Department of
Parks and Wildlife

Rangelands NRM
Western Australia

"KIMBERLEY TOADBUSTERS"
IF EVERYONE WAS A TOADBUSTER
THE TOADS WOULD BE BUSTED

CANE TOAD
MANAGEMENT HANDBOOK

Who is this book for?

This handbook was made for Kimberley ranger groups who want to learn more about cane toads and their options for management on country.

Acknowledgements

This resource had been developed in partnership between Rangelands NRM, the Cane Toad Initiative for Western Australia (Department of Parks and Wildlife) and community group Kimberley Toad Busters.

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This resource is available in alternative formats on request.

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Australian Government | National Landcare Programme

Rangelands NRM Western Australia

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INTRODUCTION

What are toads?

Toads are a type of frog that are grouped together by key physical features. All frogs and toads are amphibians, meaning they start life as tadpoles who live in water and breathe with gills, then transform into adults who live on land and breathe with lungs. Australia has no native 'true' toads, but we do call some of our native frogs 'toads' or 'toadlets' which can be confusing.

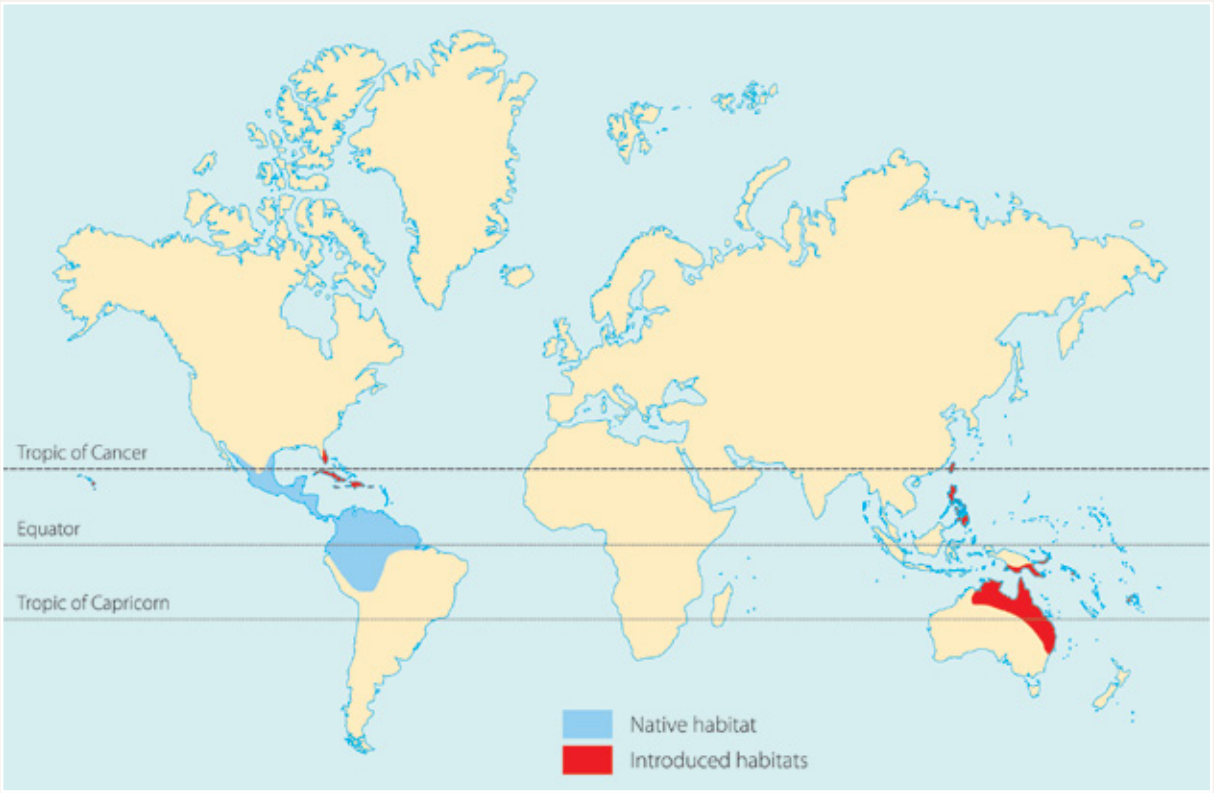
Key features of cane toads:

- dry, warty, leathery skin
- short legs
- M-shaped bony brow ridge
- poison glands on their shoulders
- crawl rather than hop
- lay eggs in long strings instead of in clumps like most native frogs.

Where did cane toads come from?

The cane toad (*Rhinella marina*) is the largest toad in the world, growing up to 23cm long. The cane toad is native to South and Central America. Their natural range extends from Texas, USA, in the north, to Brazil in the south.

The map below shows the native range of the cane toad in blue, and their present range in red:



How did they get here?

In 1935, 102 cane toads were brought to Queensland to eat beetles that were destroying sugar cane crops. This was a very popular solution at that time. The toads were allowed to breed, and over the next few years more than 50,000 young toads were released across Queensland and New South Wales. This turned out to be one of the biggest ecological mistakes made in Australian history. Their population has been growing ever since.

Why are they a problem?

In South and Central America, cane toads have many natural predators. These snakes, lizards, birds, fish and insects have evolved alongside toads and don't get sick or die from eating them. Animals which would die from the toad's poison have learnt to avoid toads and don't try to eat them.

As Australia has no toads of its own, Australian animals have not had time to adapt to the toad's poison. This means Australian animals can get sick or even die from eating cane toads. Cane toads are poisonous as eggs, tadpoles, metamorphs ('met-a-morf' = baby toad) and adults. Any of our native animals that eat frogs, tadpoles or frog eggs will also try to eat toads. Some of our animals can survive or learn not to eat toads, but others will die. Cane toads are also good at adapting to new environments. They can travel long distances and can even survive in salty water for short periods.

Key animals that are at risk from cane toads include:

- king brown snakes
- goannas
- blue tongue lizards
- quolls
- freshwater crocodiles.

Scientists are working to find ways to help these animals. These can include teaching the animals that they will get sick if they eat toads and learning how to trap toad tadpoles using special chemicals (pheromones).

Community groups can play an important role in education and engagement activities to reduce toad impacts.
See 'Where can I find out more?' (on page 19) to find out more.

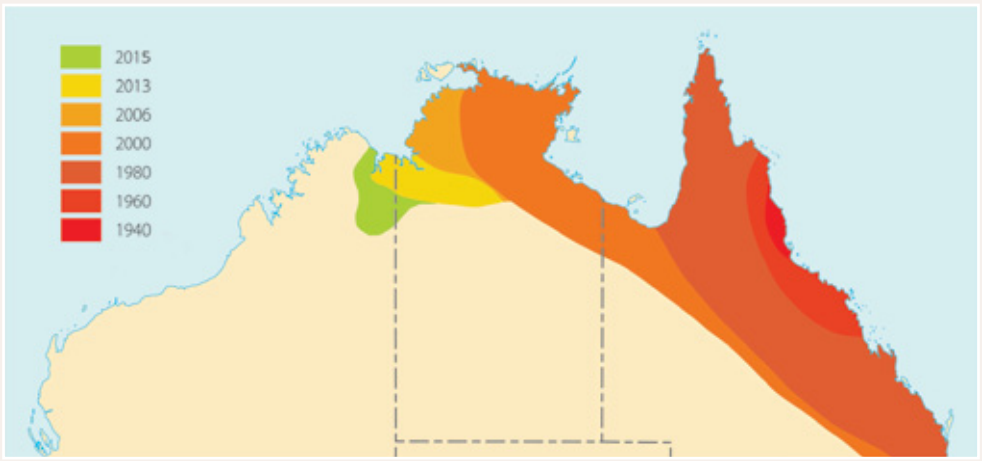
Where are they now?

Cane toads have now spread from Queensland and northern New South Wales right across the top of Australia.

2009 Cane toads crossed the Northern Territory border into the Kimberley region of Western Australia

2010 Cane toads reached Kununurra.

2014 Cane toads reached Halls Creek.



How fast are they moving?

Toads are moving west at around 50km a year. They have been known to travel further, especially when they get into river systems. How far they move depends on what kind of wet season we have.

'Reggie', Parks and Wildlife's cane toad detector dog, checks a pallet leaving Kununurra for the Mitchell Plateau

Toads may reach new places sooner if they travel on cars and trucks. We call these 'hitchhiker' toads. If a male and female toad hitchhike to a new location and find water to breed in, they may start a 'satellite population' (new population of toads ahead of the frontline). They can also ride on floating logs and branches to travel down rivers. This 'rafting' can help them move faster than expected, they sometimes even float across to islands..

SAFETY

Toad dangers

The main danger with cane toads is the poison glands on the toads' shoulders. These glands release a poisonous milky substance when the toad feels in danger. Toads can also carry bacteria (germs) on their skin.

Before any work takes place be sure to complete the Job Safety Analysis which can be found on pages 28-29.

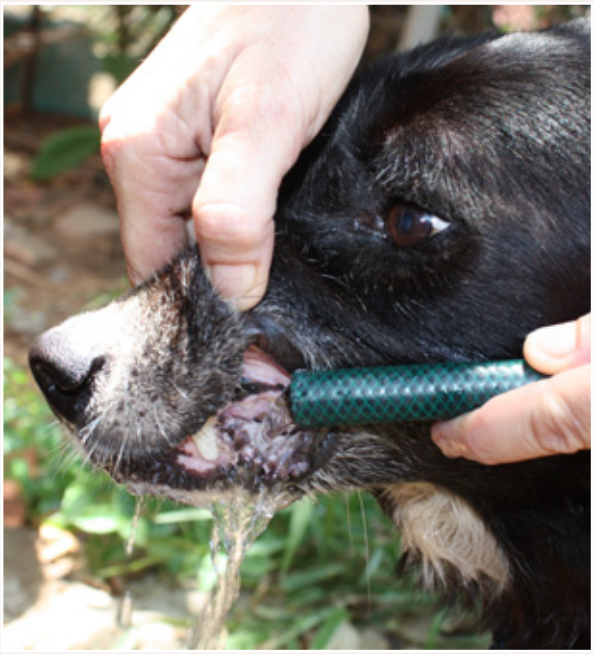
How to pick up a toad

- Always wear gloves or put a plastic bag over your hand. Put the gloves and bags in the bin when you have finished as they may have poison on them.
- Pick up the toad by its legs. Point its head away from you and place in a plastic bag.
- The toad may urinate (wee) on you when you pick it up.
- Wear sunglasses or safety glasses if you have them. When scared, toads can squirt poison up to 2 metres (this is rare but it can happen).
- Don't touch your face or eyes after you have held a toad.
- Wash your hands with disinfectant or soap when you are finished.

Teach kids how to pick up toads safely. Makes sure they use a glove or a bag over their hand and wash their hands with soap afterwards. Watch out for little kids. Some kids will suck on the gloves they have used to pick up toads or will touch their face when they are still wearing gloves.

If your pet tries to eat a toad:

- Wash out its mouth. Point the hose down and away from the body so poison is washed out
- Wash your pet's eyes
- Call a vet. Your pet may be shaky, drooling, vomiting or have problems breathing and staying awake.



POISON HOTLINE: 13 11 26

IF POISON GETS IN YOUR MOUTH OR EYES WASH OUT WITH WATER AND GO TO THE HOSPITAL OR CLINIC IMMEDIATELY!

Poison affects the heart, blood pressure and breathing. Toad poison can cause heart attacks and death.

If you think someone has swallowed toad poison take them to a doctor immediately and watch out for drooling, vomiting, twitching, breathing problems and paralysis. Poison in eyes may blind you.

CANE TOAD IDENTIFICATION

Is it a cane toad?

Cane toad life stage	When are they around?	Where do you see them?	What to look for:
Eggs  © - David Nelson	Humid weather during the wet season and especially after heavy rain	Still water, dams, borrow pits, turkey nest dams and shallow water	• **Long clear strings (like spaghetti) with small black dots in the middle** • Found in still, shallow water
Tadpoles 	Humid weather during the wet season and especially after heavy rain	Still water, dams, borrow pits, turkey nests and shallow water	• **Black body and tail, clear fins on tail** • **Can't see through their body** (opaque) • Swarms of black tadpoles • Come to the surface to breathe
Metamorphs (babies) 	Wet season, active during the day	Around the edge of water holes, ponds and creeks	• Tiny (1-2cm) • At the water's edge • Jump around during the day • **Little orange dots on their back**
Juveniles (kids/ teenagers) 	All year, more common in wet season	Day - cool, dark hiding places (under rocks, logs, plants) Night - open areas, near outdoor lights	• 2-8cm • **'M-shaped' bony ridge over eyes** • Grey/green/brown pattern on their back • May have orange spots • **Grey/cream mottled belly** (like camouflage pattern)
Adults 	All year, more common in wet season and more active at night	Day - cool, dark hiding places (under rocks, logs, plants) Night - open areas, near outdoor lights	• 8-25cm • **'M-shaped' bony ridge over eyes** • **Dry, warty skin,** • **Poison glands on shoulders (behind their round ears)** • Greeny brown colour • Mottled or dirty cream belly • Males make a 'brrr' noise when you pick them up (like an old phone dial tone) • **Can't climb or jump really high**

Note that it can be really hard to tell the difference between frog and toad eggs, tadpoles and metamorphs (babies). Before you euthanise (kill) any animals, check with Parks and Wildlife to make sure they are really toads (see page 9).

CANE TOAD ID CHECKLIST

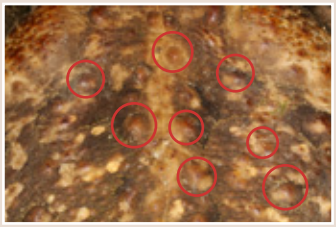
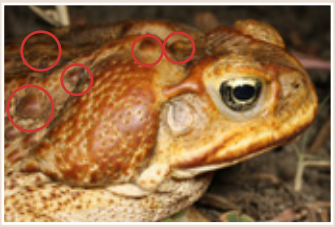
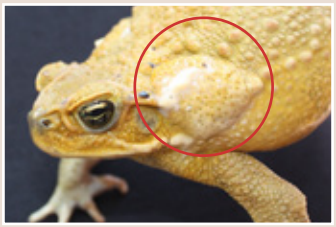
Date: _____ Time: _____: _____ am/pm

Location: _____ GPS:_____

Name: _____ Ranger group: _____

Phone: _____ Email: _____

It can be really hard to tell the difference between frog and toad eggs, tadpoles and metamorphs (babies). Before you euthanise (kill) any animals, check with Parks and Wildlife to make sure they really are toads. Tips for looking after toads and frogs while you wait for a reply are on the next page.

Does Your Toad Have?			Please Tick
'M-shaped' bony ridge between its eyes			☐ Y ☐ N
Dry, warty skin			☐ Y ☐ N
Poison glands on its shoulders (behind its round ears)			☐ Y ☐ N
IF YOU TICKED YES TO ALL 3 BOXES, YOU MAY HAVE FOUND A TOAD.			

How many toads are there? _____ How big are they? _____cm (measure nose to 'tail')

Is this the first time you have seen toads here? Yes / No

Where is the nearest place to here that you usually see toads? _____

How far away is that place from where you found this toad? _____ km

If you find a toad somewhere that has not had toads before, text photos of the toad to 0400 693 807. Parks and Wildlife's cane toad team will confirm it is a toad and help you decide what to do next. This form and any extra photos can be emailed to canetoads@dpaw.wa.gov.au. See tips for taking good toad photos on page 12.

WHAT TO DO WHEN YOU FIND A TOAD

1. ISOLATE THE ANIMAL

- Use gloves to pick up the suspected toad.
- Put the toad in a bucket or container with air holes. Large, heavy duty bags can be used, but you need to make sure the toad has enough air to breath without the toad escaping.
- Cover the bottom of the bucket container with 0.5cm of water.
- Keep the bucket or container inside if you can. If not, keep it in the shade in a cool place.
- Contact Parks and Wildlife ASAP if you have found a toad in a new place.

2. REPORT THE ANIMAL AND CONFIRM IT'S A TOAD

- See page 9 for instructions on identifying toads.
- If you think you have found a toad in a new place that hasn't had toads before, text your photos to Parks and Wildlife on 0400 693 807 (see page 12 for tips on taking photos). If you can't text, phone Parks and Wildlife on 08 9168 4200 and email your photos to canetoads@dpaw.wa.gov.au.
- Keep your toad in the bucket in a cool place until Parks and Wildlife staff tell you to release or euthanise (kill) it.
- If you are out bush and cannot contact Parks and Wildlife from your location or you need to return to base, take the toad with you (in the bucket or container). Keep the toad inside once you are at your base so it can't escape.
- If Parks and Wildlife tell you that the animal you have found is not a toad they will give you tips on how to release it. If Parks and Wildlife confirm that it is a toad, see Step 3.

3. EUTHANISE THE TOAD

Do not kill the toad until Parks and Wildlife tell you to do so. Toads must be euthanised humanely. This means that the toad will not feel pain when it is killed. The easiest way to euthanise a toad is by cooling and freezing.

- Put your toad in a plastic bag or small plastic container (e.g. ice cream container).
- Put the bag/container with the toad in the fridge for 4 hours. This puts the toad to sleep.
- Move the bag/container with the toad into the freezer overnight. This will kill the toad.

If you are unable to kill toads by cooling and freezing, please contact Parks and Wildlife's cane toad team on 08 9168 4200 for other options.

HOW TO EUTHANISE A TOAD	
1. Put toad in a plastic container or bag	
2. Put toad in the fridge for 4 hours	
3. After 4 hours, take toad out of fridge and move to freezer	
4. Leave toad in freezer overnight, then throw it out with your rubbish (you might want to leave it in the freezer until bin day)	

4. DISPOSE OF THE DEAD TOAD

- Toads are still poisonous after they are dead. To stop animals eating the dead toads, toads should be buried and covered with at least 50cm of soil.
- If you can't dig a hole for them, you can put the dead toads in your bin on bin day.
- If you are disposing of toads at your tip, make sure they are covered over with soil as soon as possible.

Before toads arrive, it's important to conduct regular toad searches so we know how far they have got to and how fast they are moving.

HOW TO TAKE GOOD TOAD PHOTOS

Taking toad ID photos

- All photos need to be clear. Include one with the toad or tadpole next to a pen or coin to show size.
- Text photos to 0400 693 807 or email them to canetoads@dpaw.wa.gov.au.
- Keep the suspected toad isolated in a bucket or container with air holes and a small amount of water. Keep the bucket in the shade.
- Do not kill or release the animal until you have been told to do so by Parks and Wildlife.

What photos should I take?

TOADS 4CM LONG OR BIGGER (MEASURE FROM NOSE TO 'TAIL')

Top

Front

Side

Belly

TOADS SMALLER THAN 4CM LONG

Top

Belly

TADPOLES

Hold tadpole up to the light between fingers

EGGS

What can we do now cane toads are here?

Once cane toads have arrived in your area or are expected to arrive in the next wet season, the Parks and Wildlife cane toad team can work with you to choose the best response. Actions they suggest may include:

Ongoing monitoring

Keep track of where the toads are, how many there are, and how they are moving.

- Conduct a toad transect every month.
- Keep a record of all native animals you see when out bush.

Toadbusting

Remove toads by hand. This works best in an enclosed area such as a fenced park or a narrow gorge. If done regularly, it can reduce the number of toads in that area to give native animals a better chance of survival.

- Toadbusting needs to be done at least once a week during the wet season to be effective.
- Toadbusting works best if you have lots of people to help.
- Toadbusting will not work over a large area.

Fencing important places

Fencing areas to keep toads out will only work if you can regularly check the fence. The fence needs to be high enough that toads can't jump over it.

- You will need to toadbust within your fenced area to remove any toads that are already there.
- Fences will also stop native animals from moving through the area, so make sure you are not fencing off areas that they rely on for food, water or shelter. Fencing is only suitable for smaller areas, not for large blocks or out in the bush.

Tadpole trapping

Scientists have learnt that toad tadpoles are attracted to a chemical (pheromone) found in the poison of adult toads. Only toad tadpoles are attracted to this chemical, native frogs are not interested in it.

TO MAKE A TRAP FROM AN OLD 1.25L OR 2L SOFT DRINK BOTTLE:

1. Cut the top off the bottle

2. Using gloves, put a dead toad in the bottom (toad should be humanely euthanised, see pages 10-11)

3. Put top back on upside down seal using waterproof glue or duct tape.

4. When the glue has dried, your trap is finished.

- Leave the trap overnight somewhere where you suspect toad tadpoles are living (shallow, slow-moving water eg a pond or pools at the edge of a creek). Tie your trap to a tree with fishing line if you are placing in a creek.

Collect your trap the next morning and remove any toad tadpoles (using gloves). Contact Parks and Wildlife on 08 9168 4200 or canetoads@dpaw.wa.gov.au for confirmation that they are toad tadpoles and advice on euthanasia.

More information can be found here:

www.canetoadsinoz.com/cane_toad_tadpole_control.html

Don't follow the method for trapping described on this site. It involves squeezing a toad's glands to get poison out, this is dangerous!

Trapping toads

Toads are attracted to lights where they can find lots of insects to eat.

- Light traps will only catch toads, not kill them, and will only work if there are no other lights nearby.
- Traps need to be checked every morning within two hours of sunrise.

An internet search for 'cane toad trap design' will give lots of ideas to plan your trap. One such design is:

www.environment.nsw.gov.au/resources/pestsweeds/cane_toad_infosheet.pdf

Biodiversity surveys

Trap your native animals to learn about them. Biodiversity surveys are done before and after toads arrive so we can compare any changes.

- Biodiversity surveys need to be approved by Parks and Wildlife's Animal Ethics Committee. If you would like to participate in a survey, please contact Parks and Wildlife on 08 9168 4200.'
- Animals are measured and weighed and may have a DNA sample taken. They are then released.

Taste aversion training

Scientists are trying to teach our animals not to eat toads. So far, they have tested this with quolls and goannas.

- Animals are offered a baby toad or toad sausage that contains only a small amount of poison.
- The animals get sick (but the amount of poison is small so the animals don't die).
- The animals learn not to eat toads because they will feel sick.

Learn more about taste aversion work the Balanggarra Rangers have been assisting with at Oombulgurri:

www.nerpnorthern.edu.au/sites/default/files/managed/files/toad_goanna_booklet_for_web.pdf

Panoptes eating a toad © Kimberley Reptiles

How can we manage them in our backyard?

- Fence your backyard with chicken wire or shade cloth. Remember these fences will also prevent movement by other native species like reptiles who need to access water or food or shelter. Only fence small areas like backyards in town, not bush blocks.
- Toadbust in your yard once a week.
- Empty out pools once a week.
- Turn off outside lights.
- Teach little kids to stay away from toads.

MONITORING CANE TOADS

Before toads arrive, it's important to conduct regular toad searches so we know how far they have got to and how fast they are moving.

Monitoring

It is important to know when cane toads arrive at a new location so we can do our best job of protecting native animals. Once cane toads are seen, keep track of where the toads are, how many there are, and how they are moving.

- Conduct a toad transect every month (see page 18)
- Keep a record of all native animals you see when out bush (especially key species at risk, see page 4)

A complete cane toad monitoring form is included on page 32. Before you start a monitoring project, you need to:

1. Plan your search – ask where, when, who and what method you will use. (e.g. transects).
2. Prepare your equipment and make sure you identify and minimise any hazards. Use the job safety analysis form on pages 28-29 to help.
3. Print off a search datasheet (pages 35-36), to keep a tally of cane toads and other species you find on your search.
4. When you get back, you need to review and debrief . It's important to store you data safely and make sure all of your equipment is cleaned and ready for use next time.

See post trip checklist on page 37.

Using the Cane toad app

If you have an iPhone or iPad, there is a free app to help you identify cane toads and native frogs. Be sure to download to your device when in mobile range and then you can use throughout the Kimberley. (Note the internet links will only work when you are within mobile range)

See page 24-26 for how to use the App

Where should we be looking for toads?

Method	What is it?	When to do it?
Vehicle search	This tells us where the toads have got to. 1. Start at the westernmost point where you last found toads and drive west until you stop seeing toads (e.g. 15km past your last toad sighting). 2. Drive along a set road/track and record each toad you see (and any other wildlife) on your GPS. Remember to switch your hazard lights on if you are driving slowly, and wear high vis if you are getting out of the vehicle. You need at least two people, one to drive and one to spot toads and record them on the GPS. Always tell someone where you are going and check in when you get back.	Survey once a month especially during the wet season (September to May). Start at least 30 minutes after sunset.
Foot search	This tells us where toads have got to, and how many there are. 1. Drive to the westernmost point where you have found toads. 2. On foot or in All Terrain Vehicles (ATV) or quad bikes, follow any creek lines and check around waterholes for signs of toads. 3. Record any toads you find (and other wildlife) on your GPS. 4. Listen out for calling toads. Record where you hear them. Take a spotlight and wear sturdy closed shoes. If you are working along tracks, wear high vis. Always tell someone where you are going and check in when you get back. Complete a Job Safety Analysis if using ATV or quad bikes (see page 28-29)	Survey twice a year in November and March. Walk one way during the day to check for eggs, tadpoles and metamorphs. Wait until its dark before walking back to check for adult toads.
Toad transect	This is used once toads are already in your area. It tells us how many toads there are (population density). 1. Walk or drive a set route at the same time every month. 2. Record any toads (and other wildlife) you see in your GPS. 3. We suggest you collect toads after recording, assuming you are able to dispose of them appropriately while in the field. 4. Graph your findings to view how numbers change over time. See the safety tips above for vehicle and foot searches. Take at least two people.	Survey once a month, especially during the wet season (September to May). Start at least 30 minutes after sunset.

WHERE CAN I FIND OUT MORE?

Parks and Wildlife's cane toad team

- Based in Kununurra but regularly travel across the Kimberley.
- Can assist with identifying toads.
- Can help plan monitoring and management strategies.
- Conduct biodiversity surveys across the Kimberley.
- Offer curriculum guides for the Kimberley and school visits for Kimberley teachers.

PHONE: 08 9168 4200
FAX: 08 9168 2179
EMAIL: canetoads@dpaw.wa.gov.au
WEBSITE: www.dpaw.wa.gov.au/canetoads
BROCHURES AND POSTERS: Can be downloaded from the website. Contact the office for hardcopies.

The Parks and Wildlife education team can bring fun cane toad activities to your school or community event

WHERE CAN I FIND OUT MORE? (Continued)

Kimberley Toad Busters

- Can work with your community or ranger group to organise and run toadbusts.
- Provide cane toad educational presentations and materials for your community or school.
- Get involved with biodiversity monitoring of native wildlife through the "What's in your Backyard?" project on the University of Western Australia SPICE website.

PHONE: 08 9168 7080
EMAIL: kimberleytoadbusters@canetoads.com.au
BOOK: *Kimberley Toad Busters, 10 Years of Community Effort Fighting an Alien Invasion*, J Groffen & S Porter (Eds), Kimberley Specialists, 2015
WEBSITE: www.canetoads.com.au
FACEBOOK: www.facebook.com/KimberleyToadBusters

Western Australian Museum

- The experts on Western Australian frogs.
- Produce identification books and resources.

BOOK: *Field Guide to Frogs of Western Australia*, M J Tyler & P Doughty, Western Australian Museum, 2009
WEBSITE: www.museum.wa.gov.au/explore/frogwatch/regions/kimberley
POSTER: Frogs of the Kimberley – contact Parks and Wildlife for copies

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University of Sydney - Prof. Rick Shine

- Undertaking cane toad research.

PHONE: 02 9351 3772
FAX: 02 9351 5609
EMAIL: rick.shine@sydney.edu.au
WEBSITE: www.sydney.edu.au/science/biology/shine/

Other Websites

www.projectkimberley.org
www.canetoadsinoz.com

Educational resources: teaching kids about toads

- **Parks and Wildlife** have developed curriculum guides for Kimberley teachers wanting to teach their students about toads. These guides contain background information and lesson plans to use in the classroom, and list extra resources such as video links, websites and books for younger readers. Parks and Wildlife's education team can come to your school and deliver incursions, conduct a toadbust, or meet up with your students on a camp to run activities. Many of these activities are also suitable for youth groups, clubs and school holiday programs.

  Cane Toad Education: 08 9168 4200

  Download teacher guides:

  Kimberley Education Manuals: Cane Toads Years 1-3
  www.dpaw.wa.gov.au/images/documents/plants-animals/animals/canetoads/canetoad_education_manual_years_1-3.pdf

  Kimberley Education Manuals: Cane Toads Years 4-6
  www.dpaw.wa.gov.au/images/documents/plants-animals/animals/canetoads/canetoad_educational_manual_4-6.pdf

- **University of Sydney** scientists working at Fogg Dam in the Northern Territory created a book to teach local children about their work, including studies they have done on how native animals are affected by cane toads:
  www.sydney.edu.au/science/biology/shine/educational_resources/docs/fogg-dam-interactive-book.pdf

  Kimberley Toad Busters have resources for Year 7 teachers based on the 'What's in your backyard' program. Teacher's resources can be found on the website (www.canetoads.com.au). Click on the links 'KTB Biodiversity identification cards in a flip book' and 'Teachers Resource File Flip Book'.

- **University of Western Australia**:
  www.spice.wa.edu.au/feeding-relationships

- Download Food web (for free) from the app store at:
  www.itunes.apple.com/au/app/food-web/id565839214

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The Government of Western Australia, Department of Parks and Wildlife, 2014, *Cane toad strategy for Western Australia 2014-2019*.

Miriuwung Gajerrong Ranger Keith Boombi set up a funnel trap line

FORMS, CHECKLISTS AND SHEETS

A copy of commonly used forms and sheets have been provided on the following pages for you to photocopy and use as required.

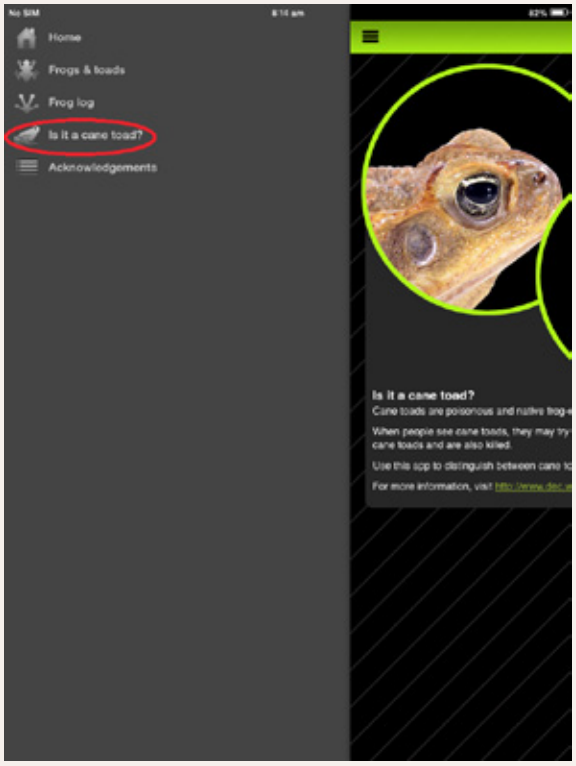
CANE TOAD APP

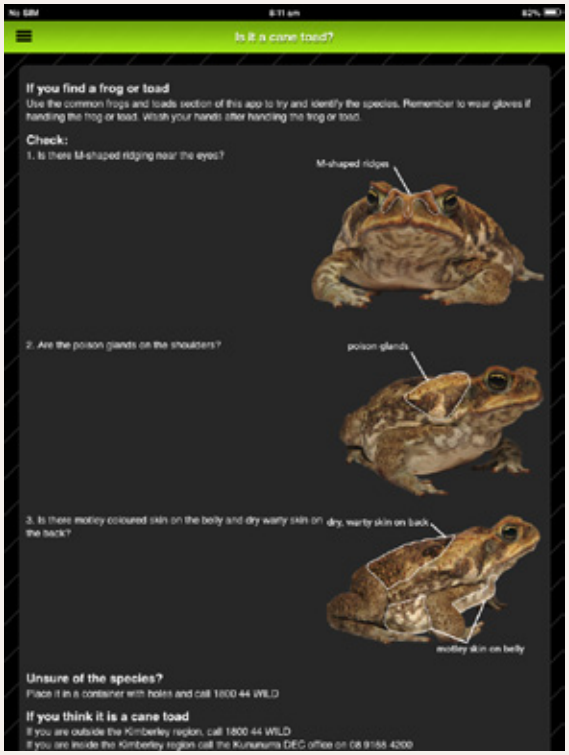
Using the cane toad app

If you have an iPhone or iPad there is a free app to help you identify cane toads and native frogs. Be sure to download to your device when in mobile range and then you can use throughout the Kimberley. (Note the internet links will only work when you are within mobile range).

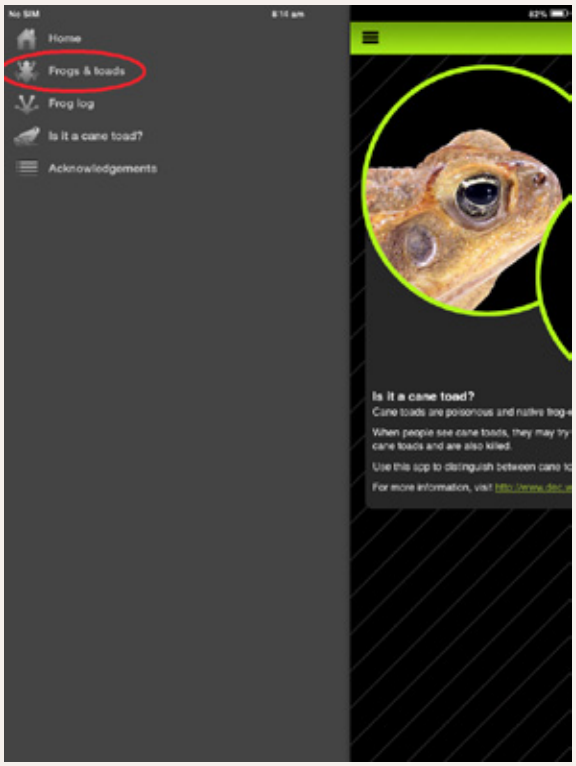
www.itunes.apple.com/au/app/cane-toad/id642370264

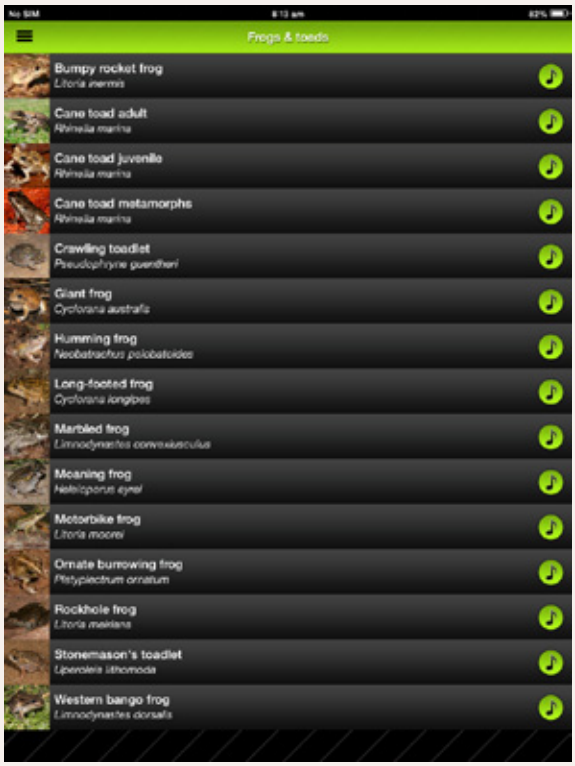
Search for cane toad in the app store



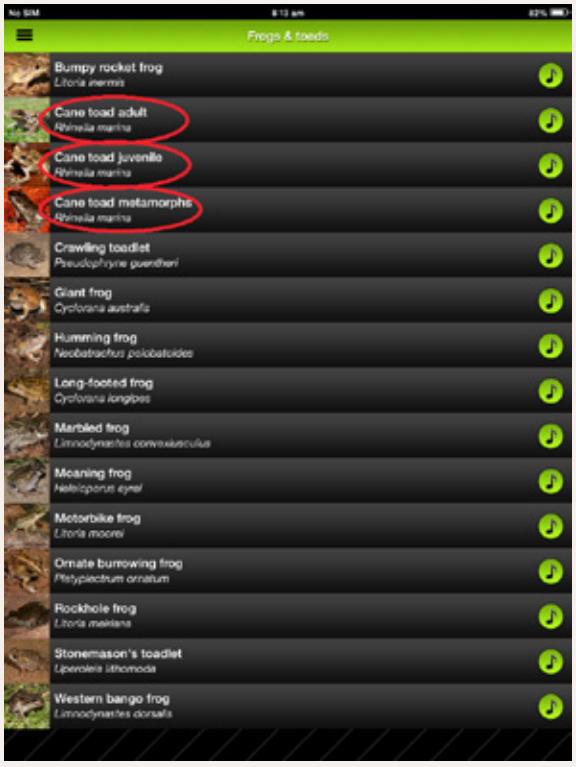


'Is it a cane toad? (from the main menu)



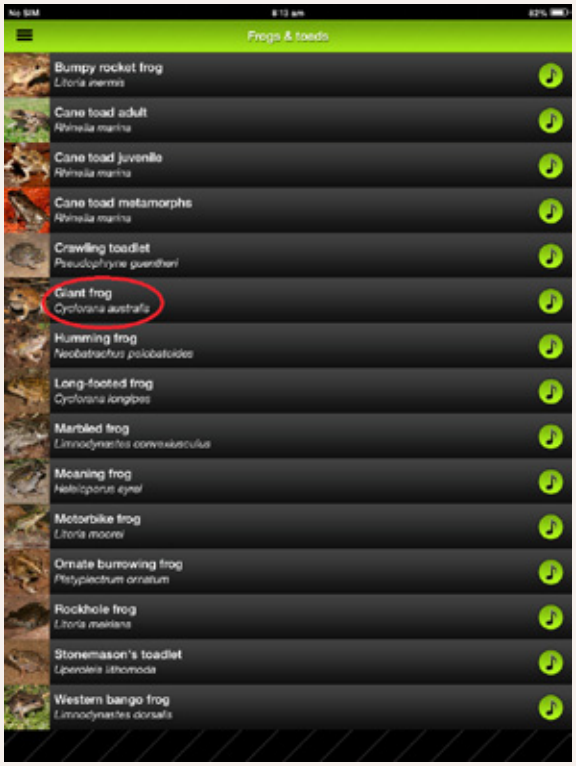


Find frogs and toads

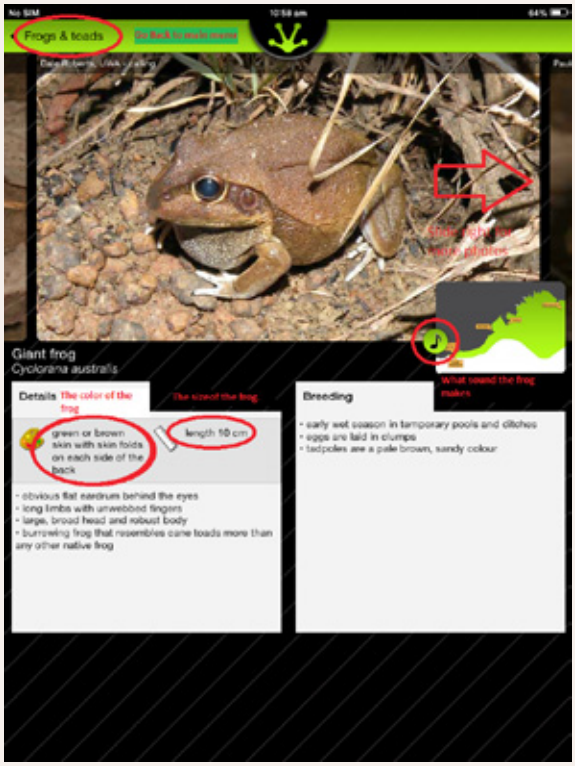


See toads as metamorphs (babies), juveniles and adults

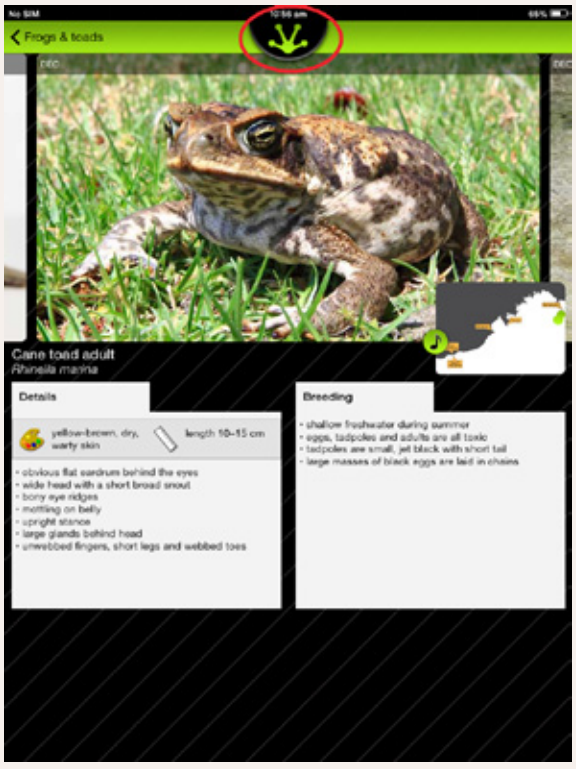
CANE TOAD APP (Continued)



Find out about frogs, hear their calls



Find colour, size, calls & ID info



Log frogs and toads that you find

RISK MATRIX

Use the matrix below to determine a risk rating for each hazard involved in the job

Likelihood	Consequence				
	Insignificant No treatment required; <$10,000 damage.	**Minor** First aid treatment required; >$10,000 to <$50,000 damage.	**Moderate** Medical treatment required; >$50,000 to <$250,000 damage.	**Major** Extensive injuries; permanent disability or impairment; >$250,000 to <$1 million damage.	**Catastrophic** Loss of life; >$1 million damage.
Very likely The event is expected to occur in most circumstances; more than once per year.	MEDIUM	HIGH	EXTREME	EXTREME	EXTREME
Likely The event will probably occur in most circumstances; at least once per year.	LOW	MEDIUM	HIGH	EXTREME	EXTREME
Possible The event should occur at some time; at least once in 3 years.	LOW	MEDIUM	HIGH	HIGH	EXTREME
Unlikely The event could occur at some time; at least once in 5 years.	LOW	LOW	MEDIUM	MEDIUM	HIGH
Highly unlikely The event may occur only in exceptional circumstances; less than once in 5 years.	LOW	LOW	LOW	LOW	MEDIUM

Risk Rating	Risk Acceptance Criteria
Low	Risk acceptable.
Medium	Risk may be acceptable with adequate controls.
High	Risk only acceptable with effective controls.
Extreme	Risk not acceptable. Implement effective controls and seek approval from manager or supervisor before undertaking task.

In cases where it is not be possible to reduce the risk rating to low, it is important to ensure effective controls are in place to reduce the risk as much as is reasonably possible.

CONTROL THE RISK Use as many controls as you feel is necessary to effectively reduce the risk of injury.

Try to control the hazard by:

- Eliminating it
- Finding a safer alternative
- Isolating the hazard from people using barriers or guards
- Considering relevant policies, guidelines and procedures, training requirements, signage and communication
- Using PPE.

Consider whether the controls:

- Could introduce any new hazards
- Would reduce the risk injury.

JOB SAFETY ANALYSIS

Ranger Group	_____
Job	_____
Job Description	_____ _____ _____ _____ _____ _____
Date	____ / ____ / _____
Location of Job	(please tick) ☐ Field (please specify) _____ ☐ Workshop ☐ Office ☐ Other (please specify) _____

PPE Required (pelase tick):

☐	☐	☐	☐	☐	☐	☐
						
Head Protection	Ear Protection	Safety Glasses	Protective Clothing	Hi-Vis Clothing	Hand Protection	Foot Protection

Other PPE Required	_____ _____ _____

Training Required	eg GPS skills, first aid
Relevant Procedures or Guidelines (list any SOPs)	

Job breakdown List the main steps involved in the job	Potential hazards Identify the hazard associated with each step	Initial risk rating Assign each hazard a risk rating using the matrix on page 27	Control measures Try to eliminate the hazard, if that is not possible use substitution, engineering, isolation and administrative controls	Revised risk rating Reassess the risk now controls are in place.
eg. load all equipment into vehicle	-Manual handling injuries -Trips when carrying things	High	Anything heavier than 20kg needs 2 people to lift/carry. Pick up stuff off floor. Plan route before carrying. Bend knees and keep back straight when lifting/carrying.	Low

ALL TEAM MEMBERS NEED TO WRITE AND SIGN THEIR NAME BELOW TO CONFIRM THEY HAVE READ, UNDERSTOOD AND AGREE TO THE INSTRUCTIONS OUTLINED IN THIS JSA!

Full Name	Signature	Date

Manager / Ranger Coordinator / Ranger in Charge's approval:

Name: _____

Signature: _____

Date: _____ / _____ / _____

This JSA is valid for one year. This JSA needs to be reviewed when the task changes, following a near-miss or incident, or annually if the task has not changed.

Review Date: _____ / _____ / _____

'POWER' VEHICLE CHECK

Use your vehicle's manual to learn how to do these checks

Vehicle Details

Vehicle Type _____

Date _____/_____/_____

Completed By _____

Odometer _____

Registration _____

Work Centre _____

Next Service _____

Vehicle Checks

Fuel - Petrol or Diesel	**Yes**	**No**
Check fuel is full (refuel if it's not)	☐	☐
Identify fuel type (Is it diesel or petrol?)	☐	☐
Identify where fuel cap is located	☐	☐
Oil - Check levels are normal (tick 'no' if they're not):	**Yes**	**No**
Engine oil	☐	☐
Clutch fluid	☐	☐
Brake fluid	☐	☐
Power steering fluid	☐	☐
Automatic transmission fluid	☐	☐
Water - Check levels are normal (tick 'no' if they're not):	**Yes**	**No**
Radiator fluid level	☐	☐
Windscreen washer bottles (refill if empty)	☐	☐

Electricals - Check all are working (tick 'no' if they don't work):	Yes	No
Battery is charged and working (Does the car start straight away?)	☐	☐
Check terminals (look for white corrosion)	☐	☐
Check water level in battery	☐	☐
Fuses (check you have spares)	☐	☐
Check lights (high and low beam headlights, spotlights and tail lights)	☐	☐
Indicators (front and back, left and right)	☐	☐
Reverse lights	☐	☐
Brake lights	☐	☐
Park lights	☐	☐
Horn	☐	☐
Rubber (Tyres) - Check all are normal (tick 'no' if they're not):	**Yes**	**No**
Correctly identify tread wear	☐	☐
Identify tread patterns on all tyres the same	☐	☐
Check all tyres including spares	☐	☐
Check and inflate tyres to correct vehicle specification inflation (including spares)	☐	☐
Check condition of windscreen wiper blades	☐	☐
Check condition of hoses and belts in engine bay	☐	☐
Check tension of belts	☐	☐

☐ This vehicle is ready to use (all 'yes')

or

☐ This vehicle needs further action before it can be used (if any are 'no')

Book the vehicle in with a mechanic if it's not something you can fix yourself

Signed _____

Date _____ / _____ / _____

CANE TOAD MONITORING FORM

Monitoring toads on country

- Plan your search
- Prepare your equipment
- Conduct your search
- Review and debrief

A toad search of _____ by the _____ Rangers.

1. Plan your search

Leave a map of your search location with someone who you know will check you got back safely

Start _____ GPS _____

Finish _____ GPS _____

Date _____ / _____ / _____ Start time _____:_____ pm Finish time _____:_____ pm

Ranger in charge _____ Driver _____

Team members _____

Hazard to people	Control – A JSA should be created and signed by the whole team!
Vehicle accident	The driver's job is just to drive. Do not use a spotlight, GPS or radio while driving. Do a POWER check before you go (see page 30-31). If you are working along tracks or roads, wear high vis clothes. When you are driving slowly for a search, turn on hazard lights.
Getting lost/stuck	Always tell someone where you are going. Take a map and GPS with you. Mark your journey on the GPS so you can follow it back if you need to. Bring a map and compass in case your GPS goes flat. Bring radios and a sat phone and keep them with you if you are on foot.

Hazard to the environment	Control
Erosion, damage to vegetation (plants)	Only drive on tracks. If there are no tracks, walk. Don't drive down creek and river banks if you don't need to.
Pollution	Take all rubbish with you including food scraps, cigarette butts and tea bags (bring a rubbish bag).
Fire	Clear all dead grass and plants within 4m of your fire. Make sure your fire is completely out before you leave.

EQUIPMENT CHECKLIST

Check that all equipment is working and ready to use, and that you know how to use it!

Clothing PPE	Date Checked		Date Checked
Sturdy boots		Head Torch	
Safety glasses		High vis vest/shirt (if working along roads)	
Gloves			

General equipment	Date Checked		Date Checked
Radios charged (with spare batteries)		Drinking water (at least 2L per person)	
POWER check completed for all vehicles (see page 26-27)		Meals/snacks (cooking gear if needed)	
Vehicle recovery gear		Hand sanitiser	
First aid kit		Rubbish bags	

Checklist continued on page 34.

EQUIPMENT CHECKLIST (Continued)

Check that all equipment is working and ready to use, and that you know how to use it!

Tools and materials for the job	Date Checked		Date Checked
GPS charged (with spare batteries). Start and finish points marked.		Camera	
Survey plan complete		Spotlight	
Map with start and finish locations and access routes marked		Plastic bag or container with air holes for toads	
Clipboard and pens/ pencils		Datasheet printed and Section 1 filled in	

Safety	Date Checked		Date Checked
Copy of trip plan and map given to a responsible person who will check you get back safely		Sat phone charged, checked and ready (with spare batteries)	
JSA signed by all team members (See page 24-25)			

I confirm that all equipment has been checked and is ready to use,

Signed _____ Name _____

SEARCH DATASHEET

Date _____ / _____ / _____

Ranger in charge _____ Ranger group _____

Team members _____

_____

Type of search (please tick): ☐ Vehicle search ☐ Foot search ☐ Toad transect

Start time _____:_____ pm Finish time _____:_____ pm

Location

Start _____ GPS _____

Finish _____ GPS _____

Set your GPS to plot your route as you drive/walk. Drive at 20km per hour (switch on your hazard lights). Mark a way point for each toad, species impacted (or other animal) you see.

Keep a tally (𝍸) of toads you see every 2km driving or every 500m if you're walking.

Location	Number of Toads (𝍸)
eg 0-2km	𝍸 𝍸 II

SEARCH DATASHEET (Continued)

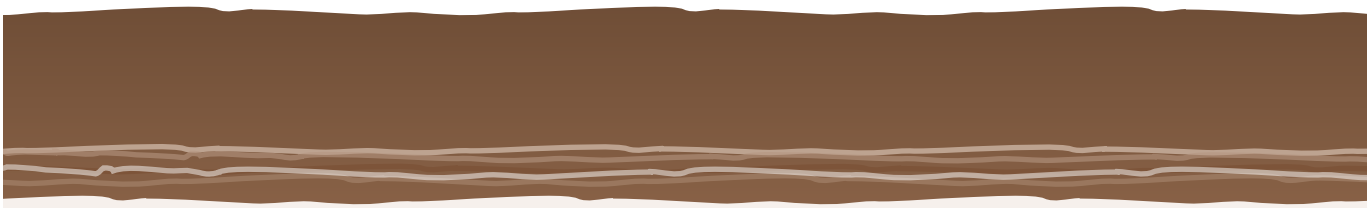
Location	Number of Toads (𝍸)
eg 0-2km	𝍸 𝍸 II

List any other animals you see:

POST TRIP CHECKLIST

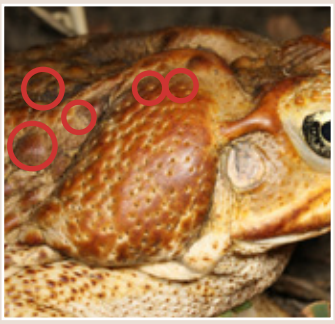
- Save data and compare to previous searches
- Clean and maintain vehicles and equipment
- Debrief with your team

Task	Date	Signed
Upload your GPS data. If you can, print out a map showing your route and where you found toads. Keep all your maps in a file together.		
Copy the results of your tally into an excel spreadsheet: • For searches to find toads in new areas, you can save each search on a new sheet within the same file. • For a transect (searching the same route every month once toads have arrived) you can record the number of toads in each 2km sector against the date in one table. You can then make a graph to see how the toad population changes.		
Tell Parks and Wildlife's cane toad team what you have found. Email canetoads@dpaw.wa.gov.au with: • For a search, send the location with GPS coordinates of your westernmost toad after each search. • For a transect, send your graph showing how your toad population changes over the year through to Parks and Wildlife every March. Clean, refuel and check over vehicles. Fill in your vehicle's logbook (if you use one).		
Clean and put away all equipment. Repair anything that needs fixing		
Recharge batteries (sat phone, radios, camera, GPS etc).		
Replace materials used (garbage bags, gloves, first aid supplies etc).		



CANE TOAD ID CHEAT SHEET

It can be really hard to tell the difference between frog and toad eggs, tadpoles and metamorphs (babies). Before you euthanise (kill) any animals, check with Parks and Wildlife to make sure they really are toads. Tips for looking after toads and frogs while you wait for a reply are on page 10.

Does Your Toad Have?			Tick
'M-shaped' bony ridge between its eyes			☐ Y ☐ N
Dry, warty skin			☐ Y ☐ N
Poison glands on its shoulders (behind its round ears)			☐ Y ☐ N

IF YOU TICKED YES TO ALL 3 BOXES, YOU MAY HAVE FOUND A TOAD.

If you find a toad somewhere that has not had toads before, text photos of the toad to 0400 693 807. Parks and Wildlife's cane toad team will confirm it is a toad and help you decide what to do next. This form and any extra photos can be emailed to canetoads@dpaw.wa.gov.au . See tips for taking good toad photos on page 12.

Department of
Parks and Wildlife

Rangelands NRM
Western Australia

"KIMBERLEY TOADBUSTERS"
IF EVERYONE WAS A TOADBUSTER
THE TOADS WOULD BE BUSTED

Through education, awareness and engagement, Indigenous Ranger groups are playing a key role in caring for their environment. Collaboration is the key to any efforts aimed at reducing impacts of cane toads on native species. Only through aligning Federal, State and community efforts can we make an impact.