) that many frogs were being accidentally imported into Sydney as stowaways in produce or other merchandise. In the major receiving centres, these stowaway animals were routinely killed (which was the legal requirement). In

consultation with government agencies and market owners we set up the Rescue Service so that we could retrieve some of these frogs, rehabilitate them and make them available as captive pets. The frogs were of unknown provenance and could not be released for fear of spreading undetected diseases.

This service also required FATS to develop a quarantining procedure and to develop treatments for various frog diseases (which we did in collaboration with Taronga Zoo). FATS set the standard for treating and limiting infection in frogs.

As we realised that a large number of frogs were coming from one source (namely in bananas from Queensland) FATS undertook meetings with the Queensland government and the Banana Growers Association in 2002. From this an agreed procedure was established whereby bananas are checked at the plantations and frogs released from the collected bananas before being loaded onto the trucks or trains for transport to other places. This action alone reduced the number of frogs coming into Sydney by 60%.

### Does FATS sell frogs?

No. The frogs that come through quarantine and treatment in the Frog Rescue Service are made available to licensed keepers. We ask for a donation to cover the costs of maintaining the frogs in quarantine.

### FATS Philosophy

FATS does not believe that animals are inferior to humans, nor that they lack the basic rights to life. We similarly do not believe that animals were created for the sole use of people as this belief can be used to justify cruelty and animal abuse. In a world that is overrun with people, many who have no familiarity or concern for frogs, the best that FATS can do is to try to instil a sense of worth of frogs in people. Without someone to care and fight for frogs, frogs will never be conserved and will be one of the first vertebrate groups to disappear during the Anthropocene.



**Northern Banjo Frog, Tyagarah Swamp Photo Lothar Voigt**





**Unusually coloured *Litoria caerulea***  
**F**rom Frogs of FNQ Facebook page, posted by Floss Jackson, Kelso, Townsville. Possibly a colourful mutation. Either a young Green Tree Frog or White-lipped Tree Frog. Marion Anstis suspects the former. There was some debate on the FATS Facebook page about the species identification and whether the colouring was natural or caused by an event. Posted by Marion Anstis and Chris Williams

**GONDWANA GARDEN FAMILY DAY MOUNT TOMAH 18/8** Take a trip through time to the ancient land of Gondwana for a fantastic family day of hands-on science fun at the Blue Mountains Botanic Garden! Part of the Sydney Science Festival.

**SCIENCE IN THE SWAMP 11 am – 3 pm 18/8 LOCH AVENUE SOUTH, CENTENNIAL PARK** FATS will be present Please come along. We need helpers. Even an hour will be great. Contact Kathy Potter FATS Events Coordinator. page 11. Join our scientists at their stalls and they will show what amazing superpowers you find in nature. Super sight, super hearing, super strength and camouflage are only some of the capabilities you will discover. The incredible roving Dinosaur will be coming back as well.



Blue Mountains Tree Frog By Karen Russell

**FOOD FOR FROGS BUY FROM ARC & SUPPORT FROG CONSERVATION**  
<https://frogs.org.au/arc/> The ARCADE for frog food orders <https://frogs.org.au/live-foods/>

The screenshot shows the Amphibian Research Centre website. At the top, there's a navigation bar with 'LOGIN' and 'create an ACCOUNT'. Below are several content blocks: 'Our Facilities' with a photo of a lab, 'Our Story' with a photo of a child, 'Live foods' with a cricket, 'Frozen Foods' with a mouse, and a 'Featured Article' titled 'Feeling the silence of the ghosts'. A 'Shop Now' button is also visible.

**July: ARP 60th birthday celebrations**  
**29/7 Australian Hepetological Society (AHS) BBQ**

**8 August 2018**

sun	mon	tue	wed	thu	fri	sat
			1	2	3 FATS AGM & meeting	4
5	6	7	8 Mt Annan	9 Botanic Gardens	10 Royal Australian Museum	11 山の日
12	13	14	15	16	17	18 18/8 Gondwana Garden Mt Tomah + Science in the Swamp Centennial Park See page 6, left
19	20	21	22	23	24	25
26 26-28/10 Smiths Lake FATS field trip	27 17/11 Warriewood Wetlands FATS field trip	28	29 2/12 Australian Reptile Park Herp groups BBQ page 12	30	31 Frog-O-Graphic competition closes	





Smiths Lake 2010 from video taken by Andre Rank



**SUPER SCIENCE SATURDAY 11/8** The Australian Museum brings science to life! FATS needs help, even for a couple of hours. This event is part of Sydney Science Festival. [australianmuseum.net.au/whatson](http://australianmuseum.net.au/whatson) <https://www.eventbrite.com.au/e/super-science-saturday-tickets-45845513164>

**SCIENCE IN THE WILD MOUNT ANNAN BOTANIC GARDEN 11 /8** Join FATS for a fun day at Mt Annan. Frog explainers needed. No experience required. Even a hour will help. <https://www.australianbotanicgarden.com.au/What-s-On/Science-in-the-Wild>

**LIVING LABORATORY AT THE ROYAL BOTANIC GARDENS. 10 am – 3 pm 11/8 Mrs Macquaries Road.** Science fun in the Garden! ‘See like a bee’ with UV, peer down microscopes, do flower-dissection and DNA experiments. Discover weird and wonderful plants, animals and fungi. Enjoy shows, displays, talks, and complete the Science Safari adventure stations!

Please contact Kathy Potter FATS Events coordinator. See page 11



Cute *Litoria dentata* tadpole? by Michelle Toms

## GETTING THE JUMP ON LEARNING

Laura Sullivan

CAMDENVILLE Public School in Newtown will soon have an abundance of frogs hopping around the school grounds.

Last week, the school celebrated their new frog pond, which was built in partnership with Bunnings and the Australian Museum.

It comes after the new Frog ID app, which aims to encourage children and families to record the sounds of frogs to help with new discoveries.

Australian Museum director Kim McKay hopes every school across the

country will put their hand up for a frog pond. School principal Sue Smith knows the importance of environmental education and was thrilled when asked if the school could be the first for the roll-out. “We are really strong on building environmental empathy so the kids respect the frogs, we want them to look at them and help them grow,” she said.

Students Mabel Furno, 8, and Ruby Harris, 10, said they were excited to have the frog pond.

“My favourite thing about frogs is how they move around, and they are a bit slimy,” Mabel said.

## FAUNAUVERSE

Australian wildlife in poetry  
Alexander Dudley & Jane Sullivan

Containing 23 poems about Australia’s unique and spectacular wildlife written in an entertaining and informative manner, including poems about Pobblebonks, Planigales, Thorny Devils, Kangaroos, and many other species.



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[WWW.FAUNAUVERSE.COM.AU](http://WWW.FAUNAUVERSE.COM.AU)



## **CHYTRID FUNGUS, FROG - BRAZIL: HYBRID LINEAGES , HIGHER VIRULENCE -**

**A** disease-inducing fungus in amphibians worldwide could become deadlier as different genetic variations emerge, according to research led by the University of Alabama (UA). Biologists tested the harmfulness of a Brazilian hybrid form of *Batrachochytrium dendrobatidis* known simply as **Bd** or the amphibian chytrid fungus, as well as both parent forms, on species of frogs from the Brazilian Atlantic Forest. They found infections and strength of the illness increased with the hybrid form.

Published 26 June 2018 in Scientific Reports, the research is the 1st to demonstrate hybrids of the fungus can be deadlier than more common and widespread fungal genotypes ..... When the paper was written a few months ago, the Brazilian hybrid of the fungus was the only one documented, but new evidence shows another hybrid of the fungus emerged in South Africa, .....

Infectious outbreaks of the disease caused by the fungus, chytridiomycosis, have afflicted amphibians for at least 40 years on every continent except Antarctica, sometimes killing massive numbers of animals and, occasionally, extinguishing some species. The fungus' complex genetic history is not completely understood, but a relatively new version, on an evolutionary timescale, is known as the global pandemic lineage, or Bd-GPL. What led to its emergence is unknown, but it is particularly deadly.

In Brazil, Bd-GPL reproduced with another lineage, a process known as hybridization, and the UA-led research shows the hybrid fungus can be even more deadly than Bd-GPL in native frogs, Greenspan said. "This is significant because it shows that hybrids of this fungus can increase disease risk," she said. The team conducted the research at the University of Campinas in the state of Sao Paulo, Brazil, and included a diverse array of frogs native to the Brazilian Atlantic Forest, including *Brachycephalus ephippium*, called a pumpkin toadlet among other names; *Ischnocnema parva*; and *Dendropsophus minutus*, a lesser tree frog. "Since it is well-established that Bd has a dynamic genome and is now nearly globally distributed, this finding highlights the importance of global surveillance to detect future genomic shifts in this disease system that could lead to new outbreaks of chytridiomycosis," Greenspan writes in the paper.

Communicated by: ProMED-mail from HealthMap Alerts [promed@promedmail.org](mailto:promed@promedmail.org)

The scientific article referred (Greenspan SE, Lambertini C, Carvalho T, et al. Hybrids of amphibian chytrid show high virulence in native hosts. *Sci Rep.* 2018;8(1):9600. doi: 10.1038/s41598-018-27828-w) can be accessed at <https://www.nature.com/articles/s41598-018-27828-w> *B. dendrobatidis* (Bd, chytrid fungus) is a singular fungal pathogen. It has a swimming zoospore as the infectious stage. It colonizes skin cells of adult amphibians and the

mouthparts of tadpoles. Infection occurs when zoospores land on the skin or the mouthparts and encyst. Through mechanisms that are not fully understood, the pathogen moves from the surface of the skin to the stratum granulosum of the epidermis and matures in the stratum corneum. There, it enters healthy cells, grows in size, and develops into an urn-shaped zoosporangium in which the zoospores develop. As infected skin cells move toward the surface, the zoosporangium matures, the discharge papilla opens, and mature zoospores swim out. The mechanism by which this pathogen causes disease seems to be by interference with the ion transport functions of the skin, leading eventually to cardiac failure.

Genetic studies revealed that there are several lineages of Bd. Some have been present for a long time in a region, causing little impact on local frog species. One lineage, however, has spread across several continents and has been linked to many amphibian population declines. This global pandemic lineage became hybridized with local lineages in South Africa and Brazil, producing a novel strain, which in this case proved to be more pathogenic in one native species. The authors tested the hybrid in 3 species, finding different results in each case.

To interpret these results, and the phenomenon as a whole, it is important to analyze what virulence is. Virulence is one of the consequences of the host-pathogen(/parasite) interaction and is the cost paid by the host as a result of an infection. Virulence is not simply an attribute of the pathogen, but an outcome of this interaction determined by the interplay between infection and host defenses, as it depends on the detrimental effect per parasite (not only dependent on the pathogen, as it is also reflected by host tolerance) and by the intensity of parasitism (affected by host resistance, and dependent on parasite exposure). Thus, virulence may vary across a group of hosts, mainly due to variability in defense competences.

Taking the above into account, it is expected that hosts of a given region have evolved defense strategies (tolerance and resistance) to maximize their fitness in when infected with local pathogens. When new lineages or hybrids appear, the defenses to these new pathogens may not be optimal, provided there is no co-evolutionary history that allowed adjusting an appropriate response. This holds for other host-parasite systems. Introduction of foreign pathogens in areas where there are susceptible hosts with naive immune systems may cause disastrous results.

Extracts <http://healthmap.org/promed/p/45784>  
International Society for Infectious Diseases  
<http://www.isid.org> Forwarded to FATS by  
Marion Anstis and Fred Parker



## THE FROG AND THE FIREFLY

For those with access to the internet: Frog swallows a firefly! Have to feel a bit sorry for the poor insect, though! Cheers Alan Lane and Virginia King



<https://www.jukinmedia.com/licensing/view/993680>

## FROGS SHOW SIGNS OF IMMUNITY TO CHYTRID PANDEMIC THAT HAS WIPED OUT 200 SPECIES



**The Panamanian golden frog is presumed to be extinct in the wild. Cori Richards-Zawacki**

A disease caused by a highly contagious fungus has wiped out as many as 200 species of frog worldwide since the 1970s, and pushed many more to the brink of extinction. But researchers now believe that some frogs may be developing a resistance to the deadly chytrid fungus.

When chytridiomycosis wiped through a biodiversity hotspot called El Cope in Panama in 2004, scientists said the spread was so rapid that, in places, dead frogs littered the forest floor. In the study published today in *Science*, researchers have documented the recovery of nine frog species in three regions of Panama, including El Cope, and have observed infected frogs showing no ill effects from the fungus..... As part of the study, the researchers also exposed captive frogs to chytrid fungus. Those frogs were from a breeding stock taken into captivity before the outbreak of chytridiomycosis, and therefore had no chance to develop immunity. All captive frogs died with 48 days of exposure.

They also ran tests to compare the potency of the disease between a 2004 sample and a 2012-13 sample. By combining this data, they were able to establish whether the disease was getting weaker, or the frogs were become more resilient.....Australian frogs needing 'urgent conservation intervention' Six Australian frog species haven't been observed in the wild since the disease was detected here in 1993, and the CSIRO say several

Australian species are currently needing "urgent conservation intervention" to halt their decline.

Infected frogs can typically be found sitting in the open, emaciated, with peeling skin and showing signs of lethargy. The fungus is able to use the frogs' natural process of skin shedding to carry out its lifecycle, according to James Cook University (JCU) scientist Dr Lee Berger, who was not involved with the study. "It [gets] inside the cells of the epidermis and as the cells turn over and are shed ... the mature fungus gets carried to the surface [where] it releases the infected spores to the water," Dr Berger said. "Sodium and potassium in the [frogs'] blood goes down really low [and they] have a heart attack."

[https://www.youtube.com/watch?v=cB2j5IVG\\_Bg](https://www.youtube.com/watch?v=cB2j5IVG_Bg)  
YOUTUBE: Saving the Australian corroboree frog (National Geographic).

She first positively identified chytridiomycosis in Australia in 1997.....The fungus is mostly limited to moist and cooler environments like rainforests, and hasn't yet been detected in areas like Kakadu. However a number of populations have been hit in North Queensland's wet tropics.

Scientists have successfully translocated species to regions where the fungus doesn't occur, such as the armoured mistfrog, which was reduced to a single population along a 4-kilometre stretch of stream in north-east Queensland.



**Researchers say modern strains of the fungus are genetically similar. Supplied: Douglas Woodhams**

And there is a captive breeding population of Australia's iconic corroboree frog, which Dr Berger is hoping to begin genetic work on to improve its resistance to chytridiomycosis. "If [resistance] turns out to be just a few genes, the quickest way is to do transgenics — to just insert those key genes into other frogs," she said. But more iconic species will be lost if intervention programs don't get support, Dr Voyles warned. "The study really underscores the importance of continuing to monitor these populations and to do research and make an effort in terms of conservation," she said. **By environment reporter Nick Kilvert 3 April 2018 <http://www.abc.net.au/news/science/2018-03-30/frogs-resistant-to-chytridiomycosis/9591536>**  
**Forwarded to FATS by Stephen Weir**

## JETTISONING 'GUIDANCE' FILES

**H**erpDigest feels herpers of all kind, from scientists, to conservationists, to people who keep or just like herps should read though it contains no herps. It contain information that herpers should know about. That affect herps. Not just because of how the article covers the North Korean “summit”, But to more importance, the last half of the article what is happening at the USA EPA and its removal of guideline rules.

A little-noticed change at the Justice Department could have far-reaching impact on the role of science in federal policy across the government. This year the Justice Department announced it would no longer use “guidance documents,” which are written by experts at other agencies, to enforce laws. “This change makes a lot of the big, science-based laws unenforceable,” said Dr. Goldman of the Union of Concerned Scientists.

For decades, enforcement of major health and environmental laws — including the Clean Air Act, Clean Water Act, Endangered Species Act and laws governing food safety and exposure to chemicals — has relied heavily on guidance documents written by scientists at the E.P.A., Agriculture Department, Food and Drug Administration and other agencies that supply the specific interpretation of how to carry out the laws. Guidance documents might, for instance, detail how industries should monitor and report their pollution, or how food makers should watch for food-borne illnesses ....

And the Department of Interior.....?

***In the Trump Administration, Science Is Unwelcome. So Is Advice.*** As the president prepares for nuclear talks, he lacks a close adviser with nuclear expertise. It's one example of a marginalization of science in shaping USA policy.

**Washington:** “...As President Trump prepares to meet Kim Jong-un of North Korea to negotiate denuclearization, a challenge that has bedeviled the world for years, he is doing so without the help of a White House science adviser or senior counselor trained in nuclear physics. Mr. Trump is the first president since 1941 not to name a science adviser, a position created during World War II to guide the Oval Office on technical matters ranging from nuclear warfare to global pandemics. As a businessman and president, Mr. Trump has proudly been guided by his instincts. Nevertheless, people who have participated in past nuclear negotiations say the absence of such high-level expertise could put him at a tactical disadvantage in one of the weightiest diplomatic matters of his presidency.....”  
<https://www.nytimes.com/2018/06/09/climate/trump-administration-science.html> By Coral Davenport, New York Times 9 June 2018  
[asalzberg@herpdigest.org](mailto:asalzberg@herpdigest.org)

## RIC NATTRASS RESEARCH GRANT AWARDED TO ALANNAH FILER



**T**he Queensland Frog Society is proud to announce Alannah Filer as the recipient of the 2018 Ric Nattrass Research Grant. The purpose of this grant is to assist research into Queensland's frogs.

Alannah is currently completing her PhD at the University of Queensland on the distribution of Queensland's acid frogs - the Wallum Sedgefrog (below), Wallum Rocketfrog, Cooloola Sedgefrog, and Wallum Froglet. Alannah's research focuses on the analysis of acid frog species and the competitive relationship with their associated sibling (closely related and morphologically similar) species. Alannah is concentrating on the relationship between the Wallum Sedgefrog and its sibling the Eastern Sedgefrog.)

The acid frogs, also known as wallum frogs, live in the remnant wallum/heath pockets in the sandy lowlands of South East Queensland and Northern New South Wales. The species are however frequently threatened by loss or degradation of their habitat to urban development along the coast. Habitat alteration can allow the introduction of the acid frogs' sibling species ('common' species which utilize a variety of environments) by decreasing the acidity of the water, allowing competing species to breed. These sibling species have been observed to outcompete the acid frogs in disturbed wallum ecosystems.

Alannah is using bioacoustic audio recorders (pictured on tree) to monitor the amphibian populations at various ponds with differing levels of disturbance. This is to determine the extent and method of acoustic competition between the acid frogs and their sibling species. So far, two breeding seasons of acoustic data have been recorded and data collection is ongoing.

**In 2009, the Queensland Frog Society established the Queensland Frog Society Trust Fund to provide funding for amphibian research projects such as Alannah's. To finance these grants, the Queensland Frog Society is encouraging you to be involved by giving a tax-deductible donation to the QFS Public Trust Fund, where your donation will be invested into the future of Queensland's frog fauna. To find out more about this Grant, and how to donate, visit this link to our site - <http://www.qldfrogs.asn.au/ric-nattrass-research-grant/>**



**FATS MEETINGS** commence at 7 pm, (arrive from 6.30 pm) and end about 10 pm, 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. Call, check our web site, Facebook page or email us for further directions. We hold 6 informative, informal, topical, practical and free meetings each year. Visitors are welcome. We are actively involved in monitoring frog populations, field studies and trips, have displays at local events, produce the newsletter FROGCALL and FROGFACTS information sheets. FATS attend many community fairs and shows. Please contact Kathy Potter if you can assist as a frog explainer, even for an hour. No experience required. Encourage your frog friends to join or donate to FATS. Donations help with the costs of frog rescue, student grants, research and advocacy. All expressions of opinion and information in FrogCall are published on the basis that they are not to be regarded as an official opinion of the FATS Committee, unless expressly so stated.

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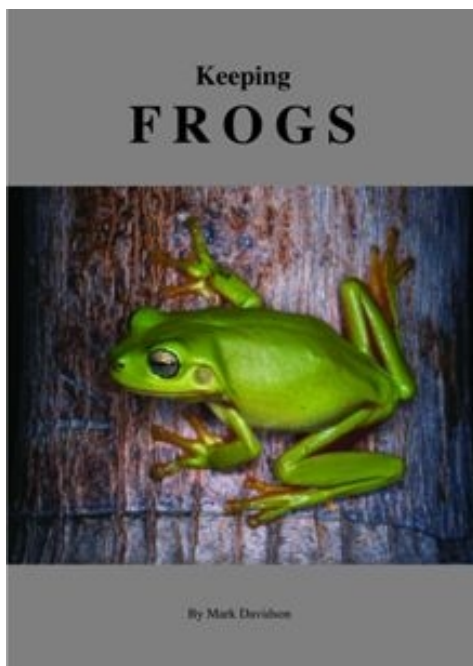
**RESCUED FROGS** seeking forever homes are at our meetings. Contact us in advance if you wish to adopt a frog. Cash donation (\$30 to \$50) required to cover care costs. Sorry we have no EFTPOS. FATS must sight your current amphibian licence. Licences can be obtained from NSW National Parks and Wildlife Service, Office of Environment and Heritage. <http://www.environment.nsw.gov.au/wildlifelicences/GettingAnAmphibianKeepersLicence.htm> We request you join FATS before adopting a frog. This can be done on the meeting night. Most rescued frogs have not had a vet visit unless obviously ill. Please take you new, formerly wild pet to an experienced herp vet for a check-up, possible worming and/or antibiotics. Consider having annual checks for your frog pets. Some vets offer discounts.

## FROGWATCH HELPLINE 0419 249 728

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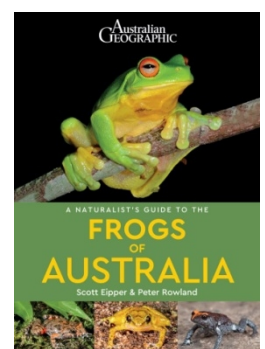
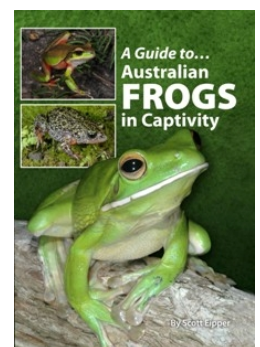


### Left **Keeping Frogs by Mark Davidson**

**W**ill be available at FATS meetings. 37 page aid for the captive care of Australian frogs. 14 most commonly kept species. RRP \$16 ISBN: 975820001 Details on Size, Colour, Call, Heat, Humidity, Breeding, General Husbandry, Tadpole Development & Morphing.

**A Guide to Australian Frogs in Captivity By Scott Eipper** Available through ABK Distribution PO Box 2330, Burleigh BC QLD 4220 Tel: +61 7 5568 0011 <http://www.birdkeeper.com.au/reptile-snake-books?Page=2&Items=5> 152 Pages RRP \$55 [abk@abkdistribution.com.au](mailto:abk@abkdistribution.com.au) Right [www.birdkeeper.com.au](http://www.birdkeeper.com.au) [www.reptilepublications.com](http://www.reptilepublications.com)

And coming soon **"Frogs of Australia" by Scott Eipper and Peter Rowland** Right



## 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 02 9681 5308.**

**26<sup>th</sup> - 28<sup>th</sup> October**

**Smiths Lake Camp-Out**

**Leaders: Karen and Arthur White**

Smith's Lake has become such a popular field trip destination that changes are needed to ensure that everyone gets a chance to go. Up until now, it has been first in goes to the head of the list, but this approach has meant that the same people often get to go and newcomers miss out. In addition, we have people cancel late so their place goes unfilled. To overcome both of these problems we have changed the booking arrangements, which will include a **non-refundable** pre-payment for the booking. Most people will still be able to attend. This arrangement is in case we have too many people wanting to go on the field trip.

1. For the next field trip, you must email Karen White [white.kazzie@gmail.com](mailto:white.kazzie@gmail.com) by 12 October and indicate that you (and others in your group) want to attend and what day you intend to arrive. Karen will then put your name on a list - if you attended the previous Smith's Lake field trip you will automatically go on the Reserve List.
2. Karen will send you a reply email to let you know which list you are on. If you are on the A list you must pay your accommodation by 12 October to confirm your booking. If you do not pay by this date you will be removed from the A list. You can pay electronically to the FATS account:- **Account Name: Frog and Tadpole Study Group BSB 082 342 Account No. 285 766 885** Cost is **\$17.50** per person, per night.
3. Karen will send you confirmation of your booking when your payment has been received.
4. Karen will email people on the Reserve list, 2 weeks before the field trip dates (12 October). You will be told if there are spaces available for you or not. If are able to go, you will now need to forward your payment to guarantee your place. Payment must be received by 19 October. If not, your place will be given to the next person on the list. We think that this will be the fairest way to ensure that everyone gets a chance to go to Smith's Lake.

**17<sup>th</sup> November 7.45 pm**

**Warriewood Wetlands**

**Leader: Jayden Walsh**

Meet in Katoa Close (off Garden Street), North Narrabeen / Warriewood

Warriewood, like many of Sydney's beach-side areas, was once covered by a broad expanse of sand-dunes and low-lying wetland areas. The dunes and wetlands long-ago succumbed to suburbia, roads and playing fields. Perhaps even more disappointingly, relatively recent developments such as shopping malls have been approved on some of the last remnants of these wetlands.

Tonight we will look at Warriewood Wetlands. The local Council, realizing the importance of this last remaining wetland remnant, has undertaken extensive public works here to provide a somewhat fine educational facility. Tonight, Jayden will take us along the well-constructed boardwalks, and will give us some insights into these wetland habitats. We will discuss the successes and shortcomings of this project. Jayden is an accomplished naturalist, and has a wide-ranging interest in wildlife. He has studied the ecology of the northern beaches for many years. Tonight, he will help us assess the health of the frog population here.

This "boardwalk" fieldtrip is ideally suited for young families and newcomers!

**2<sup>nd</sup> December Australian Reptile Park Annual Herp Society BBQ Ph: (02) 4340 1022 [admin@reptilepark.com.au](mailto:admin@reptilepark.com.au)**

**In the event of uncertain frogging conditions (e.g. prolonged/severe drought, hazardous and/or torrential rain, bushfires etc.), please phone 02 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.**