

# TOAD NEWS



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A project of



[frogwatch.org.au](http://frogwatch.org.au)

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## CHANGES AT FROGWATCH



## ARE WE MAKING PROGRESS ON THE TOAD FIGHT?



## SHE'LL BE RIGHT MATE.....NOT!!



## NEW TOADBUSTING PLANS



## THE LITORIA DAHLII STORY.

**Yes We  
Can Stop  
the  
impact of  
Toads-  
and we  
must!**

## EDITORIAL

### SOME CHANGES AT FROGWATCH

When FrogWatch first started it was operating under the incorporation of Riyala Association inc and the official title was Riyala inc trading as FrogWatch.

The Board of Riyala decided it was better for FrogWatch to incorporate in its own right and operate as a separate entity.

FrogWatch is now incorporated in its own right and now has its own identity and ABN number. The Incorporation identity is known as FrogWatch Nth incorporated. As far as the people involved and the aims and objectives nothing has changed at all.

The new interim committee is.

Ian Morris  
Graeme Sawyer  
Erin Britten  
Dave Wilson  
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You will see some changes in the Membership structure on the website in the near future with two types of member but otherwise it is business as usual.

We are looking for people to volunteer and help with the workload. If you can help, contact Graeme on 0411881378 or email [info@frogwatch.org.au](mailto:info@frogwatch.org.au). We need people to help us with a range of tasks from day to day trap and fence checks, organizing toadBusts, report and submission writing and working on the website.

So if you have some time to spare or are looking for a place to put some energy let us know. It will be very rewarding and it will make a difference.

## ARE WE MAKING PROGRESS TOWARDS STOPPING TOADS?

The Darwin Zero Toads project is making progress but we need your information to see just how close we are getting to the number we want!

In November we finished the preliminary stages of the Leanyer Swamp fence project, Toad Blocks, and it appears to have made a significant difference to toad numbers in the Leanyer area. Of the two monitoring sites set up one saw no toads after the fence was in place, the other saw 1 toad in an 8 month period. Previously they were capturing 3 to 5 toads every week.

Reports for the coconut grove area indicate significantly lower numbers of toads than last year. Hopefully as a result of the Amy Johnson fence and the efforts to keep the Rapid Creek corridor clear.

One member Warren reports that they have had no toads so far this year where as this time last year they were getting toads every week, sometimes 1-2 a night. But we still have some problem areas and need extra vigilance around the City in particular with small toads in the area at the moment.

You might have seen the picture in the NT News of the dead Bluetongue lizard, killed by a toad. Because we have been so successful in stopping toads breeding in Darwin so far we still have lots of smaller reptiles that are too small to tackle big toads but die if little toads are around. Frill necked lizards, Spotted Tree monitors and bluetongues are all impacted by small toads!

We got onto some of the breeding at the Botanic Gardens and Gardens Golf Links through reports to FrogWatch number 1800243564.

## SHE'LL BE RIGHT MATE!!

Ecologists, environmentalists, scientists and members of the public are really alarmed at the public airing of the view, by Tony Peacock on ABC radio, that everything will eventually recover from the impact of cane toads and the fact that these sorts of statements seem to predominate from areas where people make excuses for not doing anything about the impact of cane toads or

diverting resources to other issues closer to their interests.

We are asking for the scientists who make these claims to actually show the evidence upon which it is based and prove their point. We have been unable to find solid evidence to support the view and would ask if you hear the view espoused inform us so we can trace the source.

We have spent a lot of time trying to look at this issue and the evidence on which it is based and this effort reveals some very alarming results and implications for biodiversity in the Top End.

Here are some results from our efforts.

We were given a contact for a person who owns a property in Central QLD and rang him to check the long-term impacts he had seen in his area on the western side of Mount Atherton 36 kms Nth of Yepoon.

The owner reported the devastation he had seen on his property in central QLD. He has lived all his life in the area and the place was fantastic for wildlife when he was a kid, lots of animals but not any more.

He said they never see any goannas any more and it is sand country where they used to be very common when he was a kid growing up on the property. His words were they also wiped out the fish and everything else along Valentine Creek. Pythons are also gone.

Alfie, who works on the property and is 82 years old, says he has seen nothing like it. I rang a contact in Qld Parks and Wildlife to check his statement that:- "QLD Parks and Wildlife did surveys with drift fences and pitfalls and caught nothing but toads." and found that his observations were basically correct.

Toads have been in this area for probably 30 years and it appears the native biodiversity has diminished and not recovered. Given that many wildlife surveys in NT Parks have shown big declines in biodiversity shouldn't we be showing more concern than she'll be right mate.

Another example is the Lake at Mount Isa. Ian Morris and Graeme Sawyer visited the lake in January 2010 to check reports that Merten's water monitors, once common in the area, had vanished since the arrival of cane toads. Both Ian and Graeme had visited the site before

and have memories of significant numbers of monitors at the site. As an example a visit some 20 years ago revealed 8 monitors on the grassed areas near the boat ramp and many others swimming and basking around the lake. The visit in January 2010 did not reveal a single individual and no v shaped wakes were visible out on the lake other than those with a water bird sitting firmly at the front of the V!

Another example is the research area at Ringwood where we have been studying the toads for 5 years.

Some of the goanna species like *Varanus panoptes* just vanished when the toads arrived and we found lots of dead ones. We haven't seen one since in the areas we monitor and have only seen a very occasional animal in other places.

Merten's water monitors were present in every water point we monitored when we started. We again found lots of dead ones but some hung in there for months, and then we had a period of none, followed by a couple of juveniles turning up. They were later found dead and there have been no sightings in any of the 6 core monitoring sites for over 2 years. There are still the occasional merten's in other places but nothing like pre toad numbers. (Litchfield is a good example of this)

Sadly the sighting of an individual, whilst exciting, is not evidence the species is OK. Humans have an unfortunate disposition to believing that nature will repair itself when left to its own devices, even though evidence does not back this up.

Are all these species on a slow grind down to zero because of the impact of cane toads and other influences on their habitat?

There are some goannas in Townsville where there are lots of toads but are there any/ many of the core species we are concerned about outside Townsville in the bush?

Given the quite clear data from Sean Doody's research on the Daly River, about the decline in several species of goannas and the general observational reports of massive declines across the landscape, especially for *Varanus panoptes*, shouldn't we be doing

something to investigate this rather than saying she'll be right mate?

Is the explanation to do with the fact cane toads are more common in some habitats than others? Is it to do with the numbers and development stage of the toads in an area? Are animals being pushed to local extinctions in some areas but not in others?

If you have any observations or data we would like to hear about it.

## **TOADS AND THE DRY SEASON**

Well a new year is here and a big wet season to go with it in the Darwin area but it was a long dry especially in the Katherine region and areas further south. We had numerous reports of toads dying because of the extended dry season.

It is interesting to note significant toad deaths even in areas where there was water, such as along the Katherine River, and it makes you wonder the role lack of food is playing in these events.

We have recently completed a research project near Adelaide River that was designed to test the feasibility of removing all the toads from an area of about 100 sq Kms. We removed over 23,000 toads from the area over 2 tonnes of biomass. The toads are obviously eating lots of native wildlife and competing for food and shelter with many others.

**Image 6 - A hollow log being used by cane toads as a daytime refuge.**



As an example, at the beginning of the project, refuge sites within the project area were completely filled by large numbers of cane toads. The picture below shows a view of a log in one of the

project sites during the day. By the end of the project there were no toads in these niches allowing any remaining native species to use the refuge space.

The benefits of removing cane toads from a specific area is unknown but it can be assumed that there is an impact in relation to all of the reasons that cane toads are listed as a key threatening process. These include competing with native species for food and shelter, eating native species, and killing native predators that try to eat cane toads.

Cane toads have been recorded eating a wide range of native species and during the project we observed a number of incidents where cane toads were in the process of eating native reptiles. The image below shows a cane toad attempting to eat a Keelback, which was quite large compared to the toad. The toad was unsuccessful in this case!!



**Image 7 - Cane toad attempting to eat a Keelback.**

With such large concentrations of cane toads in an area one can only speculate as to their impact on species small enough for cane toads to eat. Young keelbacks and other small reptiles have been found in the stomach contents of cane toads we have autopsied.

**Image 8 There is likely to be an impact on small reptiles, such as this Hooded scaly foot, through direct predation by cane toads.**



**Image 9 – remains of a small snake (Keelback?) found in stomach of a cane toad**

The biomass of cane toads taken from the area was calculated using mass data collected during our mark recapture research work in 2007 - 08 from the same area. This calculation revealed that approximately 2.36 tonnes of biomass in the area was cane toads. It is likely that native wildlife have been displaced and it is interesting to speculate on just what native species have been displaced.

Certainly Quolls, several Varanid species and King Brown snakes *Pseudechis australis* have not been seen in the area since cane toads arrived some 5 years ago. It also appears some species of native frogs have reduced and obviously other species are being eaten by toads.

All of this is particularly alarming as toad numbers continue to increase and records show an ongoing decline the abundance of a wide range of native species across the NT. Whilst we do not think cane toads are the sole cause of these declines they are probably a bigger factor in the declines than authorities have acknowledged.

The NT Government recently revised their fresh Water Crocodile management plan

and acknowledged in that that cane toads were a major concern. Maybe they will start to do something about cane toad management.

It is a major disgrace that we do not have any serious effort being put into the development of a threat abatement plan for cane toads across our national parks and other important biodiversity areas.

Supposedly under federal legislation when you have a species declared as a key threatening process it is a requirement to develop a threat abatement plan. If you manage a National Park that contains a key threatening process you are supposed to have a plan to manage it. Why is it that we do not?

Perhaps during this year, 2010, the international year for Biodiversity, we will finally be able to get some progress on this issue.

On a positive note Dr Mike Letnic from Sydney University and a team of his researchers trialled the fencing technique that FrogWatch has developed and refined, in conjunction with the Stop the Toad foundation, and given us further proof that it works.

Mike's report indicated "After fencing we hand collected toads from the outside of the fences and from inside the fenced dams. We collected 975, 881 and 160 toads at the three dams, respectively. In the three weeks following fencing we observed no toads on the inside or outside of the fenced dams suggesting that we achieved local eradication of toads".

This research supports the observations from other fence trials that the use of fences allows local eradication of cane toads and that it can be achieved in just 5 – 10 days.

Further details of the research will be released later, but the use of radio tracking devices confirmed that toads were basically "locked" at the watering points because of their need for water, none venturing more than 400metres from water, and this meant the entire population could be removed by using the fencing technique to stop them rehydrating.

## **NEIGHBOURHOOD SQUADS.**

We are looking for people to do some toad checks in certain areas and report their findings to us. Perhaps you already do this but do not report it to us?

Being out and about is good for you and it is often a great way to meet new people in your area. It is also amazing just how much impact these semi-regular checks of an area can have on toad numbers.

We are looking for people to regularly check a given area and report their captures through the website or email so we can develop a better awareness of the impact we are having on toads as we try to get to Zero toads.

Some particular areas are Jingili Water Gardens, Rapid Creek corridor, Coconut Grove, Botanic Gardens, Bayview, Casuarina Coastal Reserve, Lee point and the East Point area

There are many others as well. Email us at [info@frogwatch.org.au](mailto:info@frogwatch.org.au). To let us know if you can help and where you might be able to help.

# THE POPULATION DYNAMICS OF DAHL'S AQUATIC FROG LITORIA DAHLII

Ian Morris Frogwatch North January 2010

**Introduction:** This frog species is widespread across the biologically rich wetlands of Australia's northern coastline, from the south-east corner of the Gulf of Carpentaria west to the Ord River system on the lower Van Diemen Gulf. It is a member of the Bell Frog group, which has adapted strongly to the freshwater systems of the wet/dry tropics. These notes are based on almost 40 years of observations.



Adult Dahl's Aquatic Frog in the calling position.



Metamorphs migrating upstream across a floodplain clearing.

**Description:** A large, elongate, athletic frog, similar to those in the worldwide *Rana* family. The eyes are positioned so that they can see above as well as a wide forward arc. There is a dry & wet season variation in adult colouration.



Typical wet season adult colouration.

During the drier months (July-October) they undergo a partial aestivation deep in the cracks of the deep alluvial clays (blacksoil), which form the basis of the plains. At this time they undergo a colour change which tends towards a pale mottle & brown dorsal pattern replacing the vivid green, black & gold. Individuals of several seasons can attain very solid proportions & in dry season colours, can give the impression of a very different species.



Adult *L. dahlii* in dry season refuge deep in cracking floodplain clays. Mt. Ringwood Station.



A sub-adult frog, probably in its first year, bearing the dry season pattern & active only at night. Mt Ringwood Station.

**Habitat:** The middle and lower reaches of tropical river systems where seasonal floodwaters spread across alluvial plains & lowland areas of tropical grasslands & woodlands. During the latter part of the dry season they are concentrated on permanent water bodies such as billabongs, where they remain actively feeding at night, or, in the absence of surface water, refuging deep in the cracks of the alluvial plains where they aestivate & rarely emerge to feed.



The lower Mary River Floodplain - typical dry season habitat for populations of *L. dahlii*.



**Behaviour:** This frog is active by day, but principally by night. In many ways its behavior is characteristic of the other members of the bell frog group. They are a highly gregarious species, often living in large, widely spaced colonies. They share this habitat with other vertebrate species such as the Dusky Rat *Rattus colletti*, the Northern Planigale *Planigale maculatus*, the Water Python *Liasis macklotti* & the Slaty-grey Snake *Steganotis cuculatus*.

Because they are a gregarious species with a preference for sitting amongst aquatic vegetation, they often compete for a strategic feeding position

**Vocalisations:** The call of this frog evaded description until recently & could be described as “soft communal mutterings”. The single, low frequency ‘chirp’ is generally uttered at intervals while the frog is floating in water & by juveniles on land. It is thought that, as the tympanum is at least partially submerged when the frog is calling, the call may be more audible to other individuals in the vicinity via the water.

**Predators:** The body of Dahl’s Aquatic Frog contains chemistry which makes it unpalatable to a range of potential enemies, including the Barramundi *Lates calcarifer*, the Northern Quoll *Dasyurus hallucatus*, However, they are preyed upon by a wide variety of carnivores, from the Ox-eye Herring & the Rufous Night-heron to the Water Rat *Hydromys chrysogaster*. The freshly chewed remains of an adult were found in the throat pouch of an adult male Frilled Lizard on the plains of the Keep River National Park.

**Prey:** This frog is a ravenous feeder & a well known cannibal. From the point of metamorphosis it will tackle, often unsuccessfully, a wide variety of prey items larger than itself, including other frog species & even fellow metamorphs. Two metamorphs launching at the same prey item will occasionally result in one metamorph successfully devouring the prey as well as the other metamorph. They are regularly observed eating road-killed siblings. Aquatic insects and their larvae form the bulk of their diet. Along with *Cyclorana australis*, this species has frequently been observed feeding on *Bufo marinus* metamorphs. Young *L. dahlia* have been raised to adulthood in captivity on a pure diet of *Bufo marinus* metamorphs.

**Breeding:** Breeding activity is centred around the monsoon season. Typically at the beginning of each wet season, early storms from the east deliver rain which soaks deep into the alluvial soils of the parched drainage systems. At this point the frogs are feeding adjacent to or in, the shallow water of billabongs & other aquatic refuge points, prior to the inundation of the plains.

They have already assumed their wet season colours. As the soil absorbs the rainwater & expands, the deep cracks close up, causing the water to pool up at the surface. The water spreads across the plains, inundating adjacent grassland & woodland boundaries. Adult frogs have been observed at this point congregating during daylight in floating aquatic vegetation & making their typically weak calls.

As far as I am aware, egg-laying has not been observed, but the resulting tadpoles make their way in ever-increasing schools towards the warmer &

shallower extremities of the plains where they are easily observed. A puzzling point here is that at irregular intervals, separated sometimes by many poorer seasons, vastly more eggs are produced by the breeding population, resulting in huge numbers of metamorphs migrating in unity from the central floodplain breeding sites towards the upstream extremities of the habitat.

In mid-December 2009, these large schools were observed on the Adelaide & Mary floodplains & in late January in 2010 further east on the South & East Alligator plains, which received much lower rainfall in December. It is not uncommon for tropical vertebrates & invertebrates to show population fluctuations from year to year, but in the case of this frog, these infrequent explosive breeding events are spectacular, to say the least.

**Growth & Development:** The tadpoles are generally visible in shallow, flooded grassland early in the wet season (Dec-Jan). The body chemistry, which makes the adults unpalatable to many potential predators, may well apply to the tadpoles, which appear to be left alone by the normal range of predatory water birds.



*Litoria dahlia* tadpoles schooling in the shallow floodwater of the Magela Creek system in 1980. Note the sediment disturbance in the water behind. Photo: Greg Miles



Newly arrived metamorphs gathering in the deeper waters of Foqq Dam Dec'09.



Metamorph feeding on the freshly road-killed body of a sibling at Foqq Dam.

**Discussion:** There are a number of unknown factors in the life history of Dahl's Aquatic Frog. Breeding behavior is very difficult to observe

