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Conservation and management of the bilby 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 greater bilby (*Macrotis lagotis*) is listed as Vulnerable under the *Commonwealth's Environment Protection and Biodiversity Conservation Act 1999*. Increases in threats, including pressure from mining activities across the Pilbara, means that greater understanding of the distribution, abundance and ecology of the bilby is necessary to ensure appropriate conservation and management measures are implemented. This project will aim to increase our understanding of the bilby in the Pilbara Bioregion of Western Australia and allow for the development of a regional survey and monitoring program. The current focus is to determine the distribution of the bilby in the Pilbara and to establish appropriate survey and monitoring techniques, including genetic approaches.

Aims

- Improve our understanding of the distribution and demographics of bilbies in the Pilbara.
- Provide information to environmental regulators, resource development companies and contractors that will allow appropriate management to ensure the long-term persistence of the greater bilby in the Pilbara.
- Design, establish and implement a long-term monitoring program for bilbies in the Pilbara.

Progress

- An extensive dataset of bilby records in the Pilbara continues to be collated from existing sources and field surveys. New populations along the Shaw River were detected.
- The analysis technique of monitoring abundance using spatially explicit capture-recapture analysis continues to be developed and improved.
- A collaborative project with the Warralong Community, Roy Hill, and Greening Australia was initiated to continue monitoring the Warralong bilby population and implement fire, feral predator and grazing management on the Coongan Pastoral lease.
- The monitoring of population abundance technique using DNA extracted from scats quantitatively collected from populations in the field continues to be implemented.
- Advice on bilby occupancy survey, abundance monitoring and management has been continually delivered to mining and consultancy companies through meetings and workshops.

Management implications

- Development of refined survey and monitoring techniques for bilbies in the Pilbara bioregion will enable standardisation and comparability in occupancy surveys and monitoring, and surveys to detect the presence or absence of bilbies, and provides a means of assessing the importance of habitat. The protocol can be used for broader state and national applications.
- Improved understanding of bilbies in the Pilbara and elsewhere in Western Australia enables improved habitat modelling and predictions of bilby distribution. This will inform future management of bilby populations and assist in the assessment of mining and development proposals.
- Use of a standardised technique for examining abundance of bilbies will provide reliable and comparable measures of numbers of animals within populations. It is recommended that scat samples for DNA extraction be stored and transported in tubes with silica gel beads and cotton wool to protect the sample, to ensure increased sample viability.
- Populations in the Pilbara are geographically isolated and consist of a small number of individuals, and they are likely to be vulnerable to threats, a key one being unmanaged fire regimes, indicating that fire management is an important aspect of managing habitat for bilbies.
- It is recommended that any surveys using remotely piloted aircraft (RPA) require ground-truthing of both positive and non-detections to determine false positive and false negative error. This technique shows future potential and will be further developed.

Future directions

- Continue development of modelling of the distribution of bilbies in the Pilbara, and ground truth sites to validate the resulting models.
- Continue to optimise RPA technology to survey for bilbies.
- Initiate collaborative implementation of threat management with initial focus on fire management at selected populations with community and stakeholder engagement and support.
- Continue population genetics project using existing bilby DNA library collected from population monitoring and opportunistically collected scats.
- Continue diet analysis of surplus scats collected during population monitoring and opportunistically collected scats.
- Focus on data consolidation and preparation of scientific publications.