

# FROG CALL



THE FROG AND TADPOLE  
STUDY GROUP OF NSW INC.

NUMBER 40 - March 1999  
PO Box A2405  
Sydney South NSW 1235

Thanks to Daniel Effinger we now have an internet site well under construction  
**INTERNET HOMEPAGE** [http://members.xoom.com/frog\\_group](http://members.xoom.com/frog_group)

**THE NEXT MEETING:- 7 00 PM, FRIDAY 9<sup>th</sup> April 1999** for a  
7.30 pm start at the AUSTRALIAN MUSEUM (WILLIAM ST ENTRANCE)  
**THERE IS NO MEETING ON 2<sup>ND</sup> APRIL AS IT IS GOOD FRIDAY**

## SPECIAL NOTICES

**FATS Membership renewals are due by 1<sup>st</sup> June 1999.**

The printing of this issue is sponsored by Lothar Voigt of Educational Nature Displays.

**WE URGENTLY NEED EXTRA EASTER SHOW FROG EXPLAINERS - SEE PAGE 2**



with compliments Christopher Spiteri

## CONTENTS

The Last meeting	p2
AGM	p2
FATS at the Easter Show	p2
Media Exposure for FATS	p3
The Weigel Toad	p3
AHS Conference 2-4 Oct	p4
Wally and Bruce	p4
Smiths Lake field trip	p4
Green-thighed frog	p4
Erina frog show	p4
<i>Gambusia holbrooki</i>	p4
The Bleating frog	p4
Mealworm food for frogs	p5
Cricket food for frogs	p6
End of the Toad	p6
Impact of Herbicides	p7
Committee contacts	p8

## MEETING FORMAT for 9<sup>th</sup> April 1999

- 7:30pm Guest speaker: Lothar Voigt  
"Making Ponds and Keeping Frogs"
- 8:15pm 5 favourite frog slides or 5 minutes
- 8:40pm Guessing competition and Auction
- 9:00pm Finish for tea, coffee & biscuits

## Arthur White presented an overview of Frogs as Bio-indicators in the upper Blue Mountains.

During the summer of 1998/99 a frog monitoring project was initiated in the upper Blue Mountains. This project was designed to test whether frogs in the small streams and hanging swamps of the upper Blue Mountains could be used to forewarn planning authorities of the state of waterways. The sensitivity of frogs to water-borne pollutants is well known but frogs have rarely been used as sensors of environmental disturbance.

This project was co-ordinated by Arthur White at the behest of the Urban Storm-water Run-off Task Force, a multi-agency group comprising Blue Mountains City Council, Sydney Water, National Parks and Wildlife and other local environmental groups. Test sites were chosen and grouped in pairs; for example an eastwards flowing primary creek occurring in an urban-affected area was matched to a similar creek in a non-urban area. The two sites were surveyed on the same nights to remove weather factors in the results. Teams of volunteers were trained for the surveys. Each site was surveyed in three ways, frogs were caught and counted along a line transect, recordings were made of frog calls over 15 minute periods and surveys of tadpoles were carried out. The surveys went for 10 weeks and 25 pairs of sites were surveyed.

The results of the survey have not been analysed as yet but it is apparent that some frog species were only detected in non-urban areas while other frog species were more prevalent in the urban-affected sites. Thank you Arthur for a wonderful presentation.

**F**rank Lemckert talked to us about frog sex. Sex in frogs is usually straightforward, but has the occasional kinky twist. In most species, the male sits close to a water body, calls and waits for a female to come along. If she chooses him he grabs hold of her in a term called amplexus. Getting a tightgrip is important: he does not want to fall off when she carries him around and other males may also try to displace him. To prevent slipping, male frogs often have roughened patches on their wrists called nuptial pads. In some species these have been modified into spines that puncture the female's sides (which doesn't seem to bother them). Where these spines are especially enlarged they are used to fight with other males. Gladiator frogs of Africa often kill one another in these contests. Males may also have enlarged forearms for greater strength in mating and combat.

Notably, amplexus can occur in several different ways. Most commonly males clasp the female either around the waist or under the armpits. However, they can also assume a position with the males body on the females head or mate tail to tail. The most bizarre form of mating are in very rotund burrowing frogs where the male cannot reach around the female at all. To hold on he emits a glue and glues himself to the females back. Whilst the glue holds, he has no choice but to go where she goes.

All of this effort goes into ensuring that the eggs are successfully fertilised and in all but a few species the sperm is placed on the eggs external to the body. However, there are a

couple of species in South America that have a pseudo-copulatory organ (false penis) and so have internal fertilisation. Thank you Frank aka El Prez for a ribbiting presentation and Martyn Robinson for his "on stage" role, in the name of science. The Frogcall Editor especially appreciates Frank and Arthur's presentation summaries.

The numbers of people at the FATS Meeting have more than doubled. Those in attendance were given a run down on the Flemington Markets frog rescue program. The Sydney Markets banana vendors and their staff have been consistent and generous with their time and care of these hitchhikers, rescuing and caring for the frogs since October 98. Despite their busy day many Flemington workers find time to stop and rescue our froggy friends. Our weekly visits to the Markets create much interest amongst the market staff. To date over 70 frogs have been rescued. We are regularly stopped and asked about the rescue program and great interest is generated at the Markets by the numbers and types of frogs collected each week. Once collected the escapees from Queensland and Northern NSW go to Arthur White and Lothar Voigt and spend two months in quarantine before being made available to our members. The committee plan to send a letter of appreciation to recognise the generosity of Sydney Markets personnel in helping us and being so hospitable.

Peter Spradbrow and Katherine Wangmann sold the guessing competition tickets for \$1 each and drew the winning ticket out of a bag. Christopher Spiteri selected a frog call CD as his prize. Congratulations Christopher.

The meeting ended with the long awaited release of rescued frogs to our members. Ferdinand Ravelo, from the National Parks and Wildlife Service attended the meeting and was introduced to members. Many of you had met him on the phone when he helped you, and organised your licences. For those who still would like a frog or more frogs there are many more coming from Flemington through the rescue program. Please ensure you add your name to the list at the meeting. And bring your money with you. Donations for frogs start at \$5 for small species to \$25 for Green Tree Frogs. This money is used to cover the cost of the rescue program eg cages, food etc MW

## FROG AND TADPOLE STUDY GROUP AGM

**T**he Annual General Meeting is to be held at 7pm Friday the 4<sup>th</sup> June 99 at the Australian Museum. Nomination forms are included in this mail out. Anyone interested in nominating for a position is greatly encouraged to do so as the committee is always short at least a couple of people. Moreover the organisation could always do with some fresh viewpoints and ideas. Nominations should be directed to Frank Lemckert, Giselle Howard or the Secretary c/- our Post Office Box at least one week prior to the AGM. MW

## FATS AT THE EASTER SHOW.

**W**e are showing live frogs again, for all 16 days from 26<sup>th</sup> March until 10<sup>th</sup> April. This time it's in the Dome, a prime position, and courtesy of DLWC and Landcare. It's being staffed by FATS volunteers almost around the clock! Call Elisabeth Pidd 9181 3073. More volunteers are needed. LV

## SATURATION BOMBING

**A**s you must have heard, the FATS Group has frequent and very positive media exposure. Frogs have become the darlings of the declining environment; the public empathises with them and their plight; and live frogs always draw a crowd and press coverage at our exhibitions. This is an example of the FATS Group's National TV and radio exposure over the last four weeks:

15.2.99 Channel 9 Today Show: live on air in a gully at Willoughby. Story about FATS and frogs as environmental indicators (Arthur's Blue Mountains project, my frogs and our Frogwatch Helpline phone number displayed, resulting in 350 - 400 phone calls.

18.2.99 Channel 10 Cheese TV children's show, broadcast on 2.3.99., with FATS Group's Frog Rescue program and my frogs and tadpoles shown and save-the-environment message.

25.2.99 ABC Radio National Earthbeat interview. Attracting frogs to gardens (Louise's garden, but I said it was mine), FATS Helpline. ABC also established Internet link to FATS Group.

2.2.99 ABC Radio 2BL Breakfast Show. Live interviews with FATS members on frog numbers recovering following rains, on suburban frog ponds and identifying frog calls. My pond was silent just then, forcing me to do some awful renditions.

2.2.99 ABC Radio National Comfort Zone. Glass as a material, interviewed me on what it's like having large frog and fish tanks everywhere (they should have asked Louise).

8.3.99 Channel 9 Saturday Today Show. Profile on FATS Group and our projects was filmed at my place and at my local greengrocer's. Continued the following Sunday night with Arthur and Karen in the swamps at Kurnell, microchipping Bell Frogs. The film crew may turn up at next FATS meeting, too.

8.3.99 Front page article in SMH by FATS Group spokesman Arthur White on Cane Toads arriving in Sydney. That story was followed up by just about everybody else in the media, including:

8.3.99 Radio 2GB, ABC Radio Perth and Radio 2UE live interview with Arthur on Cane Toads.

8.3.99 ABC Radio 2BL live interview with me on Cane Toads.

8.3.99 Channel 10 News interview with Arthur and with Brad Walker from Featherdale on Cane Toads.

8.3.99 Channel 7 News interview with Arthur on Cane Toads.

Australia even made a brief splash on the world scene:

9.3.99 BBC London interview with Arthur on Cane Toads.

9.3.99 Radio Kyoto interview with Arthur on Cane Toads.

And there were a few other media hounds who streaked through too quickly for us to really find out who they were.

LV

Thank you to Barbra Harvey and Karen Thumm for the regular press clippings forwarded on to the Frogcall Editor. They are much appreciated.

## THE WEIGEL TOAD

**H**as been immortalised as the latest figurine in the Yowie collectable series. The Yowie concept is to package environmental figurines within chocolate and features the characters of the series in books and story cassettes. Mr Weigel, the discoverer of the toad in the Kimberley in 1988 and proprietor of the Australian Reptile Park near Gosford, said he was impressed by the idea behind the Yowie series. He wrote to the Yowie's manufacturers and congratulated them on their concept and they made him an honorary member of the Yowie Club. The Australian Reptile Park also received a grant of \$10 000 from the Yowie's makers for the park's frog breeding complex.

With compliments Carl Spears



**O**ne afternoon there was a good witch who was flying along, when all of a sudden she heard a soft crying from down below. When she landed, she saw a yellow frog. Touched by this sadness, she asked him why he was crying.

"None of the other frogs will let me join in all their frog games. Boo hoo" "Don't cry, little one" replied the witch and with a wave of her magic wand the frog turned green. All happy now, the frog was checking himself over when he noticed that he had a yellow part on his back that looked like a brick design. He asked the embarrassed witch about this and she told him that there were some things that went a little wrong sometimes. But if he saw the wizard, he'd fix things up for him. so, happily the little frog hopped along his merry way.

Feeling quite happy about herself, the witch once more took to the skies. And once more she heard crying. This time however it was a very loud, thunderous sort. so down to the ground she flew, only to discover a pink elephant. The witch asked him why he was crying.

"None of the other elephants will let me join in their elephant games. Boo hoo"

Now, if you have ever seen an elephant cry then you'll know that it is a pretty pathetic sight but a pink elephant crying is just downright heart-breaking. So once again the witch waved her magic wand and POOF, the elephant was grey. All happy now, the elephant was checking himself over when he noticed that he had a pink part on his back that looked spotted. He asked the embarrassed witch about this and she told him that there were some things that went a little wrong sometimes. But if he saw the wizard, he'd fix things up for him. At this point the elephant started wailing "I don't know where to find the wizard" he sobbed.

"Just follow the yellow brick toad!" replied the witch. Eileen

THE QUEENSLAND FROG SOCIETY

CARTOON:- WITH COMPLIMENTS

WITCH:- with compliments Katherine Wangmann

**50<sup>th</sup>** anniversary conference of the Australian Herpetological Society is on the 2. - 4. October long weekend at the Gazebo Hotel. If you are thinking of being a speaker, or of just attending, Daniel Holloway will put you on the mailing list. Email [rego@ozherps.zipworld.com.au](mailto:rego@ozherps.zipworld.com.au) or ring (02) 9544 6492. LV

### WALLY IS OUT THERE AND BRUCE WILL SOON BE ON THE LOOSE!

**M**ore news on the giant burrowing frogs at Eden. After the initial work on Emily, two more frogs have been captured for radio-tracking. Wally was found on Wallaby road in Yambulla State Forest and is currently running around the forest avoiding being eaten and looking for a mate. And when he was let loose we found Bruce. He is currently awaiting a transmitter and will also be returned for study. Interestingly, this makes five recent records for this species all within a several kilometre radius within Yambulla State Forest. It could be a hot spot but, as surveys are being concentrated there (but not exclusively), it could just be good effort and luck.

Two other giant burrowing frogs are currently being tracked in the Watagans (west of Gosford) and another is soon to go out. These frogs have been burrowing into soil or going under logs. More will be revealed over the next few weeks. Hopefully they can avoid the tourist traffic. If anyone is interested in coming out some time to not see these frogs (you see the log or hole), then please give me a call. **EI Prez.**

### SMITHS LAKE FIELD TRIP 18 - 21 FEB 99

**W**onderful weather and great company - perfect ingredients for an excellent froggy weekend. Arthur, Ben and Karen White organised a long weekend on the shores of Smiths Lake at the NSW University Field Station. While waiting for the rest of the happy little froggers to arrive Barbra and Tad Bohdanowicz enjoyed a friendly game of cards with the Whites on Friday night. With the arrival of Susanah Power, Rainer Enke, Bronwen, John, Melaine and Lewis Ciddor plans for a nights walk began. Sheree, Bob, Shifra and Mimi Waks and Katherine Wangmann took advantage of the peaceful lake and paddled a canoe around a nearby island. David and Beryl Jenkinson kept track of the varied bird life at the field station. The children and adults including myself, Bill and Bennett Wangmann and Arthur enjoyed a game of cricket. Where does Arthur get all this energy from?

During the Saturday night bush walk we encountered seven different species:- the Whirring Tree Frog *Litoria revelata*, Bleating Tree Frog, *Litoria dentata*, Dwarf Tree Frog *L. fallax* - (some so young they still had their tails - tiny juveniles up on the reeds looking for dinner!), Striped Marsh Frog, *Limnodynastes peronii*, Tusked Frog, *Adelotus brevis*, Red-backed Toadlet, *Pseudophryne coracea*, and Red-Groined Toadlet, *Uperoleia laevigata*.

On Sunday most of us had a refreshing swim at Seal Rocks surf beach and a last paddle in the lake before packing up and coming home. Thank you Arthur and Karen for organising our froggy excursion. We may go again in September so keep checking your Frogcall newsletters for details. **MW**

**I**t has been a good year for many frogs and particularly, the green-thighed frogs. More than 100 individuals were heard calling from one spot in Bulahdelah and we found three new sites in that area alone. In fact, the State Forest guys have been working overtime and have found at least 8 new record sites this summer (not bad for a species known from only sixteen sites ever in NSW only four years ago). **FL**

### ERINA FAIR FROG SHOW

**C**entral Coast members and their friends might like to hop over to Erina Fair for a frog show. The Australian Geographic shop there is getting the Wild Man (none other than our Phil Green) to do his funny frogatics, three times a day from 6th to 10th of April. Ring (02) 45365 4274 for a booking. **LV**

### GAMBUSIA HOLBROOKI

**T**he New South Wales Scientific Committee has made a final determination to list predation by *Gambusia holbrooki* (Plague Minnow) as a **KEY THREATENING PROCESS** on Schedule 3 of the NSW Threatened Species Conservation Act. Further information should be available from Monday 1 February on our Web Site [WWW.NPWS.NSW.GOV.AU](http://WWW.NPWS.NSW.GOV.AU) Go to the news and events section. **Ron Haering**

### THE BLEATING TREE FROG

**F**or the past week or so I've been hearing a male *Litoria dentata* - the Bleating Tree Frog - calling near to our house. These frogs often turn up in unusual places (e.g. calling in the carpark opposite Dee Why Police Station) but I'd not heard them in our suburb (Narrarweena) before (although we did find a female living under a plant pot 18 months ago). We wondered how the people whose backyard he was living in were putting up with the pitch and volume of his output as this call is almost painful to listen to!

Last night there was a knock at the door from a fellow we know in the adjacent street asking us what kind of bird was making the racket and how they could get rid of it! It tuned out that a disabled neighbor of theirs was unable to keep up his swimming pool maintenance and chlorination so pool was suddenly very attractive to breeding frogs. When I got there I was told there were actually TWO types of frog calling and the other one had a deep call a bit like a quacking duck. Surprise surprise it was a full grown male *L. caerulea* - the Green Tree Frog! Around suburban Sydney these are far rarer than the Bleating Treefrogs although they were once everywhere. I caught both of them for their own protection as several neighbors were talking about getting the area fumigated and cutting back and burning off the shrubbery. The pool had no tadpoles in it (surprisingly the Striped Marsh Frog - *Limnodynastes peronii* - which is very common in our suburb hadn't colonized the pool) so I suggested they convert it to a saltwater pool to render it unattractive to frogs so these two wouldn't return when I released them.

Now the problem arises 'where should I release the *L. dentata* where it won't cause problems for other neighbors!' (probably on bushy sections of nearby Red Hill.) **Martyn Robinson Jan 99**

Lothar Voigt

Principal

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email: lothar@altavista.net

## EDUCATIONAL NATURE DISPLAYS

Reg No. T5192005



Has learning about ecosystems become a chore? Call the chore-busters.  
Is your display terrarium, aquarium or pond boring? Call the bore-busters.

March 1999

### CAGE KITS FOR FROGS

#### Design principles:

- Very easy to keep clean
- Easy to keep food insects from drowning
- Easy to keep food insects from escaping through lid
- Easy to keep frogs from escaping when accessing cage
- No uninspectable hiding places for frogs or insects, no waterfalls made of rickety rock piles
- Versatile: can be used in a variety of ways
- Upgradeable<sup>1</sup> and good to look at
- The 3' and 4' tanks are suitable for keeping fish<sup>2</sup> and/or some other animals<sup>3</sup> with the frogs – advice available

The FATS Group receives a 10% tithing of all sales to FATS members.

Frog food and food keeping/feeding instructions are available at FATS meetings.

### A. FOR SMALL AND MEDIUM FROGS

<b>Recommended components:</b>	
1. 22 litre ("XL") tadpole tank <ul style="list-style-type: none"><li>▪ includes gravel, suitable water plants, water conditioner, metamorph island, detailed instructions</li><li>▪ for about 20 medium/large tadpoles, or more small ones</li><li>▪ (Suitable tadpoles are available from the FATS Group against a \$5 donation – either to be licensed or, if for eventual release in your Sydney area garden pond, not requiring a licence.)</li></ul>	\$38.75
2. 22 litre perforated froglet cage <ul style="list-style-type: none"><li>▪ includes flyscreen over holes in base, gravel, climbing branch, frog water bowl, water spray can, seed catcher (to keep fruit flies in), 'Green Goddess' seeds to put directly into gravel</li><li>▪ stand froglet cage on top of taddy tank, let spray can water run through into taddy tank, don't rinse gravel – let dirt wash downwards only</li><li>▪ or stand froglet cage on top of large frog tank (see further below)</li></ul>	42.75

<b>Optional components:</b>		
1	22 litre perforated cricket cage <ul style="list-style-type: none"> <li>includes flyscreen, gravel, food bowl, 100 – 150 small crickets, climbing branch</li> <li>suitable for raising/keeping crickets and as a feeding cage for (larger) frogs</li> <li>stand it on top of tadpole tank and below froglet cage – rinse froglet water through into tadpole tank (where you do partial water changes through the closed lid, or via autosiphon). If 3 up, tie the top cage with a rope loop to the wall.</li> <li>or stand cricket cage on top of large frog tank (see further below)</li> </ul>	42.75
2	bare 22 litre cage <ul style="list-style-type: none"> <li>e.g. for breeding crickets (e.g. on warm fluoro fitting of large frog tank)</li> <li>or for sorting small from large crickets or mealworms (put lidded cage upside down on unlidded cage)</li> <li>or as temporary holding cage for large frog</li> </ul>	34.00
3	bare 12 litre (“Large”) cage <ul style="list-style-type: none"> <li>as above, or for making your own froglet cages and taddy tanks</li> <li>taddy tank holds only half as many tads as in XL tank, but is easier to tilt to change water – saves on autosiphon</li> </ul>	26.00
4	autosiphon for 22 litre taddy tank <ul style="list-style-type: none"> <li>keeps water at a pre-set level, regardless how much you pour in</li> <li>runs into e.g. bucket or plant pot or garden</li> </ul>	15.00
5	kitty litter tray <ul style="list-style-type: none"> <li>add water, stand the bottom cage in to stop ants getting at crickets or fly pupae</li> <li>from supermarkets, or use bottom part of styro broccoli box (free from greengrocers)</li> </ul>	

## B. FOR LARGE FROGS – 90 cm tank / [or 120 cm tank]

<b>Recommended components:</b>		
1.	90 cm aquarium <ul style="list-style-type: none"> <li>36" x 14" x 20" high – extra tall to suit tree frogs</li> <li>wide glass edge strips – to protect frogs' noses and to contain frogs when opening lid</li> <li>openings of the right size for (a) optional artificial sandstone inserts, (b) optional 22 liter (XL) perforated perspex tanks</li> <li>thick glass edge strips and centre brace – to take the weight of optional perforated perspex [froglet/cricket/plant/feeding] tanks</li> <li>edge strips mitred and sealable – to allow cables but not frogs through</li> <li>drain hole in base of tank with fully flush fitting and with tap – off-centre to be compatible with frame of optional cabinet [If no drain hole desired, an autosiphon and a different edge strip will be supplied instead, for the same price. This does not require a hole in the shelf on which the tank stands ]</li> <li>[or 48" x 18" x 20" high tank – specs as above, but with 2 centre braces, suitable for standing 3 XL perspex tanks on top, and still wide enough for 2 fluoro fittings if desired]</li> </ul>	\$133.00           [153.00]
2.	foam base <ul style="list-style-type: none"> <li>for 90 cm tank</li> <li>[for 120 cm tank]</li> </ul>	5.75 [10.00]
3.	2 glass lids with handholds <ul style="list-style-type: none"> <li>of same size as optional 22 liter perspex tanks which fit in their place</li> <li>6 mm glass – weight stops frogs pushing lids up</li> <li>inward draining</li> </ul>	10.00

▪ [3 lids for 120 cm tank]	[15.00]
4. 2 fly-screened aluminium profile lids	34.65
▪ white frames unless requested otherwise	
▪ cricket-proof metal fly-screen	
▪ no sharp corners or edges accessible from below	
▪ held down by fluoro light fitting	
▪ [3 larger lids for 120 cm tank]	[59.00]
5. 90 cm fluorescent light fitting	47.20
▪ white (unless black specified)	
▪ flat top (useful for hatching crickets or pupae on)	
▪ [120 cm fluoro fitting – same price]	[47.20]
6. 90 cm Aquaclear fluorescent tube	15.00
▪ delete if own (e.g. plain) tube preferred	
▪ [120 cm Aquaclear tube, as above]	[21.45]
7. full-size undergravel filter	24.60
▪ for 90 cm tank	
▪ [for 120 cm tank]	[38.60]
8. powerhead – 1022 l/h (Aquaclear Reversible)	71.70
▪ suitable to drive u/g filter + reverse u/g filter + [waterfall or rainbar or spray jets] simultaneously	
▪ a small powerhead (\$34.65) is sufficient if only the water is filtered (u/g) and the land is cleaned manually (An additional middle-sized powerhead can be installed later )	
▪ mountings and fittings are compatible with tank and with optional inserts	
9. 25 kg 5-7 mm aquarium gravel	10.90
▪ or get your own – if from plant nursery, check re calcium hardness and heavy metals	
▪ [double the amount for 120 cm tank]	[21.80]
10. aquarium thermometer	3.00
11. installation and care leaflet (and phone support) included	
12. furnishing the tank: Either use your own materials to create a large, suitable and pleasing land area (info in handout), or choose from the optional components below.	
<b>Optional components:</b>	
1. 50 W aquarium heater/thermostat	44.00
▪ not required for temperate frogs, or if another heat source is used. (A basking branch under the fluoro provides for tropicals is only enough warmth in summer)	
▪ may not be needed if room is well heated and if the larger powerhead is used	
▪ [100 W for 120 cm tank]	[46.00]
2. mist machine	148.00
▪ decorative, usually also obviates aquarium heater	
▪ makes a low fog that hangs over the water surface and spills down from (warmed) raised pool	
▪ best used in conjunction with waterfall / raised pool unit (below)	
3. reverse undergravel filter and hanging swamp – for 90 cm tank	126.80
▪ r u/g filter goes under the main land area (nearly half the tank area)	
▪ for pre-filtered water from u/g filter to wash upwards and float land gravel clean	
▪ hanging swamp: realistic, durable artificial sandstone, 2 y. warranty	
▪ for either splashing or silent (e.g. in bedroom) water return	
▪ includes 5 kg gravel, flat rock with embedded mealworm bowl, red granite hide rock	
▪ includes grape vine cuttings in plant tray	
▪ as above, for 120 cm tank	[198.00]

<p>4. waterfall / raised pool unit</p> <ul style="list-style-type: none"> <li>▪ realistic, durable artificial sandstone, 2 y. warranty</li> <li>▪ no inaccessible hiding places</li> <li>▪ pool is at correct depth for optional mist machine</li> <li>▪ waterfall is positioned to minimise splatters and turbulence</li> <li>▪ includes piping and 2 regulating/shut-off valves</li> <li>▪ includes red granite rock to hide valves</li> <li>▪ [same unit for 120 cm tank]</li> </ul>	98.40
<p>5. rain pipe with spray jets</p> <ul style="list-style-type: none"> <li>▪ uses circulating pre-filtered water, cleans glass and rocks, waters epiphytes, helps spawning</li> <li>▪ includes shut-off valve, piping, frog-resistant fasteners</li> <li>▪ use for about ¼ to 1 hour/day</li> <li>▪ [for 120 cm tank]</li> </ul>	30.00 [38.00]
<p>6. further option if both the rain pipe and waterfall units are selected:</p> <ul style="list-style-type: none"> <li>▪ run both off a second powerhead on a timer, to obviate daily turning of valves</li> <li>▪ use two different size powerheads (\$71.70 and \$34.65) and adjust to your preferences</li> <li>▪ timer from hardware shop (approx. \$25)</li> </ul>	
<p>7. background rock wall corner for planting – for 90 cm tank</p> <ul style="list-style-type: none"> <li>▪ realistic, durable artificial sandstone, 2 y. warranty</li> <li>▪ hides cables leading out of tank</li> <li>▪ includes staghorn or bromeliad in drained gravel (install wick if no rain pipe is used, or if no perforated perspex tanks on top)</li> <li>▪ [for 120 cm tank]</li> </ul>	77.00 [97.00]
<p>8. epiphyte branch</p> <ul style="list-style-type: none"> <li>▪ for climbing and basking under fluoro, for fastening climbing plants to, for framing the view</li> <li>▪ needs rain pipe (or perforated tank) on top – otherwise manual watering and cleaning</li> <li>▪ includes staghorn or mature bromeliad</li> <li>▪ [for 120 cm tank]</li> </ul>	22.00 [33.00]
<p>9. raw pine cabinet with doors – for 90 cm tank</p> <ul style="list-style-type: none"> <li>▪ accommodates drain and bucket</li> <li>▪ tidies paraphernalia, frog food etc</li> <li>▪ [for 120 cm tank, 46 cm front-to-back]</li> </ul>	185.90 [262.00]
<p>10. [raw pine hood for 120 x 46 cm tank – looks nice but no top perspex tanks then]</p>	[136.00]
<p>11. delivery and full installation and training, if required, in Sydney area</p> <ul style="list-style-type: none"> <li>▪ detailed self-installation instructions included</li> </ul>	90.00
<p>12. in development: fan blower module</p> <ul style="list-style-type: none"> <li>▪ fits into one of the perforated perspex tanks</li> <li>▪ requires the fly-screened lids to be replaced by 2 further glass lids</li> <li>▪ blows air through activated carbon into frog tank, to remove any household insecticides</li> <li>▪ when reversed, expels tank air through carbon, to remove any allergens</li> <li>▪ for evaporative cooling of cage in very hot weather</li> <li>▪ can be with air heating unit on a thermostat – no further tank heating then required</li> <li>▪ front of perspex tank is a planter module</li> </ul>	TBA

<sup>1</sup> Other modular inserts are available that extend landscapes nearly seamlessly through several tanks alongside each other, with a gradual transition from e.g. waterfall/rainforest/creek/swampland to coastal zone and marine module (After that, it's easy to put the downpour on a timer, together with extra waterfalls, a periodically rising creek level, a thunderstorm CD track and awesome lighting.)

<sup>2</sup> Archer Fish are particularly interesting in a frog tank because they shoot insects down.

<sup>3</sup> Baby turtles need additional UV light. Other reptiles need a dry air intake and a rain-sheltered hot-rock. Mystery Snails are useful garbage guzzlers.



**FATS OFFICE BEARERS AND COMMITTEE    1999/2000**  
**POSITION RESPONSIBILITIES**

**OFFICE BEARERS OF THE ASSOCIATION**

**PRESIDENT**

- \*chairs all committee meetings
- \*spokesperson for the FATS Group
- \*presents the views of the FATS Group through appropriate correspondence and representation
- \*liaises with other similar organisations
- \*councillor to the Australian Affiliation of Herpetological Societies

**CHAIRPERSON**

- \*chairs the bimonthly general meetings of Fats
- \*organises time and venue of meetings (contact person)
- \*organises speakers for FATS general meetings in consultation with the Committee

**TREASURER**

- \*ensures all money due to FATS is collected
- \*receives and receipts all incoming money
- \*ensures that all payments authorised by FATS are made
- \*provides financial reports at committee meetings and the AGM
- \*ensures correct books and accounts are kept showing the financial affairs of the association
- \*ensures financial records are audited
- \*any other duties for the "treasurer" as outlined in the Associations Incorporation Act, 1984 and the Associations Incorporation Regulation, 1985.

**SECRETARY**

- \*keeps minutes of all proceedings at committee meetings and general meetings
- \*keeps minutes of all appointments of office bearers and members of the committee
- \*keeps minutes of the names of members of the committee present at a committee meeting or general meeting
- \*ensures minutes of proceedings at a meeting are accepted and endorsed in accordance with the rules of association for FATS
- \*ensures a register of FATS members is established and maintained, and is accessible to any committee member
- \*receives and ensures appropriate distribution and action for all correspondence in
- \*ensures correspondence actioned at committee meetings goes out
- \*other duties as outlined for the "secretary" in the Associations Incorporation Act, 1984 and the Associations Incorporation Regulation, 1985.

**ORDINARY MEMBERS OF THE COMMITTEE**

**MEMBERSHIP OFFICER**

- \*responsible for memberships received.
- \*responsible for membership enquiries, data base and envelopes for mailouts

**FIELD TRIP CO-ORDINATOR**

- \*organises field trip venues and schedule
- \*organises appropriate leadership of all FATS Group field trips
- \*is the key contact for field trip enquiries

**PUBLICITY / EXHIBITION OFFICER (2 POSITIONS)**

- \*ensures a mobile display is established and maintained for use by FATS
- \*Provides access to this exhibition material for use by FATS members
- \*co-ordinates volunteers to attend at FATS displays
- \*co-ordinates all FATS activities during Frogweek (e.g. Zoo displays, school presentations etc.)
- \*co-ordinates all publicity for the group and ensures that it is consistent with the Group Objects as outlined in the Rules of Association for FATS.
- \*co-ordinates the publicity needs of the group for Frogweek

**EDITORIAL PANEL (3 POSITIONS)**

- \*responsible for the examination, compilation and editing of material to be published by FATS
- \*responsible for the printing and distribution of this material
- \*ensures publishing and distribution of the bi-monthly newsletter "Frogcall" by due date
- \*attends sub-committee meetings of the editorial panel as necessary to ensure publishing deadlines are met



## MEALWORM MANIA FRESH FOOD FOR FROGS

**S**ome feeding queries – mostly from the Frogwatch Helpline's phone log, and in a nutshell. The answers are appallingly biased, but they work for me. Let's look at mealworms, crickets and some different flies and cockroaches. Today it's mealworm time!

**Q:** Are mealworms good tucker?

**A:** Yes, especially for the larger frogs, and if you give them some other live food from time to time for variety, and if you at least sometimes lightly dust the mealworms with calcium/vitamin D3 powder. You can get Cenovis tablets from the supermarket and grind them up really fine. You should also add a trace of multi-vitamin powder – try to get a brand for reptiles and amphibians. Keep the powders in the fridge. For medium-sized frogs, fish out the smaller mealworms or those that have just shedded. For small frogs, you could breed your own mealworms (that's a different story though) and sort them by size in a kitchen sieve or an upturned plastic cage with slotted lid.

**Q:** My frog doesn't eat mealworms. Is that common?

**A:** They take getting used to. Keep a smooth bowl with a counted number of them in your frog cage all the time, but feed other things it readily eats. One day the mealworms will start to disappear. Happens without fail.

**Q:** Mealworm dust makes me sneeze and my eyes run. Yours too?

**A:** Yes. I blow their chaff off with a hair dryer on its cold setting, straight out through the kitchen door. When I change their wheatgerm-bran mix, I sieve it out over a newspaper outdoors and hold my breath. I don't use rolled oats because they don't go through the sieve. And if I need to separate live mealworms from dead ones, I put them on a dinner plate in an empty aquarium. The live ones eventually go over the top and can't get back in again.

### by JILEA CARNEY

BLUE Mountains councillors have directly contributed to the demise of a rare and endangered species, according to environmentalist Neddy McDonald.

Ms McDonald was involved in a campaign to overturn a development on land belonging to Blue Mountains Councillor Ralph Williams because of a population of Red Crowned Toadlets she found on the land.

The 3 cm frogs are one of the world's rarest and are found in only a very few Sydney suburbs.

"The numbers of this frog have declined to such an extent that this species has now been upgraded to rare and endangered and members of the council have contributed to its demise.

"Do councillors ever listen to the public?

"Do they ever do their own research into such serious matters as preserving our wildlife?" Ms McDonald said.

Ms McDonald said she found Blue Mountains Council "insensitive" to the discovery of the frogs on Mr Williams' land.

"I learned that one of our councillors considered frogs to be 'yuk', another betrayed me by a lack of support and honesty and another suppos-

edly environmentally connected one gave up on the case.

"But this frog is now on the rare and endangered list. How long do we have to wait before this happens to more species here?"

Ms McDonald said she did not accept environmental re-

**Q:** Are mealworms more convenient to feed than other live foods?

**A:** Definitely. They're cheaper, they last longer and they can't hide in the frog cage if you put them in a smooth feeding bowl. Make sure though that the frogs can get into the bowl easily, that they can't tip it over and that the bowl stays dry because mealworms drown so easily. If you have a number of large frogs, you can put a half brick into the mealworm bowl – the mealworms crawl all over the brick, and the frogs can't sit on them all and soak them to death. But I also know of frogs that get their mealworm wiggled against their noses on a pair of plastic tweezers. That's good for wild Green Tree Frogs that are toilet trained – they come in through the window and wait for their feed.

**Q:** Can you overfeed frogs?

**A:** Usually, no. I keep a mealworm bowl with my larger frogs all the time. Whenever they get a treat of crickets or flies or something, they eat those first, anyway. A few Green Tree Frogs eventually do get obese – feed those only once a week, but then as much as they want.

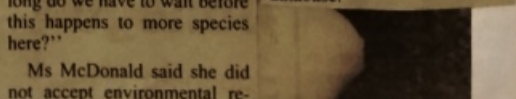
**Q:** Are mealworms also easier to store than other live foods?

**A:** Yes. Just make sure ants don't get in (if necessary, stand the container in a dish with shallow water, or keep them in the fridge), and take care that flour moths don't lay their eggs in there and felt everything up. Just keep the container covered with a finely punctured lid or with fly-screen. In the fridge, you can keep them for at least two months, especially if you sieve them to change their bedding once or twice. It tends to get damp from their own exhalations. If you keep them at room temperature, put a piece of carrot in, because they do need some moisture – which they otherwise get by chewing holes into the mealworm pupae. They will then last almost as long as in the fridge, especially if they were still small to start with, but then they will turn into pupae (which the frogs generally don't eat). After that, they turn into beetles (which the larger frogs will eat), but the beetles only last a few weeks. All in all, it's easy to keep mealworms from one FATS meeting to the next. One lot straight into the frog cage, another one onto the shelf, the rest into the fridge for a month!

L.V.



ports found no evidence of the frog. "The frog was abundant in this area and it was listed on a National Parks and Wildlife database.



**UNDER THREAT** Penrith Press 12 1 99

**RARE FROG HABITAT "IS LOST"**

(forwarded on by Mathew Kempley-Hill)



## FRESH FOOD FOR FROGS: CRICKET CRAVINGS

Q: My Green Tree Frog sometimes sickens up again. Lots. All those good crickets! What should I do?

A: You're probably keeping it too cool at night. When it gets too cold, frogs can't digest on a full stomach.

Q: For how long can I keep crickets?

A: Usually until the ants find them (keep their cage standing in a shallow water tray). Or until they kill each other if you overcrowd them. Refill them into a fairly large perspex tank, with strips of cardboard egg-crate or egg carton stacked halfway up – no higher, so the small ones can't get out through the slotted lid. The strips should fit through the clear window in the lid – after you have shaken the crickets off. If you space them out between cardboard, and if you feed them and keep them fairly clean, adults will last for about a month, and young ones for two or three months.

Q: What do you feed crickets?

A: Carrot and apple and dog kibble to eat, in a small bowl that fits through the clear window in the lid, and a piece of orange to drink.

Q: And how do you clean a cricket?

A: You take its food bowl out, and its old cardboard, then you scoop a handful of them into your frog cage (or into the frogs' special feeding cage, if that's your system) and you slide the rest into an empty perspex cage of about the same size, leaving their dry "dust" behind. Do that outdoors or with the empty cage inside a large empty garbage bin, because you may get a few escapees. There's also another system: No cardboard but some decorative branches for the crickets to sit on. Don't overcrowd. Use a perspex tank with lots of holes in the bottom (get that hot fork out again!), fly-screen over the holes, then 2 cm of aquarium gravel. Then you can hose or spray the lot downwards, crickets and all. They'll survive. Just get the cricket food out first and replace it with fresh food afterwards. Gets you to keep the frog food as pets as well as the frogs. And they all sing together!

Q: Can you keep them in the fridge?

A: Not for storing them, but it's fine for an hour or so. They get dopey then, and you can safely open their container without getting an exodus.

Q: Can crickets harm frogs?

A: Always put the crickets into the frog cage together with a slice of carrot, so the crickets don't get hungry and start chewing at a frog. (It's also good to have them gut-loaded anyway, before they get eaten.) To be extra safe, don't put hundreds of crickets in with your frogs, and don't put large crickets in with really tiny frogs.

Q: I have several generations of crickets together. Do I have to sort their sizes by hand?

A: No, just scoop a handful out into a plastic cup with a perforated lid, and with a bit of bunched-up paper inside. Make the holes in the lid small enough so that the large crickets can't get out. Then lay the cup on its side in the frog tank, to let the small ones out.

Q: How do you stop crickets from coming to grief in the frog tank, other than for their intended purpose?

A: Don't let them drown in the water bowl. Put a rock or a floating island in – a slice of cork or from a styro box. In an aqua-terrarium, crickets that land in the water feed your fish. Or hand-feed your frog with plastic tweezers. The cricket can then also be very lightly dusted with multi-vitamin powder and won't have a chance to clean itself again before getting eaten. Or put your frog into a feeding tank with a few crickets. Remember to put that slice of carrot in for the crickets, and damp sphagnum moss or a wet sponge for your frog.

Q: What's in the next issue of Frogcall?

A: Blowflies, houseflies and fruitflies; something for all tastes and sizes. LV

## END OF THE TOAD?

**I**nbreeding is generally considered to be reserved for the upper classes and occasional rural communities; not much of a problem for the urban common man, writes Mike Jones. But, life is not so easy for the urban Common Toad (*Bufo bufo*), according to Sue Hitchings and Trevor Beebee of the University of Sussex. Toad communities in our gardens, parks and cemeteries are becoming dangerously isolated; the rural toad, with his broad acres, is less threatened.

The Common Toad breeds in the small ponds of gardens and parks as well as larger rural ponds. Beebee has estimated that it breeds in about 2,000 small urban ponds in the Brighton area alone. Toads can survive for at least eight years in the wild and remain fairly faithful to their breeding sites. Adult females spawn once a year, each time fertilised by a single male. After spawning, they can roam up to 3km from their home pond but usually stay within 400 to 1,500 metres. For these wanderings, they need a moist microclimate, cover from predators and a food supply. These conditions are increasingly limited in urban environments, criss-crossed with roads and other barriers. Urban ponds support small and increasingly isolated populations which can lead to inbreeding and genetic drift.

The researchers used DNA fingerprinting and other techniques of molecular biology to compare the population genetics of toads from 12 sites, eight within the Brighton urban area and four in the surrounding Sussex countryside. They found much less genetic variation within the urban populations and much greater differences between these populations. Genetic differences between urban populations, on average 2.2km apart, were about 50 per cent more than between rural populations, on average 37km apart.

Tadpoles from the less diverse urban populations had a lower survival rate and showed more abnormalities during development, suggesting that inbreeding had exposed harmful mutations which reduced fitness.

These findings cast doubt on the long-term viability of toads in urban areas like Brighton. Their biological fitness may depend on the wanderings of more adventurous toads. Or conservationists may have to engage in spawn swapping to bring in new blood. Forwarded on by Carl Spears, with compliments Science OnLine and "Stan A. Orchard"

## IMPACTS OF HERBICIDES ON FROGS

**A**nother report on toxicity of surfactants used in herbicides was recently released (January 14, 1999) by the Water Corporation, Western Australia. Environment Branch - Technical Report No. 1 Acute toxicity of herbicide-formulation surfactants to four species of Western Australian frogs.

Report was prepared by Reinier Mann, School of Environmental Biology, Curtin University of Technology, Bentley Campus WA 6102. Report details similar impacts of surfactants, earlier reported for Roundup Herbicide (now superseded for aquatic applications by Roundup Biactive Herbicide) in two other commonly used herbicide preparations. Quoting from the "Executive Summary" but missing the R in a circle symbols for registered trademarks that do not translate into my email:

**WANTED:** frog-friendly outdoor ponds in moist, shady locations with protection from cats and dogs.

The pad is required for green, working tenants who are willing to share with flies and other garden pests.

Macarthur branch National Parks and Wildlife Association members Barry and Pat Durman marked Frog Week, which ended on Friday, by encouraging people to help the environment by creating frog ponds.

Not only would frogs appreciate new homes around the suburbs but predators such as birds and reptiles also benefited from the food source, Mr Durman said.

"They eat the small things and big things eat them — they are an important part of the food chain," Mr Durman said.

"Frogs will come to the pond, you don't have to get them because they will just turn up."

Mrs Durman said two threatened species lived in the Macarthur area — the giant burrowing frog and red-crowned toadlet — and their homes were under threat from urban and commercial development.

The Durmans organised a frog search tour for 25 people during the weekend with about 10 species of frogs found in the Dharawal State recreation area including tadpoles of the giant burrowing frog.

**What war? ... Barry Durman says frogs are lovable critters but he fears they may croak it over habitat destruction**  
PHOTO: Jason Lindsay



**IT'S NOT EASY BEING GREEN**  
THE CHRONICLE 11 11 98

THE CHRONICLE, Wednesday, December 2, 1998

This frog weekend was organised at Wedderburn to mark frog week. Jennifer Taylor was there too.

Verlie Fowler

## Frog species might croak

I WOULD like to thank *The Chronicle* for printing an article on frogs on November 11.

The public response has been surprising as I did not realise just how many residents of the Macarthur area care about these little creatures.

The giant burrowing frog (*Heleioporus australiacus*) — listed as endangered with the National Parks and Wildlife Service — is one of our local frogs that need our special help to survive and a healthy population live in the Wedderburn plateau. Unfortunately, because of lack of commitment and understanding by Campbelltown Council, I am very concerned about the long-term viability of this particular population.

I would ask your readers to remind Campbelltown councillors that disturbance of soil and clearing will lead to the demise of not only koalas but also this interesting and very vulnerable frog.

Barry Durman  
National Parks Association of NSW  
Macarthur branch member

By SIMON BENSON  
Environment Reporter

THE stuttering frog, the palmer wallaby and a glossy back cockatoo will now have their day in court as witnesses against a \$20 million gold mine in the State's north.

The threatened native animals have until now been "silenced" under a ruling that the courts had no jurisdiction to hear new scientific evidence in reviews of council development consents.

But that all changed yesterday when the NSW Appeals Court found that the Land and Environment Court had been wrong when refusing to hear evidence that the extension of the Timbarra gold mine near Tenterfield would harm 26 endangered species.

The decision has important ramifications for developers and councils which will now have to be far more careful when granting consent without proper studies into their environmental impacts.

"In the first respect it is an important decision for threatened species in NSW," Environmental Defenders Office solicitor Chris Norton said.



Key witness ... a stuttering frog

Mr Norton, who is acting for the Timbarra Protection Coalition, said: "Secondly, it means that decisions of councils can be reviewed by the Land and Environment Court. It means that councils shouldn't just rely on what developers tell them."

As a result of yesterday's decision, a new case will be presented in the long-running battle — which has seen 69 protesters arrested — to stop part of the Ross Mining gold mine project.

The stuttering frog is set to become the key witness.

The Timbarra gold mine was previously approved by Tenterfield Council and the State

Government which provided the lease.

Neither saw it necessary to provide a Species Impact Statement for extensions to the mine.

In a court action to stop the mine extensions going ahead, the Timbarra Protection Coalition tried to present scientific evidence that the mine would have a detrimental impact.

But the Land and Environment Court claimed it could not take new evidence and could only review the evidence already presented to council.

The open-cut mine near Tenterfield was estimated to contain up to \$150 million in gold.

The coalition argued that chemicals used at the mine posed a threat to 26 endangered species.

By JAMES WOODFORD  
Science Writer

That most repulsive of noxious pests, the cane toad, is rapidly establishing itself in Sydney, even being spotted in the inner-city.

In the past year it has turned up in virtually all suburbs, with alarming numbers caught on the North Shore. One inexplicably appeared at Whale Beach.

Scientists were lucky to capture one male that had begun to call for mates at a pond in Bicentennial Park, with its distinctive croak like the sound of a spluttering outboard motor.

Around Flemington Markets is still the hotspot, with 13 toads reported since the beginning of last year. Forty-six toads were found in the city, including five in Cabramatta.

Of greatest concern is that



Heading south, warts and all. Photograph by RICK STEVENS

they are no longer only appearing in areas — such as Flemington — where they could have hitched a ride on loads of farm produce from areas to the north.

As well as being spectacular breeders and voracious predators,

the toads pose an extra threat to pets and wildlife because their toxic glands can kill creatures that eat them. They have been known to fatally poison crocodiles.

The toads are also a danger to people because of their nasty

habit of squirting poison into eyes when frightened.

The secretary of the Frog and Tadpole Study Group of NSW, Dr Arthur White, who has collated the latest cane toad figures, said yesterday that their advance seems "absolutely relentless".

"They are all over the joint — they're now Sydney-wide," he said. "The fact that they're turning up in such widespread areas says they're coming in through a number of sources."

Although the closest known breeding colonies are at Lake Innes, near Port Macquarie, Dr White said it was only a matter of time before colonies established themselves in Sydney because the winters here are mild enough for them to survive.

"We will end up like Brisbane where there's cane toads

hopping all over the back lawn and we will see toads hogging into dog food bowls at nighttime," he said.

"When cane toads first come into an area native animals in particular will have a go at them and because they have no immunity to cane toad venom they will die."

Cane toads were introduced into northern Queensland in 1935 to combat a beetle plaguing sugarcane growers. They failed to effectively control the beetles and Australia was left with a species that has since romped southwards and westwards from its northern stronghold.

Dr White said anyone who thought they had found a cane toad should not kill it. Instead, use gloves to pick up the toad, and report the find to authorities.

All-suburbs alert as  
toad rage finally  
hits Sydney

The Sydney Morning Herald  
MARCH 8, 1999

Thank You  
to all those  
who contributed to  
this newsletter

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between 7pm and 8pm

wangmann@tig.com.au

We hold six informative, informal, topical and practical meetings each year at the Australian Museum (William Street entrance) in Sydney. Meetings are held on the first Friday of every even month (February, April, June, August, Oct. and Dec.) at 7 pm for a 7:30 pm start. 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.