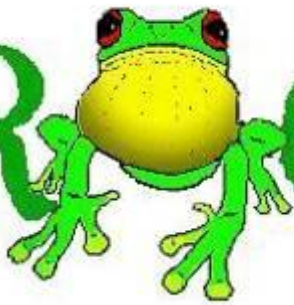


FROG CALL



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. 150 AUGUST 2017

Photo by David Nelson Moss Froglet *Crinia nimba*



Hartz Mountains, Tasmania 2010 Discovered 1994

You are invited to our FATS AGM & meeting. Everyone is welcome.

Arrive from 6.30 pm for a 7pm start.

Friday 4 August 2017

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

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

Take a torch.

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

turn off to the right and drive through the park. It is a one way road.

Or 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.

See map page 8

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- Impending frog extinctions & P10
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Corroboree Frogs
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FATS AGM and ordinary meeting Friday 4 August 2017

6.30 pm Lost frogs seeking homes: 2 Green Tree Frogs *Litoria caerulea*, 2 *Lt. infrafrenata*, 1 *Lt peroni*, 5 *Lt gracilentata* and 1 *Litoria fallax* Priority to new pet frog owners. Please bring your membership card and cash \$50 donation. We don't EFTPOS. Your current NSW NPWS amphibian licence must be sighted on the night. Rescued frogs can never be released.

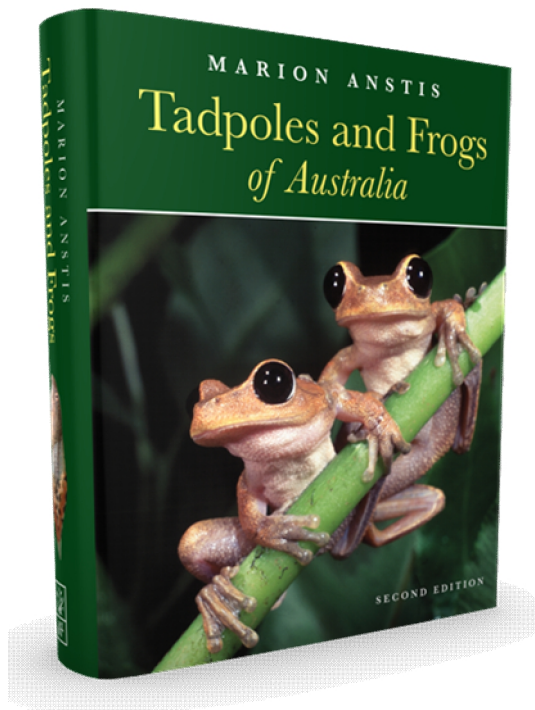
7.00 pm Welcome, AGM and announcements

7.45 pm Double act: Two PhD students Emma McInerney and Shannon Kelleher from University of Wollongong talking about their work on Corroboree Frogs. "What makes a good corroboree frog? Conservation solutions for a critically endangered amphibians." Arthur White will talk about suburban frogs calling and neighbourhood disputes.

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

TADPOLES AND FROGS OF AUSTRALIA

The Second Edition of Marion Anstis' book *Tadpoles and Frogs of Australia* contains an additional five new species and is fully revised, with complete life histories of most of the entire frog fauna of the Australian continent. This book has become a lasting contribution to frog conservation.



Preorder and get a discount of 20%
and your book signed by the author.

https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=BH4NQQAZYW7S4

Retail Price: \$149.99 Your Price: \$ 119.99

Shipping \$ 25.00
(Please contact us for overseas shipping)

or contact New Holland Publishers on
02 8986 4700 to place a phone order

Please be patient. The books are coming from overseas.

The book contains comprehensive information about Australian tadpoles as well as the eggs, metamorphosed frogs and adult frogs, accompanied by detailed colour photographs. In fact this book has been described as 'the most comprehensive and thorough treatment of a continental frog fauna that there has ever been'.

Using meticulous keys, descriptive characters and a multitude of illustrations, *Tadpoles and Frogs of Australia* helps readers to identify which tadpole or egg belongs to which frog. The vast photographic array shows live frogs, tadpoles and eggs at various stages in their lives.



This magnificent and unique volume is a worthy addition to the library of any naturalist, student or professional with a keen interest in identifying our frogs and learning more about their fascinating life histories. *Tadpoles and Frogs of Australia* will continue to serve as an invaluable and fundamental tool by contributing greatly towards our understanding of how we can help Australian frogs survive. Copyright © 2017 New Holland Publishers, All rights reserved. Unit 1, 66 Gibbes Street, Chatswood, 2067 Australia.



FATS ATTEND A VARIETY OF EVENTS EACH YEAR. Some of them are listed below. Please come along and say hello. We could use some help, even for an hour. No experience required. Contact Kathy Potter Refer page 11

NOTES FROM
LAST MEETING
PTO page 4

8 August 2017 VISIT FATS AT THESE EVENTS
Come and help us for an hour or two.

http://www.centennialparklands.com.au/whatson/events/science_in_the_swamp

http://www.kmc.nsw.gov.au/Things_to_do/For/Children/Wildflower_and_Garden_Festival

http://www.macarthurreptiles.com.au/

http://www.bluemountainsbotanicgarden.com.au/What-s-On/Gondwana-Garden

http://www.hornsby.nsw.gov.au/environment/trees-plants-and-bushland/native-plant-giveaways

FATS AGM
NOTICE FRIDAY
4th August 2017

The FATS AGM will be held on 4/8, commencing 7pm. FATS meet at the Education Centre, Bicentennial Park, Sydney Olympic Park.

We appreciate fresh ideas and new members on our committee. No experience required. The committee meet 6 times a year. No task commitments or time expected of committee members, other than what you are able to spare. See contacts details on page 11.
Arthur White



Dip netting at Ku-Ring-Gai Wildflower Gardens 27/8

2017 FATS FROG-O-GRAPHIC COMPETITION - CLOSING SOON

FATS financial members Frog-O-Graphic competition is open now and closes 31st August, 2017. We look forward to seeing your entries. Where are they? New comers to photography are encouraged to submit photos. Mobile phone users please take note that photos need to be high resolution so they can be printed in the 2018 FATS calendar.

Categories:

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

Winners to be decided by a panel of judges. The Junior categories have been deleted however there are many excellent submissions, we may add encouragement awards.

The **People's Choice** Award will be decided by those present at our 1st December FATS meeting.

All entries are by email to photos@fats.org.au Please state: your name, confirm that you are a financial FATS member, whether the image is of a pet frog, if you are new to frog photography and your contact phone number.

Maximum 6 entries per person. Maximum attachment size 6 MB. Fabulous prizes will be awarded for each category. Entries must be original and your own work. The winning entries may be featured in FrogCall, FATS 2018 calendar and other FATS publications.

15 FROG BIOLOGIST WRITE 2016 PAPER WARNING OF IMPENDING FROG EXTINCTIONS

unless funding is allocated to save of amphibians. Abstract:

To protect Australian amphibian biodiversity, we have identified and prioritised frog species at an imminent risk of extinction from chytridiomycosis, and devised national management and research priorities for disease mitigation. Six Australian frogs have not been observed in the wild since the initial emergence of chytridiomycosis and may be extinct.

Seven extant frog species were assessed as needing urgent conservation interventions because of (1) their small populations and/or ongoing declines throughout their ranges (southern corroboree frog (*Pseudophryne corroboree*, New South Wales), northern corroboree frog (*Pseudophryne pengilleyi*, Australian Capital Territory, New South Wales), Baw Baw frog (*Philoria frosti*, Victoria), *Litoria spenceri* (spotted tree frog, Victoria, New South Wales), Kroombit tinkerfrog (*Taudactylus pleione*, Queensland), armoured mist frog (*Litoria lorica*, Queensland)) or (2) predicted severe decline associated with the spread of chytridiomycosis in the case of Tasmanian tree frog (*Litoria burrowsae*, Tasmania). For these species, the risk of extinction is high, but can be mitigated. They require increased survey effort to define their distributional limits and to monitor and detect further population changes, as well as well-resourced management strategies that include captive assurance populations.

A further 22 frog species were considered at a moderate to lower risk of extinction from chytridiomycosis. Management actions that identify and create or maintain habitat refugia from chytridiomycosis and target other threatening processes such as habitat loss and degradation may be effective in promoting their recovery. Our assessments for some of these species remain uncertain and further taxonomical clarification is needed to determine their conservation importance. Management actions are currently being developed and trialled to mitigate the threat posed by chytridiomycosis. However, proven solutions to facilitate population recovery in the wild are lacking; hence, we prioritise research topics to achieve this aim. Importantly, the effectiveness of novel management solutions will likely differ among species due to variation in disease ecology, highlighting the need for species-specific research.

We call for an independent management and research fund of AU\$15 million over 5 years to be allocated to recovery actions as determined by a National Chytridiomycosis Working Group of amphibian managers and scientists. Procrastination on this issue will likely result in additional extinction of Australia's amphibians in the near future.

CSIRO Publishing Wildlife Research 43(2):105-120. 2016
<https://doi.org/10.1071/WR15071> Priorities for management of chytridiomycosis in Australia: saving frogs from extinction Lee F. Skerratt, Lee Berger, Nick Clemann, Dave A. Hunter, Gerry Marantelli, David A. Newell, Annie Philips, Michael McFadden, Harry B. Hines, Ben C. Scheele, Laura A. Brannelly, Rick Speare, Stephanie Versteegen, Scott D. Cashins and Matt West April 11,

<http://www.bioone.org/doi/abs/10.1071/WR15071>

<http://www.publish.csiro.au/wr/WR15071> continued P10



LAST FATS MEETING 2 JUNE 2017

Our meeting opened with a welcome to new comers and regulars. Phillip Grimm spoke about the Frog-O-Graphic competition. Please get those entries in by 31 August! Where are you all?

FATS events Coordinator Kathy Potter and family David, Sarah, Harriet and Ryan coordinate very successful FATS events throughout the year. Please contact Kathy and offer to assist at some of our stalls, especially 12/8, where FATS are at 2 events on the same day, Science in the City at the Australian Museum AND Science in the Swamp at Centennial Parklands. No experience required. Visitors mostly want to tell our helpers about their frog experiences. Check with the Potters (P11 for contact details) where and when planned FATS events are happening.

Arthur White spoke about draft changes to NSW frog keeping licences and husbandry standards. FATS advocate that government continue to protect frogs not being taken from the wild. It is suggested that *Limnodynastes peroni*, Striped Marsh Frogs and similar common species be exempt from licence requirements, whilst special needs frogs and threatened species need stricter controls. There are currently 5,500 frog licence holders in NSW. FATS' submission is 150 pages long.

Michael McFadden spoke about the southern species Corroboree Frog recovery program. Threats include disease tolerant, "super shedder" *Crinia* frogs spreading chytrid, drought, pigs and feral horses. The key to their survival may be in building resistance to chytrid. Why do infected *Crinia* in lab conditions, cure themselves? Funding research will be critical. At present there are 1,000 Corroboree Frogs being bred in super quarantine conditions, to guard against extinction. Michael's fascinating talk ended with loads of questions being asked.

Grant Webster spoke about the international revision of scientific amphibian names. Taxonomy is a dynamic science. At present there is further research and evaluation being undertaken by Australian scientists, including peer reviews. Thanks Grant, Arthur and Michael for your informative and interesting talks. The meeting ended with a raffle, lots of chat and tasty supper. MW

RESEARCHERS FIND SPECIMEN OF COSTA RICAN FROG BELIEVED TO BE EXTINCT



The specimen of the red-bellied frog *Craugastor escoces* is an adult female measuring just over 6 cm (2.3").
Courtesy of Gilbert Alvarado/UCR

Costa Rican researchers have confirmed they found one specimen of *Craugastor escoces*, a native frog species known here as the *Rana Vientre Rojo* (red-bellied frog), last seen here in 1986. Gilbert Alvarado Barboza, a researcher with the University of Costa Rica's (UCR) School of Biology, and Randall Jiménez Quirós, a student at the University of Ulm, Germany, found the frog on September 19, 2016. They were conducting an amphibian count at the Juan Castro Blanco National Park, in the province of Alajuela, when they made their discovery.

The specimen is an adult female and measures just over 6 centimeters (2.3 inches) long, researchers confirmed Tuesday at a press conference as part of the UCR's Environmental Week. Alvarado explained that they found the frog hiding in a small cave near a creek. "It was a completely clear night, no rain, full moon and full of stars. That is, with all the conditions in which you don't expect to see a frog," he recalled.

The International Union for Conservation of Nature (IUCN) had officially declared the amphibian extinct in 2004. The finding now leads Tico researchers to believe that there might be a population of the frog within the national park.

Native species The amphibian species was first described in 1975. It is an endemic species that formerly inhabited the surroundings of the Barva, Irazú, and Turrialba Volcanoes, all in Costa Rica's Cordillera Volcánica Central. It mostly inhabited areas located at elevations ranging from 1,100-2,100 meters (3,600-6,900 feet).

Juan Castro Blanco National Park is located outside of that area, but at the right height: researchers found the specimen in an area whose elevation is 1,820 meters (5,971 ft). The frog is nocturnal, and its main predators are herons and snakes. Its body is primarily brown and its main feature is its red belly, a characteristic that is unique among the amphibian group to which it belongs.

The specimen is currently living at a UCR terrarium under permanent monitoring and aseptic conditions that are controlled for temperature and humidity. Researchers are preparing her for an amphibian conservation program at a special habitat under construction at the UCR's Alfredo Volio Mata Experimental Station in Ochomogo, Cartago.

Alvarado noted the importance of the find, reminding his audience that each animal on the planet is a product of millions of years of evolution necessary to create its particular genetic material. "When a species is lost, it leaves an empty niche. The function that it fulfills, as well as its biological design, disappears," Alvarado said.



Gilbert Alvarado (standing) y Randall Jiménez (right) during the amphibian count at the Juan Castro Blanco National Park, last September. Courtesy of Gilbert Alvarado/UCR

Extinct amphibians Various species of Costa Rican native amphibians disappeared during the 1990s, and there are some that are currently considered to be possibly extinct. Local researchers say the main cause of their extinction is the destruction of their habitats, in addition to climate change and the proliferation of a fungus that adheres to their skin and makes them sick.

The IUCN declared three Costa Rican frog species as officially extinct in 2004, but the finding of a red-bellied frog represents the second case of one of those three species to reappear. Local researchers have also found specimens of the Deaf Toad or Holdridge's Toad, which used to inhabit the Cerro Chompipe, a mountain in the province of Heredia.

The third and still extinct species is the Golden Toad or Monteverde Golden Toad. The tiny toad became the global symbol of amphibian decline, and many considered it the first victim of global warming. The *Sapo Dorado* was last seen here in 1989. Several attempts to find a living specimen have failed.

Contact L. Arias at larias@ficotimes.net
http://www.ticotimes.net/2017/06/07/frog-costa-rica?utm_content=buffer50d6b&utm_medium=social&utm_source=facebook.com&utm_campaign=buffer
The Tico Times news 7 June 2017



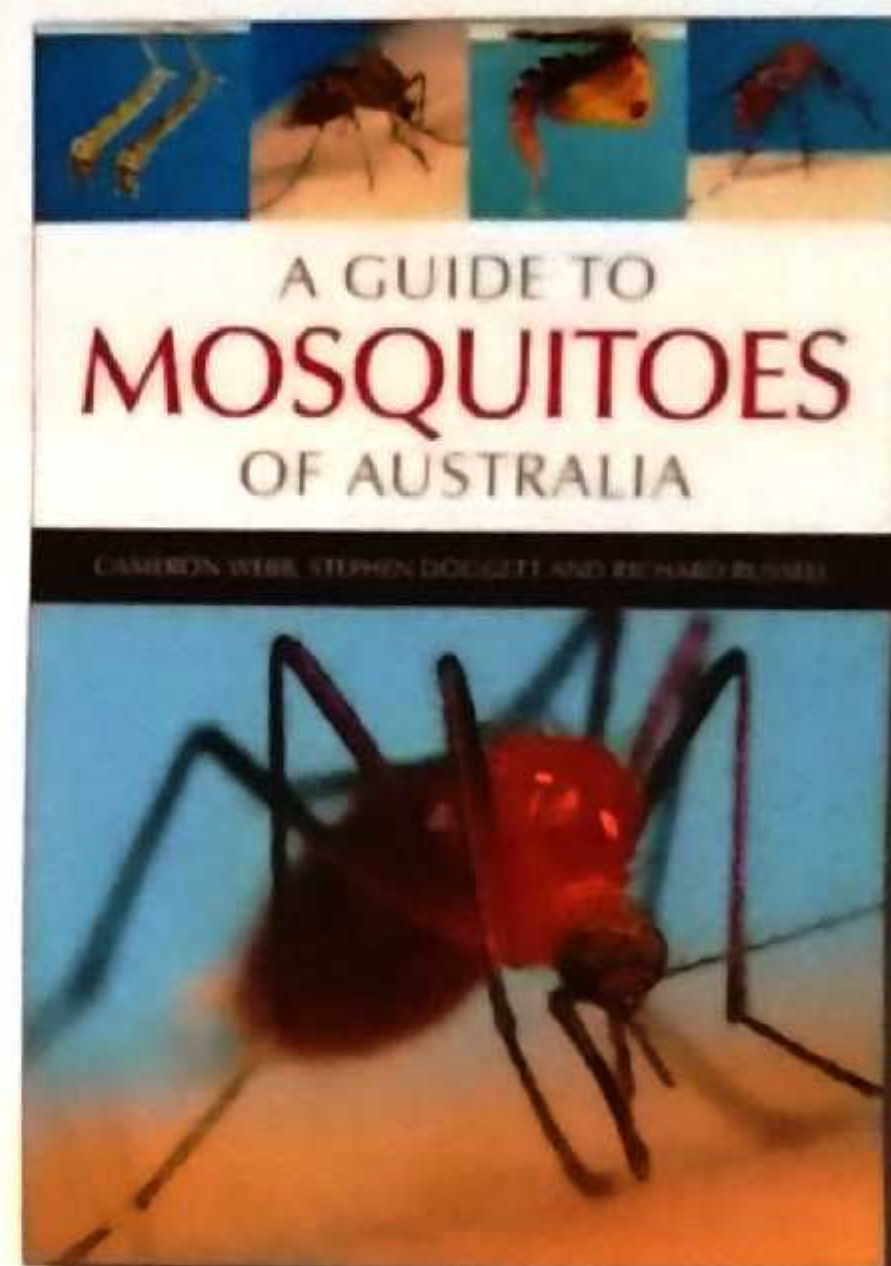
A Guide to Mosquitoes of Australia

Cameron Webb, Stephen Doggett, Richard Russell

Provides a comprehensive, user-friendly guide to the mosquitoes of Australia and key strategies for managing them.

A Guide to Mosquitoes of Australia explores the biodiversity of this fascinating group of insects. Mosquitoes are annoying, and can be deadly, but they can also be beautiful. This book provides a pictorial guide to almost 100 mosquito species and includes notes on their biology, habitats and association with disease. They are found in almost every type of environment, from pristine wetlands to polluted drains and from coastal saltmarshes to snow melt streams.

Australia has a diverse range of mosquitoes and although relatively few pose a serious health risk, public health is an important issue. This book provides information on how to reduce the risk of mosquito-borne disease through tips on keeping your home free of mosquitoes and reducing their bites when you are out and about in the Australian environment.



NEW February 2016

216 pages, Paperback

ISBN: 9780643100305

\$49.95



Also available as an eBook

ABOUT THE AUTHORS

Cameron Webb spends most of his summers chasing mosquitoes. He has over 20 years experience in Australian mosquito management and his expertise is employed by local, state and federal government agencies. He is particularly interested in how wetland rehabilitation, climate change and urbanisation impact on mosquito-borne disease management.

Stephen Doggett has worked as a medical entomologist for over 30 years and has extensive experience in the research of mosquitoes, ticks and bed bugs. Stephen also has a growing reputation as one of Australia's leading entomological photographers with his award-winning photography featured in a wide range of publications.

Richard Russell is one of the leading authorities on mosquitoes and mosquito-borne disease in Australia and internationally, with 45 years experience as a medical entomologist in public health and tropical medicine. He is author and co-author of several books and monographs on Australian mosquitoes, and has over 200 publications in scientific journals.



Matthew McIntosh's photo, Piercing Headache, of an orange-eyed tree frog has won the 2016 Australian Geographic Nature Photographer of the Year competition. The photo above is from <http://www.abc.net.au/news/2016-08-18/australian-geographic-nature-photographer-of-the-year-winners/7753248>

DR CAMERON WEBB AND MOZZIES

Cameron Webb was our main speaker at the October 2016 FATS meeting. Always entertaining and informative - See link to ABC The Checkout Series 5 Episode 10 <http://www.abc.net.au/tv/thecheckout/episodes/s05ep10.htm>



Dr Cameron Webb is a Clinical Lecturer with the University of Sydney and Principal Hospital Scientist with the Department of Medical Entomology at Pathology West - ICPMR Westmead (NSW Health Pathology & Westmead Hospital). Cameron's primary focus is understanding the role of environmental management and urban development in reducing the risks of mosquito-borne disease caused by Murray Valley encephalitis virus, Ross River virus and Barmah Forest virus. However, he has also been called on to provide expert advice on a range of medically important arthropods, such as ticks, mites, biting midges, bed bugs and flies, to local, state and federal government agencies.

Key to his research is an understanding of the ecological role of mosquitoes and how wetland conservation, construction and rehabilitation projects may influence regional mosquito-borne

disease risk together with changes in the local environment resulting from climate change, potential introductions of exotic mosquito species and personal protection strategies (e.g. insect repellents).

In his position with the University of Sydney, Cameron regularly provides lectures in a range of undergraduate and post graduate courses and has supervised a number of research students including collaborative projects with the University of Western Sydney, the Australian Catholic University and the University of South Australia.

It was an exciting time at the Whitley Awards and a great honour for Cameron to receive a 'Certificate of Commendation' from Royal Zoological Society of NSW - RZS NSW for 'A Guide to Mosquitoes of Australia' CSIRO Publishing! <http://www.publish.csiro.au/nid/18/pid/6391.htm>

A GUIDE TO MOSQUITOES OF AUSTRALIA

Providing a comprehensive, user-friendly guide to the mosquitoes of Australia and key strategies for managing them.

Mosquitoes are annoying, and can be deadly, but they can also be beautiful. *A Guide to Mosquitoes of Australia* explores the biodiversity of this fascinating group of insects. It provides a pictorial guide to almost 100 mosquito species and includes notes on their biology, habitats and association with disease. They are found in almost every type of environment, from pristine wetlands to polluted drains and from coastal saltmarshes to snow melt streams.



A GUIDE TO MOSQUITOES OF AUSTRALIA



<http://theconversation.com/profiles/cameron-webb-6736>

HERPDIGEST

HENRY DOORLY ZOO RELEASES 10,500 ENDANGERED PUERTO RICAN CRESTED TOADS BACK INTO WILD



Last week the zoo introduced nearly 11,000 critically endangered toads back into the wild in Puerto Rico.

Each year, the Henry Doorly Zoo & Aquarium breeds, hatches, nurtures and reintroduces Puerto Rican crested toads. The zoo is one of 19 American institutions that make up the breeding program for the species.

The zoo began participating in the breeding program in 2004. On July 14, the zoo released about as many tadpoles — 10,500 — as it did in its first 10 years of the program. Puerto Rican crested toads are native only to Puerto Rico, and can be seen at the zoo's nocturnal Kingdoms of the Night exhibit. **VOL. 19 ISSUE #47 7/23/17 by Chris Peters, World Herald Staff Writer, Jul 20, 2017**

ECUADOR FIRMS SELL RARE FROGS TO SAVE THEM FROM POACHERS (extracts)

Poachers in Ecuador have long known the hefty prices their country's rare frogs can fetch. But now environmentally conscious firms are starting to sell the amphibians in their bid to try and save them from the black market and threatened extinction.

In San Rafael outside the capital Quito, the scientific company Wikiri is raising 12 species of frog. Some are native only to Ecuador, while others are at risk at disappearing from their natural habitat elsewhere. After being raised in hundreds of terrariums, they are sent to Canada, US, Japan and various European countries for up to \$600 each. That high value "gives you an idea just how profitable frog poaching can be," Lola Guarderas, manager of the facility, said.

To illustrate her point, Guarderas showed a glass frog, with translucent skin through which its organs and beating red heart could be seen, as it moved along the edge of its container. The frogs are reproduced in labs, so as not to affect local fauna. They are then put into an "ethical bio-

trade" circuit that is the opposite of the poachers' illegal smuggling and sales.

Ecuador, a relatively small South American nation, is home to one of the biggest displays of biodiversity on the planet. It holds more than 600 species of frogs, of which nearly half can be found only in the country. According to Ecuador's environment ministry, 186 of the species are at risk of becoming extinct. Authorities have banned the capture and sale of all wild animals.

Recently, the Jambatu Center announced something of a breakthrough: the reproduction in captivity for the first time of *Atelopus ignescens*, or the Quito stubfoot toad. The black amphibian used to be widespread in Ecuador's Andean regions but was thought to have become extinct three decades ago until a tiny population was found last year.

Forty-three of the toads were taken to the Jambatu Center which, after several tries, managed to procure 500 tadpoles from one couple. In total, the research facility works on around 40 species typically found in Ecuador or otherwise native to several other South American countries.

A dozen are offered for export, including the *Agalychnis spurrelli*, or gliding tree frog; the *Cruziohyla calcarifer*, or splendid leaf frog, with its striped yellow belly and long legs; and the *Hyalinobatrachium aureoguttatum*, which has a translucent body dotted with yellow spots. Around 500 frogs per year are sold, adding to an annual flow from other Latin American countries that amounts to as many as 7,000, sent everywhere in the world. The hope is to undermine the black market trafficking of the animals. According to Ecuador's environment ministry, 18 frog species have already apparently disappeared, robbing the country of some of its rich biodiversity. **VOL. 19 ISSUE #46 7/19/17 TRTWorld, 7/18/17**

DINOSAURS' LOSS WAS FROGS' GAIN: THE UPSIDE OF A MASS EXTINCTION (extracts)

88 percent of living frogs originated from an evolutionary radiation beginning at K-Pg boundary Most of the frogs alive today owe a big thank you to the asteroid or comet that delivered the coup de grace to the dinosaurs. A new study by Chinese and American biologists shows that if the calamity had not wiped the planet clean of most terrestrial life 66 million years ago, 88 percent of today's frog species wouldn't be here. Nearly nine out of 10 species of frog today have descended from just three lineages that survived the mass extinction.

The results, to be published this week in the journal *Proceedings of the National Academy of Sciences*, are a surprise, because previous studies of frog evolution pinpointed the blossoming of the main frog lineages today to about 35 million years earlier, in the middle of the Mesozoic era. The new analysis of 95 genes from frogs within 44 of 55 living families shows that these

three lineages started to take off precisely at the boundary between the Cretaceous and Paleogene periods -- the K-Pg boundary, formerly called the KT boundary -- when the last mass extinction occurred, and not 100 million years ago.

The paper's other co-authors are David Cannatella and David Hillis at UT Austin, Peng Zhang and Dan Liang of Sun Yat-Sen and David Blackburn of the Florida Museum.

Cannatella, Zhang and Liang are all former UC Berkeley postdoctoral fellows. Support for the research was provided by the U.S. National Science Foundation, the National Natural Science Foundation of China and the National Youth Talent Support Program and National Science Fund for Excellent Young Scholars of China. **VOL. 19 ISSUE #43 7/7/17 University of California, Berkeley Press Release 7/3/17**

WEIRD AMPHIBIANS FOUND AT RECORD DEPTH IN DARK UNDERGROUND LAKE (OLMS, CROATIA) extracts

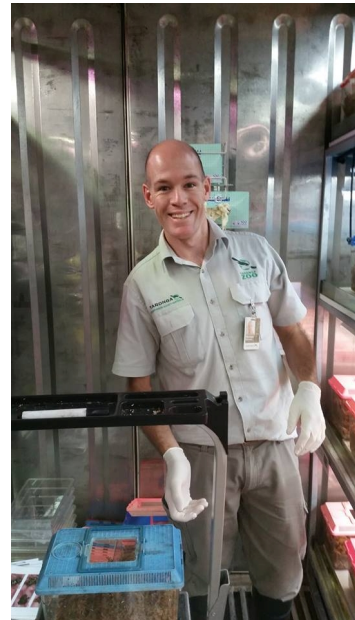
Amphibious salamanders that live in the western Balkans and Italy – are extreme divers, reaching depths in excess of 100 metres in dark lakes inside limestone caves. A team of divers and biologists has now found the curious creature 113 metres below the surface of such a lake in Croatia. *Proteus anguinus* is commonly dubbed the “human fish” because of its pinkish pale skin, and the creatures were once believed to be baby dragons. They are noted for their slow lifestyle and long lifespan: these blind animals can live up to a century. Little is known about olms, and it is a race against time to find out more as the salamanders’ underground habitat is being contaminated by pollution from human activities on the surface. The animals are notoriously difficult to observe in their natural habitat, except through the complex and dangerous skill of cave diving – although technology may be about to change that.

Croatian and international cave divers have found five new olm habitats in the past six years as part of the project run by Croatian association Hyla. The lake where the creature was seen at record depth, Zagorska pec, is of particular interest as, unusually, several specimens have turned up there....

Recent discoveries of potential new habitats have been made using environmental DNA from cave water once it surfaces, and there are efforts to breed olms in captivity. Most observations of their behaviour involve captive animals, mainly in underground laboratories such as the ones in Postojna or Tular caves in Slovenia....

But it could be that the depths cave divers can reach will be the main determiner of how far down we find olms, says speleologist and biologist Gergely Balázs, of the international *Proteus* Project based in Bosnia and Herzegovina. As for conserving the animals, information about their geographical spread will be more important than knowledge of the depths they can live at. Balázs’s team is now trying to install infrared cameras in the caves to film the olms going about their business. **VOL. 19 ISSUE #40 DATE - 6/22/17 By Vedrana Simičević, New Scientist, 6/22/17—Olms**

GREAT WORK MICHAEL MCFADDEN



Congratulations to Michael McFadden (EARL PhD student, supervisor of herpetofauna division TCSA & all-round champion herpetologist) who has cleaned up at the recent ASZK conference, receiving:

- 1) Heidi Hellingman Award for Service to Zoo Industry – for contribution to amphibian conservation
- 2) Best Paper – Creating Taronga’s Herpetological ARK – A decade of reptile and amphibian conservation recovery and research programs
- 3) in collaboration with Lauren Hush, Best Poster – Booroolong Frog conservation breeding program – a collaborative approach to ex-situ conservation.

BUY YOUR CRICKETS & PET FOOD FROM ARC

And help save our Australia frogs

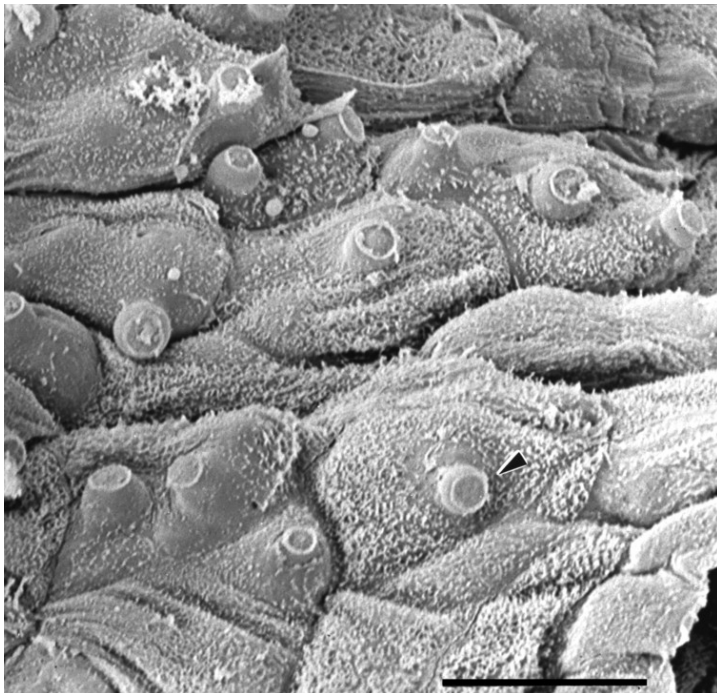
The screenshot shows the website for the Amphibian Research Centre. At the top, there is a navigation bar with 'LOG IN' and 'create an ACCOUNT' buttons, and a search bar. Below the navigation bar, there are several content sections: 'Our Facilities' with an image of a laboratory; 'Our Story' with a photo of a child; 'Nutrition and Care' with an image of a frog and text about expert guides; 'Live foods' with an image of a cricket and text about raising funds; 'Frozen Foods' with an image of a mouse and text about live foods; and 'Featured Article' with the title 'Feeling the silence of the ghosts' and a photo of a frog. At the bottom, there is a section titled 'WHY CHOOSE US?' with a small paragraph of text.

TIME IS RUNNING OUT

In the late 1970s in southeast Queensland, a silent killer arrived on Australian shores. The victims were our unique frogs, with the first to fall being the remarkable gastric brooding frog, last seen in 1981.

More than three decades on, we know that the killer was a disease called chytridiomycosis, caused by amphibian chytrid fungus.

This fungus is responsible for the presumed extinction of a further five Queensland frog species, and the decline and disappearances of many local populations across Australia's entire east coast and tablelands, including species that were once widespread and common. Globally, hundreds of amphibian species have also suffered major declines or are now considered to be extinct as a result of this disease.



Scanning Electron Microscope image of infected frog skin with fungal tubes poking through skin surface. Photo Lee Berger

In a study published in *Wildlife Research*, we and our colleagues identify seven more Australian frogs that are at immediate risk of extinction at the hands of chytrid fungus, including the iconic Corroboree frogs (both southern and northern species), Baw Baw frog, spotted tree frog, Kroombit tinker frog, armoured mist frog and the Tasmanian tree frog. We predict that the next few years may provide the last chance to save these species.

While the six already extinct Queensland species all declined rapidly after the arrival of chytrid, declines in southern regions have been slower. Chytrid is yet to arrive in areas of Tasmania's Wilderness World Heritage Area, although the consequences are likely to be just as severe.

Our work aimed to prioritise frog conservation efforts across Australia, identifying the species most at risk of chytrid, and therefore most in need of urgent action. Worryingly, we found that five of the seven high-risk species that we identified lack a sustained and adequately funded monitoring program to protect them.

In addition to the seven species at immediate risk of extinction, we identified a further 22 that are at moderate to low risk. We also assessed the adequacy of current conservation efforts for all of these species, and found that most recovery efforts rely on the goodwill of individuals and are poorly resourced.

It is possible to manage the threat posed by chytrid fungus, but rapid action is urgently needed. We have identified six critical management actions that are required to prevent further extinctions of Australian frogs and call for an independent management and research fund to address the imminent threat.

The seven species at high risk require proactive recovery programs. Critical management actions may include: broad-scale surveys; intensive monitoring; precise risk assessment; the development of husbandry techniques for the establishment of assurance colonies; re-introductions and or translocations; and new management strategies to maintain wild populations.

Australia initially led the world in efforts to identify and manage chytrid fungus, which was listed as a "key threatening process" by state and federal governments in 2002

In 2006, a plan was drawn up to combat the disease, delivering more research funding and resulting in greatly improved biosecurity measures and increased understanding of the fungus.

In 2012 the plan was reviewed, and a revised plan that incorporates recent research developments now awaits approval. But action is required to manage the impact of the fungus, and disappointingly there has been no funding allocated to implement the new plan.

The past decade has also seen major cuts in both state and federal government resources for wildlife conservation. State agencies have disbanded dedicated recovery teams and there has been a shift away from single species conservation measures in an effort to maximise limited funding. This is despite the obligations set out in legislation to conserve individual threatened species. These cuts have severely undermined frog conservation efforts.

These frogs should not be allowed to go the same way as the Christmas Island pipistrelle, which could arguably have been saved if the federal government had heeded scientists' warnings.

On a positive note, management interventions have saved the critically endangered Southern Corroboree Frog from extinction for now, but it remains threatened by chytrid fungus and requires ongoing management and research. Without swift action, government support and the dedicated efforts of many individuals, this species would undoubtedly already be gone. <http://theconversation.com/frogs-v-fungus-time-is-running-out-to-save-seven-unique-species-from-disease-57432>

FATS MEETINGS commence at 7 pm, (arrive from 6.30 pm) and end about 10 pm, at the Education Centre, Bicentennial Park, Sydney Olympic Park, Homebush Bay. See page 8. They are usually held on the **first Friday of every EVEN month** February, April, June, August, October and December. Call, check our web site, Facebook page or email us for further directions. We hold 6 informative, informal, topical, practical and free meetings each year. Visitors are welcome. We are actively involved in monitoring frog populations, field studies and trips, have stalls at local events, produce the newsletter FROGCALL and FROGFACTS information sheets. FATS attend many community fairs and shows. Please contact Kathy Potter if you can assist as a frog explainer, even for an hour. No experience required. Encourage your frog friends to join or donate to FATS. Donations help with the costs of frog rescue, student grants, research and advocacy.

All expressions of opinion and information in FrogCall are published on the basis that they are not to be regarded as an official opinion of the Frog and Tadpole Study Group Committee, unless expressly so stated.

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FATS ON FACEBOOK: FATS has over 2,130 Facebook members from almost every continent. Posts vary from husbandry and frog identification enquiries to photos and posts about pets, gardens, wild frogs, research, new discoveries, jokes and habitats from all over the world. The page includes dozens of information files.
<https://www.facebook.com/groups/FATSNSW/>

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



Thank you to the committee members, FrogCall supporters, meeting speakers, Frog-O-Graphic competition entrants, events 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 is greatly appreciated. Special thanks to newsletter contributors, Robert Wall, George Madani, Jilli Streit, Karen & Arthur White, Andrew Nelson, Michelle Toms, Josie Styles, Jodi Rowley, Wendy & Phillip Grimm and Marion Anstis.



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<=> An ID enquiry about this gorgeous Perons Tree Frog - Cathryn from Ryde NSW is one of our 2,130 FATS Facebook members.

=>Smiths Lake=>
 FATS field trip
 March 2015 photo
 by Michelle Toms
Litoria revelata



FIELD TRIPS

Please book your place on field-trips; due to strong demand, numbers are limited. Be sure to leave a contact number. Regardless of prevailing weather conditions, we will continue to schedule and advertise all monthly field-trips as planned. It is YOUR responsibility to re-confirm in the last few days, whether the field trip is proceeding or has been cancelled. Phone Robert on 9681 5308

30 September 7 pm

Castlereagh Nature Reserve

Leader: Peter Spradbrow

Meet at the Shell Service Station, Richmond Rd, Berkshire Park (opposite Windsor Downs Estate). It is between St Marys Rd and Llandilo Rd.

In the scientific literature, there are often references to “*anthropogenic*” change. “*Anthropogenic*” simply means “man-made” or “man-induced”. The types of *anthropogenic* disturbance are very broad. It includes obvious things like land-clearing, urbanisation, agriculture and logging. It also includes more subtle things like altered water tables, altered fire regimes and the impact of feral animals. Importantly, students should remember that anthropogenic change may be difficult to identify. Climate change may be the result of natural events or it may be *anthropogenic* (or, indeed, a combination of both). Landscapes may have been altered in deep history by early man, and these impacts are often difficult to assess. What appears to be a native grassland may, in essence, be an *anthropogenic* grassland.

Tonight, we will visit the Castlereagh site and look for some of the signs of *anthropogenic* disturbance. Peter will discuss how these changes have favoured some frog species while disadvantaging other species. Peter has been monitoring these sites for most of his life. Over that time, he has acquired a wealth of knowledge of the frog and reptile populations in this region. Tonight, he will talk about the changes that have occurred at these sites while “under his watch” and will explain their impact upon particular frog species.

21 October 7 pm

Darkes Forest

Leader: Josie Styles

Take the Princes Hwy south (not the free-way), then take the Darkes Forest Rd turn-off. Meet 200m from the corner.

Ecologists often speak of the importance of landscape *connectivity*. This really refers to the ability of animals to move among separated patches of habitat. The concept of *connectivity* may apply to continents, which may be connected and disconnected with changing sea levels. It may apply to valleys separated by insurmountable mountains. More locally, it refers to the movement of species across the immediate landscape. Often, valuable pieces of habitat become isolated by farmland, urbanisation or major highways. Often, it is our creeks and rivers that provide a critical lifeline along which our native fauna can move and survive.

Josie works as a Biodiversity Specialist for the Roads and Maritime Service. She provides advice on the environmental impacts of major roads and develops mitigation measures to lessen the impact of those roads. Tonight, she will explain some of the crucial functions that a typical creek system provides. She will also discuss some of the measures that are taken when “*connectivity*” is threatened by major construction projects.

In the event of uncertain frogging conditions (e.g. prolonged/severe drought, hazardous and/or torrential rain, bushfires etc.), please phone 9681-5308. Remember! rain is generally ideal for frogging! Children must be accompanied by an adult. Bring enclosed shoes that can get wet (gumboots are preferable), torch, warm clothing and raincoat. Please be judicious with the use of insect repellent – frogs are very sensitive to chemicals! Please observe all directions that the leader may give.

Children are welcome, however please remember that young children especially can become very excited and boisterous at their first frogging experience – parents are asked to help ensure that the leader is able to conduct the trip to everyone’s satisfaction. All fieldtrips are strictly for members only – newcomers are however, welcome to take out membership before the commencement of the fieldtrip. All participants accept that there is some inherent risk associated with outdoor fieldtrips and by attending agree to; a release of all claims, a waiver of liability, and an assumption of risk.



**Scott Martin Smiths Lake Nov 2015
male *Litoria tyleri* calling**