

FROGSHEET

www.qldfrogs.asn.au | questions [at] qldfrogs.asn.au | [f/qldfrogsociety](https://www.facebook.com/qldfrogsociety) | [@qldfrogs](https://www.instagram.com/qldfrogs)

QLD Frog Society AGM - 10am 19 October, Karawatha Discovery Centre, BBQ to follow.



FROGGING FOR FLEAYI

I joined our Ric Nattrass Research Grant recipient, Thais Loppes recently on a survey in Conondale National Park as part of her Ph.D on Fleay's Barred Frogs (*Mixophyes fleayi*). We provided Thais with a \$1,500 grant earlier this year to part-fund the expenses incurred during her research project, and I was excited to lend a pair of eyes and ears and show her a spot where I'd previously found fleayi. Hopefully the frogs would not make a liar out of me on this survey!

I met Thais and her research assistant and fellow frogger Hunter McCall by the headwaters of Kilcoy Creek. Whilst I waited, Tusked Frogs, Cascade Treefrogs, and yes, a Fleay's Barred Frog has already started their nocturnal choruses. This was a positive sign!

We'd soon prepared the survey equipment and cleaned our gear and footwear so to not spread Chytrid fungus or re-introduce it to the creek we would survey along, and headed downstream. The low-flow of the creek made it easier to navigate and rock-hop as we made our way along. Pretty soon we'd come across several Stony-creek Frogs; and realised it'd been a while since I'd seen these frogs, but only because I haven't been

through their habitat lately. Meanwhile, Thais and Hunter had begun catching a few frogs to swab for the presence of Chytrid. The tests are run back in the lab, which commences after the current round of fieldwork. We also swabbed a few Cascade Treefrogs, which are plentiful throughout many of the creeks Thais had recently surveyed.

We soon arrived at a section of the creek most suited to Fleay's Barred Frogs. This is characterised by a wide but shallow section of creek, where the female frog constructs a 'nest' - a shallow excavation in the stream bed - amongst the small rocks and pebbles and deposits between 600-1,300 eggs. Fleay's Barred Frogs don't appear to breed during or soon after high water flow as suitable breeding sites are covered by high water, which would also wash tadpoles downstream. But back to the action...

We soon heard the call of a target species, and triangulated his location. After some patience, and then returning to the spot several minutes later, Thais spotted her target frog. She then measured, weighed and swabbed the frog in a quick and well-rehearsed manner, before releasing him to his calling position. Whilst

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Credit: J. Hooper

the air temperature was not too cold, the sustained lack of rainfall likely contributed to very average barred frog activity, and so only this animal was calling consistent enough to be located. Furthermore, Fleay's Barred Frogs were heavily impacted by Chytrid fungus in Conondale National Park over the last few decades, but surveys in several streams suggest the species population may be showing signs of recovery.

A final and equally interesting component to Thais' research is collecting water samples from creeks to not only determine for the presence of Chytrid in the water, but also test for eDNA. eDNA (environmental DNA) is analysed from water samples and can be used to indicate the presence of species living in that water-

UPCOMING EVENTS

19 October: QFS AGM to be held at Karawatha Discovery Centre. 149 Acacia Road, Karawatha. 10am - 12pm. BBQ lunch to follow onsite.

FROG QUESTIONS EMAIL

Our Questions email address is again regularly monitored. For any questions regarding frog and toads not already answered on our website, email questions [at] qldfrogs.asn.au

FROG HABITAT WORKING BEES

Bowman Park, Bardon

First Wednesday and Sunday of each month, during the morning. Contact Phil for more info and/or visit <https://www.facebook.com/bowmanparkfroghabitatgroup/>

way, including for tadpoles and adult frogs. The field surveys and modelling will be combined with the eDNA sampling to investigate drivers of population recovery in Fleay's Barred Frogs.

I thoroughly enjoyed helping Thais on her survey and learning new survey techniques, whilst contributing to valuable research on one of our endangered species.

If you'd like to volunteer your time finding frogs, get in touch with Thais via www.facebook.com/groups/Frog-WorkVolunteers/.

Jono Hooper



Credit: J. Hooper

RIC NATTRASS RESEARCH GRANT

The QFS Trust Fund was created with the purpose to help save QLD frogs through education and research by means of this Research Grant, and now stands at **\$5,984.32** (- \$128.14 since Winter edition)

STAY IN THE LOOP

If you have a newer preferred email address, please contact us and let us know.

HELPING HAND

We are always in need of an extra pair of hands to assist at community event display stalls. Many hands make light work, even if you can spare 30 minutes to help unpack and pack up our display gear from and to a vehicle. Most of our displays are within the Brisbane area.

Please contact our Secretary if you can help us out.

ASHGROVE REPORT

I am still around though not able to attend working bees or other physical endeavours right now but Phil Bird is still working hard in different areas of Bowman Park.

I did take up our display to the Garden Expo in Nambour with the help of my daughter and we had a very good 3 days talking about our wonderful frogs and answering many questions which is why we like being at these events. Thank you to all the members who helped out.

As Secretary I have been very busy with renewals (thank you) and new memberships along with other secretary duties.

Jenny Holdway

STUDENTS JUMP IN TO SAVE BAW BAW FROG

12 September 2019 | Michelle Slater | Latrobe Valley Express

Grey Street Primary School children celebrated one of Australia's most forgotten and critically endangered species on Wednesday, September 4 by holding a Baw Baw frog festival.

Children turned out in brilliant spring sunshine to celebrate all things amphibian with frog-themed cakes, chocolates, tee shirts, posters, merchandise and even pet rocks.

Students teamed up with Zoos Victoria to take part in its fighting extinction program and picked the Baw Baw frog from a list of 27

critically endangered species.

Grade 4 teacher Debbie Guy said students had become passionate about the Baw Baw frog, of which there were only approximately 250 of the species left in the wild.

"We hope children can recognise there are lots of things they can do to protect threatened species," Ms Guy said.

"This will help ignite their passion and prompt feelings of empathy and a sense of urgency and leadership as we all have a role to play in helping threatened species."

Ms Guy said the frog festival was a student-led initiative that would also raise funds for Zoos Victoria.

Zoos Victoria fighting extinction coordinator Genevieve Jonson dropped in to Grey Street to help with the festivities and said she was inspired by the school's enthusiasm for the cause.

Ms Johnson said the Baw Baw frog was only found in a small alpine pocket on Mount Baw Baw, but its numbers had declined by 98 per cent in the past decade due to habitat loss, climate change and a chytrid fungus.

However, she said the zoo had a captive breeding program and had successfully released frogs back into the wild.

"The Baw Baw frog has flown under the radar as it's not



Grey Street Primary School students Rivah Conway and Ruby Farmer with Zoos Victoria's Genevieve Johnson helped to highlight the critically endangered Baw Baw frog Credit: Z. Lewis

a furry, cuddly species that people gravitate towards. The fear is that this species will slip away without anyone noticing," Ms Johnson said.

“Having schools in the local area raise awareness about this species is what will make the difference. This is inspiring. There is hope while there are tough things going on in the environment.” ■

BUILDING HIGHWAY FOR WILDLIFE KARAWATHA FOREST

11 October 2018 | Michael Fox | Pollinator Link

A beautiful day for a walk in the bush. I joined Professor Darryl Jones, Griffith University and members of Karawatha Protection Society for a field trip to explore the Fauna Movement Solutions linking Kuraby Forest and Karawatha Forest across Compton Road.

The discipline of Movement Ecology only developed around 2002 so building this innovative wildlife bridge in 2005 was a bold step. At the time traffic on the two lane Compton Road was rapidly increasing with a consequent increase in road kill. The Brisbane City Council decision to widen the road to four lanes was both a threat and an opportunity if the partnership of Karawatha Protection Society and Griffith University could change the existing thinking from protect wildlife by keeping it off the road to making the road ‘transparent’ to wildlife.

In his presentation Darryl Jones highlighted the importance of community groups in driving change even when the science is clear. What makes this project

courageous is the fact that the science of Movement Ecology was only just evolving and researchers have since found many unexpected results.

Small birds are one surprising user of the wildlife bridge. Small birds will normally not cross a wide gap in the forest canopy so being limited to an island habitat they are vulnerable local extinction events like bushfire. The other surprise is the behaviour of micro-bats. The concrete arch sections have become unexpected Shelter with micro-bats making homes in the gaps in arch sections. Each night the bats emerge to forage in the surrounding forests. Monitoring with ultrasonic (anabat) recorders shows no activity above the road (white), significant activity about 100 metres

from the road (yellow) however the wildlife bridge itself was a hotspot (bright red) for micro-bat activity transiting from forest to forest.

As part of the Logan [Motorway] Enhancement Project Transurban



Compton Road Wildlife Bridge (2018). Photo: M. Fox

Queensland is building sophisticated fauna movement solutions including a new wildlife bridge across Illaweenah Street which will reduce the road kill on that increasingly busy road and allow for future expansion to four lanes. Combined with underpasses and rope bridges this will create excellent fauna movement solutions linking Kuraby through Karawatha Forest to habitat at Parkinson. ■

FROG NUMBERS AND WETLANDS SURVIVING DROUGHT THROUGH 'PRECISE' ENVIRONMENTAL WATER FLOWS



26 September 2019 | C Mollie Gorman and Moyra Shields | ABC News

Controversial environmental water flows are believed to be the driving force behind the revival of an endangered native frog, despite the drought.

Once found across most of south-eastern Australia and Tasmania, the southern bell frog has been in decline since the 1970s and was almost wiped out by the Millennium Drought.

But researchers say numbers are recovering as a result of strategic pumping of environmental water flows and help from landholders in the mid-Murrumbidgee area of southern NSW.

Associate Professor Skye Wassens from Charles Sturt University is leading the Murrumbidgee Long-Term Intervention Monitoring Project, which is monitoring the impact of environmental watering events.

Dr Wassens said they were recording large numbers of southern bell frogs across a more widespread variety of wetlands.

“It’s probably one of the most successful frog recovery programs that we’ve seen in Australia,” she said.

“It sort of flies under the radar a little bit.”

Strategic targeting

Environmental water flows can be controversial; earlier in the week an irrigation channel supplying water to a forest on the Murray River was vandalised, seemingly in protest to the flows from that river system.

Dr Wassens said the drought and low flows available meant only around 100 of the 1,500 wetlands in the mid-Murrumbidgee complex, which includes the Nimmie Caira and Lowbidgee wetlands near Hay and Balranald, could be watered.

“In these drought years, or as we go into these dry phases, the management focuses very much on refuge habitats,” she said.

“It’s very much on maintaining core aquatic habitats, maintaining key native fish populations, maintaining core southern bell frog populations.

“We tend to use very conservative watering approaches, particularly pumping and infrastructure-assisted delivery, because it allows us to have a more precise and managed delivery.”

Endangered waterbirds, including critically endangered Australasian and little bitterns, have also been



A 32,000ML flow to the Nimmie-Caira wetland earlier this year benefited species including the southern bell frog.
Credit: ABC Riverina: Melinda Hayter

seen in greater numbers.

“We’ve had some really great outcomes with endangered waterbirds, particularly the bittern species, which are fantastic,” Dr Wassens said.



***Litoria raniformis*. Credit: Damien Michael**

“They were recorded breeding for the first time last summer in Yanga National Park, so we’re actually starting to get some more breeding and some more activity from those.”

Multilevel approach

NSW Environment Minister Matt Kean said the work of landholders had been crucial to the program’s success.

“We’re taking a partnership approach and working with landholders, which make up a large portion of the wetlands on private property, to provide their knowledge and time,” he said.

Volunteer landholder Les Gordon said he was pleased to have been able to help from his mid-Murray property.

“I’m really delighted with how our wetland has responded to receiving water and the good numbers of southern bell frogs it’s supporting,” he said. ■



SCIENTISTS TRACK FROG-KILLING FUNGUS TO HELP CURB ITS SPREAD

23 September 2019 | University of California - Berkeley

From habitat loss to climate change, amphibians around the world face immense threats to their survival. One emerging and sinister threat is the chytrid fungus, a mysterious pathogen that kills amphibians by disrupting the delicate moisture balance maintained by their skin, and that is decimating frog populations around the world.

“Amphibians are already one of the most imperiled groups on the planet, and this fungal disease is further threatening their biodiversity,” said Erica Bree Rosenblum, an associate professor of environmental science, policy and management at the University of California, Berkeley.

With the help of advanced genetic testing and hundreds of frog skin swabs, Rosenblum, along with UC Berkeley graduate student Allison Byrne and an international team of collaborators, has created the most complete map to date of when and where different genetic variants of the fungus -- analogous to different strains of viruses like the flu -- have infected frog populations around the world.

Some of these genetic variants are deadlier than others, so knowing their current geographic distribution is key to preventing future spread of the disease, the researchers said. The investigation also uncovered a whole new genetic lineage of the fungus, one that appears to have originated in Asia and may be the oldest variant yet discovered.

“An invisible aspect of globalization is that when we move plants and animals around, we are moving their diseases around, and that can have really devastating consequences,” Rosenblum said. “If we know what lineages are where, we can better predict conservation outcomes, because some of these lineages are really deadly, and others less so.”

The study appears online the week of Sept. 23 in the journal *Proceedings of the National Academy of Sciences*.

Tracking an emergent pathogen

“Chytrid” is the name of not one, but around 1,000 differ-

ent species of fungi, most of which are harmless detritivores that spend their lives munching away on dead and rotting organic matter. The frog-killing variety, which bears the tongue-twisting name *Batrachochytrium dendrobatidis*, wasn’t discovered until the late 1990s, when scientists were desperately searching for the source of disturbing frog die-offs that had been popping up worldwide since the 1970s.

Though researchers now have a culprit, much remains unknown about this enigmatic disease: Some species of frog, like the American Bullfrog, are not affected by the fungus, while for others, exposure to the fungus means almost certain death.

Scientists are also not clear on the origins of the frog-killing chytrid species. It may have been lurking in some corner of the planet for thousands of years and only brought to worldwide attention when global trade of frogs for their meat and for lab experiments exposed new populations to the pathogen. On the other hand, it’s possible that a recent genetic mutation in the fungus suddenly made it more virulent, Rosenblum said.

“Not all amphibian species are equally susceptible, not all strains of the fungus are equally deadly, and there are a lot of open questions about the disease. Are humans moving it around? Are different strains coming together and mixing and becoming even more deadly?” Rosenblum said. “It’s like a murder mystery we are trying to solve.”

To find the answers, researchers often turn to genetic testing to “get under the hood” of a disease, using DNA signatures to map out different variants of a pathogen and trace them back to their source. But full genome sequencing of the chytrid fungus is notoriously difficult, requiring large samples of the fungus that must be grown and cultured in a lab and that sometimes involve killing the infected frog.

In the current study, Byrne borrowed technologies from medical research to create a new genetic test that can determine what variant of the fungus a frog has using only a skin swab. Rather than sequencing the entire genome, the test looks only at key snippets of DNA that help distinguish one variant from another. Because it only relies on small snippets, it requires much less DNA overall.

“People have been using Q-tip swabbing to test simply whether the pathogen is present or not, but now we can

use the same swabs to figure out genetic details about the fungus, too,” Rosenblum said. “There are literally hundreds of thousands of these swabs sitting in people’s freezers around the world. Now, from these skin swabs, we can figure out not just that this frog is infected, but specifically what lineage of the disease it carries. Is it the same lineage that infects the frog living next door, or in another country, or across the world?”

Mapping a fungus through space and time

Rosenblum and Byrne partnered with collaborators around the world to analyze 222 fungus samples collected from 24 different countries. These samples included skin swabs collected in the field, as well as some taken from preserved museum frog specimens, the oldest of which dates to 1984.

“I think something that our collaborators are most excited about is going back in time with these museum specimens,” Byrne said. “You can take an amphibian in a jar, collected a hundred years ago, swab it and now start to really build the picture of how these lineages have spread.”

The analysis revealed the distribution of the four known lineages around the globe and uncovered a whole new lineage that appears to have originated in Asia. It also showed how, in many places, different lineages of the pathogen appear to live side-by-side. This is a frightening prospect, as recent lab work has hinted that, like many human viruses, different lineages of the pathogen can mix and become deadlier.

Policies that limit the transport of frogs and other animals across international borders could help prevent the spread of the disease, the researchers say. For example, restrictions on salamander imports from Europe have so far kept a related species of the fungus, *Batrachochytrium salamandrivorans*, out of the United States.

“We are seeing that policy actions can slow or prevent the spread of these diseases,” Byrne said. “I think there might be a little bit of complacency around the fact that this chytrid is basically everywhere. But now we know that they are not all the same, the risks depend on what lineage is there, and then when you get this mixing of lineages, you could have many unintended consequences.”

#qldfrogs

Each newsletter will feature a selection of photos by our keen Instagram followers who tag their QLD frog photos with #qldfrogs! Tag yours to be featured here.



Fleay's Barred Frogs (*Mixophyes fleayi*) by @mccallwildlifephotography



Eastern Snapping Frog (*Cyclorana novaehollandiae*) by @jasonswildlifephotography



Stony-creek Frog (*Litoria wilcoxii*) by @featheredspiders

PRESIDENT'S REPORT

I had the pleasure of presenting on our threatened frogs for Threatened Species Day in September. The event was organised by The Friends of the Forest group at Moore, only 15mins west of my home town, Kilcoy. This was a great event which included speakers presenting on native solitary bees and President of the Lockyer Uplands Catchment Inc on their success stories and progress made in their local area. Cr Cheryle Gaedtke from Somerset Regional Council also attended which I found encouraging.

The preceding day I helped out at our small display at the Native Plant Markets at Mt Coot-tha, whilst taking the opportunity to purchase a variety of native plants to rehabilitate our 1-acre block.

This is my final President's Report before the QLD AGM on 19th October at 10am at Karawatha Discovery Centre. I'm excited for this particular AGM for several reasons, one of which is the announcement of a fantastic opportunity for the Society and direct benefit for one of QLD's most threatened frog species in a dire situation. Additionally, we look forward to receiving an update from Thais on her Fleay's Barred Frog research, plus an update from Harry Hines and Dr Ed Meyer on

the Kroombit Tinkerfrog captive breeding program at Currumbin Wildlife Sanctuary. Finally, we'll see the election of a new President for the Society to lead us into 2020!

Finally, I'd like to thank all our Members who renewed their membership for 2019-2020! We have lots of exciting ideas and opportunities ahead and cannot achieve these without your support.

I'll see you at the AGM!

Signing off,



NEXT EDITION

Thankyou to those of you who contributed to this newsletter.

**Deadline for Summer *Frogsheet* contributions is
21 November 2019**

If undelivered, please return to
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SURFACE MAIL

Frogsheet - Spring 2019
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