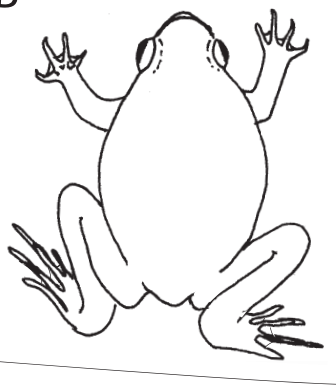
Frog or feral

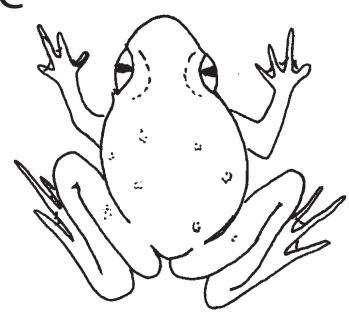
Look for differences between each of the sketches below. Use the Creature features table to help you compare them and work out which is which... then write the name of the frog or toad in the space below each sketch. What is a feral?

A

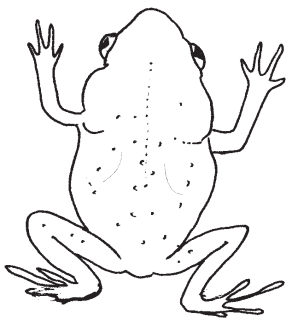
B



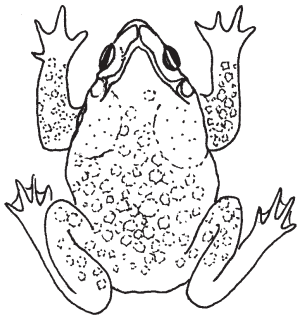
C



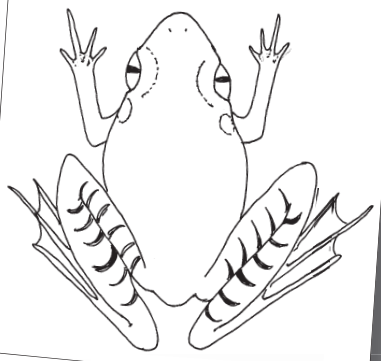
D



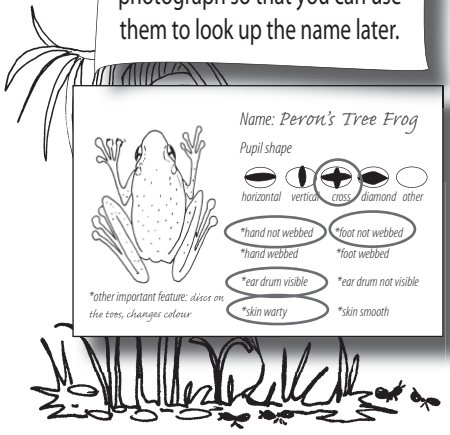
E



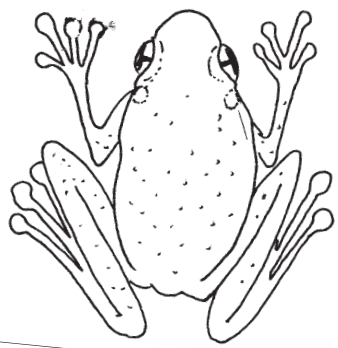
F



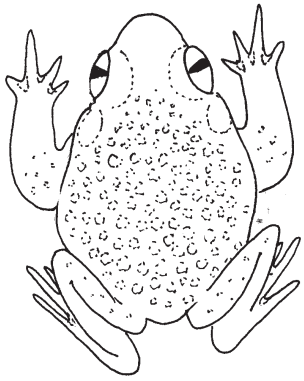
Make your own frog 'ID' cards. Include your own sketches or a photograph so that you can use them to look up the name later.



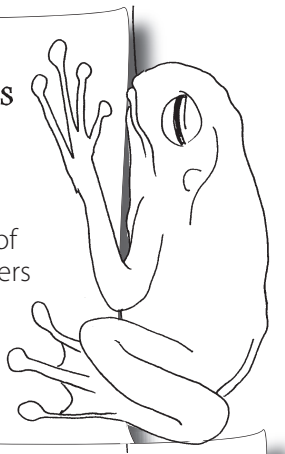
G



H



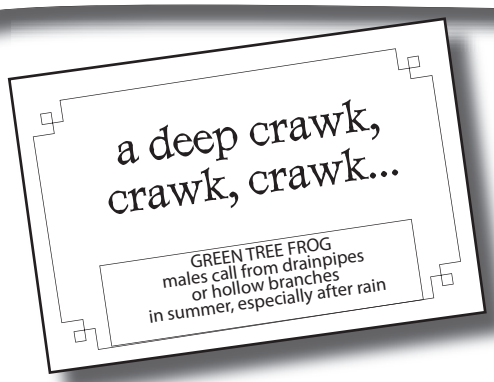
Calling you

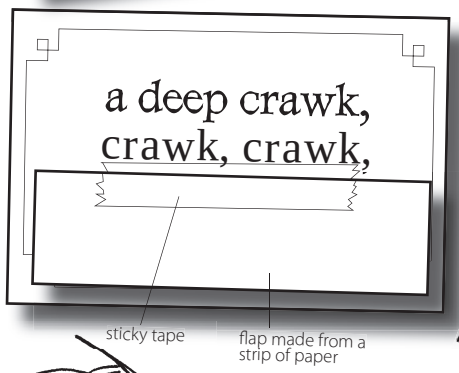


George the Green Tree Frog is known for his deafening chorus echoing in drainpipes on a wet summer night. His operas are used to attract a female, and can go for a short time, or for many hours...

Like other frogs and toads, George grew up as a tadpole in water, but spent most of his adult life on land. Some frogs return to water to breed all year round, while others are more particular about when and where. But how do they find each other?

Like George, frogs and toads have well-developed voices. The male attracts the female with a mating call. But how do they know who is calling who?





Cards describe the sound a frog or toad makes, its common name and when and where it calls from...

~ Copy the cards. For longevity, paste them onto card and laminate.

There are many different activities that can be done with the cards. It is limited only by the number of people and your imagination. Some suggested activities are below.

~ Copy the call

Read each of the cards one at a time and try to make the sound described. Do any sound the same? How difficult is it to tell them apart? Start a chorus with a friend.

2. Who said that...

Tape a piece of paper (approximately 7.0 cm wide by 2.0 cm high) onto the card to cover the name of the frog and when and where it calls from.

Carefully shuffle the cards and turn them face down on the table.

Turn the cards over one at a time and see if you can remember who calls what, when and where.

Lift the flap to see if you are correct.

When you are ready, take turns playing with a friend.

3. At the pond... for a class of frogs and toads

Divide the group into pairs. One person is a caller, the other is the listener. The listeners are blindfolded.

Each caller is given a card to practice their sound. All callers stand in a circle around the blindfolded listeners. The caller tries to call their partner using nothing but the call.

Try it a second time and compare how long it takes for partners to find each other.

COMPARE THE SOUNDS

Frog calls have been provided on the compact disc. Listen to the sounds. Is that what you sounded like? The calls on the CD include: Cane Toad, Common Eastern Froglet, Common Green Tree Frog, Dusky Toadlet, Northern Pobblebonk, Ornate Burrowing Frog, and Striped Marsh Frog .

4 Add to your card collection Make up cards for the remaining calls on the CD. These include: Emerald-Spotted Tree Frog, Great Barred Frog, Spotted Marsh Frog and Tusked Frog. Use the internet to find out where the frog calls from and at what time of year.

purrrrrring sound
~ like a high pitched
telephone dial tone

CANE TOAD
males call at waters edge
during summer rains

tok, whuck
~ like a tennis ball
being hit

STRIPED MARSH FROG
males call floating on water or near
waters edge, all year

dunk or bonk...
repeated

NORTHERN POBBLEBONK
males call all year
after heavy rain

unk, unk, unk...

ORNATE BURROWING FROG
males call while floating,
after heavy rain

deep grunt

GREAT BARRED FROG
spring and summer
males call from leaf litter

an owl-like
OOO...OOO...OOO...OOO

GIANT BURROWING FROG
males call from burrows
after rain in summer and autumn

a short 'squelch'

DUSKY TOADLET
males call from the base of grass
clumps near water in summer

slow cackle

PERON'S TREE FROG
males call from the waters edge or
vegetation in spring and summer

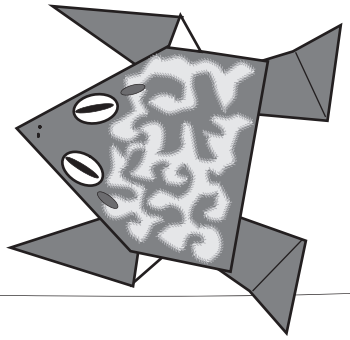
crawk, crawk,
crawk, crawk...

GREEN TREE FROG
males call from drainpipes
or hollow branches in summer,
during or after rain

crick, crick,
crick, crick...

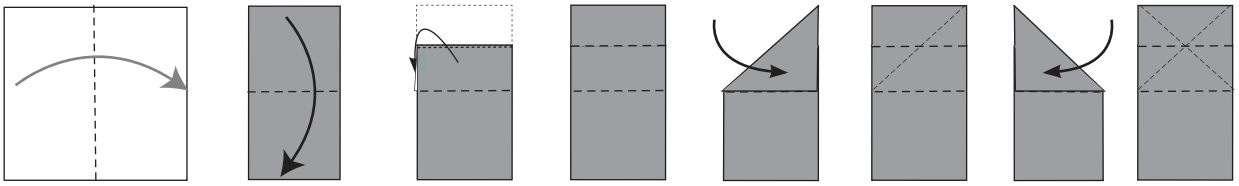
COMMON EASTERN FROGLET
males call from the waters edge or
while floating all year

Folding frogs

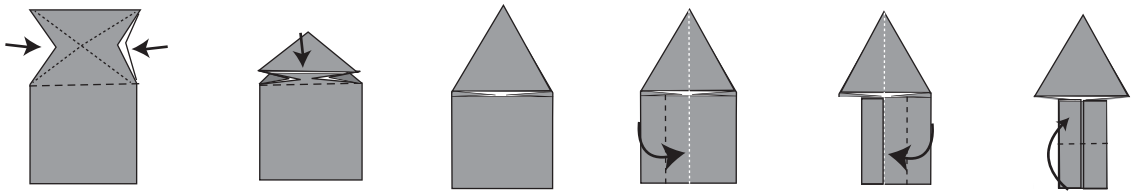


Follow the instructions below to see if you can make a frog or a toad.

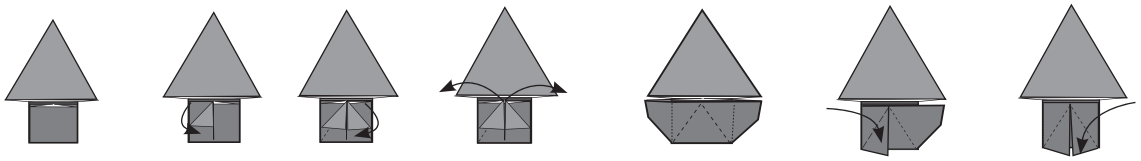
Select a square piece of paper..



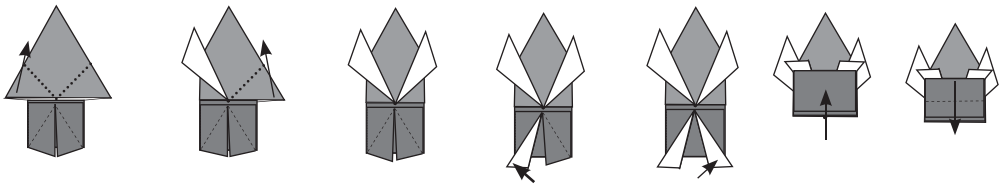
1. Fold the paper square in half
2. Fold the paper in half again to make a square, then unfold
3. Fold the top back, in half again to make a crease.
4. Unfold.
5. Fold the top corners down to touch the crease in the centre.
6. Unfold.
7. Repeat for the other side, press fold flat.
8. Unfold.



9. Squeeze the sides inwards until they meet.
10. Push the top down toward the centre to form a triangle.
11. Flatten the folds.
12. Fold the left side into the middle.
13. Fold the right side into the middle.
14. Fold the bottom edge up into the middle.



15. Press the fold.
16. Fold left hand side.
17. Fold right hand side.
18. Hold the tip of the triangle and pull outwards to the sides.
19. Flatten the folds.
20. Fold down left hand side
21. Fold down right hand side

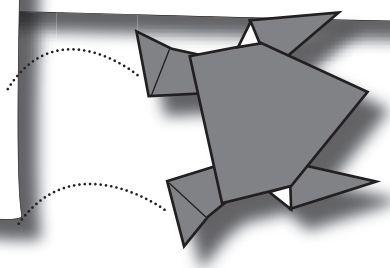


22. Fold up left hand side
23. Fold up right hand side
24. Press the fold.
25. Fold up left hand side
26. Fold up right hand side
27. Fold up bottom edge and press the fold
28. Fold down-wards and press

Side view... 27 & 28 should have folded the legs underneath to make the 'spring'.

PRESS to 'spring'.

30. Give the base of the body a quick press and see how far it jumps.



JUMPER OR CRAWLER?

Can yours jump high? If yes, then you have made a frog. If yours is not a high jumper, and tends to crawl along then you have a toad!

In the picture...

The compact disk (CD) kept on the back cover of this booklet contains images of some of the frogs that are commonly mistaken for Cane Toads, as well as images of Cane Toads at different stages in their life cycle.

What activities will you do?

1. Choose one of the native frogs from the pictures on the disk and research it to write a story, poem or a one minute speech. It may be presented as a document or a Powerpoint presentation to show the class. Design a layout that you think looks good... or

2. Research one of the frogs pictured to find three interesting facts... or

3. Choose a frog to draw, paint or model out of clay for a display for World Environment Day on June 5 or another important day to celebrate, such as Threatened Species Day.

4. Enlarge the images and make a display of the frogs that live in your local area. Import the images into either a Word document or Powerpoint presentation. Include a text box showing the name.

List of native frog images on the CD

Common Name	Scientific Name
Bleating Tree Frog	*Litoria dentata*
Broad Palmed Frog	*Litoria latopalmata*
Broad Palmed Frog spawn	*Litoria latopalmata*
Common Eastern Froglet	*Crinia signifera*
Dainty Tree Frog spawn	*Litoria gracilenta*
Dusky Toadlet (adult male)	*Uperoleia fusca*
Fleays Barred Frog	*Mixophyes fleayi*
Fletcher's Frog spawn	*Lechriodus fletcheri*
Fletcher's Frog-(foam nest) and Red Eyed Tree Frog-(black dots)	*Lechriodus fletcheri* *Litoria chloris*
Great Barred Frog (striped)	*Mixophyes fasciolatus*
Great Barred Frog	*Myxophes fasciolatus*
Green Reed Frog	*Litora fallax*
Ornate Burrowing Frog	*Opisthodon ornatus*
Peron's Tree Frog	*Litoria peronii*
Scarlet Sided Pobblebonk	*Limnodynastes terraereginae*
Spotted Marsh Frog	*Limnodynastes tasmaniensis*
Striped Rocket Frog	*Litoria nasuta*
Verreaux's Tree Frog spawn	*Litoria verreauxii*
Tusked Frog	*Adelotus brevis*

Cane Toad images on the CD

There are a range of images to show how different the Cane Toads can appear at different stages of their lives. For example:

The eggs, or spawn, appear in long strings that hold together if scooped up, unlike the eggs of native frogs that are in a soft foam or jelly that does not hold together in long strings when picked up.

Cane Toad tadpoles have a larger head, shorter tails and are very black compared to most native frogs tadpoles.

The colour and patterning of the metamorph, or juvenile Cane Toad, looks similar to some native frogs. The very young Cane Toad metamorphs are dark in colour while some older ones have mottled patterns, in some cases resembling bands or stripes.

The female adult is larger than the male, as can be seen by comparing the size of the two Cane Toads shown in amplexus (mating.) Note the eggs are fertilised on the outside of the body

DID YOU KNOW

Frogs are masters of disguise to hide from hungry predators. Tree frogs are often shades of green while ground-dwelling frogs may be dull grey or brown, both blending into their natural environment. Peron's Tree Frog can even change colour, depending what it is sitting on.

Poisonous pests

DID YOU KNOW
'Mouthing' is when an animal has picked up something in its mouth, but not swallowed it.

Most Australian native species live in particular habitats and have a special diet. They all play their role in maintaining the balance of nature.

Cane Toads will eat anything they can catch and swallow, alive or dead. Male Cane Toads will even eat other Cane Toads. The diet of Cane Toads in Australia mainly consists of ants, termites, ground-dwelling beetles and native frogs. They upset the balance in the areas they invade because one Cane Toad will eat around 200 individual animals every night if possible, which is much more than native frogs. Cane Toads also take over the shelters of geckos, skinks and other small lizards.

All life stages of Cane Toads: egg, tadpole, metamorph and adult, are highly poisonous.

Adult Cane Toads produce poison in glands on the upper surface of the body. The poison causes heart failure, and can kill an average sized dog in 15 minutes.

Ornate Burrowing Frog tadpoles do not survive when Cane Toad tadpoles have been in the same pond. While the tadpoles of some native frogs grow slower and weigh less in the presence of Cane Toad tadpoles. Even small metamorphs will kill most types of snake that try to eat them. Wading birds, such as the Black-necked Stork and herons can also be poisoned.

Kookaburras, crows and bitterns have been found dead after mouthing or eating young or road-killed toads.

Cane Toads are a similar size and shape as some native frogs. Animals that eat native frogs cannot tell them apart from Cane Toads.

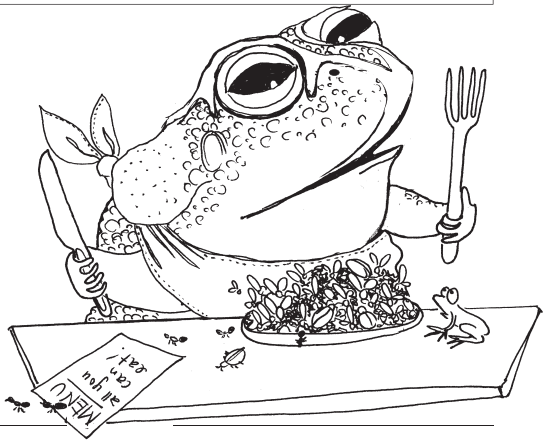
More than twenty five different types of native animal are known to have died after mouthing or swallowing Cane Toads, including quolls, goannas and frog-eating snakes. Quolls hunt for a number of types of native frog, including some that resemble Cane Toads. Quolls cannot tell the difference between a Cane Toad and a native frog and will die if they pick up a Cane Toad in their mouth.

1. After reading the information above, connect a line from each of the animals listed below to show if they are not '**eaten**' by Cane Toads or if the animals are '**poisoned**' by Cane Toads.

a. QUOLL
b. GECKO
c. KOOKABURRA
d. NATIVE RAINFOREST SNAILS
e. NATIVE BEES
f. GOANNA
g. BLACK-NECKED STORK
h. ANTS
i. ORNATE BURROWING FROG
j. RAINFOREST BEETLES (Nurus)

EATEN by Cane Toads

POISONED by Cane Toads



2. What is biodiversity? How do you think the invasion of Cane Toads into an area will affect it?

A Toad to Trap

just add warts

How can you be sure you have trapped a toad?

Remember the rap:

Poison glands, bony ridge,
An ear drum you can see,
Webbing on the back toes,
And dry skin that's warty.

To help you remember the features of a Cane Toad, colour in:

- poison glands on shoulder...red,
- bony ridge over the eye...yellow
- ear drum...blue
- webbing on back toes...orange
- horizontal pupil...purple.

Colour the rest of the toad warty brown and green and cut it out.

Cut strips of paper and paste them over and around the Cane Toad as if it is in a trap. You have trapped your toad.

Toad travel

Cane Toads have been found as accidental hitchhikers. They can become caught up in deliveries of garden mulch, bricks, timber, scrap metal, plants, soil and garden supplies in areas with Cane Toad infestations and delivered to areas where none are known to occur.

Cane Toad have slipped into a tent during folding, hidden under caravans, or among the luggage. They have also been found sheltering in the spare tyre.

These are the unwanted hitchhikers we know about, but how many are travelling to new areas undetected? This needs to stop!

Design a poster to tell people how Cane Toads are being accidentally transported around and how they can stop them from hitching a ride....

Answer the following questions to get you started...

1. Who is your poster aimed at?

.....

2. Where is a good place to put the poster up so that these people will see it?

.....

3. Who will you have to ask for permission to put your poster up?

.....

4. How will you ask for permission? A letter? A phone call? See them in person?

.....

5. Think of a catchy phrase to grab people's attention...

Write down the best three you can think of, then survey 5 people to see which one they think is best.

.....

.....

.....

6. Decide what image you want to use on your poster to make people notice it or help them to understand the problem better.

The image wanted is...

.....

7. How will you make your poster? paint? draw? use cut outs? digital print?

.....

poster plan

Trap that toad

FOR SCHOOL- BASED TOAD TRAPPING
If you live in an area where Cane Toads are a threat, contact your nearest NPWS Office and they will let you know how you can obtain a trap.

Background

There are several types of traps available. All have common features:

- something to lure the toads, such as flying insects attracted to a light
- a way to let them in, but not escape, such as one way finger gates or false floors
- they do not harm the captives, in case there are native animals caught and need to be released.

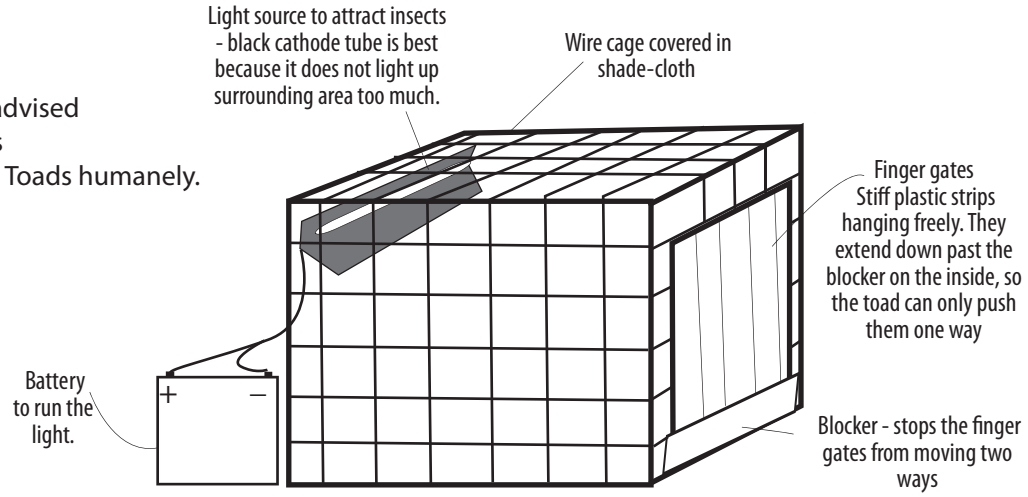
Cane Toads seek refuge during the day and come out at night. Ideally, traps should be set up in disturbed areas with a high proportion of open ground, low levels of vegetation and gently sloping banks. Cane Toads are not good at climbing, so any obstacles that could prevent them from entering should be removed, or the trap relocated.

Aim

To 'Trap that Toad'

Method

- Set up the trap as advised
- Record your results
- Dispose of all Cane Toads humanely.



Results

Day number	Weather conditions	Number of toads captured	Other animals captured	Comments
1				
2				
3				
4				
Total				

Conclusion

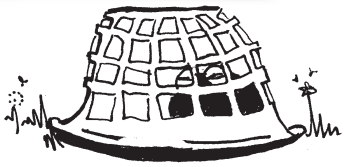
Make a model of a trap using recycled materials, such as an old shoe box.

Do not ever be disappointed if you do not find any Cane Toads, because that is a good outcome for the environment .

Check for the toad

There are lots of things you can do to help stop the Cane Toad invasion in your area.

Check around



Be on the lookout. If you think you have found a Cane Toad then:

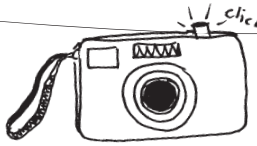
TRAP THAT TOAD!

A laundry basket is ideal.

Look for the features of an adult Cane Toad.

Remember the rap:

Poison glands, bony ridge,
An ear drum you can see,
Webbing on the back toes,
And dry skin that's warty.



Take a photograph or write down the features of your find and contact the local National Parks and Wildlife Office or your local council.

Do not remove it from the area until its identity is confirmed. Do not handle it, and remember it is a offence to keep a native frog without a permit. If it is a Cane Toad, then its identity will be officially confirmed and it will be recorded.

If it turns out to be a native frog, remove the trap and allow it to hop away.

Checklist for your yard

See how Cane Toad unfriendly your yard is. Walk around and tick the box if the statement is true:

Remove food

❑ Uneaten pet food is covered or taken inside over night.

❑ Compost food scraps are covered if at ground level.

❑ Excessive outside lights are turned off overnight, because they attract insects.

Remove water

❑ Water containers are removed or in difficult to reach places for a Cane Toad.

Create barriers

❑ Toad-proof barriers such as fences and native ground cover plants are used:

Remove shelter

❑ There are no piles, such as bricks, timber, or rubbish that provide sheltered spaces for Cane Toads to hide.

Remember...

Cane Toads will eat anything they can catch and swallow.

Cane Toads need to sit in water at least every two days. They take in the water they need through their skin.

Plant native ground cover around the edges of your garden, dams and ponds. Cane Toads carry themselves close to the ground and will avoid going over low, scratchy vegetation.

A smooth barrier 50 centimetres high is ideal to keep Cane Toads out. Toads cannot climb up smooth surfaces or get a foothold. Mesh with small holes is also good.

Cane toads feed at night and rest in cool shaded places during the day to avoid the drying effects of the sun.

Cane Toads should be treated and disposed of in a humane manner.

Cane Toads can be composted to make great fertiliser.

CHECK YOUR SCORE
6 ticks: Excellent.
Your yard is Cane Toad unfriendly
3-5 ticks: Good.
However, there is room for improvement.
What can you suggest?
0-2 ticks: Poor.
Work out what can be easily

To find out more...

Some useful websites:

www.environment.nsw.gov.au
www.amonline.net.au
www.frogs.org.au
www.frogwatch.org.au
www.fats.org.au

For more specific information:

- New South Wales National Parks & Wildlife Service
  www.environment.gov.au/biodiversity/invasive/publications/cane-toad
  www.npws.nsw.gov.au/wildlife/pests/canetoads/spread.html
- Big Scrub Environment Centre - Cane Toads in northern New South Wales
  www.bigscrub.org.au
- Information on how to build frog friendly ponds
  www.frogwatch.org.au/canetoads/
- Commonwealth Scientific and Industrial Research Organisation
  www.csiro.au/page.asp?type=faq&id=CaneToadControl

Useful references

- *Cane Toad Management Policy* and Procedures (2007) NSW Department of Environment and Climate Change
- Robinson, M (2005) *Field Guide to Frogs of Australia,* An Australian Museum/ Reed New Holland Publication

Contact your local council or NPWS office to find out when the next Cane Toad Muster (Cane Toad Community Round-up) event is planned in your area.

Community events are very successful. In the 2007 Cane Toad Muster in Yamba, 165 volunteers collected over 1126 cane toads in one evening! It is fantastic that so many people in a small community are willing to help. What is your community doing?

Awarded to:

.....

for

.....

Thank you for helping our native animals

TRAP THAT TOAD

.....

Answers for worksheets

page 2 About Amphibians

1.

a. terrestrial	6. Lives on land.
b. vertebrate	5. An animal with a backbone
c. aquatic	4. Lives in the water.
d. herpetology	3. Study of amphibians & reptiles.
e. mucous	8. Thick, slimy protective coating
f. camouflage	7. Some amphibians are hard to see because they are the same colour as their surroundings.
g. metamorphosis	1. A gradual process when larvae change shape and form into adults
h. cold blooded	2. Body temperature stays about the same as the temperature of the surroundings.

2.
a. frogs and toads
b. salamander and newts
c. caecilians

page 3 Sensitive skin

1. False. Frogs do not have claws and large teeth to protect themselves.
2. False. Some frogs have smooth skin, while others have thick, leathery skin to help protect them from drying out if they prefer to live away from a stream or pond.
3. False. Frogs have a moist, slimy mucous that protects their skin.
4. True. Some frogs have glands in their skin that make poisons to hurt or kill other animals that might try to eat.
5. False. Frogs are camouflaged for the environment in which they live. Some frogs are the colour of leaf litter and the brown mottled colour of the ground, while others have coloured patterns.

page 4 Metamorphosis mix up

1. Males call - they gather at night into large groups to find partners.
2. Mate during a rainy period
3. The females lay many eggs at one time. The eggs do not have shells but are enclosed in a jellylike substance. The adults usually leave the eggs unguarded.
4. The eggs develop and hatch in water or another moist place. The eggs hatch into larvae with gills, Frog and toad larvae are known as tadpoles.
5. Among tadpoles, the hind legs develop before the front legs do.
6. a flattened tail, and may develop tiny limbs.
7. The larvae slowly lose their gills and develop lungs. The adult breathes using lungs.

Note: Female toads lay more than 30,000 eggs at a time. As the female deposits eggs (spawn) in the water, the male clings to her body and fertilizes them. Toad eggs look like tiny, black spots enclosed in long strings of clear jelly. The jellylike substance helps protect the eggs.

Within a few days, small tadpoles hatch from the eggs. The tadpoles remain in the water as they go through metamorphosis. In this process the tadpoles gradually develop the features of the adult toad. In most toads, metamorphosis takes from three to eight weeks. The young toads then leave the water and begin their life on land. Young toads grow rapidly. Some reach adult size in a year or less.

page 5 What's in a name

1. Burrowing, Marsh, Tree, Cane
2. Barred (bands on legs), Spotted, Striped , Dwarf, Wrinkled, Green, Brown, Frog, Froglet, Toadlet, Toad
3. Bleating
4. Fletcher's, Verreaux's

page 6 On the lookout

1. Mistaken for Cane Toads

page 7 Frog or toad, crack the code.

Toads have stout bodies, dry warty skin and do not climb well.

page 11 Cane Toad Quiz

1. Giant Toad, Marine Toad
2. Most prominent is on the shoulder at the back of the neck behind the ear.
3. Poisonous, deadly, lethal, venomous
4. More tadpoles competing for the same means that there is less food available.
5. 60,000 x 10 =600,000 x 0.5 =3,000 surviv
6 NSW - 4000m /365 = Cane Toads travel 11 metres /day resources
Northern Terriory - 22000 /30 = Cane Toads travel 733 m/day e
7. Increase in temperature means faster br times. More breeding in general during the season. Too cold in Tasmania for Cane Toads to br
8. Depends on container - generally, more than 5, less than six. eeding wet eed.

page 13 Frog or feral

A. Striped Marsh Frog
B. Northern Pobblebonk
C Ornate Burrowing Frog
D. Dusky Toadlet
E. Cane Toad
F. Great Barred Fog
G. Peron's Tree Frog
H Giant Burrowing Frog

page 18 Poisonous pests

1. Eaten by: (Cane Toad eats) b,d,e,h,i,j,
Poisoned by (eats Cane Toad) a, c , f, g, i
2. Decrease in biodiversity.

Northern NSW Tadpole Identification

Great Barred Frog (*Mixophyes fasciolatus)*



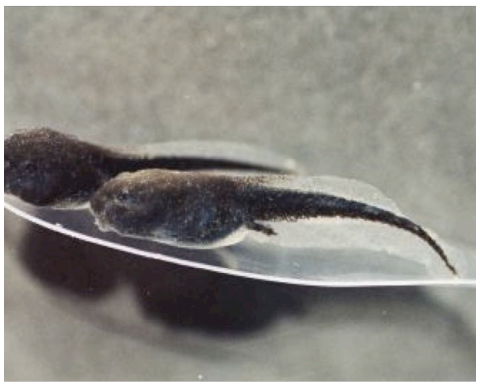
Giant Barred Frog (*Mixophyes iteratus)*



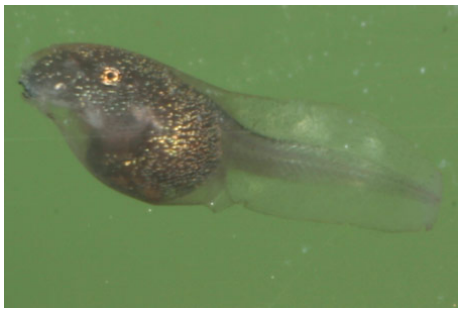
Green Tree Frog (*Litoria caerulea)*



Cane Toad (*Bufo marinus)*


Spotted Marsh Frog (*Limnodynastes tasmaniensis)*

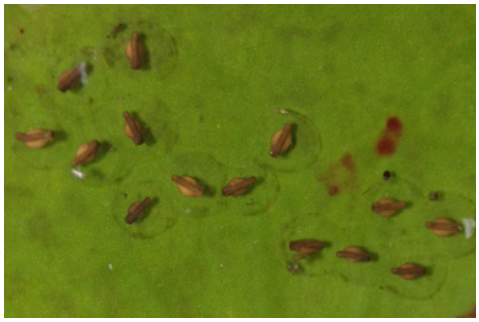




Common Eastern Froglet (*Crinia signifera)*



Peron's Tree Frog (*Litoria peronii)*





Northern Banjo Frog/ Pobblebonk (*Limnodynastes terraereginae)*



Ornate Burrowing Frog (*Opisthodon ornatus)*