



NEWS

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BIODIVERSITY DECLINE



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REPTILES**



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DECLINE**



1800 NUMBER FIXED



IDENTIFROG PROJECT



**BIODIVERSITY DECLINE
ACTION**



**NEW WEAPON AGAINST
TOADS – TADPOLE TRAPS**

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

EDITORIAL

BIODIVERSITY PROBLEMS

As we move through the International Decade of action on Biodiversity 2011-2020 (<http://www.cbd.int>), the current situation in relation to biodiversity in the top-end is spectacularly gloomy.

Dr John Woinarski and colleagues in the Northern Territory published a study showing a very rapid and severe decline of native mammals in Kakadu. The biologists surveyed 25 species in more than 130 plots over 13 years. They observed that the number of species declined by 54 percent per plot, and the number of animals by 71 percent.

Further evidence we have suggests many large reptiles have declined alarmingly as well, with rates of 95% and local extinctions documented.

Our challenge is how do we respond? We need some clear statements from government about your strategies to move forward on our biodiversity problems. We also need action from people in the community. Whilst it is true that we have marsupials and species that you do not find in the other continents, we have not done a very good job of looking after this unique legacy, a lot of it is gone forever and more is rapidly going down the extinction pathway. Some scientists are suggesting the current rates of decline are faster than the disappearance of the dinosaurs!

Australia has the worst record in the world when it comes to recent extinctions of mammals. Some 18 species in the central parts of the country have vanished in the last hundred years. When you look the landscape looks ok and looks to be intact but if you look closer something is fundamentally wrong.

In the tropical North the process is repeating itself.

Our biodiversity and the unique nature of our wildlife underpins much of our international reputation and the tourism that comes with it. In the top end our biodiversity and outdoor lifestyle is a big part of our identity. It will be so after the gas wells are all empty!

European settlers failed to understand the subtle complexity and interconnectedness of the biodiversity in this country and the role of fire in shaping this biodiversity, largely because they were completely unaware of such things and were just looking to expand the empire and get hold of land.

We also trashed the indigenous knowledge base and blindly went forward with new management practices that have devastated the systems underpinning the wildlife diversity and destroyed a lot of that diversity in the process.

We do not know exactly through what mechanisms this has happened and there are lots of ideas and questions about fire regimes, land management, feral animals like cats and toads, disease and who knows what else.

The real issue here is that we need to get our biodiversity back to being a high priority in our thinking and decision making, especially in government, as once it is gone we do not know how to bring it back!

Education is a major element of this and after decades of being left out of the process people are now demanding and playing a greater role in working towards solutions.

People need to understand the intrinsic value of biodiversity and this needs to be a part of their core belief system so it influences decision making and a range of things about the way we live.

This education needs to start a very young age and we need to have the sorts of "real experiences" that impact on attitudes and give us the base blocks upon which to build this understanding of the wonderful intricacies of biodiversity. The sense of fascination and wonder that lead to curiosity and form the base of the passion for wildlife and the natural world need to be engineered into our lives.

If this problem is going to be solved people need to learn to appreciate and understand our biodiversity. This doesn't mean we all need to be biologists, ecologists and zoologists but it means we need to tap into those essential human attributes of curiosity and make sure Homo sapiens understand their place and impacts in the biodiversity around them.

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The more you find out the more interesting it becomes.

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We have to get people to not be complacent and to respect our environment. Make sure that they understand that the intricacies and complexity are there and we need to respect that and try to further our understanding of it.

FrogWatch is developing a BiodiversityWatch project to support biodiversity education in our schools and in the community. If you are interested in helping out contact Graeme at frogwatch@frogwatch.org.au. You will also see significant changes to the website.

CONCERN FOR KAKADU REPTILES

As time progresses we are getting more and more information about the impact of cane toads on native wildlife with studies showing animals like the Blue-tongue

Lizards are shown to be severely impacted. This raises concern about many other species that have not been well studied but are possibly at risk.

The precautionary principle should mean that we take some steps to protect these animals until we know what is happening, but that sadly has not happened. We continue to follow the idea that everything is OK and we do not need to act until we have conclusively proven otherwise. The problem with this approach is it is usually too late by the time we find out the animal has disappeared.

Monitoring is not an action that actually helps wildlife, in fact many people I know think it is the current excuse for avoiding issues that are too hard. Monitoring extinction is still extinction!

A great example is the Giant Arnhemland Skink, *Bellatorius obiri* –which is an endangered and endemic lizard from Kakadu and west Arnhemland. All the evidence suggests it is in serious trouble, as it is also likely to be eating small toads as similar animals do and it is certainly big enough.

All the evidence suggests this species is at real risk and a recent survey was not able to find individuals of this species.

Could this be another example of a species disappearing before we know anything about it?

ReptileWatch has been set up as a place where information about our top end reptiles can be found and we will be working to better understand reptile populations and work towards supporting these populations.
<http://www.reptilewatch.org.au>



FACEBOOK

We have set up some facebook spaces to support our work and get the messages out into the community.

BiodiversityWatch

<http://www.facebook.com/frogwatch.nthaustralia>

FrogWatch

<http://www.facebook.com/pages/FrogWatch-Nth/339846602769882>

ReptileWatch

<http://www.facebook.com/pages/ReptileWatch/408963745818160>

Twitter

Frogwatch information and updates can also be received through our twitter feed. #frogwatch

REVERSING REPTILE DECLINE

The project is continuing and our first search for monitors, with public help, was held at East Point Sunday 26th August. There were no monitors sighted on the day but we did sight a bluetongue lizard and so we can confirm they are still present on the site.

Now that the humidity is changing and the reptiles such as monitors become more active we are seeing and catching more animals.

A number of monitors were sighted on the site prior to the commencement of the project. So far we microchipped and released 5 monitors, 4 frillies and 1 bluetongue.



<http://www.frogwatch.org.au/index.cfm?action=cms.page&p=502§ion=2>

Next Reptile Muster Sun Nov 23, 9.00 am
East Point. Lake Alexander car Park.

1800 NUMBER FIXED

Our 1800 number is again operational after major problems caused by Telstra giving it away and us having to buy it back! Good one Telstra.

Call 1800243564



PROJECT IDENTIFROG

IdentiFrog is all about raising peoples awareness levels about the frogs across North Australia and issues associated with frog populations. The core activity is a frog census, where people take pictures and make audio recordings of the frogs calling in their area and send them in to allow us to identify the frogs.

This wet season (or next rains in the arid zone) we are asking people to be aware of the frogs in their area and to attempt to record them by making sound recordings and taking pictures and uploading them to the frogwatch site. New smartphones and many cameras can record pictures as well as

sounds. The link <http://www.frogwatch.org.au/index.cfm?action=animal.identifrog§ion=3> will take you to the form for uploading. This works from mobile devices.

Identification is not always easy as frogs are very hard to find, change colour, vary in colour from one individual to the next, look similar to other species, and immature frogs of one species may look like adults of another species.

The best form of identification for frogs is to listen to the calls. Recordings of the calls for most of the known NT species are on the Frogwatch web-site at <http://www.frogwatch.org.au>. As the rainy season approaches frogs begin to

emerge and as soon as the first rains create pools of water the calling will start.

We are asking people to take pictures and record frog calls and upload them the web-site or email them to info@frogwatch.org.au as a part of the project.

In many parts of the world there is serious concern about the declining numbers of frogs (which are seen as good environmental indicator species - a bit like the proverbial canary in a coal mine), but in the Northern Territory and Kimberley we are still learning about how many frogs we have and, indeed, are still discovering new species!

In 2010 FrogWatch members Ian Morris and Graeme Sawyer collected what looks like a new frog species from the Napier Peninsula area of Arnhemland and in 1997 NT Frogwatch Co-ordinator Ian Morris collected a frog specimen at Keep River National Park that turned out to be the Flat-headed Frog, a species previously known only from a specimen in a bottle! In 2001, Jeanne Young, a PhD student at Charles Darwin University discovered a new frog species at one of her study sites near Darwin. Now known as the Howard River Toadlet it was by listening to the calls that Jeanne became aware that the frog was a new species.

Identification

Frog identification is not always easy. If you are having trouble there are some resources to assist you listed on the Frogwatch website. A photograph of the frog or a recording of the call sent to Frogwatch can allow confirmation by experts. Send your image or audio recording to info@frogwatch.org.au. Try to take the photo from the side, like the example below, to show all the features of the frog.

Calls are of vital importance for identifying some species so if you can get a recording please send it to us. Try to make the call as clear as you can by being close to the calling frog and away from other noises. You might have to wait quietly for the frogs to call again if they stopped calling as you moved close.

Handling of frogs should be minimised, especially with hands that are dry or have had repellent or other chemicals on them.

Placing a frog in a plastic bag to allow more detailed study is probably the best. Remember only one individual per bag and be sure that bags are thoroughly rinsed between uses because secretions from the skin of a frog or residual detergents can have a nasty effect on another frog.

Recording sightings

If you are confident about your ability to identify frogs you can register on the Frogwatch site and you will be given a password to the Frog Database Sightings section. In this section you can record a frog's observed location. This information will be added to the database and the next visitor to the website will be able to see your record for that frog species.

Even if you do not feel confident about your identification, if you can submit a photo or call that will be extremely useful. A photograph of the animal taken with any camera or even a phone will be sufficient. Try to take the photo from the side rather than the top. And if the animal has colours in the hidden parts of the legs take a photo of that too if you can.

When making a recording of the call try to get as close to the animal as you can without disturbing it. This will reduce the chance that the call will be drowned out by other frogs. An mp3 file sent to Frogwatch will allow most species to be identified with a high degree of certainty.

You can add valuable information to our knowledge about the Northern Territory's frog fauna!!! For more information go to <http://www.frogwatch.org.au>.



BIODIVERSITY DECLINE STRATEGY.

Mammal decline across tropical North Australia is a huge concern and as scientist struggle to understand the mechanisms underlying the decline there are some important messages to think about. The reptile decline is also worse in the bush, shown best by the presence of yellow-spotted monitors in Darwin. (See reptile decline article earlier in newsletter)

The greater Darwin area, or the Peri Urban area as it is known is showing the best mammal biodiversity outcomes in surveys, better than in our National parks!

This is not really good news as the wildlife in the rural area has been slowly declining for a long time, it is just that the decline in the parks is more rapid.

What we need is people to become even more active in managing their local environment to help preserve the remaining biodiversity.

One of the best responses to biodiversity is to make places more attractive to native animals. This not only has the psychological and lifestyle benefits that come from having wildlife about but it helps support diversity. We need people to be active managers of their local environment to support biodiversity. It is not enough to simply "leave it to nature", especially when most of the issues you have to deal with are ferals, whether they be plant or animal.

Most native species, unlike dogs and cats, which generally fit into our lifestyles, do not show a great deal of devotion or affection toward their 'owners'. All animals can become friendly and will respond to kindness, but native animals usually have a strong call to their natural habitat, either for diet, breeding or other social reasons. Caging native animals requires a good understanding of ecology, so it is more often successful if people can fit in with their lifestyles.

Sharing your living space with the local fauna. This is a particularly interesting possibility in the rural parts of the Darwin region where people own patches of natural bushland, but it also works in an urban situation. We are lucky enough to have populations of many species of native wildlife living in close proximity to Darwin. Northern Brushtail Possums,

Black-footed tree rats, Sugar Gliders, Agile Wallabies and Antilopine Kangaroos to name but a few kinds of mammals. We also have a host of reptiles, with lizards like Gilberts dragons and frillnecks as well as Monitors like the Spotted tree monitor and the possibility of Monitors like the Yellow-spotted monitor if your cane toad control is effective enough.

The presence of dogs and cats on your property can severely limit the variety of wildlife that will venture there. Many native animals are terrified of dogs and cats unless they have been reared together. By not having dogs and cats, many possibilities are created.

Everyone can improve the wildlife potential of their properties by observing the following points:

- restock unused cleared areas with groves of suitable native trees - some as food trees - some as shelter, etc.
- leave corridors of natural vegetation as animal 'pathways' and recreate links between natural areas.
- burn early in the dry season to limit the intensity of fire and only burn very small areas at one time.
- restrict the movement of feral animals in the area.
- provide watering points for birds and animals.
- establish supplementary feeding stations for native animals. Oats and other grains are ideal supplementary foods for a wide range of animals. This will improve the carrying capacity and variety on your land.
- do not remove old trees as they provide hollows and general shelter for animals.

By protecting wildlife on your property you can enjoy the animals without the added responsibility of looking after them. Additional information can be obtained from organisations such as Wildcare and the Parks & Wildlife Commission of the NT.

If you wish to keep orphaned or injured native animals, or simply learn about a native animal by keeping it as a pet, contact the Parks & Wildlife Commission at Palmerston for information about the kinds of animals you can keep, the availability of permits and the conditions that need to be followed.

NEW ELEMENT IN TOAD CONTROL – EFFECTIVE TADPOLE TRAPS?

Frogwatch has been doing field trials of the cane toad tadpole control technique utilising the bufotoxin secretions of cane toads as bait to attract tadpoles into traps.

Whilst it is too early to understand the full implications of this technique it appears that the trapping technique does increase our overall ability to control cane toads.

Manual control techniques are able to significantly alter cane toad populations and there is evidence that removing small cane toads from an area is beneficial to the reptile populations in those areas.

The harm minimisation strategies we have developed involve removing as many mature cane toads as possible during the refuge period when they are congregated on remnant water. Traps, hand collection and especially exclusion fencing have a major impact on toad numbers.

However, because toads are such prolific breeders there is always the risk that a few remaining animals will breed and quickly replace the population.

Tadpole control is another element of the strategy, but can be problematic in terms of practical effectiveness. Traditionally we have used netting to remove cane toad tadpoles and sprays to control any metamorphs that emerge from the tadpole stage. Traps can be used and prawn traps with dog biscuit baits can be quite effective but there have been by-catch issues. Removing tadpoles has been quite labour intensive and whilst it works extremely well in some cases, (typically where the tadpoles are in clear water bodies with limited vegetation and other obstructions, and when they are schooled in groups) it can be very difficult in areas with thick aquatic vegetation and murky water and when the tadpoles are spread out.

We have trialled the bufotoxin tadpole traps in 2 separate cases and managed to capture significant numbers of cane toad tadpoles.

The first trial was a backyard pond, which had cane toad tadpoles in it in

July/August 2012. Commercial mesh prawn traps were used in the trial using dog food and toad toxin as bait. The toad toxin was collected from the parotoid glands of frozen cane toads.



Pic: Backyard pond with traps in place.

The traps removed 1083 tadpoles from the pond and no metamorphs were recorded emerging from the pond. 698 tadpoles were captured in the dog food bait and 358 were caught with the toad toxin bait, 27 were caught in the control trap with no bait.

The second trial was in a 400 metre section of drain/ creek in Leanyer.

A combination of funnel traps and prawn traps were used in the trial, both with the same bait. The drain was a typically difficult environment for manual control because the tadpoles were distributed along a significant section of



the drain with vegetation and rocky sections.

The traps collected 16116 tadpoles and just 67 metamorphs were collected from the site.

10566 were caught in funnel traps and 5550 were caught in the prawn traps. Whilst the funnel traps were more

successful we did catch 1519 tadpoles in a prawn trap baited with toad toxin in one capture session. We intend to do more investigation into ways to bait the prawn traps as they are readily available and do not need to be constructed like the funnel traps.

Initially we trialled the dog food and toxin baits but after catching 1089 tadpoles with dog food and 6848 with toad toxin we baited all traps with toad toxin for the remains of the trial.

On the basis of our trials it appears that the toad toxin is a better bait and that it attracts less fish than the dog food baits. Both do work however.

Strategy

The funnel traps are believed to work because the toxin scent drifts out the funnel hole and the tadpoles follow the scent trail into the trap. It may be possible to achieve a similar effect with the mesh prawn traps if you put the toxin in a plastic bag or a small box with a few holes in it. Tadpoles following the scent trail will get into the trap.

If you can spare the time and effort it is certainly worth making a funnel trap. If not buy a prawn trap from the local fishing shop and try that.

Bait

It is important to remember that the toad toxin is a toxic substance and should be treated with great care. Safety glasses and gloves are a minimum safety requirement when harvesting the toxin.

We use snap lock plastic bags, 15 X 9 cm in size. We put the toad (or at least its head) inside the bag and squeeze the parotoid gland through the plastic bag. This makes the toxin pores pop like a pimple and the toxin ends up in the plastic bag. We then store the toxin in the freezer until required. The method works for both live and dead toads.

When using the bait, add a small amount of water to the bag to dissolve the toxin and then the bags are placed in the traps with a stone in them to keep them on the bottom. If using a prawn trap place the bag inside the small plastic box.

Place the traps in the water near where the tadpoles are.

Making Traps

The traps are plastic boxes with funnels set in the side.

We use silicon and cable ties to make sure the funnels stay secure, even when bumped.

Drill a number of small holes in the funnels.

Mark the plastic boxes where the funnels are to go and cut holes slightly smaller than the funnels, so the funnel can be inserted into the box, with the thin end of the funnel inside the box. Remember to keep the funnels as close as possible to the bottom of the box as you may need to use them in very shallow water.



Pic – Funnel trap for catching toad tadpoles.

The trap has strips of foam on the sides so it can float and a tie rope to anchor it to bank.

Reference

Crossland et al 2012, Michael R. Crossland¹, Takashi Haramura¹, Angela A. Salim, Robert J. Capon and Richard Shine, Exploiting intraspecific competitive mechanisms to control invasive cane toads (*Rhinella marina*) Proceedings Royal Society B (2012)