

Progress Report SP 2012-024

Rangelands restoration: reintroduction of native mammals to Lorna Glen (Matuwa)

Animal Science

Project Core Team

Supervising Scientist	Colleen Sims
Data Custodian	Colleen Sims
Site Custodian	Colleen Sims

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Program Leader	granted
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C Sims, M Blythman, K Morris, N Burrows

Context

Operation Rangelands Restoration commenced in 2000 with the acquisition of Lorna Glen and Earacheedy pastoral leases by the Western Australian Government. This 600,000 ha area lying across the Gascoyne and Murchison IBRA regions is now the site for an ecologically integrated project to restore ecosystem function and biodiversity in the rangelands. This is being undertaken in collaboration with the traditional owners. An important component of this is the reintroduction of 11 arid zone mammal species following the successful control of feral cats and foxes.

The area around Lorna Glen once supported a diverse mammal fauna that was representative of the rangelands and deserts to the north and east. These areas have suffered the largest mammal declines in Western Australia. The original vision for the Western Shield fauna recovery program was to expand introduced predator control and translocations beyond the south-west once an operational feral cat control program had been developed, and this was also recommended by the independent review of Western Shield in 2003.

Potentially, Lorna Glen could support one of the most diverse mammal assemblages in arid Australia, and contribute significantly to the long-term conservation of several threatened species. Mammal reconstruction in this area will also contribute significantly to the restoration of rangeland ecosystems through activities such as digging the soil and grazing/browsing of vegetation, and assist in the return of fire regimes that are more beneficial to the maintenance of biodiversity in the arid zone.

The first of the mammal reintroductions commenced in August 2007 with the release of bilby (*Macrotis lagotis*) and wayurta (*Trichosurus vulpecula*). Another nine species of mammal are proposed for reintroduction over the next ten years.

Aims

- Reintroduce 11 native mammal species to Lorna Glen by 2020.
- Re-establish ecosystem processes and improve the condition of a rangeland conservation reserve.
- Improve the conservation status of some threatened species.
- Develop and refine protocols for fauna translocation and monitoring.
- Study the role of digging and burrowing fauna in rangeland restoration.

Progress

- Additional Mala and Shark Bay mice were translocated into the enclosure.
- Monitoring of mulgara populations inside and outside the enclosure.
- Ongoing monitoring of bilbies and possums outside the enclosure.
- Ongoing, biennial monitoring of boodies and bandicoots inside the enclosure.
- Active release of 49 golden bandicoots outside of the enclosure failed primarily due to feral predators. Subsequently, a review of the aerial baiting program revealed a failure of delivery technique and higher than expected predator numbers. Bait delivery has been corrected for 2013, but environmental conditions will impact future baiting results. However, passive 'leakage' from the enclosure and survival to maturity of some bandicoots continues to occur.
- Effects of bilby, boodie and varanid digging activity on soils and plants examined. A study of relic bilby burrows found they could potentially provide more suitable habitats for the establishment and productivity of other species by moderating microclimates, accumulating nutrients and soil moisture, and ameliorating the potentially detrimental effects of bio-available aluminium.

Management implications

- Fauna reconstruction and monitoring techniques for arid zone rangelands developed by this project will have broad state and national application for the conservation of threatened fauna.
- The outcomes of the project will contribute to the management of DEC's rangeland properties and provide guidance for future fauna reconstruction, e.g. Dirk Hartog Island. It will also demonstrate effective partnership models with traditional owners and facilitate collaborative management with traditional owners.

Future directions

- Develop a 10-year fauna translocation plan, and identify resourcing.
- Ongoing monitoring of bilbies and possums outside the enclosure, and of bandicoots, boodies, mala and Shark Bay mice inside the enclosure.
- Proposed expansion of the enclosure over the next several years, to accommodate larger and genetically sustainable populations of species sensitive to cat predation.
- Develop strategies for releases of boodies and bandicoots outside the enclosure in the presence of low densities of feral cats.
- Continue monitoring the relative abundance of feral cat, fox and dingo populations on the wider property.
- Investigate the influence of reintroduced mammals on soils and plants and their potential to facilitate restoration.