Some responses of the threatened Northern Quoll to a large-scale cat baiting program in the Pilbara.

Project Summary
Project 1.1.7

Threatened Species Recovery Hub

National Environmental Science Programme

One of the Pilbara field work sites. Photo: Nicolas Rakotopare

Research in Brief

This PhD research project will build on an existing large-scale feral cat baiting and northern quoll monitoring program in the Pilbara being undertaken by the Western Australian Department of Biodiversity, Conservation and Attractions (DBCA) in partnership with Rio Tinto. The aims of the broader program are to assess:

- the efficacy of a landscape scale feral cat baiting program in the Pilbara
- the impact of a feral cat baiting on a northern quoll population

The PhD project will add to this through investigation of aspects of the northern quoll's ecology and behaviour, and of the responses of cats to the control program.

Across northern Australia quolls have been severely impacted by cane toads and feral cats. Due to the absence of cane toads, the Pilbara is a region of vital importance to the conservation of Northern Quolls.

Why is the research needed?

This project addresses priorities in the Australian Government's Threatened Species Strategy, related to targets for the effective control of feral cats, and to the management of cats to allow for the recovery of priority threatened species. Feral cats have contributed to the extinction of many species and remain a serious threat to Australia's vertebrate fauna, especially its small to medium sized mammals.

Feral cat baiting programs represent major resource investments. Given the significant costs, research that can 1) assess the cost benefit of such investments; and 2) provide evidence to optimise future programs, is essential to effective policy and programs in this area.

Limited knowledge about how cats behave in response to baiting programs also limits opportunities to optimise such programs. Eradicat® baits contain 1080, to which Northern Quolls in WA have low natural tolerance, and questions remain over the potential for an Eradicat® baiting program to have both lethal and sub-lethal (such as reduced reproductive success) impacts on Quolls.

The four year cat-baiting and quoll monitoring program in the Pilbara is being undertaken for Rio Tinto, by DBCA. It is a biodiversity offset intended to benefit the threatened northern quoll and Pilbara olive python.

Northern Quoll. Photo: Nicolas Rakotopare

Charles Darwin University

Government of Western Australia — Department of Biodiversity, Conservation and Attractions

Rio Tinto

How will the research help?

The operation of this offset by Rio Tinto and DBCA in the Pilbara presents a valuable opportunity to gather additional evidence on the response of cats and native species to a landscape feral cat control program.

In particular the PhD research will provide:

- an assessment of fine-scale habitat use of quolls and feral cats, and whether such information can be used to refine baiting procedures to reduce the potential bait risks to quolls, and maximise likelihood of bait uptake by cats;
- as assessment of whether quolls (and other target species) expand their habitat use following a reduction in cat abundance;
- longer-term modelling of the responses of threatened species to a range of cat management options.
- an evaluation of the cost-efficiency of some baiting options relative to the likely benefits for target species;
- an assessment of the sub-lethal impacts (e.g. through reduced reproductive output) on northern quoll of cat baiting using typical management regimes.

What research activities are being undertaken?

In particular this research project aims to:

- Use a combination of GPS collars and camera traps to track cats to assess habitat use and density in different habitats. The findings will be valuable to understanding how cats respond to the baiting and to optimising the baiting program.
- Use GPS collars to track northern quolls to investigate whether their range and habitat use increases after cat control.
- Assess behavioural (i.e. foraging efficiency) and physiological (physiological stress) responses of northern quolls to variably reduced cat abundance.
- Assess the responses of other native species (additional to northern quoll) to cat control, with abundance determined by trapping and remote cameras.
- Assess the cost-effectiveness of cat control management.
- Assess sub-lethal impacts of 1080-baiting on northern quolls (such as through reduced reproductive success).

The research will assess quoll and cat numbers in areas subjected to broad-scale cat-baiting and in a comparable (control) area not exposed to cat baiting.

Who is involved?

The research project is being undertaken by researchers from Charles Darwin University, who are working collaboratively with Rio Tinto and researchers from the Western Australian Department of Biodiversity, Conservation and Attractions who are responsible for the cat baiting program and aspects of the quoll and cat monitoring studies.

Where is the research happening?

This research is being undertaken on the Yarraloola pastoral lease in the Pilbara region in WA.

When is the research happening?

The project commenced in mid-2016 and will run for three years. One broad-scale baiting episode will be implemented per year.

The health and movement of Northern Quolls within the cat control area is being assessed in the study. Photo: Department of Parks and Wildlife WA.

Further Information

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