

# Species at risk from cane toads

## Training northern quolls to avoid cane toads



Two hundred years ago, dasyurid marsupials such as the northern quoll (*Dasyurus hallucatus*) were abundant over the Australian continent, and played a major role as top predators in most Australian ecosystems. Since then, all of the larger dasyurid species have declined dramatically. In the Northern Territory, northern quoll populations have plummeted due to the invasion of the highly toxic cane toad. Quolls die when they attack or consume large cane toads. Because quolls are short-lived (maturity at one year and males die after mating), deaths due to cane toads rapidly drives quoll populations towards extinction.

### Aims of the study

The broad aim of the study is to mitigate the impacts of cane toads on quoll populations. Recently, we successfully trained captive-reared quolls to avoid consuming cane toads by feeding them a small dead toad infused with a nausea-inducing chemical.

After consuming the toads, the quolls experienced mild nausea, and subsequently refused to attack live toads. After reintroduction to toad-infested areas, these 'toad-smart' quolls had higher survival rates than toad-naïve individuals. We are building on these exciting results to develop a 'toad sausage' that can be deployed in the field to train wild northern quolls to avoid consuming cane toads.

### Results so far

Preliminary results are very encouraging. Some of the 'toad-smart' quolls have survived more than a year, and have reproduced, suggesting that the technique might be useful in bringing about a quoll recovery in toad-infested areas. Preliminary field trials show that wild quolls readily consume toad-aversion baits, suggesting that it may be possible to train wild quolls to avoid toads.

Potentially, wildlife managers could deploy toad-baits inside traps or aerially deploy baits in quoll habitat to train quolls to avoid attacking cane toads before the toads invade such areas.

### Future work

Before toad baits can be deployed in the field, we need to know what animals eat them. Future studies will look at bait uptake by non-target fauna in the Kimberley Region.

### Methods

We are working with our collaborators (Territory Wildlife Park, Department of Environment and Conservation WA, Kakadu National Park) to develop the 'toad-aversion bait' that induces mild nausea in quolls.

We are currently monitoring the long-term survival of captive reared 'toad-smart' quolls reintroduced to East Alligator ranger station, in Kakadu National Park—a site where the quoll population plummeted after toads invaded. To monitor quoll survival, cage traps (baited with balls of peanut butter, honey and oats) are placed in suitable rocky habitats. Any captured quolls are weighed and measured, and their microchip number is recorded so we can determine their identity.



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### Researchers

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