



# *The Croaker*

**Newsletter of the Tablelands Frog Club**

---



---

**June 2007**



# Tablelands Frog Club

## Executive Committee 2007-2008

<b>President:</b>	Michael Anthony	(07) 4053 2759
	capeherp@hotmail.com	
<b>Vice-President:</b>	Keith Martin	(07) 4055 3061
	keithmartin30@hotmail.com	
<b>Secretary:</b>	Marney Fichera	
	marney_fichera@hotmail.com	
<b>Treasurer:</b>	Eleanor Duignan	(07) 4053 4857
<b>Committee:</b>	Neville Simpson	
	Inga Lorenz	
	Merv	
	Maria Destro	
	Shaun Cook (junior)	
<b>Editorial:</b>	Darren Green	4057 5603
	pinkenbah@internode.on.net	
<b>Website:</b>	<a href="http://www.tablelandfrogclub.com">http://www.tablelandfrogclub.com</a>	

# Tablelands Frog Club

Mail Bag 71

YUNGABURRA QLD 4879



### DISCLAIMER:

Opinions expressed in this Newsletter are not necessarily that of FNQ Wildlife Rescue.

### PUBLIC INFORMATION:

The Croaker is the Newsletter of the Tablelands Frog Club Incorporated. This Newsletter is produced by the voluntary efforts of members. We gratefully accept all contributions, however limited space may mean that contributions are not included immediately, and all are subject to editorial discretion. The TFC newsletter is published bimonthly (i.e. February, April, June, August, October, & December). Newsletter submissions are due on the 15th of the preceding month. Please direct all contributions to The Editor c/o Tablelands Frog Club, at the addresses listed above.

TFC meetings/nights and field trips/outings are held monthly. See schedule for dates, speakers and locations. Annual membership fees are:

- \$15.00 Adults
- \$15.00 Family
- \$ 5.00 Junior/Associate

The Croaker is now available as a PDF to members that have access to email. The PDF version of The Croaker is in full colour, and contains more information than mail-out photocopied versions. Email costs less to send out, and doesn't waste paper and other resources, making it good for the Tablelands Frog Club and the environment. To take advantage of this service, contact the Tablelands Frog Club with your email details. You will need Adobe Acrobat Reader to open PDF files. The latest version of Adobe Acrobat Reader is available as a free download from:



<http://www.adobe.com/downloads/>

<http://www.tablelandfrogclub.com>

## Editorial

Hello everyone and welcome to *The Croaker*. Many long-term members will recognise a change in the Newsletter format, along with a change in the Editorial. Michael Anthony and myself have compiled an array of news articles for your information and enjoyment. Along with a few other changes, I would like to introduce a new commentary that I will call "in the spotlight." In each issue of *The Croaker* I would like to focus our spotlights on one particular species of frog, hence the title in the spotlight. I will let everyone know what species will be in focus for the next newsletter edition... then you can send in all your data on this species. Send us your observations, be it localities, unusual annotations, or anecdotal evidence. Send us photos, biological information, natural history, ecology. Tell us about your experiences, funny, fatal or familiar, with this frog. Do you have any historical data, references or stories? Have you kept them in captivity, bred them, or raised tadpoles? Share your knowledge, as little or as vast as it may be, with the rest of the club members. We are all interested. Hopefully by now you are telling me to get on with it and name the frog! We will start with a familiar, loveable species, that is close to our hearts, and features on our logo... the Green Tree Frog *Litoria caerulea*.

Similarly, don't forget *Kids Corner*, which is aimed at the younger group and conducts various competitions with appropriate educational prizes. Finally, *The Croaker* is your newsletter, and your way of communicating with other members. Please use it, read it and contribute as much as you can. All submissions, letters, feedback, etc., should be sent to the Editor, c/o TFG at the address on page 2. Now hop to it!

Regards... Darren Green



### Front Cover

White-lipped Tree Frog (*Litoria infrafrenata*) from Crystal Cascades (Photo by Michael Anthony).

### Our Story

The Tablelands Frog Club was formed in January 1995 in Yungaburra by a group of people who were aware of diminishing numbers of frogs in all areas and who were keen to learn more about the species in general. From the outset guidance was available from experts in the field. Since that time public interest has been constant and the Club has grown rapidly. Frog enthusiasts have joined from as far afield as Adelaide in the south to Weipa in the north. The pooling of Club members' expertise in various related fields has helped the Club to become established and recognised within the community. Membership numbers reached 94 within the first year and are still increasing. On November 17, 1995, the Club became incorporated under the Queensland Associations Incorporation Act 1981. The Club now operates under appropriate rules.

### What can I do as a member?

The Club needs all the support and enthusiasm you can provide to help us to achieve a better understanding of these much overlooked animals. Some of the rare species are facing extinction at this very moment. We need assistance to address the many problems which threaten the livelihood of these vulnerable creatures by improving our knowledge of their habits and habitat, by enhancing their environment and by educating our children and the public at large on these issues.

**Education:** The Club offers many opportunities for you to learn about frogs and in turn to educate others.

**Research:** Grant applications are made by the Club as an incorporated body and research is led by social scientists who provide you with the opportunity to participate in this work. The Club maintains an information database on frog distribution and invites your input.

**Protection of frog environment and breeding:** The Club provides guidance and knowledge on how to protect and create friendly frog environments and how to set up a breeding programme for common species in your garden.

### Our Aims

**To study frogs:** The Club meets once a month with professional guest speakers and relevant videos. Members are encouraged to participate in general discussion and to introduce items of interest. A mobile library of scientific and general information on frogs is available at these meetings. Members recordings of frog distribution and animal husbandry are collated on a database for research purposes. The Club conducts workshops and field trips with professional guidance. The Croaker, the Club's newsletter, contains scientific information, contributions from both adult and junior members and general business matters of the Club.

**To conserve and encourage the preservation of frogs:** The Club has a Code of Conduct and abides by the Nature Conservation Act 1992, runs public awareness campaigns through the media, displays static educational material, encourages a 'Frog Friendly' environment and guides members on breeding programmes of common species in gardens and urban parks.

**To encourage children's interest in frogs:** The Club holds workshops suitable for junior members, runs a section called 'Kid's Corner' in the newsletter aimed at the younger group and conducts various competitions with appropriate educational prizes. The Club also guides children in frog breeding programmes and encourages them, under parental guidance, to participate in suitable field trips.

# President's report

Welcome to the Tablelands Frog Club's new newsletter. And new look club!

Before I say any more I would like to thank those who have served the club as committee members over previous years for all their hard work. Two of these people, Chris Tsilemanis and Beryl Davidson have been the backbone of the club for many years, as President and Secretary, along with Inge Lorenz who was Treasurer for many years and is still on the committee.

Thanks also to two members of last years committee, Margaret Eggers (Secretary) and Claudine Grandjean (Treasurer). Claudine is now working on a website for the Club.

I would also like to thank Steve Richards who gave us a memorable talk on his frog work in Irian Jaya at our AGM in March. We had a great attendance (the hall was full to bursting) and we also received 11 new memberships via one person, Dr Amber Gillett, who attended the meeting, from the Australian Wildlife Hospital at Australia Zoo.



species you are observing, you could send a photo, or recording of a call to the club and someone can identify it for you. The information will be available on our website.

All observations are worthwhile, there is really little information about even common species of frog.

A good recording of a frogs call is the one most valuable means of identification, and in some cases almost the only way. A CD, Australian Frog Calls Tropical North-east, by Dave Stewart is the best tool you can have for identifying frogs (available from the club). Good books include A Field Guide to Australian Frogs by Barker, Grigg and Tyler, Wildlife of Tropical Queensland by the Qld Museum (a great little book which also includes other types of animals in this region) and Reptiles & Amphibians of Australia by Harold Cogger (also indispensable for reptile enthusiasts). Eric Vanderduys is working on a book on Queensland Frogs that we are eagerly awaiting. We hope that Eric may be able to attend our photo night, you never know, one of your photos might end up in a book!

**<http://www.tablelandfrogclub.com>**

As you can see we have virtually a brand new committee this year. All of the executive committee is now based in Cairns, so we will be moving our meetings around between Cairns and the Tablelands.

As mentioned we will also have our own website very soon, the address will be advised in our next newsletter. Members are also urged to join the Frogs Australia Network [www.frogsaustralia.net.au](http://www.frogsaustralia.net.au). Go to the website and click on the "Join" tab and fill out the online application form. This site has lots of information about frogs and the frog community in Australia, and it's free!

We would like to start sending our newsletter out via email, for two reasons. Firstly we can include a lot more information this way and secondly it saves on paper, postage and time! So please send in your email addresses to [capeherp@hotmail.com](mailto:capeherp@hotmail.com) to register for online newsletters. Of course we will still send paper newsletters out to those who don't have access to email. If you have any items for the newsletter, stories, photos or links to websites of interest please send them in and we will endeavour to include them in the next available newsletter.

Another project we have planned is to start a database of frog records from members. A worthwhile observation record should include the following: scientific name, date, time, the name of the person making the observation and a specific locality. The best way of recording locality is with latitude & longitude (from map or GPS), but a simple home address or distance and direction from a known point (eg post office of a town) is valuable. If you aren't sure of the

Our program of field outings will continue, chances to see some of our frogs in their habitat. There will be some easy short trips and some more strenuous expeditions deep into the forest or up mountains.

Also we hope to hold the Frog Festival again this year which didn't happen last year due to technical difficulties. Although a lot of hard work, frog festivals in the past have been very rewarding and enjoyable events for the club and a great way for the public to find out more about frogs. Planning for this will begin soon, please let the committee know if you can help out or even if you can take on an organisational role for the festival

The new committee hopes that you all enjoy this year's program and look forward to your feedback and suggestions.

**Michael Anthony**

**Frogs Australia**  
NETWORK   
**<http://frogsaustralia.net.au/>**

# Schedule of events...

Dates, times & localities will be confirmed in the newsletter prior to meetings and field trips.

## Meetings...

### Friday 22nd June 2007

Michael Cermak with a presentation on a recent trip to Borneo, CWA Hall, Yungaburra.

### Tuesday 14th August 2007

Michael Anthony with a presentation on the frogs of the Wet Tropics & Hinterland, Cominos House, Cairns (Far North Queensland Wildlife Rescue meeting).

### Friday September 21 2007

A members photo night – bring in any of your photos, slides or digital for ID or just to show to other members.

### October 2007 TBA

Laws relating to keeping of frogs & tadpoles.

### Friday 16th November 2007

The Wilderness Society's Cape York Presentation, CWA Hall, Yungaburra.

### January 2008 TBA

Marion Anstis on North Queensland Tadpoles, Cairns.

### February 2008 TBA

To be announced.

### March 2008 TBA

Annual General Meeting.

## Events...

### October TBA

Frog Festival

## Field trips...

### 21st July 2007

Walsh River / Chillagoe (weekend).

### 18th August 2007

Mt Baldy & Wongabel State Forest (Saturday night, short walks).

### 22nd September 2007

Daintree (weekend).

### October 2007 TBA

Koolmoon Creek (weekend, long hike but can do just part of trail).

### 17th November 2007

Mt Fisher (third highest peak in Queensland but start at altitude).

### 15th December 2007

Mt Carbine (Saturday, hopefully coincide with first major storms).

### February 2008 TBA

Mareeba Wetlands (Saturday night, easy walking).

# TFC Members...

Dr Amber Gillett  
Cheryl Lammeretz  
Jo Loader  
Kia Bailey  
Bonnie Arbon  
Clarissa Morris  
Sue Morris  
Tricia Schilling  
Dr Stacey Gelis  
Dr Che Phillips  
Kent Jozefowski  
Cindy Harkness  
J & M Sweetzer  
Dominic Chaplin  
Alan Gillanders  
Mandy Lindsay  
Michael Anthony  
Keith Martin  
Murray Wellington  
Marney Fichera  
Eleanor Duignan  
Judy Catchpole  
Murray Powdren  
Grant Turner  
Margret Egger  
Neville Simpson  
Marney Fichera

Beerwah  
Peachester  
Glass House Mountains  
Glass House Mountains  
Caboolture  
Landsborough  
Landsborough  
Reesville  
Beerwah  
Beerwah  
Kallangur  
Edge Hill  
Malanda  
Bungalow  
Yungaburra  
Atherton  
Whitfield  
Clifton Beach  
Speewah  
Mooroobool  
Whitfield  
Chambers Flat  
Yorkeys Knob  
Innisfail  
Yungaburra  
Yungaburra  
Mooroobool

Bevan Pritchard  
John Booy  
Inga Lorenz  
Claudine Grandjean  
Merv Robson  
Maria Destro  
Shaun Cook  
Jo & Darren Green

Atherton  
Gordonvale  
Malanda  
Yungaburra  
Malanda  
Whitfield  
Whitfield  
Cairns

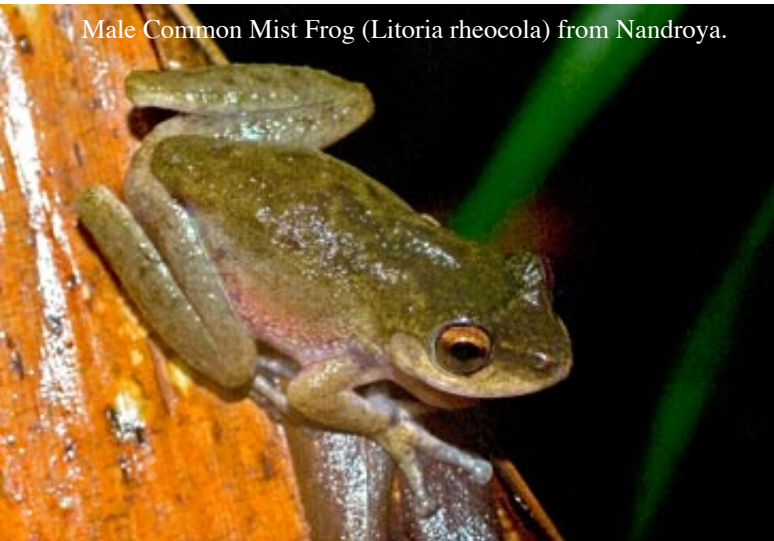


# Field trip report

## Nandroya Falls...

A field trip was held to Nandroya Falls on the 29th of April, part of an ongoing survey of the frogs along 100 metres of creek near Nandroya Falls, in Wooroonooran National Park.

This time of year was chosen as in the past it has proven to be the best time to observe frogs, in particular the Common Mist Frog *Litoria rheocola*. We weren't disappointed, with 72 individuals recorded. The largest number recorded in a survey was 142, in March 1997. The bulk of the frogs were on rocks in or beside the stream, with only 10 on vegetation. There were also a number of specimens at Silver Falls observed on the way out.



Male Common Mist Frog (*Litoria rheocola*) from Nandroya.



Left & below:  
Female Common Mist  
Frog (*Litoria rheocola*)  
with eggs from  
Nandroya.



Two young Eastern Water dragons *Physignathus lesueurii* were found, asleep on streamside vegetation from which they leap into the water when disturbed. Approximately 30 small skinks *Saproscincus basiliscus* were also found doing the same thing, only on lower vegetation. They jump to the ground from their perch and disappear into ground litter. A Long-finned Eel *Anguilla reinhardtii* was in the creek.

Other frogs observed at both sites were the Waterfall Frog *Litoria nannotis* and the Green-eyed Treefrog *Litoria genimaculata*. On the 2.2 km track through the rainforest we also observed Northern Stony Creek Frogs *Litoria jungguy* and Northern Barred Frogs *Mixophyes schevilli*.

Despite extensive damage during recent cyclone Larry, frog populations appear healthy so far, however full recovery of the habitat is a long way off.

TEXT & PHOTOS: Michael Anthony.



Northern Barred Frog (*Mixophyes schevilli*) from Nandroya



## Note from the Editor

The Croaker is your Newsletter. If you have any feedback, comments or additions, please forward them to the TFC (see page 2 for address). If you have anything interesting, perhaps good or sad news, then perhaps we could all learn from it. Don't let anything be forgotten, send it in for others to read. Remember, we all have different knowledge and experiences, let's share it so that we all may benefit.

# Amphibian news...

## Purple frog found in Suriname

WASHINGTON (Reuters) - A purple fluorescent frog is one of 24 new species found in the South American highlands of Suriname, conservationists reported on Monday, warning that these creatures are threatened by illegal gold mining. The discovery of so many species outside the insect realm is extraordinary and points up the need to survey distant regions, said Leeanne Alonso of Conservation International, which led the expedition that found the new species. "When you go to these places that are so unexplored and so remote, we do tend to find new species ... but most of them are insects," Alonso said by telephone from Suriname's capital, Paramaribo. "What's really exciting here is we found a lot of new species of frogs and fish as well."

The two-tone frog - whose skin is covered with irregular fluorescent lavender loops on a background of aubergine - was discovered in 2006 as part of a survey of Suriname's Nassau plateau, the conservation group said. Scientists combing Suriname's Nassau plateau and Lely Mountains found four other new frog species aside from the purple one, six species of fish, 12 dung beetles and a new ant species, the organization said in a statement.

These creatures were discovered by 13 scientists who explored a region about 80 miles southeast



of Paramaribo, including areas with enough clean fresh water sources to support abundant fish and amphibians. They also found 27 species native to the Guayana Shield region, which spreads over Suriname, Guyana, French Guiana and northern Brazil. One of these was the rare armored catfish, which conservationists feared was extinct because gold miners had contaminated a creek where it was last seen 50 years ago. Including the new species, the scientists observed 467 species at the two sites, ranging from large cats like panthers and pumas, to monkeys, reptiles, bats and insects.

While these places are far from human civilization, they are totally unprotected and may be threatened by illegal gold-mining, Alonso said. These highland areas have also been investigated as sources of bauxite, used to make aluminum, but will most likely not be mined in the future, she said, at least not by the two mining companies that sponsored the study. The sponsors are BHP Billiton Maatschappij Suriname (BMS, a subsidiary of BHP Billiton) Suriname Aluminium Company LLC (Suralco, a subsidiary of Alcoa Inc). "It's an opportunity now for all the players, the mining companies who still have mining concessions there, the local communities, the government, the NGOs (non-governmental organizations), to try to make a regional plan for the area," Alonso said.

AUTHOR: Deborah Zabarenko (Mon Jun 4, 2007)

SOURCE: <http://www.reuters.com/article/environmentNews/idUSN0449513020070604?src=060>

PHOTO CAPTION: This remarkable looking toad may be a new species to science. It's from the genus *Atelopus*, and was discovered during a follow-up survey of the Nassau plateau in mid 2006 by Surinamese scientists Paul Ouboter and Jan Mol. A population of these toads would be of significant concern, especially as it was found at the more disturbed of the two survey sites. This genus contains a number of neotropical species, many of which are listed on the IUCN Red List of Threatened Species due to population declines. (Credit: Copyright Paul Ouboter).

Also see: <http://www.sciencedaily.com/releases/2007/06/070604123843.htm>

## Pesticide brochure

As a result of a court order of the US District Court for the Northern District of California, the EPA has created an informational brochure including a description of California red-legged frogs and how to minimize pesticide exposure to amphibians. Go to...

<http://www.epa.gov/espp/litigation/redleg-frog/rif-brochure.pdf>

## Probiotics Could Save Frogs

Bacterial Baths Help Amphibians Fight Off Fungus. The Mountain yellow-legged frog of California is plagued by fungal infections. Planting bacteria on frogs' skin might help to save amphibians from their global decline, hints new research. The work shows that frog probiotics can help to fight off a lethal fungus.

Many populations of amphibians are plummeting, and some have already gone extinct. One of the major causes is a fungus called *Batrachochytrium dendrobatidis*, which lives on the skin of some frogs and salamanders.

As in humans, amphibians host a community of bacteria on their skin. So Reid Harris at James Madison University in Harrisonburg, Virginia, wondered whether the community carried by amphibians susceptible to *B.dendrobatidis* had lost its ability to fight off the fungus.

To test this idea, Harris and his colleagues isolated different bacterial species from the skin of a common salamander. They put the each of these species on top of some *B.dendrobatidis* growing in a Petri dish — and found that several of them killed off a patch of the fungus1.

Now they have shown that at least one of these bacterial species — *Pedobacter cryoconitis* — can help amphibians to survive. The team allowed red-backed salamanders to swim in a bath of this bacteria for two hours, and then infected them with the lethal fungus.

When tested 18 days later, the salamanders given the bacterial bath were nearly 30% more likely to have rid themselves of the fungal infection than were the untreated animals. Harris speculates that the bacterium is probably making a natural antibiotic. He reported his results at a meeting on microbes and conservation at the American Museum of Natural History in New York on 26 April.

Another bacterium, called *Pseudomonas reactans*, actually made the salamanders more susceptible to the fungus, perhaps because it displaced regular, infection-fighting bacteria from the skin. Harris suggests that environmental stresses such as climate change or pollution might change an amphibian's community of skin bacteria. The stressed animals might make less skin mucus, on which the bacteria feed, or they may make more stress hormones, which would encourage different bacterial species.

Exposing threatened amphibians to the fungus-fighting bacteria, perhaps by adding it to ponds or sites that they frequent, might help to reverse some of the population decline, Harris suggests. With few other options available, this strategy is worth pursuing, he says: 'It's the only thing that's offered a glimmer of hope'.

'I think it's a very promising area that needs to be pursued,' says Louise Rollins-Smith, who studies amphibian immunology at Vanderbilt University in Nashville, Tennessee. 'It's such an important conservation problem. Any information on a mechanism that could protect them is valuable.' Because it is unclear how long the effect of the bacteria will last, the microbes might have to be introduced again and again.

The idea is akin to the probiotic food and drinks that some people swallow to try and change the community of microbes living in their guts. Some researchers are also toying with the idea of developing probiotics for human skin. Probiotics have also been used in aquaculture - in fish food or simply in the water - to try and increase yields.

Harris now plans to collaborate with colleagues in California to test whether the probiotic protects the Mountain yellow-legged frog (*Rana muscosa*), an endangered species that usually succumbs to the fungus.

Author: Helen Pearson, Newsnature.com, 3/7/2007.

References: Harris R. N., James T. Y., Lauer A., Simon M. A. & Patel A. (2006) *EcoHealth* 3: 53-56.



# Amphibian news...

## Chytrid fungus plan

Australia's native amphibians are threatened by a pathogenic fungus, *Batrachochytrium dendrobatidis*, known as amphibian chytrid fungus, which causes the infection known as chytridiomycosis. It appears that the amphibian chytrid was introduced to southeast Queensland in the mid to late 1970s, and subsequently spread across eastern Australia, from northern Queensland to Melbourne in Victoria.

The effects of chytridiomycosis on amphibian populations, particularly those in upland eastern Australia, have been devastating with at least one population driven to extinction, and threatened species status of others worsened. Chytridiomycosis has now been identified in 52 per cent of threatened amphibian species. The level of the threat and its distribution could easily increase by movement of infected amphibians to chytridiomycosis-free areas and consequent escape of chytridiomycosis new wild amphibian populations.

Infection of amphibians with chytrid fungus resulting in chytridiomycosis is listed as a key threatening process under the Environment Protection and Biodiversity Conservation Act 1999. At the time of listing, the Australian Government Minister for the Environment & Heritage determined that having a threat abatement plan (TAP) was a feasible, effective and efficient way to abate the infection process, and directed a nationally coordinated threat abatement plan be prepared to guide management of the impact of the amphibian chytrid fungus on Australian amphibians.

The Department of the Environment and Heritage released the Threat Abatement Plan: Infection of Amphibians with Chytrid Fungus Resulting in Chytridiomycosis in 2006. This publication is available on the Internet at: [www.deh.gov.au/biodiversity/threatened/publications/tap/chytrid/](http://www.deh.gov.au/biodiversity/threatened/publications/tap/chytrid/)

While eradication of *B.dendrobatidis* is not possible at present, well developed management plans based on current knowledge can assist in restricting the impact and spread of known infestations of the amphibian chytrid and limit spread to new sites. This TAP aims to minimise the impact of chytridiomycosis on Australian amphibian populations. The TAP has two broad goals:

First, to prevent amphibian populations or regions that are currently chytridiomycosis-free from becoming infected by preventing further spread of the amphibian chytrid within Australia. Second, to decrease the impact of infection with the amphibian chytrid fungus on populations that are currently infected.

Actions will implement currently available strategies for control of chytridiomycosis, provide for the development of new techniques, conduct national surveys to improve our understanding of the extent of the pathogen in Australia and improve our understanding of the pathogen and its effects. A critical performance indicator will be the stability of currently infected amphibian populations and the continuing chytridiomycosis-free status of amphibians in non-infected regions.

Detailed information supporting this plan on amphibian chytrid biology, population dynamics, spread, diagnosis, impacts on biodiversity, and management considerations and measures, are in the Background Document for the Threat Abatement Plan: Infection of Amphibians with Chytrid Fungus Resulting in Chytridiomycosis, and can be found at: [www.deh.gov.au/biodiversity/threatened/publications/tap/chytrid/](http://www.deh.gov.au/biodiversity/threatened/publications/tap/chytrid/)

## Research abstract

Whitfield, S.M., Bell, K.E., Philippi, T., Sasa, M., Bolanos, F., Chaves, G., Savage, J.M. & Donnelly, M.A. (not stated) Amphibian & Reptile Declines Over 35 years at La Selva, Costa Rica: 'Fewer leaves' behind frog demise, *Proc. Natl. Acad. Sci. USA*, 10.1073/pnas.0611256104.

Amphibians stand at the forefront of a global biodiversity crisis. More than one-third of amphibian species are globally threatened, and over 120 species have likely suffered global extinction since 1980. Most alarmingly, many rapid declines and extinctions are occurring in pristine sites lacking obvious adverse effects of human activities.

The causes of these 'enigmatic' declines remain highly contested. Still, lack of long-term data on amphibian populations severely limits our understanding of the distribution of amphibian declines, and therefore the ultimate causes of these declines. Here, the authors identify a systematic community-wide decline in populations of terrestrial amphibians at La Selva Biological Station, a protected old-growth lowland rainforest in lower Central America. They use data collected over 35 years to show that population density of all species of terrestrial amphibians has declined by 75% since 1970, and show identical trends for all species of common reptiles. The trends they identify are neither consistent with recent emergence of chytridiomycosis nor the climate-linked epidemic hypothesis, two leading putative causes of enigmatic amphibian declines. Instead, their data suggest that declines

are due to climate-driven reductions in the quantity of standing leaf litter, a critical microhabitat for amphibians and reptiles in this assemblage. The author's results raise further concerns about the global persistence of amphibian populations by identifying widespread declines in species and habitats that are not currently recognized as susceptible to such risks.



## Frog in the city

I was walking along the footpath of a busy street the other day. I was in the heart of the city with a naturalist friend. We spoke of his encounters with all sorts of animals and plants, when suddenly he stopped and stood still.

"Can you hear that?" he asked, gesturing to some shrubs lining the entrance to a building.

"Hear what?" I replied, puzzled by the sudden stop.

"Listen."

I remained at a standstill and watched as the naturalist move towards the bushes. All manner of sounds were drowned out by the noise of cars, and hustle and bustle of the people as they busily when about their business.

"There" he said, pointing into one of the shrubs, "a frog."

I looked closely, and there, sitting on the stem of the plant sat a small frog, throat sac inflated and letting out this almost inaudible "cree-eee-eek."

"How did you hear that?" I asked, thinking of all manner of humming around me.

"I guess it is what you are used to and what you value."

He pulled a coin from his pocket and held it at arms length.

"Watch." He dropped the coin onto the concrete paving.

Everyone around me stopped and listened as the coin rolled onto the road.



# Amphibian news...

## Frog Love Song

Science Daily — Why do predators and parasites eavesdropping on mating signals of their prey preferentially attack individuals producing certain types of call? Predators could use information encoded in calls to decide whom to attack. Researchers from the University of Texas at Austin and the Smithsonian Tropical Research Institute explored the mechanisms driving such signal preferences in predators and parasites that use túngara frog mating calls to find their prey. Their research appears in the March issue of the *American Naturalist*.

Male túngara frogs produce two types of calls to attract females: simple calls that consist of frequency-modulated sweeps called “whines” and complex calls that consist of whines followed by short, broadband secondary components called “chucks.” Female túngara frogs, as well as unintended receivers such as frog-eating bats and blood-sucking flies, prefer complex to simple mating calls. Bernal, Page, Rand, and Ryan tested whether bats and flies prefer complex calls because they indicate higher quality males and/or higher male density. The authors found that call complexity is not correlated with the frogs’ length, mass, or body condition, and thus does not signal their quality. Complex calls, however, indicate higher abundance of prey/host. Thus increased effectiveness of attack may have played a role favoring the preference for complex calls in eavesdroppers.

Bernal, X.E., Page, R.A., Rand, S. & Ryans, M.J. (not stated), Cues for Eavesdroppers: Do Frog Calls Indicate Prey Density & Quality? *American Naturalist* 169:409-415.

## Warmer Climate Linked To Earlier Frog Calling

Science Daily — Bolstering evidence that climate warming is hastening biological signs of spring, new research shows that frogs are calling up to two weeks earlier near Ithaca, New York. This is the strongest evidence of a biological response to climate change in eastern North America. “We have found a compelling connection between changes in the calling dates of frogs and changes in local air temperatures,” says James Gibbs of State University of New York in Syracuse, who did this work with Alvin Breisch of the New York State Department of Environmental Conservation in Delmar, New York. This work is in the August issue of *Conservation Biology*.

Long-term studies show that amphibians and songbirds are breeding earlier in Europe. Similarly, reports suggest that birds are arriving earlier, and mammals and wildflowers are emerging earlier in the U.S. To assess climate change over the last century in the Ithaca area, Gibbs and Breisch used historical records of the average daily maximum temperatures from November through June, which are key months for the timing of frog reproduction. During five of these key months, the temperatures increased about 2 to 4oF. To determine the earliest calling dates of six frog species in the area, the researchers used existing studies of two time periods: 1900- 1912 and 1990-1999. The researchers found that four of the species (spring peeper, wood frog, gray treefrog bullfrog) are calling 10-13 days earlier, while two (green frog, American toad) have not changed their earliest calling dates.

Climate warming will probably have little impact on most of the frogs studied because Ithaca is in the middle of their breeding ranges. However, climate warming could affect species at the edges of their ranges. For example, while the current southern limit for mink frogs is about 90 miles north of Ithaca, warmer temperatures could rapidly push that limit northward. “Mink frogs would be expected to show predictable, local declines if local climate warming continues,” caution Gibbs and Breisch.

For more information about the Society for Conservation Biology: <http://conbio.net/scb/>

### WEBSITES:

Global Phenology Monitoring: <http://www.student.wau.nl/~arnold/gpmn.html>

Government of Canada Climate Change Website: <http://www.climatechange.gc.ca/english/index.shtml>

Environment Canada's Global Climate Change Q&A: [http://www.msc.smc.ec.gc.ca/od/climate/toc\\_e.cfm](http://www.msc.smc.ec.gc.ca/od/climate/toc_e.cfm)

## Deadly Frog Disease Is Spreading

Science Daily — The deadly chytrid fungus is making devastating in-roads into Australia’s vulnerable frog populations, with a Griffith University study revealing the disease-causing fungus is now established in frog populations throughout Eastern Australia. Griffith researcher Kerry Kriger has just completed a PhD study within the Endangered Frog Research Group in Griffith University’s Centre for Innovative Conservation Strategies, focusing on the geography of the disease across the region from the mountains to the coast between Cairns and southern NSW.

Kerry said that chytridiomycosis – the disease caused by the fungus – was likely absent from Queensland until 1978. It is now prevalent in moist, temperate areas around Australia, and around the world. Scientists theorize the rapid spread has been driven by international trade in amphibians as well as environmental factors. “Chytrid has spread so quickly that frogs often have no chance to evolve resistance to it,” Kerry said. “It’s highly infectious, so when it arrives in an area most frogs are likely to contract it. It attacks the keratin in the frogs’ skin, and may also produce a toxin that poisons the frog. The disease can have an 80 per cent mortality rate, and is already believed to be responsible for 6-8 species extinctions in eastern Australia. “Overseas dozens of species have disappeared due to the disease.”

Kerry said research was underway around Australia to understand and control the disease, both through fungicidal treatment of infected tadpoles and frogs, and large scale preventative measures such as limiting the import and transport of amphibians between areas and countries.

Unfortunately, the fungus does not threaten cane toad populations. Project supervisor and Research Centre Director Associate Professor Jean-Marc Hero said at least one-third of the world’s 6,060 amphibian species are threatened with extinction. “Frogs are recognised as an important bio-indicator,



acting as an early warning system for environmental problems. While habitat loss is the greatest threat to coastal frogs, this new disease has had devastating effects in the frog populations in the hinterland regions,” he said. “Additional pressures including habitat loss, air and water-borne pollutants such as herbicides and even climate change could weaken frogs’ immune systems, and make them more prone to fungal infections,” Associate Professor Hero said. Members of the public can help reduce the spread of this fungal pathogen by not handling frogs and not re-locating frogs or tadpoles from one place to another.

PHOTO: Researchers swab a small frog (*Litoria wilcoxii*). (Credit: Kerry Kriger).

## Amphibian course

Highlands Biological Station is offering the course ‘Conservation Biology of Amphibians’ by Dr. Raymond D. Semlitsch May 28 - June 9 in Highlands, North Carolina this year. This course is designed for advanced students and wildlife professionals who are interested in understanding the basic processes that regulate natural populations of amphibians, as well as contemporary problems associated with the conservation of amphibian diversity. Course participants will engage in a field project on the effects of forest management practices on woodland salamanders and sharpen their communication skills through individual presentations on selected topics. More information about the course and a syllabus can be found at <http://www.wcu.edu/hbs/currentrcourses.htm#semlitsch>

## Sabin Award 2007

On May 17 the ASG honored the first recipient of the Sabin Award for Amphibian Conservation at an awards luncheon in New York. Thanks to a generous donation from Mr Andrew Sabin, this annual award will recognize an individual or group that has made significant contributions to amphibian conservation. The first award went to Dr Luis Coloma from the Pontificia Universidad Catolica del Ecuador. Despite being a relatively small country, Ecuador is ranked third in the world for total number of amphibian species (447) and number of threatened species (163). Dr Luis Coloma’s research has advanced our understanding of why frogs and salamanders are disappearing so rapidly in the Andes region of South America. In addition, he has led a broad campaign in his country to educate his fellow countrymen on the plight of amphibians and what can be done to save them. He is also implementing conservation projects to save species most at risk. At the luncheon, introductory speeches by Dr Claude Gascon and Mr Andrew Sabin were followed by a moving presentation by Dr Coloma about the status of amphibians in Ecuador and efforts to protect them.

SOURCE: Herpdigest <http://www.herpdigest.org>



# Amphibian news...

## Regenerative Medicine Advance

Science Daily — Scientists at Forsyth may have moved one step closer to regenerating human spinal cord tissue by artificially inducing a frog tadpole to re-grow its tail at a stage in its development when it is normally impossible. Using a variety of methods including a kind of gene therapy, the scientists altered the electrical properties of cells thus inducing regeneration. This discovery may provide clues about how bioelectricity can be used to help humans regenerate.

This study, for the first time, gave scientists a direct glimpse of the source of natural electric fields that are crucial for regeneration, as well as revealing how these are produced. In addition, the findings provide the first detailed mechanistic synthesis of bioelectrical, molecular-genetic, and cell-biological events underlying the regeneration of a complex vertebrate structure that includes skin, muscle, vasculature and critically spinal cord. Although the *Xenopus* (frog) tadpole sometimes has the ability to re-grow its tail, there are specific times during its development that regeneration does not take place (much as human children lose the ability to regenerate finger-tips after 7 years of age). During the Forsyth study, the activity of a yeast proton pump (which produces H<sup>+</sup> ion flow and thus sets up regions of higher and lower pH) triggered the regeneration of the frog's tail during the normally quiescent time. This research will be published in the April issue of *Development* and will appear online on February 28, 2007.

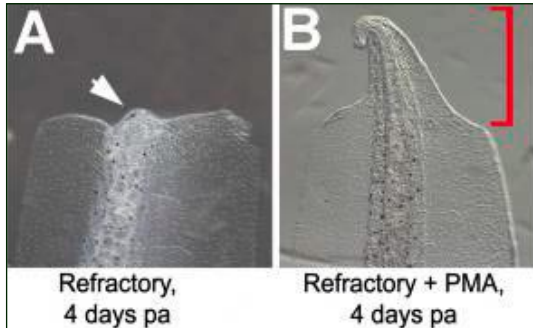
According to the publication's first author, Dany Adams, Ph.D., Assistant Research Investigator at the Forsyth Institute, applied electric fields have long been known to enhance regeneration in amphibia, and in fact have led to clinical trials in human patients. "However, the molecular sources of relevant currents and the mechanisms underlying their control have remained poorly understood," said Adams. "To truly make strides in regenerative medicine, we need to understand the innate components that underlie bioelectrical events during normal development and regeneration. Our ability to stop regeneration by blocking a particular H<sup>+</sup> pump and to induce regeneration when it is normally absent, means we have found at least one critical component."

The research team, led by Michael Levin, Ph.D., Director of the Forsyth Center for Regenerative and Developmental Biology has been using the *Xenopus* tadpole to study

regeneration because it provides an opportunity to see how much can be done with non-embryonic (somatic) cells during regeneration, and it is a perfect model system in which to understand how movement of electric charges leads to the ability to re-grow a fully functioning tail. Furthermore, said Dr. Levin, tail regeneration in *Xenopus* is more likely to be similar to tissue renewal in human beings than some other regenerative model systems. The Forsyth scientists previously studied the role that apoptosis, a process of programmed cell death in multicellular organisms, plays in regeneration.

Michael Levin, PhD. is an Associate Member of the Staff in The Forsyth Institute Department of Cytokine Biology and the Director of the Forsyth Center for Regenerative and Developmental Biology. Through experimental approaches and mathematical modeling, Dr. Levin and his team examine the processes governing large-scale pattern formation and biological information storage during animal embryogenesis. The lab investigates mechanisms of signaling between cells and tissues that allows a living system to reliably generate and maintain a complex morphology. The Levin team studies these processes in the context of embryonic development and regeneration, with a particular focus on the biophysics of cell behavior.

PHOTO: Using a variety of methods including a kind of gene therapy, the scientists altered the electrical properties of cells thus inducing regeneration. This discovery may provide clues about how bioelectricity can be used to help humans regenerate. (Credit: Image courtesy of Forsyth Institute)



## Tree Frog Adhesion

Science Daily — Tree frogs have the unique ability to stick to smooth surfaces even when they are tilted well beyond the vertical - some small tree frogs can even adhere when completely upside down. Conversely when walking or jumping they can detach their toe pads easily. Researchers from the University of Glasgow presented insights into how this fascinating ability is controlled at the Society for Experimental Biology's Annual Meeting in Glasgow, UK.

"The toe pads of tree frogs are coated with a thin mucus which adhere to surfaces by wet adhesion, like wet tissue paper sticking to glass. The process by which they detach their toe pads is called peeling and is akin to us removing a sticking plaster from ourselves," explains Dr Jon Barnes, head of the research group, "We were keen to understand why a tree frog on an overhanging surface didn't simply peel off rather than adhere."

To investigate this, scientists measured adhesive and frictional forces simultaneously on individual toe pads of White's tree frogs (Family Hylidae), while varying the surface angle. It was found that the change from adhesion to peeling is a gradual process, with adhesive forces weakening at angles above 90°. Thus frogs maintain a grip by keeping the angle of their toes with respect to a surface at a low value, and detach when this angle increases beyond 90°. By examining the behaviour of the frogs researchers were able to correlate this observation with how the animals positioned their legs - they spread their legs out sideways to minimise the angle between their feet and the surface.

The researchers also visited Trinidad to address the problem faced by larger tree frogs, who do not adhere to surfaces very well. To partially compensate for this, larger frogs have adapted to grasp objects, and can climb in a similar manner to humans. Thus the largest species of tree frog are often found higher up in trees, while smaller species are commonly found in shrubs only a metre or so above the ground.

## Fungus symposium

The U.S. Fish and Wildlife Service and the Partners in Amphibian and Reptile Conservation (PARC) are organizing an international symposium on the chytrid fungus *Batrachochytrium dendrobatidis*. The purpose of the symposium will be to bring together researchers and managers to discuss our current knowledge of this organism and its impacts on worldwide amphibian populations and to strategize ways to prevent its spread and manage effected populations. The symposium is going to be held 5-7 November 2007 at the Sheraton Phoenix Airport Hotel in Tempe Arizona, USA. For additional information please contact Dr. Robert Bakal, (Robert\_Bakal@fws.gov.).

## Bd Mapping Project

Bd (*Batrachochytrium dendrobatidis*) is the amphibian chytrid fungus that may be contributing to worldwide amphibian losses. To synthesize our knowledge of Bd, including both science and management aspects, a Bd Symposium is being planned in Tempe, Arizona, USA, 5-7 November 2007. For this symposium, we have launched a Bd Mapping Project: we are compiling localities of Bd detections (and surveys with no detections) in order to present a snapshot of its current global geographic scope. For the Bd Symposium, locations will be mapped at a fairly coarse resolution for display of global patterns. Maps will be shown at the Symposium in a presentation, and may be published in an article for a journal issue that will present the key papers from the Symposium. After the conference, data may reside with regional coordinators, or other agencies and institutions for continued updates (e.g., the Amphibian Specialist Group [formerly the DAPTF]). The maps may be displayed on the web, either as a result of the conference or in association with these groups.

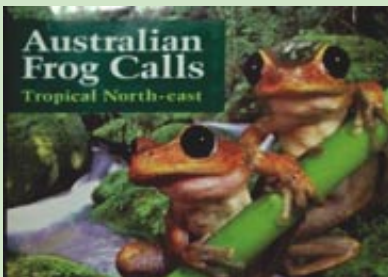
We are asking for volunteer regional coordinators to help compile Bd information for their area, which will be assembled for mapping in September and October, 2007. We give thanks to the many of you that have already volunteered to spearhead this in your country or area. We have not found coordinators for many regions, however. Can you help for your region? For further information about the Bd mapping project please contact Dede Olson, Bd Mapping Project coordinator, dedeolson@fs.fed.us

# In the spotlight

## Green Tree Frog *Litoria caerulea*

The August edition of *The Croaker* will focus on the Green Tree Frog *Litoria caerulea*. Send in your stories, anecdotes, scientific data, literature reviews, observations, etc., to the Editor, c/o TFC at the address on page 2.

# TFC Merchandise



Frog calls CD \$25.00

Visors	\$20.00
Frog Calls Wet Tropics (Tape)	\$10.00
Attracting Frogs to Your Garden	\$20.00



Caps \$20.00 each



Tee shirts \$15.00 each



Polo shirts \$10.00 each



Polo shirts \$10.00 each



# Tablelands Frog Club

Mail Bag 71

YUNGABURRA QLD 4879

## Application for Membership

\$15.00 Adult membership       **Membership type**       \$15.00 Family membership       \$5.00 Junior/Associate

Surname(s): \_\_\_\_\_ Given name(s): \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_ P/Code

Postal: \_\_\_\_\_

\_\_\_\_\_ P/Code

Phone (h) \_\_\_\_\_ (w) \_\_\_\_\_ (m) \_\_\_\_\_

E-mail Address (for newsletters and updates) \_\_\_\_\_

Occupation: \_\_\_\_\_

The Tablelands Frog Club Incorporated is incorporated under the Associations Incorporation Act.

### TFC OFFICE USE ONLY

Membership paid: \$ \_\_\_\_\_ Paid by:  Cash,  Money Order,  Cheque

Receipt number: # \_\_\_\_\_ Date issued: \_\_\_\_/\_\_\_\_/\_\_\_\_

Membership number: # \_\_\_\_\_ Date entered: \_\_\_\_/\_\_\_\_/\_\_\_\_



### Tablelands Frog Club

Mail Bag 71

YUNGABURRA QLD 4879

### MEMBERSHIP TAX RECEIPT

Membership paid: \$ \_\_\_\_\_ Paid by:  Cash,  Money Order,  Cheque

Receipt number: # \_\_\_\_\_ Date issued: \_\_\_\_/\_\_\_\_/\_\_\_\_

Membership number: # \_\_\_\_\_ Signed: \_\_\_\_\_

Please Post Membership Application to: Mail Bag 71, Yungaburra QLD 4872



# *The Croaker*

**Newsletter of Tablelands Frog Club**  
**June 2007**

Sender...

**Tablelands Frog Club**  
**Mail Bag 71**  
**YUNGABURRA QLD 4879**

POSTAGE  
PAID  
AUSTRALIA

Please deliver to...



**Tablelands Frog Club**  
**Mail Bag 71**  
**YUNGABURRA QLD 4879**  
**<http://www.tablelandfrogclub.com>**