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

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Project Team

granted

Program Leader

granted

Directorate

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

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Context

Operation Rangelands Restoration commenced in 2000 with the acquisition of Lorna Glen (Matuwa) and Earaheedy (Kurrara Kurrara) ex-pastoral leases by the WA Government. We are working in collaboration with the traditional owners, Tarlka Matuwa Piarku Aboriginal Corporation, who were granted native title (exclusive possession) over the area in 2014, to restore ecosystem function and biodiversity in the rangelands. Matuwa once supported many mammal species, which have now suffered large declines. This project seeks to reintroduce 11 arid zone mammal species following the successful suppression of feral cats and foxes. Mammal reconstruction will also contribute to the restoration of rangeland ecosystems through re-establishment of ecosystem services such as digging, grazing/browsing of vegetation and seed dispersal.

The first mammal reintroductions commenced in August 2007 with the release of bilby (*Macrotis lagotis*) and brushtail possums (*Trichosurus vulpecula*). Between 2010-2012, mala (*Lagorchestes hirsutus*), Shark Bay mice (*Pseudomys fieldi*), boodies (*Bettongia lesueur*) and golden bandicoots (*Isodon auratus*) were translocated into a 1,100 hectare introduced predator-free fenced enclosure. The enclosure is intended to provide species with an opportunity to acclimatise to the desert environment. The ultimate goal is to release animals outside the enclosure and establish a free-ranging, self sustaining population of these species.

Aims

- Develop effective feral cat control techniques in a rangeland environment.
- Reintroduce 11 native mammal species to Matuwa by 2023, 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.
- Determine the role of digging and burrowing fauna in a rangeland ecosystem.

Progress

- A manuscript discussing the habitat selection by vulnerable golden bandicoots in the arid zone was published in *Ecology and Evolution*.
- A manuscript describing the successful reintroduction of bilbies to Matuwa was published in *Rangeland Ecology and Management*.
- A manuscript discussing how boodies alter soils but not vegetation was published in *Ecology and Evolution*.
- A manuscript discussing the need for research on inter-specific competition in fenced reserves is in press at *Ecological Management and Restoration*.
- A final report was completed describing the translocation of golden bandicoots from the fenced enclosure to unfenced managed land on Matuwa.
- Monitoring of boodies, golden bandicoots and mala inside the enclosure continued. Camera traps have detected golden bandicoots outside the enclosure.
- Introduced predator control, including aerial baiting using Eradicat continued.

Management implications

- Fauna reconstruction increases the probability of species persistence through the establishment of multiple populations, and it re-establishes ecosystem processes lost during localised extinctions.
- Flexibility in timing is a key consideration in the planning of reintroductions, which should also consider the effects of environmental conditions (droughts), annual cycles of reproduction and behaviour and potential predators and competitors on reintroduction success.

- Detailed monitoring to identify causes of mortality and subsequent identification of predators and their removal in a timely fashion is critical to the success of reintroduction programs. Monitoring has demonstrated that applying additional cat control techniques to landscape scale baiting are required to successfully re-establish threatened vertebrate fauna in the rangelands.
- Sourcing founder animals from multiple locations has proven valuable in increasing genetic diversity in reintroduced species.
- Increased involvement of traditional owner rangers with fauna monitoring has assisted collaborative management arrangements.

Future directions

- Ongoing monitoring of reintroduced species and introduced predators.
- Complete publications on the ecology of boodies and population genetics of brushtail possums.
- Facilitate training in fauna handling in stakeholder groups.