The Cane Toad: is it Australia's Saviour?

There is no room for emotion when formulating long-term conservation strategies.

Brian Bush

Cane Toad (*Bufo marinus*) Photo: Brad Maryan.

Recently in Western Australia, there has been considerable media coverage of the very successful, naturalised exotic, cane toad (*Bufo marinus*). Here is an organism considered paradoxically when compared with the multitude of other naturalised exotics that have found their way to Australia since European settlement. It has to contend with an opposite, very negative point of view. I suppose it is not as cuddly as a feral donkey, horse, or camel!

Listening to some of the anecdotes presented as fact by experts, one has to believe that Queensland, where the cane toad is not a declared noxious pest, has become devoid of indigenous wildlife since the introduction of the toad back in 1935. This is not so. It has not caused the extinction of any animal. Native species are rapidly adapting to coexist with it and include it in their diet. With such a reliable source of food available, these contemporary species will do very well.

In *The Action Plan for Australian Reptiles* (1993), the only frog-eating snake considered vulnerable because of the cane toad was the Queensland Ornamental Snake (*Denisonia maculata*). However, it is not the case, as shown recently when large numbers of this snake were accidentally trapped in an open trench.

Wild goats near Wooramel, WA: Efficient exotic herbivores.

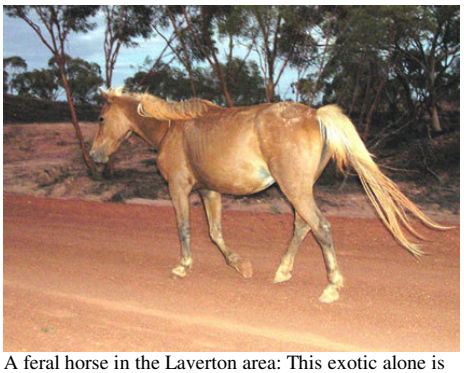
A spokesperson for Aboriginal people in the Kimberley said that the cane toad's move west would threaten bush tucker, however this has not happened to any extreme degree in Queensland. Aborigines living there continue to harvest traditional tucker, but may have to work a little harder to find it. The toad does not have a negative influence on freshwater turtles, nor barramundi. The yellow-spotted monitor, a primary food species for many Aborigines, declines in numbers by up to 80% when the toad arrives, only to adapt to its presence and recover in a short time. No other monitor lizards are affected to any great degree by the toad's arrival.

Cattle: just another of the Oz exotics, and one destroying much of the Kimberley with trampling and overgrazing.

Some commentators describe the Kimberley as, "Pristine: the last frontier, a 'Mecca' for tourists". They believe the toad will ruin it. I can only assume that they have not visited the region recently. The degradation caused by cattle and over burning is disgusting, and what about all those bloody donkeys! One would have to be a fool to say Queensland's tourism industry has suffered because of the toad – it is probably the most visited state in Australia!

A friend was recently in the Bungle Bungle Range. He likened it to Heathrow Airport – helicopters and small planes filled the sky. He almost needed a gas mask to filter their exhaust fumes from the polluted air.

The northern quoll is considered vulnerable because of the toad too, although I have been told that in the eastern part of its range it successfully harvests cane toads, eating the meat and entrails, leaving behind the skin and poison glands – magpies, ravens and introduced rats do this too. The rainbow bee-eating bird might be under the pump in some areas due to the toad using its ground nesting burrows as refuges. I suspect this will have no long-term negative impact on bird numbers, only on areas selected for its breeding burrows. There is evidence that the toad causes a reduction in the local abundance of some native frogs, lizards and snakes, but so does drought, fire, flooding and a multitude of other environmental factors, not least, competitive exclusion caused by domestic animals.



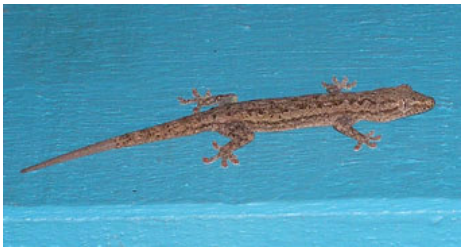
A feral horse in the Laverton area: This exotic alone is involved in an average of twenty-one deaths each year in Australia.

There have been reports of deaths in freshwater crocodiles that have attempted to eat toads, although recent studies suggest no change in abundance of crocodiles in areas where the toad occurs.

Wild camels in the Great Sandy Desert, WA: Trampling exotic herbivores.

WA already has a vast number of naturalised exotic animals, from European honeybees, our deadliest venomous animal considering the human fatalities caused by it, to camels. Travelling through the Gascoyne, the most common mammals seen are foxes, goats and rabbits, while in the Great Sandy Desert, the assemblage is different, but naturalised exotics all the same – camels, donkeys and wild dogs are the most prolific.

Many Australian geckos that move onto buildings are members of the genus *Gehyra.* Because of my interest in reptiles, I regularly check buildings at night for geckos. In Broome, in July 2005, the only species on the local buildings was the naturalised exotic Asian house gecko (*Hemidactylus frenatus*): a very successful introduced lizard that lives in association with people and their homes. It will rapidly displace the indigenous *Gehyra* spp., but I suspect, only on human structures.



An exotic Asian house gecko, Broome Boulevard, WA.

In 2004, twenty-four species of snake were known to occur in the Perth region – now there are twenty-five, with the global flowerpot snake (*Ramphotyphlops braminus*) having been recently recorded. This snake occurs adjacent to most of the northern ports, including Port Hedland and Karratha in Western Australia, and Christmas Island and Guam, overseas. Its success is its parthenogenetic reproduction: there are no males and it produces a 'clone' of itself. This beneficial trait allows the rapid naturalisation of new areas, with only a single individual needing to arrive to establish a resident population. From a natural selection perspective, this type of reproduction appears counterproductive. In producing a genetic replica of itself, how does it adapt to the changing environment? The secret here is that it spends most of its life underground where the earth insulates it significantly from environmental changes occurring on the surface.

Tim Low, author of *New Nature* says it all.

"Why the toad? Australia's history, whether we like it or not, is also founded on countless purposeful and inadvertent introductions of vertebrates, invertebrates and plants. It is part of this young country's history, most of these naturalised exotics have blossomed like the toad, so why condemn them for being successful?"

Historically, the environment has destroyed every human culture that dared to become affluent and tried to control it. Why should we be any different? History has a way of repeating itself:

- Most of our major waterways are polluted.
- Much of our agricultural land is degraded.
- Naturalised exotic animals are rampant.
- Exotic weeds are changing the landscape forever.

The list goes on!


Just another exotic: Australia's deadliest venomous animal on humans, the European honeybee, Perth, WA.

Components of any faunal assemblage will include more recently arrived and evolved species. These are no less integral to the contemporary biodiversity than the primitive and traditional forms. Their contribution to the Earth's 'living engine' is equally as important, and they must be considered more positively in future management strategies.

How about the negative impact of the anti-toad campaign? When the Environment Minister at the time, Dr Judy Edwards said to, "Stomp on a cane toad.", she did not give it much thought. She must have believed that every member of the public could identify *Bufo marinus*, however, this is not the case, with many native frogs, both in northern parts and in the southwest, stomped on too!

Now back to the cane toad and its positive contribution. The decline of frogs worldwide may have a tremendous detrimental impact on biodiversity. A healthy population of frogs can harvest as much as one tonne of invertebrate protein per hectare, per year and move it into the food chain. Our native frogs are declining too, not only in areas adjacent to human habitation and pollution as one might expect, but also in the pristine high country of Eastern Australia. The major natural cause of this latter decline is the chytrid fungus and possibly climate change too, although these appear to be having little negative impact on the toad, which is thriving in spite of frogs' problems!


Wild donkeys in the Great Sandy Desert, WA: Trampling exotic herbivores.


Here we go again! Commonly seen is the introduced laughing turtledove, Perth, WA.

Traditional native animals, through natural selection, have and will continue to develop resistance to the toad's poison, allowing it to become an important part of the natural food chain. Without a replacement for our declining frogs, I doubt that we will be able to exclude the ever-increasing pest invertebrates from our food, both in storage and in production. I dare not consider the more dramatic negative impact the corresponding decline in Australia's biodiversity would have on the environmental health of this continent! The cane toad maybe the substitute we need for the vanishing indigenous frogs. Despite being introduced to about forty countries worldwide, only Australia and Fiji are formulating plans to try to eradicate or control it.


The laughing kookaburra commonly seen in the southwest is not native to Western Australia – it was introduced in about 1900!


The ubiquitous red-backed spider may be another of Australia's exotics, as evidenced by its predilection for our buildings and junk.

Footnote One: THE ENVIRONMENT NEEDS WEEDS TOO!

I define weeds here as any plant or animal that is highly successful now, but does not contribute to the economy, or does not elicit an empathetic response in people.

We have little success controlling nature. How about the humble rabbit in Australia? We have targeted it with myxomatosis, 1080 poison, strychnine poison, phostoxin, calisi virus, plus trapping, shooting and a myriad of other forms of hunting, but the humble rabbit has beaten us every time. I reckon the rabbit is now almost as iconic in Australia as kangaroos and emus.

If you are concerned with the environment, think twice before jumping on the "kill the cane toad" bandwagon. Using the eradicate weed philosophy as a conservation strategy is flawed from the start, and is the same practice that saw the cane toad introduced to Australia. Biodiversity conservation requires the weeds too, even if they are recent introductions, and do not elicit an empathetic response in the media and general populace.

Footnote Two: A STRATEGY THAT IS REQUIRED FOR BETTER BIODIVERSITY MANAGEMENT

The current economic boom in the resource industry has caused many traditional farmers and their children to leave agriculture for the better income available working in the mining and exploration field. The opportunity is better today than it will ever be for state governments to purchase marginal agricultural land and allow it to revert to a wild state. By marginal, I refer to agriculturally cleared land adjacent to bushland, which will allow natural revegetation to occur via recruitment from the adjacent uncleared areas, alleviating the need to intervene with re-seeding. I believe this to be a far better option now than the purchasing of pastoral holdings that already support a diversity of natural vegetation types and a corresponding animal diversity.

Some of Australia's naturalised exotic animals: the new fauna!

African black beetle
Asian house gecko
Binoe's gecko (WA local exotic)
Blackbird
Buffalo
Camel
Cane toad
Carp (European and Chinese)
Chital deer
Cichlids (several other exotic fish)
Domestic cat
Domestic cattle
Domestic dog
Domestic goat
Donkey
European brown hare
European fox
European goldfinch
European honeybee
European rabbit
European wasp
Fallow deer
Fire ant
Flowerpot snake
Hog deer
Horse
House mouse
Indian myna
Kookaburra (Southern WA exotic)
Laughing turtledove
Mallard duck
Morning gecko
Mosquito fish
Peach-faced lovebird
Pine woodborer
Pigeon
Pig
Portuguese millipede
Rats (various species)
Rainbow lorikeet (WA exotic)
Red deer
Red-eared slider
Red strawberry finch
Rock dove
Rusa deer
Sambar deer
Sheep
Sparrow
Spotted turtledove
Squirrel
Starling

FURTHER READING

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