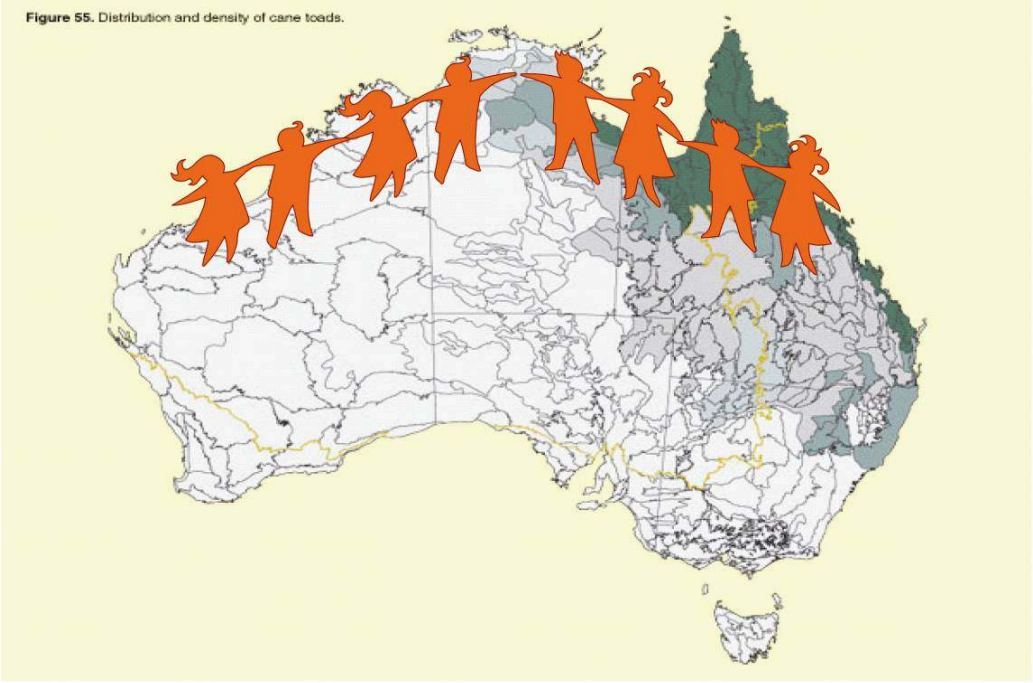
National Cane Toad Eradication Week
October 11-19th, 2008

A NEW Approach from the Stop The Toad Foundation (STTF)



The NEW Approach to Cane Toad Control;
People Working Together

Introduction

Get on board with the Stop the Toad Foundation and let Australians demonstrate the capacity of people power to deal with Cane Toads across northern Australia. Imagine the possibility if we all decide to have a fair dinkum go at removing the toad from habitats, households and communities in the Northern Territory, Queensland and northern NSW for just one week in the late dry season. The Foundation commits to being the central repository of data relating to the National Eradication Week (NEW) approach – we will collate, analyse and report via the web and media the daily tally of toads removed from the Australian countryside during the NEW approach.

Cane Toads are believed to be less than 30 kilometres from the Kimberley town of Kununurra and the world-class RAMSAR wetlands of Lake Argyle, Lake Kununurra and the Ord River. Potential impacts upon the special habitats of Western Australia are causing much speculation (Hayley, J., personal communication, 18 December 2004).

There is still very little information, apart from anecdotal accounts, as to their long-term effect on native wildlife. It is said that no species has become extinct due to toads (CALM 2004). However, evidence produced in the NT has shown several species probably have become locally extinct and that ecosystems are beginning to collapse (Oakwood 2003).

In the case of Queensland it could be argued that only minimal baseline inventory data existed before the cane toads began their destructive invasion so many species were no doubt lost before they could be identified as being at risk. *It is most likely that a whole generation of Queenslanders have grown up not realising what natural heritage they have lost as a result of the introduction* (Guého 2004).

In the Territory, baseline data for areas such as Kakadu and Arnhem Land does exist but the speed of the invasion has left wildlife managers playing constant catch-up without adequate resourcing to determine present and generational impacts.

Cane Toads are now found from northern and central coast areas of New South Wales (and some Sydney suburbs) through sub tropical Queensland and into the Northern Territory extending west at least as far as Bullo River Station and north to Darwin. The potential range of habitats that they could occupy in Australia includes all coastal areas of the mainland states and in Western Australia from the Carnarvon plantations to Esperance (CSIRO 2004).

They are most abundant in urban areas, grasslands and woodlands but can also be found in a range of habitats including sand dunes, coastal heath, mangroves and through the margins of rainforest. Cane Toads are extremely adaptable feral pests that possess the undeniable ability to detrimentally modify any habitats that they enter (CSIRO 2004).

The TOP 100!

Do you want to be part of the Top One Hundred Communities across Northern Australia that we are aiming to bring to the fight – if so, read on and discover how STTF can help you reclaim Australia from Cane Toads!

The NEW approach will operate with a timeline of one week late in the northern dry season commencing on the morning of October 11, 2008 and running until the morning of 19 October, 2008.

The Foundation will manage and play a central advisory role to bring together a range of community groups, indigenous partners and other interested parties across northern Australia with the common aim of undertaking a week of sustained effort against populations of cane toads that are forced into late in the northern dry season.

There are several key reasons why a National Eradication Week is essential, including;

- Communities across northern Australia need a common focus if the cane toad issue is to be given the credence it deserves by bureaucrats and governments.
- Removing large numbers of cane toads will demonstrate that the issue has a national focus.
- Removing large numbers of breeding age cane toads will dramatically impact on breeding success.
- Removing large numbers of cane toads may reduce invasion pressure on Western Australia.
- Given the success of STTF control methodologies (see www.stopthetoad.org.au and various references) it is important that this information is shared broadly to assist other interested parties to become engaged in the fight.

Why October?

Cane toads are particularly vulnerable to dry conditions and they are not well adapted to the dry season (May – November) that can become very toad unfriendly as water bodies diminish and disappear late in the season. Cane toads have a number of behaviours that they use (refuging within 100 metres of water, concentrating around remnant water, crepuscular and night active) to cope with dry conditions and these behaviours can be exploited as the key element of control efforts. The period 11th October to 19th October also coincides with the last week of the Annual Great Toad Muster and presents a unique opportunity to be involved in an increasingly national effort to impact on toads.

What has been done so far?

Toad Control Methodologies

Combinations of hand capture, trapping, fencing, and other miscellaneous techniques have been used by various community and government groups to remove cane toads across affected areas in Australia.

Hand Capture

Groups like STTF, FrogWatchNT and Kimberley Toad Busters (KTB) have refined this model for the Wet/Dry tropics and have shown it can remove significant numbers of cane toads. (KTB report collecting over 245,000 toads using this method at sites they have visited www.canetoads.com.au viewed June 1, 2008)

There are a number of issues relating to the technique's effectiveness in relation to the number and timing of such activities required in an area to achieve eradication. Consideration should also be given to the abilities of volunteers to locate toads and recognise behavioural activities that can be used to locate toads (where toads refuge, what they feed on, what is the availability of water etc) – and a range of other factors also come into play including fitness, eyesight and suitability of equipment.

Picture: An example of catching cane toads in the field. Note The long sleeves, and pants, head torch, spot light, backpack/water carrier and captured toad. Note the toad has 'blown up' its body to make itself look larger.

Having said that, hand collection is still a significant component of any physical control activity and it is a great approach to engage all age groups in a community in the fight against the toad.

Traps

Cane toad traps developed by FrogWatchNT which use a one way 'fingered' door design and use various light sources to attract insects and thus toads have proved effective in certain circumstances. In remote operations trap efficiencies are subject to a number of influences including;

- Location
- Impacts from fire
- Impacts from theft and vandalism
- Impacts from stock and wildlife
- Impacts from poor maintenance and subsequent equipment failure
- Impacts from weather conditions

Picture: Cane Toads caught in a trap

Trapping can be a very effective tool when used in conjunction with exclusion fencing and hand collection activities. It also plays a significant role minimising colonising toads and can be effective around refuge sites that hold large numbers of toads and as a sentinel role to determine toad movement through specific areas.

Traps will be encouraged to be used and purchased for the National Eradication Week as part of the suite of methodologies for impacting on toad populations.

Picture: Traps can have several 'one way' gates and a light source to attract insects. Shelter and water should also be provided.

Fencing

Exclusion fencing has been successful as an exclusion mechanism for cane toads and this will be used on a larger scale by STTF during the 2008 Great Toad Muster (www.stopthetoad.org.au). Results from the 2007 Muster indicate that at isolated sites, like turkey nest dams, cane toad populations can be completely eradicated in 7 days using this type of control method (STTF 2007).

Picture: Native frog gate, made from 25mm square mesh installed in the fence allows native frogs to easily pass through the exclusion fence.

STTF has advanced plans to put in place a number of trial fences and to also trial the way they can be used to supplement existing cane toad control activities such as trapping and toad busting.

Fencing will increase the effectiveness of trapping and hand capture. Traps placed along the fence-lines should capture a significant number of toads that are deflected along the fence-lines.

The fence-lines will also provide field operatives with strategic lines to work against and will hold toads in an area making them more vulnerable to control activities.

The exclusion fences are specifically designed to develop a control model that requires less people effort to clear toads from an area and also bring a degree of certainty to the process in relation to the complete removal of cane toads as opposed to a reduction in their numbers. The fence changes the fundamental driver of the control effort from the need to search areas and find the toads, to using a lack of water to "force" toads into a given area. Most importantly

toads denied access to water will need to keep trying to find moisture and if not successful on one night will be back the next, or the next.

Picture: Volunteer Fiona erecting the fence at Auvergne Station NT- Note top and bottom wires, the overall height of just 50cm, and lack of vegetation inside the fence.

Fences or multiple fence lines augmented with traps and periodic toad collection activities may be the only way to control or prevent toads entering terrain that is very difficult to access for either trapping or 'toad busting'.

Picture: Toads along the exclusion fence at Auvergne Station on the first night. Note that some already appear desiccated.

Miscellaneous Techniques

- **Fire** - Grass fires at Mareeba Wetlands (NT) have been observed to have high mortality on toads, especially without suitable refuge nearby. Native frogs appear well adapted to escape these fires. (Use of fire or exploitation of existing fire to control toads are techniques that require ongoing monitoring. The Foundation is not in a position to trial this method of control and considers it a control method (along with several others) of 'last resort').

- **Chemical** – delivery of toad poisons via a variety of vectors; spraying, introduction to waterways, baits etc. Some leads, such as Lavender beetles toxins (based on ascorbic acids) and native fish poisons, are yet to be fully explored.

- **Sniffer dogs** - may be very useful for quickly determining the presence or absence of toads from a given system and therefore making intensive toad control methods more efficient. They may also have a role in targeting individual toads in difficult terrain, e.g. scree slopes and thickets and in a 'mop up' role to determine success of control methods.

- **Sniping** – the use of low calibre (.17 or .22 cal) air rifles was trialled during the GTM 2006 with excellent results. There is a number of legal, access and safety issues associated with using firearms in this context, however the STTF have fully investigated these requirements and established safe operational procedures. Essentially sniping is used as a 'mop up' tool for difficult to access toad refuge areas – particularly those areas associated with Freshwater Mangrove thickets.

Data Collection

Date	GPS/Grid Map Ref: Location/State/Territory	Male	Female	Other eggs etc	Total Time	Participant No.s	Habitat Type e.g man made dam; remnant wetland; urban etc

We need you to collect data on the toad numbers you remove so we can accurately report the outcomes for all participants – you can use the above table as a guide as it contains the minimum information we require. We'd also love to see some photographs of your experiences during the NEW approach so we can post them on our website and inform politicians about what is happening. We will run a daily tally board to keep you informed.

How you can help?

Everyone can participate in the National Cane Toad Eradication Week – you don't have to be part of a group because every little bit helps! If you are a traveller you can collect toads as you travel, simply place them in a plastic bag and either freeze and bury them or freeze them and drop them at the next collection point (see our website www.stopthetoad.org.au for a list of government agencies that will accept toad carcasses during the National Eradication Week).

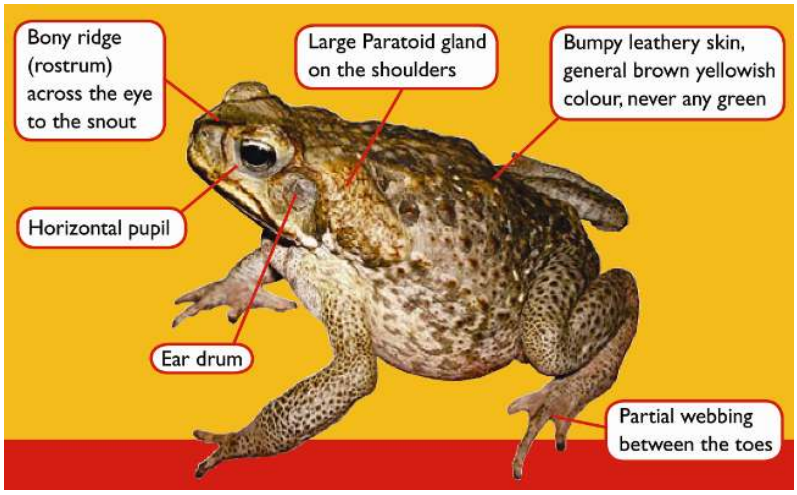
Community and school groups can make this an engagement process and use the activity to promote conservation, biodiversity and education on a significant issue facing Australia. STTF will provide you with all the tips and interpretation material you will need for a successful week of toad busting.

Locating Toads

Cane toads are most active during the early part of the evening just after sunset through to about 11pm at night. They will frequently be no further than 100 metres from a water point – but this could be anything from a billabong to a dripping hose or an overflowing cattle trough. They hunt for prey at night and will predominately take insects but pretty much anything that fits into their mouth and is less than half their body size is fair game to a toad. They will often travel larger distances from refuge if water is scarce. Refuge can be anything that provides shelter; logs, soil cracks, under building material, inside irrigation pipe, in rock piles, in fact whatever clutter humans leave around is good refuge for toads!

Identification

Cane Toads are heavily built, with rough, warty skin and are generally 100-150 mm in length, but can grow up to 230 mm and over one kilo in weight. Cane toads' skin is usually dry and leathery, and in adult specimens, females have a blotched and smoother skin, while males are more uniformly coloured and are rough, like fine sandpaper.



Picture: How to identify a Cane Toad

Proposed control methods for the National Eradication Week

Repetitive Night Toad Busting

The Foundation is of the opinion that repetitive night toad busting is an effective method to remove cane toads from habitats. This method involves groups of people targeting waterholes, caravan parks, local reserves etc in a planned busting fashion.

In most cases it is possible to establish a skirmish line of people who walk in lines, spaced around 5-8 metres apart, around the target waterhole using hand held spotlights to locate toads. Each person carries a sturdy collection bag into which captured toads are placed. The skirmish line operates for at least two circuits of the waterhole.

The next night the same operation is repeated and so on for at least 7 nights until the target area is cleared of toads. It is also important to be aware of what water points are in a 1-2 km radius vicinity of the target waterhole as toads will move around an area if there are other water options – these areas should also be busted in conjunction with the main target area. Toads are easy to catch by hand and with a little bit of practise you will begin to spot them in the lights as they often remain very still when a light scans across them.

Make sure you carry drinking water, have a head torch or a small backup light in case your spotlight goes flat and establish a means of communication with other members of your toad busting team- it

can be easy to become disorientated when walking in big circles around a waterhole at night time.

At the end of each toad busting session you can get together and tally your toads and organise to dispose of them appropriately. The Foundation favours two techniques for humane euthanizing – Gassing using CO2 or freezing for a minimum of 24 hours.

The use of CO2 is a painless way to dispose of toads as they simply go to sleep. The gas is applied to the toads in an airtight bag or container and they are left overnight to pass away. Freezing is an option where you have access to such equipment – toads should be placed in the freezer in the plastic bag on a cloth or towel so that no direct skin contact occurs with the walls of the appliance. This will remove the likelihood of freezer burns being experienced by the toads.

Toads killed using these methods can be buried at least 20 cm below ground after being emptied from the plastic bags (*wash your bags and reuse them the next night*) to avoid other animals digging them up. They also make an extremely effective and rich fertilizer if buried below plants. It is a good idea to autopsy some of the toads the next morning so you can report on what they have been eating as there is a real lack of knowledge of their impact on pollinator insects and the like.

Toad Toxin

Cane toads produce a steroid based toxin which is deadly to a range of predatory animals found in Australia. When a predator attacks a toad the force of impact results in the toad ejecting the toxin from two large glands (called parotoid glands) located behind the animals head. It is extremely rare for toads collected by hand to eject toxins in this fashion as the process of collection is non violent with the toads simply being picked up by grasping around the body or from the head end avoiding the glands. Occasionally toads will expel their water store on being picked up but this is not toxic and it is definitely NOT urine!

Toad busters should wash their hands before consuming food or wear cotton gloves if the soft feel of toad skin is repugnant when catching toads and certainly avoid rubbing eyes after this activity until hands are washed. It is especially important that children are made aware of the hazards and particularly are made aware of the humane approach to catching and disposing of toads.

The Foundation does not support violent methods of killing of toads – toads were introduced into this country, if they had a choice they probably would have preferred to stay in Venezuela (their home country). It is important that young Australians receive the right messages about how this problem eventuated and why it is important to be proactive, sensible and safe when undertaking control of introduced species.

Who Can Help?

So you've identified some areas you want to clear of toads and you want to be part of the NEW approach to cane toads in Australia; how can you make it happen?

- Contact your local Shire or Council and see if they will support your activities – specifically speak to their environmental officers or community liaison officers and they can advise if you need specific landholders permission to access land you want to toad bust.
- Ask local business if they will support your efforts – maybe there is a butcher who can provide some sausages for a cook up before or after toad busting or a supermarket who can provide you with heavy duty bags, cable ties and gloves. Maybe a hardware store can provide you with a cylinder of CO2 and the fittings and hose to allow you to gas your toads.
- Contact your state or territory environment department and ask for a community liaison officer to discuss how they can support your activities. Maybe they can come and give your group a talk on cane toads or perhaps they can send some extra help to undertake the toad bust or people who can autopsy cane toads for you.
- Local schools are always helpful – what a great activity for kids to get involved in and it gives teachers lots of opportunities to design educational programs.
- Perhaps you know of a LandCare group or a local community group that is interested in the environment who may be interested in assisting you and it is always a good idea to ask your local representative to join in the fun!

The thing to remember is that your success will be decided by how creative you are – give it a go and where we can, the Foundation will provide support and encouragement and technical information that may be required by government agencies.

CHECKLIST for Volunteers

- □ Swag.
- □ Bed clothes and pillow.
- □ Mosquito net/Tropic screen.
- □ 1 backpack or similar
- □ Daypack or small backpack for carrying lunch, water and equipment
- □ Water bottle(s) for in the field
- □ Clothing
  - light coloured protective gear (long sleeved shirts, long trousers)
  - hat
  - sturdy footwear
- □ Personal gear (include sunscreen, lip balm and insect repellent, toiletries)
- □ Medical/special requirements (enough for the duration of your stay and a little longer).
- □ Camera (optional)
- □ Sock protectors/Gaiters (to keep those pesky seeds out of your socks)
- □ Fishing gear (optional - keep it compact/light)
- □ Head torch
- □ Swimmers (swimming in the pool ONLY, northern Australia IS croc country)
- □ A mozzie net (hat type) is good of a night time and fly net for the day.
- □ Sense of humour (essential)
- □ Talked to coordinator about any special food requirements
- □ Talked to coordinator about medical matters including storage of medications
- □ Your best jokes
- □ A couple of good books.

If you don't have some stuff, talk about it with STTF staff BEFORE you leave home. We may be able to offer assistance and advice.

If you have any further queries please don't hesitate to contact;
Kim Hands
Phone: 0400130397 Email:kim@stopthetoad.org.au

STTF (Perth) ph 089420 7266
Email: info@stopthetoad.org.au

Further reading about toads

Habits and Reproduction

Adult Cane toads are active, particularly at night, during the warmer months of the year in northern Australia. During cold and dry periods they shelter wherever they can find moisture – in crevices, under logs, rocks and other debris. Adults can lose more than 50% of their body water and absorb replenishment through their skin from damp soil or humidity (www.fdrproject.org).

They can tolerate a wide temperature range from 5 – 40 degrees celsius and they can eat almost any animal, provided it is not more than half their own body length. In Australia they have been recorded eating mice, birds, lizards, frogs, crabs, spiders, ants, beetles, earthworms and each other.

They are incredibly prolific breeders with large females having been recorded producing in excess of 35000 eggs at a time and these are capable of surviving in freshwater systems and brackish systems where salinity levels are up to 15% (There is anecdotal support for comments that indicate that toad spawn has been able to survive transportation through sea-water, during wet season run off periods, to offshore islands in the Northern Territory).

Cane toads are an aggressive predator potentially to many small vertebrate species that are unique to Australia. Combined with a highly toxic and biologically active substance produced by the parotoid glands and the presence of toxins in the toad's muscles, bones and body organs (as well as in their eggs and tadpoles) makes the cane toad a very efficient killing machine.

The Federal Governments listing of Cane Toads as a 'Key threatening process'
http://www.deh.gov.au/biodiversity/threatened/ktp/cane-toads.html

A range of documents about cane toads and other feral animals
www.feral.org.au

A range of information on invasive species from the IUCN
http://www.issg.org/index.html

IUCN info page on Cane Toads
http://www.issg.org/database/species/ecology.asp?si=113&fr=1&sts=

Community Groups

www.stopthetoad.org.au

www.frogwatch.org

www.canetoads.com