Progress Report SP 2006-004

Impact of cane toads on biodiversity in the Kimberley

Animal Science

Project Core Team

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Project Team	required
Program Leader	required
Directorate	required

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Context

The invasion of cane toads is impacting on the biodiversity of the Kimberley, and no technique has been developed to prevent their spread across the landscape. Earlier research has identified that predators, such as northern quolls (*Dasyurus hallucatus*) and goannas, are especially vulnerable to poisoning by toads and we have identified that it is possible to train some native predators to avoid eating cane toads. A taste aversion bait to prevent quolls eating toads has been developed and is being trialled during this project. Monitoring of northern quoll and reptile populations on Adolphus Island is required to understand how these species are likely to respond to the arrival of toads on islands.

Aims

- Test of taste aversion baits and the use of 'teacher toads' (metamorphs too small to be lethal) to induce an effective conditioned taste aversion (CTA) response from native species threatened by toads.
- Develop operational techniques to roll out taste aversion training across Kimberley landscapes.
- Monitor populations of susceptible species behind the toad front, including those where taste aversion training took place and control sites.
- Investigate where and how toads survive in seasonally dry habitats to better understand their colonisation of islands and their potential to spread into the Pilbara region.

Progress

- Monitoring of quolls and other toad-susceptible species continued using cameras on Adolphus Island and images were examined and prepared for analysis. All toad susceptible species are persisting on the island.
- Experimental apparatus to test for CTA in freshwater crocodiles was established at Windjana Gorge. Naive crocodiles displayed CTA and the development of a landscape scale method to train crocodiles to avoid toads is underway.
- A northern quoll mark-recapture survey and an aerial drop of CTA baits were carried out at Mt Hart Station just prior to the arrival of the cane toad front. The response of quolls to CTA training will be compared with control populations using mark-recapture trapping and camera arrays.

Management implications

- Freshwater crocodiles displayed the ability to learn not to eat cane toads, so it is possible to undertake CTA training of populations in seasonally isolated waterbodies such as Windjana Gorge.
- Aerial trials of the CTA baits have resulted in the survival of northern quolls in some areas invaded by toads, indicating potential promise for the technique in preserving populations. Data from studies on Mt Hart in 2021-22 will help clarify its value.

Future directions

- Examination and analysis of camera arrays examining quoll survival in areas with and without aerial drops of CTA baits.
- Publication of CTA trials, the development of CTA baits and observations on the persistence of quolls and susceptible reptiles on an island following toad invasion.
- Landscape scale CTA learning of susceptible goanna and freshwater crocodiles to mitigate the impact of invading cane toads.