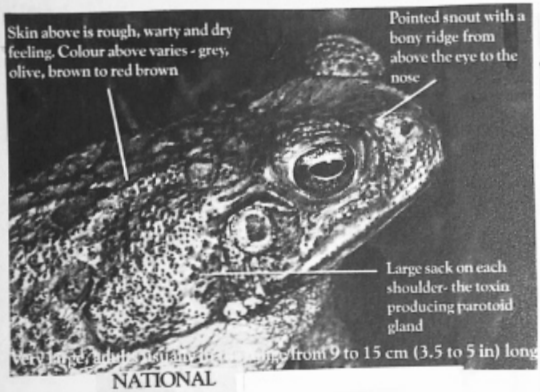
FROG CALL

THE FROG AND TADPOLE
STUDY GROUP OF NSW INC.

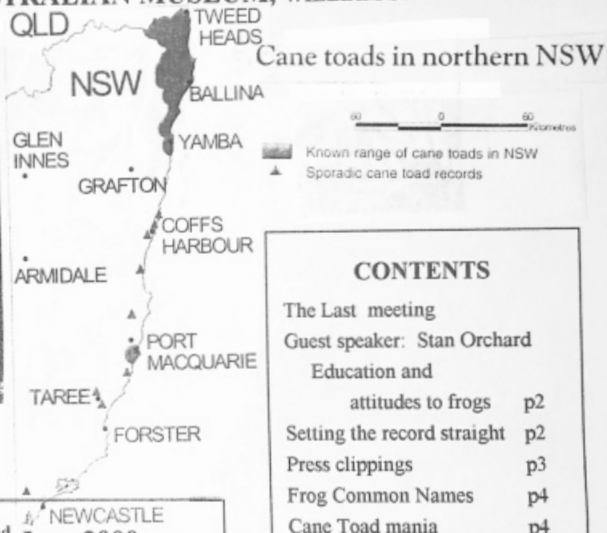
NUMBER 47 - May 2000
PO Box A2405
Sydney South NSW 1235

Our normal meeting will follow the AGM, which will commence at 7.30 PM, FRIDAY

2nd June 2000 at the AUSTRALIAN MUSEUM, WILLIAM ST ENTRANCE



NATIONAL PARKS AND WILDLIFE SERVICE NSW



MEETING FORMAT for 2nd June 2000

7.30pm	Frog and Tadpole Study group Annual General Meeting
8.00pm	Lothar Voigt "Looking after Frogs"
	Arthur White *"Mixophyes balbus* and *iteratus"* Study
9.00pm	5 favourite frog slides or 5 minutes
9.20pm	Guessing competition and Auction
9:40pm	Finish for tea, coffee & biscuits

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THE LAST MEETING 7TH APRIL 2000

Stan Orchard the National Co-ordinator, WWF Frogs Program entertained with his talk about education and attitudes to frogs. Barbara Bohdanowicz introduced Stan, who, like the rest of us, is passionate about frogs.

Among vertebrates, amphibians and reptiles seem to have unique problems in their struggle to co-exist with people since many people express a phobic reaction to them. How innate, culturally pervasive or extreme is this attitude today? Are attitudes changing? Can they be changed? How can we test the effectiveness of any particular educational technique or public relations campaign? Where do we begin? Are zoos, museums, the media, schools doing a good job of informing and educating the public? At the moment we have more questions than we have answers.

The word "education" suggests an action that will produce a, hopefully, positive effect upon the mind. Knowledge, wisdom and understanding are the possible beneficial ramifications of the education process, so these should be the principal measurable criteria for our claiming success. In herpetology however, we have little empirical evidence that our conventional approaches to education produce any measurable effect whatsoever. We proceed with the best of intentions, confident in our facts, but how is the information being perceived and processed by our audience? What can we do or say to persuade people to even care about the survival of amphibian and reptile populations? And then, how can we know that our methods are working? - Or how can we estimate the relative merits of one method over another?

If education is the key to successful conservation, and therefore the best hope for amphibian and reptile survival on an increasingly overcrowded planet, then perhaps we should apply more scientific rigor to our presumptions and methodologies and begin to view the subject of herpetological education as a new frontier for creative thinking and experimentation.

Barbara Bohdanowicz, welcomed everyone including new members and thanked Anne Peaston and Anthony Nicholson for their tireless involvement in the Frog Goup. We all wish them well and success in their work in America and look forward to their safe return to Australia. Arthur White spoke about the Cane Toad Alert. Cane toad should not be killed. Call the frog help line on 0419 249 728 for assistance. Some native burrowing frogs and toadlets are mistaken for cane toads. The characteristics of chytrid fungus particles were outlined. Chytrids are small, spherical fungi with no "threads" and are highly infectious to frogs. By 1999 the Australian Animal Health Laboratory successfully cultured chytrid. This was the beginning of controlled tests for treatment. Arthur's frog slides included Little John's Tree frog. Ken Griffiths brought slides of Crinea, Dwarf Tree, Lasiters, Tusked , Fallax, Lesueurers, Barred frogs and Cane Toad. Adam Crawford described a fruit fly trap. The Frog Rescue Program report identified 290 rescued frogs from Sydney Markets since October '98, however since October '99 there have only been 42 frogs rescued. The reduction in rescued frogs available to our members has been supplemented by the captive bred white lip frogs from our members Samantha and Paul Longman and Sandra Johnston. **Thank you Stan for providing material for the newsletter and Barbara Bohdanowicz for chairing the meeting. MW**

SETTING THE RECORD STRAIGHT

It is always a great disappointment each time the media get things wrong. Not only does it make you cynical about their ability to ever get their facts straight, but it puts you off ever having to deal with them.

The example that I want to talk about occurred on the 10th of May, this year (see newspaper article 'Jumper first to don green and gold"- Sydney Morning Herald). In this example the media is not entirely to blame for the misinformation that followed. To accompany the unveiling of a magnificent sculpture of a Green and Golden Bell frog at Sydney's international airport terminal a press release was issued by those organising the event. Sadly, they did not do their homework and issued incorrect information to the press. Working with this release as their guide, journalists compounded the error- perhaps this was a result of a dawning awareness of the discrepancies between what was being said and what was in the press release.

Natives to look out for

- **The** National Parks and Wildlife Service is worried people might mistake native frog species for cane toads and kill them inadvertently.
- **Two** species of burrowing frog, the eastern banjo and the striped marsh frog are often mistaken for the toad.
- **Cane** toads can grow to the size of a dinner plate.
- **Native** frogs generally grow no bigger than a human fist.

Eastern banjo frog

The final outcome was a mish-mash of twisted facts- and FATS has been entangled in this mess. Instead of FATS being acknowledged for our community work, it was claimed that we were in the business of actively dispersing endangered frogs around Sydney (in an effort to conserve them). This is a nice image but it is not remotely close to the truth. This image also conveys a dangerous message to the uninformed public.

It is FATS policy that frogs of any description be left where they are. We do not believe in relocating animals (because this assumes that we known better than the animals in terms of selecting suitable habitat for them to live in). Secondly, moving animals around is a great way to spread disease. All FATs members know about the chytrid disease that is prevalent in eastern Australia. FATS has initiated procedures with our frog rescuers and frog carers to prevent disease transmission between captive frogs and wild frogs. To suggest that FATS is Johnny Appleseed and scatters frogs across the landscape is a damaging image.

Unfortunately for the media story, the journalists were unable to resolve FATS' role in frog conservation. They were also overly-ambitious in their pronouncements about the success of efforts to conserve Green and Golden Bell Frogs (see article). The last six sites where frogs occur became "the last six frogs". Frog numbers have increased to thousands (Sydney must be awash with Bell frogs). While some Green and Golden Bell frog projects show promise and populations are now stable or have slightly increased, other populations have crashed and been lost entirely. A far cry from the image of a species that has been saved.

The point of this story was not really to bag the media- although they are certainly guilty of not cross-checking their facts, the point is that FATS strives to use best practices and be up-to-date with developments – a misleading story presents an image of incompetence (regardless of the real situation). **Arthur White**

Invading cane toads spread across Sydney

Daily Telegraph 22.5.2000

By SIMON BENSON
Environment Reporter

PERMANENT colonies of cane toads are expected to become established as early as this summer with the recent discovery of the pests in suburbs all over Sydney.

Twelve toads have been confirmed in the past two months in suburbs of Sydney where they have not before been found.

The animals, which were transported from Queensland, were found at Warringah Mall on the northern beaches, Brooklyn, a Miranda shopping centre in the south, Richmond, Dural, Kenthurst and Mt Annan Botanical Gardens.

This is twice the number found previously in the same period but confirms their dispersion across the entire metropolitan area.

"It is a very high number," according to Lother Voight from the Frog and Tadpole Study Group.

"Once they get established that will be it — we won't be able to do anything.

"We could try and delay it but we won't stop it.

"And if we get a warm wet season then that could happen straight away."

At present there is no government funding for cane-toad research or funding for programs to prevent them establishing themselves in the Sydney area.

Environment Minister Bob Debus said since the establishment of the Cane Toad Clean Up Campaign in March more than 80 phone calls had been received from members of the public.

It is now thought that the majority of cane toads are being brought down from Queensland in landscaping material. One, however, was found in a backpack brought in from Fiji.

Previously only found in and around Flemington markets, the main produce depot for Sydney, the toads now appear to be moving via other routes, including the transport of building and landscaping materials.

The National Parks and Wildlife Service was concerned, however, that people might mistake a number of native frog species and kill them inadvertently.

Two species of burrowing frog and the striped marsh frog are often mistaken for the toad.

"Often people club the wrong ones," Mr Voight said.

The cane toad can spawn up to 30,000 tadpoles at a time. Once a breeding pair establishes itself there is little to stop them from proliferating.

People who suspect they have seen a cane toad should report it to a local NPWS office or the Frog and Tadpole Study Group on 0419 249 728.

Jumper first to don green 'n' gold

SMH 10.5.2000

By ALI GRIPPER

Goldie is a supermodel of the frog world. Her body is about the size of a matchbox, but as a green and gold bell frog, she gets star treatment by frog fanciers.

A special tunnel was built for her at her breeding grounds in the brick pits of Homebush Bay so she could cross to open ground without being run over by a truck. Her face adorns bus stops across the city, and yesterday, a press conference was called to celebrate a new home for her species in the wetlands near Sydney Airport.

The Frog and Tadpole Study Group of NSW — dubbed the "Frogsquad" — has been picking out hundreds of bell frog tadpoles from across Sydney, putting them in Eskies and driving them to four selected "frog friendly" sites and letting them go in swamps and dimly lit ponds as part of a breeding program.

Now the endangered species is thriving in its new safe havens.

Dr Arthur White, from the study group, said that in 1990, only six of the green and gold bell frogs were known to have survived in Sydney. Now there were thousands in city colonies.

Botany Public School children unveil the statue at Sydney Airport. Photo by ROBERT PEARCE

New breeding zones have been created on the Long Reef Golf Course, near the Marrickville Community Centre and at the former brick pits at Homebush Bay — which was a known frog habitat — and the wetlands of Sir Joseph Banks Park, Botany.

"We thought they'd be perfect mascots for the Olympic Games — they're green and gold, and live in Homebush Bay," said Professor Michael Archer, of the Australian Museum.

He was speaking at the unveiling of a sculpture of a green and golden bell frog by artist Ron Smith at Sydney Airport yesterday.

Then there's the fact that their hopping, jumping, swimming and diving prowess would make them a natural for track, field and pool.

FROG COMMON NAMES

Having vented my spleen about journalists making mistakes I have to admit that FATS can also make a boo-boo. In the last issue of Frog Call we did an injustice to David Stewart, a long-time stalwart of FATS. A member of FATS submitted a list of frog common names to our editor for publication. The list was based on the frog calls on David's CD (which we sell- stocks still available). The use of these names had not been cleared with David and we apologise for our lapse.

While on the issue of frog common names, I should also note that David Stewart was a contributor to the FATS survey of frog common names and has personally made an attempt to reconcile the bevy of frog names that are in use. Until a general consensus is reached, the use of frog common names will remain a matter of personal choice.

FATS will be presenting the results of the common name surveys at the February meeting of the Australian Society of Herpetologists. This event will provide an opportunity to launch phase 2 of the common name surveys. Stay tuned. **Arthur White**

CORRECTIONS

Two other correction for last Frogcall were that Steve Weir successfully bred the *Litoria peroni* and NOT the *Litoria chloris* and the article from SOFAR omitted the first two lines on column 2 of page 11. It should have read: "Frogs shed their skin, as do reptiles. If you are lucky you may see a frog wiping its skin into its mouth as it eats it. Frogs also sometimes growing extra limbs and some parasites cause this to happen." **MW**

sent in by Frank Lemckert

CANE TOADS MANIA HITS SYDNEY

On the 12th of March the NSW Minister for the Environment, Mr Bob Debus, announced the Cane Toad Clean Up campaign. This campaign was aimed at raising the awareness of New South Welshmen about the invaders from the north. Cane Toads are spreading into new areas of New South Wales of their own accord, others are being transported by people.

Lothar Voigt represented Fats at the launch as FATS had been heavily involved in the preparation of material for the launch. FATS was involved as we were the only group that was keeping tabs on the numbers of Cane Toads being found in Sydney. The Frog Help line phone number was given out and people were asked to report any sighting of Cane Toads.

In the 2 weeks following the announcement, the Frog Help Line rang continuously. In all 83 calls were received specifically about Cane Toads. Of the 83 calls, 12 were from people who wanted to information about Cane Toads, 11 wanted to know ways to kill Cane Toads, 23 had miscellaneous questions (and stories to tell) and 37 were reports of sightings in Sydney.

Of the 37 reported sightings 11 proved to be correct. Of the other 26 calls, in 5 cases the frog or toad had disappeared and could not be found, 2 were merely suspected toads and 19 were complete mis-identifications. So what frogs were being singled out as Cane Toads? The results were surprising: 9 of the frogs were Eastern Banjo Frogs, 5 were Striped Marsh Frogs, 1 a Giant Burrowing Frog, 2 were Peron's Tree Frogs, 1 was Verreaux's Frog and one was a Common Eastern Froglet. Clearly, the general public does not know one frog from another.

In four of the cases where Cane Toad had been found there had been a bulk delivery of banana mulch in the previous 24-48 hours. (see Daily Telegraph 22 May 2000). **AW**

MEDIA EVENTS

We would like to hear from our members if they are aware of any frog or FATS item in the media. The following are some items.

3 May. Yorkshire Television; Green and Golden Bell frog conservation.

9 May Interview Sydney Morning Herald. Green and Golden Bell Frog Sculpture

10 May: Radio Interview 2BL Green and Golden Bell Frog Sculpture

22 May: radio Interview 2SM Cane Toads in Sydney

22 May : Interview St George Leader Cane Toads in Sydney

23 May Burke's Backyard Cane Toad Identification **AW**

GETTING THE JUMP! ON AMPHIBIAN DISEASE

A unique series of events of international significance to help develop strategies which will lessen the impact of emerging pathogens on wild amphibian populations. As a registrant you can discuss and learn what is known of the infectious agents, what practices increase the impact and spread of diseases, and what practices and policies help limit their impact. By attending the workshop you can participate in developing strategies to lessen the risks to wild amphibians. Radisson Plaza Hotel at the Pier Cairns, Queensland, AUSTRALIA 26-30 August

Getting the Jump! On Amphibian Diseases consists of:

* A Scientific Conference to hear the latest on diseases in wild amphibians including key research findings and case studies on monitoring and control efforts.

* A Workshop to concentrate on issues of policy, practice and legislation and to develop recommendations for action

* A meeting of the core working group to finalise recommendations and to carry them forward for further action

* A Public forum

* Specialist workshops for researchers and wildlife carers

Top speakers to present the very latest results & case studies, including:

* Alex Hyatt (Australia), CSIRO Animal Health Laboratory, expert on ranaviruses and identification of novel pathogens

* Joyce Longcore (USA), University of Maine, expert on chytrid fungi

* Keith McDonald (Australia), Environmental Protection Agency Queensland, an authority on management and conservation of threatened Australian frogs.

* Tim Halliday (UK), President of the Declining Amphibian Population Task Force.

* Rick Speare (Australia), James Cook University, expert on amphibian diseases

* Lee Berger, (Australia), CSIRO Australian Animal Health Laboratory and James Cook University, expert on amphibian diseases particularly chytridiomycosis.

* Ken Aplin (Australia), Western Australia Museum, coordinator of Alcoa Frog-watch

* Stan Orchard (Australia), National Co-ordinator, WWF Frogs Program, World Wide Fund for Nature Australia

* Peter Daszak (USA), University of Georgia, authority on disease ecology and pathogen "pollution"

* Ross Alford (Australia) James Cook University, expert on frog population biology and its relationship to amphibian declines

Why put the spotlight on amphibian disease? Few researchers would now doubt that emerging infectious diseases such as chytridiomycosis pose a significant threat to the survival of many species of amphibians.

It is time to consider options for effective disease control and to formulate appropriate management and community actions. This conference will be the first opportunity to determine strategies which will lessen the risks to wild amphibian populations, by:

* identifying new areas of research and priority-setting

* identifying or developing 'best practice' for managing or rehabilitating wild populations

* recommending changes to policies, practices, or legislation which have an impact on wild populations

Who should participate? Anyone in the world with an interest in maintaining populations of amphibia in the wild

* Researchers and veterinarians working on amphibian diseases

* Government wildlife managers

* Government and non-government policy makers who review or determine policies that impact on amphibians

* Community groups and individuals who play a vital role in conserving or rehabilitating amphibian populations

Call for papers We are seeking abstracts from researchers and others who are interested in presenting work on diseases and pathogens of wild amphibians which fit within the following themes:

* Agents of disease: ranaviruses, chytrid fungi, other pathogens

* Surveillance for disease in wild amphibians; e.g., what systems are currently in place, how effectively do they work, how can they be sustained.

* Impacts of disease on wild populations; e.g., interaction between frog ecology, disease agents and environmental factors

* Treatment and intervention strategies; e.g., what treatments can guarantee frogs are free of disease agents prior to movement, strategies for identifying, protecting and preserving at-risk species

* Legislation and policy relevant to amphibian disease; e.g., movement within and between nations, protocols to lessen disease risks in translocations

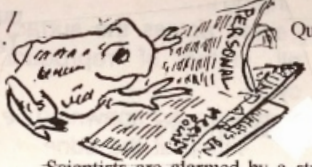
* Community strategies and action to lessen the risks

Essential:

* Must be on disease in wild amphibians or related to this. We do not want presentations on diseases found only in captive amphibians, or on amphibian declines with no disease related data. Presentations on interactions between environmental factors and disease agents in amphibian populations are most welcome. Register Now! We recommend registering and booking travel and accommodation as soon as possible as the conference will be convened the month before the Olympics are to be staged in Sydney.

Secretariat Rainforest CRC, PO Box 6811, Cairns QLD 4870, AUSTRALIA Tel: +61 07 4042 1246 Fax: +61 07 4042 1247 AmphibianConference@jcu.edu.au http://www.rainforest-crc.jcu.edu.au/amphibian.asp

MATING SEASON!



4TH INTERNATIONAL CONFERENCE ON INTEGRATING GIS & ENVIRONMENTAL MODELING.

We have made considerable progress with the GIS/EM4 conference program, web site and data bases, NSF-funded student competition, conference proceedings, and special publications. Please have a look and note the following updates:

1. Kiosk revised at GIS/EM4 web site

The Kiosk has been completely revised. Expect other web site updates in the next two weeks. (http://www.colorado.edu/research/cires/banff). Please have a look.

2. Reservations and registration

Please register now to obtain on-site accommodations at The Banff Centre for Conferences (https://secure.banffcentre.ab.ca/cfc/cires/cires_form.htm).

3. Second round of student fellowship candidates

Latecomers have been added to the NSF Fellowship Competition for graduate students. This adds a short delay in announcing winners but abstracts by first round candidates have already been juried. We anticipate notification before June.

4. Conference program

A conference topics list will be posted in several days, preliminary to the GIS/EM4 program/schedule. A detailed program will quickly follow.

5. Book and special journal issues

A special topics book of invited papers is underway and may be ready for the conference. Special issues are also in preparation for the Journal of Environmental Management and Transactions of GIS. They too may be ready by the conference. The GIS/EM4 conference proceedings (to be an on-line and CD "web book") is being handled in parallel with (and separately from) these other publishing activities.

We look forward to seeing you at GIS/EM4 in Banff, Canada, September 2-8, 2000.

On behalf of the GIS/EM4 Core Planning Group, Brad Parks Cooperative Institute for Research in Environmental Sciences (CIRES) University of Colorado at Boulder **Jim Dillon JDILLON@NGDC.NOAA.GOV Discussions Related to Monitoring Amphibians amp@rana.er.usgs.gov**

RECORDING FROG VOCALIZATIONS

I would recommend that you visit the NAAMP website: http://www.mp1-pwrc.usgs.gov/amphib/Frogcall.html This has quite good documentation and links.I am currently recording anurans in Hungary, and am using a 'Dan Gibson' parabolic microphone (~$700US) with a SONY MZ-R35 mini-disk recorder (~$400US). I just got started last week, so I'm unable to tell you how effective the equipment is. Another option is using a 'Telinga' microphone (mono or stereo), which is manufactured in Sweden. **Brandon Anthony Lead Instructor Environmental Sciences & Policy Dept. Central European University Nador u. 9, Budapest 1051 Hungary Tel: +36 1 327-3092 Fax: +36 1**

FROG ABNORMALITIES

Scientists are alarmed by a study that reveals widespread abnormalities in frogs in Maine, Vermont and Minnesota. They say amphibians are barometers of potentially serious environmental problems. In the most extensive study undertaken, the National Wildlife Health Center in Madison, Wis., examined 180 damaged northern leopard frogs collected at 16 sites and performed sophisticated X-rays on their bone structure to determine the cause of the abnormalities.

The Portland, Maine, Press Herald reports the deformed frogs in Maine had - among other abnormalities - an extra leg, additional bones in their feet and increased sheaths of skin that make it impossible to jump very well.

The frogs in Vermont were missing bones and, in some cases, had no hips. Scientists say they found a parasitic worm infecting Minnesota tadpoles, arresting their development into adult frogs.

The results of a two-year U.N. study on the world's environmental health will be presented to the U.N. General Assembly in September.**forwarded to Frogcall by Carl Spears**

BREEDING FLIES

I have raised baby frogs on flies and don't pretend to know all the ins and outs of keeping a good colony going but you can:

1.Get three plastic tubs, one forms a tray, the second sits in the tray and is therefore smaller, the third is big enough to fit over the first two when placed upsideown.

2.Place sand in the tray, a few cm deep, place a couple of dead rats or similar in the second container and drill some large holes in the third container - around the edges, not the top. The third container is really just a weather/rain guard so if you placed the whole thing under the carport or similar you would not need it.

3.Flies will lay eggs on the rat/meat and maggots will result. The maggots will leave the carcas when ready looking for a suitable place to pupate. They will crawl out of the "meat" container and enter the sand. You can harvest the black pupae by running an aquarium net through the sand every day.

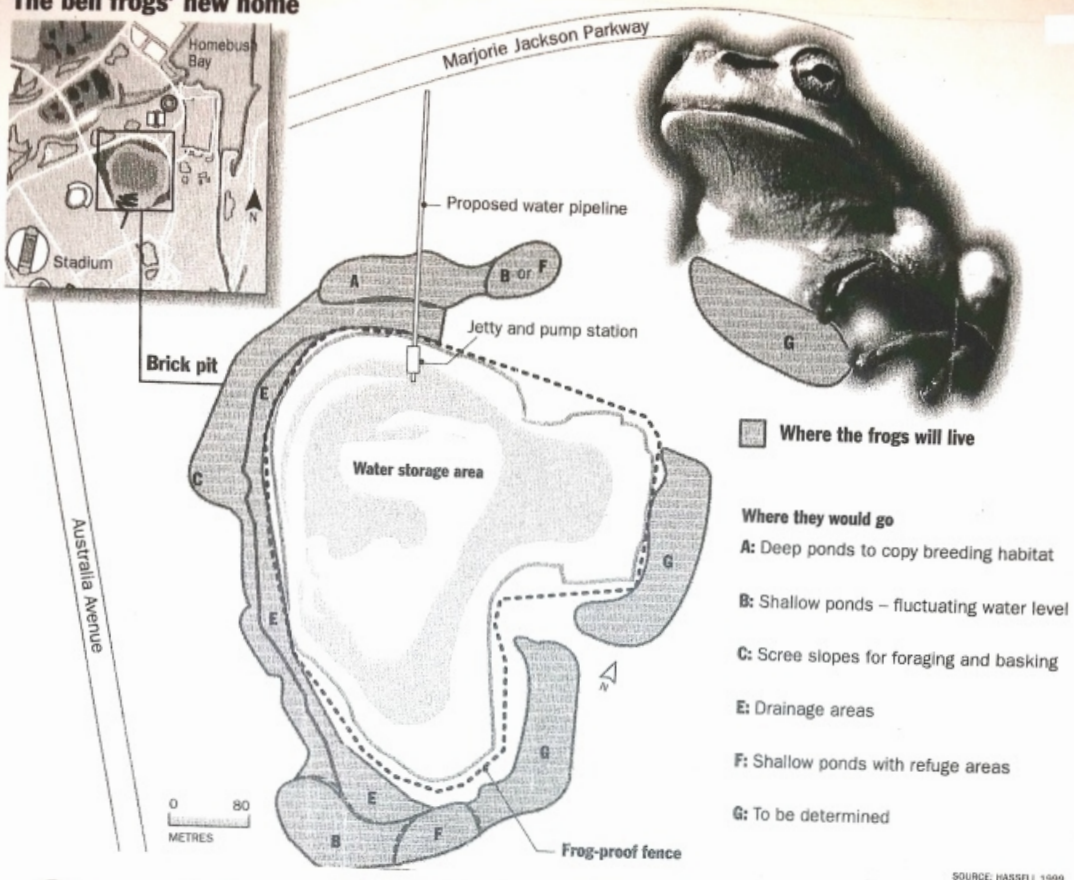
4.Keep the pupae dry, say in a container of bran the flies will hatch out in a short time.

This obviously will only work when there are flies about so over winter picking will be slim. To keep it going all year round you would need to create more of a lab. style setup where you used some of the adults to start the whole thing over again. **Andrew Walker <walker@netlink.net.au**

TREEFROG DIPLOIDY/TETRAPLOIDY DETERMINATION

The Clevland Museum of Natural History also has a good page on grays with recordings and sonograms at: http://www.cmnh.org/research/vertzoo/frogs/hyla.html

 Norman Hicks normanhicks@home.com



Croaking it for a poolside possie

SMH 3.2.2000

By MICHAEL EVANS
Olympics Reporter

They're already the most pampered frogs in Olympic history but now the endangered green and golden bell frogs are to get a purpose-built frog paradise.

Games organisers are spending almost $1 million building a frog habitat in the disused Brick Pit at Homebush Bay, complete with diving and wading pools, not to mention foraging and basking areas.

A special fence will keep unwanted visitors out, and frogs in, the 15-hectare site, according to the plan set out in an Olympic Co-ordination Authority tender document.

Early plans to flood the brick pit, to resemble an inland Sydney Harbour for international visitors to the Homebush Bay site, were abandoned after it was found that several hundred frogs lived there.

A 1995 report ruled the site should not be developed and, a year later, the frogs appeared in a threatened species list, ensuring minimal development.

Instead, three-lane underpasses were installed to allow frogs to move between the brick pit and nearby habitats.

But new plans include a series of ponds in the former quarry, the larger ponds up to a metre deep – "to replicate existing breeding habitats". A series of wetland links will join the pools together.

Parts of the existing frog habitat will be lost, with new pipelines and services ducts to be put through the brick pit, which will then be partly flooded.

New areas of habitat, including the ponds and foraging areas, will be created to compensate.

The replacement habitat for the green and golden bell frogs, also known as the *Litoria aurea*, will replicate existing breeding habitats in the base of a storage pond and the brick pit.

The foraging and basking areas consist of tufted grasses and rock shelters, comprising mainly shale and sandstone boulders, around the pools to provide shelter from predators.

The OCA is seeking wetland landscape contractors to do the work. It will spend $650,000 building new habitats and restoring existing ones and outlay a further $250,000 monitoring progress.

ITEM OF INTEREST TO AMPHIBIA AND YOU

WASHINGTON, D.C. -- People who are looking for a magic bullet that will explain all of the amphibian deaths and declines around the world are going to be disappointed. a leading expert said Friday at the annual meeting of the American Association for the Advancement of Science. It's now a certainty that there are multiple causes which are contributing to this problem, said Andrew Blaustein, a professor of zoology at Oregon State University and one of the pioneers in this field of study. But the lack of a single, definite cause does not diminish the seriousness of this alarming ecological phenomenon, he said.

This Pacific tree frog treefrog with multiple legs was among the species tested by researchers at Oregon State University for its sensitivity to high-level nitrate exposure, largely as a result of agricultural fertilizers. Scientists theorize that the problem with frog deformities could actually be linked to higher environmental levels of nitrates as well as the flukes known to directly cause the deformities.

And a new study has shown that nitrates can also kill some amphibians directly at levels the EPA considers safe for drinking water.

Full size image available through contact "At this point we can say for sure that there are several causes of amphibian declines, which include rising levels of UV-B radiation in sunlight, pathogens, pollutants, habitat destruction, introduced predators and most recently, crop fertilizers," Blaustein said. "But the overall result is that this group of animals which has been around since the time of the dinosaurs is now in serious decline all over the world. And some of the things that are killing frogs almost certainly have implications for other animal species, including humans." The multiple causes of amphibian declines, in fact, helps to illustrate how ecological changes may have a synergistic effect to compound problems,

Blaustein said. In various instances it might be that UV-B radiation, or pathogens, or high nitrate levels by themselves would not be enough to cause death or deformity. Put them all together and you have far more serious impacts, he said. Such as the 14 species of amphibians that have disappeared from Australia in recent years. The five species of amphibians in the Pacific Northwest of the United States that are listed as candidates for the endangered species list.

The extinction of the golden toad in Costa Rica. Massive egg mortalities of the Cascades frog in Oregon. Amphibian declines in Europe, South America, Asia, Africa. Even problems in the pristine confines of Yosemite National Park. "This is an incredibly complex problem, a disturbing one, and there's no end in sight," he said. In 1997, Blaustein published a major paper in Proceedings of the National Academy of Sciences which linked ambient but rising levels of UV-B radiation in sunlight to physical deformities in amphibians. This field study found that more than 90 percent of the salamander embryos not shielded from UV-B radiation either died or hatched with deformities, whereas practically all of those protected by special filters survived and were perfectly normal.

In 1998, Blaustein published a study which correlated an increase in UV-B radiation to retinal damage in the Cascades frog. The authors pointed out that the effect of solar UV radiation on the eye and retina are well known in animals and that the risk increases at higher altitudes. In frogs, this could lead to progressive decline in visual ability, impairment of visually guided behaviors, and less successful avoidance of predators. They concluded that increasing terrestrial levels of solar UV radiation represent a serious environmental threat to species across many ecosystems, including humans.

Andrew Blaustein, a professor of zoology at Oregon State University, recently took water samples from a marshy pond near Corvallis, Ore., where frogs deformities and deaths have been occurring. The pond, even though it was in a wildlife management area, had high levels of nitrates that new research has implicated in amphibian deaths.

Full size image available through contact In late 1999, Blaustein published a study in the journal Environmental Toxicology that showed a level of nitrogen-based compounds the EPA says is safe for human drinking water was high enough to kill some species of amphibians. Levels of this type are often found in agricultural areas as a result of using crop fertilizers, the authors said. When exposed to them, some tadpoles and young frogs reduced their feeding activity, swam less vigorously, experienced disequilibrium, developed physical abnormalities, suffered paralysis and eventually died. And problems such as that, Blaustein said, may go even further. "The furor that has arisen over frog deformities such as extra legs has been linked to a trematode parasite known as a fluke," Blaustein said. "But these flukes have been around forever and we never observed the level of problem we're now seeing with deformed frogs. One thing we know is that these flukes live part of their life cycle in a snail. Snails eat algae. And higher levels of nitrogen-based fertilizers can cause increased algal growth, increasing the snail populations."

Those types of linkages, he said -- intricate, complicated, sometimes even unproven -- are starting to crop up more and more in the strange case of declining amphibians. It means that the Earth's ecological systems work in a delicate balance and that seemingly trivial impacts in one area can become magnified as they ripple through the ecosystem, with unintended results or consequences that are difficult to predict and sometimes frightening in their scope.

For some time, researchers have been referring to the dying frogs as the "canary in the coal mine," an early warning sign of environmental danger. What's less clear, Blaustein said, is exactly what insult, or combination of them, killed these animals, or caused their diseases and deformities. Or which species will be the next to fall. **color images to illustrate: http://osu.orst.edu/dept/ncs/photos/index.html anuran@bb-elec.com Amphibian declines complicated, disturbing http://www.eurekalert.org/releases/orst-adc021700.html Contact: Andrew Blaustein blaustea@bcc.orst.edu 541-737-5356 Oregon State University**

Extract from Herpetofauna 20.2.79

The Occurrence of some Exotic Reptiles and Amphibians in New Zealand.

By J.A. West, 4 Cradock Street, Avondale, AUCKLAND 7. N.Z.

A summary of the occurrence of some exotic species of reptiles and amphibians that have been either imported deliberately or have accidentally arrived in New Zealand is given along with discussion on the present distributions of established species.

Amphibia: 1 Anura

a) Frogs:

4 species of Tree frog (Hylidae) have been introduced into N.Z. by acclimatisation societies, the Dept. of Agriculture and private individuals. The frogs were to provide duck food and reduce mosquito populations.

In 1867 the Auckland Acclimatisation Society received 2 specimens of the Golden Bell Frog Litoria aurea followed by several small consignments in 1868. Their numbers rapidly increased and are now common throughout the N.I. The Canterbury Accl. Society received L. aurea in 1867 from Hobart Tasmania and tadpoles from private individuals. Spawn was successfully hatched in 1868 by the Southland Accl. Society and frogs distributed throughout the Southland Plains. By 1890 it was apparent that they didn't thrive. Similar results were experienced in Otago with 40 frogs from Napier in 1894. In 1878 L. aurea was liberated in Rotorua (38°9S 176° 16E) and were recorded as being numerous in 1916 (Thomson 1922). It has rapidly spread throughout the North Island.

It's present distribution is most of the N.I., the northern tip of the S.I. and Christchurch; occurring in areas of suitable habitat (fig. 1A). Of particular interest is its occurrence in Southland, which is the Southern most limit of the species.

No specific mention of the introduction of L. raniformis has been documented. This frog is similar to L. aurea and was probably introduced with that species. Little is known of it's distribution in N.Z. but probably follows that of L. aurea.

A somewhat smaller species, the Brown or Whistling Tree Frog L. ewingi was introduced into N.Z. in 1875. A Mr. W. Perkins brought some over from Tasmania in a bottle and released them in a drain in Alexandra St, Greymouth (42°28S 175°29E). They soon spread 24 miles up the Gray River Ahura. In 1900 frogs from Greymouth were released in Hokitika (42°42S 170°59E) but have since been largely displaced by L. aurea. In 1946 an attempt to establish L. ewingi in the N.I. failed, but a second attempt at Himatangi succeeded.
The present distribution of L. ewingi is a localized area around Foxton (40°27S 175° 18E) in the N.I., and the West Coast and Southland in the S.I. (fig. IB)

The Great Green Tree Frog L. caerulea was introduced in 1897. 72 specimens were obtained by the Dept. of Agriculture from Sydney followed by a second consignment in 1899. These were liberated in the Hawkes Bay district. Further specimens were released in Wellington, Paraparaumu (40° 55S 175° OE), Motuihe I. (36°45S 174° 58E), Nelson (41°18S 173°17E) and Moumahaki. Sightings of L. caerulea are few. An adult was found in Wanganui (39°56S 175°OE) in 1949 and tadpoles were taken at Inglewood, Taranaki (39°7S 174°13E) in 1952 and at Puketaha in 1957. The survival of L. caerulea in N.Z. is open to speculation although McCann (1961) considers that it is 'likely that this highly camouflaged, arboreal frog has so far escaped attention and still survives in suitable localitics'.

All attempts at establishing 2 species of European frogs in N.Z. have failed. 30 European Brown Frogs Rana temporaria were imported to Canterbury in 1864 but died soon after arrival. Large edible frogs, possibly Rana esculenta were introduced into Nelson and were never seen after liberation.

FIG. I. DISTRIBUTION OF LITORIA IN N.Z.: A) L. aurea, B) L. ewingi.

An old 1979 article from Herpetofauna concerning Australian frogs that were deliberately introduced into New Zealand *Litoria aurea* has successfully spread throughout New Zealand (according to the article) and was curious if it is common over there, does it prefer particular environments there, has it suffered a decline in numbers similar to the Australian populations? *L. Aurea's* presence in NZ may be common knowledge to most but I was surprised at the this information.
Cliff Hobden 92654595

POND FROGS

Tadpoles of pond breeding frogs are highly vulnerable to predators, such as fish, dragon fly larvae (mudeyes), water beetles and most pond frogs prefer to breed in areas with low predator populations. One tactic is to breed in waters that dry down periodically, killing predators and water born diseases. These temporary ponds will be free of fish after flooding rain, assuming there is no fish recruitment through migration from local permanent water bodies, and the ponds will take time to develop a population of air born predators such as dragon fly larvae and water beetles. A restricted number of frogs breed in waters inhabited by predatory fish. Their tadpoles have specific chemical or behavioural defences adapted to the natural fish species found in breeding areas. However, these tadpoles are still highly vulnerable to introduced fish species.

Shallow flooded grassland is also a favoured site of some winter breeding species as water may remain for long periods in such a habitat during cool weather. The tadpoles are sheltered from bird and fish predation by the grass matt, and the cold weather limits water insects. Although there are several small native fish in permanent water bodies, the introduced Plague Minnow (Gambusia holbrooki) is capable of rapid colonisation of recently flooded areas. This fish will prevent successful tadpole survival in open water bodies, and severely reduce survival in highly vegetated water bodies.

The time for tadpole development to frogs is generally 6 to 24 weeks, with summer breeders having a shorter development time than winter species. Rainfall patterns may vary widely from year to year and ponds which hold water for long periods, in a wet year with consistent rainfall, may not hold water long enough for tadpole development in dry years. Therefore it is desirable to have a range of pond types with different filling and drying patterns allowing the successful reproduction of the types of frogs in the area.

Adult frogs are a favourite food of many predators and need shelter, such as trees with cracks or loose bark, logs, fallen bark, loose stones or thick vegetation. Grazing areas can incorporate adult habitat for frogs in sympathy with production and sustainable management practices. One successful strategy is to fence small areas on the margins of pond allowing the growth of dense vegetation to provide adult frog shelter. An additional benefit is that enclosed trees may also regenerate through seedlings or suckers. Grazing of ponds should not affect the survival of most tadpoles. Frogs increase pasture production by feeding on insects and providing food for birds such as Ibis, Cranes and Egrets that also eat pasture pests.

Ponds overgrown with tall rushes are not good habitat for either adult frogs or tadpoles. Each type of frog has particular areas of ponds that it likes to call from. Ponds with the widest variety of habitats will support the highest variety of frogs. Tadpoles generally like shallow water from a 5cm to about 70cm deep. Many prefer shallow banks with plenty of shelter such as emergent plants, leaves bark and timber, or flooded grass clumps. **extract from SOFAR article by Robert Browne.**

RIVER CHAMPION DAMNS DAMS

Dr Richard Kingsford has a blunt warning: water managers are transforming Australian rivers into single-channel, pipeline-like waterways, destroying entire ecosystems. In an extraordinary attack on the past management practices of the State's rivers, Dr Kingsford, the principal research scientist at the NSW National Parks and Wildlife Service, has published a report condemning the way that dams are managed. "Australian flood plain wetlands are sites of high biodiversity that depend on flows from rivers," his report states. "Dams, diversions and river management have reduced flooding to these wetlands, altering their ecology and causing the death or poor health of aquatic biota." He has criticised both public and privately owned dams, concluding that they are leading to a wholesale destruction of flood plain biodiversity. The dams prevent water from spilling over riverbanks and flooding vast areas that need a soaking to survive - the storage capacity in the Murray Darling Basin is more than 16.5 million megalitres.

"The only place in NSW where we have got any real Australian rivers left is where there's no dams - in the north-west of the State," Dr Kingsford said. "All of the State's southern rivers have got no flood plains any more. The characteristic Australian rivers have all but disappeared." He said governments had become aware of environmental problems such as blue green algae and salinity but so far the massive loss of biodiversity in flood plains had been largely ignored. "It's the flood plains where there's the invertebrates, where the frogs live, where the red gums live and the black box trees live and where the fish go to breed," he said. "The flood plains are where all the driving forces for biodiversity in the river are found."

Dr Kingsford also criticises the legal definition of Australian rivers, saying that they are based on European concepts of rivers and fail to take into account the complexity of local rivers. "The Murray is 20 or 30 years down the buggered track and the Darling is heading that way."

Yesterday he travelled to Tilpa, in the north-west of the State, to listen to the concerns of local graziers who are worried that too much water is being extracted upstream of their properties, causing irreparable harm to the flood plains on which they rely for their livelihood. The locals were stunned to see how quickly water was sucked out of the river for irrigation after the recent rains and floods. Tilpa grazier and member of the Barwon-Darling River Management Committee, Mr Wayne Leigh, said that upstream any water that goes past a pump is regarded as a waste. "Water breeds greed and you can't get away from that." The chairman of the Mid-Darling Water Users' Association and another Tilpa grazier, Mr Tom Russell, said the sad part of the situation was that "you go to meeting after meeting after meeting and nothing ever happens". A spokesman for the NSW Irrigators' Council was unavailable last night.

JAMES WOODFORD, Environment Writer.

Time is fun when you're having flies!

Revival of native flora and fauna

Green belt in the West

Daily Telegraph 2.3.2000

By SIMON BENSON
Environment Reporter

A 10-YEAR plan to revegetate and repopulate suburban Sydney with native plant and animal species will be launched by the State Government today.

The project, a vision of Environment Minister Bob Debus, will involve industry, government and the community in a last-ditch attempt to stem the tide of species lost throughout western Sydney.

And *The Daily Telegraph* has learned that a world first "super-project" before government now, is being planned as a modern day Jurassic Park-style environment park, possibly for Homebush Bay.

Known as the Alchiringa project — Aboriginal for the beginning — it would showcase prehistoric to modern day Sydney environments for every suburb.

"People would be able to come in and find out exactly what was in their backyard," said director of the Australian Museum Mike Archer, who is spearheading the project.

The first stage of the Government's 10-year plan, which has taken 18 months to complete, will be released today.

It involves a region by region "diversity map" which shows what species of plants and trees, which once made up the Cumberland Plains woodland, remain in western Sydney after 200 years of development.

It covered about 250,000ha of that area.

Launched primarily as a planning tool for developers and local government it will be followed by a recovery plan to protect the Cumberland Plains woodlands — which once covered 30 per cent of Sydney — this year.

The third stage of the project will be about revegetating western Sydney with native tree species. This will involve nurseries, where residents will be able to buy local seeds endemic to their suburbs.

The fourth and fifth stages will hopefully see the return of many native animal species to western Sydney.

"We are in the early days of developing an ambitious plan to bring the suburbs alive with the native flora and fauna which used to call Sydney home," said Mr Debus. "It's exciting to think that among the homes and urban parklands ... we can create a truly biodiverse environment."

1 Penrith: 630 native plant species and 11 bird species including glossy black cockatoo.

2 Blacktown: Home to 600 species of plants plus fauna such as the sugar glider, ringtail possum and powerful owl.

3 Parramatta: 210 vulnerable plant species. Animals include platypus, grey-headed flying fox and brushtail possum.

4 Auburn: 365 native plant species. Osprey, regent honeyeaters, green and golden bell frog.

5 Fairfield: 265 native plant species. Sugar glider, glossy black cockatoo and flying fox.

6 Liverpool: 680 native species of plants recorded at Holsworthy plus giant burrowing frog, swamp wallaby and brown antechinus.

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Thank You to all those who contributed to this newsletter

We hold six informative, informal, topical and practical meetings each year at the Australian Museum, Sydney (William Street entrance). Meetings are held on the first Friday of every **even month** (February, April, June, August, October and December) at 7 pm for a 7:30pm start. **NO MEETINGS ARE HELD ON GOOD FRIDAY so check newsletter for alternate dates**. Visitors are welcome. We are actively involved in monitoring frog populations and in other frog studies, and we produce the newsletter *FROGCALL* and *FROGFACTS* information sheets. All expressions of opinion and information are published on the basis that they are not to be regarded as an official opinion of the Frog and Tadpole Study Group Committee unless expressly so stated.