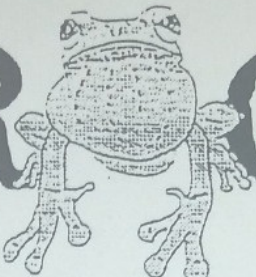


FROG CALL



THE FROG AND TADPOLE
STUDY GROUP OF NSW INC.
ABN 34 282 154 794

NUMBER 56 - November 2001
PO Box 296
Rockdale NSW 2216

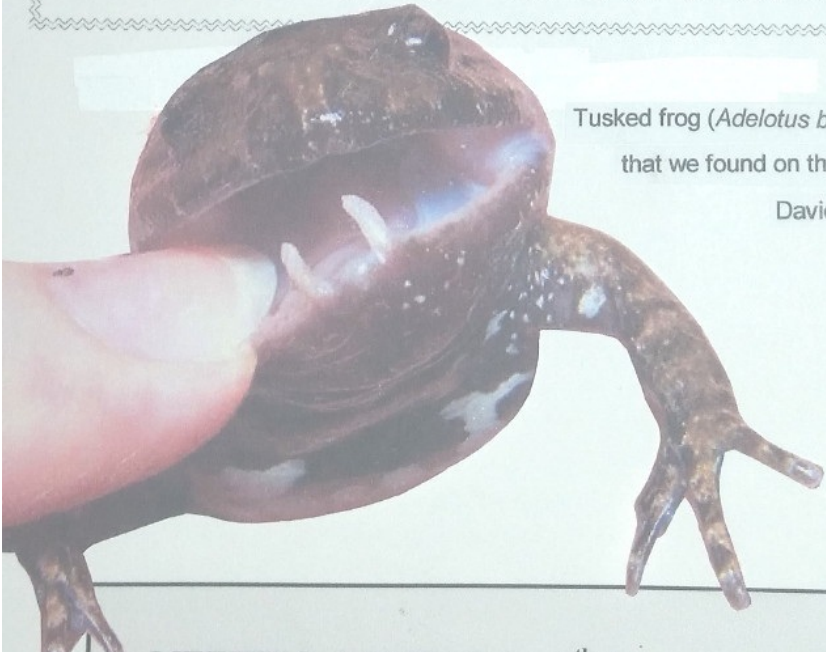
EMAIL fatsgroupnsw@hotmail.com
wangmann@tig.com.au for editorial material
www.fats.org.au

5.30 PM for a 6 PM start,

SUNDAY

9th DECEMBER 2001 AUSTRALIAN MUSEUM, WILLIAM ST ENTRANCE
for a **TRIVIA NIGHT** celebrating our 10th anniversary

there is **NO meeting** on Friday 7 / 12 / 01



Tusked frog (*Adelotus brevis*)
that we found on the Barrington trip

David Nelson



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MEETING FORMAT for 9th December 2001

5.30 pm: -	Lost Frogs for FATS members to collect
6 pm to 9pm	TRIVIA Night

LAST MEETING 5TH OCTOBER 2001

A FOUNDER'S THOUGHTS ON THE TENTH ANNIVERSARY OF THE FATS NSW.

I regret that circumstances beyond our control kept me from being with you on the anniversary of the first decade of the Group.

In the second half of 1991 there was an awakening sense of strong concern about frog declines and extinctions in Australia and overseas. Many frogophiles were asking the how, when and why questions about the declines and possible extinctions here in Australia. We were also grappling with the "what do we do?" question.

When I rang around to get frog-interested people together about the declines in late 1991 I had three optimistic aims that were, in my view at the time, modest. These were:

1. to reclaim for myself and others a sense of control,
2. to get a sense of recovery and even renewal for frogs and the broader environment,

and what was really a much grander aim, namely:

3. to find a path to a better future and destiny for us and frogs.

The history of the FATS Group in its first 10 years bears strong testimony to these optimistic aims. We have all upheld them in their many variations. And I include in the "all" those who are here in spirit and those who have been here and involved in the past.

Our achievements have been many, and all have been shaped by our hopes, desire to renew, to remedy and to achieve a lasting future. Others with you in person tonight will I am sure speak in greater detail about the achievements of the Group.

Shane Gow, who sadly passed away about seven years ago, was one of our founding members. He had an irreverent sense of humour. He sometimes referred to me as the ORGANISER of the FATS Group, and in the same breath was heard occasionally to ask whether that made me the FATS O!!

Everyone who has been involved with the FATS Group, including this FATS O, can justifiably be very pleased and proud of what has been achieved in the first ten years. And I am very confident that the Group has a continuing strong future at the leading edge of community involvement in frog issues and conservation.



Great Barred Frog

As for the future of our declining frogs the picture is still unclear. We know much more of the how and when questions about the various threatened species. And the why questions are also getting some conclusive answers.

These very likely causes of frog declines and extinctions include habitat changes, chytrid fungus, u-v radiation changes, introduced fishes that prey on native tadpoles, pesticides, herbicides, fungicides, fertilisers, surfactants, and endocrine disrupting chemicals that mimic hormones.

What to do about these likely causes is not easy in many cases because there are conflicting human demands at work. The answers lie in finding speedy solutions that both satisfy and modify these conflicting demands.

Each of us can find our own interim answers that keep the options open for us AND frogs.

I commend to you those optimistic founding aims in finding your own answers, namely: reclaiming your sense of control, your sense of renewal, your sense of a better future, and your sense of destiny.

To help in this I encourage you to ask especially the "why" and "what do I do" questions, because these can lead us to pro-active, longer-term and sustainable remedies rather than stopgap reactions.

Our considered responses to these questions let us achieve those optimistic aims, to better shape each our own life, to retain our frogs and do what we can for them. You may even find that this approach can be applied to problems and issues other than frogs and their decline.

The application of this approach has happened to me on more than one occasion. I want to tell you of a very unlikely application I have experienced.

This occurred during the 1994 Frogweek activities in northern New South Wales. Five of us were taking a well-earned rest at a friend's country retreat near Uki in the exhausting week of daytime media interviews, night time surveying and the anytime long distance driving.

I was having a wonderful nap at 3 in the afternoon. Lothar woke me as he would in the event of something important. He whispered with muted excitement that there was a Major's Skink (*Egernia frerei*) on the wooden railing of the verandah. In my half-awakenedness I couldn't believe my luck. You see I started my herpetological life with an interest in



reptiles, and being "off duty" I wanted to keep my hand in. This species of lizard is incredibly elusive, slippery, hard-to-see, let alone capture by hand. I was about to reclaim my sense of control. I wanted a sense of renewal.

I sneaked out onto the verandah. The other three were all sitting still and staring silently and intently at this apparently naïve, handsome, half-grown skink. I didn't know why this was happening, but it was a great opportunity to show them what to some is known as the Ehmann pounce. This is generally a misnomer because you can see the technique being used by almost all predators. That's how I learnt it.

However I wanted my friends to have a better future with animal experiences, and being able to see this pounce technique would improve their frogging too. I garbled something to them about "Watch my hand carefully". The "what do I do" question was already being answered as I slinked towards the unsuspecting lizard with all my hunting faculties working overtime, even though the rest of me was not fully awake.

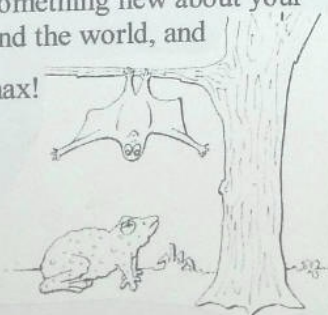
Slow, flowing and deliberate movements, steady shallow breathing, watching, ever watching for any attempt to escape. Then I had my catch hand within strike range! As my hand accelerated exponentially I knew I had it even before the pinning grab: that predator "gotcha!" confidence all wrapped up in a sense of destiny.

The lizard really didn't know what had caught it. And I was absolutely amazed at the outcome. It raced in several directions through my fingers, in six or maybe ten spurts of rotten, putrid long dead tissues!

Lothar had set it all up with a road kill he found while I dozed. He, Liz, Dan and Nolene spent the best part of ten minutes rolling about with uncontrollable side splitting laughter. I thought that it was about to happen all over again, but on a much grander scale!

In closing I ask you to ask yourself: "Why am I here tonight?" I doubt that those optimistic aims as outlined earlier are foremost in your mind. I am sure that the answers will vary from one to another. I am certain that your answers will include:

- being in the company of like-minded people,
- enjoying learning something new about your favourite animals and the world, and
- having fun to the max!



These are all essential to our well being. And perhaps not surprisingly these are also vital in achieving those optimistic aims of reclaiming your sense of control, your sense of renewal, your sense of a better future, and your sense of destiny.

I am sure that you will all mix and match these hopes and optimistic aims into your own personalised blends to do well for yourself, others, frogs and the world. And this activity, done by all of us, is the essence of the FATS Group.

I wish you all well and I will be celebrating FATS, life and our hopeful future with you tonight.

Harald Ehmann Enjoyer of frogs and tadpoles

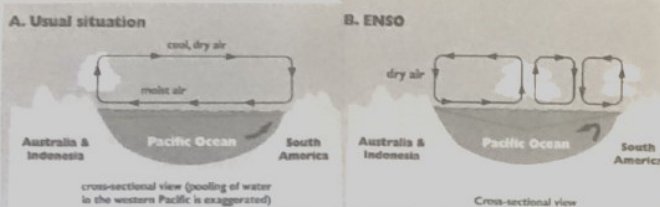
The message above, from Harald, was read by Arthur White, after Barbara Bohdanowicz opened the meeting and welcomed the new and regular members. Arthur announced a list of surveys and invited members to join in "slopping around the swamps" looking for Green and Golden Bell frogs.

Marion Anstis presented wonderful preview slides and discussed her book "Tadpoles of South-eastern Australia – A guide with keys". Slides included excellent shots of eggs, tadpole development, mouthparts and frogs. This magnificent book will be available early next year. We are anticipating the book launch will occur at the Australian Museum, prior to our February meeting.

Stan Orchard spoke about the Conference of Australian Frog Groups, funded by World Wildlife Fund and Rio Tinto. A website is being established and a group email list is fostering communication. Our panel of specialists fielding questions was Stan Orchard, Arthur White, Lothar Voigt and Martyn Robinson. Mathew Kemplay-Hill displayed several great slides: Broad Palmed frog, *L fallax* and *L dentata*. Many thanks to our interesting speakers, members and guests who donated items for our auction and guessing competition and congratulations to the winners. **MW**

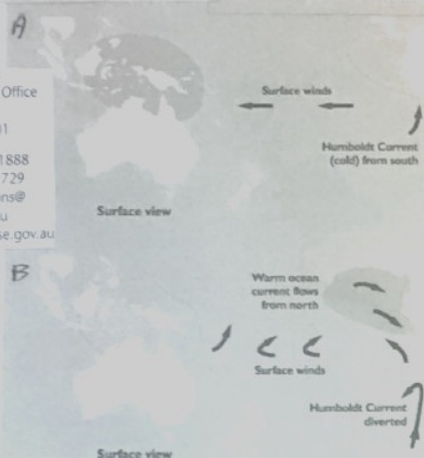


Liz, Marion and Anne singing frog songs



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Australia's variable climate is strongly influenced by El Niño Southern Oscillation episodes – a series of events involving oceans and atmosphere in the southern Hemisphere.
Australian Academy of Science



COMPLEX CAUSES OF AMPHIBIAN POPULATION DECLINES WORLDWIDE

Amphibian population declines have been recorded over the past 30 years. In the late 1980's, scientists began to notice a rapid drop in amphibian populations throughout broad regions around the world. Amphibian declines have been recorded in countries such as Australia, North America, Central America.

Although no single causal factor has been identified, several potential explanations for reductions in amphibian abundance and distribution have been put forward, including:

- Habitat-loss and degradation
- Disease
- Environmental pollution
- Introduced Invasive species
- Chemical exposure

Scientists have recently made a direct link between global warming trends and amphibian declines. The findings were published in the April 5, 2001 issue of the journal *Nature*. Researchers studied breeding pairs of western toads, *Bufo boreas*, and used long-term observational data combined with a field experiment. Following 10 years of research, the scientists found a direct link between the 'Southern Oscillation Index' and the amount of rain and snow in the Cascade Mountain in Oregon, USA.



The Southern Oscillation Index tracks temperature fluctuations including the El Niño warming cycles. Altered rainfall patterns resulted in lower levels of water in ponds and lakes, where amphibians lay their eggs. Shallow ponds led to increases in UV radiation exposure. This increased exposure to UV radiation was linked to increased susceptibility to disease.

Major findings of the study included:

- 80% of embryos placed in 8 inches of water developed infections and died.
- 12% of embryos that developed in water deeper than 22 inches died.

This research indicates that climate-induced reductions in water depth at egg-laying sites have caused high mortality of embryos, by increasing their exposure to UV-B radiation and, consequently, their vulnerability to infection.

The embryos developed infections of the water mold *Saprolegnia ferax*, which usually only attacks organisms that are injured or under stress. A number of other pathogens have been identified as a cause of amphibian declines in other parts of the world, for example the Chytrid fungus in Australia. The authors of the paper state "stress-related disease is the one consistent factor that may link amphibian deaths worldwide, and we have demonstrated that amphibian stress in the Cascades is ultimately linked to recent global climate fluctuations".

A number of recent reports have also linked climate changes with population declines in birds and butterflies.

Declines of frog populations in Central America and Australia have been accompanied by equally mysterious reptile declines, meaning that a fungus which attacks moist skinned amphibians is unlikely to affect reptiles, so the common factor may be broader than a single disease.

This study shows the amazing complexity of biological systems that we will need to understand if we translate global climate change into local species loss. The world's herpetofauna face stressors from both known and unknown origins that, without remediation, may lead to continuing declines and extinctions. **This presentation was based on the article: Kiesecker, J., Blaustein, A.R. and Belden, L.K. (2001) Complex causes of amphibian population declines *Nature* 410: 681-683 Mel Zeppel melz@ejobs.com.au**

FATS 10TH ANNIVERSARY TRIVIA NIGHT

This year FATS will be 10 years old (and still growing). To celebrate the event we are changing our December meeting from its normal information-sharing format to a social evening. Take note of a change of date: the Trivia night will be held on Sunday the 9th of December and will replace the meeting originally scheduled for Friday the 7th of December.

The Trivia night will run from 6.00 p.m. to 9.30 p.m. and it is for families as well as single members. Members can adopt lost frogs at 5.30pm, prior to the trivia commencing. It would be great if everyone came in costume and there will be prizes for the most interesting costumes (and obviously one for the best frog costume).

There will be a charge for the evening: \$ 5 per person or \$15 for a family or four or more. This fee reserves you a place on one of the 12 tables that will be set up. Each table will have up to 10 people and each table will compete as a unit. Prizes will be given throughout the evening to tables that can answer trick questions and a grand prize is available at the end of the night for the members of the winning table to share. There will also be other games and competitions throughout the night (but be warned you will need some gold coins to partake of some of these).

Call Arthur White on 95991161 or Monica Wangmann on 9797 6543 and book your place. If you want to be on the same table as your friends, indicate this. We will try to accommodate your seating requests (if there are places available). Better still, organise your friends beforehand and book a table together as a team. So get your team organised. The night promises to be a lot of fun. You do not need to have a great knowledge of frogs to do well in this competition. Originality scores big points. Some drinks and nibbles will be provided. Bring extra food and more drink to keep you alert during the night. You will need to bring your own plates and cutlery as well. AW

▼ Happy 80th birthday to **Mrs Betty Mason** for 9th April, from her daughters, Stephanie and Jayne. Stephanie tells us, "Mum has always had a love of wildlife and the countryside and she has a great sense of humour — as you can see from the photo!" Have a wonderful day, Betty.



ENGLISH Woman's Weekly



SMITHS LAKE FIELD TRIP

On the Friday night at Smith Lakes, a small convoy of keen froggers headed out to Myall Lakes State Forest in the search for *Litoria chloris*. Alas, it was neither seen nor heard, but we stumbled across a pair of *Pseudopophryne coriacea* in amplexus, whose vivid, individual black and white belly markings were incredible. At a small, ephemeral water source, we heard the "cluck" of an *Adelotus brevis* and the team went in search. He proved to be an elusive fellow, then jumped right over our heads into the water and we were not to see him again (although he continued to tease us with his call!). David Nelson heard the "what" of a *Mixophyes fasciolatus* upstream but we could not locate it. Ironically, driving toward the next site, we spotted a frog on the side of the road, which turned out to be a beautiful *M. fasciolatus* female. Actually, the side of the road was quite rich in frog species as we saw *Litoria leseuri*, *L. phyllocroa*, and *Limnodynastes peronii* in our travels between sites. From a pond near the highway, we could hear the calling of *Litoria fallax*, *L. tyleri*, *L. peronii*, and *L. revelata*. Other fauna seen in the State Forest included a couple of Red-necked pademelons (*Thylogale thetis*), a long-nosed bandicoot (*Perameles nasuta*) who was too busy foraging through the forest floor leaf litter to notice us, and a giant rainforest snail.

The less energetic froggers headed back to base camp (where we had heard *Crinia tinnula*, *Litoria tyleri* and *L. latopalmata*) and a smaller group headed to quarry pond where several species, taking advantage of the recent rains, were found in amplexus, including *Litoria fallax*, *L. freycineti* and *Litoria tyleri*. In fact the calling was so loud in this pond that we all went home with our ears ringing. Dave Nelson proved to be the master frog catcher that night by finding cryptic species like *Paracrinia haswelli*. Jodie Rowley captured awesome moments (the amplexing *L. tyleri*) with her brilliant photographic skills. A superb time was had by all. I was so excited when we returned to base camp that I could not sleep. Jo Stokes



BARRINGTON TOPS FIELD TRIP

"Its mouth opened, revealing two long slender fangs on its lower jaw, made to rip and tear at its victim..." This creature was no large mammalian carnivore, but simply an inoffensive, (at least to humans) little brown frog, its mouth levered open, which had just been caught amongst the rocks. This strange amphibian, the Tusked Frog, *Adelotus brevis*, was certainly not the only exciting find the froggers who attended the field trip to Barrington Tops experienced. This discovery, along with several others, was made a short drive away from our base at Robyn and Peter Law's property. They had generously provided their facilities to the FATS crew, for which we are extremely thankful.

The house they provided (to accommodate those who shunned their tents) was set in a lovely location, with some beautiful bushland that housed many birds, fireflies, bladder cicadas, bandicoots, and probably much more. The dam beside the house yielded 6 frog species, and its icy cold depths provided an invigorating swim for the brave. The most numerous frog at this dam was the Broad Palmed frog, (*Litoria latopalmata*), with long legs and yellow thighs, which would sit in the nearby grass by day and jump (fast and far) into the water if one walked past, and its yapping call was fairly prominent during the night. There were a few Eastern Dwarf Treefrogs, *Litoria fallax*, in the low vegetation surrounding the dam, and Peron's Treefrogs (*Litoria peronii*) cackled from the trees. Similar in appearance to the Broad Palmed Frogs, several Lesueur's Frogs (*Litoria lesueuri*) were spotted around the dam, and their soft 'rolling golf ball' call was occasionally heard, but only audible after the dusk drumming chorus of the bladder cicadas had ended. A recently metamorphosed Whistling Treefrog, *Litoria verreauxii*, still with its tail, was found on the waters edge, and the ever reliable Common Eastern Froglet, *Crinia signifera*, was also present, the last frog to shut up shop for the night.

After stomping around this dam for a while, we set off for the site for that night (the second night of the trip). Stopping off at another dam we listened to the chorus and easily picked out the grunt of another species, the Red Groined Toadlet, *Uperoleia laevis* alongside the Dwarf Treefrogs and Peron's. The site was Frying Pan Creek, and our first target was a Tusked Frog calling among the rocks. It got away, and we set off, hearing many Leaf Green Treefrogs, *Litoria phyllochroa*, and seeing several spawnings of

Lesueur's amongst the rocks, and a tadpole of the Stuttering Frog, *Mixophyes balbus*. We made our way up the creek, spotting a few *phyllochroa*, then headed back downstream. Here we saw what appeared to be the *phyllochroa*, but Arthur assured us that most of them were in fact *Litoria barringtonensis*. This species probably doesn't grace your field guides, because it has only recently been recognised as a real species, its status having been disputed for around 50 years. Its call is a variation on *phyllochroa*'s call, and it has very fine black dots on its back. Having seen a species many of us didn't know even existed, we were already pretty pleased with the trip.

When we began heading back though, what we found was even more amazing. Anne, determined to find the Tusked frog that was calling earlier, had managed to grab it, and we got a look at this strange beast (many thanks to Anne). Many photos of him were taken as we were shown the black and white marbling of its belly, and the startling red of its groin and thighs - truly an amazing frog. The tusks mentioned are used between males in territorial battles, resulting in most males over a year old being pocked with numerous scars. Most species of frogs just have ritualised calling battles over breeding spots, and the Tusked Frogs' physical battles are regarded as highly primitive - where does that leave us humans?

We decided to try to find Jerusalem Creek as well via a walking track, which we followed for quite a while, but only found some little pools that might have been connected to the creek. These contained *Lechriodus fletcheri* tadpoles - nicknamed 'stargazers' due to their dorsal eyes, as well as some more tadpoles of *Mixophyes balbus*, and additional beautiful *barringtonensis*. No creek appeared, so we headed back to base. A thoroughly enjoyable trip was had by all, the frogging was rewarding, the company delightful and relaxed, and the setting picturesque. Many thanks again to Peter and Robyn Law for the use of their wonderful property, and to Karen and Arthur White for organising the trip. David Nelson
davidavid@optushome.com.au



Litoria barringtonensis
Photographed on field trip



AUSTRALIAN REPTILE PARK XMAS PARTY

The Australian Reptile Park has again invited FATS members to their Christmas Party on Saturday the 15th of December. It starts at 11am onwards. FATS members can get free admission to the park if they contact Karen White on 9599-1161 before the 7th of December. If your name is not on the list that we forward to the Reptile Park, you will have to pay admission. Bring along food and drinks, BBQ facilities are available. AW

AMPHIBIAN SPECIES BY COUNTRY

The quickest way to get a list of species for any country in the world is via AmphibiaWeb <http://elib.cs.berkeley.edu/aw/> from the home page click on Search the Database. This gives you a query page. Select the country of interest and search. For South Africa you will get, almost instantly, a list of the 107 species in our data base. AmphibiaWeb is a work in progress, changing daily, and we invite corrections, additions, etc. We are attempting to maintain an up-to-date listing of all of the species of amphibians in a searchable database. David B. Wake Professor of Integrative Biology Curator, Museum of Vertebrate Zoology 3101 Valley Life Sciences Bldg. University of California Berkeley, CA 94720-3160 WAKELAB@UCLINK.BERKELEY.EDU <http://ib.berkeley.edu/labs/wake/wakelab.html>

BARREN GROUNDS BIRD



Facilities and location are ideal as a base for walks and exploration of the Illawarra Region. Visit beautiful Morton and Booderee National Parks, Jervis Bay and Lake Wollumboola. PO Box 3 Jamberoo NSW 2533 ph 61 2 4236 0195 barren.grounds@bigpond.com www.users.bigpond.com/barren.grounds

ASHFIELD CARNIVAL OF CULTURES

Crowds of people stopped to see the frog stall at the Carnival. Thanks to Lothar, who stayed all day and set up an excellent frog pond, Punia, Katherine, Bronwyn Englaro from WIRES, Robert Burke, Andre & Renata Rank, Jean Posen, and many others who plunged into the frog pond for the celebratory champagne and made it such a wonderful day. MW



SOMETHING MISSING IN FRAGILE CLOUD FOREST: THE CLOUDS

Bathed in a curtain of life-giving fog and mist, the Monteverde cloud forest in the mountains of Costa Rica is a profusion of dripping green that stands as an international model of conservation gone right. But despite Monteverde's tens of thousands of protected acres, scientists say this tropical luxuriance, beloved by biologists and ecotourists alike, may be at risk: the clouds that bathe the mountains seem to be disappearing.

The problem, scientists say, is deforestation, but not within Monteverde's vast network of reserves. Instead, in a new study in *Science*, researchers report evidence that deforestation in the lowlands is lifting the mountains' curtain of life-giving fog and mist out of the forest's reach, leaving more and more of what had been cloud forest without clouds. "We all thought we were doing a great job of protecting the area," said Dr. Robert O. Lawton, a tropical forest ecologist at the University of Alabama in Huntsville who was the lead author of the study. "Now we're seeing that deforestation outside our mountain range, out of our control, can have a big impact."

Scientists say tropical mountain cloud forests, among the world's most threatened ecosystems, are likely to be suffering from losses of clouds in other parts of the world as well. Found throughout the tropics, cloud forests are typically rich in biodiversity, with each mountaintop often harboring its own unique suite of species.

Chilly and difficult to reach, these forests are typically the last areas to be colonized by people, a final refuge of biodiversity in places where lowlands have been cleared and developed. "Many cloud forest organisms have literally nowhere to go," said Dr. Nalini M. Nadkarni, an ecologist at Evergreen State College in Olympia, Wash. "They're stuck on an island of cloud forest. If you remove the cloud, it's curtains for them."

Of equal concern, some scientists say, are the study's implications for the many watersheds fed by wet highland forests. "We always knew that if you have a town and a mountain behind it, you protect the mountain forests to protect the water," said Dr. James O. Juvik, a tropical ecologist at the University of Hawaii at Hilo. "This says, even if you leave the cloud forest intact like good conservationists, if you clear the lowland forests, you can diminish the cloud forest and affect your water flow."



Earlier studies provided evidence that global climate change was also lifting the clouds at Monteverde. Scientists said that it was unclear whether deforestation or global warming would be a more potent force, but that the two could easily heighten each other's effects in the mountains.

While watered by rains during the rainy season, Monteverde gets most of its critical moisture during the dry season from the mist and fog of low-lying clouds. Dr. Lawton said he and colleagues began the study when they realized that deforestation in lowlands could warm and dry the air flowing toward Monteverde. That warmer, drier air, they reasoned, might be forced to rise higher to make clouds, robbing parts of the forest of critical moisture. When researchers compared forested and deforested lowland areas, looking at the actual accumulation of clouds and at computer simulations, that was just what they saw. Where there was more forest, there were more and lower-hanging clouds. Air moving over deforested areas, in contrast, formed cloud banks over the mountains that were higher and fewer.

Shifts in fog and mist up and down a mountain are subtle changes not easily seen and rarely quantified, so it should not be surprising that one of the first places where such changes would be noticed would be Monteverde, a cloud forest heavily peopled by scientists. Begun as a colony of expatriate North American Quakers, Monteverde has been a huge attraction for American biologists, many of whom have devoted their careers to the flora and fauna of the region. A quick look at the forest's inhabitants makes clear why from the record-breaking diversity of orchids to creatures like the resplendent quetzal, a glittering green, kite-tailed bird truly worthy of its name, and the so-called singing mice that whistle and chirp like birds. Longtime researchers say they can see the biological effects of the shifting mists and clouds as well. "What really makes it obvious is you can look out the window now and see species you never saw up here before," said Dr. J. Alan Pounds, resident biologist at the Monteverde Cloud Forest Preserve. "We see the black-headed nightingale-thrush and the keel-billed toucan, species you normally only see further downslope. They're now inhabiting what used to be good cloud forest." Researchers say the effects of deforestation and global warming might explain other mysteries on the mountain, including the puzzling disappearance of Monteverde's golden toad. A flashy orange creature last seen in the late 1980's, the golden toad has

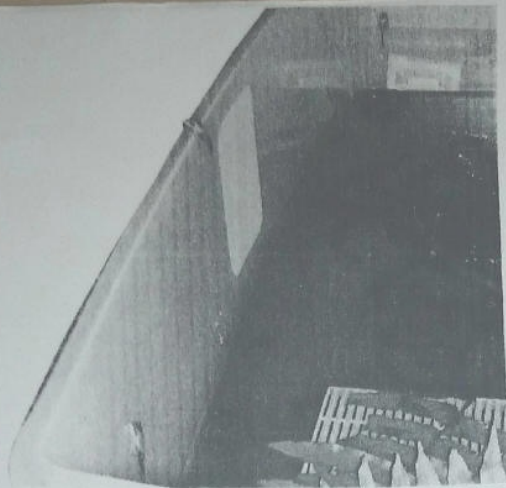
become an international symbol of the world's disappearing amphibians. Seeing how even pristine and protected forests like those at Monteverde can lose their crucial mists and clouds, researchers say it becomes less mysterious how a water-loving creature like the golden toad could vanish even from a forest where every tree still stands.

The disappearance of such charismatic creatures is not only a worry for biologists. Monteverde is an eco-tourism mecca, with nearly 50,000 nature-loving visitors walking its trails each year, stopping for a bite to eat or perhaps picking up a golden toad mug or Monteverde T-shirt along the way. Scientists say that if the cloud forest falters, much business will be lost along with the unique species. "Unfortunately, Monteverde is on the crest of a mountain," Dr. Juvik said. "Maybe if it were on the side, it could migrate upward with the clouds. In this case, it's already at the top. If you move the cloud forest up, then the cloud forest is bye-bye." Researchers said it was difficult to think of a cure for an atmospheric problem like the receding clouds. But Dr. Nadkarni said she hoped the new study would at least rally the scientific troops to begin studying and documenting Monteverde's changes. "We need to monitor what's going on," she said. "This is happening now." **The New York Times Company By CAROL KAESUK YOON**
forwarded on by James Stuart
JStuart@STATE.NM.US, and Stan Orchard
sorchard@bigpond.com National Co-ordinator -
WWF/Rio Tinto Frogs! Program World Wide
Fund for Nature Australia 9281 5515

FROGWEEK AT CENTENNIAL PARK

Nine years ago FATS held its very first Frogweek show at Centennial Park. Now, on the 3rd and 4th November, we were back, spreading our cages and posters and our frogpond and pond plants out over as big an area as we could prise away from the picnickers at the Duck Pond. Punia came to do froggy facepaintings. Anne and Liz had hooded froggy looking costumes on, Marion wore Martyn's froggy hat, and when they were not standing in our pond talking to the public they were singing frog songs as loud as they could. Thankfully Arthur and I did our frog talks without such merriment. A thank you also to Centennial Park for having put up with us, and to the media for having given us a generous mention, and of course to our many frog explainers who came to help and to join in the fun. L.V.





OLDEST TREE FROG TADPOLES EVER?

In March this year I posted a few messages where I reported finding a bucket full of tadpoles in my back garden in Darwin. They would have "hatched" about mid February and there was a few hundred of them.

Nearly all have since metamorphosised. Now there are just two tadpoles left. They would be nine months old. They must surely be the oldest living tadpoles on record.

Most of the tadpoles changed to frogs within two months (the earliest 35 days). But I'd left a hundred of so in the bucket in the backyard and neglected them. I hadn't been feeding these ones much and didn't change the water at all. I moved them to more spacious quarters but by then the Dry Season was starting and night time minimum temperatures were starting to drop below 20 degrees Celcius. This seemed to inhibit their growth. Anyhow, nearly all are gone now (released into the "wild").

The Wet Season has just begun. The male tree frogs in the garden are making an awful racket. So far no sign of Cane Toads, but I saw one in Katherine earlier this year.

It sounds like tadpoles could, in theory, be kept as tadpoles indefinitely if conditions were manipulated in a certain way. From the point of view of keeping pets, this could be a good thing. Compared to adult green tree frogs, the tadpoles are a lot more active, they are more responsive and they are a lot easier to feed. When you put your hand in the water, they come up and start nibbling (they're probably eating away the old epidermal layer). Which feels like being licked by a cat. Also, they don't make a huge racket.

They would also make excellent pets because if the kids got sick of them, all you'd have to do is turn up the water temperature and let them turn into frogs.

Kevin Cook k.cook@bom.gov.au Darwin

IT'S A FROG'S LIFE

Course 0213210 with the University of Sydney's Centre for Continuing Education. Take a weekend to discover the fascinating world of Australian frogs. Combining illustrated lectures and easy field-work, the course covers the ecology, identification and conservation of frogs, as well as survey techniques. Held in the foothills of the Blue Mountains, the course offers hands-on experience with these little-known creatures. Includes all meals and dormitory-style accommodation. 5.00pm Friday 1 February to 12.30pm Sunday 3 February: 3 days. Price - \$298.

Additional information for the Frog Course is the actual times in runs from and to: 5.00pm Friday 1 February to 12.30pm Sunday 3 February. This may be of some importance in determining if people can make it in time on the Friday, which is not too essential anyway. Last time we had the first talk by the pool as that was the most comfortable site. For enrolment details and contacts you can view the <http://www.usyd.edu.au/su/cce/enrolment.htm> info@cce.usyd.edu.au or call Liselle Pullen on 9351-3281. Francis Lemckert Research and Development Division State Forests of NSW 02 9872-0159 FAX 02 9871-6941

Punia painting a frog face on Karen

Anne and Liz with frogs and standing in freezing water



NOW THAT I'M IN A SMALLER POND,
I SUPPOSE I'LL HAVE TO LOWER MY EXPECTATIONS!



GOING TO RHEO

I understand that a few of the creationist groups have been using the Gastric Brooding Frog as an example of 'creation' as the evolutionary process by which the reproductive strategy evolved 'can't' be explained satisfactorily. As far as I've read I haven't seen an evolutionary process suggested either so I thought I'd provide one now. I suspect many people are looking at it from entirely the wrong angle. For those who don't know the details (and that's probably no-one on this e-mail-list!) the gastric Brooding Frogs are unique in the animal world. In general terms:- the females swallow the fertilized eggs which then produce a secretion which turns off the digestive process in the females stomach. The eggs develop, hatch and undergo metamorphosis within the stomach and are regurgitated sometime later as fully formed and independent metamorphs. Once the mothers stomach is empty the digestive process starts up again and things return to normal. As a result it's hard to see how such a process could develop via evolution. Any frog which swallowed its own eggs which didn't produce this secretion would leave no progeny to carry on its genetic line - so the genes for this behavior would end there. Eggs which produce the secretion without a mother with the behavioural trait to swallow them would have little advantage either (but perhaps wouldn't they die - a clue here I suspect). It would appear that the two characteristics would have to work perfectly the first time or the strategy would fail. This would favor a creation argument. However what isn't always remembered is that the frogs continue to produce this 'digestion stopping secretion' thru'out their lives. Mike Tyler reported the last known representative of *Rheobatrachus silus* as 'donating his bath water to science' (or words to that effect). The secretion could be extracted from the water and hopefully synthesized to help in treatment of certain gastric problems in humans. Here I think is the main clue. The same secretion seems to work on an extremely wide variety of animals and it stops the digestive process in them as well. Any animal which swallows one of these frogs whole and live (which in the area the frogs are found includes birds, snakes, eels, and other frog species) is unable to digest it and presumably would

end up regurgitating it relatively unharmed. Anything which chews its food e.g. mammals, crustacea (e.g. crayfish), certain water insects, etc. would kill the frog in the process and therefore stop the formation of the secretions and digest their meal of gastric brooding frog - so it fails as a defense with them. From here it's a relatively easy evolutionary process to get to the gastric brooding. 1 The frogs, eggs, and tadpoles all produce this secretion throughout their life and are all indigestible. This is a defense strategy NOT a reproductive one. 2 Female frogs resting near their developing eggs might snap at them when they perceive movement of the developing embryos through the clear jelly membrane. Many frog species will snap indiscriminately at movement and many frogs can be cannibalistic. 3 The female frogs cannot digest the eggs anymore than any other animal could as they swallow their food whole. However as the eggs are not uncomfortable, nor moving, they are tolerated and not regurgitated immediately. 4 The females have more control over their body temperatures/safety by moving away from danger, basking, and hiding. Any eggs they have inside them at the time develop faster and are protected from potential chewing predators like crayfish and water beetles. Hence an advantage over those eggs left in the creek. 5 If they are carried through 'till hatching evolution would favour big yolked eggs and little or non feeding tadpoles over those that hatched early, small, and requiring food (the latter having poorer survival chances but still with a good enough chance of being regurgitated alive to carry on this genetic line). 6 If this trend continues then metamorphosis without feeding (or with little food required, remember food creates metabolic waste which in the enclosed confines could hurt the tadpoles and mother) is the next step. 7 The continued struggles of legged metamorphs would then be a ready, more uncomfortable trigger to regurgitate as they would be harder to ignore as they wouldn't cease as would the struggles of normal digestible prey. Points to also consider - many frogs lay eggs with large yolks and tadpole stages with little or no feeding and without the gastric brooding aspect so this could have been the case with the ancestor of *Rheobatrachus* anyway. i.e. a short cut to this strategy. Of course all this is speculation and likely to remain so if our *Rheobatrachus* species really are extinct. Hopefully viewed from this angle the evolutionary process by which the bizarre reproductive strategy evolved isn't so hard to fathom!? Remember - you heard it here first! **Martyn Robinson** martynr@austmus.gov.au



DON'T FORGET FROG WEEK 2001 O'Reilly's Rainforest Guesthouse Lamington National Park, SEQ 9th - 14th of December



How can anyone not like frogs?! They're cute, colourful, they've outlived the dinosaurs and they are good indicators of the health of the environment. Above all perhaps, they can produce the most awe inspiring choruses that leave people wondering how they've managed to never *really* hear them before. Why not come to Frog Week 2001 and hear them for yourself? O'Reilly's 7th Annual Frog Week provides the ideal setting for anyone keen to learn more about our lovable amphibians. Due to its range of altitudes and habitats, Lamington National Park plays host to a diverse selection of frogs - 32 species (31 natives) in all, from the little Red-backed Froglet *Psuedophryne coriacea*, with its contrasting patterns, to the loud and lovable Red-eyed Green Tree Frog *Litoria chloris*.

Experts such as Harry Hines (Queensland Parks and Wildlife Service) will be there as keen as ever to expose you to the wonderful world of frogs. Presentations during the week will range from the basics of identifying frogs through to some of the latest findings in amphibian research. We will then

head off into the surrounding National Park and put our frog-searching skills into practice. We will search for frogs that breed in streams, frogs that breed in ponds and we will even search for frogs that don't go near the water to breed. The rare Marsupial or Hip-pocket Frog is one such frog - it has an unusual reproductive strategy whereby the male carries its tadpoles around in folds of skin on their hips! Just like a pregnant male! Who would have thought frogs were capable of such ingenious acts?!

Due to many reports surrounding the decline of amphibian populations all over the world, people are starting to develop a greater interest and concern for our cold-blooded pals. Frog week combines presentations with plenty of field trips so that we can all broaden our knowledge and understanding. It matters not whether you're a novice or experienced 'frogger', the common interest is learning about frogs and enjoying the company of others who share your passion for them. You don't have to stay for the duration of frog week, shorter stays are most welcome. For more information please contact **O'Reilly's toll free on: 1800 688 722** **Woo O'Reilly**
O'Reilly's Rainforest Guesthouse Lamington
National Park Rd Via Canungra Q 4275
Mob:0402 229 04

Councillor's leap of faith



Ashfield councillor Monica Wangmann with Matey, her endangered green tree frog, who was rescued from a load of produce trucked into Sydney from interstate.
Photo: AARON BROWN

By RAYLENE BLISS

KISSING frogs may not always produce a fairytale handsome prince but a little kindness could save this species.

Twenty-five of the 80 frog species in NSW are now rare or endangered.

Three of them, the speckled tree frog, the New England bell frog and the Southern Tablelands bell

frog, may have become extinct.

Ashfield councillor Monica Wangmann has taken up the cause of these little creatures through her involvement with the Frog and Tadpole Study Group, which is this year celebrating its 10th anniversary. is celebrating Frog

- ☐ *Litoria raniformis*
- ☐ The southern bell frog is large and found throughout the swamps of the River Murray and southeast
- ☐ Has a loud barking call and distinctive, colourful skin patterns
- ☐ Specialises in feeding on other frogs and regarded as a voracious cannibal
- ☐ Has a pale green mid-dorsal stripe with large black spots on its back
- ☐ Is closely related to the smooth-skinned green and golden bell frog, *Litoria aurea*

Endangered species

THE endangered southern bell frog has found a strange ally - the rice growing industry.

In fact, scientists believe rice fields and their cultivation may provide the only key to ensuring this species survives at all.

Unlike its Sydney cousin, the green and golden bell frog, this amphibian has suffered a silent decline in numbers to the point that it is in danger of extinction.

But one population has been booming in southern NSW, thanks mainly to the lush green rice fields that have provided it with a new and accidental habitat.

A scientific study into the frog's demise found that irrigation improved its chances.

According to an Australian Museum report conducted by Graham Pyke, cultivation of rice through irrigation created the ideal habitat for the southern bell frog.

This has enabled it to proliferate in areas such as Coleambally, which contains most of the remaining population.

Frogs thrive in rice

Ideal habitat found
Telegraph 8-10-01

"This species breeds in late spring or early summer in sites that are disturbed through flooding," Dr Pyke said. "Irrigated rice fields are flooded in spring and remain flooded through the summer and into autumn; hence in many respects rice fields provide the flooding regime that mirrors the frog's natural ones."

"Rice-growing areas may increasingly contain the remaining populations of this frog species and its conservation in NSW is likely to depend on rice growing practices in this state."

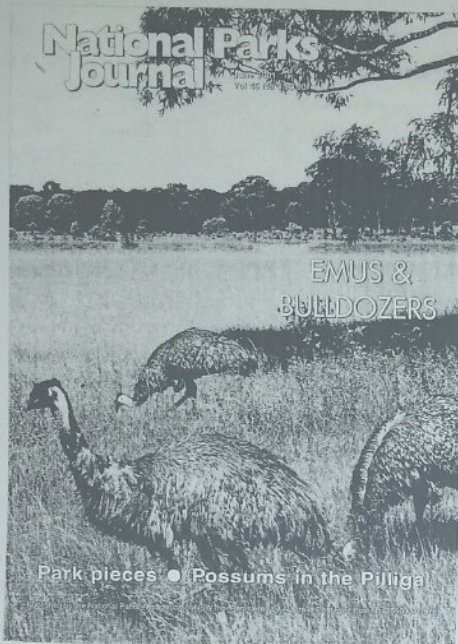
Coleambally Irrigation Co-operative Limited Natural Resource and Environment manager Arun Tiwari said the frog had become the unofficial mascot for the district's rice growers, who have been working to implement environmentally sustainable land and water management practices for the past 10 years.

"Frogs are considered an indicator species because they are very sensitive to environmental changes, so recording the frog in this area was great news for our farmers," he said.

"We have talked about reducing the speed limits on the roads during harvest time and putting signs up on the highway for motorists to look out for the frogs."

"Farmers call us when they find the frog in their paddocks and the community is discussing registering the frog as a trademark for the town."

Members can adopt lost frogs at 5.30pm, prior to the trivia night activities.



EMUS & BULLDOZERS St Marys ADI site

Peter Caldwell*

What you can do

NPA believes the entire site must be protected as a regional park. ADI RAG are to be congratulated for their persistence. They organised a rally on 1 April which was attended by 1,200 people, most of whom wrote letters to politicians. An overwhelming community response is essential leading up to the Federal election this year.

- Volunteer to help the campaign
- Write letters to politicians

Federal Government: Jackie Kelly, Member for Lindsay, PO Box 712, Penrith 2750. Roger Price, Member for Chifley, Shop 3, Daniel Thomas Plaza, Mount Druitt 2770. Prime Minister John Howard and Federal Environment Minister Robert Hill; both at Parliament House, Canberra, ACT 2600

State Government: Premier Bob Carr, Minister for Environment Bob Debus, Minister for Urban Affairs and Planning Dr Andrew Refshauge; all at Parliament House, Macquarie St, Sydney 2000

- Write to Lend Lease opposing their plans to destroy Cumberland Plain woodland: Level 46, Australia Square Tower, George St, Sydney 2000

Useful contacts:

- NPA Sydney Branch - Peter Caldwell fax 9439 4915
- ADI Residents Action Group ph 4722 6313, fax 9623 7218, mobile 0411 682 206, website www.savetheadisiite.bmt.com.au

* Peter Caldwell is President of NPA Sydney Branch.

Andrew Cox is the Executive Officer of the National Parks Association of NSW. For more information on the ADI site visit www.savetheadisiite.bmt.com.au.



Governments continue to sell off the farm despite widespread demonstrations of public opposition

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We hold six informative, informal, topical and practical meetings each year at the Australian Museum, Sydney (William Street entrance).

Meetings are held on the first Friday of every **even month** (February, April, June, August, October and December) at 6.30 pm for a 7.30pm 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.

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