

## Teachers Resource

Activities for cane toad and biodiversity awareness!



Please provide feedback to [kimberleytoadbusters@canetoads.com.au](mailto:kimberleytoadbusters@canetoads.com.au)

## Activity 1: Identification of Cane Toads and Native Frogs

### Problem:

Across Australia it is still common for people to mistake one of our native frogs for a Cane Toad. This has already happened in Kununurra. Often the mistake is made by Queenslanders! We all must learn how to identify a Cane Toad and show others.

### Key features of a cane toad:

Bony Ridge above the eye to nose and large poison gland behind the ear are the two best features to look for. Our Native frogs do not have these features.

Males – back rough like sandpaper, more yellow in colour. Females – back has smooth bumps, more brown in colour, larger than males.

General differences between Toads and Frogs are: Toads do not have flanges or disks on feet that allow them to climb walls or trees like our tree frogs; Toads spend more of their time away from water than frogs and their skin is more like leather; Frog's skin is soft, smooth and more likely to be moist.



### Activity:

#### 1.1 Power-point presentation of common native frogs, their different calls and distribution in the Kimberley (Available as a CD from Kimberley Toad Busters).

Children identify Cane Toad from Native Frog and which ones they have seen before.

The Kimberley has the highest number of frog species in Australia. In South Eastern Australia the chytrid **fungus** disease is greatly reducing frog numbers. Older people in Eastern Australia, eg near Bathurst, remember when there were many frogs like they are in the Kimberley, they are rare in Backyards now!

#### 1.2 Play dough Cane Toads

Make your own Cane Toad out of play dough. Make sure you have all the features to show the difference between a native frog and a Cane Toad – 1) Bony ridge above eye to nose 2) Large poison land behind the ear 3) Bumpy back 4) sits up proud.



#### Recipe Uncooked Play Dough

2 cups of plain flour  
 4 tablespoons of 'cream of tartar  
 2 tablespoons of cooking oil  
 1 cup of salt  
 2 cups of boiling water  
 Food colouring  
 Mix all dry ingredients and then add boiling water while stirring mixture.  
 Hardens quickly. Will store in airtight container for several weeks.

Always popular to include uncooked beans, peppercorns, lentils or any other items for kids to use as eyes, poison glands or bumps on back. Include toothpicks to add extra detail. The toads can be baked in oven, gentle heat for 10 minutes. Be careful to hollow out stomach to avoid disfiguration. They will also air dry naturally. **Encourage children to take home and show relatives how to identify a cane toad.**

## Activity 2: Cane Toad Life Cycle

An amphibian begins life living in water before growing up as an adult to live on land. Cane toads are amphibians. It is important to be able to recognise cane toads at all stages of their life cycle. Kimberley Toad Busters have found if people are able to remove cane toad eggs, tadpoles and metamorphs (baby toads) we can reduce adult cane toad numbers. Without people acting on cane toads we can expect up to 2,000 cane toads per hectare!

One of the key reasons why cane toads have been so successful in colonising Australia is they are prolific breeders. Females are able to produce between 8,000 and 35,000 eggs twice a year. Male cane toads fertilise eggs. This is called amplexing.

Cane toad eggs are different from native frog eggs. They are long strings of a clear jelly with small black eggs inside. Native frog eggs are singular, never in strings. Cane toad eggs develop rapidly, within 24 to 48 hours the eggs have begun to breakdown into tadpoles. *If you find cane toad eggs you can pull them out of water and let them dry in the sun.* Cane toad eggs are poisonous, casualties include native frog tadpoles, fish and turtles.

Cane Toad tadpoles are black, however always look for two other features before you are sure tadpoles are not native frogs. There are two ways to tell cane toad tadpoles from native frog tadpoles. 1) Cane toad tadpoles tail is short and skinny, it looks like the tail has been 'stuck' on. The tail of native frog tadpoles is tapered in line with their body. 2) Cane toad tadpoles usually in high numbers and 'flock' together and try to hide as a group if they become scared. Native frog tadpoles will hide by themselves. *If find cane toad tadpoles you can use a net to fish them out or a blower vacuum set in reverse to suck them up.* Cane toad tadpoles are poisonous, casualties include freshwater crabs and water birds like Ibis and Pelicans.

After cane toad tadpoles have grown legs, arms and lungs they are able to live on land and are called metamorphs. Metamorphs are found during the heat of the day on the banks of waterholes. They are active during the day to avoid adult cane toads that may eat them during the night! Cane toad metamorphs can be identified by features of an adult cane toad, the bony ridge above the eye to nose.

Metamorphs develop into juvenile cane toads. Juvenile cane toads are able to begin travelling greater distances away from water and have all the key features of an adult. Cane toads become adult cane toads when they are old enough to breed. This is when they are about 7.5 cm in length, and approximately 18 months old.

**Additional KTB Resources:** Frog and toad differences chart. What's in Your Backyard ID cards for 34 Frogs and each stage of the cane toad life cycle. See the Kimberley Toad Busters website or request CD for photos of each stage of the life cycle.

### Activity 2.1:

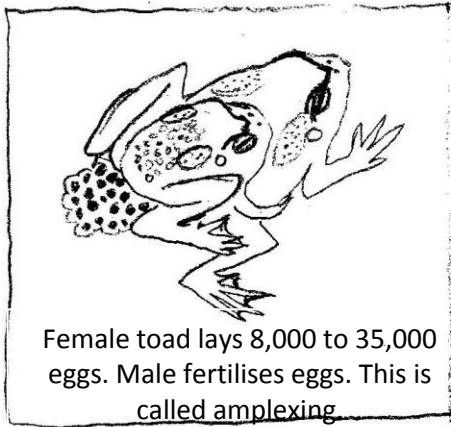
Cut out all stages of the cane toad life cycle. Place in order in a circle and draw arrows. KTB have a life cycle poster available on the website or by contacting [kimberleytoadbusters@canetoads.com.au](mailto:kimberleytoadbusters@canetoads.com.au). There is one stage of the life cycle missing...

Draw your own Juvenile or adult cane toad with the key features of 1) Bony ridge above eye to nose 2) Large poison land behind the ear 3) Bumpy back 4) sits up proud.

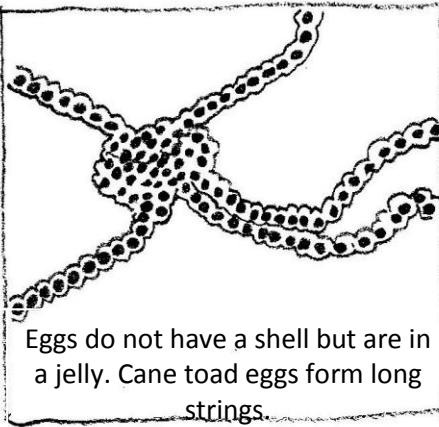
### Cane Toad Breeding Locations

Research has shown cane toads prefer to breed water that is not flowing. They prefer gentle sloping banks without vegetation. Popular breeding habitats include gravel pits along the side of roads, culverts and turkey nest dams. Once cane toad breeding has occurred at a site and cane toads have reached the metamorph stage the ground can look like a moving carpet of cane toads!

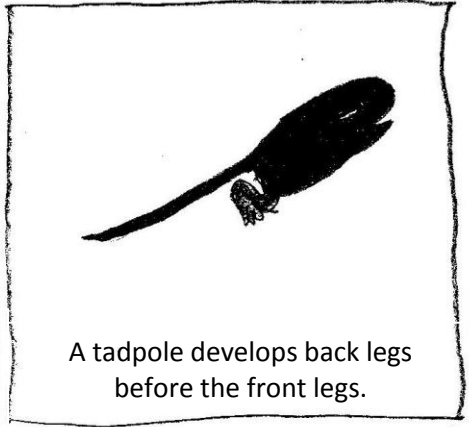
Cane toads have been found to breed in the hoof prints of cattle after rain!



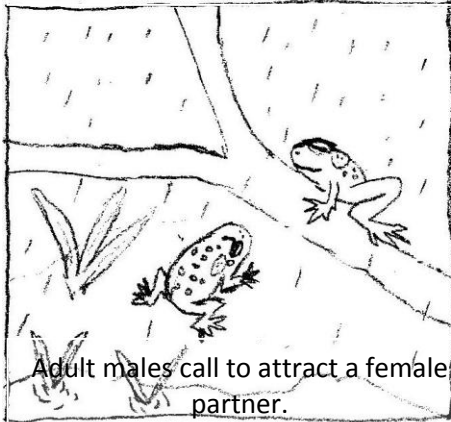
Female toad lays 8,000 to 35,000 eggs. Male fertilises eggs. This is called amplexing



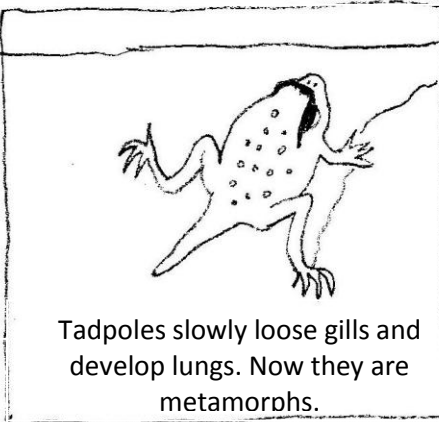
Eggs do not have a shell but are in a jelly. Cane toad eggs form long strings.



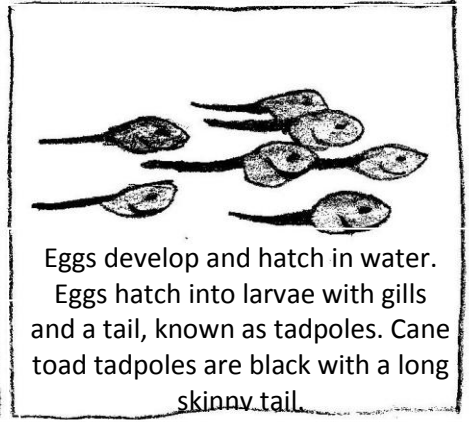
A tadpole develops back legs before the front legs.



Adult males call to attract a female partner.

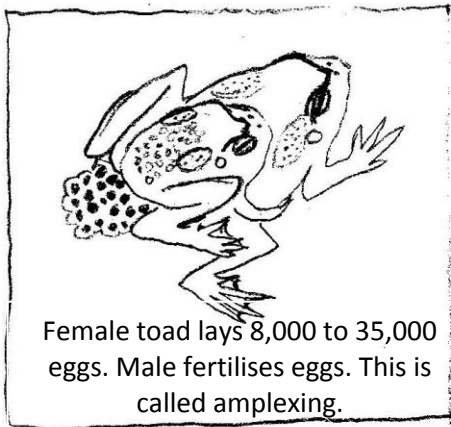


Tadpoles slowly lose gills and develop lungs. Now they are metamorphs.

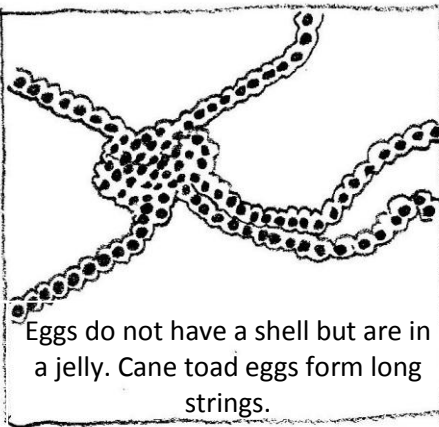


Eggs develop and hatch in water. Eggs hatch into larvae with gills and a tail, known as tadpoles. Cane toad tadpoles are black with a long skinny tail.

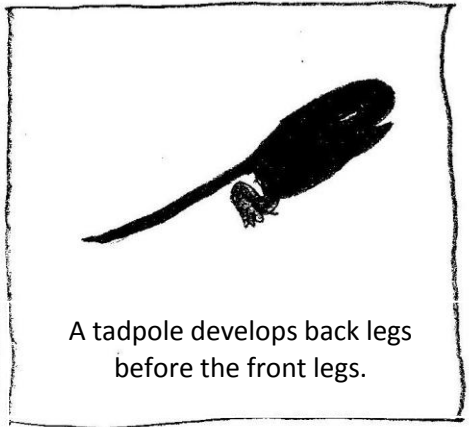
Cut here!



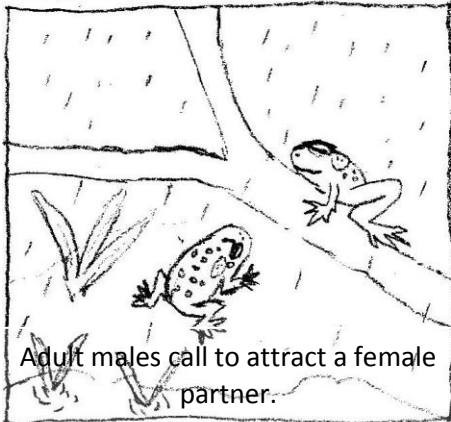
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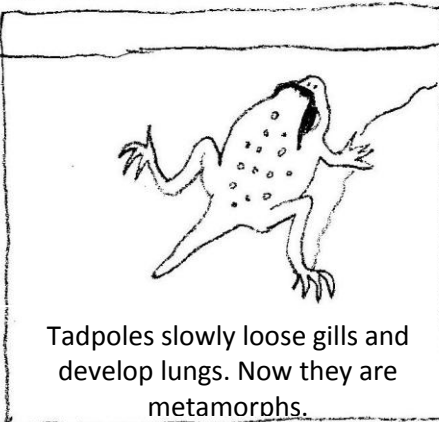
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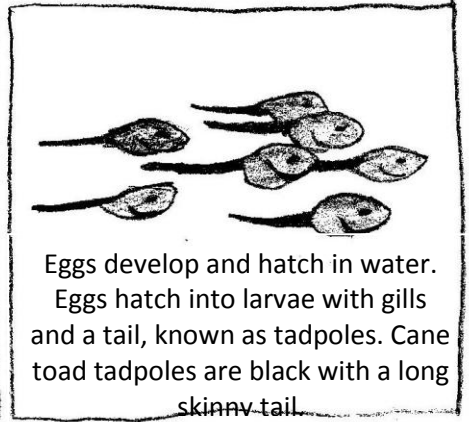
A tadpole develops back legs before the front legs.



Adult males call to attract a female partner.



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Eggs develop and hatch in water. Eggs hatch into larvae with gills and a tail, known as tadpoles. Cane toad tadpoles are black with a long skinny tail.

**Activity 2.2: Draw or write how to identify differences between Cane toads and Native Frogs.**

<b>Cane toad</b>		<b>Native Frog</b>
	<b>Eggs</b>	
	<b>Tadpoles</b>	
	<b>Metamorphs</b>	
	<b>Juvenile</b>	
	<b>Adult</b>	

## Activity 3.1: Can You Design a Cane Toad Trap?

**Problem:** Kimberley Toad Busters need some new designs for cane toad traps for people to use in their backyards in Kununurra.

Key things to remember when designing your cane toad trap:

- Cane toads are active at night and are attracted by light (to eat insects), water (to rehydrate) and the male cane toad call (to mate).
- Cane toads can jump up to 50 cm.
- Think about native animals that might be also caught in the trap, is there ways to make to trap friendly to wildlife.
- Cane toads are very good at escape!
- A good trap may catch 20 toads in a night!

Some ideas:

- It is possible for people to run a power lead and light to a trap in their garden to help attract cane toads to the trap.
- Trap may have entrance on the sides or from the top.
- May become a garden feature?

For those that like an extra challenge, see if you can design a trap for tadpoles or metamorphs!

There are a number of different designs already used including supertraps (100 toads!) and small light 0.3 by 0.3 by 0.2 m traps. These traps use solar lights to attract the cane toads.

Photos show some ideas for providing toads (or any native animals caught in the traps) with water and shelter.



Send your trap ideas to Kimberley Toad Busters – great ideas will be put up on our website [www.canetoads.com.au](http://www.canetoads.com.au)

## Activity 4: How fast is the Cane Toad Front Line moving?

The map shows how far the cane toad front line has moved by the end of each wet season. All the dots are sites where KTB regularly conducts toadbusts or removes tadpoles and metamorphs. There are three main corridors where the cane toads are travelling.

**Northern Corridor:** A4, B3. Travelling through Legune and Spirit Hills stations. Toads are travelling fast. Recent reconnaissance has found cane toads 10 km east of Point Springs Conservation Park (B2). These toads are heading for Parry's Lagoon and Wyndham.

**Eastern Corridor:** C3, D2, E2, F2. Travelling through Newry Station, Carlton Hill and Aboriginal Land, along the Victoria Highway. This has always been the part of the front line closest to the Kimberley and has been heavily targeted by KTB. However, over the last two years it has slowed down. A big jump in C3 occurred as cane toads have followed a creek system this wet season into Mulligans Lagoon.

**Southern Corridor:** G3, H4, H5, I6, J7, J8. This is the front coming in from Gregory National Park to 'Soda Creek' and into 'Black Gin Creek' towards the Buntine Highway. These toads are also travelling fast towards Sturt Creek and Lake Gregory and Nicholson Station, and eventually Halls Creek.

The **cane toad front line** is large numbers of large toads. Eyewitness accounts of when cane toads arrived at a number of stations in the NT and QLD have said on night they had only one or two toads the next night were hundreds, 'Toads everywhere!.' The warning or prelude to the main front line arriving is **explorer toads**. These cane toads travel ahead of the main front line. They are isolated toads and mostly only one is found by itself. It is not well understood why these toads travel ahead of the main front line.

Toads can make huge leaps during the wet season by riding in running rivers. Toads can swim in salt water and survive in saline habitats. If a river is not available cane toads like to follow roads and highways! They can spread out during the wet season and burrow down in the earth to survive the dry.

### Activity 4.1.

How far has the front line moved? Round off to nearest 10 km.

	2005 to 2006	2006 to 2007	2007 to 2008	2008 - 2009	2009 - 2010	Average
Northern						
Eastern						
Southern						

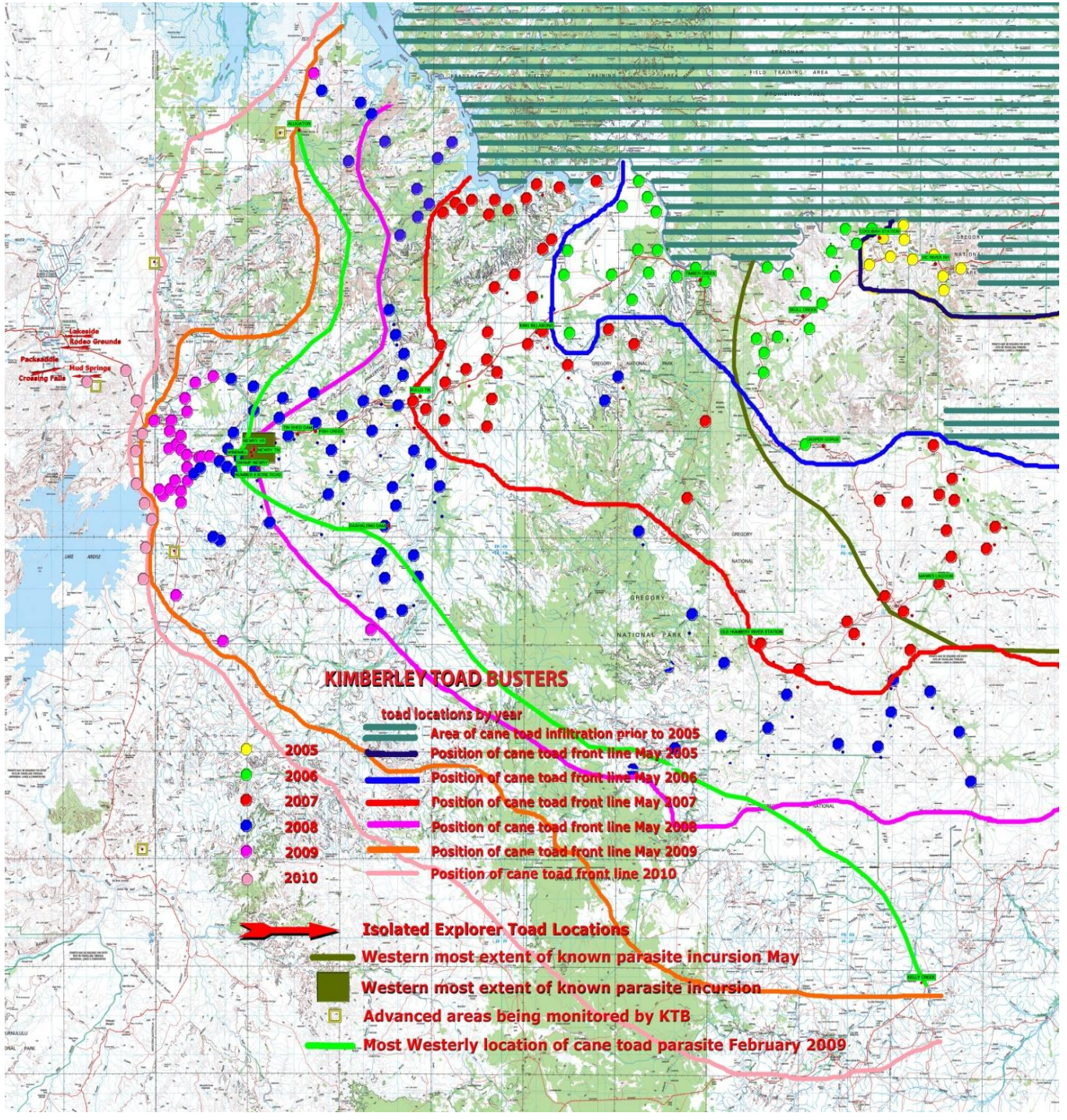
What are some of the reasons why the Eastern Front Line has slowed down over the last two years?

*Answers: Toadbusting, Geography, Weather and maybe Lung Worm Parasite*

If current rates continue how long do you think it will be before cane toads travel:

- 500 km east to Mornington and Tableland Station, headwaters of the Fitzroy River (Northern and Eastern Front)?
- 80 km north east to Wyndham (Northern Front)?
- 70 km east to Nicholson Station (Southern Front)?
- 150 km east to Bungle Bungles (Southern Front)?
- 300 km east to Halls Creek (Southern Front)?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K



## Activity 5: What's in Your Backyard? ICON species project

Over the last 5 years there has been research looking at impact of cane toads on our native wildlife. A summary of the major impacts that have been recorded so far are in the table below. Loosing large numbers in a population make the animal more vulnerable to extinction in the future. The decline does not happen immediately, but over a period of 1.5 – 2 years, especially after cane toad breeding has occurred.

Populations of these animals have not recovered, and in many cases in Queensland it was not known how many animals and species were there before cane toads. KTB is making sure this is not the case with the What's in Your Backyard? Project – where everyone can contribute important data on the animals they find.

Many of the animals in the table are our favourite animals in the Kimberley.

ICON animal	Impact of Cane Toads	Location in NT	Source/Principal Author
<b>Northern Quoll</b>	100% loss of animals	Kakadu	Meri Oakwood
<b>Goannas/Monitors</b> Yellow spotted, Mitchells, Mertens , Sand/Goulds Goanna	90% loss of animals No recovery since 2003	Daly River, Manton Dam, Kakadu	Sean Doody Tony Griffiths
<b>Friiled Neck Lizard</b>	Not well understood, up to 100% loss	Top End	Graham Sawyer Community groups
<b>Freshwater Crocodile</b>	77% loss of animals	Victoria River	Mike Lentic
<b>'Pygmy' Freshwater Crocodile</b>	Up to 100% loss of animals	Bullo River	Adam and Erin Britton
<b>Northern Blue-Tongue Lizard</b>	100% loss of animals	Fogg Dam	Greg Brown Sam Price-Lees
<b>Small Skinks</b>	Dramatic reduction in number and types of species	Jaspers Gorge Katherine George	Lyall Grieve Tourism Operators
<b>Brown Snake, Death Adder and other snakes</b>	Up to 90% loss of animals, some research suggests morphological change and recovery of some species	Top End	Observations from Rangers- Kakadu Mattias Hagman Ben Phillips
<b>Rainbow Bee Eater</b>	30% loss of breeding locations	SE Qld	Christopher Boland
<b>Insects</b>	In tropical floodplain ecosystems, cane toads consume more than 4 times amount of insects than native frogs Cane toads significantly deplete insect food resource	Fogg Dam  New Brittan	Matt Greenlees  Mike Tyler

### Activity 5.1. ICON species project (activity to be finalised)

Help KTB record the number of these animals before cane toads and after cane toads arrive. This information can be used by scientists measuring the impact of cane toads and seeing if methods of cane toad control work.

To take part:

- Register a site and ICON animals you will monitor with KTB (School ground, backyard, Spring, Waterhole)
- KTB will contact you 4 times a year to visit your site and see if your ICON species is there

Not finding the animal, is just as important as finding the animal, for scientific data. All animals move around to different habitat types during the year.

This project is supported by a number of scientists. The method used for observations is being finalised – please register if interested.

#### Do you have a Kimberley ICON in your Backyard?



These animals, as well as many others, will suffer serious declines in numbers within two years of cane toads arriving. Please help Kimberley Toad Busters and Scientists monitor this impact in the Kimberley by participating in the ICON species project.

1. Contact Kimberley Toad Busters and register a site that you regularly visit (backyard or camping spot) and see one of the ICON species.

ICON species include all Goannas (we can help with identification of species), Frilled Neck Lizards, Northern Blue Tongue Lizard, and any other favourite animal you have seen at a place that you visit at least four times a year including Brown Bandicoots, Northern Quolls, Ghost Bats, Rainbow Bee Eaters to name of few!

2. During four set times during the year Kimberley Toad Busters will contact you to collect data on how many times you visited your site and seen the ICON species. Visiting the site and not seeing the species is just as important for scientific data as visiting the site and seeing the species.
3. Kimberley Toad Busters will publish results regularly as part of our newsletters and website. Data will be freely available all groups!

Register NOW, [biodiversity@canetoads.com.au](mailto:biodiversity@canetoads.com.au) or 08 9168 2576

Part of the Kimberley Toad Busters 'What's in Your Backyard?' Program

## Activity 6: Conduct your own wildlife survey and get to know the animals in your Backyard

The Kimberley is a BIODIVERSITY HOTSPOT, we have many wildlife species found nowhere else in the world. There are environmental changes occurring in the Kimberley. It is important to record what wildlife species we have now and understand what is required for their long term survival. This is a HUGE task, scientific survey is a long way from being complete in the Kimberley. New species are still regularly being found. Very few studies have looked at the impact of cane toads on biodiversity; none have looked at their impact at the ecosystem or habitat scale.

We are hoping everyone who spends time in the Kimberley helps with 'What's in your Backyard?.' Biodiversity Kits are available, with over 500 Identification cards to identify each species and map of where they can be found in the Kimberley. Observations can be a powerful form of biodiversity survey, especially when conducted by an entire community that cares about the Kimberley!

Kimberley Toad Busters look forward to your results; they will be regularly displayed at [www.canetoads.com.au](http://www.canetoads.com.au), through our newsletters and the community database will be freely available.

*HOT TIP: the best results try to keep your survey the same – standardised. EG same place, same area covered and same time of day. Most animals are found in the mornings and evenings.*

- 1 Contact KTB for a data form or download from [www.canetoads.com.au](http://www.canetoads.com.au)
- 2 Look around your backyard, along your favourite walking track, fishing or camping spot or any other place in the Kimberley and record what you see. Complete as regularly as you like, at least once per season (wet season, dry season, build-up) per site. The most powerful results are a weekly survey per site. Return forms to Kimberley Toad Busters, Shire, Visitors Centre or lodge online.
- 3 Any species you are unsure of take some photos and send in to Kimberley Toad Busters [photo@canetoads.com.au](mailto:photo@canetoads.com.au). If we cannot provide identification we have a network of scientists who can. Or you may have found a new species!
- 4 For more information on different species check out the Kununurra Community Library, they have recently created an 'Ecology' section for flora and fauna including a number of resource books donated by Kimberley Toad Busters. Species ID cards are also available on the cane toads website, electronic versions are also available from Kimberley Toad Busters.

For more information do not hesitate to contact [kimberleytoadbusters@canetoads.com.au](mailto:kimberleytoadbusters@canetoads.com.au) or 08 9168 2576

Kimberley Toad Busters "WHAT'S IN YOUR BACKYARD?" Data Form				
Name of Observer/s	Contact Information (phone/email/postal address)	Date	Time (am/pm) Start: End:	
Habitat description (For example: backyard, billabong/waterhole. Include dominant trees and grass eg Spinifex)	Location (address, directions, GPS coordinates, or start and finish locations for a walk/drive)		Approx. area (ha) or distance	
Common Name, Indigenous Name, Scientific Name (Genus, species) or 'Name Unknown'	Description Especially important if not sure of name, include: Type of animal (eg. Frog, lizard, insect, snake, bird), colour, markings, size	How many?	Photo Taken?	KTB Species ID (2/2/2011)
Drop forms and photos off at: KUNUNURRA: Visitors Centre, Library, Shire WYNDHAM: Shire HALLS CREEK: Language Centre, Shire		OR post forms and photos to: Kimberley Toadbusters, PO Box 1188 Kununurra 6743		OR you can send your pictures electronically to <a href="mailto:photo@canetoads.com.au">photo@canetoads.com.au</a> OR enter data into forms online at <a href="http://www.canetoads.com.au">www.canetoads.com.au</a>
Kimberley Toad Busters Website: <a href="http://canetoads.com.au">canetoads.com.au</a> Email: <a href="mailto:kimberleytoadbusters@canetoads.com.au">kimberleytoadbusters@canetoads.com.au</a> Phone: 08 9168 2576 Fax: 08 9168 1039				

