

FROG CALL

No 140, December 2015



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MEETING FORMAT

Friday 4th December 2015

6.30 pm: Lost frogs needing homes. Please bring your FATS membership card and \$\$ donation. **NPWS NSW, Office of Environment and Heritage amphibian licence must be sighted on the night.** Rescued frogs can never be released.

7.00 pm: Welcome and announcements.

7.45 pm: The main speaker is Graham Pyke, who will give us a talk entitled: Green and Golden Bell Frogs on Broughton Island: Frog biology, conservation and management.

8.30 pm: Frog-O-Graphic Competition Prizes Awarded.

8.45 pm: Show us your frog images, tell us about your frogging trips or experiences. Guessing competition, continue with frog adoptions, Christmas supper and a chance to relax and chat with frog experts.

Thanks to all speakers for an enjoyable year of meetings, and all entrants in the Frog-O-Graphic Competition.

Email monicawangmann@gmail.com to send an article for FrogCall, or if you would like to receive a PDF copy of FrogCall in colour - every two months.

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President's Page

Arthur White

2014–2015 has been another good year for FATS. We have managed to participate in many public events, hold several field trips, contribute on governmental panels and generally have a good time.

FATS is also financially strong, thanks to our long-standing Treasurer Karen White. Because we are so sound, we again offered student research grants this year.

FATS held a number of community activities this year including various garden clubs and frog activities at regular venues such as the Ku-ring-gai Wildflower Centre and Narrabeen Wetlands, as well as the Royal Easter Show. We also participated in Science in the City at the Museum during Science Week. Great thanks are given to Kathy Potter and family for organising most of these events.

FATS also undertook the annual Green and Golden Bell Frog auditory surveys at Sydney Olympic Park.

FATS is a member of the NSW Government's Advisory Committee on Native Animals, as well as the Task Force for Cane Toads in New South Wales. We were the major contributors to the production of a cane toad eradication plan for NSW. We are also represented in the Declining Frog Working Group, NSW.

Robert Wall organises a great series of field trips that are always well attended. These are for anyone who wants to come - you don't have to be frog know-all to attend. Please make sure that you get your name down on the attendance sheet as quick as you can after the trips are announced or else you could miss out.

Monica, our editor, has been busy as always, putting out FrogCall, our flagship publication. It is a great credit to her and a wonderful means of getting frog news around. Our special December colour editions are keenly sought by non-members.

Many thanks to our other executive members: Wendy and Phillip Grimm, Marion Anstis, Lothar Voigt, Punia Jeffery, Vicky Deluca, Robert Wall, Jilli Streit and Andre Rank. Each has contributed whole-heartedly and helped keep FATS alive and well.

Another special thanks to our web site Manager: Phillip Grimm.

Of course, I would like to thank all of our members for making FATS such a great group to be in. People who are friendly and helpful really make it a pleasure to run an organisation like FATS.

FATS membership has fallen over the last 12 months and I would like to hear from you if you can think of activities that we should do to attract new members.

Cyclone Damage can benefit Rainforest Frogs

Ross Alford

Introduction

My research group at James Cook University (Townsville) has done a large amount of work since the discovery of the amphibian chytrid skin fungus, *Batrachochytrium dendrobatidis* (Bd) on how the environment affects susceptibility of frogs to the infections and disease it causes. The initial declines and disappearances were severe at elevations above about 350 metres and not detectable below that, even though frogs below that elevation were infected by the pathogen. One obvious possible reason for this pattern was temperature.

Determining effects of temperature

It turns out that the effects of temperature are complex. The fungus itself is highly sensitive to temperature, with a northern Queensland strain growing well only between 15 and 25°C,

then slowing rapidly below that range and even more rapidly above it. At 26–28°C it grows only very slowly, and above that range growth ceases and mortality commences (Stevenson *et al.*³). The rate of growth of Bd on the host is also affected by frogs' immune systems, which are complex and impacted in complex ways by temperature—for example, we've shown that some natural skin bacteria that may protect frogs from Bd become less active at low temperatures.

This is important to individual frogs as well as to populations because even in tropical rainforests, temperatures fluctuate, often over a 10°C or greater range within a day, and a 20–30°C range over a year. Although air temperatures are often within the Bd optimal range, all a frog needs to do is briefly bask in a patch of sunlight for its body temperature to be elevated into the slow-growth or death

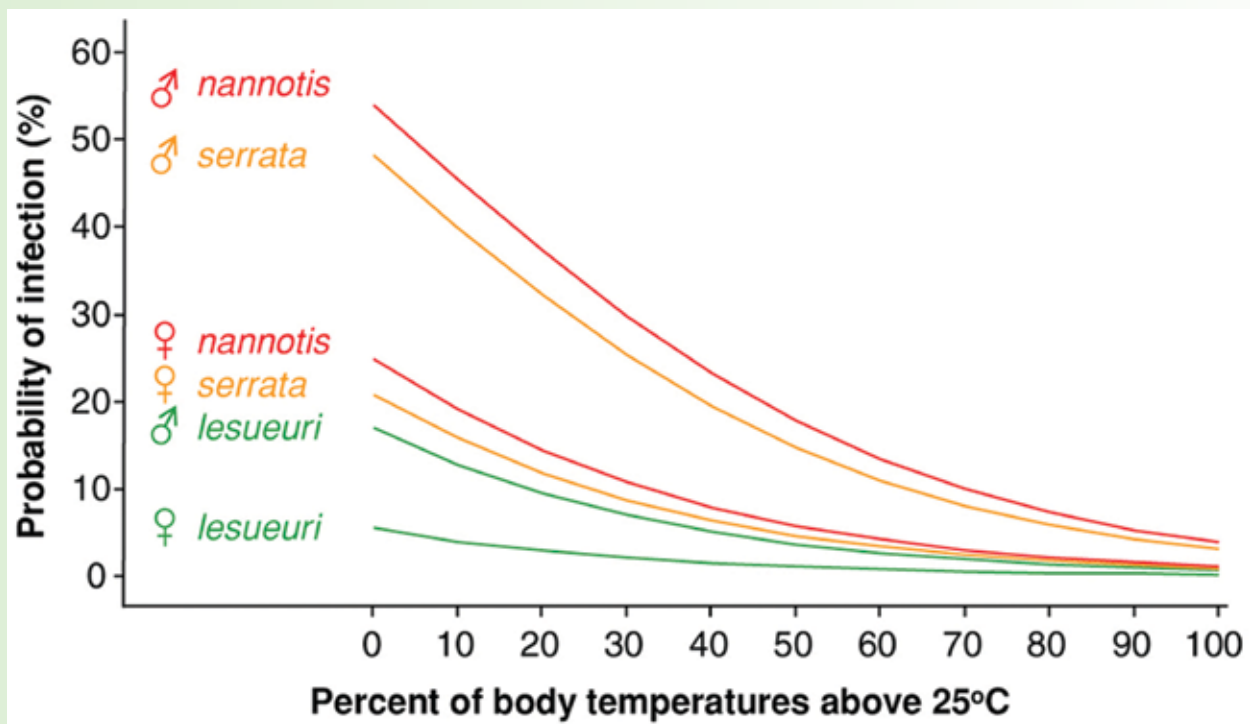


Fig. 1: Probability of individual frog being infected by Bd plotted against percentage of body temperatures that were above 25°C taken during a two-week survey period. Reproduced under Creative Commons BY license from Rowley and Alford¹.



Fig. 2: Male Common Mistfrog, *Litoria rheocola*

Ross Alford

zones for Bd. Frogs might bask in response to infection, a response called behavioural fever, and they are known to bask for a variety of reasons when not infected, anyway, which might impair the fungus by accident.

In an early lab experiment, we showed that raising their body temperatures by basking for a couple of days could cure infected frogs of their infections. Later, in the field, Jodi Rowley radio-tracked frogs of several species for part of her Ph.D. research, and showed that for individual frogs of the three species tracked, the probability of infection was high if they spent little time with body temperatures above 25°C, and declined sharply as increasing amounts of time were spent above that critical temperature. This established that individual frog behaviour, and its effects on body temperature, could have a big influence on whether frogs are infected in the wild, and thus on the likelihood of epidemic disease outbreaks and population declines.

Later, Sarah Sapsford, a M.Sc. student, and Betsy Roznik, a Ph.D. student, both working with me, Lin Schwarzkopf and David Pike, were collaborating on a long-term population study of the endangered Mountain Mistfrog, *Litoria rheocola*. It was designed to look at six sites, four in low-elevation rainforest and two at high elevations, over a full year

from approximately June 2010 to June 2011. Among other things, the size, location, body temperature and infection status of every male frog were being recorded on each survey night. We were also using small agar model frogs with implanted temperature loggers to get more complete temperature profiles of the sites frogs chose as perches, and we measured percentage canopy cover every 10m along our streams, using photographs.

Cyclone Yasi intervenes

Two of our sites were directly in the path of Severe Tropical Cyclone Yasi, and on 2–3 February 2011 they were hit by Category Five winds. We were initially worried that the whole study would have to be abandoned, but visiting the sites (Figure 3a–d) suggested that maybe we should carry on—Yasi had performed a really interesting experiment for us, greatly reducing the cover of the rainforest canopy at the two badly affected sites, while leaving it largely undamaged at the other four.

We continued sampling until we had gone through the winter and spring following the cyclone, so that we could compare the winter and spring seasons across damaged and undamaged sites before and after the cyclone. We didn't find that the cyclone directly affected the numbers of frogs—there was no decrease in

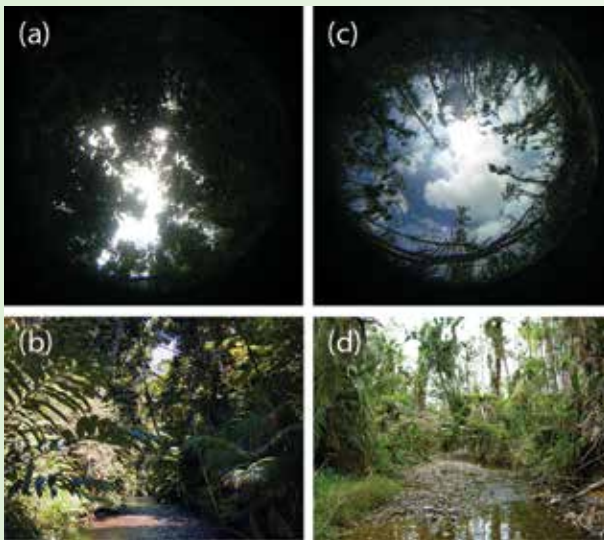


Fig. 3: Hemispherical photographs of the rainforest canopy above Stoney Creek taken from the same location at 80 m along our stream transect (a and c) and standard photographs taken from locations with similar canopy cover (b and d). Canopy cover at this and one other site decreased dramatically between (a and b) before and (c and d) after the cyclone. Reproduced with modification under Creative Commons BY license from Roznik *et al.*²

population size after the cyclone impact. Frogs apparently have effective means of dealing with howling winds and falling trees. Not surprisingly, the two sites that had suffered nearly direct cyclone impacts had greatly reduced canopy cover, and frog temperatures were much warmer and humidity much lower than at the streams that still had relatively normal canopy cover.

This reduced canopy cover translated directly into a reduction in the risk of infection by Bd in individual frogs. This was complicated slightly because there was an overall difference between the winter and spring of 2010 and the winter and spring of 2011; after the cyclone, cloudy, rainy conditions persisted through much of the winter/spring, which are usually the dry season, leading to an overall increase in the prevalence of Bd at sites that retained normal levels of canopy cover.

Our results before and after Yasi

Figure 4 illustrates our results in detail. The dots on each graph show the infection probability statistically estimated for each individual frog we found at any of our six sites in (a) the winter of 2010, before the cyclone, (b) the winter of 2011, after the cyclone, and (c and d) the springs of 2010 and 2011,

respectively. The graphs for 2011 include frogs at sites with much less canopy cover than do any of the graphs for 2010, because in 2011, after cyclone Yasi, many locations at two of our sites had far less canopy cover than usual, as little as about 50%.

Comparing between Winter of 2010 (Fig 4a) and Winter of 2011 (Fig 4b), but considering only frogs at locations with 70–100% canopy cover (the only sort available before the cyclone), infection probability was about 20% higher (approximately 70–90%) in Winter 2011 than in Winter 2010. However, in Winter 2011, locations with less cover were available, and the frogs that chose those locations gained a benefit; they were still only about 30–50% likely to be infected by Bd, instead of about 70–90%.

The results are similar but even clearer for Spring. In Spring 2010 (Fig 4c), when all locations within the available range had at least 70% canopy cover, there was little effect of cover on probability of infection. After the cyclone, however (Fig 4d) in the cooler, cloudier conditions of Spring 2011, the probability of infection increased sharply when canopy cover was between 70 and 90%, and was higher for most frogs that remained at locations within this original range. However, more open locations were also available, courtesy of Cyclone Yasi, and frogs that occupied these locations, with canopy covers between 50 and about 70%, had much lower probabilities of infection, as low as 5% for those in the most open locations.

The overlap in Figs 4b and 4d between frogs at damaged and undamaged sites that were occupying locations with cover of 70% or greater (levels available at both types of sites) shows that the cover effect is really a cover effect—frogs at locations with similar cover in 2011 had similar probabilities of infection, whether or not the sampling site they were at had been hit by the cyclone. The overall lower probabilities at the damaged sites were a result of the fact that at some locations, there was much less cover.

And our conclusion

Our results show that the decreased canopy cover that follows a cyclone can provide frogs with local conditions that decrease their probability of infection with Bd. The

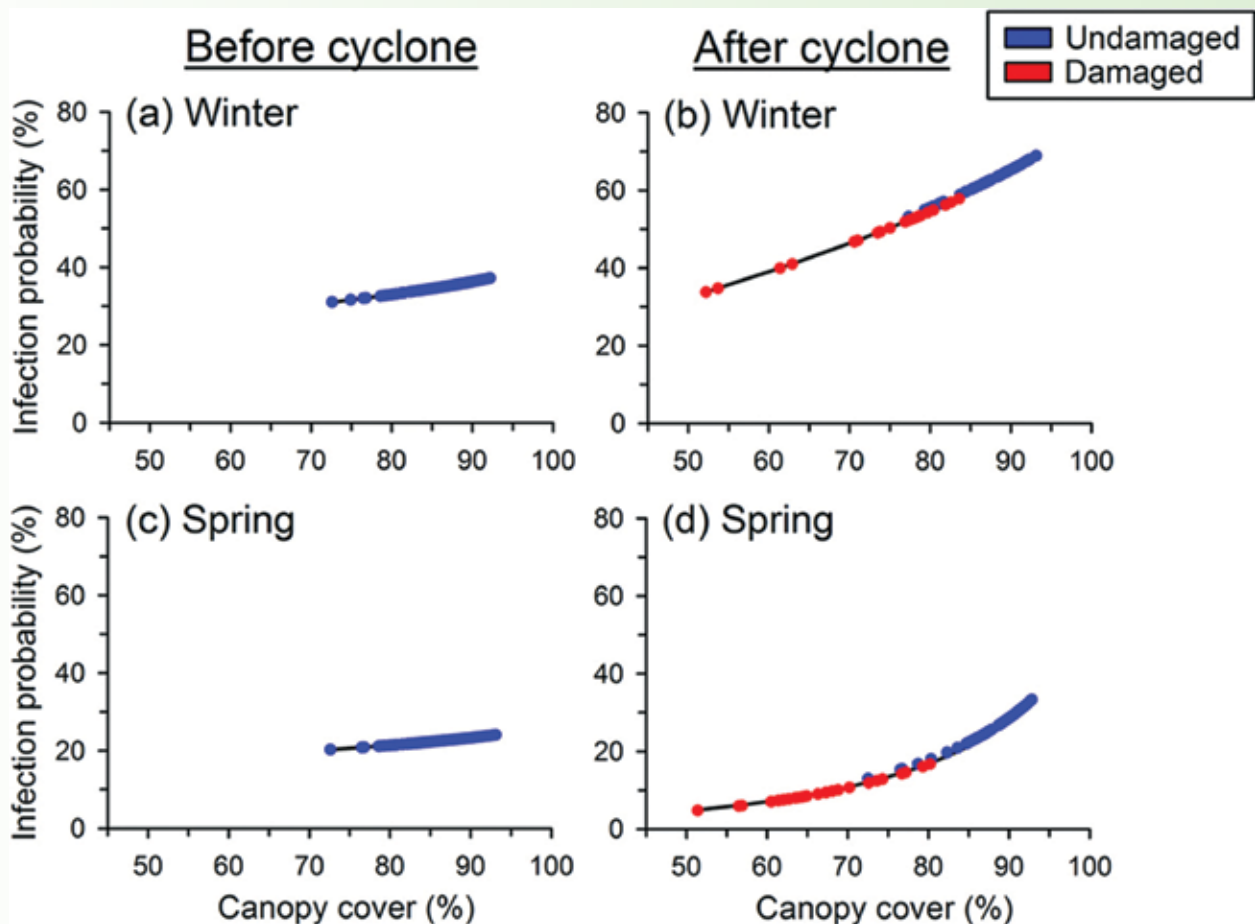


Fig. 4: Probability of infection by Bd for each individual *L. rheocola* sampled in our study during the winter (a,b) and spring (c,d) before and after Cyclone Yasi (2010–2011), based on the canopy cover above each frog's location. Reproduced under Creative Commons BY licence Roznik et al²

smaller levels of damage that follow smaller windstorms or even natural tree-falls may also provide important local refuges for individuals. If an epidemic outbreak was in progress, or about to occur, a cyclone might stop it in its tracks. It also seems possible that some very selective removal of carefully selected branches to reduce canopy cover at some local spots, might be a reasonable intervention to try in case of a new epidemic outbreak of chytridiomycosis in a heavily forested site.

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For more information, see the original papers, available for free on:

<http://www.nature.com/srep>

Frogging in Costa Rica

David Nelson

I didn't know much about Costa Rica when Kristina (my girlfriend) booked our plane tickets for a month there in May-June. I knew that Jurassic Park was filmed there and it was very green. I did however search the net about 'Wildlife of Costa Rica' and from then on was pretty much sold on going there.

Costa Rica is located on the Central American isthmus – the strip of land connecting North and South America – with the Pacific Ocean lapping against its south-western shores and the Caribbean Sea and Atlantic Ocean to the north-east. Central Costa Rica is dominated by towering volcanoes and rugged mountain ranges, while the coastal and flatter regions are typically lowland rainforest or dry tropical forest. Like all good froggers, we headed over in the wet ('green') season, when tourists are

at their minimum and animal activity is at its maximum.

We rented a 4WD from a small local company and set off, exploring the country's national parks and reserves – our journey taking us to high-altitude cloud forest, volcanic slopes, remote peninsulas and lots of very wet, mosquito-infested rainforest. We did a lot of slow trudging along muddy trails, with eyes and ears focussed on detecting the often cryptic local wildlife amongst the myriad shades of green and sounds of constant rain.

The frog fauna of Costa Rica is rich and varied, with 143 described species belonging to 14 different families. These include some quite familiar frogs like the Tree Frogs, True frogs and Toads, as well as a bunch of less-



David and Kristina surrounded by rainforest in Costa Rica

familiar groups (at least to an Australian) like Glass Frogs, Poison Dart Frogs, and Dirt Frogs. In addition there are a few rather obscure families that are only represented by one species. At the end of the trip we had managed to see something like 55 frog species, from 10 different families!

One of my more memorable frog experiences in the country came early on – when we were a little on edge as we weren't too sure if we could safely drive around at night. I heard some frog calls from the car and, upon investigating found the largest frog I've ever seen, a Smoky Jungle Frog (*Leptodactylus savageii*), a giant of a thing at something like 20 cm long. I wanted to catch it to show Kristina, but the massive frog overpowered me with its brute strength, then bounded away faster than I could run, disappearing under a barbed-wire fence!

Anyone who's seen a few nature documentaries will feel pretty familiar with Poison Dart frogs before even seeing them in the wild. I was expecting to be underwhelmed; that the hype around them



Green and Black Poison Frog, *Dendrobatus auratus* (Pacific form) with tadpole on back



Blue Jeans Poison Frog, *Dendrobates pumilio* on the move over a fern leaf



Hour-glass Tree Frog, *Dendropsophus ebraccatus*

was just that. But after seeing the little guys hopping around in the day like liquorice allsorts scattered on the forest floor, calling from prominent perches, feeding constantly on miniscule invertebrates (from which they

sequester their toxins), I have to admit I developed a real soft spot for them. It's rare that one can watch frogs going about their business in plain sight, though they can be shy of photography!



Barred Leaf Frog, *Cruziochola calcarifera*

One dart frog in particular gave us a great show. We didn't realise what adept climbers they are until we saw a Green and Black Poison Frog (*Dendrobates auratus*) climbing up a big buttressed tree trunk. It was only after watching and photographing it for a few minutes that we noticed a tadpole on its back. That's when we cottoned on to what it was up to – this male was ferrying its progeny from its hatching place on the forest floor into a small water reservoir somewhere up in the branches of the tree.

In dense tropical rainforest, the forest floor can be the least interesting place to be. We came across a toad one night that looked a lot like a typical ground-dwelling toad, but its appearance belied its capabilities. We found individuals climbing a couple of metres up tree-trunks and in shrubs. What's more, the colouration varied from bright yellow to mottled green to spattered blood-red! The name Green Climbing Toad (*Incilius coniferus*) seems to lack a little detail next to the real thing.

Although we'd seen a couple of Glass frogs already, it was when we visited the Costa Rican Amphibian Research Centre (CRARC)



Green Climbing Toad, *Incilius coniferus*



Ghost Glass Frog, *Sachatamia ilex*

that we had a proper introduction. The CRARC (see cramphibian.com) is a small outfit run by Brian Kubicki and his wife Aura Reyes, trying to learn more about and conserve the amphibians of Costa Rica. Just this year, Brian helped describe a new species of Glass frog from Costa Rica (*Hyalinobatrachium diana* – dubbed the 'Kermit' frog by the popular press).

Glass frogs, tiny at about 25 mm long, call from vegetation that overhangs small creeks. Not small plants, but tall trees – sometimes 20 m or higher! They can be a challenge to find – they blend in with the leaf and their



Reticulated Glass Frog, *Hyalinobatrachium valerioi*



Sipurio Snouted Tree Frog, *Scinax elaeochrous*



Granular Glass Frog, *Cochranella granulosa*



Red-webbed Tree Frog, *Hypsiboas rufitelus*



Crowned Tree Frog, *Anotheca spinosa*



Striated Salamander, *Bolitoglossa striatula*

tiny eye-shine is lost in the glossy foliage and falling raindrops. What's more, some species call from on top of the leaves and some call from below! We were lucky enough to find several species of these little jewels. The Ghost Glass Frog (*Sachatamia ilex*) with its huge patterned eyes, and the blue-green Granular Glass Frog (*Cochranella granulosa*) were two of our favourites.

The famous Red-eyed Leaf-frog (*Agalychnis callidryas*) is another iconic species of Costa Rica. We were surprised to find it to be one of the easiest frogs to find, due to its penchant for breeding in ornamental



Purple Caecilian, *Gymnopsis multiplicata*

fountains and fish-ponds! Interestingly, many of the individuals we saw lacked the bright colours typical of postcards and frog books. We learned that only on the Caribbean coast do they have the showy colours; those on the Pacific coast are much less colourful.

Other tree frogs of note included the milk-chocolate coloured Crowned Tree Frog (*Anotheca spinosa*) with a patch of spines behind its eyes and the spectacular Barred Leaf Frog (*Cruziohyla calcarifer*), orange sides and legs flashing out from under its leaf green surfaces. The critically endangered



Red-eyed Leaf Frog, *Agalychnis callidryas*



Green Palm Pit Viper, *Bothriechis lateralis*



Common Basilisk, *Basiliscus basiliscus*

Lemur Tree Frog (*Agalychnis lemur*) was another species we found at the CRARC, perching daintily on long limbs above artificial breeding sites nestled against trees.

Whilst here in Australia it's easy to forget the other amphibian groups. Costa Rica has quite a few salamanders and even a couple of caecilians (bizarre, limbless worm-like amphibians). We saw a couple of species of salamander out and about on foliage (also hard to find without the give-away advertising call that frogs have!). We were even lucky enough to get a look at a big

purple caecilian that was found by a friend of one of our guides. Not a lot is known about either of these groups and some species go many years between sightings.

Naturally, frogging wasn't always our focus. There were also many and varied snakes, lizards, birds, monkeys, sloths, anteaters, tapirs the list goes on! Always something to look at, some rustle to investigate or a call emanating from somewhere in the forest. It's a wonderfully diverse place, and certainly offers a cornucopia of biological delights for every naturalist adventurer.



Mottled Tree Frog, *Isthmohyla lancasteri*





Lemur Tree Frog
Agalychnis lemur
© David Nelson

FATS Frogographic



SENIOR PET IMAGE

Michelle Toms



MOST INTERESTING IMAGE

Josie Styles



JUNIOR PET IMAGE
Greg Shaw



JUNIOR ARTWORK
Julie Shaw

Competition WINNERS



BEST SENIOR IMAGE

Karen Russell



EQUAL BEST SENIOR IMAGE

Henry Cook

Sparganosis in Frogs and Other Vertebrate Animals

Robert Johnson

Introduction

Sparganosis or “skin worms” are common in free-living frogs. Infection with the intermediate stage of the tapeworm, *Spirometra erinacei* commonly causes discrete small swellings, usually in the hindlimbs or lower body (Figure 1). Most frogs presented at our clinic are usually otherwise well and not physically bothered by the lesions. Frog-eating snakes such as Red bellied black snakes and Common tree snakes can also be affected.

Frogs

Spargana of *Spirometra erinacei* infect many vertebrate species, but severe disease from sparganosis has been reported from few host species. A survey (Berger *et al.*, 2009) to detect significant diseases in free-ranging amphibians in eastern Australia between 1993 and 2000 revealed that infection with spargana (plerocercoids) of *S. erinacei* occurred in 12/243 (4.9%) sick frogs. Infections occurred in skeletal muscle and subcutis, especially the thighs, of large adults of *Litoria caerulea*, *Litoria aurea*, *Litoria gracilentia* and *Litoria peronii*. Three frogs were also infected in the coelomic cavity. Heavy burdens in seven frogs were associated with poor body condition and debilitating lesions, whereas lighter infections in five sick frogs were considered likely to be incidental to other diseases. Concurrent infections were common. Our findings suggest sparganosis is one of a few currently recognised serious diseases affecting free-ranging frogs in Australia.

Lifecycle

The lifecycles of pseudophyllidean cestodes are tied to fresh water. Two stages of development must occur sequentially in intermediate hosts before the definitive (final) host can be infected. Eggs are initially unembryonated. In oxygenated water, the embryo or coracidium develops and hatches. This motile stage is then consumed by copepods (aquatic invertebrates),

which are the first intermediate host, within which the proceroid stage develops inside the body cavity. In the case of *Spirometra* spp, potentially any vertebrate animal, with the possible exception of fish, can act as the second intermediate host, allowing the proceroid to develop into the plerocercoid. The plerocercoid can reach 5–10 cm in length and is slender and ribbon-like (Figure 1). For *S. erinacei*, the main second intermediate hosts are believed to be amphibians, although reptiles (such as water snakes) and mammals commonly harbour plerocercoids (they penetrate the intestinal wall and migrate to the subcutaneous skin and muscle, forming small visible lumps on the surface of the animal; Figure 2). To complete the lifecycle, the second intermediate host is ingested by the definitive host – cats, dogs and foxes in the case of *S. erinacei* – in which the mature adult cestode can establish within 6–28 days. When predatory animals other than the definitive host consume prey harbouring the plerocercoid stage, the plerocercoid may re-establish in the new host. Plerocercoid infections can therefore be acquired either through ingesting water containing infected copepods or following predation on animals harbouring plerocercoids.

Prevalence in Australia

Spirometra erinacei is present in parts of Asia and throughout Australia. In Australia it is common in cats (especially rural), wild dogs and foxes but it has low prevalence in domestic dogs. Plerocercoids are frequently found in feral pigs in Australia, and pose some risk for humans consuming poorly cooked meat. The number of cases of human sparganosis in Australia appears low.

Humans

Sparganosis is a zoonosis that occurs occasionally in humans. The infection is reported in many countries but is most common in eastern Asia. In Thailand the infection is sporadic.



Figure 1: Removal of a sparganum in a green tree frog



Figure 2: Sparganosis affecting the hindlimb of a green tree frog

Clinical cases of human sparganosis in Thailand

Reports of 34 cases of sparganosis were found. The infections were ocular (17 cases), subcutaneous (ten cases), central nervous system (five cases), auricular (one case), pulmonary (one case), intraosseous (one case) and intraperitoneal (one case). Of these 34 cases, 14 had risk behaviour reported, 12 had a history of drinking impure water, five had a history of eating frog or snake meat and two had a history of using frog or snake meat as a poultice. Some cases had more than one risk factor.

Most cases of sparganosis in Thailand presented with superficial ocular (eye) mass lesions. The major risk behaviour in Thailand is drinking water contaminated with the infective organism. Some cases of serious deep visceral sparganosis have also been reported.

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FATS on the road 2015

Kathy Potter



FATS display at the Sydney University Vet Centre Pet Fair

This year has been another very busy year for exhibitions both with displays and workshops. So busy, that people often ask me how I manage, or why I do it. I tell them that when you have a passion for something and you try to talk to non-enthusiasts about it, you can usually see their eyes glazing over after the first minute or two, followed by a visible urge to flee. Unless you only associate with other fellow enthusiasts this can have a devastating impact on your social life. But luckily for me, exhibitions really help. Organising and working on the displays gives me endless opportunities to talk to people about frogs. To learn from them, share and develop my knowledge and enjoy the feeling that maybe I am helping just a little bit with the continuing survival of these remarkable animals.

Putting on exhibitions usually means setting up a display of live frogs and information, or giving workshops to primary school children, but occasionally I do get requests that are a

little different. In May this year I was asked to provide “6-8 frogs of at least 3 different species that are child friendly” for a **Sesame Street video shoot** entitled F is for Frog. Never one to say never, despite the grim possibilities of working with small children and “child friendly” frogs my daughter Sarah and I accepted the job. I took several Green Tree Frogs, Red-eyed Tree Frogs and Striped Marsh Frogs, and hoped for good weather, an



Sesame Street crew photographing a Green Tree Frog

appropriate filming location and manageable children! We took along a list of OHS and frog safety rules to try to minimise stress to the frogs and ourselves, and despite a brief shock when I discovered all of the children participating in the shoot were under five years old and some of them were terrified of live creatures, it turned out to be a fun day. I think the children were too excited about being filmed dancing and running around to learn much from the experience, but the parents and crew certainly went home knowing a lot more: the “F” is for Frog!

A couple of years ago I re-established FATS involvement in the **Australian Museum’s Science Festival**. For many years Arthur White, Karen White and Punia Jeffery gave a fun workshop for primary school classes at this event, where children became frogs and participated in the Game of Life. This was an exceedingly tough act to follow, but with the help of Marion Anstis I adapted the original program and forged on. This year, at the Australian Museum, Sarah and I did two days of primary workshops, two days of primary displays, the public open day, two days of high school displays as well as putting on a large FATS display for the **April School Holiday Program**. The venue for our workshops this year was the Chapman Mineral Gallery which made an unusually interesting and colourful backdrop for our frogs, and most of our displays were in the Atrium, so that in between schools we were also talking to other museum visitors. Participating in Museum programs



Kathy with FATS display at Museum Science Festival



Primary workshop at the Museum



Kathy and Marion chat to visitors at the FATS display during the Australian Museum April School Holiday Activities

has become our biggest annual commitment and I am very grateful to Geoff Gardner, Jodi Rowley and all the lovely people working at the museum who have gone out of their way to make our participation in their events such a pleasure.

Another major event for the year is the **Ku-ring-gai Wildflower Festival**. Although I have participated in many environmental fairs and public events, this one really stands out for a couple of reasons. To begin with, this was the first event I ever participated in for FATS, when I dropped in to offer support to then exhibitions co-ordinator Sheila Briffa. But mainly because not only do I set up a display at this event, I also have to organise tadpole dip netting for kids as well. I must admit that I was a bit worried about having a group of children standing on a narrow platform overhanging a large pond vigorously swishing about with nets on poles, but actually it is a surprisingly calm and civilised event, and my husband David is becoming expert at making sure every child finds something and at identifying all the strange, wriggly creatures they manage to fish out. Some years the weather at this event has been too cold for tadpoles, but this year there was a huge number of them which the children had no difficulty collecting, and all survived the experience with usual tadpole equanimity, being returned to the pond at the end of the day.

We also had another exciting visitor when a large Red-bellied Black Snake began sunbathing on a raft of reeds in the centre of the pond! She is a well-known frequenter of the area, and although she hasn't previously made an appearance at this event, she was as unconcerned by the hordes of children as they were by her.



Red-bellied Black Snake enjoys the sun on reeds in the middle of the Ku-ring-gai Wildflower Gardens pond



David Potter points out some of the wonders of pond life to one of many excited children at Ku-ring-gai Festival

The Museum workshops have spawned a smaller sideline in **school visits and primary school children's events**. This year various family members and I presented workshops at Denistone East Primary School and for the Berowra Joey Scouts. Working directly with children at the Museum and in schools is incredibly rewarding because I have the opportunity to see the teachers, parent helpers and children engaging with a program that is not pitched as entertainment, but as a stepping stone to ongoing personal inquiry. As I was developing this program I found myself wondering if forty-five minutes of talking and frog activities was having any real impact. So, at the beginning of each workshop, when I talk



Kathy and parent helpers with some FATS frogs at Denistone East Primary School



Harriet Potter hangs out with Billy the Bandicoot at Dee Why Beach Festival

briefly about the eight or so different species the children are going to see, I started asking if anyone recognised any of frogs before I talked about them. In almost every session I have run, the Green Tree Frog is the only species most children recognised. Then, at the end of the workshop, I showed them pictures of the frogs again and asked the same question. I found that most classes were able to identify all of the species they had been studying, with some children having a go at the scientific names as well. A most encouraging result!



Harriet holds the fort at Stoney Range Spring Festival

I could provide a comprehensive list of all the activities FATS has been involved in this year, but I would rather share with you the reason I have been steering the collection towards the most common frogs of the Sydney region and why I think it is so important to continue this work. In my opinion one of the biggest problems facing anyone concerned with environmental protection is apathy. In a busy modern world it is too easy for people to rate their own everyday concerns above larger scale issues. *Saving the planet? Protecting native species? Aren't there scientists or something somewhere doing something about that?* Making people care enough to make good decisions about housing and infrastructure developments, or even just about household chemical use is an ongoing problem. Displaying common local frogs, identifying pictures of frogs people have found in their gardens, and sharing our enthusiasm for frogs with a public predisposed to like them is a very small step towards making people care about the environment they live in and the survival of the native animals they share it with. To love one frog is a step towards loving them all, and hopefully towards caring whether they live or die.

Some of the larger events FATS participated in such as the **Ku-ring-gai Wildflower Festival**, the **Sydney Royal Easter Show** and **Centennial Park's Science in the Swamp** are only possible because of the ongoing support of many volunteers, so I would like to take this opportunity to thank my family, the FATS committee and all the FATS members who have given so much of their time and energy to make these events possible.

If you are keen to get involved with the FATS displays and workshops please contact Kathy Potter at kathy@the-pottery.org. I am sure you will find it rewarding. Upcoming events for 2016 will be listed on the website as details become available.

Smiths Lake Field Trip

March, 2015

Jodi Rowley, Josie Styles and Michelle Toms



Smith's Lake

Jodi Rowley

From 27–29 March, FATS members converged on the UNSW Smiths Lake field station for another weekend away in the spectacular location near Seal Rocks. The forest was a little dry, but we headed out on the first night with lots of enthusiasm, searching the forest for frog eye-shine and listening intently for any calling frogs. After posing for a group photo at *Eucalyptus grandis*, the biggest *Eucalyptus* in NSW, a single Mountain Stream Frog (*Litoria barringtonensis*) was the first frog spotted. Sitting on a fern overhanging a muddy stream, the lovely apple green female got a lot of photographic attention by the FATS paparazzi.

Our next stop was the old quarry site on the road to Seal Rocks. The FATS team ventured down a long forest trail (some of us may have tripped on large, fallen branches) into a grassy

swampy ditch, where we were greeted by the familiar “squelch” of calling male toadlets - Bibron's toadlet (*Pseudophryne bibroni*) to be



Bibron's Toadlet , *Pseudophryne bibroni*

Josie Styles



Barrington Tops Tree Frog, *Litoria barringtonensis*

Josie Styles

specific. Like most of the *Pseudophryne* genus, this species is extremely difficult to find, even when calling, but after some co-ordinated triangulation, and a lot of dedicated searching on our hands and knees we did find several of these beautiful toadlets with bright orange upper arms (some with super attractive yellow bits) and characteristic black and white marbled bellies. While everyone got a bit bored, Josie and I were really excited to see them, as they appear to be a lot rarer than they used to be. It was a very special treat!

Although a little dry for the frogs (thanks El Niño), the weather on Saturday was perfect

for the beach, and as always, most of the FATS crew took advantage of that at Seal Rocks - I certainly did! The water temperature was delightful and the conditions for snorkelling were fairly clear. We were extremely lucky to see Green Turtles, Eagle rays, an Eastern Fiddler Ray and a Port Jackson Shark. The afternoon back at the field station involved a marathon swim across the lake by Chad and Eben. The marathon swim was taking hours so naturally we started getting concerned that they may have been eaten by eels, or worse still, a bull shark (thanks Arthur for always spinning a yarn to scare us!). And of course there was the obligatory FATS Cricket match. Unfortunately,



Bibron's Toadlet showing yellow patches

Jodi Rowley



Eastern Fiddler Ray

Michelle Toms



Port Jackson Shark

Michelle Toms

we were too busy scoffing down cheese and crackers (and maybe a glass of vino or two) to notice who won though!

Saturday night we searched for frogs in several groups, and Josie, Eben, Chad and Jodi took to the road in search of the elusive *Pseudophryne bibroni* (again!) at different locations throughout the region. Lots of stopping the car, turning off the engine and listening for calling frogs, but unfortunately not a lot of calling heard. At one new site down an old forestry trail near the



Leaf-tailed Gecko, *Saltuarius moritzi*

Michelle Toms

field station, we heard one single *Pseudophryne bibroni* calling. Eben jumped out of the car and the rest of us followed hot on his heels! We got some excellent call recordings for this species and the male we captured had stunning yellow forearms and groin colouration. There was one cheeky little Dwarf Tree Frog (*Litoria fallax*) attempting to hide from us, but because the temperature had dropped to about 12 degrees, she was easy to photograph. The weekend mission for us would not have been complete without more *Pseudophryne bibroni* call recordings, so



Dwarf Tree Frog, *Litoria fallax*

Jodi Rowley



Jervis Bay Tree Frog, *Litoria jervisiensis* Josie Styles

we headed back to the swampy, quarry area we'd been to on the first night. We got plenty of photos of *Pseudophryne bibroni*, some clear call recordings and a few more species, including the Jervis Bay Tree Frog (*Litoria jervisiensis*), Striped Marsh Frogs (*Limnodynastes peronii*) and numerous Dwarf Tree Frogs (*Litoria fallax*). Chad and Eben were asleep in the back seat of the car by 10pm. Clearly their marathon swim took it out of them!

Meanwhile, after a boot bleach at the field station, the rest of the keen froggers headed off with Arthur to the quarry site (where we usually get plenty of Tusked Frogs, *Adelotus brevis*), the Twin Dams and finally Sugar Creek Flora Reserve, Wallingat National Park. There weren't many frogs around, possibly due to the dry conditions but there was a relatively high abundance of Whistling Tree Frogs (*Litoria verreauxii*) and Striped Marsh Frogs (*Limnodynastes peronii*). The Leaf-tailed geckos (*Saltuarius moritzi*) and the elusive Eastern Small-eyed snakes (*Rhinoplocephalus nigrescens*) were the highlights of the night and made up for the lack of amphibians.

While most of the FATS team are keen froggers, there are a

few of us that consider ourselves somewhat amateur twitchers! So while the frog species list wasn't as extensive as usual, the birdlife was magnificent. Pied Butcherbirds, Eastern Yellow Robins, Noisy Friarbirds, tame Magpies and Scarlet Honeyeaters welcomed our mornings with their songs. Juvenile White-bellied Sea Eagles soared majestically above the Melaleuca swamps and the lake, but what got everyone 'twitching mad' was the prospect of encountering the elusive Southern Emu Wrens up at the old abandoned house. The track hadn't been mowed for ages and the grass was over 2 metres high! This didn't stop the keen team of birders who pushed their way through the tall grass to find the wrens flitting about.

In total, we saw 12 species of frog: *Litoria rev-elata*, *L. fallax*, *L. tyleri*, *L. verreauxii*, *L. peronii*, *L. jervisiensis*, *L. barringtonensis*, *Pseudophryne bibroni*, *P. coriacea*, *Limnodynastes peronii*, *Crinia signifera* and spawn of *Adelotus brevis*. Not a huge record by usual standards (we were a little late in the season), but still some great frogging, not to mention great food, fantastic conversation and brilliant company! A thoroughly enjoyable time - thanks to Arthur and Karen for always being such gracious hosts and organisers, and the rest of the FATS members who really chip in - we make a GREAT team! Make sure you book in early for the Spring trip because it will be another fabulous froggy weekend away!



Dwarf Tree Frog, *Litoria fallax*

Josie Styles

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 as to whether the field trip is proceeding or has been cancelled. Phone Robert (9681-5308).

6th December. Australian Reptile Park, Somersby. Host: John Weigel.

The herpetological societies are having their annual inter-club Christmas party from 10am till 3pm. There is free entry for FATS members. You **MUST** present your FATS membership card at the gate. Bring your own lunch or purchase at the kiosk. The ARP will reserve the whole undercover area and will provide some steaks, sausages, bread and cans of drink. John usually takes us behind the scenes of this facility. It is a good time to get up close to many hard-to-find species. No bookings required. You may turn up at any time. This is always a great day out!

9th January 2016. 8.15 pm Murphy's Glen, Woodford. Leader: Peter Spradbrow.

Meet in the carpark on the southern side of Woodford station. Tonight, we will spend some time appreciating the higher elevations and rough dissected sandstone country of the Blue Mountains. We will look at how the cooler and wetter environments of the Blue Mountains impact on the population of frogs and reptiles. We will try to determine why these populations differ from those of coastal Sydney. Peter has earned a reputation for excellence in herpetology, and has extensive experience of the frogs and reptiles of the Blue Mountains. We are fortunate to have his skills available to us tonight.

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

FATS meets at 7pm, on the first Friday of every EVEN month
at the Education Centre, Bicentennial Park, 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 you can 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. Take a good torch in winter. It is a short walk from the car park to the Education Centre, Bicentennial Park. The internal road winds and twists. Just follow it and turn right at the P10f parking sign. There should be a sandwich board sign on the road "To FATS meeting". It's a short walk to the single story education centre and its tall tower. Both can be seen from the car park. Directions from your home: <http://www.sydneolympicpark.com.au/maps/getting-to-the-park?type=venue&id=384059>



THANK YOU to the committee members, FrogCall supporters, meeting speakers, Frog-O-Graphic competition entrants, events participants and organisers David, Kathy, Sarah and Harriet Potter for an enjoyable year. The FrogCall articles, photos, media and webpage links, membership administration and envelope preparation are all greatly appreciated. Special thanks to regular newsletter contributors, Robert Wall, George Madani, Jilli Streit, Karen & Arthur White, Andrew Nelson, Wendy & Phillip Grimm, Henry Cook, Marion Anstis and Bill Wangmann.

The FATS committee especially thanks Marion Anstis for producing our December Colour Editions.

FATS MEETINGS: Commence at 7 pm, (arrive 6.30 pm) and end about 10 pm at the Education Centre, Bicentennial Park, Sydney Olympic Park, Homebush Bay. Meetings are usually held on the **first Friday of every EVEN month** February, April, June, August, October and December but not Easter (Good) Friday. Call, check our web site or email us for further directions. We hold 6 informative, informal, topical and practical meetings each year. Visitors are welcome. We are actively involved in monitoring frog populations, field studies and trips, have stalls at local events, 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.

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FATS ON FACEBOOK: FATS has over 1,500 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 and habitats from all over the world. The page includes dozens of information files. <https://www.facebook.com/groups/FATSNSW/>

RESCUED FROGS: are seeking forever homes at most meetings. Please contact us in advance if you wish to adopt a frog. Cash donation required. FATS must sight your current amphibian licence. Licences can be obtained from NSW National Parks and Wildlife Service (NPWS), Office of Environment and Heritage <http://www.environment.nsw.gov.au/wildlifelicences/GettingAnAmphibianKeepersLicence.htm>. We request that you join FATS before adopting a frog. This can be done on the night of our meeting. Sorry we have no EFTPOS at meetings. Rescued frogs are only available to re-home at meetings.

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