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Conservation and management of the bilby in the Pilbara

BCS Animal Science

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Project Team	granted
Program Leader	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

- Current and historic records of bilbies in the Pilbara have continued to be accessed from many sources. To date 1059 records of bilbies have been collated and uploaded into the Pilbara Threatened Fauna Database, which is linked to NatureMap.
- Using the current technique of 2 ha plots, 1209 plots in likely bilby habitat have been surveyed for the presence of bilbies across the Pilbara. Confirmed evidence of bilby presence was recorded at 254 of these (21%) plots. Sufficient presence data has now been gathered to enable accurate modelling the distribution of bilbies in the Pilbara.
- Data from Remotely Piloted Aircraft trials showed that it is possible to use this technology to detect bilby signs, such as burrows and diggings.
- A study of the effect of time on DNA degradation found that DNA exists in bilby faecal pellets for a long period of time and can be amplified with a high success rate with low errors. A population monitoring technique to measure abundance has been developed using DNA extracted from faecal pellets quantitatively collected in the field.
- A study examining the use of bilby burrows by other species found that both occupied and disused burrows are important for a range of other other mammals, birds and reptiles.
- Public awareness campaign for bilbies in the Pilbara continues with information sessions and public presentations being delivered in the Pilbara, Kimberley and Perth together with radio and newspaper articles.

Management implications

- This research will develop consistent and refined survey and monitoring techniques for bilbies in the Pilbara Bioregion, with the potential for broader state and national applications. The data and records gathered will improve understanding of bilbies in the Pilbara and elsewhere, and allow for habitat modelling and predictions of bilby distribution. This in turn will inform future management of bilby populations and assist in the assessment of mining and development proposals.
- Monitoring has shown that populations in the Pilbara are isolated and consist of a small number of individuals which implies that they are extremely vulnerable to threats.

- Bilby burrows are important habitat for a suite of species and ensuring the persistence of bilbies where they still occur and reintroducing bilbies back to areas they once occupied will have positive effects on biodiversity.

Future directions

- Optimise remotely piloted aircraft technology to survey for bilbies.
- Include more populations to the long-term monitoring program, developing more collaborations with stakeholders to monitor bilbies on their tenure.
- Determine optimum storage technique for field collected scats for DNA extraction.