

ALIENS VS PREDATORS

AS I drive along the highway from Darwin, through a town called Humpty Doo, it's hard to believe I'm in cane toad territory. It's a scorching 42 °C and the tropical savannah alongside the road is bone dry, a patchwork of fire scars, red dirt and brown leaves. It is the end of the dry season, and there has been no rain to speak of for more than three months. This isn't the kind of place you would expect to find water-loving amphibians from the Amazon – not even killer supertoads – but they are here.

I'm heading to a nearby wildlife reserve called Fogg Dam to visit biologist Rick Shine. After spending decades studying native water pythons, Shine switched his focus to cane toads as they neared Fogg Dam a decade ago. "It was an obvious opportunity to work out what the impact would be," he says as he shows me around his lab – an old brick building connected to a couple of large sheds. All around are small pools, cages and even ice cream containers full of toads of various ages.

As the toads invaded Fogg Dam, Shine, who is based at the University of Sydney, got some of the first hard data on their impact. What he has found is that the Australian cane toad invasion is both far worse than anyone thought – and also not nearly as bad.

The toads are spreading further and faster than anyone expected, and they do have a devastating impact when they first arrive in a region. But most animals are adapting to their presence surprisingly quickly, and some even benefit. "If you're a frog, the toad is your superhero," says Shine. "You've got its picture up on the wall. This guy is coming in, he looks

The cane toad is spreading ever faster across Australia, killing anything that tries to eat it. Yet the feared wildlife catastrophe hasn't happened, finds Michael Slezak

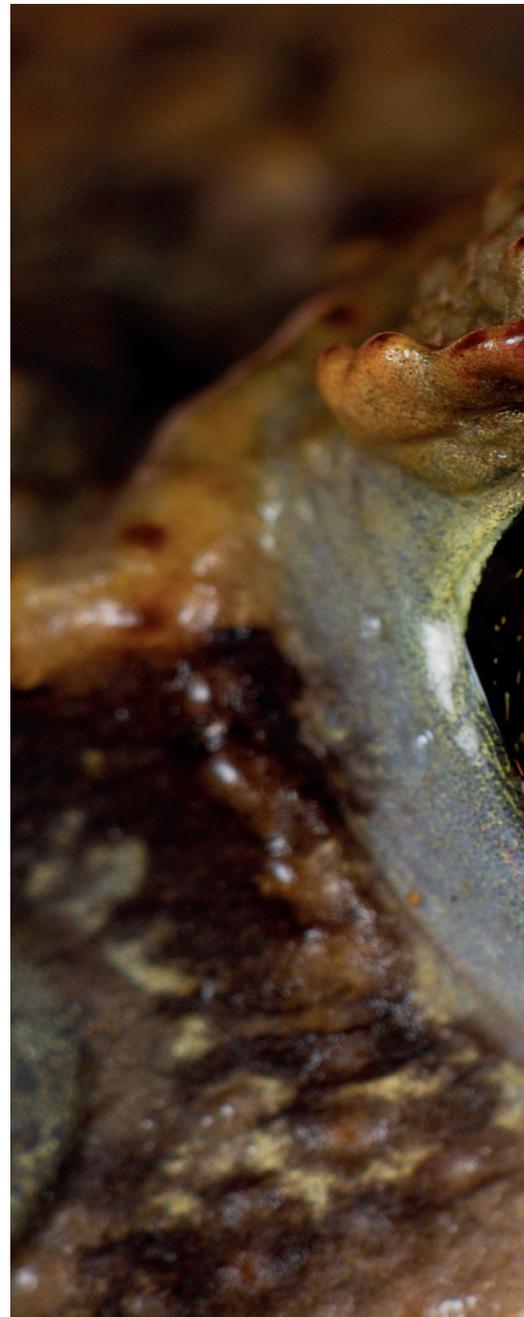
like a frog and is killing everything that attacks frogs. If you're a green tree frog, what more could you hope for in life?"

So while many biologists still fear that the toads will have dire consequences, Shine is more optimistic. "I came into this thinking 'I'm going to be documenting a catastrophe,'" he says. "I've gone to thinking it's a good-news story about the resilience of ecosystems." Could he really be right?

The toad invasion began in 1935 when 102 young cane toads were brought to Queensland from Hawaii (see map, page 43). At the time, the toads, native to South America, were being deliberately introduced to many sugar-cane growing regions across the tropics to control

pests – despite there being little evidence that the ground-living toads could control pests on 3-metre-high sugarcane. They have thrived in most of their new homes.

In Australia, the toads got little attention for decades, even as they slowly spread and multiplied. But then a pet quoll – a small carnivorous marsupial native to Australia – belonging to Mike Archer died after trying to eat a toad. Stung by denials that the toads were toxic to native wildlife, Archer, a palaeontologist at the University of New South Wales, went around collecting reports of pet dogs and native predators dying after trying to eat the toads. His 1975 paper alerted people to the potential impacts. "That was the turning





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point where we really started to say to zoologists that this is a disaster,” says Archer.

No one doubts any longer that cane toads are killers. Not only do they eat any animal they can stuff in their mouths, they also produce toxins in their skin that, when absorbed through the mouth or eyes, can stop the heart. Most animals that try to eat them die – which is very bad news given that the toad army now numbers in the hundreds of millions, and in places there are more than 2000 toads per hectare.

These factors led many biologists to predict ecological meltdown. “You can now forget about Kakadu,” biologist Mike Tyler of Adelaide University was reported as saying

in 2002, as the toads moved into the world heritage site Kakadu National Park near Darwin. “Kakadu is lost.”

The toads are now racing towards a region of north-western Australia known as the Kimberley. “Many very distinctive Australian native species now only occur there,” Shine says. Cats, fungi, habitat loss and other pressures have wiped them out elsewhere. “So the Kimberley really is the last hold-out for the things that are in desperate trouble.”

No one expected the toads to move so fast. Initially, they only advanced about 10 kilometres per year. Now they are moving more than 55 kilometres per year. In 2009 they crossed into Western Australia, more

Look into my eyes: I’m evolving to be faster, feistier and possibly smarter too

than 4000 kilometres from where they began.

When Shine’s team strapped radio trackers on the toads as they moved past Fogg Dam and into Darwin between 2001 and 2005, they found the invasion front was averaging an incredible 250 metres every night. Individual toads sometimes went much faster. One of the toads they tracked travelled almost 22 kilometres in a single month.

The docile, fat toads Shine knew from the farms of Queensland simply couldn’t do that, he thought. So he examined the toads on the front line and found something remarkable. ➤

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