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Conservation and management of the bilby in the Pilbara

Animal Science

Project Core Team

Supervising Scientist	Martin Dziminski
Data Custodian	Martin Dziminski

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Project Team	granted
Program Leader	granted
Directorate	granted

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M Dziminski, F Carpenter, L Gibson

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 aims 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

- The dataset of recent and historic records was finalised. An accurate distribution of bilbies in the Pilbara was generated, with areas of unknown status identified. A paper on the range of the bilby in the Pilbara was published in *Journal of the Royal Society of Western Australia*.
- Finalised development of abundance monitoring technique using non-invasive DNA collection from scats coupled with spatially explicit capture-recapture analyses. Wild populations in the Pilbara were relatively small, isolated, and particularly vulnerable to threats; two populations went extinct during this study. A paper on monitoring the abundance of wild and reintroduced bilby populations has been accepted for publication in *Journal of Wildlife Management*.
- A collaborative project with the Warralong Community, Roy Hill, and Greening Australia continued with monitoring of the Warralong bilby population and remote camera work and sign plots for predator, feral herbivore and bilby occupancy undertaken. Initial fire management has been implemented.
- Abundance monitoring of populations in the Pilbara continued.
- Ongoing advice on bilby occupancy survey, abundance monitoring and management has been delivered to mining and consultancy companies.
- Diet analysis of bilbies from 17 populations across Western Australia is underway.

Management implications

- Recommendations regarding standardised survey and monitoring techniques for bilbies in the Pilbara bioregion will maximize comparability across sites to better inform conservation management.
- Improved understanding of the conservation status of bilbies in the Pilbara and elsewhere in Western Australia, including preferred habitat will inform future management of bilby populations and assist in the assessment of mining and development proposals.
- Geographically isolated and small population of bilbies in the Pilbara highlight the importance of threat managements such as unmanaged fire regimes.
- Surveys using remotely piloted aircraft (RPA) show future potential but require refinement.
- Knowledge of bilby diet preferences will assist in habitat management and assessment of managed sites in terms of food resource availability.

Future directions

- Progress a distribution model of bilbies in the Pilbara, including ground truthing.
- Refine RPA technology as a survey tool.
- Initiate collaborative implementation of threat management with initial focus on fire management at selected populations with community and stakeholder engagement and support.
- Progress a population genetics analysis using existing bilby DNA library collected from population monitoring and opportunistically collected scats.
- Finalise analysis of diet results in conjunction with on-ground food availability plots.