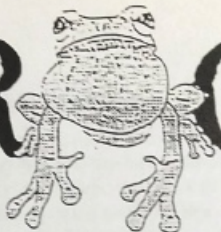


# FROG CALL



NEWSLETTER No. 82  
April 2006

THE FROG AND TADPOLE STUDY GROUP OF NSW INC

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ABN 34 282 154 794

*Litoria rheocola* photo by Alistair MacDougall  
(see page 10 & 11)



You are invited to our next FATS meeting  
at 6.30 pm for a 7.30 pm start

**Friday 7<sup>th</sup> April 2006**

Follow signs to Building 22,

Northern end of Jamieson Street

Off Holker St. RANAD site

Homebush Bay, Sydney Olympic Park

Public transport:- 525 Bus from Strathfield or

train to SOP station. Call us, in advance,

on 0419 249 728 if you need a lift from the station.



## MEETING FORMAT for 7<sup>th</sup> April 2006

- 6.45 pm A small number of lost frogs need homes and are ready to collect from the Frog Rescue Service. Please bring your FATS membership card & Amphibian Licence.
- 7.30 pm Welcome and announcements
- 7.45 pm Main presenter:- Marion Anstis speaking about Western and Northern Australian frogs and tadpoles
- 8.30 pm David Nelson:- Frogs and reptiles from the Northern Territory
- 9.15 pm 5 Favourite Slides. Anyone wishing to speak about their recent frogging trips or experiences is most welcome to tell all. If you have slides or other images, bring them along as well.
- 9.30pm Drawing of door prize, guessing competition  
Light refreshments and pleasant conversation

## CONTENTS

Last meeting	p2
Main speaker, Trent Penman	p2
Brad and Matt McCaffery	p2
Grant Webster	p2
Matthew Kemplay-Hill	p2
For your calendar	p3
Guess where FATS has been	p3
Frogbits and Tadpieces	p3
Harald Ehmann's book	p4
Keeping out the toads	p4
Spraying pesticides in wetlands	p5
Endangered Booroolong Frog	p6
Wardell wetlands and the RTA	p7
Toxic toads evolve	p8
Native frogs get the jump on toads	p9
Al MacDougall's Far North trip	p10
Clippings & committee contacts	p12

## LAST MEETING 3<sup>RD</sup> APRIL 2006

**T**rent Penman, who is doing his post doctorate, presented our meeting with the background to searching for Giant Burrowing Frogs. Our lack of knowledge about the species coupled with the low numbers of records has led scientists to have conservation concerns for their survival. It is suggested that declines have occurred especially in habitats such as Sydney where urban development has squeezed them out.

A study of the Southern populations, understanding habitat requirements, landscapes, population and individuals began in 2001. It involved 300 to 400 hours of nocturnal road transects, 7,500 trap nights (1 bucket = 1 trap), 120 hours of auditory surveys around Eden.

Other species encountered included Bibron's toadlet *Pseudophryne bibronii*, *Litoria ewingii*, *Lt. citropa*, *Lt. dentata*, *Crinia signifera*, *Heleioporus*, *Limnodynastes dumerilii* and *Paracrinia haswelli*. *Litoria littlejohni*, *Lt. aurea* and *Mixophyes bulbosus* were not seen.

Females totalling 13 and 20 males were tracked from between 5 and 599 days averaging 140 days per frog. Behaviour was not solely driven by rainfall. They were active throughout the year and there was a strong link to meteorological conditions. They burrowed between 1 and 20 cm under the ground and used home burrows. They appear to have some orientation to return to home burrows. It could be a chemical cue. They have distinct non-overlapping territories of about .05 hectares. This is unique behaviour and possibly food related.

Five breeding sites were identified in pools lasting from 6 to 12 months, one in a man made drainage area.

Predation was mostly by snakes.

Studies of their survival in control burning and logging areas has been carried out. They survived control burning situations where they were 5cm or more below the surface of the soil. Recovery plans indicate that fire management should avoid high intensity burning.

Thank you to Trent for sharing his insight into this unique and unusual frog.

Brad and Matt McCaffery spoke about their Christmas holidays in North NSW and Southern Queensland. Their presentation included slides and frog calls from several sites. Frogs included *Litoria fallax*, and its tadpole, *Lt. peronii*, *Lt. nasuta*, *Lt. caerulea*, *Lt. chloris*, *Lt. wilcoxi*, *Lt. personata*, *Limnodynastes peronii*, *Assa darlingtoni*, *Mixophyes fleayi*, and tadpoles and *Mix. fasciolatus*.

Grant Webster described his trip to The Watagans and described dam sites, which included *Litoria peronii*, *Lt. fallax*, *Mixophyes fasciolatus* and *Limnodynastes peronii* calling. At the second site millions of *Uperoleia*, *Lt.*

*revelata*, *Lt. chloris* At the third site was *Mix. iteratus*, *Litoria phyllochroa*, *flecheri* tadpoles. The fourth site had tusk frogs, *fasciolatus* and *fallax* tadpoles, red backed toadlets, *Lim. Fletcheri*, *Mixo. Fasciolatus*.

Arthur White spoke about the auditory surveys at Sydney Olympic Park. Volunteers are required.



<http://www.wises.com.au/snowy/jagfie.htm>

Punia Jeffery described her bushwalk and showed slides of the Jugungal Wilderness, which has been badly affected by fire. see page 4

Matthew Kemplay-Hill spoke of the Kooragang Island site and their natural wetlands. He saw *Litoria fallax*, Green Tree Frogs, *Lt. jervisiensis*, *Lt. peronii*, *Lim. peronii*, and the Emerald Spotted Frog.

The meeting ended with light refreshments being served in the hall. FATS thanks SOPA for the generous use of their comfortable heritage hall, which is located in such pleasant surroundings. MW

David Hunter from the Department of Environment and Conservation seeking the elusive Southern Corroboree Frogs *Pseudophryne corroboree* and their eggs.



Kosciusko National Park March 2006  
Photos by John and Susan Stephens



## FOR YOUR CALENDAR

**FATS at the Easter Show.** This year we are giving frog talks on the stage in the horticultural pavilion. They last only 30 minutes each but there will be ten of them. Here's the schedule:

Friday 7.4.	1 and 3 pm	Lothar
Mo. 10.4.	1 and 2 pm	Lothar
Thur. 13.4.	2 and 3 pm	Arthur
Su. 16.4.	2 and 3 pm	Monica, Alistair
Tue 18.4.	2 and 3 pm	Martyn

### Frogmobile public events:

- Su. 21.5. 10-3 pm Centennial Park, Duck Pond  
(also Million Paws Walk day). Helpers needed
- Sat. 24.6. 9-3 pm Warringah Council  
World Environment Day Expo, Narrabeen  
(also 20.-22.6. for school classes booked in)
- Su. 16.7. 11-4 Cent. Park, Duck Pond  
(if we still have the FM by then)

### FATS on the radio:

- Su. 30.4. 10 am ABC 702 Simon Marnie  
(Lothar with Geoff Ross of NPWS)
- Tuesdays 9 am 2SER 107.3 FM Ruby,  
also syndicated to other stations  
(Arthur the frog wrangler) L.V.

## GUESS WHERE FATS HAS BEEN

### Frogmobile:

Thur. 26.1. At Barden Ridge, courtesy Menai Rotary Club for their "Eco-friendly Australia Day". Lovely sunny day, with Arthur, Karen and Alexahnder and lots of visitors. Also lots of local Shirley Temple talents and the Bananas in Pyjamas belting away on the stage next to the FM. But we were the eco-friendliest show of them all.

Su. 29.1. At the Centennial Park Duck Pond again. Another great day.

Sat. 18.2. At Cherrybrook Community Centre, courtesy of Hornsby Council doing their bit for urban biodiversity. Marion, Arthur and I gave frog pond talks, Bunnings donated 50 small plastic ponds, the council donated pond plants. And everybody loved the little froggies.

Su. 26.2. AT ABC Building in Ultimo (actually, I managed to squeeze the FM right into the foyer entrance). ABC Radio had an open day where you could meet all the famous talking heads. I think it went really well, although I couldn't see much. (While I was being interviewed, some other short-sighted person must have stuck my glasses in

his pocket. One day he'll get them out again and see they're not his. I briefly thought of making another announcement to that effect, but I didn't fancy getting 25 pairs of glasses sent in either.) Apart from that, I was lonely because nobody from FATS was there to help. All the regulars were off on the Jervis Bay field trip. But then Alice, Ken and Daniel from the Aquarium Society came and gave me a spell; and at packing up time there were plenty of passers-by who ended up helping me pack the frogs away again.

### Other FATS talks:

Tue. 31.1. ABC 702 picked up a National Geographic article that links frog declines with global warming  
<http://www.foxnews.com/story/0,2933,181438,00.html>. The thrust was that chytrid fungus might find an optimal temperature in a growing number of areas. The interviewer needed a snap commentary on whether current frog losses are as significant as the dinosaur extinctions were. I said sure and then talked about our web site instead. (Talking about the website, Frogfacts 2 – 9 are now online and updated.)

Sat. 18.2. Arthur presented a joint paper at the Bell Frog Conference in the Australian Museum: "Recovery Planning and Green and Golden Bell Frogs – Whose bloody responsibility is it anyway?" L.V.

## FROGBITS AND TADPIECES

**Magnificent Tree Frogs:** Many thanks to Darrelyn Rainey. She donated ten baby *Litoria splendida* to FATS. If you want to buy any more, she's on 0419 605 664. You won't need a Class 2 licence for them these days; the normal Class 1 will do.

**Ultrasonic Chinese frogs:** A weird story on a squeaky new species at  
<http://www.foxnews.com/story/0,2933,188018,00.html>.

**Frog eating made us brainier:** At last we know why our heads are bigger than is good for us, according to  
<http://www.foxnews.com/story/0,2933,185430,00.html>.



Lindy Peisley's Striped Marsh Frog

## REMEMBER THAT GUY?

The culprit who started off the FATS Group in 1992. Who started up FrogCall and Frogweek and the forerunner to the Frogmobile. Who raised the funding for our endangered frogs survey ENDFROGS and who then coordinated and edited the book. And who then went to live in Adelaide. Harald Ehmann, none other.

It now turns out he spent the last six years writing another book, called "South Australian Rangelands and Aboriginal Lands Wildlife Management Manual". A step in the direction of making people more sustainable. If you happen to be a pastoral landholder in S.A., you will receive a free copy. If not, their Water, Land and Biodiversity Conservation Department (08 8463 6980) will send you one for \$85 + p.p. see page 12

I think we should have a manual like that for NSW too. Our needs are much more urgent here; we're not in such a good shape. Come back, Harald, all is forgiven! L.V.



By Charis Chang 20 2 06

The Corindi Beach Residents Group is urging council to consider natural water drainage systems instead of spraying herbicides in the local area.

Corindi Beach Residents' Group (CBRG) say that Coffs Harbour City Council is spraying herbicides into an open drain adjacent to a freshwater wetland on McDougall Street, Corindi Beach.

See page 5

Coffs Advocate 18-2-06

## Frogs hit by spray

CORINDI Beach residents say spraying of pesticides into a wetland by Coffs Harbour City Council staff has created a small-scale environmental disaster in their village.

A spokesperson for the Corindi Beach Residents Group (CBRG) said a waterway in Corindi's McDougall Street, which previously filtered water and sediment through grasses and reeds and teemed with frogs and water life, had become a silent mess of filthy water covered

in algae and dead plant matter since council began spraying.

"The irony is that the Coffs Harbour City Council wrongly believes that all this poisoning will help drainage when actually the opposite is true," said the spokesperson.

"The destruction in the waterway has caused a lot of dead plant matter which is impeding water drainage. The destruction has encouraged weeds to grow where none grew before."

But a council spokesman said the dead plant matter was a short term problem which would clear itself and the spraying was at the request of the works branch as part of a city-wide program to make sure the table drains were clear.

He said the Environmental Protection Authority (EPA) had no problem with the use of the chemical used, Round-up the Active, which was registered for use in waterways and open water.

## KEEPING OUT THE TOADS

We had an email query from the Lismore area that was passed on to FATS by DEC/NPWS. It's about keeping cane toads from spawning in frog ponds. Most of it would also apply to keeping Striped Marsh frogs out of garden ponds that are either meant for tree frogs or that too noisy for the surrounding dormitory landscape. Anyway, here's the reply:

If your tadpoles don't grow bigger than 3.5 cm (total length) and are shiny black or very dark INCLUDING VERY DARK UNDERNEATH, then you have toadpoles, and you can safely drain and refill your pond. See also

<http://www.qmuseum.qld.gov.au/inquiry/leaflets/leaflet0030.pdf> and

<http://www.amonline.nct.au/factsheets/canctoad.htm>

There are 3 ways of keeping cane toads from spawning in your pond in future:

- Make a 60 cm high wall around your pond - either tin or palings (slightly dug in) or brick etc. Or make it 120 cm high and child-proof at the same time. Cane toads can't climb. But don't have chairs or bushes against the wall on which they could struggle up. Tree frogs will still be able to get in or out, provided your wall hasn't got an overhanging capping where they would have to cling upside down which most species can't do. But you are excluding native ground frogs that way.
- Make a wire mesh wall instead, with a 25 x 25 mm mesh size. This also lets most ground frogs through but not adult cane toads. Any young ones that get in and then grow up will have to be removed manually before they are of spawning age.
- If you don't want to fence the pond in, you might be able to patrol it every day in summer and check for cane toad spawn. Look for tangles of very long gelatinous clear strands with a double row of eggs in them - up to 10 m long and totally different from native frog spawn. You can wind the strands up on a stick and throw them out.

On freezing cane toads, it's even kinder if you put them in the fridge first, then the freezer. This makes them torpid and sends them to sleep first, instead of freezing their toes on and their eyeballs over while they're still fully alert.

Good luck and best wishes, L.V.



Corroboree Frog photo from ARC site





Alpine Tree Frog *Litoria verreauxii alpine*  
Kosciusko National Park March 2006  
Photos by John and Susan Stephens

## SPRAYING PESTICIDES IN WETLANDS

**C**offs Harbour City Council has been "wrapped over the knuckles" by the Department of Environment & Conservation (NSW) for spraying herbicides into open drains that run into protected wetlands which provide habitat for endangered species.

Coffs Council may feel under siege at the moment with the recent revelation that Council managed to poison their own trees through ignorance.

The Department acted on a complaint from the Corindi Beach Residents' Group regarding the environmental damage caused by herbicide spraying in open drains at Corindi Beach. The Department has pointed out to Council in a letter dated 22 March 2006 that it is an offence to willfully or negligently use a pesticide in a manner that harms an animal that is a threatened species and recommended that Council implement alternative approaches to pesticides where possible.

"Since we first publicly exposed the environmental damage caused by Coffs Council spraying herbicides into open drains we have been alarmed by the number of people contacting us with their own horror stories" said Sally Wilson, spokesperson for the Corindi Beach Residents' Group.

Reports coming into the Corindi Beach Residents' group include a landcare group's experience of Council workers spraying all the young native trees they had so diligently weeded around.

An even more disturbing report came from someone who witnessed roadside spraying in the rain which is illegal because of the potential for runoff. The person took photos of the activity. A complaint has since been lodged with Coffs Council over this matter.

"It appears to us that many of the persons spraying these very toxic substances have limited knowledge of the products they are using" said Ms Wilson.

See page 4

"Why on earth would they be spraying toxic chemicals in the middle of Harbour Drive which is a busy pedestrian thoroughfare for people including young children?"

Council workers have even been seen exposing themselves by spraying up steep banks above their heads.

"Workers also appear to have very limited native plant identification skills and often spray non noxious weeds indiscriminately which kills off native species in close proximity. Also when they do spray and create bare areas it merely encourages more weeds to germinate and they become locked into a cycle of repeated spraying. Not only is it a public health issue, it's not cost effective and it's a waste of ratepayers' money"

We sincerely hope Coffs Council reevaluates their use of herbicides in the interest of public health and for the sake of the environment" concluded Ms Wilson contact Sally Wilson [sallywilson@aapt.net.au](mailto:sallywilson@aapt.net.au) or the Corindi Beach Residents' Group



Corroboree frog spawn  
Photos by John and Susan Stephens



## Do you have Booroolong Frogs on your property?

If you live on the NSW Southern Tablelands and have a permanent stream with rocky habitat then Booroolong Frogs may be living on your property. The Booroolong Frog can be difficult to identify as there are many frog species that look similar.

- Frogs living around the house or in dams and ponds are likely to be other frog species as Booroolong Frogs stay close to the river.
- Booroolong Frogs have a very soft call. Frogs that can be heard from a distance greater than 10 metres are not Booroolongs.

If you think you might have the Booroolong Frog on your property you can contact the NSW Department of Environment and Conservation for confirmation.

## What does it mean if you have Booroolong Frogs on your property?

The Booroolong Frog is listed as endangered under the NSW Threatened Species Act 1995. Actively managing Booroolong Frog habitat gives this frog a better chance of surviving the Amphibian Chytrid Fungus. This means:

- If you have Booroolong Frogs on your property and you wish to protect or improve frog habitat you are eligible for a funding incentive from the Murray CMA.
- If you are undertaking a development on your land that requires local or state government approval, you will need to consider potential impacts on Booroolong Frogs.

## How can you help the Booroolong Frog?

A program is running in the mid-Murrumbidgee and upper-Murray catchments to protect and rehabilitate Booroolong Frog stream habitat on private property. Being part of this program will contribute to the overall management of these river systems and will also assist property owners to implement new stock management systems.

Funding is available for property owners to:

- fence off sections of their streams,
- provide alternative water sources for stock,
- manage weeds and
- revegetate with local native plant species.

In the upper-Murray region funding for this project has been provided by the Commonwealth Government through the Natural Heritage Trust, and is being implemented by the Murray Catchment Management Authority and the NSW Department of Environment and Conservation. If you think you have the Booroolong Frog on your property and wish to become involved in this program you can contact the following coordinators:

NSW DEC (Dave Hunter): 02 6947 7078

Murray CMA (Kylie Durant): 02 6948 9124



All photos by David Hunter.



## Endangered!

# The Booroolong Frog



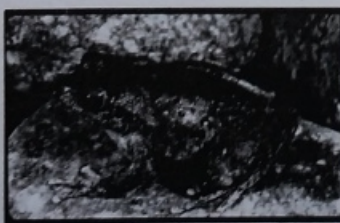
The Booroolong Frog was once common along NSW streams that flowed west from the Great Dividing Range.

Over the past two decades the Booroolong Frog has almost disappeared from more than half its former range.



## What does a Booroolong Frog look like?

The Booroolong Frog (*Litoria booroolongensis*) is a medium sized tree frog. Adult males grow to between 3 and 4cm, and adult females grow to between 4 and 5cm. The slightly warty skin may be grey, olive or brown and often has salmon coloured flecks through it. The fingers and toes have obvious discs and the toes are strongly webbed.



Booroolong Frog tadpoles can grow to 6cm and are typically a mottled light and dark brown colour. They are highly adapted for living in the stream environment with flattened bodies and strong tail muscles for swimming in moving water.

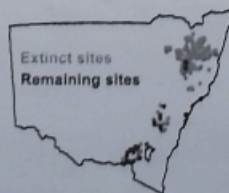


with compliments Dave Hunter  
NSW DEC

## Where do Booroolong Frogs live?

The Booroolong Frog is found in New South Wales and North Eastern Victoria. They are mostly found along the western flowing streams of the Great Dividing Range, between 200 and 1300 meters above sea level.

Over the past twenty years the Booroolong Frog has disappeared from much of its former range, particularly from the Northern Tablelands. The majority of persisting populations are now found on the south-west slopes of the Southern Tablelands.



The Booroolong Frog lives exclusively along permanent streams running through wet and dry forest, woodland and cleared grazing land. Adult frogs usually occur along sections of stream that have rocky habitats, particularly cobble banks. Tadpoles live in the stream near these rocky habitats or in disconnected rock pools next to the stream.



## How does a Booroolong Frog live?

The Booroolong Frog lives and breeds entirely around stream environments, feeding on small insects and spiders. Males call during the breeding season (October to January) in and around rocky habitats along the stream.

Unlike most frogs, the male Booroolong Frog doesn't have a vocal sac and so his call is very soft, being described as a "craww craww craww" sound.

The female frogs lay their eggs in the small crevices between rocks in the stream or nearby rocky pools. Once the eggs have hatched, the tadpoles feed on algae growing on rocks. The tadpoles take about two to three months to become frogs.

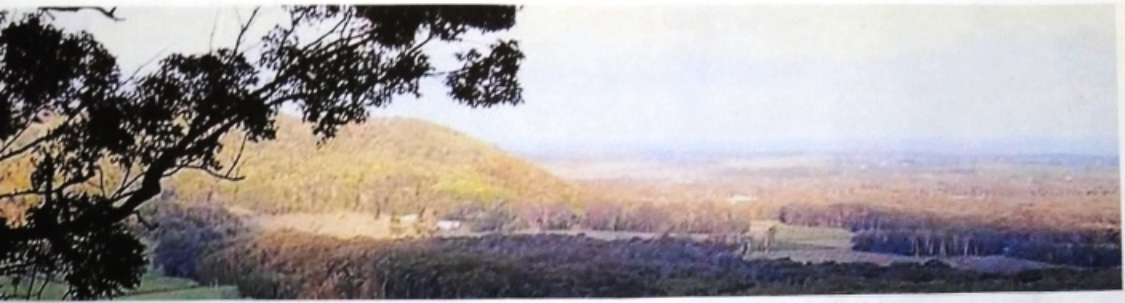
## Why is the Booroolong Frog disappearing?

Research suggests that the two main factors causing the decline of the Booroolong Frog are habitat degradation and a disease called 'chytridomycosis' which is caused by an exotic fungus known as the Amphibian Chytrid Fungus. This fungus has contributed to the disappearance and decline of more than 25 frog species in eastern Australia.

Habitat degradation has also played a major role in the decline of the Booroolong Frog, primarily through clearing of riparian vegetation leading to stream erosion, increased stream sediment and invasion by weeds. These factors reduce the availability of shelter sites and food, and increased sediment fills in the rock spaces that the Booroolong Frog needs for laying eggs and for tadpole refuge.

Other factors impacting on the Booroolong Frog include predation on eggs and tadpoles by exotic fish species, hydrological changes (dams, weirs and water flow alteration) and pesticide/herbicide use around rivers.





## THE NATIONAL CONSERVATION SIGNIFICANCE OF THE WARDELL WETLANDS, TUCKEAN SWAMP AND THE BLACKWALL RANGE

This report specifically details the ecology of the area the RTA is proposing to destroy with their proposed Option 2C - a six lane freeway for the Woodburn to Ballina section of the Pacific Highway.

The amphibian diversity within the study area is the highest in Australia with 25 species of native frog recorded within the study area. This constitutes well over 10% of Australia's Frog Fauna within an extremely limited area of 10 X 6 km. Due to the high diversity and abundance of frogs present, the study area is of national significance.

**FAMILY HYLIDAE** *Litoria caerulea* *Litoria dentata* *Litoria fallax* *Litoria freycineti* *Litoria gracilentata* *Litoria jervisiensis* *Litoria latopalmata* *Litoria olongburensis* *Litoria peronii* *Litoria revelata* *Litoria tyleri*

**FAMILY MYOBATRACHIDAE** *Adelotus brevis* *Assa darlingtoni* *Crinia parinsignifera* *Crinia signifera* *Crinia tinnula* *Limnodynastes ornatus* *Limnodynastes peronii* *Limnodynastes tasmaniensis* *Limnodynastes terraereginae* *Mixophyes fasciolatus* *Pseudophryne coriacea* *Pseudophryne bibronii* *Uperoleia fusca* *Uperoleia laevigata*

### Threatened Species

Wallum Sedge Frog *Litoria olongburensis*

The largest populations of this nationally vulnerable species in the Lower Richmond Valley occur to the southwest, west and northwest of Wardell. Major

populations of this species are known from heathland and freshwater wetland communities to the south of Old Bagotville Rd, between Thurgates Lane and Old Bagotville Rd and between Wardell Road and Lumleys Lane.

The densities of populations of this species recorded along Lumleys Lane are the highest within Ballina Shire and amongst the highest recorded across the entire range for this species (pers comm. B. Lewis). The key threat to the survival of this species is destruction and degradation of habitat for road construction (NPWS, 2002).

### Wallum Froglet *Crinia tinnula*

The Wallum Froglet was recorded in very large populations along most of the wetland and heathland communities from the Tuckean Broadwater to Coolgardie. Populations of hundreds of individuals were recorded south of Old Bagotville Rd, between Thurgates Lane and Old Bagotville Rd and between Wardell Rd and Lumleys Lane. These are the largest populations of the species in the Lower Richmond Valley. Furthermore these populations are of such a great size that they are of state significance.

### Pouched Frog *Assa darlingtoni*

The Vulnerable Pouched Frog was recorded within the study area along the escarpment of the Blackwall Range at Coolgardie. This population is the southernmost of the Mt Warning Shield subpopulation of this Gondwanan refugial species. It is the closest population to the coast and lowest altitude records of the species by a considerable distance.

Alan Rich alanrich@nsw.quik.com.au Mark Graham buckombil@yahoo.com.au & Blackwall Highway Action Group <http://www.bhag.org.au/>

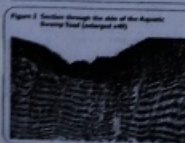
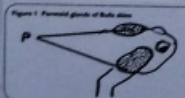
## WORLD LEATHER December 2001 / January 2002

### Amphibians: The misunderstood beauties

Karl-Heinz Fuchs, expert to the Ministry of Environment and Related Affairs, Bonn, Germany and Manuel Fuchs, Leather Technician BASF AG, Ludwigshafen, Germany

#### General classification

The name amphibian means living a double life and refers to the ability of these animals to live in water and on land, being placed between the fishes and the higher land-dwelling vertebrates. They were the first vertebrates to leave the water some 350 million years ago in the upper Devonian period, and conquered the land as new habitat. Currently three families with 436 genera and 4,970 species are known of which only three species of the genera *Bufo* (two species) and *Pseudobufo* (one species) are of importance as suppliers of skins for the leather industry. There are a further 12-16 species which might become of interest.



#### Geographical distribution

Distribution is governed by the fact that they are - with few exceptions - sensitive to extreme temperatures and salinity of soil and water. Nevertheless amphibians are found on every continent, except in the Antarctic.

They display their greatest wealth of form and colouration in the rain forests of the Old and New Worlds, where humidity and temperature levels are most favourable to their development. It is also in these regions that the largest and, for the leather industry, most important species occur.

#### Skin characteristics

The skin of amphibians is characterised by numerous glands, which in toads of the genus *Bufo* form prominent ridges behind the tympanic membrane (parotoid glands) as shown in Figure 1, and provide the typical grain appearance.



## TOXIC TOADS EVOLVE TO AID AUSTRALIAN INVASION

**L**onger legs helped cane toads hop all over in just a few short decades. Toxic toads bound across the northern tropics of Australia faster than ever, thanks to the evolution of longer legs in the few short decades since humans introduced them to their own little paradise.

Cane toads (*Bufo marinus*) were first brought in from Hawaii in 1935 to control the spread of beetles that were ravaging Australia's sugar cane crop. But instead of controlling the pests, the toads have become pests themselves. A deadly chemical defense system disposes quickly of potential predators.

The toads have expanded their range to cover more than a third of Australia's total land area.

From the 1940s through the 1960s, the toads were invading at a rate of about 6 miles per year; now they're taking over at a rate of about 30 miles a year.

To find out why the toads are spreading so fast, researchers stationed themselves about 40 miles east of Australia's port city of Darwin, in a region where the cane toads had not yet spread.

When the toads arrived, the researchers found that those in the vanguard of the invasion had legs that were up to 6 percent longer than average; shorter-legged stragglers followed. The study showed that newer populations of toads tended to have longer legs than those in long-established populations.

### A top pest

It should come as no surprise that cane toads are among the world's top 100 invasive species. They are the world's most introduced amphibian. They mate year-round and females lay up to 30,000 eggs at a time.

The toads can grow as large as dinner plates and weigh up to 4.5 pounds. Their heads and backsides are studded with rows of warts that secrete a milky white toxin called bufotoxin.

Because Australia has no native toads, many native predators such as snakes, lizards and mammals are very sensitive to the toxin. So when the toads spread, they immediately kill off many of the region's top predators.

"We don't know what effect it may have to remove so many top predators from a complex tropical ecosystem, but it's likely to be bad news," said study team member Richard Shine of the University of Sydney.

When an invasive species is first introduced, the population remains low for a few generations before exploding, Shine said.

"It's likely that such lags reflect, at least in part, adaptive changes in the invader to suit it to the new environment," Shine told *LiveScience*.

Shine and his colleagues warn in the February 16 issue of the journal *Nature* that Australia could face an "ecological nightmare" if the spread isn't controlled soon.

Australian scientists have tried for decades to eradicate the toads, but with limited success. Last year, researchers announced they had successfully lured and trapped the toads using ultraviolet lights like those used in disco clubs. Forwarded to Frogcall by Lothar Voigt written by Ker Than © 2006 *LiveScience.com*. All rights reserved. <http://msnbc.msn.com/id/11368151/>



photo By Ben Phillips

from page 7

Figure 2: Giant Cane Toad (photo: Raymond T. Heuser)



Figure 5: Raccoon Toad (photo: Lawrence Naylor)



These parts of the amphibian skin which have no glands, provide a particularly distinct three-dimensional network of collagen fibers as shown in Figure 2. The skin of most amphibians is rich in large lymph spaces in the subcutaneous connective tissue and can thus be easily stripped. The natural pigmentation of the most important skins for the leather industry is not distinct and must be bleached before dyeing.

#### Important remarks:

The following allegations in zoological publications have to be corrected:

1. The warts of toad skins are not derivatives of the epidermis (keratin) as they would be removed (disappear) in tanning. They are part of the cutium (collagen), hence shape the typical grain appearance of toad leather.
2. The generalization that amphibian skins are very thin is not true for toad skins (i.e.:

Species	Final leather thickness	
	Belly	Back (mm)
<i>Bufo marinus</i>	0.7	1.75
<i>Bufo paracnemis</i>	0.6	1.10
<i>Pseudobufo subasper</i>	0.8	1.90

The physical properties, such as tensile strength, elongation at break, stretch/relaxance, of these three skin types are higher than those of cattle hides or goat skins.

Figure 6: Chemical structure of Bufotoxin (poisonous secretion from the parotid glands of the Giant Toad) - Robert Hebrich

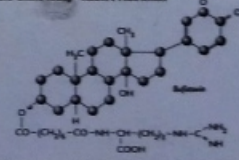


Figure 4: Skin of the Raccoon Toad

Figure 7: Skin of the Giant Toad

#### Important species for the leather industry

##### GIANT OR CANE TOAD (*BUFO MARINUS*)

The Giant Toad, shown in Figure 3, is one of the largest true toads. It attains a length of 25 cm (females), males only up to 14 cm.

Originally in inhabited South America only but is now found in many sugar plantations all over the world to help keep down insect pests. It multiplies rapidly everywhere, laying as many as 35,000 eggs per year, and is well on the way towards upsetting the delicate balance of nature in its adopted homes.

The prominent feature of the Giant Toad is its large pair of parotid glands, which secrete a poisonous, milky, granular, acid-reacting substance which has a very special smell. This substance, bufotoxin (see Figure 6), has a diaphan-like action, affecting primarily the heart, but also the respiratory system, blood functions and some centers in the spinal cord.

##### ROCKY TOAD (*BUFO PARACNEMIS*)

The Rocky Toad inhabits Argentina, Bolivia, Brazil and Paraguay; see Figure 5. It can, males only up to 12 cm, and shown in Figure 5. It possesses a pair of large, kidney-shaped parotid glands situated behind the eyes and, additionally, one long ridge of glands extending over the full length of each calf. Gland accumulations of this type are to be observed only in one other species of Bufo, the California River Toad (*Bufo borealis*). The poison secreted from these parotid glands when the animal feels endangered is highly toxic and causes a strong burning sensation.



## NATIVE FROGS GET THE JUMP ON TOADS

The latest scientific data from the Northern Territory shows Australia's native frogs appear to be holding their own against cane toads, but not everyone appears to be convinced. The first cane toads were brought to Queensland 70 years ago from Hawaii and they were meant to be a cheap and effective method of controlling sugar cane pests. But as they spread far beyond the cane fields, many scientists feared they would wipe out native frog populations.

Professor Hamish McCallum, an ecologist from the University of Queensland has been analysing the data gathered by the Roper River recording poles - listening poles which were put in place eight years ago to monitor the native frog population.

"We're not seeing whole scale extinction ... the longer I look at it, the better the situation seems to be," he said. "Now, it seems we haven't really got much evidence that the number of frog species calling has been going down following the arrival of cane toads. There's some software that records the frogs, identifies 23 different species, logs it all to computer flash card every 10 minutes and does that for a whole year. So we can go along after the wet season, download the full set of data and then work off that."

Graeme Sawyer from Northern Territory's Frogwatch, a network of volunteers who manufacture cane toad traps and monitor frog colonies, says he is not convinced by the latest scientific data.

"The biggest problem we have with that stuff is to know what the native frog populations really could be like," he said. "I don't expect the native frogs to be wiped out completely by cane toads in the way that say, quolls and goannas are in the first 12 to 18 months, but I'm expecting it to be a much longer-term process. But our big problem is, we don't have the baseline data to tell us exactly how many of those species should be there."

The Northern Territory's Kakadu National Park may eventually provide more indisputable results, with cane toads only now being spotted within range of the Kakadu listening poles. The toads were on the doorstep of Roper River before the project got underway. Professor McCallum says the toads are moving about twice as fast as has been expected.

"They overran all our sites after about three years rather than five-plus, which we expected," he said. "But for Kakadu, we've got five good years of data without cane toads present, so I think there we'll have a much better baseline."

In the meantime, scientists are waiting and listening, hoping new data from Kakadu will confirm their belief that native frogs will survive the spread of the cane toad.

Professor McCallum says no species is known to have become extinct in Queensland because of the cane toad.

"Then I think we shouldn't be too worried about there being a catastrophe," he said.

<http://www.abc.net.au/news/newsitems/200603/s1602219.htm>  
Forwarded to Frogcall by Steve Weir written by Genevieve Hussey for The 7:30 Report



Kosciusko National Park March 2006  
Photos by John and Susan Stephens  
Reports on the trip will be in the June '06 Frogcall and at the June FATS meeting (hopefully).





Green Eyed Tree Frog

### AL AND VAL'S FAR NORTH TRIP

**‘Crunch!’...The moth’s wings had beat their last. The Asian House Gecko scuttled up our hotel balcony wall with a wing tip out of its mouth. The sun’s orange haze turned pink and the mountains blended with the last vale of darkness. Night descended.**

Cairns embraced a misty February night.

My wife Valerie and I were on holidays. She was looking for relaxation and I was looking for what the wet season had to offer. When I said to Valerie I would love to see *Nyctimystes* on this trip she said ‘Nick Damisties! Sounds like a Greek plumber!’ And so the quest commenced...

I felt a bit of a weirdo stalking out of our hotel room into the streets in my head touch and waders, but we were in the wet tropics in wet season, no frogging opportunity should be missed. That night I discovered a colony of White-lipped tree frogs calling from flooded parkland within the city. They were proudly sitting on fallen logs and in tree hollows. They weren’t that fussed with me taking photos and shining light on them. As the trip continued the chorus of White Lips was a common sound around flooded forest areas.

In the parkland I also saw Eastern Dwarf Tree frogs; *Litoria fallax* calling from giant South American water lilies, some two metres across, within the park. It was odd to see one of Australia’s smallest tree frogs sitting on top of the largest water lily in the world. There was often more than one to a pad.

After Cairns we headed north. Journeys into the cane fields around Port Douglas produced marbled Marsh frogs (*Limnodynastes convexiusculus*) calling from the boggy undergrowth. This frog looks a bit like a spotted marsh frog. The rocky creeks around area were full of Northern stony creek frogs *Litoria yungguy*. There were dozens of them rocketing between the streamside

boulders. The little yellow males were all out looking for mates and the larger brown females could occasionally be spotted quietly off to the side of the creek listening for a suitable mate. The incessant high-pitched buzzing from katydids added an authentic jungle ambience



Further North into the Daintree, Amethyst pythons would regularly slither across the road at night in search of food. One we stopped to watch was moving slowly toward a group of Northern Barred frogs *mixophyes schevilli* plonking out their a mating calls from the forest floor oblivious to the danger slowly closing in.



In the small rocky streams of the jungle one of the most common frogs is the Creek frog, *Litoria rheocola*. This little guy sits on top of boulders loudly calling over the rushing water. He does this year round.

Pushing through a jungle marsh I suddenly saw the Greek plumber staring back at me from his perch on some sort of flax grass. *Nyctimystes* is that you? No it wasn’t. It was an equally beautiful frog though, a Green-eyed tree frog. He was a very quaint frog with the top quarter of his eyelids a limey green. His eyes were quite large too, giving him the look of a *Nyctimystes Dayi*, Day’s Frog that is noted for it’s large eyes.

I never did see *Nyctimystes* but the abundance of other wildlife was remarkable.

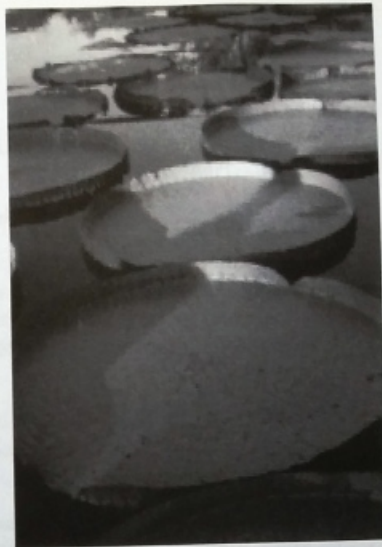
It wasn’t just everywhere as I had imagined. You needed to get out and look, which is not always easy in the thick Rainforest, but every time I ventured into the jungle I would come back having seen something new.



A highlight was a Forest Dragon spotted warily glaring at us a few feet off the ground clinging to a small tree in the rainforest. Spotted by Valerie, 10 seconds after I said 'This feels like dragon country'. I don't know why it felt like dragon country seeing as I had never seen one before in my life. Anyway, he was magnificent and left us feeling elated and grateful to have had the experience.



After that sighting we drove off further toward Cape Tribulation through the Daintree. Valerie was noting that you never know what you might see in the rainforest when a black silky mass flashed across the road in front of us. 'Cassowary!' I said as the creature morphed into the jungle. I scuttled out of the car with my camera and was standing where the Cassowary was 10 seconds prior.



I pushed through some scrub and the jungle opened up to reveal a relatively open piece of country. 'Where was the Cassowary? Did I actually see that? Yes I told myself' How could such a large animal just disappear like that? One of less than 1500 left in the wild it had vanished into an eerily quiet jungle. Wow! A Cassowary. Somewhere a few metres away yet invisible.

The jungles of the Far North are a magic place but all too soon it was time to return to our jungle; Sydney. The rainforest's grip taking its time to let go. Imagining dragons clinging to telegraph poles, Cassowaries darting down suburban side streets at dusk and Greek plumbers that remind you of elusive frogs. **A M**



Figure 8 Aquatic Swamp Toad (photo: Kelvin Lim)

from page 8

on the mucous membranes of the oral cavity, severe gastric disorders and convulsions and, in the case of small mammals, even death.

**How to differentiate between the skins of the Giant and Rococo toads**

The distinctive feature of the skin of the Rococo Toad (Figure 6), like that of almost all toads, is the pair of large parotoid glands.

While the parotoid glands of the Giant Toad (Figure 7) are set at an angle of 50-55° to the dorso-median line, those of the rococo toad are set at an angle of 35-40°.

The skin of the Rococo Toad is not as wide (Figure 6) but longer than that of the Giant Toad (Figure 7). The length of the Giant Toad skin is about 47-51% of the width, that of the Rococo Toad 56-62%. Despite these differences in their appearances, even an expert will find it difficult to always

correctly differentiate between the two types of skin. The trade names for both is Sapo, South American Bullfrog.

**AQUATIC SWAMP TOAD (PSEUDOBUFO SUBASPER)**

The Aquatic Swamp toad, which grows up to a length of 16cm (females), males only 8.0-9.5cm, inhabits Borneo, Sumatra, and Peninsular Malaysia (West Malaysia) and is shown in Figure 8. This toad is large and stocky, with a small head, and nostrils on top of the snout. The back is covered with granular and large round warts. The skin of the Aquatic Swamp Toad (Figure 9) is characterised by strongly pronounced, differently sized warts which display large gland pits. In contrast with the Giant and Rococo toads, there are no parotoid glands. The length of the Aquatic Swamp Toad skin is about 108-113% of the skin width. Trade name: Asian Bullfrog.

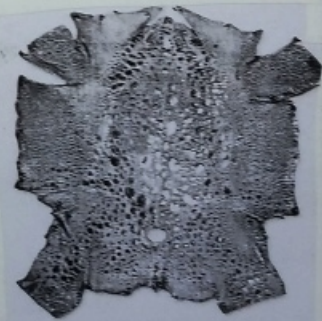


Figure 9 Skin of the Aquatic Swamp Toad

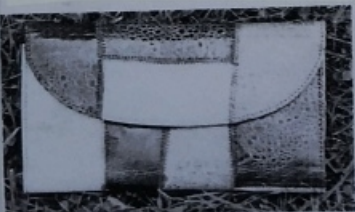


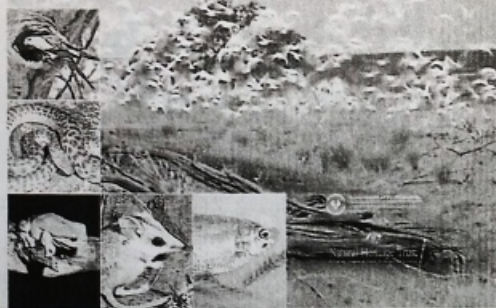
Figure 12 Lady's purse made of nine small Cane Toad skins





# South Australian Rangelands and Aboriginal Lands Wildlife Management Manual

Harald Ehmann



This full colour Manual of 548 pages with 354 photographs, 229 graphics and 172 maps is a practical guide for visitors and visitors alike to the Outback of South Australia and to anyone with an interest in Australian wildlife and the natural history and ecosystems of Outback Australia.

Its comprehensive and easy-to-use style brings together the diffuse and hard-to-find information about threatened, interesting and pest animals of the Outback of South Australia.

The 142 species accounts include photographs, maps, identifying information, important ecological details, conservation status, management guidelines, and some economic considerations.

A wide range of wildlife management routes is covered in 23 special chapters and the Bioparc Appendix. These include feral animal control, habitat change, photo-points, grazing impact research, Total Grazing Pressure, fire, kangaroos, wetlands, mound springs, fencing, wildlife rehabilitation, ecotourism, studying nature and Outback travel.

Throughout the book there are 25 short features (box-tops) on wildlife and related issues. These include species declines, animal playbacks, wildlife dynamics, climate and abundant species.

The introduction, glossary and comprehensive index add to the easy-to-use format. It has recommended readings, a complete references list and a comprehensive listing of where to get further information.

The complete species lists of Outback SA mammals, birds and reptiles are annotated with useful information. All the Outback SA frogs and lilies are covered in detailed species accounts.

This is an indispensable wildlife guide for Rangelands and Aboriginal Lands residents, pastoralists, travellers, naturalists, primary secondary and tertiary students, land and wildlife managers, bushwalkers and researchers.

The page size (230 mm X 164 mm) of this casebound manual is about the same as the coloured area of this page. Weight 1.5kg. ISBN 0-9757863-9-7

**Sales:** Anna Morozov, Information Management, Department of Water, Land and Biodiversity Conservation, GPO Box 9834 Adelaide 5001. Phone 081 8463 6980 Fax 081 8463 6999 Email: morozov.anna@sa.gov.sa.gov.au

**Cost:** (incl. GST): \$85 plus packing and postage (single copy within Australia \$14, multiple copies and beyond Australia please contact Sales).



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**INSURANCE DISCLAIMER** FATS has public liability insurance for its various public functions. FATS members should be aware that this insurance does not cover FATS members (it covers the public & indemnifies FATS). We are currently checking with insurance firms to see whether a realistic group policy can be organised to cover FATS volunteers and people who attend field trips.

**\*\*\* DON'T FORGET \*\*\*** our specialist research field trips with **Graham Pyke & The Australian Museum.**  
Ideal for all students & serious enthusiasts. Locations at Long Reef, North Avoca & Broughton Island.  
Contact the Field Trips Co-ordinator for further details 9681 5308.

**FATS meetings commence at about 7.30pm and end about 10.30pm, on the first Friday of every EVEN month (February, April, June, August, October and December), at Building 22, RANAD, Jamieson Street, Sydney Olympic Park, (SOP) Homebush Bay.** We hold six informative, informal, topical and practical meetings each year. Please check this Frogcall for further FATS meeting information. Visitors are welcome. We are actively involved in monitoring frog populations and other field studies, 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. Material from Frogcall MAY NOT BE REPRODUCED without the prior consent of the Editor or President of FATS. Permission from FATS and/or author/s must be obtained prior to any commercial use of material. The author/s and source must be fully acknowledged. Always confirm date and location of the next meeting.

A big thank you to the many FATS members and committee, especially Lothar Voigt and Andrew Nelson for the articles, membership and envelope preparation and assistance in producing Frogcall



# Would you Go to Homebush?

Please read the following information and let us know if you would go to Homebush.

Long-time FATS members will be aware that we have always run our meetings on the first Friday of every second month. The meetings have been held at the Australian Museum. The February 2005 meeting was changed, and was held on the third Tuesday of the month, in response to changes requested by the Museum. A number of members have indicated that the Tuesday night is not as convenient as a Friday night for the meeting.

Recently, the Sydney Olympic Parks Authority (SOPA) contacted FATS to see if we were interested in using a venue at Homebush for our meetings. The site is a large hall located in the Newington Armory Area (see Map). At present the hall is not regularly used, and could be used for our meetings (if we so wish).

As with every change of routine, there are advantages and disadvantages to consider. The advantage of a move to Homebush would be that it is more central for many of our members, the meetings could return to the first Friday of the month, there is unlimited parking and there would be no charge for the meetings. All audio-visual equipment (slide projector, data projector, CD viewer etc) will be available for the meetings. The disadvantages of such a move include disrupting our normal routine at the Museum, making our members who live in the Eastern Suburbs or the CBD travel further for the meetings, the nearest train station is a kilometer from the hall (but transport from the station could be arranged) and the hall is currently only fitted with temporary furniture (which would be replaced with better furniture should we use the hall regularly).

Please consider how this move would affect you.

*Please circle your answer*

**Would you travel to Homebush for a FATS meeting?**      YES      NO

**Would you prefer the meeting to stay at the Australian Museum, even if the meetings were held on Tuesday nights?**      YES      NO

**What would be the biggest difficulty(s) for you to get to Homebush for a FATS meeting?**

*Circle one or more options as you feel appropriate.*

**It is no longer close by and convenient**      YES      NO

**I would have to catch public transport**      YES      NO

**I like the Museum and don't want to go elsewhere**      YES      NO

**I normally go to FATS meetings after work**      YES      NO

**I can't get my family to Homebush easily**      YES      NO

**Other (please describe).....**

**YOUR NAME (print) .....**

Return by post to FATS PO Box 296 Rockdale 2216 or bring to the FATS meeting.