

FROG CALL

THE FROG AND TADPOLE STUDY GROUP NSW Inc.

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

Email: fatsgroupnsw@fats.org.au

PO Box 296 Rockdale NSW 2216

Frogwatch Helpline 0419 249 728

Website: www.fats.org.au

ABN: 34 282 154 794

NEWSLETTER No. 191 JUNE 2024

Images and article by Garth Coupland 5/20 Forncett St Peter Norfolk



Pelophylax ridibundus showing colour and pattern variety See Pages 6-8

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

Arrive from 6.30 pm or a 7pm start.

Friday 7 June 2024

FATS meets at the Education Centre, Bicentennial Pk, Sydney Olympic Park

Easy walk from Concord West Railway Station and straight down Victoria Ave.

Take a torch in winter.

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

turn off to the right and

drive through the park. It's a one way road.

Turn right into P10f car park.

Or enter from Bennelong Rd/Parkway. It's a short stretch of two way road. Turn left.

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

FATS MEETING 7PM FRIDAY 7 JUNE 2024

6.30 PM Lost frogs seeking forever homes: Please bring your membership card or join FATS on the night and \$50 donation. **CREDIT CARDS ACCEPTED** but bring cash for the raffle, unless you spend over \$10. Your NSW NPWS amphibian licence must be sighted on the night. Adopted frogs can never be released. Contact us before the night and FATS will confirm if any frogs are ready to rehome.

7.00 PM Welcome and announcements.

7.15 PM Main speaker: Brittany Mitchell, a Ph. D student from UNSW. Her topic will be "Frogs in the Anthropocene; Frog responses to Climate Change and Disease".

Arthur White

"Some notable Amphibians from the Past and the Present".

9.30 PM Show us your frog images. Tell us about your frogging trips or experiences. Guessing competition **Credit cards can be used for raffle purchases over \$10, but we prefer cash**, frog adoptions continue, supper, relax and chat with frog friends and experts.

CONTENTS

PAGE

- Britt Mitchell 2
 - June 2024 main speaker
- FATS AGM 2 August 2024
- Last meeting main speaker
 - Jenny O'Meara
- Poisoned frogs, Jodi Rowley 2 - 3
- Herpetological groups 4 - 5
- Water Frogs *Pelophylax ridibundus* Garth Coupland 6 - 8
- Glass Frogs hide their blood 9
- Illegal exporters caught
- Booroolong Frog release 10
- Taronga Frog & Reptile Centre
- Banjo Frogs classification
- FrogWatch ACT
 - call for help with images
- FATS contacts and information 11
- FATS needs your help 12
- Frog-O-Graphic 2024
 - competition



Brittany Mitchell is a PhD candidate at UNSW Sydney and the Australian Museum, supervised by Dr. Jodi Rowley, Prof. Louise Rollins-Smith (Vanderbilt University), and Prof. Richard Kingsford. She has research interests in amphibian conservation in an ever-changing world – more specifically on the effect anthropogenic activity and climate has on amphibian behaviour, ecology, and immunology. In particular, she is interested in using this knowledge to directly inform conservation strategies for such a threatened taxon.

Britt is a passionate science communicator and has been involved in various initiatives at the University of Sydney, University of Wollongong, SURGFM, and the Royal Botanic Gardens Sydney, to inspire the next generation into STEM related careers. She has previously studied a Bachelor of Science (Biology and Immunology) at the University of Sydney, with Honours (Class I) undertaken jointly at UNSW Sydney and the Australian Museum. If you would like to get in contact with Britt about her research, feel free to email her.

FATS AGM FRIDAY 2 AUGUST 2024

The FATS AGM will be held on Friday 2/8/2024, commencing at 7pm. FATS meets 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 **URGENTLY need new members on our committee as our executive are retiring in August.** No experience is required. The committee meets 6 times a year. No task commitments or time expected of committee members, other than what you are able to spare.

See page 12 and contacts details on page 11. **Arthur White**

The main speaker at the last FATS meeting was Jenny O’Meara, parkland ecologist, Sydney Olympic Park. Fabian Byers spoke about the recent FATS field trip to Smiths Lake and Arthur White talked about the Midwife Toad. Photos below by Phillip Grimm.



Arthur White



Jenny O’Meara

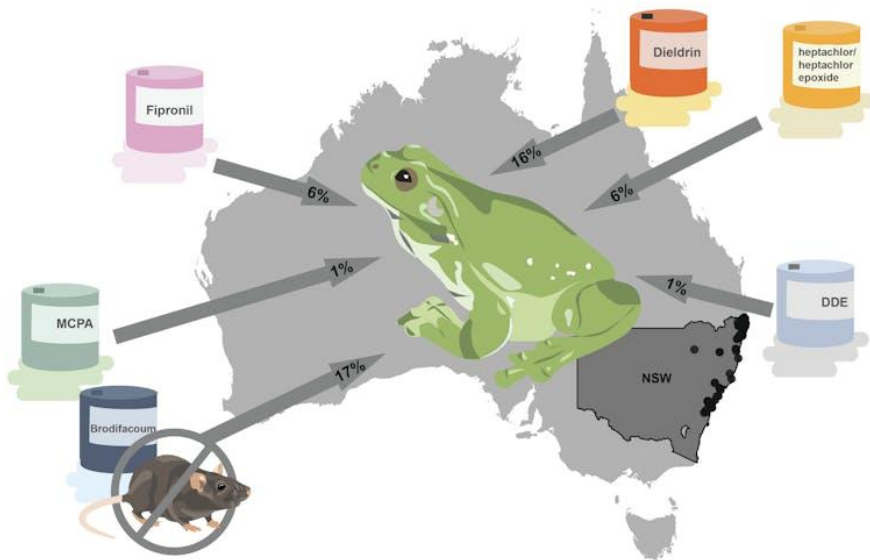


Fabian Byers

PESTICIDES – MASS FROG DEATHS

Jodi Rowley, Curator, Amphibian & Reptile Conservation Biology, Australian Museum, UNSW Sydney and Damian Lettoof, Postdoctoral Research Fellow in Wildlife Ecotoxicology, CSIRO

In winter 2021, Australia’s frogs started dropping dead. People began posting images of dead frogs on social media. Unable to travel to investigate the deaths ourselves because of COVID lockdowns, we asked the public to report to us any sick or dead frogs. Within 24 hours we received 160 reports of sick and dying frogs, sometimes in their dozens, from across the country. That winter, we received more than 1,600 reports of more than 40 frog species. We needed help to investigate these deaths. We asked people across New South Wales to collect any dead frogs and store them frozen until travel restrictions eased and we could pick them up for testing. Hundreds of people stepped up to assist. **Continued P3**



Pesticides detected in frogs and the percentages of tested frogs in which each chemical was detected. Image Jodi Rowley

What could be causing these deaths? Aside from the obvious suspect, disease, many people wondered about pesticides and other chemicals. One email we received pondered: *Maybe a lot of these green frogs that are turning up dead have in fact died from chemicals.* Another asked: *Is there any relationship between chemicals being used to control the current mice plague in eastern Australia and effects on frogs?*

In our newly published research, we detected pesticides in more than one in three frogs we tested. We found a rodenticide in one in six frogs. Pesticides have been shown to be a major cause of worldwide declines in amphibians, including frogs and toads. In the case of the mass deaths in Australia, we don't believe pesticides were the main cause, for reasons we'll explain.

What did the research find? As soon as travel restrictions eased, we drove around the state with a portable freezer collecting these dead frogs. We began investigating the role of disease, pesticides and other potential factors in this awful event. We tested liver samples of 77 frogs of six species from across New South Wales for more than 600 different pesticides. We detected at least one pesticide in 36 per cent of these frogs.

Our most significant discovery was rodenticide Brodifacoum in 17% of the frogs. This is the first report of rodenticides – chemicals meant to poison only rodents – in wild frogs. We found it in four species: the eastern banjo frog *Limnodynastes dumerilii*, green tree frog *Litoria caerulea*, Peron's tree frog *Litoria peronii* and the introduced cane toad *Rhinella marina*.

How did these poisons get into frogs? How were frogs exposed to a rodenticide? And what harm is it likely to be causing? Unfortunately, we don't know. Until now, frogs weren't known to be exposed to rodenticides. They now join the list of non-rodent animals shown to be exposed – invertebrates, birds, small mammals, reptiles and even fish. It's possible large frogs are eating rodents that have eaten a bait. Or frogs could be eating contaminated invertebrates or coming into contact with bait stations or contaminated water. Whatever the impact, and the route, our findings show we may need to think about how we use rodenticides. Two pesticides detected in frogs were organochlorine compounds dieldrin and heptachlor. A third, DDE, is a breakdown product of the notorious organochlorine, DDT. These pesticides have been banned in Australia for decades, so how did they get into the frogs? Unfortunately, these legacy pesticides are very

stable chemicals and take a long time to break down. They usually bind to organic material such as soils and sediments and can wash into waterways after rain. As a result, these pesticides can accumulate in plants and animals. It's why they have been banned around the world. We also found the herbicide MCPA and fipronil sulfone, a breakdown product of the insecticide fipronil. Fipronil is registered for use in agriculture, home veterinary products (for flea and tick control) and around the house for control of termites, cockroaches and ants. MCPA has both agricultural and household uses, including lawn treatments.

What are the impacts on frogs? There's very little research on the impact of pesticides on frogs in general, particularly adult frogs and particularly in Australia. However, from research overseas, we know pesticides could kill frogs, or cause sub-lethal impacts such as suppressing the immune system or malformations, or changes in growth, development and reproduction. Pesticides are considered a threat to almost 700 amphibian species.

Unfortunately for them, frogs do have characteristics that make them highly likely to come into contact with pesticides. Most frog species spend time in both freshwater systems, such as wetlands, ponds and streams (particularly at the egg and tadpole stage), and on the land. This increases their opportunities for exposure. Second, frogs have highly permeable skin, which is likely a major route for pesticides to enter the body. Frogs obtain water through their skin – you'll never see a frog drinking – and also breathe through their skin. Our findings are a reminder that frogs are sensitive indicators of environmental health. Their recognition as bioindicators, or "canaries in the coalmine", is warranted. Frogs and other amphibians are the most threatened group of vertebrates on the planet. More research is needed to determine just how our use of pesticides is contributing to ongoing population declines in frogs. So, were pesticides the major driver of the mass frog deaths in 2021? We don't believe so.

We didn't detect pesticides in most frogs and the five pesticides detected were not consistently found across all samples. It's certainly possible they contributed to this event, along with other factors such as disease and climatic conditions, but it's not the smoking gun. Our investigation, with the help of the public, is ongoing.

Republished from The Conversation under a Creative Commons license. 8/5/2024 Chris Doyle, NSW Department of Climate Change, Energy, the Environment & Water, contributed to this article.

https://www.australiangeographic.com.au/topics/wildlife/2024/05/pesticides-mass-frog-deaths/?utm_source=website_cta&utm_medium=r-ead-next&utm_campaign=on_site_links

THE AUSTRALIAN HERPETOLOGICAL SOCIETY



Meetings are held on the fourth Wednesday of every month excluding December and January at the Sydney Mechanics' School of Arts Mitchell Theatre, 280 Pitt St, Sydney NSW. All are welcome to attend. There is a \$5 cover charge at the door for non-members. Throughout the warmer months, the AHS organises field trips and surveys around Sydney and beyond. These trips are for AHS members only. AHS is on YOUTUBE Catch up on the talks you missed, re-live the presentations you loved. Subscribe to the channel.

Email: info@ahs.org.au <https://ahs.org.au/>
<https://www.facebook.com/TheAusHerpSociety>

NORTH COAST HERPETOLOGICAL GROUP



NCHG meet on the first Friday of every month at the Lions Club Hall, Hamilton Green, 176 Hastings River Drive, Port Macquarie. <https://www.northcoastherpetologygroup.org.au/northcoastherp@gmail.com> Facebook : <https://www.facebook.com/profile.php?id=100069989780073>

THE ILLAWARRA REPTILE SOCIETY



Meets at Fairy Meadow Community Hall, the first Monday of every month, at 6:30pm.

Email illawarrareptilesociety2015@gmail.com
website: <http://illawarrareptilesociety.com.au/> Facebook: <https://www.facebook.com/groups/262254127185488/about>

WESTERN AUSTRALIA HERPETOLOGICAL SOCIETY



Meets at 7pm on the first Friday of every month at the Wembley Community Centre, 40 Alexander Street Wembly 6014
<https://www.wahs.org.au/> info@wahs.org.au

SOME OF OUR AUSTRALIAN HERPETOLOGICAL GROUPS

FATS welcomes announcements from any Australian and international herpetological groups. Please email the editor (see page 11) if you would like to add an article, event or message in any of our future newsletters, FATS Facebook page or our web site.

Please let us know of any other active herpetological groups we should list in future FATS newsletters.



Photos from left Gary Wilson, Michael Anthony, Eleanor Duignan

THE NORTH QUEENSLAND NATURAL HISTORY GROUP (NQNHG) formed to learn, share and enjoy north Queensland's natural history and to support the sustainable management of the natural values of the region. The group aims to promote citizen science, environmental sustainability, ecosystem services, protected areas and any other land of environmental value as assets to landowners and the community. The association produces a journal called the "North Queensland Naturalist". They undertake regular field events to properties in North Queensland such as Barrabadeen Scout Camp at Lake Tinaroo, Beatrice River Retreat, a property on Walsh River Rd and most recently South Endeavour Station near Cooktown, Contact PO Box 952, Ravenshoe, Qld 4888 IA56429 Web: <https://www.nqnhg.org/> Facebook: <https://www.facebook.com/NQNaturalHistory/> Email: nqnhgroup@gmail.com Secretary, Michael Anthony 0427 367 888



THE WILD EXPO - REPTILE FESTIVAL is an annual event, previously held at Fairfield Showground 443 Smithfield Road, Prairiewood, NSW. Get up close to a wide variety of reptiles. See native birds, mammals and marsupials including Kookaburras, flying foxes, dingoes and Tasmanian Devils. There may be amazing interactive dinosaur experiences. Engage with knowledgeable experts. There may be representatives from Shoalhaven Zoo and the Australian Reptile Park with an array of reptiles of all shapes and sizes. Please watch out for further information.

FROGS VICTORIA SOCIETY



Frogs Victoria holds events on the first Thursday of the month March – November from 6pm for dinner and drinks (available to purchase), talks start at 7:30pm at The Elgin Inn, Hawthorn Melbourne Victoria. <https://www.frogsvic.org/events> No RSVP necessary. <https://www.facebook.com/frogsvic> Membership not needed to attend events. Contact info@frogsvic.org for more information. Instagram @frogsvic. <https://www.frogsvic.org/>

MACARTHUR HERPETOLOGICAL SOCIETY



MHS meets every third Friday, monthly, except January. Doors open at 7pm at 46 Broughton Street, Campbelltown, NSW for a 7:30pm start. Website <https://macarthurreptiles.com.au/> Email : president@macarthurreptiles.com.au Facebook : <https://www.facebook.com/profile.php?id=100064370722234>

ACT HERPETOLOGICAL ASSOCIATION



ACTHA in partnership with the Australian National Botanic Gardens (ANBG) have a week long exhibition in January showcasing a variety of Australian reptiles and frogs. Snakes Alive! Everyone is welcome at ACTHA bi-monthly meetings held at 7pm on the third Tuesday of every second month (February, April, June, August, October and December) at Canberra Reptile Zoo, O'Hanlon Pl, Nicholls (Gold Creek). <http://www.actha.org.au/> PO Box 440, Jamison, ACT 2614 email info@actha.org.au <https://www.facebook.com/actha.org.au>

HAWKESBURY HERPETOLOGICAL SOCIETY



HHS holds monthly meetings at 30 Herbert Street Cambridge Park NSW 2750 Every 2nd Friday of the month at 7:30 pm with guest speakers and topics to suit a wide range of herpers. Everyone is welcome. Mailing address PO Box 680 Penrith BC 2751 They conduct field trips comprising of one-day outings, and others taken over a weekend. HHS hold regular events throughout the year: Reptile Expo, annual photo competition and member's picnic. info@hawkesburyherps.org.au <https://www.facebook.com/hawkesburyherps> <https://hawkesburyherps.org.au/>

THE QUEENSLAND FROG SOCIETY



QFS have community events and garden expos to spread the word about frogs. <https://www.facebook.com/qldfrogsociety> <http://www.qldfrogs.asn.au/> PO Box 7017 East Brisbane Queensland 4169 qldfrogs@bigpond.net.au Instagram: <https://www.instagram.com/qldfrogs> Meetings are held the third Wednesday of every second month via Zoom at 7:30pm. You need to be sent a Zoom code prior to the meeting.

FIELD NATURALISTS SOCIETY OF SOUTH AUSTRALIA FNSSA AND REPTILE AND FROG GROUP RAFG



South Australia Herpetological Group SAHG joined the Field Naturalists Society of South Australia (FNSSA) to form the Field Naturalists Society of South Australia Reptile and Frog Group (RAFG). Membership: <https://www.fnssa.org.au/> RAFG have multi-day field survey trips and a few walks. FNSSA host RAFG meetings on reptiles in winter, at the Royal Society Rooms, 7.30 pm South Australian Museum, behind the State Library of SA. <https://www.saherpetologygroup.org/> . RAFG meetings are at The Box Factory Community Center at 59 Regent Street, Adelaide (entry off Halifax St) at 7.30pm. <https://www.saherpetologygroup.org/>

FROG SAFE - FROG HOSPITAL



Frog conservation, rescue, rehabilitation and the Frog Hospital. <https://www.frogSAFE.org.au/>

FROGWATCH WA



<https://museum.wa.gov.au/explore/frogwatch/about-frog-watch> Building Frog-friendly Gardens, CD, frog publications, field guides and Tadpole Exchange Program.



Pelophylax ridibundus 26/5/20 Forncett St Peter, Norfolk

THE WATER FROGS *Pelophylax* Species

*Greener than green with a long-legged leap,
From their bask in the sun to the dark, lilled deep.
In the depth of the night they kept me from sleep.*

*Maniac laughter this wonder does make.
Unsurpassed beauty in blue, lilled lake.
In the depth of the night they kept me awake.*

Photos and article by Garth Coupland

This deep, concrete, overflow pit has a foot of water at the bottom. I wonder whether there might be one trapped in there. I stare intently into the clear water and discern two dark, brown shapes against the dark, brown stones and mud below. My heart races. They are enormous! I have found them at last! I had lain awake as a child thinking about them and had dreamed of seeing and perhaps catching one, having read about them, over the years, in my books. I lower myself down into the pit and search around the bottom with my hands....and then I feel it. Soft, cold and deliciously slippery. It feels exactly as I had imagined. It moves very quickly and it is some while before I corner it and manage to grip it securely. I lift it out of the water and there it is, in my hand! I can see it and feel it and it is completely wonderful to behold. This still ranks as one of the most joyous and exciting moments of my life. I then caught the other one!



Pelophylax ridibundus 14/5/22 Forncett St Peter, Norfolk.

I was on Romney Marsh in Kent. I was sixteen years old and had my amphibian pond and enclosure ready for these Marsh Frogs to take up residence there. I brought them back to Acle, Norfolk, and looked forward to much association with and study of these magnificent amphibians. I quickly discovered how wrong one could be!

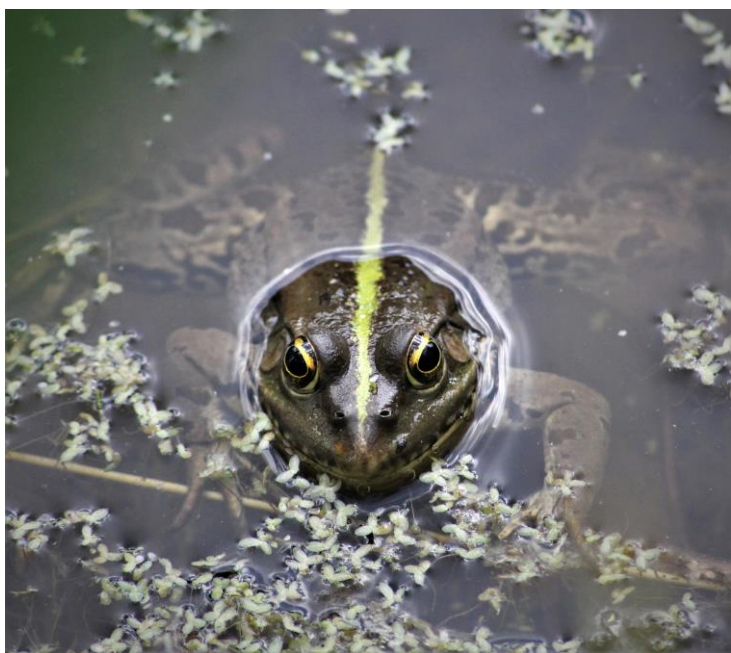
The Marsh Frog, *Pelophylax ridibundus*, is Europe's largest frog and these were big ones! It is not a native British species. Hungarian specimens had been released into Romney Marsh in 1935 and have proved to be highly successful there and proliferated. Measuring around 6 inches from snout to vent this impressive frog continues to impress when it gets to basking in the sunshine. Then, the browns turn to vibrant green, bronze, olive and yellow skin colours and the variety of patterns upon that background are quite extraordinary. This I discovered after putting them in my pond all those years ago. I would sneak up on them with binoculars to see these fabulously green animals sitting on the edge of the pond. If they saw me they would dive into the water and disappear. The Water Frogs are all very wary frogs during the day. At night, like most frogs that I have encountered in Europe, America and Australia, they can be approached with ease and show no concern at your presence. But what are the Water Frogs?



Pelophylax ridibundus 19/5/19 Forncett St Peter, Norfolk

In Northwestern Europe there are 3 species of Water Frog: the Marsh Frog, The Pool Frog, *Pelophylax lessonae* and the Edible Frog, *Pelophylax kl. Esculentus* (page 8). These 3 species are part of a complex, and still not fully understood, group of frogs. When a Pool Frog and a Marsh Frog mate they produce fertile offspring, the Edible Frog. Edible Frogs are able to breed with either parent species and produce more Edible Frogs. In some countries, and in Norfolk, it can be shown that Edible Frogs will breed with Edible Frogs and produce even more Edible Frogs! (The Edible Frog

is also not native to Britain). In some areas of Europe the numbers of these Water Frogs are quite extraordinary and support equally extraordinary numbers of snakes. Geneticists and taxonomists are trying to understand exactly how this all works and their research and conclusions can be studied and read about. Suffice it to say that all 3 species are sometimes difficult to separate in the field, but with practice it is possible to make an informed guess. In Norfolk we have all three species living wild in distinctly separate areas of the County.



***Pelophylax ridibundus* 24/6/18 Forncett St Peter, Norfolk**

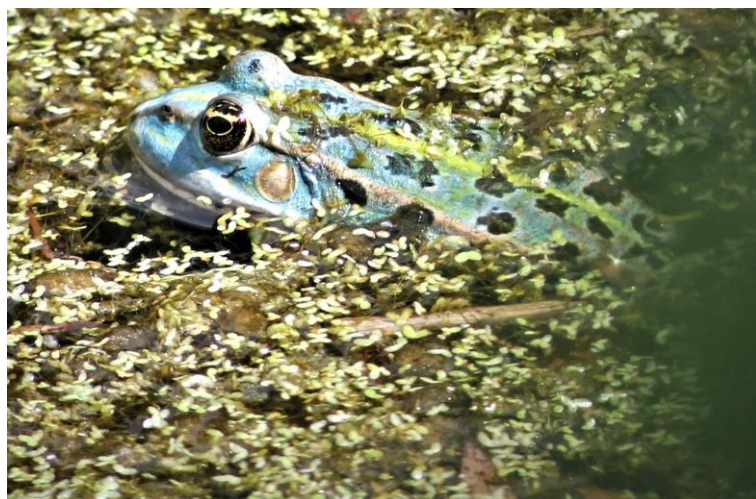
But let us return to my Marsh Frogs. I was naive enough to fail to understand what I'd taken on. The frogs could easily leap my surrounding wall and came and went as they pleased. Fairly quickly they went....forever! This ended my study of the species and I only became re-aquainted with it in the Botanic Gardens of Geneva much later in life. In my 50s I also started travelling more and found Edible Frogs across France. But this story concerns Norfolk and so we must return there.

Firstly, I need to beg your indulgence in order that I might tell you the remarkable story of the Pool Frog in Norfolk. The species had been known since the 1700s from sites in West Norfolk but modern herpetologists assumed that they were a small, introduced population on the wane. In 1995 the Pool Frog was declared extinct in Britain. However, due to finds of the species in the fossil record and genetic tests performed on museum specimens taken in the 1800s, much discussion resulted as to whether the Norfolk Pool Frogs were a native species. The fossil record, combined with the genetic similarity to a rare, Northern Clade of Pool Frogs, found only in Scandinavia, proved that

they were indeed an indigenous species. And so, in 2005, a re-introduction programme was launched using Northern Clade frogs from Sweden. The Norfolk site is repopulated and doing well. I have yet to make their acquaintance!

In the valley of the River Tas in South Norfolk one can find wild-living Marsh Frogs. Their calls, resembling maniacal laughter, can be heard on hot, Summer days as the males call in the females. Their original scientific name, *Rana ridibunda*, is a direct translation from Latin, meaning laughing frog. The sound is made using the most extraordinary, balloon-like vocal sacs that inflate from each side of the throat just behind the mouth. In the Marsh Frog the sacs are grey, in the Pool Frog white and in the Edible Frog white to light grey. (See page 8)

I think that the beauty of the Marsh Frog, in terms of colour, pattern and variety is unsurpassed amongst the European amphibians. In one pond in the Tas Valley I discovered a perfectly blue individual. Blueness, in normally green frogs, is caused by the individual animal lacking a top layer of yellow pigment bearing cells called xanthophores. Thus, blue light reflected from lower layers of chromatophores stays blue instead of passing through the yellow pigment, and so becoming green. These blue frogs are rare although I have seen it once in the Edible Frog in France and in one of a friend's captive Australian Common Green Tree Frogs, *Litoria caerulea*.



A blue *Pelophylax ridibundus* 6/18 Forncett St Peter Norfolk

The Scarrow Beck runs into the upper River Bure in North Norfolk. In its valley and in lakes and ponds on large estates in the area one can find wild-living populations of introduced Edible Frogs. Mannington Hall is where I go to enjoy this species.

Continued on page 8

On hot, sunny, Summer days one could be in the grounds of a French Chateau as hundreds of males call in the lakes. Literature tells us that the numbers of males to females is 8 to 1.

My observations of the species bear this out. When breeding is at its height the males lose all markings and uniformly turn the most gorgeous, bright lime-green and then to lemon yellow. The juveniles stay away from the adults, due to cannibalism it is believed, and, exactly as in the literature, one finds the smaller frogs in smaller ponds around the Mannington estate. On approach the youngsters dive for cover or disappear into the herbage. However, a patient wait of about five minutes will see them emerge again to bask in the sunshine. Observing the fine textured skin and colouration through close-focus binoculars is a delightful pastime.



**Juvenile *Pelophylax kl. esculentus*
14/7/18 Mannington Hall Norfolk**

While watching Edible Frogs in France in 2010 I made a discovery that has perplexed me ever since. I have found little in literature upon the subject and what is written fails to satisfy me as to exactly what I was observing and the reason for it. I enjoy theorising on such phenomena and wonder what you, the reader, might think.

I was walking down a bank at the side of a lake. Unbeknown to me there were many adult Edible Frogs basking on the bank amongst the grasses along the shoreline. As I approached the water's edge they all took off as one, like a squadron of fighter planes, leaping many feet into the lake.

I found that my trousers were wet and on repeating the manouvre observed jets of liquid squirting straight from the vents of the frogs. My son, Ross, set up his camera equipment facing along the shore to see if we could capture this interesting

behaviour. After a wait of about half an hour the frogs were again basking along the bank, more or less in a line. I charged down the bank and Ross captured a line of frogs leaping through the air, all with a jet of liquid squirting from their backsides! I have since observed the phenomenon in Australian frog species.

Frogs and toads take in liquid through their vents. I have tasted the copious amounts of liquid ejected by a newly caught, large, female toad. I believe that this is not urine but pure water. Because of this I reject the theory that the frogs are urinating into the face of a potential predator. However, it could be possible that being suddenly splashed may be enough to deter a predator.

Another hypothesis that I think holds water, if you will excuse the pun, is that the frogs are unloading ready for a second leap, if necessary, in order to avoid capture. Yet another proposition involves the mathematics of jet propulsion which I do not pretend to understand but apparently is a viable theory. They simply leap faster by squirting liquid. The truth may be that one theory is the right one or a combination may be the result of millions of years of evolution in the game between predator and prey. Certainly these frogs have many diners, including us, waiting to make a meal of them.

The Water Frogs are not the only introduced species to live wild in Norfolk. I have heard of colonies of Midwife Toads, Alpine Newts, European Pond Terrapins and American Red-eared Turtles within the County boundaries. There is no doubt that introduced species adversely affect our indigenous species and the practice of releasing them is a serious offence under the Wildlife & Countryside Act 1981. However, in the dark and stillness of the night I am still kept awake by thoughts of my next adventures with the Water Frogs.

***Pelophylax ridibundus* Male calling in Geneva, Switzerland**



GLASS FROGS BECOME SEE-THROUGH BY HIDING THEIR BLOOD

Extracts from article in *Science* by Jack Tamisiea

The arboreal amphibians store almost all of their red blood cells in their livers when they camouflage



Despite having light absorbing red blood cells coursing through their veins, glass frogs are still able to pull off the visual feat of transparency. Pete Oxford/Minden Pictures

They're called glass frogs for a reason. Flip the paperclip-size amphibians over, and you'll see their bones, innards, and beating heart through a translucent belly. Now, scientists have figured out how some of these tiny frogs, which reside in tropical forests throughout Central and South America, keep their skin so clear—they divert their blood into their livers to help them disappear.

In nature, transparency is largely reserved for fully aquatic creatures such as eel larvae and gelatinous jellyfish. Terrestrial animals and those that straddle land and water have a tougher time going clear because light reflects differently through air than water.

Another issue is blood. Red blood cells employ rust-tinted hemoglobin proteins that bind to oxygen. These proteins absorb light and give blood its crimson color, keeping skin opaque. Only Antarctic icefish, which inhabit the Southern Ocean's frigid depths, have done away with hemoglobin entirely, giving their blood a cloudy white color.

To figure out how glass frogs overcome this hurdle, researchers used highly calibrated cameras to capture the transparency of Fleischmann's glass frogs *Hyalinobatrachium fleischmanni*, which congregate near streams throughout Central America. At night, when the amphibians breed and feed, they're opaque. But during the day, when they snooze on leaves, most of their bodies, save for the lime green hue of their backs, turn transparent. This helps the frogs blend in like drops of dew, keeping them safe from spiders and snakes while they rest.

The scientists brought a few of the frogs back to the lab and monitored how their transparency shifted as they slept, exercised, chirped, or were under anesthesia. Sleeping

glass frogs were between 34% and 61% more transparent than when they were active, the team reports today in *Science*.

This increased transparency appeared to be linked with a lack of red blood cells coursing through their veins. To determine where the blood cells went, Taboada and his colleagues utilized a technique called photoacoustic imaging, which maps the ultrasonic waves produced when red blood cells absorb light. During the day, blood vessels in the frogs' livers were brimming with red blood cells, swelling the size of the organ by about 40%. Compared with other tree frogs, which can only store about 12% of their red blood cells in their livers, glass frogs can store a whopping 89%—nearly all of the red blood cells in their body. How the animals survive this extreme adaptation is unclear, says study co-author Jesse Delia, a biologist at the American Museum of Natural History. "They're basically not transporting very much oxygen for 12 hours a day."

Another mystery is how glass frogs are able to move so many blood cells into one place without creating a potentially fatal clot. Solving that could lead to better blood clot treatments for humans, says Richard White, an oncologist at the University of Oxford who has studied the spread of cancer and other diseases in translucent zebrafish but was not involved with the new study. "This seemingly basic observation about glass frogs leads to very clear implications for human health."

Forwarded to FATS by Punia Jeffery

<https://www.science.org/content/article/glass-frogs-become-see-through-hiding-their-blood>

'COLD-BLOODED AND CRUEL': \$1.2M OF LIZARDS CAUGHT FOR EXPORT

Hundreds of lizards worth an estimated \$1.2 million were caught in their native Australian habitats before being concealed in chip packets, handbags and cereal containers bound for Hong Kong. Raptor squad detectives say they have dismantled a large-scale and high-level criminal syndicate in Sydney looking to make money from the "lucrative business".

Three men and a woman have been arrested since 20 December 2023. Squad commander Detective Superintendent Andrew Koutsoufis said the group was being run by a 59-year-old man who was arrested during a vehicle stop in Panania, in Sydney's south-west, on 29 December. Reece Elson, 31, is accused of regularly travelling to remote areas of the country including Western Australia and the Northern Territory to trap the reptiles and bring them back..... Strike Force Whyaratta was established by the State Crime Command's raptor squad in September 2023, with assistance from the environment departments of the state and federal government.

Extracts of article By Sarah McPhee 8/1/24 SMH
<https://www.smh.com.au/national/nsw/alleged-criminal-group-caught-lizards-worth-1-2-million-for-export-to-hong-kong-20240108-p5evpy.html>

TARONGA ZOO



ARC is an Amphibian and Reptile Conservation Centre opening at Taronga Zoo in July 2024. See animals such as the Tuatara, Southern Corroboree Frogs, Inland Taipans, Reticulated Python, plus more.

Get up close to over 42 species of Amphibians and Reptiles that jump, slither and crawl at Taronga's newest animal habitat. Journey through six immersive zones that will transport you from the frosty alpine to the scorching desert, to tropical rainforests and then right back to your own backyard here in Sydney.

With animals from all over the world, you'll see species of snakes, turtles and lizards up close in this immersive habitat experience.



FROGWATCH

FrogWatch is developing a pocket guide for common frogs of the ACT. We are almost there thanks to the wonderful support of so many CNM contributors but still short of a few photos showing either special patterns of physical attributes in detail. Would you have a photo or two that show the below listed characteristics / frogs (if resolution is large enough we can zoom in to capture the detail). Each contribution will be acknowledged with the full name of the kind donor.

1. *Myobatrachidae* detail photo of foot anatomy of any species of that genus
2. *Litoria peronii* groin colouration
3. *Crinia sig/parinsig* examples of back patterns for both species, or a photo with both species side by side
4. *Limnodynastes peronii* detail of cheek stripe
5. Any Cane Toad photos

Frogwatch Coordinator Anke Maria Hoefler
frogwatch@ginninderralandcare.org.au
ACT & Region FrogWatch Coordinator
Ginninderra Catchment Group

UPDATED BANJO FROGS

The FrogID Team is excited to share some fantastic informed species updates. Our team members, Tom Parkin, Dr Jodi Rowley and Grace Gillard, have published an extensive study on banjo frogs, also affectionately known as **Pobblebonks**. By assessing Northern Banjo Frog taxonomy through a combination of genetic, morphological, and FrogID acoustic data, our researchers and colleagues reclassified the following frog species:

1. Superb Banjo Frog *Limnodynastes terraereginae*: This large and exquisitely patterned species is exclusively found in Cape York Peninsula, QLD.
2. Scarlet-sided Banjo Frog *Limnodynastes grayi*: A sizable and widely distributed species ranging from NSW to north Queensland.
3. Coastal Banjo Frog *Limnodynastes superciliaris*: A small species confined to sandy habitats spanning from Sydney to the mid north coast of NSW. Formerly misidentified as *Limnodynastes dumerilii grayi*, our researchers found this species to have a much more restricted distribution, and restored its original scientific name, first assigned to a specimen collected in Sydney over 160 years ago.

Accurate taxonomy (the science of naming, describing and classifying living things) is vital for informed conservation decisions. Thanks to scientific advancements, including your FrogID contributions, we're improving our understanding of Australia's frogs! Thousands of your banjo frog records have been revalidated, keeping the FrogID database up-to-date.

BOOROOLONG FROG RELEASE

Close to 1,300 Booroolong Frogs have been released into northern NSW, giving populations of this endangered frog a big leg up for recovery. The 2019 drought took a toll on the Booroolong Frog. In combination with pressures like fire, chytrid, disturbance to their habitat from weeds, hydrology changes, and soil erosion. Populations of the frog in northern NSW were significantly impacted. The NSW Department of Climate Change, Energy, the Environment and Water, Taronga Zoo Sydney, and the Australian Museum partnered together to create a captive insurance and breeding population. This release is a great outcome from their hard work. Watch the release here:

<https://www.facebook.com/nswdceew/videos/389895420523879/>

The FATS public meeting commences at 7 pm, (arrive from 6.30 pm) and ends about 10 pm, at the Education Centre, Bicentennial Park, Sydney Olympic Park, Homebush Bay. FATS meetings are usually held on the **first Friday of every EVEN month** February, April (except Easter Friday), June, August, October and December. **If the FATS meeting falls on Good Friday, then the meeting will probably be one week earlier. Occasionally other meeting dates are changed. Please check our website and your emails, for notices.** 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 exhibit at many community fairs and shows. Please contact Events Coordinator 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. Credit cards can now be used for raffle and other purchases over \$10.

COPYRIGHT: Material from FROGCALL MAY NOT BE REPRODUCED without the prior consent of the writer, photographer, editor or president of FATS. Permission from FATS and/or author/s must be obtained prior to any commercial use of material. The author/s and sources must be always fully acknowledged.

FATS ON FACEBOOK: FATS has nearly 5,000 Facebook members and visitors worldwide. Posts vary from husbandry, disease and frog identification enquiries, to photos and posts about pets, gardens, wild frogs, research, new discoveries, jokes, cartoons, events and habitats from all over the world. The page was created 13 years ago and includes dozens of information files – just keep scrolling to see them all. <https://www.facebook.com/groups/FATSNSW/>

RESCUED FROGS are at our meetings. Contact us if you wish to adopt a frog. A cash donation of \$50 is appreciated to cover care and feeding costs. Sorry we have no EFTPOS. FATS must sight your current amphibian licence. NSW pet frog licences, can be obtained from the NSW Department of Planning, Industry and Environment (link below). Please join FATS before adopting a frog. This can be done at the meeting. Most rescued frogs have not had a vet visit unless obviously sick. Please take you new, formerly wild pet to an experienced herpetological vet for an annual check-up and possible worming and/or antibiotics after adoption. Some vets offer discounts for pets that were rescued wildlife.

<https://www.environment.nsw.gov.au/licences-and-permits/wildlife-licences/native-animals-as-pets/frog-keeper-licences>

FATS has student memberships for \$20 annually with electronic FrogCall (but no hard copy mail outs). <https://www.fats.org.au/membership-form>



Thank you to the committee members, FrogCall supporters, talented meeting speakers, Frog-O-Graphic competition entrants, event participants and organisers David, Kathy and Harriet Potter, Sarah and Ryan Kershaw. The FrogCall articles, photos, media and webpage links, membership administration and envelope preparation are greatly appreciated. Special thanks to regular newsletter contributors: Robert Wall, Karen & Arthur White, Andrew Nelson, Wendy & Phillip Grimm, Marion Anstis, George Madani and Punia Jeffery.



FATS WEBSITE www.fats.org.au

FROGWATCH HELPLINE 0419 249 728

FATS COMMITTEE CONTACTS

FATS MAILING ADDRESS: P O Box 296 Rockdale NSW 2216 OUR ADDRESS MAY CHANGE IN 2025

Arthur White	President	ph/fax (02) 9599 1161	arfawhite@gmail.com
Marion Anstis	Vice President	(02) 9456 1698	frogpole@tpg.com.au
Punia Jeffery	Chairperson		puniamje@gmail.com
Jilli Streit	Secretary	(02) 95646237	jillistreit@yahoo.com
Karen White	Treasurer	ph/fax (02) 9599 1161	arfawhite@gmail.com
Phillip Grimm	Memberships, Web Master & Facebook Manager	0432 716 445	phigrimm@gmail.com
Kathy Potter	Events Coordinator	0403 919 668	kathy@the-pottery.org
Robert Wall	Field Trips Coordinator	(02) 9681 5308	rjw2008@live.com.au
David Potter	Frog Helpline Coordinator	0413 210 789	david@the-pottery.org
Monica Wangmann	Editor		monicawangmann@gmail.com
Andre Rank and Luc Streit	General Committee members		

Photo: Rhys Cairncross Pilliga NSW
Litoria latopalmata Broad-palmed Rocket Frog



FATS NEEDS YOUR HELP

At the recent Annual General Meeting, I addressed those present to inform them of a dire situation facing FATS. The executive of FATS was re-elected without any new faces. This is not new - the same people get re-elected to the same positions year after year. A number of FATS councilors have been running the Society for more than 25 years. It is not good for any Society to have the same people in charge for a long period of time. While saying this, I acknowledge that the executive is very competent and willing- but they (and I) have been there too long.

I have asked the membership for a number of years now to consider stepping up and joining the executive. This request has not produced new blood. Quite the reverse, the members keep telling us that they are happy with what we are doing and for us to continue on.

We have reached crunch time. A number of the executive (including myself) have indicated that they will stand down at the next AGM. If there are no people prepared to take up the vacant positions, the Society will fold. FATS is an incorporated society and must have a number of designated executive officers. So this is a call for help and a warning. Societies survive through the input of its members and not through the input of the same people over and over again.

Please think carefully about how you might help FATS. If you are worried about not being able to do the tasks at hand, don't. The outgoing executive will still be around to help you with the work and to show you the ropes. A new executive may choose to operate FATS quite differently to the present administration and may choose to drop a number of our current activities, or they may choose to add new ones.

The future of FATS is in your hands. As a member of FATS, you need to think carefully about how much you value the Society and whether you want to see it continue or not. IF you want to discuss any of this, feel free to contact any of the FATS executive (including myself). Be brave and do what you can for FATS. **Arthur White President 1999-2023**

FATS 2024 FROG-O-GRAPHIC COMPETITION

The FATS members' Frog-O-Graphic competition opens on the 1 May and closes on the 31 August 2024. There is a newer category. Best "wild" tadpole/s or frog/s video. Maximum duration 30 sec, maximum file size 80 MB, maximum resolution 1080P. Format MP4. Wild frogs only, with no people visible ie frogs that are free to come and go including in back yards. No pet frog videos please. Send the link for file to be downloaded in an email to photos@fats.org.au

Categories:

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

Winners are decided by a panel of judges.

People's Choice is voted for by everyone present at the October FATS meeting.

All entries are by email to photos@fats.org.au

In the submission please state:

- * your name,
- * confirm that you are a financial member,
- * identify the frog species preferably by scientific name (in the file name) and location, if known,
- * 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. They don't have to be recent images. The entries may appear in FrogCall, FATS Facebook page, our web site and other FATS publications.

Arthur White

Photo: Cooper Tamayo *Litoria peronii* Perons Tree Frog

