

FROGSHEET

Photo by Jono Hooper; *Litoria caerulea*



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Photo by Jono Hooper; *Litoria olongburensis*



Thank you to our supporters!

Public Trust Fund: Total now stands at \$12,036.69
Any donations over \$2.00 are tax deductible, and all are added to our research grant fund, which is awarded annually

President's Report

Hello once again to all our QFS members. I hope that everybody is keeping well and hopefully you have all had some of the good rain that has been around the state in the last few months. I know many frog species on my property are loving the wet weather. It has been quite busy for the QFS in the last several weeks with our preparations for our AGM which took place on the 27th of October and organising our first frog camp in several years.

At our recent AGM which was held at the beautiful grounds of the Karawatha Forest Discovery Centre we elected our committee for the next 12 months as well as having Tommi Mason, our guest speaker present her research as well. We also voted in our draft constitution which had a few changes to some of the wording and our new Grievance Procedures were incorporated into this draft.

Our committee was relatively unchanged after the completion of the AGM this year. All committee members kept their current positions except for our Vice President, Brett Malcolm who stood down to make way for a new Vice President. I would like to thank Brett for his contributions to the QFS over the last 12 months. We were lucky enough to have Ryan Carleton step into the position of Vice President which will be great for the society. Ryan has been involved with the QFS for several years and has a great knowledge about frogs and many other animals. We welcome Ryan to the committee and we look forward to working with you over the next 12 months. It is great to have so many return to the committee as well as each of the committee members does their job very well.

It is exciting news that the QFS will be running the first frog camp in several years. This will hopefully be the first of others that will take place over the next few years. I would like to thank Jono for organising this camp which will be held at Bellthorpe Stays in the Sunshine Coast hinterland. This location is available to the public as well but people joining this camp have got a significant discount off the normal price and some of our own frog experts will be attending to help identify frogs during the weekend. There are numerous species of frogs that reside on this 400 acre property. I wish I was able to attend but unfortunately I had prior commitments on this weekend. To the people that are attending, I hope you all have a wonderful stay and get to see numerous frog species and other wildlife as well.

I would like to wish everybody a very Merry Christmas on behalf of the QFS. I hope that you all get to celebrate with your family and loved ones.

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Have a great festive season and New Year. Whatever you choose to do, have fun but be safe. I look forward to seeing you in 2025.

Take care of yourselves, look out for each other and our environment.

Regards,

Ashley Keune



HOPE FOR ENDANGERED FROGS: A Remarkable Recovery in Yosemite

The Sierra Nevada yellow-legged frog (*Rana sierrae*) has made a remarkable recovery in Yosemite National Park, providing hope for amphibians worldwide affected by the deadly fungal disease chytridiomycosis. Once nearly wiped out by the fungus *Batrachochytrium dendrobatidis* (Bd), these frogs are now thriving thanks to their resistance and tolerance to the pathogen.

Chytridiomycosis has devastated over 500 amphibian species globally, with at least 90 driven to extinction. The yellow-legged frog, listed as endangered, had disappeared from more than 90% of its historical range. Over 15 years, researchers reintroduced Bd-resistant frogs to 12 sites where they had vanished. These frogs came from populations that survived Bd outbreaks and developed resistance through natural selection or acquired immunity.

Despite the ongoing presence of Bd, breeding populations were established at 80% of the reintroduction sites. Biologist Roland Knapp from the University of California notes that many of these populations are expected to persist for at least 50 years.

“This frog, once on the brink of extinction, is now an example of how we might recover amphibians globally,” says Knapp.

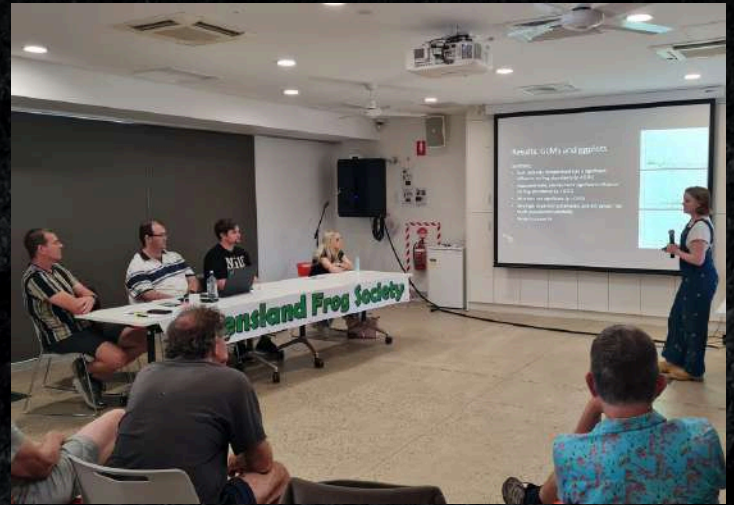
This success underscores the importance of understanding resistance mechanisms and refining conservation strategies. The story of the yellow-legged frog demonstrates that targeted efforts and innovation can restore even the most vulnerable species.

QFS AGM SUMMARY 2024

This year the QFS AGM was held on the 27th of October 2024. The meeting was held via Zoom once again as well as in person at the Karawatha Forest Discovery Centre. I would like to thank the Brisbane City Council for the use of this great facility to hold our meeting. It was a successful and informative meeting and it was great to have many members attend.

Congratulations to all the elected members of the committee for the next 12 months. I am excited to be able to continue on as the President of the QFS for another year and I look forward to working with the new committee as well as our members and the community. Jenny Holdway has returned to the committee as the Secretary for the QFS. Jono Hooper was re-elected as our Events and Initiatives Coordinator. Our Minutes Secretary, Desley Fricke, has taken on this role once again. Our very capable Treasurer, Andrew Knowles will continue to manage our finances and Kayla Beaton, will continue to produce our informative Frog sheets for the next year.

It is exciting to have a new member joining us on the committee. We welcome Ryan Carelton onto the committee as Vice President. Ryan has been involved with the society for several years and is extremely knowledgeable with all things related to frogs. It is great to see new members join the committee as it keeps the committee fresh and brings in new ideas. Thank you to all of the elected committee members for investing some of your valuable personal time into the QFS for the next year when volunteers are getting harder to find.



This year a few new rulings and requirements were introduced for all associations. One of these was the Grievance Procedures. We could adopt the model rules or we could create our own to suit our society. As a society, we decided to make some small changes to the model rules to better suit the QFS. While this was written into the draft constitution, there was also a few minor changes to the wording of our constitution to be more inclusive, as well as a few changes to the names of different departments. A big thank you to Peter Crofts, our legal advisor who prepared this for us. This draft constitution was voted on at the meeting and was passed unanimously.

Following the proceedings of the AGM, we had our guest speaker, Tommi Mason give a presentation to the attendees about how she has utilised frog presence and bioacoustic data from citizen science collections as a snapshot of the health of aquatic ecosystems in the urban landscape of Brisbane.

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It was very interesting to see how citizen science can be used to help get a snapshot of different areas and to see the pros and cons of using such methods. Tommi's informative presentation was very well received and she took numerous questions afterwards from the members that were in attendance.

After Tommi's presentation, the people who attended in person stayed at the venue for an hour or so to have a light afternoon tea. It was great to be able to spend some time in person with some of the members, some of the committee and to have some nice food as well. Thank you to all who attended the AGM via Zoom or in person as it is vital that we get the support at the AGM to be able to continue as a society.



DISCOVERY OF THE OLDEST TADPOLE FOSSIL: A GIANT LEAP IN FROG EVOLUTION

A fossil unearthed in Argentina's Santa Cruz province reveals the oldest known tadpole, dating back 161 to 168 million years. This discovery not only sets a new record but also provides a fascinating glimpse into the evolution of frogs, showing that the tadpole stage has existed for at least 160 million years.

The six-inch-long fossil, found in a Jurassic-period rock quarry by paleontologist Federico Agnolín and his team, represents the larval stage of *Notobatrachus degiustoi*, an extinct frog species. Unlike today's typically smaller tadpoles, this ancient specimen was a giant. Its exceptional preservation revealed fine details, including gills, eyes, and even traces of nerves, leading researchers to conclude that its feeding and breathing mechanisms were strikingly similar to modern tadpoles.

Biologist Mariana Chuliver, who studied the fossil, notes that its cartilage structures closely resemble those of contemporary tadpoles. Like their modern counterparts, these ancient tadpoles likely filtered microorganisms and organic debris from water while breathing through gills.

The tadpole's size may echo similarities to paradoxical frogs (*Pseudis paradoxa*), whose larvae grow exceptionally large in temporary pools where competition and predation are minimal.

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The fossilized tadpole was close to metamorphosis, suggesting it would have reached a size comparable to its adult form. This prolonged tadpole stage may have been an adaptation to maximize food availability before transitioning to land.

The find underscores the resilience and adaptability of frogs throughout history, but paleontologist Agnolín warns of their current vulnerability. Frogs' dependence on both land and water makes them especially susceptible to habitat destruction, posing a threat to their survival.

This ancient tadpole fossil not only offers a remarkable window into the past but also highlights the challenges amphibians face today, emphasizing the need for their conservation.

AMPHIBIANS, MALARIA, AND THE HIDDEN COSTS OF BIODIVERSITY LOSS



A decline in amphibian populations across Costa Rica and Panama may have contributed to malaria outbreaks in the late 20th and early 21st centuries, according to a recent study in *Environmental Research Letters*. Researchers believe the loss of frogs, toads, and salamanders—natural predators of malaria-transmitting mosquitoes—led to unchecked mosquito populations and a rise in malaria cases.

The amphibian declines were driven by the spread of the chytrid fungus (*Batrachochytrium dendrobatidis*), which began in Costa Rica during the 1980s and later moved into Panama. This fungal pathogen caused mass amphibian die-offs, creating a gap in the ecosystem. Malaria cases surged within years of these losses, increasing fivefold in some areas of Panama. Researchers estimate amphibian deaths were responsible for up to two-thirds of malaria cases during these surges, though other factors, like higher rainfall, may have also played a role.

Fortunately, malaria cases have since declined, likely due to public health measures and the return of other mosquito-eating animals. However, the findings highlight the ripple effects of biodiversity loss on human health. Protecting amphibians, researchers argue, could provide unforeseen benefits, such as reducing the prevalence of mosquito-borne diseases.

This study sheds light on how ecosystem imbalances can indirectly affect human well-being. As amphibians continue to face threats from habitat destruction and disease, conservation efforts are more important than ever—not just for wildlife but for the health of ecosystems and the people who rely on them.



WHERE FROGS CALL HOME: INSIGHTS FROM MY BACKYARD FROG POND

Location, location, location

This phrase is often associated with real estate and property value, but so too can it apply to frogs and where they prefer to call from around a water body.

My largest (and I'm told my last) backyard frog pond was built during 2023 and is now in only its second wet season. Yet the diversity of frog species using this pond has been unexpected. Not only has it been exciting to see the pond attract many species, but it's also noteworthy where each species prefers to call from during breeding season.

As of November 2024, the pond provides breeding habitat to eight species:

- Striped marshfrog (*Limnodynastes peronii*)
- Spotted marshfrog (*L. tasmaniensis*)
- Ornate burrowing frog (*Platyplectrum ornatum*)
- Green treefrog (*Litoria caerulea*)
- Naked treefrog (*L. rubella*)
- Broad-palmed rocketfrog (*L. latopalmata*)
- Eastern sedgefrog (*L. fallax*) and
- Graceful treefrog (*L. gracilentata*).

Whilst the first five species occur and breed fairly commonly on our 1-acre property in the past, only in recent weeks have the three latter species ever called or bred anywhere on our property. And whilst we occasionally have one or two slender bleating treefrogs (*Litoria balatus*) residing around the house, they're as yet to reliably call from any of the three water sources on the block.

So where does each species call from around this largest frog pond?

Floating in the pond or from the pond margins:

- Striped marshfrog (usually amongst pond 'furniture')
- Spotted marshfrog (usually amongst pond 'furniture')
- Ornate burrowing frog
- Eastern sedgefrog (from aquatic plants)

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From the immediate pond surrounds/banks:

- Naked treefrog
- Broad-palmed rocketfrog
- Graceful treefrog (from overhanging branches)

Within 5m of the pond (usually upon rocks/logs/branches):

- Green treefrog
- Graceful treefrog (at times)

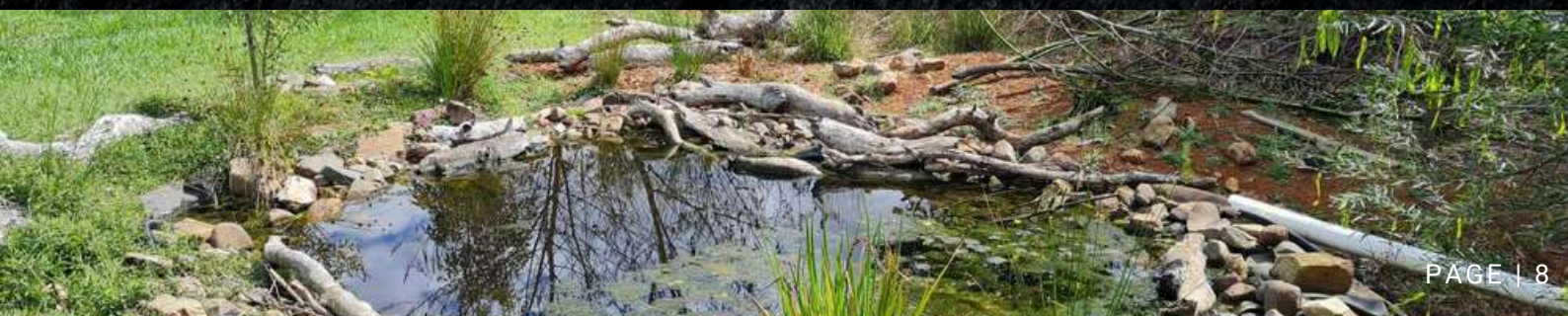
The above observations highlight the importance in providing a variety of calling perches and pond furniture (logs, branches, rocks etc) and vegetation in and around your frog pond to attract a variety of frogs, just like is found in the natural landscape. This furniture can be found on your property, or from flood debris near bridges, or if a large gum tree has to unfortunately be removed in your area.

I should also note that most of the above species usually breed in ephemeral (non-permanent) water, which collects in low-lying areas after rain then dries up in the days or weeks after rain. The absence of fish is one of the greatest drawcards of such ephemeral water bodies, since most fish predate frog spawn, eggs and tadpoles. Whilst my large pond does have a liner, there is a small excavated area beside the pond which fills up after rain (I refer to it as their naughty pond, since many of these species deposit their eggs here, only to have this area dry within a matter of hours or days - meaning I'm always having to recover the eggs the morning after and place into the large pond).

I do also have cane toads also calling at this pond, however on only three occasions have they laid eggs in there, which I usually get around to removing the morning after. The pond and surrounding landscaping isn't yet finished, but the idea is that increasing vegetation around the pond margins will help deter toads from using the pond. I may also undertake a toad-bust to help reduce numbers locally on our block.

I live in a small country town in a residential/rural setting. Whilst I know many species do breed from the lowland flats down by the creek which flows through town, I'm not aware of there being many other opportunities for these species to breed in the neighbourhood. This may account for the higher diversity of frogs on my property than say in a heavily-built up area.

If you are considering putting in a frog pond at your place - do it! And consider some of the (hopefully helpful) information above, plus other information on our website (www.qldfrogs.au).





Executive Committee

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A WARM WELCOME TO NEW QFS MEMBERS!

Sayonarra Laffey, Irene Danby, Suzanne Poulter, Steph Chamberlain, Deborah Saunderson-Warner, Patricia Nigro, Nicci Purton, Stacey Clegg, Teena Chumbley, Jan Cattoni, Gretchen Doolan.



DATES FOR YOUR DIARY...

6-8 December 2024
Bellthorpe Stays Camp



PLEASE EMAIL EDITOR@QLDFROGS.ASN.AU WITH ARTICLES FOR INCLUSION IN FROGSHEET!

DEADLINE FOR MID-SUMMER FROGSHEET CONTRIBUTIONS IS
28 DECEMBER 2024