

**PRESIDENT REPORT** by Ric Natrass

**Six extinct! And now we know how.**

It wasn't the hole in the ozone layer. It wasn't chemicals. It wasn't even the butler. It was medical science (and/or the pet trade) and the African Clawed Frog! Just before the ABC TV Catalyst report on Thursday night (21 August 2003) which described part of the story, we were working on a frog page with the Courier-Mail. As part of the research for the facts, we started to gather together everything that had been published and even some work that is *in press* which means the work has been accepted for publication and will appear shortly. It has now been revealed that the villain came from Africa (see **Killer Chytrid** this newsletter). I think the catastrophe would have occurred even if African Clawed Frogs had never been used to test pregnancy in humans. The fact is that African Clawed Frogs have been exported from South Africa for years to supply the exotic pet trade and it may well be that the infected frogs that began the avalanche of extinction were **pets** rather than **pharmaceuticals**. The Queensland Frog Society has long held the view publicly that the keeping of frogs and tadpoles as pets is unsound. We have been criticised for our "stick in the mud" attitude to the keeping of adult frogs. Apart from the humane aspects of keeping a largely unresponsive animal locked up in a fish tank as a live toy, it is downright dangerous. It should be made widely known that six native frogs will never be seen again – ever! They **were** Southern Dayfrog, Southern Gastric Brooding Frog, Northern Gastric Brooding Frog, Sharp Snouted Dayfrog, Little Waterfall Frog and Long Snouted Treefrog. All wiped off the planet by a microfungus with which they never should have come into contact!

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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



**October 12** BCC Green Day.  
Regent Park, Cannon Hill.  
10am – 1pm QFS display.

**October 18** QFS Camp Out – Girraween NP.  
Please phone  
Rod: 3264 391 or  
Stefan: 3891 6853 for more info.

**November 2** Pine Rivers Shire Council  
‘Outside & Alive’ held at Leis  
Park, Lawnton.

**November 8** Frog Talk by Rod Pattison (QFS)  
held at Boondall Wetlands Env.  
Centre - 10am. Cost: Gold coin  
donation. Phone 3865 5187 to  
book.

**November 9** BCC Green Day. Aspley, TPA.  
10am – 1pm. QFS Display

**November 15** QFS Camp Out – Goomburra  
Nat. Park. Please phone  
Rod: 3264 6391 or Stefan: 3891  
6853 for more info.

**December 7** QFS Christmas get together. An  
informal gathering at Simpson’s  
Fall’s, Bardon starting at 2pm.  
Please bring a plate to share and  
drinks. Phone Jenny: 3366 1868  
if you need any information. Will  
bring the QFS poster for new  
members.

## New Members

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

Kristin Reuter, David Ish-Yair, Robert Roser,  
Justin Watson, Hooper Family, Clare  
Cavanagh, Julie Wilson, Waterford State  
School Student Council, Jared Logan,  
Cory Nedwich, Tumanako Papuni, Kiril  
Boudar, Delaney’s Creek State School Yrs  
2/3, Lorraine Coleman, Jennifer Singfield, Ann  
Batt, Johnny Malan, Maree Brewer.

# Coordinators Reports

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## Ashgrove

My area has been quiet through the cooler months but the few days of warm weather and showers we had in August have woken up the Tusked and Striped Marshfrogs and it is nice to hear the sounds of frogs again. Now all we need is some good summer rain to make sure the treefrogs are still here.

I have noticed that SOWN (Save Our Waterways Now) have been working around the creeks here and this can only improve the water quality and habitats. I will be checking the upper reaches of Enoggera Creek later this year to see what the frog numbers are as there has been a lot of plant regeneration work done there.

*Jenny Holdway*

## Central Queensland

Half hearted calls of Eastern sedgefrogs (*Litoria fallax*), Naked treefrogs (*Litoria rubella*) and a couple of Graceful treefrogs (*Litoria gracilentia*) during a shower of rain were a positive induction to spring. Here's hoping this is a warm up to fruitful events.

Unfortunately, the winter blues brought reports of sick and dead frogs. On a more positive note - public interest has continued with quite a few general inquiries and information being sent out. Two talks have been given in schools and a couple of hundred people stopped to look at the Gladstone Eco-fest display. Thanks must also go to John Clarke (Research Masters Student – "Taudactylus Pleione" & QPWS) for putting up some QFS information alongside his display at the Central Queensland University, Rockhampton Multicultural Fair.

*Jodi*

## Lockyer

Hi Guy's

I have been so busy and with no rain, a couple of heavy frosts-the chance of seeing or hearing any frogs over winter were nil. The good news is "the powers to be" have lightened my work load and I will have a life once more.

The weather is warming up and the odd striped Marshie call's from the pond, but rain and weeks of it is what is needed in the Lockyer Valley - more and more farm dams are drying up and the creeks stopped over a year ago. Cross your fingers and toe's and let's hope for some good rain!!

*Lawrence Pearce*

## Beaudesert Area

Hi! This report covers the last eight months or so. Received one only member contact over that period but we did have good rains, some frog breeding and was fortunate to make a few interesting observations.

The member returned from an overseas trip, just after the early summer rains and found her ponds had dried-up in her absence then refilled from the rain. Along with much leaf litter there were a number of small (toad-like) little brown frogs, all puffed up (obviously to avoid drowning) floating around in the ponds. She rescued the frogs and now wanted advice as to what she should do? After much dialogue and several attempts to imitate a number of frog calls we agreed the frogs were Ornate Burrowing Frogs, doing what they do after rain. I suggested she refill the ponds and release the frogs nearby, I assured her they were not in danger of drowning, the puffing up was just part of their mating/breeding behaviour.

On our block the February rains brought the creek down and it continued running well for three months. Graceful Treefrogs, Stoney Creek frogs, Great Barred Frogs, Scarlet Sided Pobblebongs, Eastern Sedgefrogs, Broad Palmed Rocketfrogs and Striped Marshfrogs all responded accordingly. Every pool finished up with tadpoles and yabbies in abundance. Of particular interest a few weeks later was the discovery of more than fifteen very young Graceful Treefrogs on the ferns and grass near the main rockpool. Follow up rains have resulted in the creek picking up again, but no additional breeding. However the main rockpool still has a large number of tadpoles (and yabbies) delaying their metamorph and wintering the cold weather out as tadpoles.

Two special experiences were:

One evening came across a Scarlet Sided Pobblebong with about two centimetres of a garden worm extending out of its mouth, it quickly gobbled the rest of the worm down as I watched; Then early one morning we decided to have breakfast near our three ponds mounted at ground level and surrounded by short grass. To our disbelief we found a large number of Great Barred Frog eggs scattered over an area of approximately two square feet. They extended from the inside edge of one plastic pond out onto the grass. We diligently collected the eggs (using damp smooth sticks) and placed them in a container, they were then transferred into a small clay tank (complete with water and plants). A few weeks later there were more than one hundred tadpoles in the tank, at last count there is still more than twenty, all determined see the winter out as tadpoles, overall a satisfying outcome.

One positive from the dry period has been the few sightings of Cane Toads and no toadpoles seen at all, although have heard a very large male calling regularly some two to three blocks away. Almost tempted to commit trespass just to track him down. Got involved with the Fruit Bat survey in April, Sugar Gliders and Koalas have been very vocal lately, heard our first Coucal for the season just last week.

*John Eveleigh*

## People Profile

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Welcome to "People Profile". Each edition we will introduce you to some of our hard working, dedicated executives and coordinators and find out a little about them.

**Name:** Ric Natrass

**Position with QFS:** President

**Live:** Bellbird Park in the federal seat of Oxley

**Work:** Co-proprietor Chris Boston Dreaming

**Hobbies:** Natural History. Wine and beer making

**Favourite food:** Assorted steamed vegetables smothered in Béarnaise sauce

**Favourite movie:** The Gods must be crazy.

**What do you do to relax?** Cook.

**What do you like the most about QFS?** Its age - the oldest frog society in Australia

**Favourite Frog:** Too many to list, but probably the Holy Cross Frog – especially its call

**Favourite Place:** Big red sand dune just west of Windorah (with or without pouring rain)

**If you had the power to change anything, what would you do?** Bring back the six lost frogs.



## ***Fingers Point at African Frog*** – Story by Brendan O'Malley, Courier Mail 23/8/03

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A south African frog used in pregnancy tests for women has emerged as the unlikely culprit for the demise of frog species around the world, including six Queensland amphibians.

Scientists at James Cook University, the CSIRO and zoos in the US have pointed their fingers at the African clawed frog, which was a popular laboratory animal used for pregnancy tests as recently as the 1960's. Until Chemical tests came along the best way to test for a tell-tale hormone produced during pregnancy was to inject the unfortunate frog with a urine specimen.

The hormone triggered sperm formation in male frogs and egg formation in females. The animals were exported to laboratories around the world, but unfortunately they harboured a deadly fungus in their skins which eventually spread through the environment.

Queensland Frog Society founder Ric Natrass said although the fungus link was first suggested in the late 1990's it was not realized at the time how it spread into Australia, Central America, and other countries outside Africa. "The reality is that even without the pregnancy tests it probably would have spread anyway because these frogs are popular with the pet industry," he said. "I'm even prepared to bet it got into Australia via the aquarium trade. It sounds like I'm a killjoy, but this really shows that keeping native animals as pets, particularly pet frogs, could spread disease."

Mr Natrass said the first Queensland victim he noticed was the Southern Dayfrog, which until the 1970's was so abundant in Brisbane Forest Park that bushwalkers had to take care not to step on them. Five other Queenslanders have succumbed, including the only frog in the world known to keep its young in its mouth while they matured. In another bitter irony, the deadly fungus failed to make any impact on the dreaded cane toad.

A great big thanks to Mark "Colonel" Sanders for contributing to this and future editions of Frog Profile.

## **Adelotus brevis Tusked Frog**

© Mark Sanders 2002 (<http://members.optushome.com.au/faunacorner>)

### **Background**

Tusked frogs are a monotypic genus; that is, they are the sole member of their genus. Their exact phylogenetic relationship is unclear, but they appear to be most closely related to *Limnodynastes ornatus* and *L. spenceri* (Schauble *et al* 2000).

Tusked Frogs differ from other species within the Myobatrachidae family in three respects:

- The male is much larger than the female (a condition seen in only about 10% of anuran species; see Shine 1979);
- The head of the male is considerably larger than that of the females; and
- Males possess tooth-like tusks (paired odontoid projections) that project from the lower jaw.

It is thought that breeding success rather than the two sexes specialising on different prey items drives the sexual dimorphism. Katsikaros and Shine (1997) found several pieces of evidence to support this theory.

Firstly, they found that there was no significant dietary difference between the two sexes. All examined animals had stomach contents that reflected the available food sources at their site of capture. The major dietary items consisted mostly of Arthropods ( 51-79%), Molluscs (0.03%-23%), Crustaceans (07%-0.1%) and even the occasional frog species.

Secondly, calling males space themselves evenly around the pond rather than randomly. When antagonised by placing another male nearby to the calling site of a resident male, the resident male would respond with their territorial call (see below). Katsikaros and Shine even witnessed combat fighting between two males in the field, an observation that had previously only been observed in captive populations (Gidding 1994). Combat fighting consists of vigorous biting rather than the normal chest-to-chest fighting used by most anuran species.

Consequently, larger males are likely to be more successful in reproduction as they are able to exclude smaller males from suitable calling sites.

### **Description**

The dorsal colouration in this species can range from olive green to almost black above with an irregular variegated pattern of darker markings. Occasionally individuals may possess a pale vertebral stripe. The dorsal surface is usually rough with numerous warts and ridges, often relating to the darker colourations. There is usually a paler butterfly-shaped marking between the eyes, and the hind limbs are usually barred.

Perhaps the most distinctive feature of the species is the belly colouration. It consists of black and white marbling that is distinctive between individuals. In addition, the groin and the back of the hind leg ('calf' area) have red or orange markings.

The fingers and toes do not have webbing and are cylindrical in shape.

### **Size**

Males = 34-50 mm; Females = 29-38 mm

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## *Adelotus brevis* **Tusked Frog**

© Mark Sanders 2002 (<http://members.optushome.com.au/faunacorner>)

### Similar Species

Small individuals may be confused with *Pseudophryne* or *Uperoleia* species. Tusked frogs are easily distinguished from *Uperoleia* species by the black and white mottling on the ventral surface and from *Pseudophryne* species by the red in the "calf" area.

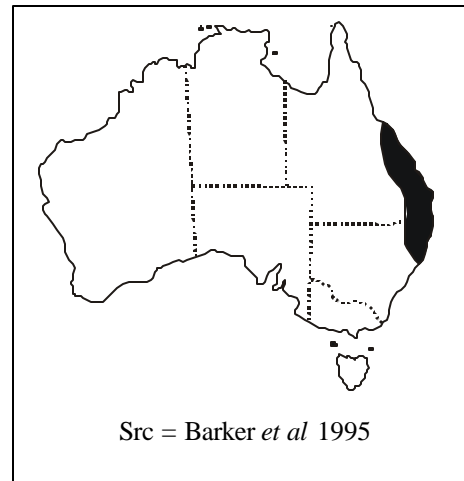
### Habitat

This species inhabits a variety of habitats including rainforest, wet sclerophyll, dry sclerophyll, woodland, vine forest and can even be found in low numbers in open grazing country (Eyre 1997). They can be found in slow moving streams (or sections of slow moving water in lotic streams) and dams, particularly around areas where there is a build up of debris such as leaves and sticks.

### Distribution

This species is distributed from approximately Eungella in Qld along the coast and great dividing range to Moss Vale in NSW. There are also records inland at the Blackdown Tableland and Carnarvon Gorge.

Historically, the species was common on the western slopes of the range, however it has declined in many areas including the New England Tableland, western flowing streams of the Main Range, elevated sites in the Clarke Range and from the Lockyer Valley in south-east Queensland (Gillespie and Hines 1999; Eyre 1997; Ingram and McDonald 1993). It has also declined in the north of its distribution in highland streams in the Eungella Range near Mackay (Ingram and McDonald 1993).



### Call

The advertisement call is described in most texts as a soft "tok" or "cluck" similar to *Limnodynastes peroni* (See Cogger 2000). However, the call of all the Tusked Frogs I have heard in Queensland actually consist of two notes in short sequence and so their call may be better written as "P-tuk" or "chuluk" (Barker *et al* 1995). Occasionally, one may make a call that has several additional pulses. Further north around Kroombit Tops, Blackdown Tableland and Carnarvon Gorge the species regularly calls with 5-7 pulses in its call. Preliminary genetic studies have indicated that there are no significant genetic differences between these populations and hence they are still all currently recognised as a single species (H. Hines *pers. comm*).

The territorial call of this species consists of a rapid set of single notes, or a loud "trill".

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***Adelotus brevis* Tusked Frog**© Mark Sanders 2002 (<http://members.optushome.com.au/faunacorner>)Call period: 

J	F	M	A	M	J	J	A	S	O	N	D
█	█	█	█	█	█	█	█	█	█	█	█

Males can call from a variety of locations including under rocks, logs and other debris, within dense vegetation as well as from within shallow burrows. Most calling sites are close to the surface of the water.

Some references suggest that males call throughout the year (Robinson 1998), but I usually only hear this species during warmer months between August and April. Males can, however, call throughout the day. My personal observations of Brisbane populations suggest that peak calling occurs a day or so AFTER rain when the water levels have returned close to their

normal levels. Furthermore, rather than consistently calling throughout the entire night, I tend to find that they call more prolifically around dusk and dawn and the few hours of darkness after/before these times.



Photo: Mark Sanders

**Breeding and Larvae**

Unpigmented eggs are laid in a floating foam nest hidden from sight that is between 8 and 12 cm in diameter (Anstis 2002). These are usually guarded by the male.

Tadpoles hatch from the eggs approximately 6-7 days after laying and take at least 50 days to develop. The tadpoles are dark brown to black above and dark grey below. The body is ovoid with a rounded snout. The slender tail that is twice as long as the body with a rounded tip. The fins are narrow, translucent but suffused with black. The eyes are positioned dorsolaterally and the vent tube is dextral. The spiracle is sinistral and opens laterally. Labial tooth row formula = 3 (2-3)/3 (1).

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## Secretary's Snippets

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### **DON'T KNOW WHAT PRESENT TO GET FOR BIRTHDAYS OR CHRISTMAS?**

You will be aware of a Gift Certificate in this edition of the Frogsheet and this is the idea of one of our members, Eric, who was wondering how to give his family a membership as a gift. Eric thought that others might be in the same position and that a special form might make it easier to give a membership to a friend or family so here it is.

### **Live in the Redlands? We need your help!**

We require the services of Co-ordinator for the Redlands area. No experience necessary. All we ask of you is that you will be willing to hold posters for new members and act as contact person for the Redlands area. Any tricky emails or phone calls can be easily dealt with via the QFS Committee. If you would love to help us out, please phone Jenny on 3366 1868.

### ***QFS Christmas Get Together***

- When:** Sunday 7<sup>th</sup> December from 2pm  
**Where:** Simpsons Falls, Bardon  
**BYO:** Drinks & plate to share

Come and join in on the festive frivolity  
Phone Jenny on 3366 1868  
For further information  
Free posters will be available for new 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*

### **Renewal of Membership**

A green spot on your Newsletter! This is a gentle reminder that your membership renewal is due and that this might be your last Frogsheet.

The Society values your support and it is only through membership numbers that we can continue the work for our native frogs.

**Thank You** to the members that have sent their payment please ignore this reminder if you have posted yours.

### **QFS Trust Fund**



**Balance stands at  
\$4,219.49**

Thank you to: Beth Newman, Jodi's donation tin, Anne Conway, Barbara Pollock, Stefan Durtschi, Shelley Mills and Fred.

Thank you to the members who have purchased one of Itai's frog drawings as this has swelled the fund along with donations and Fred.

There are still some pictures left if you were thinking of having one, so please get in touch with me on 3366 1868.

I have heard from Itai and he is still working very hard on his studies and with some environmental children activities during the school holidays.

### **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**



by Pearl Symonds

In this modern age of media hysteria over this infectious disease and that, we are all fairly well advised on how to spot if a family member is sick and whether they have any of the latest in “epidemics”, but the same kind of information and advice is hard to come by when it comes to wildlife and namely frogs.

Late winter and early spring appears to be the time the QFS receives phone calls from concerned frog enthusiasts, in this series of articles I will attempt to explain what kinds of disease affect frogs and how you may be able to detect them.

The important thing for any observer of frog behaviour is to understand what is normal and what isn't, sick animals don't behave normally. A summer breeder is out in the middle of winter when it should be holed up with its' mates somewhere safe, a nocturnal animal is sitting out in the midday sun. Sick frogs do not attempt to hide and are often so weakened that they are unable to retract their limbs or fight being handled as strongly. These are obvious clues to many of our experienced members, but what about more subtle signs?

Firstly, I shall describe the various medical terms that may be used to describe sick frogs.

**Dermatitis:** inflammation of the skin (see inflammation below).

**Emaciated:** wasted condition of the body, in other words very thin.

**Oedema/edema:** Abnormal accumulation of fluid in the cavities and the spaces between cells of the body.

**Hyperaemia:** excess blood in a part, commonly seen in the ventral skin and hind legs of frogs as “Redleg”. Is an indicator of septicaemia.

**Inflammation:** immune response to damaged tissues and foreign protein/ molecules, is a normal process of repair, but also a cause of ongoing tissue and organ damage. Is characterized by heat, (probably not detectable in frogs) swelling, redness, pain (often a subjective measure) and loss of function.

**Moribund:** in a dying state, weak and unresponsive to stimuli.

**Nodule:** small lump, that is barely detectable by eye but mainly detected by feel.

**Septicaemia:** The changes (hyperaemia and fever) caused by the presence of disease causing micro-organisms and their toxins in the blood. Commensal- normally harmless microbes and ubiquitous microbes in the environment that gain access and multiply in the blood will also cause this.

**Sloughing:** shedding dead tissue particularly refers to the skin.

**Ulceration:** excavation of the surface of an organ or tissue, produced by sloughing or necrosis (tissue death).

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Medical and veterinary persons often use these clues or clinical signs to help narrow down a cause or diagnosis, but it must be emphasized here that many diseases can end up with the same result. Only a handful of diseases have clinical signs that are characteristic of them, *pathognomonic* is the term used for these. Therefore a good detective does not use just one piece of evidence to come up with a culprit but several, and even then will still be aware that the world is full of surprises and imitators. I am not expecting all you readers to become expert medical witnesses or frog disease experts, far from it but understanding some of the reasons we medical people do or say things will help.

So, if you are unfortunate to come across sick or dead frogs –in your yard or out bush walking, here's the first thing to do: Gather information. How many? – multiple deaths are more likely due to infectious disease, single deaths less likely. Where and when was it? Were there any notable circumstances associated with the incident? Then with your new knowledge of the kinds of disease signs we see in frogs, make a list of the changes you have found in the animals. For example, Is there oedema/ inflammation/ "redleg"? Some of these signs are less obvious once a frog has been pickled or may change as the disease progresses. Most importantly, as all good froggers know, always carry with you clean zip lock freezer bags, and disposable gloves. Be aware that most of these diseases are infectious to other frogs and some can infect immune compromised humans. Only handle sick frogs with a pair of gloves of which you dispose of afterwards, then get in touch with your local friendly EPA Ranger or Frog Society representative.

Over the next few publications of Frogsheet we will run through the commonly seen diseases in Australian frogs and their larvae, both captive and free living and will emphasize those that are listed as threatening processes and are of importance to be on the look out for.

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***Killer Chytrid****by Ric Natrass*

Alarming reports of frog 'disappearances' from both Central America and Eastern Australia began to emerge in the late 80s and early 90s. Scientists remained hopeful that the absence of some previously well known and abundant species was a temporary phenomenon and that the frogs would reappear. It had long been known that frogs were capable of very long periods of quiescence, remaining inactive for years only to reappear when rain arrived.

Then in the late 1990s, veterinarians in the United States discovered what they thought might be a pathogen that was killing frogs on display in zoos. They isolated a microscopic fungi that was found in the skin of all the dead frogs they examined. These scientists described the 'new' fungus as *Batrachochytrium dendrobatitis*, but at that stage no one knew where it had come from or even how it actually killed the affected frogs. (Batracho-chytrium = frog-chytrid and dendrobatitis from Dendrobates the genus of South American arrow poison frogs the chytrid was first identified in).

In 1999, the laboratory examination technique to confirm chytrid disease was refined by Dr Lee Berger of CSIRO and Prof Rick Speare of James Cook University. In the same year, a consignment of African Clawed Frogs *Xenopus laevis* destined for the pet trade arrived in California from South Africa and tests were carried out to see if they were carrying any pathogens. The 'new' chytrid was present.

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Berger and Speare travelled to South Africa to look at preserved specimens there and were able to confirm the chytrid's presence in a specimen of a Clawed Frog that had been preserved in 1938. Further investigations by South African scientists Dr Che Weldon and Dr H.L. du Preez have now found the chytrid to be widespread in the Western Cape frogs including the Clawed Frog. As it does not appear to significantly affect native South African frogs, it is highly likely that this is the chytrid origin.

African Clawed Frogs had been exported from South Africa to many parts of the world to be used in human pregnancy testing and later for the exotic pet trade. No one at the time knew that these frogs were carrying a time bomb that would go off in the mid 1970s and cause the extinction of 6 species of Australian native frogs and devastate many more. Extinctions may continue. A number of Queensland frog species have been driven so low by chytrid infection that they may not be in sufficient numbers to survive long term.

### Cooloola Region Co-ordinator Report

Well here we are in Gympie! A rather dramatic change from life in suburbia in the Redlands – We're grateful to have a creek, a small waterhole and a dam, which are all still holding water – and frogs!

During winter we noticed the calls of Striped Marshfrogs, Beeping Froglets and the occasional Eastern Sedgefrog. We were also lucky enough to have a downpour and received over 46mm of rain over 2 days. We even received a massive dose of hail including 20mm which fell upon us at the very beginning of September. Our children thought it was snow, when the next morning it was still sitting in huge clumps in the shaded areas.

The temperatures are so variable, from minimums of 3-12 and maximums peaking at around 25. We've just started to hear the calls of the Emerald Spotted Treefrog and Naked Treefrog. Hope there's more to come.

Proud to mention that Gympie East State School won the 2003 Wide Bay/Burnett's Greenest & Healthiest School (one of eight in Qld). Year 4's are learning about endangered species on the internet – and our son has chosen Fleay's barred Frog – with no prodding!!

Would love to hear from any members in the Cooloola Region!

*Leanne*

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PO Box 7017  
East Brisbane Qld 4169

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