Official Newsletter of the Queensland Frog Society Inc. **Autumn 2004**

PRESIDENT REPORT by Ric Nattrass

A huge thank you to all the area coordinators and special helpers who were able to attend the get together at Brisbane Forest Park on Saturday 29 June! I think it was a very profitable day. We inaugurated the Collingwood Park Developers' award for environmental insensitivity. Any interested members can contact me (nattrass@ine.com.au) for details. Let's hope this award is only rarely presented. Among the many topics covered last Saturday was the change to Queensland Frog regulations which we as a society had lobbied to tighten up. At the beginning of 2003 there were wild rumours of frogs becoming available from pet shops etc, a proposal which would have ensured that any attempts to reduce the damage and further extinctions of native frogs from chytrid fungus and the spread of it, would be hopeless.

The practice of taking tadpoles from the wild to share with friends (and that means from your own backyard frogpond) are over – or should be! The Courier-Mail article last week on cancer in north Queensland frogs is a beat-up. While these cancers are very sad and regrettable for the individual frogs concerned, chytrid and habitat destruction remain the two great demons immediately threatening native species. Members are encouraged to watch for threats to frog habitats in their area and report them to the management committee who will investigate the issue and take appropriate action. We may not win but we will let governments know our position. We now have a few quiet months before Spring will be again sprung and the frogging season begins anew. Let's hope El Niño really is over for a while!

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Most of the Co-ordinators now hold the "Frogs of Brisbane" poster and you can pick up your FREE (to members) poster from them.

Diary Dates

Jun 26 CREEC Sustainable Living Fair, 150 Rowley Rd, Burpengary 10am – 4pm. QFS display and sales.

Jul 18 Oxley Creek Family Fun Day, Oxley Creek Common, Sherwood Rd, Rocklea 10am – 4pm QFS display and sales

Aug 21-22 Bernie Wilson's Open Garden 120 Avalon Road. Sheldon. Bernie is one of QFS long term members and QFS had their display there last year which was very successful.

Sep 4 Annual General Meeting. Being held at Ottoman Turkish Restaurant – West End.

Final details are yet to be finalised but a notice will go out in a letter during July to all members.

New Members

The Queensland Frog Society Inc. welcomes the following new members:

John & Anne Tennock, Nicole Frederiksen, Diana Hughes, Shannan Fennell, Janet Willoughby, Sandra & David Acheson, Eleanor Hanger, Gwen De Bortoli, Floss Wainwright, Bill Jollie, Nathaniel Inskip, Jason Jones & Donna Hayes.

Coordinators Reports

Ashgrove

After all the rain in Summer, the area is now very quiet.
There is a review being done on the 'New Creek' at Bowman Park but it is not really the right time to be counting frog species. This will continue again in about 6 months time.
I am going to be getting my ponds cleaned out and replanted ready for the warmer months and, hopefully, another wet summer.
I have been busy with displays and school talks which still continue – great to see the enthusiasm the children have for our 'froggy' friends.

Jenny.

Cooloola

Very quiet lately – although we're still hearing the Beeping froglet calling occasionally. Have been rescuing Ruddy treefrogs from inside the house. Have noticed a substantial number of Cane Toads whilst tending to the garden. Have also found a few drowned legless lizards in our pool, which is devastating. See you all after hibernation at the AGM…..

Leanne

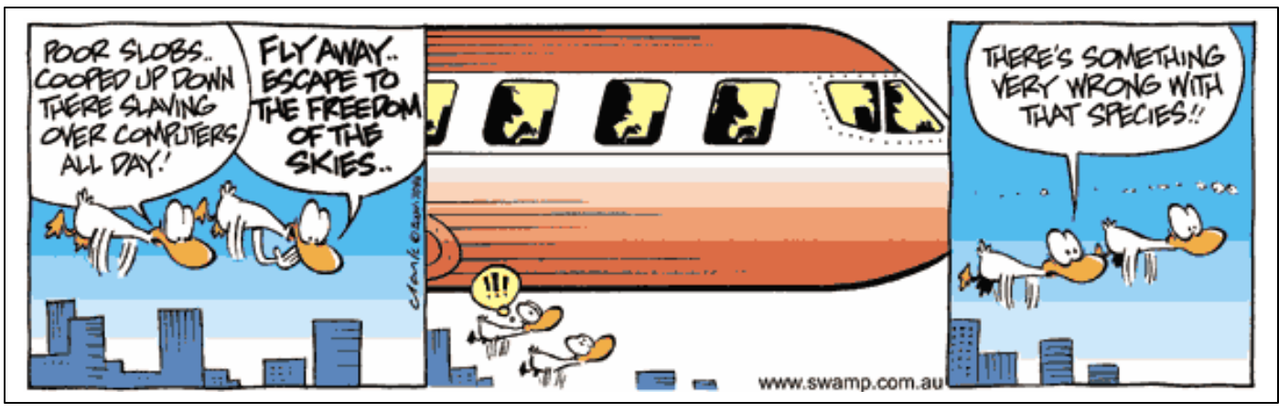
What is all the noise ?

From 'The Web – TSN Autumn Newsletter'

Frogs! Frogs! And more frogs! Their calls can be heard from just about everywhere in Northern Australia during the wet session. In January this year, Graeme Sawyer of FrogWatch and Marion Anstis (author of 'Tadpoles of South-Eastern Australia') led a group of local frog enthusiasts to the Howard Springs Hunting Reserve to try to locate the Howard River toadlet, (*Uperoleia sp. nov*). The Howard River toadlet, known only from the Howard River Sand Sheet, was only discovered in 2000 and is yet to be formally described. The field trip was very successful; not only did we get a first hand look at this newly discovered species, but we also found 12 of the possible 17 other frog species in the area in the one night. With the Dry Session rapidly approaching, grab a touch (and mozzie repellent!) and go frogging; it's great fun.

For more information about FrogWatch, visit:
http://frogwatch.org.au/

Credit: Graeme Sawyer.



Amphibian Conservation (Legislation, Protocols & Surveys) *By Justin Watson*

Introduction
As has been highlighted in recent articles in the academic literature and Frogsheet, a serious concern facing amphibian populations is the spread of disease, specifically by humans.

Various legislation and codes have been established to contribute to the management of appropriate and suitable fauna research techniques and general animal husbandry.

By way of a brief discussion this article highlights key legislation affecting amphibians, the ethical considerations we face when studying frogs and approved survey methodologies.

Legislation
Queensland supports more than 121 species and many are listed as "significant" under State *Nature Conservation Wildlife Regulations 1994* (NCWR) - *Nature Conservation Act 1992* or Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* (EPBC) legislation. In Australia six amphibian species are considered extinct, 15 endangered and 12 vulnerable under the EPBC Act, while in Queensland (NCWR) 15 are endangered, 10 vulnerable and 22 rare.

The objectives of the Nature Conservation Act are to protect native wildlife and its habitat, and to use protected wildlife and areas in an ecologically sustainable manner. The EPBC Act provides a mechanism for assessing the environmental impact of activities and developments where "matters of national environmental significance" may be affected. This legislation is most relevant to the protection of amphibians in their natural habitat and the protection of the habitat.

Other legislation, which indirectly protects amphibians by protecting their habitat is the *Vegetation Management Act 1999* (VMA). The purpose of the VMA and Amendments is to regulate clearing of vegetation on freehold (and leasehold) land by preserving remnant regional ecosystems, vegetation in areas of high nature conservation value and areas vulnerable to land degradation.

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Get well soon Rod

This certain species of frog has been found surviving in the sterile conditions of a hospital.

We all wish you a speedy recovery Rod and look forward to catching up with you at the AGM.

PS: Hope the growth was successfully removed from the frog…….joke!

Crinia tinnula

Wallum Froglet

Description

This species has an extremely variable dorsal pattern ranging from brownish to grey. The dorsum is smooth, warty and may be ridged. The ventral surface is uniform dull grey with fine mottling or flecking. There is usually a faint median line of pale spots that runs along the throat towards the belly. The long fingers and toes are unwebbed.

Size

Males: 16-18 mm; Females 16-18 mm (Barker *et al* 1995).

Similar Species

The geographical range of this species extensively overlaps with *C. parinsignifera* and *C. signifera*. It can be distiquished from both of these species by the ventral colouration. *C. tinnula* lacks the dark throat in breeding males of *C. signifera* and the black and white marbling of *C. signifera* females. While the ventral colouration of *C. parinsignifera* is similar to *C. tinnula*, it lacks the pale median line of spots on the throat.

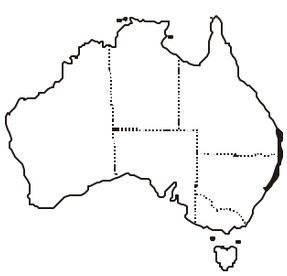
In addition, the snout of *C. tinnula* is distinctively overshot and pointed and its call can be easily distinguished from both *C. singifera* and *C. parinsignifera*.

Habitat

A Wallum species that inhabits paperbark and heath swamps with an acidity of between 4.3 and 5.2 (Barker *et al* 1995). Much of this species preferred habitat has been cleared to facilitate the construction of residential developments. It is considered a Threatened species in both NSW and Queensland.

Distribution

Found along the eastern coast of Australia from Fraser Island and the adjacent coastline (Bundaberg) south to Kurnell near Botany Bay (Hines *et al* 1999).



Adapted from Cogger (2002)

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Crinia tinnula

Wallum Froglet

Call

The call has been described as a short high-pitched ringing 'tching…tching', similar to that of a small bell (Cogger 2000). Males either call from the edge of water, hidden within sedge tussocks or under debris, or from the water surface while floating amongst sedges (Anstis 2002). While males call sporadically throughout most of the year, peak calling periods coincide with the winter period (June-August). This species may breed for most of the year except for the warmer summer months (Anstis 2002).

Call period:

Breeding and Larvae

Very few observations have been recorded of eggs in their natural habitat. The few that have been documented indicated that single eggs are attached to submerged fine stems of grasses or reeds. Tadpoles hatch from the eggs approximately six days after laying (Anstis 2002).

Tadpoles (see Anstis 2002) are uniform dark brown with ovoid bodies (wider than deep) with a broadly rounded snout in dorsal view. The long tail has opaque fins that are finally specked with darker colours. The dorsal fin of the tail has a distinctive high arch near the body (anteriorly) which then tapers to the tip of the tail. The eyes are positioned laterally and the vent tube is dextral. Labial tooth row formula = 2(2)/3(1).

References

Anstis, M. (2000). 'Tadpoles of South-eastern Australia: A Guide with Keys'. New Holland Publishers, Sydney.

Barker, J., Grigg, G. C. and Tyler, M. J. (1995). 'A Field Guide to Australian Frogs'. Surrey Beatty & Sons, Chipping Norton.

Cogger, H. G. (2000). 'Reptiles and Amphibians of Australia'. Reed New Holland, Sydney.

Hines, H., Mahony, M. and McDonald, K. (1999). An Assessment of frog declines in wet subtropical Australia. pp. 44-63. *In* A. Campbell (Ed) 'Declines and Disappearances of Australian Frogs' (). Natural Heritage Trust and Environment Australia, Canberra.

Amphibian Conservation *(Continued from page 4)* *by Justin Watson*

Legislation pertaining to the study/research of amphibians by professional, academic and amateur herpetologists, in Queensland, includes:

- Code of Practice – Captive reptile and animal husbandry (*Nature Conservation Act 1992*)
- *Animal Care and Protection Act 2001(ACPA)* which incorporates the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes (Scientific Use Code) and the Registration as a Scientific User (ACPA)
- *Nature Conservation Regulation 1994* – Scientific Purposes Permit

The Environmental Protection Agency (Queensland Parks & Wildlife Service) co-ordinates the permitting system, while the Department of Primary Industries and Fisheries regulates the use of animals for scientific purposes. Under the ACPA, persons or organizations using animals in science or teaching (which includes environmental studies) must be registered with the DPI&F and gain ethics approval for their activities. Individuals are covered by the registration of their organization or parent body.

Under the Nature Conservation Regulation a person may take and keep (without a licence/permit) up to two frogs of any one common frog species and in total keep no more than eight frogs from that persons land for personal use only and:

- the frog must be kept in accordance with the Code of Practice for Captive Reptile and Amphibian Husbandry;
- the frog must not be sold (sale includes given away or bartered); and
- the frog must be kept within the animal's natural geographic distribution.
- tadpoles arising from a frog in captivity must be released in the way set out in the Code within seven days of metamorphosis having taken place.
- frogs from outside Queensland must not be moved into the State without a permit.

A common frog is one that is not listed as being presumably extinct, endangered, vulnerable or rare. Any activities outside these require permitting/licensing. Maximum fines of up to $75,000 or two years in prison may be incurred for breaches to the legislation.

Protocols

Sometimes the only way to verify a frog's identity is to have it in the hand. This raises a few ethical considerations about spread of diseases and general well being of the frog. My personal philosophy: "only handle the frog if absolutely necessary".

Ethical conduct guidelines (with some reiteration of the QFS guidelines) that are considered to minimise stress on the animal and reduce the potential to spread disease, include:

- Each waterbody should be considered a separate frog site;
- Footwear should be cleaned before going to a site;
- Footwear should be cleaned between each site;
- All equipment used at one site should be cleaned before being used at another site;
- Animals should be handled appropriately by an experienced person for as short a time as possible;
- In high-risk areas vehicle tyres should be sprayed with a disinfectant once leaving the site;
- Hands should either be cleaned between handling frogs or new disposable gloves should be worn for each specimen;
- Hands should be wetted (with local water) prior to handling;
- Frogs should be held in plastic bags, some vegetation and moisture;
- Only one frog per bag;
- Bags should be replaced after use – do not re-use bags;
- Frogs should not be held for long periods in the bags (<3hrs);
- Frogs should be moistened following handling;
- Rocks, timber and other shelter must be replaced following searches;
- Excessive foot traffic should be avoided around waterholes;
- Low intensity lights should be used

A number of disinfecting agents are available eg. chloramine and chlorhexideine based products, diluted bleach & alcohol and isopropyl alcohol wipes.

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Secretary's Snippets

It is renewal Time!

A reminder to members that membership renewal is due at the end of June.

If your membership is due there will be a renewal slip in this issue.
Direct debit can be arranged through the Treasurer.
To save on postage, you will receive your receipt and membership card with your next Frogsheet.

Thank You for your continuing support.

QFS Trust Fund

Balance remains at $4,581.99

Donations Accepted

The Queensland Frog Society Inc. may receive tax deductible donations of $2.00 or more, property and bequests. Your donations will assist in research, education and helping to save our frogs. Cheques may be made payable to: **Qld Frog Society Public Trust Fund**

NEW CO-ORDINATORS

Thank you to the members who have become co-ordinators. Please check the list on page 2 to see who your new co-ordinator is for your area.

Have you seen a sick or dying Frog?

Mass mortality events from the chytrid fungus occur this time of year, particularly months of July through to September.

BE ALERT AND REPORT ANY FINDINGS TO QFS!!!

….QFS AGM QFS AGM….

PLEASE MARK THIS DATE ON YOUR CALENDAR

SEPTEMBER 4 is the date for the Annual General Meeting.

Being held at Ottoman Turkish Restaurant , West End.

Final details are yet to be finalised but a notice will go out in a letter during July to all members.

The wonderful colour heading on the Frogsheet has been printed for QFS free of costs by

ASCOT PRINT & DESIGN P/L

Phone 3266 6666

by Pearl Symonds

Now onto the fungal disease, quite topical at present as it is an unusual fungal disease- chytridiomycosis caused by the pathogen *Batrachochytrium dendrobatidis* that has been listed as a key threatening process of amphibian declines under the EPBC (Environment Protection Biodiversity Conservation) Act. We live in a world surrounded by billions of species of fungi so it is quite surprising that only a few of them are harmful to animals. There are many subphyla, phyla and families in the kingdom fungi and they can be tricky creatures with more than one physical growth form and sharing biological characteristics with the protozoa. Fungi tend to be a regular cause of disease in plants, and any gardener would tell you that plants can't exist without the aid of fungi digesting organic matter in the soil. Chytrid has affected both captive and wild populations, and will be one that all concerned froggers need to look out for.

Most of us avid frog fanciers are aware of Chytrid and what it does to frogs. Adult frogs and metamorphs will become moribund, dull and dark in body colour, have hyperemia of the legs and abdomen and develop the characteristic sign of chytrid –sloughing of the skin. This will look like wet tissue paper coming away, it can be quite subtle, tiny skin tags or melodramatic. The sloughing can lead to ulcerations, and if this is all you find then other diseases that cause this should be ruled out. The other feature of chytrid of course is that it is associated with large numbers of frogs dying. Due partly to public vigilance, Brisbane and Southeast Queensland has had a regular number of mass mortality events- one affecting up to 100 adults, mainly affecting the species- *Litoria caerulea, L peroni, Adelotus brevis* and the *Mixophyes spp*. These have occurred on rural properties, suburban backyards and national park areas, in both mountain streams and lowland habitat. The only commonality is that they occur this time of year, the winter months of July through to September- **so readers be alert.**

Chytrid only grows on the mouthparts of tadpoles, where it appears to have little effect on the individual and in the adult frog, the outer layers of skin. Here it is often seen growing in small clusters but in sick animals will overgrow to affect the entire belly, legs and feet. Experimental infections depending on dose and environmental temperature can take up to 40 days to cause death but the frog only show signs of illness in the last 3-5 days. Thus previously healthy looking frogs can be affected quite quickly. Frogs do produce antifungal substances in the granular glands of the skin and these will kill chytrid under experimental conditions, however on the live animal we do not know what concentrations are produced or if for some reason the normal defense mechanisms are compromised. It seems most things will kill free living chytrid- UV, drying, increased temperatures (>30 ^{o} C) most disinfectants and antifungal pharmacological preparations, however chytrid is a clever pathogen and lives most of its lifecycle on the frogs skin hidden inside the cell, so most of the previous treatments are of no use if they cannot penetrate the cell membranes. Prevention is at present the only option we have, so captive animals are raised in conditions that remove all possiblilty of chytrid contamination, for wild populations the movement of adult frogs or tadpoles is prohibited, and has possibly been a major cause of spread. For most regions we still have no idea which populations and sites are affected.

Up to this time the only way to diagnose chytrid for sure is to take tadpole or skin specimens for histology, that is looking at a cross section of skin tissues that have been stained under the microscope. Laboratory tests are being used but so far are only available for experimental and research purposes.

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by Pearl Symonds

Another fungus that has caused outbreaks in captive frogs is Mucor Amphibianum and may on initial appearances cause a very similar scenario. It has caused ulcerative skin disease in wild platypus in Tasmania, found in free ranging cane toads from NT and there is one case of a wild *L caerulea* with infection of the nasal passages. It is a ubiquitous fungi that grows in soil in a familiar mould like form, but changes its behavior in living tissues, becoming spheroid. It is found sporadically in free ranging individuals, and is considered to require a form of entry-wound or weakened host. It causes a multisystemic granulomatous disease and or dermatitis. Nodules 1-2mm diameter can be found throughout the body mainly the liver, kidneys, spleen, the muscles, intestines and central nervous system where it may cause lesions in the eye. The granulomas are characteristic under histology as they contain the fungi making diagnosis reasonably easy.

Viruses:
The ranaviruses are a member of the iridoviridae and are listed as one of the four disease causing organisms implicated in amphibian declines, along with chytrid, aeromonas (a bacteria) and bassidiobolus (one that has a question mark hanging over it). Iridoviridae is a large family of viruses that seem most at home in the larvae of insects. They cause high levels of mortality in fish and in the domestic animals such as African swine fever. Like most of these viruses whether it is in a pig, fish or a frog, outbreaks appear to be ones of high morbidity- a large percentage of animals exposed will catch it, and high mortality, those that catch it have a high chance of dying. A biological weapons dream virus. However as is the nature of things diseases that wipe out populations so quickly often wipe out themselves in the process (like Ebola for example), any surviving animal hosts fight back and form antibodies, molecules made by the immune system to lock onto viruses and neutralize them, and if they are mammals they can pass these on to their young through colostrum.

A number of iridovirus species/ members have caused outbreaks of frog deaths in many countries, North America and Europe for example, and it would be a nightmare for Australia if ever encountered. This has implications for the introduction and smuggling of carrier species such as fish and reptiles. As mentioned adults suffer high mortalities but the larvae are most susceptible with up to 100% death rates. In tadpoles one form of iridovirus is known as tadpole edema virus, on post mortem of adult and larvae there is multisystemic haemorhage and necrosis in particularly the liver, kidneys, lymphatics and muscle. Secondary bacterial infections may be seen, such as Redleg. The viruses are considered hardy, can survive well in pond scum and have the potential to be spread widely by insects. Antibodies to iridovirus/ ranavirus have been found in cane toads throughout the country, suggesting exposure. So far only a single endemic case (Bohle virus) has been confirmed in *Limnodynastes ornatus* here in Australia, however you do have to ask, if a bunch of tadpoles die in the forest- does anyone see it?

Frogs overseas have been found to carry with no sign of disease a number of Flaviviruses of which, the serious diseases of humans such as Japanese B encephalitis is a member. The diagnosis of viruses can be difficult, with more expensive tools such as serology and transmission electron microscopy is required.

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This last section will deal with miscellaneous diseases that may crop up in individual frogs. Single large lumps have from time to time can been excised/ cut off and diagnosed as a cancer or neoplasia. Frogs that have been subjected to trauma, collision with a whipper snipper/ lawn mower is common, and there are reports of *L caerulea's* surviving well missing one eye or a leg, Cloacal prolapse may be seen from time to time, also traumatic, one case from Taronga suffering from a form of glandular cancer in the wall of the cloaca. Toxins are often blamed for a number of frogs found dead, but unless there is a direct cause and effect scenario, many of these cases require specialist toxicological analysis to pinpoint any number of possible chemicals. In outbreaks of fatalities toxins would be considered if no other cause is found. Nutritional diseases where bent/bowing limb and spinal bones, spindly undeveloped legs have been reported, in adults and metamorphs. These affected captive populations and reflect somethin g lacking, poss vit D, calcium metabolism or nutrient elements required for normal nervous system growth. Many things cause emaciation, long standing infections of any nature, tumors, lack of food, poor absorption of food, hormonal imbalances, renal and liver disease for example. I refer to this as a number of you will be curious about the" Lateline" (some time ago now) feature on the skinny frogs being found by the Cairns Frog Hospital.

You may have realized that there has been a common theme for most of the diseases discussed and that is some form of predisposing stress or injury, stress of course is one of these words we love to throw around but is difficult to measure, especially if we cannot recognize it behaviorally. In wild populations sporadic death and disease is normal and predators quickly remove sick animals. It isn't until we have a situation, like what is seen in chytrid outbreaks, where deaths supersede any normal removal mechanisms that we are able to witness such an event, and it was such events that finally made governing bodies take notice. Those of you that have read these articles will hopefully have increased your knowledge on frog disease and what to look out for, and will also understand how difficult it can be at times to put a "label" on what is causing the illness/disease and how it is even more difficult to come up with a cure. Those of you cynical enough will argue that for any disease it is the money and motivation (self interest) that drives us humans to find the answers and unfortunately until we do, we may lose a complete phyla of miraculous, ancient and incredibly adaptable creatures (excepting some very tough characters like the cane toad). Perhaps, if we humans realized that the fate of amphibians is inextricably tied to the future supply and management of clean, fresh, water then maybe we will take more notice.

AMPHIBIAN CONSERVATION – LEGISLATION, PROTOCOLS AND SURVEYS *(Continued)*

By Justin Watson

Surveys

Surveys for amphibians need to be suitably structured to ensure the survey methodology considers weather, season and species specific habits and habitats. If animals are handled or trapped for a scientific purpose, a registered Animal Ethics Committee must approve the activity. Standard acceptable survey methods include:

- Physical searches – suitable habitat;
- Spotlight searches – low intensity lights and minimum exposure;
- Call playback/identification – avoid excessive use of recordings; and
- Pitfall trapping – in accordance with pitfall trap guidelines, ensuring the use of a saturated sponge, timber/cover at the base, regular monitoring of traps.

Conclusion

Hopefully the implementation/adherence of ethical conduct codes and compliance with the approval and permitting processes will see the reduction (or at least control) in spread of disease in amphibians (and the continued general well-being).

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Amphibian Conservation (Continued) *By Justin Watson*

Froggers in Southeast Queensland can also look forward to further efforts in conserving amphibians with the Lord Mayor committing to “working with the environmental and community groups to ensure our natural assets are protected and enhanced" and suggesting “we will increase the number and diversity of natural amphibia”.

References and Further Reading

Animal Ethics Infolink (www.animalethics.org.au)

Brisbane City Council (undated) Ecological Assessment Guidelines.

DPI&F Animal Welfare and Ethics Website (www.dpi.qld.gov.au/animalwelfare

Environmental Protection Agency, Queensland Parks & Wildlife Service (Code of Practice – Captive Reptile & Amphibian Husbandry)

Environmental Protection Authority, Western Australia (2000) General Requirements for Terrestrial Biological Surveys.

New South Wales, Department of Land & water Conservation (2001) Interim Guidelines for targeted and general flora and fauna surveys.

New South Wales, National Parks & Wildlife Service (2001) Hygiene Protocol for the Control of Disease in Frogs.

Northern Territory University (undated) Guidelines for Field Research on Vertebrates.

Queensland Frog Society (undated) Conduct Guidelines.

REMEMBER TO “SCRAPE, SCRUB AND DISINFECT – DON’T SPREAD DISEASE”

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