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

Project status as of March 22, 2018, 12:31 p.m.

Approved and active

Document endorsements and approvals as of March 22, 2018, 12:31 p.m.

Project Team	granted
Program Leader	granted
Directorate	granted

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

C Sims, M Blythman, K Morris, N Burrows

Context

Operation Rangelands Restoration commenced in 2000 with the acquisition of Lorna Glen and Earaheedy 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. In 2014 Native Title (exclusive possession) was granted over Lorna Glen (Matuwa) and Earaheedy (Kurrara Kurrara).

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. This project seeks to reintroduce 11 arid zone mammal species following the successful control of feral cats and foxes, 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 ten years. Between 2010-2012, mala, Shark Bay mice, boodies and golden bandicoots were translocated into an 1100 ha introduced predator proof fenced enclosure. The intention is to use these as a source for translocations to areas of Lorna Glen outside the enclosure where cats have been effectively controlled, and ultimately the establishment of free-ranging self sustaining populations.

Aims

- Develop effective feral cat control techniques in a rangeland environment.
- Reintroduce 11 native mammal species to Lorna Glen by 2020, and contribute to an improved conservation status for these species.
- Re-establish ecosystem processes and improve the condition of a rangeland conservation reserve.
- Develop and refine protocols for fauna translocation and monitoring.
- Study the role of digging and burrowing fauna in rangeland restoration.

Progress

- Track and scat/DNA surveys have established widespread presence of bilbies across the Bullimore sand plain land system.
- Development of broad camera trap system to identify threatened fauna and predator activity across landscape has been completed. Successful *Eradicat*® baiting in 2016 resulted in a ~50-60% reduction in cat numbers across the property, as demonstrated by Camera trap transects on roads.
- Ongoing monitoring of bodies and bandicoots inside the enclosure indicates good population numbers and reproductive rates. Golden bandicoot capture rates are still reduced since the 2015 release, and may be related to high captures and interference of boodies excluding new recruit bandicoots from accessing traps.
- Ongoing presence and sightings of mala adults and juveniles were detected inside the enclosure.
- Presence of golden bandicoots at release sites from the 2015 reintroduction has declined significantly in last 12 months in absence of ongoing intensive predator management. However, persistence of at least one original founder ~ 20 months post release, and record of juvenile animals at other locations, indicates the possibility that a scattered low density population is still present.
- A novel method (metal detectors) to find and identify threatened fauna as prey items in Wedge tail eagle diet, through finding individual Passive Integrated Transponders (PITs), has been developed.

Management implications

- Fauna reconstruction is an important component of threatened species conservation and broader habitat management and increases probability of species persistence through establishment of multiple populations where threats can be managed.
- Flexibility in timing is a key consideration in the planning of reintroductions, which should also take into account the effects of environmental conditions (droughts) and annual cycles of reproduction/behaviour in potential predators/competitors on reintroduction success.
- Detailed monitoring to identify causes of mortality and the subsequent identification of predators and their removal in a timely fashion are critical to the success of reintroduction programs. Monitoring has demonstrated that additional cat control techniques to landscape scale baiting are required to successfully re-establish fauna in the rangelands.
- Sourcing founder animals from multiple locations has proven to be valuable in establishing and maintaining healthy genetic diversity in reintroduced species (e.g. brush tail possums).

Future directions

- Development of further engagement and cooperation with traditional owners in management and monitoring activities.
- Ongoing monitoring of bilbies and possums outside the enclosure, and of bandicoots, boodies, mala and Shark Bay mice inside the enclosure.
- Develop plan for translocation of boodies outside enclosure in 2018. Likely to include experimental field trial of comparative survival between predator 'trained' and 'untrained' boodies in cooperation with Arid Recovery Project.
- Respond to ongoing presence of low density bandicoot population outside the fenced enclosure, with targeted small scale reinforcement.