

Pestnote

Cane toad

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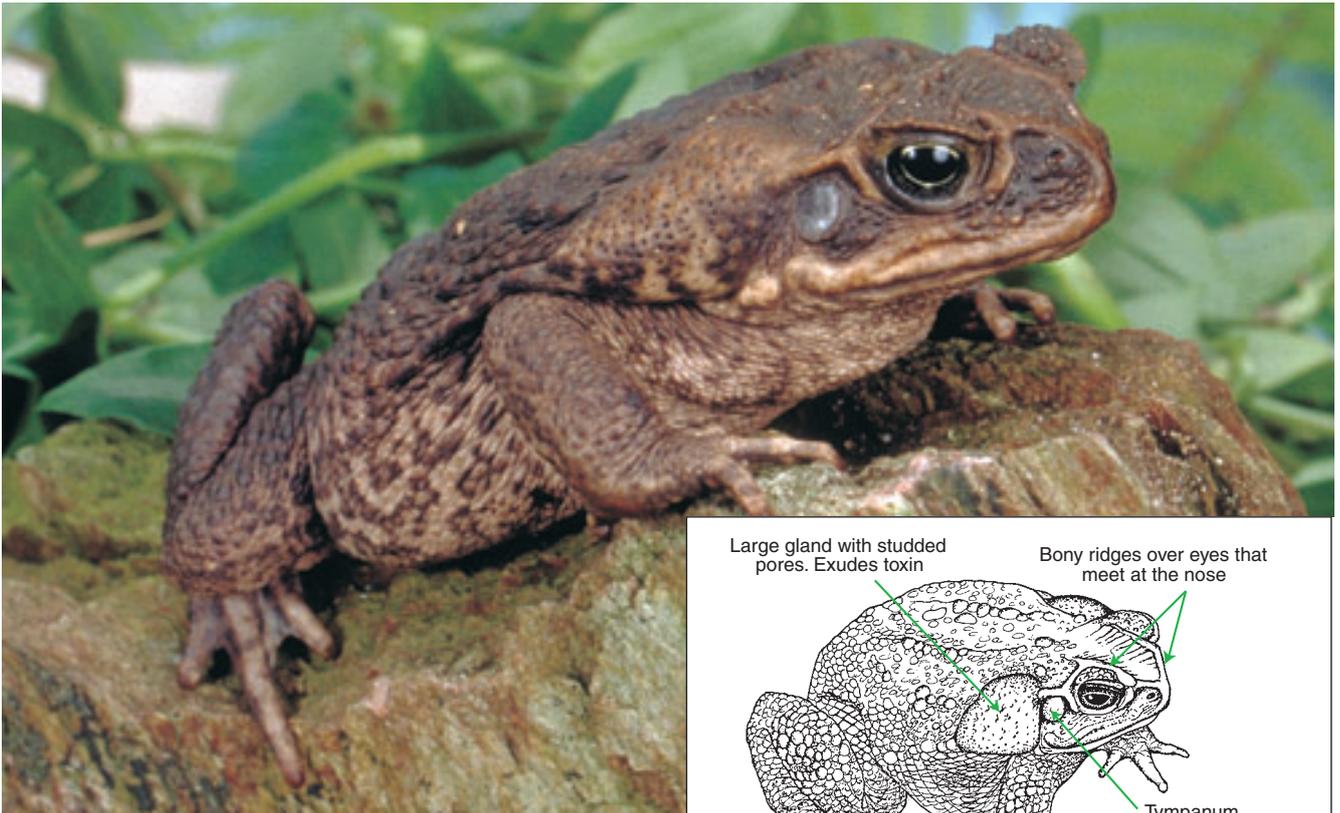


Figure 1. Cane toad (*Bufo marinus*) (Photo Robyn Knox).

The Cane Toad (*Bufo marinus*) or Giant Toad is native to south and central America. It has been introduced to many countries, including northern and eastern areas of Australia. Cane toads are prohibited in Western Australia: it is illegal to bring them into the State and toads found here are removed.

Identification and behaviour

Cane toads are the only true toads present in Australia. They are heavily built, with rough, warty skin and can be typically 100 to 150 mm in length (see Figure 2 for their distinguishing features). In areas of high toad density, individuals rarely exceed 100 mm in length, but they can grow to more than 230 mm and more than one kilogram in weight. The skin of cane toads is dry and leathery (rather than moist) and slippery, like many native species. They can range from dull brown, yellowish to blackish on top (never bright colours like

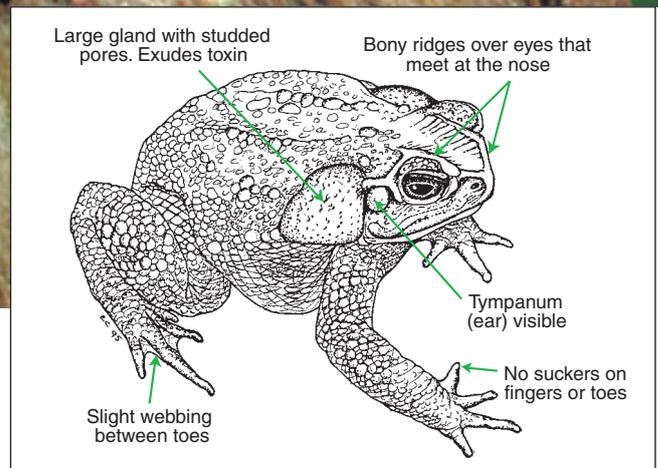


Figure 2. Distinguishing features of the cane toad. (Illustration E. Cameron, copyright © Australian Museum).

green or red) and rarely with any marked pattern, while their light underparts are usually mottled with brown. The large (parotid) glands behind the head can exude a poisonous milky substance when the toads are disturbed. The call of the male is a broken *brrrrrrr* sound similar to a telephone dial tone.

Like many native species, adult cane toads are nocturnal. They are active in open areas such as roads and lawns, sometimes congregating beneath street lamps to catch insects. Where cane toads have become established in the wild, they can occur in much larger numbers than native species.

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Cane toads are poor climbers and are unable to jump very high, and unlike some native species, they cannot climb up smooth surfaces.



Figure 3. Cane toad spawn, tadpoles and juvenile toads.

The egg masses (spawn) of cane toads are unlike those of most native species and the tadpoles are also different (Figure 3). Cane toads produce long chains of black eggs about 1 mm in diameter, enclosed in a thick transparent or gelatinous cover, to form long string-like strands about 3 mm thick.

Tadpoles are jet black, about 30 mm long with a comparatively short tail, a pointed snout and a non-transparent abdomen. The tadpoles of native species are generally very dark (but not jet black) with a lighter or transparent abdomen. Cane toad tadpoles form large, slow-moving shoals that do not periodically rise to the surface to 'breathe'. In contrast, the tadpoles of native species do rise to the surface, having developed lungs sooner.

Newly formed toads are conspicuous by their small size (9 to 11 mm) compared to adult toads, and by their large numbers and daytime activity near the watery breeding site.

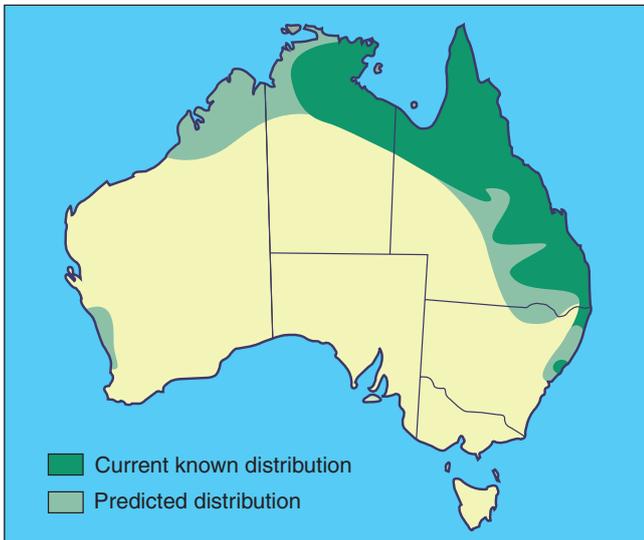


Figure 4. Current and predicted distribution of the cane toad in Australia. (After Sutherst et al. 1995, updated with information from the Northern Australian Frogs Database System <http://www.frogwatch.org.au/>).

Food

Cane toads are omnivorous, eating whatever they can fit into their mouths, including bees and dung beetles, small amphibians (including other cane toads), reptiles and mammals. Unlike native amphibians, cane toads also eat things that do not move, including pet food and the excreta of other animals.

Distribution and habitat

The cane toad is found naturally from Brazil, through central America to eastern Mexico and the Rio Grande Valley in Texas, but it has been introduced into many countries including other parts of the Americas and many island groups. Cane toads were introduced into Puerto Rico, Hawaii and the Philippines in the 1920s and 1930s to control insect pests of sugar cane but there is no evidence that they were effective. In 1935 cane toads were distributed through cane growing areas in Queensland, Australia, to control greyback cane beetles. They did not control the beetles but ate large numbers of beneficial insects.

The distribution of cane toads in Australia is expanding and climate-matching indicates that they could eventually spread over most coastal areas from the Kimberley to central New South Wales (see Figure 4). In the Northern Territory they are spreading west and they will reach soon Western Australia. They have also been able to colonize off-shore islands in the Northern Territory.

Reproduction and longevity

In Australia, cane toads normally breed from June to January, but some breeding occurs throughout the year. Females produce 8,000 to 35,000 eggs at a time and can breed at least twice a year. Cane toads normally lay eggs in slow-moving freshwater streams or dams, but can also use brackish water and temporary waters like puddles. Tadpoles hatch in 48 to 72 hours and, depending on temperature and food, they can change into toads in 17 to 180 days. Toads can live for at least 15 years in captivity, and individuals have bred for at least five years in the wild.

Damage and impact

Toads have a destructive effect on beneficial insects like dung beetles and constitute an economic threat to beekeepers. They also pollute water holes, drinking troughs and swimming pools, and can block drains.

Native animals are vulnerable to cane toads and are often reduced in number when cane toads first arrive. Toads also compete with native species for food and consume native invertebrates. They are also known to carry diseases that can be spread to native frogs. Native animals affected by cane toads so far in Australia include frogs, reptiles, fish, and native mammals including quolls. There are some reports of native predators learning to consume cane toads safely but the longer-term impact of cane toads on native fauna is not yet clear.

Cane toad poison is highly toxic to many animals and causes pain if it contacts the eyes. The eggs and tadpoles of toads are also poisonous. Dogs and cats which mouth or bite cane toads sometimes die without proper veterinary care.

Control

Biological control may be the only practical means of reducing the number of cane toads across large areas but studies so far are not promising. Gene technology is also being investigated as a potential control method. Various methods for reducing toad numbers over smaller areas, including traps and fences, are also being investigated.

Cane toads are often transported in shipments of fruit and other goods. Travellers entering Western Australia, particularly those coming from the Northern Territory, should also be very careful that cane toads do not hitch a ride on camping gear, vehicles or other goods. (Cane toads have been discovered in pot plants being

transported into the State from Queensland and in a shoe left outside before being packed for travel back to Western Australia.) Until effective control methods are available, quarantine checks, public awareness and the removal of any toads found are essential to reduce their rate of spread.

Native frogs sometimes mistaken as cane toads

The photographs below, arranged by geographical region, will assist in identifying native frogs that are mistaken as cane toads. (See also the Key following these pictures.) Many of these native frogs burrow and only emerge after rain. This sometimes gives the impression that they have suddenly 'arrived' in the area. Frogs can also vary greatly in colour and patterning, so these photographs are only a guide.

South-West



Figure 5. Motorbike frog or western tree frog (*Litoria moorei*) (53–74 mm). Variable in colour and markings. Usually with pale dorsal stripe and dark stripe from nose through eye and ear. Suckers on fingers and toes. (Photo D. Robinson)
Distribution: Murchison to Pallinup River.



Figure 6. Moaning frog (*Heleioporus eyrei*) (45–63 mm). Often has prominent eyes. Brown with greyish, white or yellowish marbling on back and sides. (Photo D. Robinson)
Distribution: Coastal south-west and south coast, Geraldton to Cape Arid.



Figure 7. Banjo frog (*Limnodynastes dorsalis*) (60–75 mm). Usually has reddish colour to inner thigh, a pale dorsal stripe and a prominent lump on calf. (Photo R. Browne-Cooper)
Distribution: Lower Murchison to Cape Arid.



Figure 8. Hooting frog (*Heleioporus barycragus*) (60–86 mm). Chocolate-brown frog with raised yellow spots on sides. (Photo G. Harold)
Distribution: Darling Scarp, Bullsbrook to Darkan and Dryandra.



Figure 9. Humming frog (*Neobatrachus pelobatoides*) (37–44 mm). Dull green to pale yellow with irregular dark brown/grey-green patches. Usually with fine pale red stripe down the back. (Photo R. Johnstone)
Distribution: Central west to south coast and agricultural areas between.

Gascoyne



Figure 10. Water-holding frog (*Cyclorana platycephala*) (40–68 mm). Flattened head with eyes pointing up. Toes (but not fingers) are fully webbed. (Photo B. Maryan)
Distribution: Gascoyne district east through desert.

Further information

If you think you have seen a cane toad or require other information, please contact the Department of Agriculture on free call 1800 084 881, tel. 9368 3666 or by emailing info@agric.wa.gov.au

Kimberley/Pilbara



Figure 11. Giant frog (*Cyclorana australis*) (71–102 mm). Has a poorly defined dark stripe from the nose, through the eye to the jaw, also has folds of skin on the sides of the body. (Photo D. Robinson)
 Distribution: East Pilbara to the Kimberley and Gulf of Carpentaria.



Figure 13. Northern burrowing frog (*Neobatrachus aquilonius*) (48–59 mm). Yellow with dark irregular blotches, short limbs, ear drum not visible. (Photo B. Maryan)
 Distribution: West Kimberley, Pilbara, east Gibson Desert.



Figure 12. Ornate frog (*Limnodynastes ornatus*) (36–42 mm). Large bulging eyes, can be elaborately patterned, occasionally with lighter dorsal stripe or band, limbs barred with dark bands. (Photo G. Harold)
 Distribution: Kimberley.



Figure 14. Desert spadefoot (*Notaden nichollsi*) (42–65 mm). Dull orange/olive grey/brown, short legs, long fingers and toes. Black 'warts' and scattered spots. Exudes smelly poison when disturbed. (Photo B. Maryan)
 Distribution: Southern Kimberley, Pilbara and through the Great Sandy Desert to the Northern Territory.

Key to Distinguishing Cane Toads from Native Frogs

The following key will assist in determining if the 'frog' seen might be a cane toad.

It is not possible using this key to identify native frogs, but the following reference books will assist. They include: 'Frogs of Western Australia' (2000) by Tyler, Smith and Johnstone, WA Museum publishers.

'Reptiles and Frogs of the Perth Region' (1995) by Bush, Maryan, Brown-Cooper and Robinson, University of Western Australia publishers.

'Reptiles and Amphibians of Australia' (2000) by Cogger, New Holland Publishers.

Further information on cane toads is available on the internet and in the book 'The Cane Toad – The history and ecology of a successful colonist' (2001) by Christopher Lever, Westbury Academic and Scientific Publishing.

- 1. Tips of fingers have discs (or suckers) Not cane toad
 Tips of fingers without suckers Go to 2
- 2. No tympanum (ear drum) visible Not cane toad
 Ear drum clearly visible Go to 3
- 3. Fingers have webbing (full or partial) Not cane toad
 Fingers do not have webbing (but toes have slight webbing) Go to 4
- 4. No obvious gland or large lump behind head on the shoulder area Not cane toad
 Obvious gland on shoulder area (exudes white secretion 'poison' if squeezed) Go to 5
- 5. Eyes smooth, rounded and bulging or small and inconspicuous Not cane toad
 Eyes with bony ridges (or brows) above that meet at the nose **cane toad**

If after following this key, the animal seen appears to be a cane toad, please report to the Department of Agriculture on free call 1800 084 881, tel. 9368 3666 or by emailing info@agric.wa.gov.au