Progress Report SP 2011-005

Ecology and management of the northern quoll in the Pilbara

Animal Science

Project Core Team

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Project Team	granted
Program Leader	granted
Directorate	granted

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Context

The northern quoll (*Dasyurus hallucatus*) is listed as a threatened species under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*. Funding from mining offset conditions is being used to gain a better understanding of quoll distribution, ecology, demographics and management requirements in the Pilbara. The two major components of the project are regional monitoring and ecological research. Regional survey and monitoring of Pilbara northern quoll populations over 10+ years will provide a regional context for understanding population dynamics. Researching northern quoll ecology will provide information related to impacts, such as loss of known or potential habitat critical to the survival of the species, loss of known or potential foraging/dispersal habitat, and introduction of barriers restricting dispersal opportunities and genetic flow.

Aims

- Develop appropriate and standardised survey and monitoring methods for northern quoll.
- Define areas of critical habitat and better understand how disturbance affects habitat quality.
- Improve understanding of population dynamics.
- Better understand the key threats and interactions between these threats.
- Determine whether the northern quoll will colonise restored / rehabilitated areas or artificial habitat.

Progress

- Occupancy modelling using a significant number of northern quoll detections collected via camera and cage trapping is being progressed.
- Downward-facing cameras were used for population estimation via individual identification, and has allowed analysis of detection probabilities for northern quolls and several other species.
- Examining the relationship between presence of quolls and both predators and habitat variables continued.
- Efficacy of Felixer grooming traps as another tool for managing feral cat numbers in the presence of quolls is currently being trialled.
- An albino northern quoll was captured and reported on, the second record for the species and one of 10 albino quolls ever recorded.

Management implications

- Northern quoll distribution models indicate key populations (i.e. high density areas) to be protected from future threatening processes and allow for more informed decisions.
- Modelling the changes in mortality of different cohorts of northern quolls has enabled best-practice baiting regimes to be implemented for feral cats in the Pilbara.
- Investigations into habitat used for denning by female northern quolls has provided guidance for the creation of suitable artificial habitat.
- Felixer feral cat grooming traps have been demonstrated to be safe for use in the presence of northern quolls.
- Camera traps show promise as an alternative monitoring tool to cage trapping.

Future directions

- Continue an assessment of camera traps vs trapping as a monitoring technique for northern quolls, and update guidelines for population assessment.
- Population genetics for Pilbara northern quolls will be assessed to reveal information about the important northern quoll conservation units, genetic diversity within the region and effective home range size.

- Continue investigation into the interactions between northern quolls and introduced species.
- Northern quoll denning requirements will be further examined in relation to other habitat features in the landscape, other predator/prey interactions, and optimal size and structure of rockpiles.
- Testing of Felixer feral cat control units will continue with 1080 toxin.