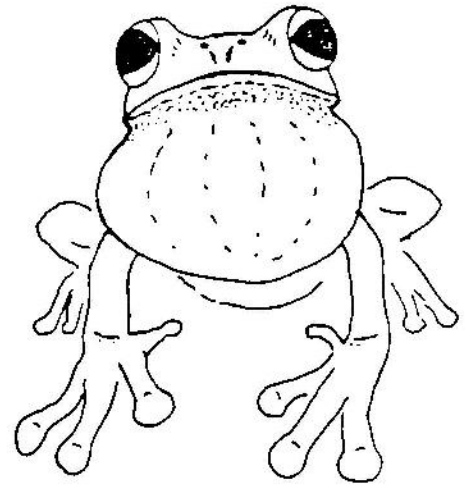


**THE FROG AND TADPOLE
STUDY GROUP OF NSW INC.
(FATS GROUP)**

PO Box A2405
Sydney South NSW 2000



FROGCALL No 13

Sept./Oct. 1994

Special Frog Week Bumper Issue!

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Consultants to Endangered Frog Survey:

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* Philip stepped in when Danny had too much work on his hands and left the committee; Jacquie was co-opted back in by the committee. Welcome in to both of you and many thanks for your work, Danny!

NEXT MEETING

***** Friday 7th October *** 7:00 for 7:30 pm *** Australian Museum**

SPEAKERS

Harald Ehmann	"Frog Week 93 & 94"
Gunther Schmida (held over from June when he wasn't in town)	"Frog Photography"
Everyone	"My most recent frog observation(s)"
Everyone who wants to	"My five (5) favourite frog slides"

REGULAR FEATURES

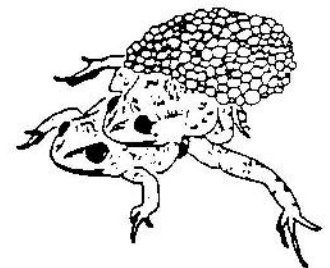
Endangered Frog Survey Update
News announcements and discussions
\$2 donation at the door (a custom that will be abolished for members after this meeting)
Refreshments and informal atmosphere provided
Visitors welcome. Bring your friends.

Current major FATSG activities

Endangered Frog Survey:
a study of the habitat characteristics, present distribution, and population sizes of 21 species of "at risk" frogs in NSW. Partly funded through the National Estate Grant Program

Frogweek 1994:

First week in November. many activities planned to focus public attention and interest in endangered frogs. We anticipate considerable public involvement



**NOW MEETINGS EVERY
FIRST FRIDAY OF EVERY
EVEN MONTH!**

October, December, February,
April, June, August, ...
e-a-s-y--t-o--r-e-m-e-m-b-e-r
|h|a|r|d |t|o: |f|o|r|g|e|t|

A message from FATS Group President, Harald Ehmann:

**ENDANGERED FROGS SURVEY, THE DROUGHT,
YOU AND EVERYTHING THAT EVER MATTERED!**

We have completed about half of the survey for the 21 species known or suspected to be in decline in New South Wales. The survey is concentrated in the wetter eastern half of the state and data is being taken on habitat characteristics and population sizes at previously sampled sites (based on museum records) as well as additional ones. The work is partly funded by the Australian Heritage Council so that reasonable costs can be reimbursed to members who participate.

October 31 to November 6, 1994, has been officially declared Frog Week in New South Wales and during that week FATS Group members will undertake further intensive spot surveys of 20 key sites/areas throughout the state. Media coverage is again planned and as a result we hope there will be a state-wide CALL-IN the same as last year. The public will be asked to mail a tape recording of their local ponds, swamps etc (with locality and date). This is part of the Australian Frog Count (AFC). They will receive identifications and the most comprehensive ever survey of frogs will be made (by simple audio techniques). Our more intensive and specific Endangered Frogs Survey will of course go on before and after Frog Week.

The endangered species which need to be further surveyed are: 1) in the northern wet ranges - the Border Ranges Great Barred Frog (*Mixophyes fleayi*) and the Bog Frogs (*Philoria kundagungan*, *loveridgei* and *sphagnicollis*), 2) on the northern tablelands - *Litoria castanea*, *Litoria piperata* (the former has not been seen for about ten years) and *Litoria subglandulosa*, 3) in the northern coastal acid-heath swamps - *Crinia tinnula* and *Litoria olongburenensis* and 4) along the coastal plains and ranges the enigmatic Green-thighed Tree Frog (*Litoria brevipalmata*), the Great Barred Frogs (*Mixophyes balbus* and *iteratus*) and the Heath Tree Frog (*Litoria littlejohni*). Of course further opportune observations should also be made of the other eight species if they are encountered.

The survey will need to be continued beyond spring 1995, the significant rainfall deficit (drought) over much of eastern NSW has made breeding difficult for most species. Only a few weather districts had received more than 70% of their expected (average) rainfall to the end of August. These are the Southwest Plains (in the Western Division) 87% - *Litoria raniformis*; the Northern Tablelands (East) 71% - several species; Upper North Coast 86% - several species; the Hunter 76% - possibly short trips for *Litoria brevipalmata* after heavy rain; the Illawarra 73% - short trips for *Litoria aurea* and *Heleioporus*; and the Snowy Mountains 80% - *Pseudophryne corroboree*. Remember these rainfall figures are still between 13 and 29% below the average falls expected to the end of August. And the long-range outlook is that there is a very low probability of the rainfalls ever reaching even average levels by the end of the year.

So concentrate your survey efforts up north, especially those who live up there: the Upper North Coast, the Northern Tablelands and the Hunter. And hope, request, dance and/or prey for rain to fall soon! But above all enjoy the frogs while (and whenever) you can, AND let us have your results. The revised (and greatly improved) Frog Survey Guidelines and Data Form" (version 1-8-94) is now available too, write or phone if you don't receive a copy soon.

Phone: Lothar (02) 371 9129
Harald (018) 257 585

for more information.

LAST MEETING'S FROGGISH FROLICKINGS

About 60 people in the audience, young and old, had a recent frog observation to share with the Group. Although of necessity brief, all were interesting, and many elicited vigorous head bobbing and arm waving by others. We were all grateful for the contributions and the exercise.

The advertised "Water quality for frogs" talk is still up my sleeve somewhere, to be extricated if ever boredom sets in. Instead, the WILD MAN appeared at the August meeting, a terrifying apparition that will not be forgotten soon:

Philip Green who "does" the schools' test piloted his latest sound-on-light multi-media frog-frighteners for us: a snarling, swishy tailed (he seemed to have a tail in our imagination), flashing (he did have flashing bicycle lights on his frogging-on-the-highway field outfit) and boom-microphone-toting entertrainer. Trouble was, as he was lowering his mike contraption towards two hapless volunteers he had dragged to the front to make frog calls, they started amplexing instead. And then they don't call, of course! But we all rewarded him with a wonderful frog chorus he had taught us, in six groups, by showing us one frog slide and matching call recording at a time, and then ALL TOGETHER. The din was so loud we couldn't even hear the cars piling up outside! Despite our aching sides and our bad backs from being doubled over for so long, we were glad for the kids at schools. They're in for a lot of information on endangered and other frogs, their environments and their needs, with enough gory stuff thrown in to make it stick in their minds.

Glenn Shea gave a presentation on his and Gerry Swan's negotiations with NPWS on herp licensing requirements and categories. As this is a moving feast, we'll keep you updated as the progress unfolds.

Arthur White showed slides of the frog he described and recently named *Litoria littlejohni*. It now turns out that it is no other than the familiar frogface we used to love as *Litoria jervisiensis*, and that the "new" one we expected to become *littlejohni* now goes by the name of *jervisiensis*. Would the endangered one please stand up?

Other great slides were shown by Ken Griffith and Shane Gow. A few more people tucked their slide boxes back in their pockets to give Angus a bit of time.

Angus Adair gave an overview of the Endangered Frog Survey Guidelines and Data Form he and Harald had put together. Included in this *Frogcall* is a further development by Harald, a self-explanatory short version of the Data Form, for the occasional user and schools.)

L.V.

FROG WEEK 1994 - 31st October - 6th November

Frog Week is traditionally always the first week in November. We started this tradition last year, and it is great to see that the public, the press and the interstate frog societies have wholeheartedly leapt at the idea so that Frog Week is now a national event. Our three main messages are:

- Making the public aware of the plight of frogs
- Telling them how they can help frogs and frog research - e.g. sound recordings
- Telling them how we can help with information - e.g. Frogfacts

What you can do for Frog Week:

- * Take this Frogcall's enclosed "Frog Week 1994" (which is an update on the one with the last issue) and the enclosed "Interested in Frogs?" sheet. Get your Frogfacts No. 2 & No. 3 out, or pick up a copy at the next meeting. Make copies. Then:
 - * Pin them up wherever they do any good.
 - * Send them to your local paper and tell them what it's about.
 - * See your local school. Speak to the teachers and the kids. Have also a few copies of the appended field survey sheet and of the sound recording instructions with you.
 - Get them to dig a school frog pond.
 - Get them to adopt a wild pond.
 - Get them to record sounds and fill in survey data sheets.
 - Tell them of the field guide prizes we have for those who come up with a new study site for us for an endangered frog species. (10 Robinsons, with thanks to Reed.)
 - And as usual, give them a rousing We Shall Find Them in the Trenches!
- * Do the same for bushwalking, canoeing, gardening etc. clubs.
- * Wear something green, wet and slippery for Frog Week, if all else fails!

L.V.

FROG WEEK FIELD TRIPS

The big push up north will be a one week affair this time, up to the Border Ranges and Byron Bay. We leave Sydney on Monday morning (1.11.) and will be back on Sunday evening (8.11.). If you are a FATS Group member and can't wait to spend the days wading around for the press and the nights for the frogs, please phone me on 371-9129.

If you want to take your own car, your petrol will be reimbursable. But: (a) You must be prepared to have your spare seats filled up with pedestrian members; and (b) you'll be the one in that car full who records the endangered frog survey data sheets. Whether driving or driven, you'll be coming home very tired and very happy.

Closer to Sydney, day and sometimes weekend field trips will be organised around Frog Week and also any time after Frog Week. Each of the committee members will be field trip leaders. They will phone members, in turn, who have indicated they'd like to participate and will send them a confirmation form.

For country members, we are planning to put something similar together based on regional centres where we already have keen and experienced field workers. Write in with your address and phone number if you would like to be in on it, and just watch what we can organise. We hope.

L.V.

THE BELL FROG RESTORATION ENVIRONMENTAL EMERGENCY PROJECT (B.R.E.E.P.)

Want to be a volunteer for Frog Week? On saving Green-and-Golden Bell Frogs? Meeting people? Then this is your job description:

1. Ring David Millar or Martyn Robinson at the Australian Museum on 339 8111 and arrange to pick up your kit from either of them when it's ready later in October.

2. Your kit will consist of:

- * your personal territory map for your letterbox drops
(The map will show which houses and gardens are immediately adjacent to one of the few breeding sites of *Litoria aurea*.)
- * a stack of envelopes, covering letters and Frogfacts nos. 2 and 5.
(The covering letters explain that this endangered frog may naturally colonise their garden if they dug a suitable pond. FF2 is "Keeping Frogs in Your Garden" and FF5 will be "The Green-and-Golden Bell Frog".)
- * for your follow-up question-answering rounds a week later, a log sheet to register local residents for the B.R.E.E.P., a stack of acknowledgment sheets and, just in case, a stack of FATS Group membership forms and a receipt book. And some "sorry you were out but ring me up" sheets with your phone no.

3. You will become the Information Centre for the people registered on your log sheet, the one they will be ringing for advice and the one they will be reporting progress through.

Sounds like fun? A bit scared? One step at a time: Ring now!

L.V.

FATS DISPLAY AND INFORMATION STANDS (FATS D.A.I.S.?)

Ku-Ring-Gai ran their Wildflower Festival on the 27/28.8. weekend, due to Karen's influence, with a FATS Group display table. Liz, Jacqui, Barbara, Frank, Giselle and I took turns answering questions and handing out sets of Frogfacts in exchange for 49 (!!!) new membership enrolments.

Warringah Council is staging a similar "Bush and Garden Festival" on **Sunday, 30th October**. Water Board and Dept. of Water Resources start their Water Week in a marquee at Homebush Bay on **Sunday, 23th October**. Both have invited us to participate in their events. Please contact Lothar on 371-9129 to offer your valuable services as explainers/signers.

P.S. There is no better way of getting into the spirit of Frog Week than to be mobbed by gardeners and water people all thirsting for information about frogs!

L.V.

UPDATE ON RED-CROWNED TOADLET WORK

Has anyone seen R45703??? Recent weather has made surveying for *Pseudophryne australis* very unrewarding, so I've had to get satisfaction from chasing information on outlying specimens. Hence the cry for R45703. This is a "Pseudophryne sp." collected by R. Pengilley at Point Lookout (New England National Park). As we have another *Pseudophryne australis* collected from there, and one from Armidale, by different herpetologists and on different dates, which look typical of *Pseudophryne australis*, it would be exciting to see this specimen which was registered originally in the New England University records as *P. australis*. Unfortunately it can't be found in among the *Pseudophryne australis*. I'll search for it among the huge *P. bibronii* collection, when I have nothing better to do with my life. I'd be interested in any information on any sightings of *P. australis* from this area or from Armidale, in particular any field trips to the lower slopes below Pt. Lookout.

Vegetation analyses are being carried out at known *P. australis* sites. The plant communities found confirm the information emerging as to many of the ecological requirements of this species. I will give you more details when the results are presentable. All reported localities for *P. australis* since 1980 have been sorted out of the data base, in order to be able to assess where surveying needs to be carried out in the near future.

I'm now asking for any information available on *P. australis* utilising cliffs as refuge areas or their prevalence under bush rock (also old records) as I suspect that bush rock "harvesting" may be having a negative effect on populations.

Finally, I have agreed to coordinate the ENDFROGS work on *P. bibronii*, which would mean collating survey forms for any sightings. Please let me know of any recent *P. bibronii* records - either sightings, or sites where they can no longer be found.

Karen Thumm [Phone (02) 482 1017]

DON'T TELL ME PEACE HAS BROKEN OUT!

(to quote B. Brecht's "Mother Courage")

News from DGHT Member Kurt Rimpp, Germany:

The end of the Cold War and the removal of all American and Russian troops would normally be a cause for celebration - but it is claiming some victims. A DGHT member from Malsheim near Stuttgart, Kurt Rimpp, wrote to me last week and almost said "Bring in the tanks!"

Pardon me? What is he on about?!

The tank manoeuvre area in Boeblingen near Stuttgart is known for its great quantity and diversity of amphibians - in fact 9 of the 12 amphibians found in Germany, 4 of which are on the endangered list, occur here. Some of these species benefited from the holes and ditches the tanks produced during their manoeuvres. Now a power plant fired by waste materials is planned for the site. All large environmental groups pleaded with the Premier of the State of Baden-Wuerttemberg to turn the area into a nature reserve, but to no avail. Kurt had never imagined being prepared to sit in front of bulldozers...

To end the news from Germany on a more pleasant note: Kurt's *Triturus marmoratus pygmaeus*, the Pygmy Marbled Newts, have just had offspring.
K.T.

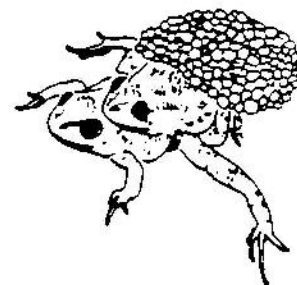
AND ANOTHER SPAWNING SUCCESS!

Mark Wilson's. Clutch size: one. Baby boy. Good breeders, down to a fine art now. Congratulations to the Wilson family!

NEWSPLASH FROM THE TREASURER:

MORE FREE RAFFLE TICKETS!

... if you pay your membership fee at the October meeting. Last chance.



BECAUSE THEY CAN'T WRITE THEMSELVES

In line with our policy to speak up on behalf of frogs where we (a) have done the background research and (b) have something worthwhile to add, the committee has produced yet another report on a frog conservation issue. (The first one that set the scene was Arthur White's on recommendations for the Olympic Site Green-and-Golden Bell Frog breeding colony).

We sent a letter of concern to Hawkesbury Council, regarding a proposed development on private land inside Wollemi National Park. The proposal is for a large-scale mushroom compost manufacturing site at Tinda Creek, which runs from the adjacent Gibba Swamp into Wollemi Creek and then into the Colo. Our concerns are about the lack of an EIS or FIS, the risk of pollution by phosphate and ammonia, about ground water extraction of some 1500 m³/week so close to the creek and the swamp, about the site being surrounded by a still pristine environment and about two frogs in particular that are known to occur in that part of the Park and on similar soil types: the Eastern Owl Frog *Heleioporus australiacus* and the Red-Crowned Toadlet *Pseudophryne australis*. We are awaiting the Council's reply at present.
L.V.

NEWS FROM OTHER SOCIETIES

The Australian Herpetological Society is again free of FATS, its former Special Interest Group. We are now separately insured, and will be separately incorporated by the time you read this. All the old ties are still there and will clearly remain so. (The September AHS meeting had me talking about the joys of keeping frogs, and everybody really wanted a go themselves at assist-feeding some overindulged pet frogs there and then - elapids just don't have the same frog appeal!) So it's not good-bye, but it is many thanks for having given us a leg up when the fledgling FATS Group needed it!

RANA, the Queensland based frog group, has in the blink of an eye jumped to a membership of 700! (All people, no gerrymanders here!) Congratulations and well done, RANA! They have monthly meetings and a great quarterly newsletter. To help push their number of members up further, ring (07) 372 1490, (07) 4172 or (07) 379 7647. Well worth it.

The FATS Group of South Australia is also doing Frog Week and the Australian Frog Count in a big way. Congratulations on the helpful government backing and our best wishes for a rip-roaring success! The contact is Gary Beardsell, 14 Cadiz Court, Para Hills 5096.

The Victorian Herpetological Society now has Australian distributorship of the "Rep-Cal" phosphate-free calcium/vitamin D3 supplement and of the "Herptivite" vitamin supplement specifically for frogs and reptiles. Phone Brian Barnett (03) 363 6841.

The Amphibian Research Centre (ARC) has started up in Victoria, with and frog group meetings and newsletter. The first newsletter has a great fact sheet on the Giant Tree Frog (*Litoria infrafrenata*) attached. Best wishes for the new group! Ring Gerry Marantelli on (03) 354 4718.

ASH, the Australian Society of Herpetologists, is having its annual conference during 9-12.2.95 at Laurel Hill Prison Farm near Batlow and Tumbarumba. Contact Arthur Georges, Applied Ecology, University of Canberra, PO Box 1, Belconnen 2616.

The Blue Mountains Bonnie Doon Fauna Survey is being conducted by a voluntary group with funding for a five year comprehensive survey of flora, fauna and general ecology in a pristine catchment site near Katoomba. They are looking for expertise in frog and reptile surveys and have invited FATS Group members to participate by contacting our Danny Wotherspoon on (047) 514 273 or their coordinator Leigh Taylor on (047) 822 218.

WIRES are also worried about frogs. Findling frogs in banana shipments often go into the dedicated care of WIRES who are frequently unsure where to send them back to. We have now suggested a policy to WIRES for the tree frog species that turn up in fruit shops: If a frog's origin is not known within 50km or if nobody can take it back to its site, it should be classified as unreleaseable. As more palatable alternatives to killing it, either (a) interested WIRES carers could be trained (where we can help) to look after it permanently or (b) the frog could be passed on to the FATS Group. (NPWS are not likely to be thrown by this small licensing complexity.)
L.V.

**A QUESTION FROM THE EDITORIAL COMMITTEE:
IS THERE ANYBODY OUT THERE?**

Where are you writers on wondrous frog matters hiding yourselves? Was the fat man right with "We Shall Find Them on the Beaches"? Are you entrenched? Gridlocked? Frog pawed? Now that the Wild Man has got you to exercise your chorus line, we'll just have to come over and do a sound recording of you. So please, keep calling!

Sexing tadpoles - could anybody shed some light on this question? Is their sex preordained at conception? Is it up for grabs until metamorphosis? Do environmental factors change the ratio? We keep getting asked whether it's a boy or a girl and then just stand there looking stupid, regardless what we say (especially after the kids patiently explain about their axolotl). Some study group we are! So come on, all you gene strippers in your helix parlours, write to us! And you book worms, find us something! All you pond keepers who must have seen what sex ratio comes out of your broccoli boxes and whether it depends on anything, do write in. You indoor breeders in your fumigated houses, what are your ratios? Let's keep the S in FATS Group!

FROGS IN THE LAND AND ENVIRONMENT COURT
(Rosmyra Pty Ltd vs Hornsby Shire Council, 18/7/94)

One of the main decisions to be made in a recent LEC case between Hornsby Shire Council and a developer, was whether the effect of a subdivision (69 lots) on the habitat of the endangered species *Pseudophryne australis* (Red-Crowned Toadlet) was going to be "significant". No Fauna Impact Statement had been prepared prior to the development application being lodged. Karen Thumm gave evidence for the Council rejecting the development. Assoc. Prof. M. J. Tyler gave evidence for the developer.

Topics discussed in relation to the Red-Crowned Toadlet were their habitat, their range and their sensitivity to urban pollutants. As regards the habitat requirements of the species, there was no disagreement between the two parties, except on how this particular site was to be perceived.

Justice Talbot approved the development application. He ruled that "there will be no significant adverse impact on the environment of the Red-Crowned Toadlet from the development. Accordingly it follows that no Fauna Impact Statement is required.". At the conclusion of his judgement, in the "Conditions of Approval", he states that "The proponent shall produce to the Council either:

- a) a general licence under S.20 of the National Parks and Wildlife Act 1974 being authority to "take or kill" the Red-Crowned Toadlet in the course of carrying out the site works for the subdivision, or
- b) written confirmation from the National Parks and Wildlife Service that the site works for the subdivision may be carried out without any need for any licence or authority in respect of the Red-Crowned Toadlet under the National Parks and Wildlife Act 1974."

The judge wrote in his judgement that

"the expectation of Professor Tyler is that the Red-Crowned Toadlet is likely to thrive notwithstanding the development."

and that "the Professor was able to explain how the Red-Crowned Toadlet could adapt to urban development."

Furthermore he was satisfied that

"the members of the frog family apparently have an inbuilt capacity to resist the range of potential pollutants in run-off from modern urban development".

In relation to the question of range, and thus the amount of area within the development site which the toadlets may be utilising, the judge concluded that

"it (the Red-Crowned Toadlet) has a demonstrated lack of mobility ... the toadlet is unlikely to range over wide areas notwithstanding some anecdotal evidence to the contrary."

It was suggested that

"rocks [are] placed [which would be] suitable for habitation of the Red-Crowned Toadlet or [to] carry out such other works as may provide or protect such a habitat."

It is now up to an "approved herpetologist" to write a report for the NPWS and for the Council about "works which are to be undertaken for the purpose of preserving and protecting the habitat so identified or Toadlets which are located."

J.S.

At the risk of becoming quite unsustainable, here's one for the Cairo Conference:

FROGS MOVE OVER - THE NERDS ARE COMING!

The news has just broken that the Green Tree Frog (*Litoria caerulea*) is really two species, based on Mike Tyler's skin secretion studies. The frogs' skin secretions, that is.

At the same time but at the other end of the world, it has become official that *H. sapiens* comes in two distinct phases: *H. s. havelots* and *H. s. havenots*.

Strangely, although the havenots are in the majority and are breeding as if there's no tomorrow (maybe they know something!), they are being outgunned by the havelots in the destruction of natural resources. Each of the havelots is 30 times better at this, if you allow energy and pollution and apples and pears to be added together for the moment. The present position:

1 billion havelots x 30 = 30 billion Natural and Environmental Resource Destruction Units (NERDS)
4.5 billion havenots x 1 = 4.5 billion NERDS
Total = 34.5 billion NERDS

Now, the havelots have been girding their loins and have stopped breeding unless there's a tax advantage. Replacement value only. The havenots have instead been tightening their belts and have been doubling their numbers at least every 40 years. The default scenario in 2035:

1 billion havelots x 30 = 30 billion NERDS
9 billion havenots x 1 = 9 billion NERDS
Total = 39 billion NERDS

Through education and a decent fair go, the havenots can be transformed into low fertility, high consuming, tax consultant quoting havelots. Let this happen progressively over the next 40 years and see what we have then:

1 billion original havelots x 30 = 30 billion NERDS
7 billion new havelots x 30 = 210 billion NERDS
Total = 240 billion NERDS

Luckily, through education and panic, the havelots may be capable of being reformed to adopt a NERD factor of perhaps 4 instead of 30. Merely for the sake of one lousy little planet, let us assume that the newly recruited ones will be turning straight into the reformed variety, again by 2035:

1 billion original but well reformed havelots x 4 = 4 billion NERDS
7 billion new but already reformed havelots x 4 = 28 billion NERDS
Total = 32 billion NERDS

Nothing short of this can save the frogs!

Nor ourselves, for that matter.

According to an unconfirmed report, a frog has been discovered in the centre of Cairo that has learned to stand up on its hind legs. It is believed to be an adaptation to crowding when there is standing room only. The report says the species has been named Malthus' Frog after the 18th century optimist.

And how is your canary standing up in the coal mine? Very well, thank you, I'm down to NERD Factor 28 and dropping slightly. No more half empty cars on field trips for me, folks!

L.V.

Would you like to bring a raffle prize to the next meeting?

We would appreciate it.

And we'll give you a free ticket!

EUNGELLA FROG SEARCH

A. James Cook University Nov./Dec. 93 Expedition Extract of a report by Jean-Marc Hero:

Seven rainforest streams were searched in Eungella National Park. Weather conditions were warm and dry.

The endangered Gastric Brooding Frog *Rheobatrachus vitellinus* was not encountered despite intensive searching. It was last observed in March 1985, and its status is of national and international significance.

Rediscovery of the endangered Eungella Torrent Frog *Taudactylus eungellensis* was the most important result of the frog survey. Adults were located at 4 of the 7 creek systems searched. The juveniles, metamorphs and tadpoles found at several sites suggest that tadpoles overwinter and that this species successfully reproduced in early and late 1993. The rediscovery of this species at several sites demonstrates that little is known about the population dynamics of the Eungella frogs and emphasises the need for extensive surveys over long distances and extended time periods to ensure that a species is encountered during periods of low abundance.

The vulnerable Liem's Day Frog *Taudactylus liemi* was heard calling at all 7 creeks, and tadpoles and eggs were found. This species is extremely difficult to locate as it calls underground in crevices: eggs were encountered approx. 15cm underground in close proximity to a calling male.

Common species encountered in the rainforest streams surveyed include: Cane Toad (*Bufo marinus*), Green Tree Frog (*Litoria caerulea*), Red-eyed Tee Frog (*Litoria chloris*), Stony-creek Frog (*Litoria lesueuri*), Whirring Tree Frog (*Litoria revelata*), Tusked Frog (*Adelotus brevis*), Striped Marsh Frog (*Limnodynastes peroni*) and the Great Barred Frog (*Mixophyes fasciolatus*).

B. ANZSES Exploring Society Youth Expedition Extract from ANZSES News of March 1994:

The weather throughout Expedition Eungella II was good with only a few days of rain. Highlights include confirmation of the recent rediscovery of the Eungella Day Frog (*Taudactylus eungellensis*). This frog had not been seen ... until a James Cook University team produced evidence of their rediscovery in November 1993. We arrived only a few weeks later and were able to confirm the presence of adult frogs and many young froglets.

BACK AT CLAUDE'S HARDWARE CORNER

'This way!' 'There he is.' 'Are you the Monsieur?'

C'est moi, mes enfants. I can see you are educated.

'Mom says you eat - ouch!' 'Hush!' 'We found out that tadpoles are good to eat!'

Tadpoles!!! All six of you? You children cannot wait?

'No, not us.' 'Not ourselves. It's our two tortoises and our Dad.' 'One's a longneck.' 'One's a shortneck.' 'One's a boofhead.' 'The shortneck is a bit boofy. Longnecks don't get those big heads.' 'They catch tadpoles differently. A big head would just get in the way.' 'Dad's does.' 'About those tortoises, mister Monsieur. Ours are in a six foot tank with large pebbles in the water part.' 'Yeah, when they get tadpoles, the boofhead just sucks 'em in whole. Like this.' 'And the longneck can't do that. While he's still chewing up the first one, the shortneck's already halfway through the lot.' 'Yup! But then you should see the longneck cleaning up between the pebbles!' 'That's where the tads dive into once they get scared.' 'An' he sticks his long neck in between the pebbles, up to his shoulders an' goes searching for 'em.' 'The boofhead doesn't even bother there.'

My young scientists, this is magnifique! Regardez how the whole world enjoys amphibians! How their biomass can be the fuel in so many ecological niches! And in your case, the same tadpoles supporting two niches at once, in which tortoises may be specialising more and more over time. Tell me, mes enfants, have you noticed any defence the tadpoles may have acquired?

'They just dash for it.' 'They bolt for cover.' 'They dash downwards and then along the bottom as far as they can go or until they find a hiding place.' 'I think they panic once the tortoises start hunting them.' 'They're the Brown-striped Marsh Frog tads.' 'Yeah, and you know what the Gray's Banjo Frog tads did when Dad put Rainbow Fish with them?' 'They're the tads that grew fancy tails when a mud-eye was chewing on them when they were little.

When they outgrew the mud-eye, their tails went normal again, remember?' 'Sure. And when Dad took them to the Ku-Ring-Gai Wildflower Festival, they were happy enough on the Saturday. On the Sunday he put the Rainbows in with them, to show people what's ok against mozzies in garden ponds. And you know what the tads did?' 'They dropped down like rocks and sat still most of the day. Didn't even seem to eat much.' 'Mightn't grow so fast then.'

You are a minefield of information! And what froggy children, all shouting together in a chorus!

'And you know what, mister? At Ku-Ring-Gai, Dad also showed a tank with Ewing-things ...' 'They were Brown Tree Frog tadpoles.' '... together with White Cloud Fish. And those tads didn't dash down!' 'Of course not. They

always swim closer to the top. That's how they stay away from the mudeyes.' 'I bet they don't make fancy tails then!' 'Why don't you give it a try?' 'Why don't you?' 'Do you know what one has to do to get a licence for something like that?' 'Nothing to it!' 'But the White Clouds did eat the very small ones. And they chopped off the tail ends of the bigger ones, until they got this big and then they left them alone.' 'That's 15 mm you're showing.' 'Yep. Just like in the Frogfacts. We measured it.' 'You know, Monsieur, that you can't breed White Clouds in a tadpole pond? The tads eat all the eggs, at least our Brown-striped Marsh Frog tads did.' 'You gotta breed the fish up in broccoli boxes. Turns the tables on them, doesn't it?' 'Or you breed fish that make foam nests, like Pearl Gouramis, and catch them out before the winter.' 'Or small nest guarders or live bearers or mouth brooders, but they'd eat all the tads apart from the biggest ones, wouldn't they?' 'Good. Our pond is covered in frog spawn from one species only. Doesn't give the other species much chance. I'm going to scoop out spawn from any other species and raise it up separately. Let the fish keep the pond clear for them. Next year it mightn't be necessary. I only have to figure out how to catch all the fish in autumn.'

Ah, I 'ave something for this. It is rolled up over 'ere.

'Never mind, mister. Let her figure it out.' 'If you won't tell me I could put the turtles in. At least they come back to me when they're hungry, and I'd release the other tadpoles afterwards.' 'Tell him about Dad eating the tadpole!' 'It was only the tail end.' 'He had to. They made him do it.' 'No, he liked it. He told everybody.'

Is it true? Your father? Then you must not speak about it. The gendarmerie! In this country one must obtain a permit to eat tadpoles.

'Oh well, maybe we can get him one.' 'Sure. Aunt Barbara works at the French consulate.'

Children, I must close le 'ardware and leave immediately. The consulate may be closing soon. Au Revoir!

'Bye, Monsieur.' 'Bye, Monsieur.' 'Poor Aunt Barbara!'

L.V.

And here's a quick one for Water Week - a Swan Song for the Big Thirst:

DOWN THE TUBE WITH FOSTER'S FROG

*... frogs ain't jumpin'
and the cotton ain't high ...*

In fact, it is sucking us dry.
And in the Darling's no flow.
And the swamps are turning to dust
because the ground water's low.

But pump and consume and pollute water we must.
We must flush and disgorge and spew
from pipe, from road, from paddock, from sink.
What we concoct is no primordial brew.
It is a terminal stink!

How many more millions fit into this country, this city, this state?
When are we overstocking ourselves in a drought such as now?
Can we double the gunk, the nappies, the beer cans, before it's too late?
Maybe. We've doubled and doubled before. And we thought we knew how.

But the water we take we can't again double.
The environment uses all water that comes down from the sky.
Whatever we take will cause somewhere else trouble.
Nature needs floods that cleanse and connect, as it needs soaks that remain in the dry.

What should we tell the frogs where the swamp used to be?
We drank it, we'll say. And we threw in the stubbies right here.
We improved their habitat greatly, you see?
And if they haven't got water, let them drink beer!

*... so hush little froggy,
dohon't you die ...*

L.V.