

FROG CALL



THE FROG AND TADPOLE
STUDY GROUP OF NSW INC.

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PO Box A2405
Sydney South NSW 1235

INTERNET HOMEPAGE http://members.xoom.com/frog_group

THE NEXT MEETING: 7 PM, FRIDAY 1st October 1999 for a
7.30 pm start at the AUSTRALIAN MUSEUM (WILLIAM ST ENTRANCE)

Meetings are held on the first Friday of every even month (February, April, June, August, Oct. and Dec.) at 7 pm for a 7:30 pm start.
NO MEETINGS ARE HELD ON GOD FRIDAY SO CHECK FROGCALL FOR ALTERNATE DATES.




with compliments Christopher Spiteri

MEETING FORMAT for 1st October 1999

- 7.30pm Guest speakers:
Trent Penman- frogs of Booderee National Park (Jervis Bay)
Fernando Ravello from NPWS (to be confirmed)
- 8:15pm 5 favourite frog slides or 5 minutes
- 8:40pm Guessing competition and Auction
- 9:00pm Finish for tea, coffee & biscuits

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THE LAST MEETING 6 AUGUST '99

FATS members were fortunate to hear Danie Ondinea speak on the Frog Plant Service & Arthur White presented the Wonderful World of Toads - a double treat! MW

FROG PLANT SERVICE

The August FATS meeting was enthusiastic about my proposal to trial a Frog Plant Service. The idea is that Randwick Community Nursery (who specialise in growing local native plants) supply me with local native water (pond) and wetland (bog) plants for sale to FATS group members at regular FATS meetings. Fear of the noxious waterplant can now be a thing of the past!

We have worked out a list of plants which are locally indigenous (native to Botany Wetlands and other local wetlands) and hardy. We have also considered their likely attractiveness to frogs. We will also trial some species which very little is known about or which can be difficult to grow but look "froggy". One of them is even called Woolly Frogmouth!

We will write information and care notes to go with each plant species. Because there is still not much known about many of them in cultivation, we'll also be asking you to let us know how well they go (and if they cope with unexpected condition(s) and how much the frogs use them. The plant list is divided into definite and trial, species:

Definite

Carex fascicularis	Carex appressa
Centella asiatica	Goodenia paniculata
Hydrocotyle peduncularis	Hibiscus diversifolius
Issolepis nodosa	Lomandra longifolia
Ludwigia pepeloides	Persicaria decipiens
Persicaria strigosa	Phragmites australis
Triglochin procerum	Viola hederacea

Trial

Alisma plantago-aquatica	Eleocharis sphacelata
Gahnia sieberiana	Nymphoides indica
Ottelia ovalifolia	Phylodrum lanuginosum
Restio tetraphyllus ssp.	meiostachyus (catchy)
Villarsia exaltata	

If people would like to deal with the Nursery direct, they are open Mon - Fri, 9.00 am to 3.00 pm. They are a wholesale nursery situated in Kingsford. They can be contacted on (02) 9399 0933. I recommend the following books for more information about these and other water plants:

Australian Plant Study Group (1982) Grow What Wet Nelson, Vic

Romanowski, N. (1992) Water and Wetland Plants for Southern Australia Lothian Pub Co Vic

Romanowski, N. (1998) Aquatic and Wetlands Plants. A guide for non-tropical Australia University of New South Wales Press.

Sainty GR and Jacobs SWL (1994) Waterplants in Australia - A Field Guide (Third edition) Sainty and Associates/Sainty & Asaodates, NSW.

Danie Ondinea



THE WONDERFUL WORLD OF TOADS

Toads are a distinct family group -*Bufo* and are widespread on Earth but were absent from Antarctica, Australia, New Guinea and New Zealand. There are 17 genera and 200 species. One genera *Bufo* has 130 species. Toads have lumpy (warty) skin paired poison glands on the side of the neck and tend to crawl rather than hop.

Toads have been successful because they are highly adaptive eg most occur in dry woodland or savannah but some live in rain-forest, mountains or in the far Northern latitudes. The largest toads reach 35cm from snout to vent and the smallest only 2.5cm snout to vent. Some live in bromeliads and others have a high tolerance of sea water.

Toads specialisations include

Intelligent-they can be trained and are the smartest frog

Longest short term memory of any frog

Prey provokers - they flush prey to move

High fecundity, *B. marinus* female produces 30,000 eggs PA

Eggs are laid in strands

Many have slow larval development 2-12 days to hatch

Slow tadpole hatching- may take 3 months to metamorph

Juvenile toads are tiny - 1/20th of adult size

Cane Toads *Bufo marinus* were introduced into Australia from Hawaii in 1935 to control the sugar cane beetle in sugar cane plantations. They quickly spread out from release areas to coastal Queensland. In 1969 they appeared in Normanton (East of the Gulf of Carpentaria). By 1972 they had entered NSW and 1986 entered N T.

The initial wave of toads had a dramatic fauna impact such as the decline of goannas, snakes and birds of prey followed by the decimation of small ground fauna especially lizards and frogs. Eventually the toad numbers will decline as food resources run out. Toads have a permanent population at Port Macquarie. Last year 50 toads were collected by FATS in Sydney. Please report any suspected Cane Toads to me on 9599 1161.

Arthur White

Our meeting was opened by Arthur White. A request for volunteers to assist with Marrickville Council Environment week at Addison Road Community Centre was made. Arthur ran a workshop where hundreds of school children handled live frogs for the first time, examined the concepts of why it is so hard for frogs to survive in urban environments, and what can be done.

How chytrid affects frogs, diagnostic kits at Newcastle university and proposed treatments for sick frogs were discussed. In order to find out more about frog deaths there is now a proposal for dead frogs be dissected and sent for analysis to Lee Berger, and Newcastle. If you find a recently dead frog place it in container and store in the fridge and call Arthur White on 9599 1161. Thank you to our many FATS members who assisted on the night selling raffle tickets, processing membership, handing out rescued frogs, running the auction and refreshments. MW

with compliments Steve Parish

Frogweek's soon upon us. The time when we make the community think about what's happening to the environment in general and to frogs especially. The time when we knock on shopkeeper's doors and give them some attractive frog leaflets to stick in their windows. "Frog info sheets. Ask for them here. They're free", the leaflet says. And people come in, and they get an info sheet about how to make a frog pond and how to take up contact with us. They might even buy something in the shop, so the shopkeeper probably won't mind photocopying some more froggy handouts.

That's the idea, and the practice of it will rest with you. At the 1st October meeting, there will be 60 sets of leaflets (each being one A3 and 2 A4 sheets and a covering letter) for you to try your luck and your confidence with. If you feel brave enough and if you have the means, photocopy a few more yourself and take them to several shops - book shops, body care shops, pet shops, any shops where lots of people go past who the owner would like to see coming in. And please let Elisabeth know how it went, on (02) 9181 3073 (h) or at piddo@bigpond.com.au. This is ex-pe-ri-men-tal and may need some too-ning!

As it so happens, during October the larger post offices are unveiling and exhibiting their new froggy stamp series. Two of them approached me for posters and lots of different info sheets, and I then approached another two, and they went SNAP! I was instantly mistaken for someone sent from heaven. So, what I can do ...

As it so happens, at the October meeting there will also be 20 full sets of our info sheets - the Frog Kit and the Frogfacts and some bits & pieces, and a covering letter of course. If you have a major post office in your area, and you see on Monday that they are struggling to set up a bedraggled little frog stamp display, would you be prepared to become all their prayers answered? Take a full set, cherish it - we pay for copying dearly - and brandish it. The FATS Group has not one poster left, but if you are able to lend your P.O. your concrete garden frog or mini-pond or your very own poster, I think you may never have to lick your own stamps again.

Don't bother about the Royal Exchange, Strawberry Hills, Fairfield and Bondi Junction post offices. (They're mine. Find your own.) Oh, and Australian Geographic has sent our propaganda stuff to their shops too.

But there's also something else you could do for Frogweek.

Do what comes natural to froggers. Start calling. Call the radio stations and the other media, write to the editors of the letters, the local press. Let them know that it's Frogweek soon (the first week in November, as always), that not all is well with the world of frogs, and that you may not be sure how to fix it, but you joined the FATS Group and that's a start. If you want to bounce your ideas off one of the committee members or anyone else in FATS first, I'm sure they'd help. And if you plan ahead, borrow a photo from them for the press.

Whatever you do on the Frogweek battlefield, please let Elisabeth know how you went. A hoppy Frogweek to all of you. L.V.



BROWN TOADLET (walking) x1%

Bicentennial Park on Sunday 31
October Taronga for 7 & 8 November
Manly Ocean Day December
Please call Elisabeth Pidd on 9181 3073

SICK FROG WASHING SOLUTIONS

Some interim recommendations on treating Chytrid No doubt you'll get the main info from Lee Berger and Rick Speare (I assume you have seen their Amphibian Diseases Home Page on <http://www.jcu.edu.au/school/phtm/PHTM/frogs/ampdis.htm> and know how to pickle and mail them.)

If it turns out what your frogs have is "only" chytrid, I now believe you can cure - or as good as cure - the remaining frogs mainly with methylene blue: same concentration as for fish (1 ml of a 12 g/l stock from the bottle per 4 l), permanently in their bath water (bare bowl); in the first 2 weeks I also put Alive-O Aqua-Remedy in, again as for fish (so it was really a double dose); and I also (daily) sprayed their mostly bare plastic quarantine tanks as well as the frogs with 2 mg/l benzalkonium chloride. I also sat them from time to time in the 2 mg/l benzalkonium chloride, as Lee had recommended. And I adopted Gerry Marantelli's method of changing gloves between tanks and touching nothing else.

Two months ago I started treating the tanks in which I had deaths from chytrid, and I have had no more losses since that day (and I lost 47 young citropas over the 2 months before, and any number of other frogs). Two adult caeruleas had suspiciously pink tummies when they started treatment, and that cleared up too. I treated the unaffected tanks too, but not as heavily.

Unfortunately, I didn't run any controls - I was too panicky and just wanted to save what I could. None of the frogs appeared to show adverse reactions to this treatment, including even fallaxes and newly metamorphosed aureas. From last week on I'm using only half the methylene blue strength (and including in those tanks that had no outbreak), and I intend to keep this up for some time. I am at a loss though with display tanks, where heavy use of methylene blue would trash the biofilter, the plants and the silicone.

(Maybe just the odd prophylactic whiff with the bezalkonium spray can, if the stuff is commercially available? Hopefully the VFG will come up with something.) The Aqua-Remedy I mentioned I only used for good measure on the affected tanks; it contains acriflavine, malachite green and some methylene blue. All I can say is it didn't kill the frogs, and something somewhere fixed them up. Lothar



BROWN TREE FROG x1%

FROGBITS AND TADPIECES

The frog pond workshop on 23.10 is booked out, but the Port Jackson Catchment Management Committee has laid on another one in Woolloomooloo: Saturday, 30.10., 10 am - 4 pm, \$35, course notes included.

For bookings, ring Sue Hobley on (02) 9818 1997.

Keepers of the gaudily coloured poison dart frogs have observed that they sometimes eat each other's eggs. The frogs lay them on the ground in the Central and South American jungles, they stay with them and take the tadpoles piggyback up the trees into the puddles in bromelias - nice and safe from fish, and only one tadpole per plant. In some species the females keeps coming back to lay an unfertilised food egg for junior to live on. That, amazing as it is, is now old hat. But now the internet is busy with correspondence describing how other females muscle in and, given a chance, devour the competition's eggs. Reported from four species so far. (The tadpoles are not much kinder themselves; so cannibalistic that the keepers - and there must be many hundreds of them now - raise each one separately in its own jar.) LV

SOME USEFUL SITES

<http://www.jcu.edu.au/school/phtm/PHTM/frogs/ampdis.html>

<http://fermtech.techfak.uni-bielefeld.de/tsc/frogpage.html>

http://www.x10.com/products/home_entertainment.html

<http://research.amnh.org/herpetology/index.html>

<http://www.ent.iastate.edu/Misc/insectnutrition.html>

<http://www.megsinet.net/~treefrog/index2.html>

<http://members.density.com/litoria>

<http://www.herp.com/grubco/#info>

FROG WOMAN AND COUNCILLOR

Ashfield will be the first municipality to have frogs properly represented at its Local Council. Our Monica Wangmann got in as an Alderman! Congratulations and best wishes from all of us and from the depths of our ponds. The FATS Committee

"So much style without substance, so much stuff without style. It's hard to recognise the real thing it comes along once in awhile. Like a rare and precious metal beneath a ton of rock: It takes some time and trouble to separate from the stock." the beginning lyrics to the song "Grand Designs" by the Canadian rock group Rush. It came out in the early 80's Deborah Pergolotti

Science is...

Birds and bees

Plants and trees

Tubes and chemistry

Frankenstein in the cemetery

Weather, sound and light

Atoms, suns and night

Things to know

Things that grow

Death and decay

Time, space and the day

with compliments WFerrier@aol.com

The Sydney Morning Herald



Spotted Tree Frog

www.nca.gov.au/plants/threaten/information/species/animals/amphibians/spotted_tree_frog

A native of NSW and Victoria, the spotted tree frog has been in decline for several years for two main reasons: trout eating them and people spoiling their natural habitat. Discover what is being done to protect this species and other endangered amphibians.

TADPOLE TEA AND ALDER CONES

Here's a recipe for making tadpole tea. It's used by Hpoison dart frogs breeders in USA and Germany with good success. The water stays fresher longer, and the taddies grow better. (Those are a tad cannibalistic and are raised singly in jars, where filtration or water changes are a great bother.) Either use one ripe alder cone per tadpole container (and that's it), or boil up and simmer for 20 minutes:

1 oz. Alder "cones" Aldus sp.

1 oz. German peat moss (Eheim Ltd.)

2 Quarts rain water

Add 1/2 cup of the "tea" to 5 gallons of water.

Yield: 40 gallons of tadpole water, ie 320 "servings".

The final product that the tadpole swims in is a light amber in colour. I haven't tried it yet. Neither, I must say, have my tadpoles. But then, tannin is supposedly bactericidal, and I have grown bigger tads in water with methylene blue than in bare tanks with nothing. If anybody has an alder cone, could I borrow it? Should I ring the Local Council? L.V.

FROGS RECENTLY DEAD

May be sent to Lee Berger for analysis. Please email her beforehand. on lee.berger@dah.csiro.au. to confirm that she can accept the frog. Full details are available on the internet at <http://www.jcu.edu.au/dept/PHTM/frogs/ampdis.htm>.

Recipe for 10% buffered formalin, if sending dead frogs: If you don't have distilled water or the other ingredients listed below, then just make up a 1:9 solution of the 36% formaldehyde in tap water.

Recipe for 10% buffered neutral formalin:-

The quality of the histology depends on using good quality fixatives. The pH of the fixative is critical. The best histology is obtained using 10% formalin with a pH about neutral. The following is a formula that will produce 10% formalin of neutral pH.

Chemicals needed:-

Di-sodium orthophosphate (Na₂HPO₄) 6.5 gm

Potassium dihydrogen orthophosphate (KH₂PO₄) 4.0 gm

40% formaldehyde solution 100 ml

Distilled water 900ml

Procedure

1. Dissolve salts in small part of the water with heating.
2. Add remaining water, then formaldehyde.

Berger, Lee" <Lee.Berger@dah.csiro.au>



F.A.T.S. SMITHS LAKE EXPEDITION

The F.A.T.S. Smith's Lake Field Station expedition was held on Friday, Sat and Sunday from 9 to 11th September 1999.

Despite the heavy rain on Friday and Saturday, (which of course was ideal for the frogs) some 25 members attended. A Great time was had by all as to most it was a first time with a F.A.T.S. camp out. The accommodation while not the Ritz proved a great success and the communal living proved to be a great chance for the members to meet. Apart from learning about frogs it was also a great way for everyone to work as a team and get to know each other personally.

A great variation of backgrounds, cultures, and personal occupations were encountered not to mention the large attendance of the young folks who enjoyed the outing as much as the adults.

The cookouts were great and everyone ate well including the leach that had a feed of poor Arthur White's leg.

We were also lucky to share the Universities facility with some of its members who were there to test the environmental status of Wallis Lake. The attendees were Arthur and Karen White who organised, led and made sure everything went according to plan. By the time the others had arrived Arthur had set up his traps and Karen had set up the accommodation. We greatly appreciated all the time and effort given by Arthur and Karen.

The rest were Alf, Ros, Christopher and Phillip Spiteri. Cliff, Liam and Danika Hopkins. Joan Young. Sussanah Power, Jonathan Vea, Stan Orchard, Paul Wickham and Greti Reigler. John, Cecily Peter and Luke Spradbrow and Peter, Barbara, Stephanie, Rosalie and Genevieve Jones. Great Marks to Cliff who had to be a mother and father to the two young ones.

On the first day and night Arthur took the mob around the perimeter of the field station where there was little activity however, a few species were gathered in Arthur's traps.

Next Day an enjoyable outing was had at Seal Rocks beach were nearly every one joined in a bit of football kicking and beach walking (yours truly snuck a quick doze in his car) and some courageous souls even ventured into the water.

The second night took us out to Wallingat State Forrest were we stopped at the Twin water holes and in these we found an abundance of *Litoria verreauxi* Frogs.

It was estimated that in the whole water whole most of them were mating. An awesome sight it certainly came under the definition of a great love in. From there we went to Pipe clay creek however the water was too fast and therefore no species were to be seen.

Throughout the expedition the species seen, heard and studied were a Red Backed Toadlet, Southern Rocket frog, Common Eastern Froglet, Haswells Frog, Wallum Froglet and Tadpole, Whirring Tree Frog, Dwarf tree

frog, Red Grained Toadlet and a Brown Tree Frog. *Litoria verreauxi*.

Other Species seen were an abundance of Kookaburra's a Red Necked Wallaby and Arthur's Orange leach.

For most of us first timers it was a great experience and it would not have been a success without Arthur Whites great knowledge and guidance throughout the whole excursion.

Verdict. Outstanding success and can't wait till the next one in February. Suggest early bookings, as it will be a sell out. Alfred Spiteri

HERPDIGEST EUTHANIZING

In need to euthanize a lizard and have not done so before. Any recommendations for a easy and humane method of doing so? This will be performed on a very large iguana with a serious health problem. Dept. of Microbiology Nash Hall Oregon State University. adamsjer@ucs.orst.edu (Jeremy Adams)

From: John_Jensen@mail.dnr.state.ga.us (John Jensen) Put it in a freezer - easy and humane.

From: rmdavis@thegrid.net (Richard Davis) Use Starting Fluid (ether) from any auto parts store. Usually about \$1.79 a can. Place iguana in a non-tearable bag then into a plastic bag. Shake can, spray into the bag, and twist the bag shut. Preferable to do it outdoors so you don't breathe too much ether yourself.

From: scott@reptilia-tech.com (Scott Solar) Freezing is no longer considered humane. Veterinarians frown upon it. To protracted and painful. Scott Solar Reptilia Technologies Freezing of reptiles is not considered a humane method of euthanasia by the American Veterinary Medical Association. This is particularly true of large reptiles, which would take a long time to reach lethal or even stuporous temperatures. There is no evidence that death by hypothermia is any less painful for reptiles than it is for mammals.

Please consider calling some local vets to find one that is willing to give an intra-venous overdose of pentobarbital to your iguana. It can be given at the same rate as in mammals. This is a rapid and humane method of euthanasia of reptiles and is not difficult in a large iguana, where the tail vein can be easily injected. Lara K Maxwell, DVM, PhD candidate University of Florida Florida College of Veterinary Medicine Dept Small Animal Clinical Sciences Box 100126 Gainesville, FL 32610-0126 (352)392-4700, x5789

Putting reptiles in a freezer is NOT humane. That is slowly freezing an animal to death and is not quick. It used to be an unfortunate but common practise with reptiles. You'll need to get a vet to perform the euthanasia which usually involves making the animal unconscious and then stopping its heart. If your vet needs instructions, he or she can consult D. Mader's Reptile Surgery and Medicine. Mader explains humane reptile euthanasia in full. Ae Nash Director Colorado



HERPDIGEST

KIDS TURN PASSION FOR PET TOADS INTO A HOPPING BUSINESS

A year ago, Daniel and Jonathan Estray didn't know a thing about being entrepreneurs. Today, the two boys have an award-winning business plan and serve as president and secretary, respectively, of Pipa Shippa International, an exotic-animal export company specializing in South American toads.

The two middle schoolers took top honours recently in a business plan competition sponsored by Kennesaw State University and Young Entrepreneur magazine, both in the Atlanta area. Their idea: Export fancy animals from Venezuela to the United States, with the key product - and company namesake - being a tiny, water-dwelling toad known as the Pipa.

The boys are spending the summer in Sanford with their grandmother, but their home is in the foothills of the Andes Mountains in Northwest Venezuela, where their parents are missionaries for the New Tribes Mission of Sanford.

The brothers and two sisters are home-schooled and found out about the contest as subscribers of Young Entrepreneur magazine. The rules were straightforward: Write a business plan that works. The boys had already discovered the toads as pets. The tiny, flat creatures grow to about 4 inches and spend most of their time in the water. The toads have long back legs with webbed feet - like little umbrellas, the boys said - and shorter front legs that they use to shovel in the grub.

They were interested in the contest, Daniel said, but there was a problem: "We didn't know what a business plan was." With research and help from friends and family in the United States - there's no Internet access in their remote village - the brothers wrote an 18-page outline for a proposed business.

The plan contains all the vital information, including a marketing strategy - word-of-mouth, magazine advertising and brochures - and a distribution network through retail pet stores. The boys also got a preliminary green light from the U.S. government to allow the toads in. Even with shipping, advertising and licensing, the boys estimate they can have a profitable venture, with sales of more than \$13,000 annually.

When all is said and done, Pipa Shippa has the key ingredients of a successful business - an unusual product with little or no competition. In Venezuela, PIPAS sell for \$1.50 apiece and are as common as puppies in some pet stores. But in the United States, where the interest in exotic animals is keen, the toads are rare - and the boys think each toad could fetch about \$85.

Jim Herbert, an associate professor who ran the contest for Kennesaw, said the school wanted to encourage students to think about entrepreneurship - even at a young age.

To that end, the boys have each invested the \$1,200 in prize proceeds they received. Daniel bought stock in Wal-Mart. "I thought Wal-Mart would be good because they're always so busy," he said. Jonathan went with Home Depot.

Even so, the boys aren't sure they want to be businessmen. Daniel is interested in veterinary school and law; Jonathan wants to be the first man on Mars.

And there is a tiny hitch with the Pipa plan. The boys hoped to increase their toad stock through breeding, but the three animals they have in Sanford - a fourth died after eating a big worm - have shown little interest in that area. The boys aren't much help. "We still don't know how to tell a male from a female," Daniel said.

Susan G. Strother of The Sentinel Staff DENNIS
WALL/THE ORLANDO SENTINEL

FROGS LINKED TO CLIMATE CHANGE

The mystery of why frogs on the southern tip of England are breeding up to five months earlier than those elsewhere in Britain is to be investigated. Experts have discovered a dramatic shift in the breeding and spawning times of frogs on The Lizard, in Cornwall, with the phenomenon being linked to climate change.

Ray Lawman, of English Nature, site manager for The Lizard's National Nature Reserve, said: "We have no idea why this is happening. We have found great clumps of frog spawn on access tracks in the reserve as early as mid October." Wardens lifted "great dollops" of it into nearby ponds.

Mark Nicholson, the herpetological co-ordinator for county wildlife trusts, said that common frogs in Britain tended to breed and produce tadpoles between February and April. But Dr Trevor Beebee, of Sussex University, said that The Lizard's frogs seemed to have switched to a cycle similar to amphibians in southern Europe.

Dr Beebee said the changes offered further, dramatic evidence of shifts in the breeding patterns of frogs and natterjack toads in response to rising temperatures. Some are breeding up to three weeks earlier than they did 20 years ago.

Frogs on The Lizard stand to gain hugely from an earlier start if, as researchers suspect, warmer temperatures there mean that frosts have all but disappeared. Tadpoles have a greater chance to develop without fear of spring predators and ponds are less likely to dry up during the winter months.

The mystery is to be investigated this autumn by Dr Clive Cummings, of the Institute of Terrestrial Ecology, in work supported by a grant from the British Ecological Society. Nick Nuttall, environment correspondent 08/23/1999 The Times of London News International

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CHYTRID FUNGUS INFECTION IN TOADS

WildlifeHealth@usgs.gov WildlifeHealth@usgs.gov
Paul Slota 608-270-2420 Earl Green 608-270-2482
Fax: 608-270-2415

Recent deaths of endangered boreal toads in one of the largest remaining populations in the southern Rocky Mountains have been linked to a chytrid fungus identified last year as being responsible for amphibian die-offs in Central America and Australia, according to pathologists at the USGS National Wildlife Health Center in Madison, Wis.

Sick and dying toads in the Colorado population were first discovered in May of 1999 by Colorado Division of Wildlife researchers, who have been intensively studying the animals for the last 5 years. Since May, dead toads have been found every month at the site, which is on private lands west of Denver. USGS researchers said they have identified chytrid fungus in many of the dead and living toads they examined from the site in 1999. Live toads show few clinical signs of the disease, but some may appear weak, lethargic and reluctant to flee at the approach of humans.

Dr. D. Earl Green, a USGS wildlife pathologist, microscopically examined many of the dead toads and identified myriads of minute chytrid fungi in the skin of the abdomen and toes of the toads. His microscopic identification of this fungus is being confirmed in collaborative work by Dr. Joyce Longcore, a world-renowned chytrid expert at the University of Maine. In addition, USGS researchers will continue to work closely with researchers from the Colorado Division of Wildlife to monitor further die-offs.

Secretary of the Interior Bruce Babbitt calls these recent die-offs of boreal toads a "poignant reminder" that amphibian populations in this country and in many other parts of the world are undergoing severe, unexplained declines. In the past decade, the international scientific community has increasingly expressed concern over global population declines in all amphibian groups and on many continents. These losses are now well documented and have occurred in a wide range of habitats, including remote and pristine areas in Oregon, California, Arizona, the Rocky Mountain states, Costa Rica, Panama, Puerto Rico and Australia.

"These incidences are disturbing and raise questions about why this fungus is proving so deadly at this time and what other factors might be at work behind the scenes," Secretary Babbitt said. "We need to better understand the inter-relationships in this environmental puzzle and what we can do to fix the situation."

Chytrid fungus in amphibians was first identified in 1998 by Green and other researchers from the U.S., Great Britain and Australia, who discovered that this fungus had been responsible for large amphibian die-offs in Panama and Australia. The fungus also has been identified in some amphibian populations in Arizona and has caused the death of many zoo-kept amphibians in the United States.

Scientists don't know how this fungus is transmitted from one area to another, let alone why the fungus is affecting amphibian populations around the world. Whether the chytrid fungus is responsible for the frog or toad mortality or the declines of frogs and toads in many western states is still unknown. Green emphasizes that diagnostic tests on the boreal toads are still being completed, and that additional infectious diseases or other possible causes of death may yet be found in this population. Because fungal infections are often considered secondary infections in other vertebrates, USGS is completing further tests for viruses, parasites and bacteria to rule out other factors that could predispose the animals' susceptibility to the fungus.

The boreal toad (*Bufo boreas boreas*) is listed as endangered by Colorado and New Mexico, although no known populations exist in New Mexico now. The southern Rocky Mountains population Colorado, New Mexico and southeastern Wyoming is listed as a federal candidate species. These toads were once common around lakes, ponds and streams in the mountains of Colorado, northern New Mexico and southern Wyoming, but the population numbers dropped precipitously in the last 20 years.

Biologists from the U.S. Geological Survey are helping determine why amphibians are disappearing. Research by these scientists and others have identified many deadly virus infections and chytrid fungi as causes of some amphibian die-offs and population declines. Scientists are actively investigating other hypotheses that could help explain these worldwide declines, including increased exposure to ultraviolet radiation due to ozone thinning, the spread of non-native predators, contamination from pesticides and other chemicals, and rising temperatures. Many biologists suspect that a combination of factors may be responsible.

The USGS works in cooperation with more than 2000 organizations across the country to provide reliable, impartial, scientific information to resource managers, planners, and other customers.

<http://biology.usgs.gov/pr/newsrelease/1999/9-13.html> and <http://www.usgs.gov>. To receive the latest USGS news releases automatically by email, send a request to listproc@listserver.usgs.gov. Specify the listserver(s) of interest from the following names: water-pr; geologic-hazards-pr; biological-pr; mapping-pr; products-pr; lecture-pr. In the body of the message write: subscribe (name of listserver) (your name). Example: subscribe water-pr joe smith.

With compliments Karrie Rose D.V.M., D.V.Sc. Veterinary Pathologist Taronga Zoo Veterinary & Quarantine Centre krrose@zoo.nsw.gov.au email and William Dean Meikle <willmeik@mpx.com.au>



FLUID RETENTION IN FROGS

As part of my wildlife rescue work up here in Cairns, I've had a frog come in and die from a strange fluid retention problem. Deborah Pergolotti G.P.O. Box 2731, Cairns, FNQ 4870 (0418) 152 199 mobile FNQ Wildlife Rescue, Cairns

RESPONSE FROM KARRIE ROSE, TARONGA ZOO'S VETERINARY PATHOLOGIST

In my experience fluid build up in the legs and abdomen of frogs is most often attributable to either chronic renal disease or liver disease. Some people describe these frogs as having "pantaloons legs". Chronic kidney disease is more common than chronic liver disease in frogs, but the blue colour of the fluid removed from the subcutaneous tissues is most likely biliary pigments. Thus, liver dysfunction would appear to be most likely in this frog. Both kidney and liver disease are difficult to diagnose antemortem. We would try to collect a small blood sample to determine concentrations of liver enzymes, urea and creatinine to evaluate organ function. It is also possible to conduct these tests on the fluid that is removed from the subcutaneous tissues. Often when frogs are suffering from chronic kidney disease there is an increased concentration of urea in this subcutaneous fluid. When a diagnosis is truly required it is also possible to do liver and/or kidney biopsies, but these are invasive procedures and blood sampling should be conducted first.

Most often a definitive diagnosis rests upon microscopic examination of tissues once the animal has died. A veterinarian should be able to conduct a post mortem examination and fix tissues in formalin. These tissues can then be forwarded to myself or to Lee Berger at Australian Animal Health Laboratories in Geelong. You may wish to have your consulting veterinarian contact us at Taronga Zoo's Veterinary & Quarantine Centre to further discuss diagnostic options for amphibians. with compliments William Dean Meikle email willmeik@mpx.com.au

RESPONSE FROM PAUL O'CALLAGHAN CURATOR LONE PINE KOALA SANCTUARY.

To answer your question on the *L. infrafrenata* that developed swollen leg muscles and eventually died.

We have seen the same situation here on three occasions with the end result being the death of the individual frog. The species affected have been two *L. infrafrenata* and one *L. gracilentia*. The major cause of the problem is a condition known as Sparganosis. The condition is caused by Sparganum cestode infection and on all three occasions here, the cestode has been *Spirometra* sp.

The larvae are capable of passing directly into the tissues of its host. Once inside, they become encysted within muscle interstitium and this can set up an inflammatory response. Secondary bacterial infections can often follow and the animals that we treated all died from terminal septicemia. The encysted larvae

and inflammatory response leads to the lymphatic system becoming clogged and the swelling in the legs is caused by the blue lymphatic fluid that accumulates in the muscles. We treated the animals and also drained this fluid regularly but obviously despite all veterinary effort, all animals died.

Neill Sullivan from VPS reported the following interesting human behaviour :

"Sparganosis is often present in frogs in Southeast Asia where frogs are sometimes split open and applied to the human eye as a remedy for ocular disease. If the frog has Sparganosis, the cestode may pass directly from the frog to the human eye and cause ocular Sparganosis "



HERPDIGEST FROGWATCH USA,

Clear up any Misunderstanding Gideon Lachman
Frogwatch Coordinator frogwatch@usgs.gov Sam
Droege USGS Biologist frog@usgs.gov

1. Peer Review of Frogwatch.

Peer reviews were solicited in-house at Patuxent and comments were taken from groups that ran similar programs in Maine and Ontario.

Moreover, a message was sent to the AMP listserve on February 19, 1999 announcing the upcoming opening of the Frogwatch USA program and soliciting feedback on the draft website and program. No one responded with feedback. It is difficult to involve everyone in a peer review process. Frogwatch USA is a new project, and can be modified to address problems and concerns and to incorporate new ideas.

Please take the opportunity to look at the web site <<http://www.mp2-pwrc.usgs.gov/frogwatch/>> and give us specifics as to how the program can be improved.

2. Competition from Frogwatch USA for the volunteer pool and publicity.

Frogwatch USA focuses on a different audience than other monitoring programs - people who traditionally haven't been involved in monitoring programs. In other words, Frogwatch USA works to fill the gaps left behind by other programs. In fact, Frogwatch was formed partially in response to numerous requests to NAAMP by the public for ways to get involved that were less rigorous than calling routes, or of ways to get involved when routes were not available. Now those volunteers have an outlet for their interest - with Frogwatch USA they can participate in anuran monitoring and feel good that they are contributing their valuable time to helping understand the condition of

anurans. Most of the registrants so far have been people with an interest in anuran monitoring and a passion for the critters, but don't have the time, access, desire, or ability to participate in other programs. Frogwatch is also a great outlet for volunteers in states with no extant monitoring program. Editor: Allen Salzberg

ANTS (REVENGE)

What is the best way to prevent ants from discovering my tank (aside from keeping the room clean)? We live on a huge ant metropolis.

As Anthony has said already, go with the ARBICO information. I have used diatomaceous earth and the parasitic nematodes with excellent success in my yard. In addition, when I see a major ant trail or accumulation (like around a dead insect) I spray them with Quatricide, which kills them instantly. I repeat the nematode treatment 2x a year, to keep the ant trying to re-colonize from my neighbor's yards at bay. These measures combined have almost eliminated the ant problem in my yard. Also, I have all my outdoors cages on shelves, with the shelf-legs sitting in a water container. Kay

PS: For those concerned about termites: the nematodes infect them as well! Klausling, Kay
 KKlausling@ligand.com

FROG LESIONS

Discussing frog lesions..just passing along a little info that worked for me...for draining bacterial lesions (cloudy, bloody drainage with or without odor)..leaving the lesion open to air and doing a warm tetracycline bath (500mg or 2 caps of fish tetracycline to a cup of stale water, for the initial soak.30 minutes)..then 250mg of fresh solution twice a day for 15-20 minutes has done wonders for a lesion on my white's treefrog...other considerations..isolate the individual on white paper towels (to assess drainage)..keep the temp a little higher than normal (to increase metabolism of the drug)..and offer a bowl of stale water on the warm side of the enclosure (to maintain hydration and comfort)..my vet suggested hydrogen peroxide to debride the sloughing tissue in the lesion, but it has not been necessary..the lesion is almost healed on day 4 of treatment and my frog has started eating again...I truly feel that speed was of the essence in getting this under control...I believe that suboptimal temps can cause low level stress on frogs and decrease their immune system..

I truly felt that I had nothing to lose with this treatment, my frog was dying...my vet ok'd this treatment, and it worked for my little guy...I hope this might help someone else's pet ...Carly precocious1@juno.com

SWAMP

by Gary Clark

THE SUNDAY TELEGRAPH,

September 19, 1999



FROGEREL

Froggerel II Didactics

Mom and Dad will pick and peck

At every sub-invisible speck,

Cleaning up the total lot

For newly metamorphosed tot.

So for the tads there's little thanks

For limbing in parental tanks.

If good frog midwife you would be,

Remove these young as suits specie,

As egg or tad or morphling small,

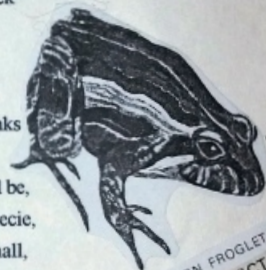
To separate dwelling place withal.

And pampered there

Without a care

They'll have a chance to grow up fair.

Hlene Sievert Paul R. Sievert Northwestern University,
 Evanston, IL. USA prsievert@nwu.edu



COMMON EASTERN FROGLET 5/2
 GOULD LEAGUE OF VICTORIA



Interested in seeing one of the rarest frogs in Australia? Interested in helping with the recovery of the threatened Kroombit tinkerfrog (*Taudactylus pleione*)? Interested in exploring some of the best rainforest central Queensland has to offer? Interested in seeing a range of other rainforest frogs including the threatened cascade treefrog (*Litoria pearsoniana*) and the great barred-frog (*Mixophyes fasciolatus*)?

We will be surveying (at night) at Kroombit Tops and other areas in the Dawes Range. The terrain is steep and remote so you will need to be fit and accustomed to bushwalking. We will be camping in tents with limited refrigeration available. Preference will be given to people who are experienced in frog survey and/or identification but all interested persons should still register. Transport from Brisbane and Rockhampton is available. You will need to bring camping gear, head-torch, backpack etc. You will be expected to contribute to the cost of communal food (vegetarians catered for), but bring your own luxury tucker (e.g. junk food)

Places are strictly limited so register your interest early.

How to register your interest

e-mail, ring or fax your details (name, phone, brief details of experience, whether you are 1st Aid trained) to: John Clarke Qld Parks & Wildlife Service Rockhampton e-mail: John.Clarke@env.qld.gov.au Phone: 07 4936 0596 Fax: 07 4936 2171

These dates are reasonably firm but could still change. Please register your interest and you will be advised if there is a date change.

CANADIAN HERP CONFERENCE, 15-18 OCTOBER,

The Annual Meeting of the Canadian Amphibian and Reptile Conservation Network (CARCN) to be held at: l'Édifice Marie-Guyart 675, boul. René-Lévesque Est, Québec (Québec)

It is with great pleasure that we invite you to the Annual Meeting of the Canadian Amphibian and Reptile Conservation Network (CARCN) to be held in Québec City from October 15 to 18, 1999. The Annual Meeting of CARCN provides a forum for the presentation of research papers and posters on all aspects of amphibian and reptile conservation. Themes for this year include population and metapopulation dynamics, genetics, disease, commercial harvest, status assessments and recovery plans, validation of monitoring schemes, and habitat protection.

Pauli, Bruce [NCR]" Bruce.Pauli@EC.GC.CA



SPOTTED GRASS FROG s/s

The Threatened Species Unit, Northern Zone, NSW National Parks and Wildlife Service (NPWS) is seeking expressions of interest from individuals, organisations or companies wanting to be involved in recovery plan and threat abatement plan preparation and implementation with the aim of:

- * establishing a register of people to prepare and/or implement recovery plans and threat abatement plans;
 - * establishing a register of people to undertake ex-situ work for flora;
 - * establishing a register of people to undertake ex-situ conservation activities for threatened fauna;
 - * establishing a register of people to undertake targeted survey for threatened flora and fauna;
 - * establishing a register of people to undertake biological and ecological research and monitoring, and;
 - * establishing a register of people to undertake bush restoration and regeneration activities.
- Community groups, such as Landcare and university students are encouraged to express an interest in these projects. Please indicate willingness to work in a voluntary capacity and if so, availability.

The NPWS will be placing responses to this expression of interest on a register. From this register the NPWS may invite tenders for various recovery projects. Expressing an interest here does not guarantee that an invitation to tender or that a contract will be forthcoming with the NPWS to undertake these types of work. Similarly, invitations to tender may also be sought from outside those who expressed an interest and are on the register.

The register will be valid until 30 June 2001.

The detail provided in expressions of interest may be used to develop tender and contract specifications.

Persons wishing to lodge an Expression of Interest must address the response criteria detailed in the information package which can be obtained from the NPWS Web Page (www.npws.nsw.gov.au/news) or by contacting Andrew McIntyre on 02 66598232 or David Page on 02 665989289.

Expressions of interest should be in writing and be received no later than the 22nd October 1999 and should be addressed to Executive Officer, NPWS Northern Zone, Locked Bag 914, Coff's Harbour NSW 2450.

I am currently developing contracts for surveys for Mixophyes on the southern coast and Sydney Basin (to be run in conjunction with Sydney and Southern Zone Threatened Species Units), and Northern Zone may be funding other frog projects (in northeast NSW - north of the Hunter) in the current financial year. The register referred to above will be Northern Zone's prime source of "consultants".

Thanks Nick Sheppard Threatened Species Unit NSW National Parks and Wildlife Service (Northern Directorate)

Locked Bag 914 COFFS HARBOUR NSW 2450

Phone: 02 6659 8231 Fax: 02 6651 6187

Email: nick.sheppard@npws.nsw.gov.au

Scientific Name: MIXOPHYE BALBUS

Common Names:

Southern Barred or Stuttering Frog

Distribution: The Southern Barred Frog is found in forested areas of the coast and adjacent ranges (historically) from eastern Victoria to around the Tenterfield area and the Clarence River of NSW. This frog is found in at increasingly higher altitudes as you progress northwards with frogs being present only at less than 200m in the far south but at only altitudes above 700m in the far north of its range. It is the most southern distributed species of the genus, hence its common name used here.

Physical Description: This is moderately large frog. Female can grow to 80mm whilst males are large at 60-65mm. Individuals have a mottled brown back pattern, usually with a broader dark brown stripe running down the middle of the back from between the eyes to around two thirds the length of the body. Individuals have a white to creamy yellow belly and males usually have a darker throat. The backs of the thighs show no distinctive colouration. The upper half of the eye is a silvery-blue in adults, but golden in juveniles. This feature can be hard to see at night when the iris is open wide. The Southern Barred Frog is the most slender of the barred frogs.

Similar Species: The southern barred frog can be sufficiently similar in size and shape to the other barred frogs to make it difficult to tell apart at first sight. The Giant Barred Frog (*Mixophyes iteratus*) has a golden upper hemisphere to its eye, even as an adult and obvious black and yellow mottling on the back of its thighs. The Great Barred Frog (*Mixophyes fasciolatus*) is very similar in colouration overall, but it has an upper lip that is a uniform cream in colouration and its upper eye is generally the same colour as the lower hemisphere. The upper lip of the Southern Barred Frog has black splotches along it. Fleays Barred Frog is essentially the same in every feature and is distinguishable only in having a range separate to that of the Southern Barred Frog. It is undoubtedly a very closely related species.

Breeding Biology (including call): This species appears to breed one to two weeks after a moderate to heavy rainfall event when the stream levels return to "normal". This appears to ensure that there is a good supply of water available. Eggs are laid in shallow sections of the stream,

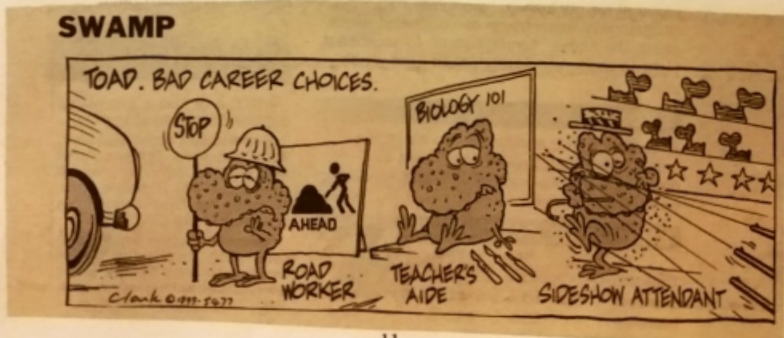
either where there is gravel or organic matter. The eggs are laid in a circular depression hollowed out by the female. The eggs stick as a single layer to the base of the depression and hatch after several days. The tadpoles remain in the nest, unless flooded out, until they are able to swim out by themselves. This whole approach appears to prevent fish being able to get to the eggs to eat them. The tadpoles appear to take at least a year to reach metamorphosis.

Males can be heard calling at any time from September to April and perhaps even in the winter months if conditions are suitable. Usually only two or three males are heard in any one chorus, although larger choruses (10-20 frogs) have occasionally been heard. The males call from the banks of the streams, 2-5 metres from the waters edge. They are usually concealed under litter or soil and can call from holes. The call is described in Martyn Robinson's field guide as an "op op op". It sounds like a frog trying to call, but only stuttering which gives this frog its other commonly used name of the Stuttering Frog.

General Habitat Requirements: This species occupies only areas of native forest, but is equally likely to be found in wet and dry sclerophyll forest and can occur in rainforest as well. Its diet is unknown, but most likely consists of small invertebrates.

Specific Habitat Requirements: Uncertain. It may require hollow logs and moist understorey (hence the association with rainforest areas), but there is no evidence currently available to support or refute this idea. The presence of *Melaleuca* sp. may indicate a gully is appropriate for a breeding site, but this is based on only a few observations and is certainly not always the case. The presence of rainforest stands near to breeding sites may also be important.

Survey Techniques: The most effective technique is to listen for the calls of the males when they call for the few days after periods of heavy rainfall during warm evenings in any of the spring/summer months. Targeting gullies in areas of moist forest is advisable. Fortunately, the call is loud and males will resume calling relatively quickly after disturbance. Driving along roads and spotlighting on wet nights may also turn up records of this species, but has only occasionally been successful and so are not recommended survey methods. **Frank Lemckert**





Lance Fairlie's backyard at Narooma
Thank you for the great photos

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Vacant	Editorial Panel		



WATER-HOLDING FROG s/s

Thank You to all those who contributed to this newsletter

We hold six informative, informal, topical and practical meetings each year at the Australian Museum (William Street entrance) in Sydney. Meetings are held on the first Friday of every even month (February, April, June, August, Oct. and Dec.) at 7 pm for a 7:30 pm start. **NO MEETINGS ARE HELD ON GOOD FRIDAY SO CHECK NEWSLETTER FOR ALTERNATE DATES.** Visitors are welcome. We are actively involved in monitoring frog populations and in other frog studies, and we produce the newsletter *FROGCALL* and *FROGFACTS* information sheets. All expressions of opinion and information 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.