

## **Progress Report SP 2016-030**

# **Dirk Hartog Island National Park Ecological Restoration Project – fauna reconstruction**

**Animal Science**

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### **Project status as of July 5, 2021, 12:09 p.m.**

Update requested

### **Document endorsements and approvals as of July 5, 2021, 12:09 p.m.**

Project Team	required
Program Leader	required
Directorate	required

# Dirk Hartog Island National Park Ecological Restoration Project – fauna reconstruction

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## Context

The Dirk Hartog Island National Park Ecological Restoration Project aims to restore the ecological condition of Western Australia's largest island to that seen by Dirk Hartog when he landed on the island in 1616. Establishment of populations of 12 mammal and one bird species on Dirk Hartog Island (DHI) over a 12 year period is a key part of this project. Of these species, four are listed as endangered and six as vulnerable under the national *Environment Protection and Biodiversity Conservation Act 1999*, and their successful re-establishment will contribute towards improving the conservation status of these species. The translocation of 13 native species to an island 633 square km in area, makes it the largest fauna reconstruction project in Australia and one of the largest in the world. To allow this to proceed, sheep, feral goats and feral cats have been removed and the eradication of feral cats represents the largest eradication program achieved globally. Genetic information on source populations is being used to inform founder selection, genetic monitoring of released animals, and ongoing management practices.

## Aims

- Identify the most suitable source populations to act as founders for new populations on DHI, using the criteria set out in the *Dirk Hartog Island National Park Ecological Restoration Strategic Plan*.
- Establish new populations of 12 mammal species and one bird species on DHI, using the species selection criteria set out in the Strategic Plan.
- Confirm that the translocations are successful and that all new populations on DHI are healthy and self-sustaining, using criteria set out in the Strategic Plan and approved translocation proposals.
- Promote scientific research associated with the translocations, monitoring and establishment of fauna, and publish scientific findings.

## Progress

- Translocations of four species to DHI took place: supplementations of duffers and Shark Bay bandicoots (SBB) and the first translocations of Shark Bay mice (SBM) and greater stick-nest rats (GSRN).
- Source population monitoring took place for these species, as well as boobies on Bernier Island.
- Initial post-release monitoring was undertaken through radio-tracking and survival rates of 67% (SBM), 87% (GSRN) and 100% (SBB) were achieved.
- Radio-tracking of duffers was more successful than in 2019 but has been discontinued due to welfare concerns regarding collars.
- Monitoring of SBB and banded and rufous hare-wallabies showed increases in abundance and/or extent of occurrence.
- Reproduction in duffers was noted for the first time on DHI.
- Scat surveys for hare-wallabies were undertaken with over 400 samples collected and analysis underway.
- Results of captive trials to optimise collar-fit on SBB was published in *Australian Mammalogy*.
- Captive breeding at Perth Zoo continues, with further supplementation planned.
- Monitoring of small extant vertebrates on DHI showed a decrease in rodent abundance but an increase in overall captures of other taxa.
- Genetic work initiated on chuditch and is ongoing for boobies, SBM and hare-wallabies, as is the development of faecal DNA monitoring for SBB and hare-wallabies.

## Management implications

- The successful translocation and establishment of large self-sustaining populations of these six species on DHI is likely to have beneficial outcomes for their conservation and for the ecosystems they inhabit.
- The development of innovative techniques to enhance translocation and post-release monitoring success will not only be beneficial to this project but may also improve translocation outcomes at other locations.
- The development of non-invasive approaches to effectively monitoring fauna species will provide an effective solution that can be implemented to reduce time in the field and with no requirement for Animal Ethics Committee approval.
- Genomics analysis informs population management strategies and provides a suite of novel, affordable monitoring tools to ensure ongoing adaptive management of these populations.

## Future directions

- A further supplementation translocation of dibblers is scheduled for spring 2021 and supplementations of GSNR and SBM are planned for autumn 2022.
- Monitoring of source populations of these species will be undertaken.
- Monitoring of all translocated species on DHI will be undertaken.
- Surveys to locate populations of heath mice are planned.
- Population genomic analyses for several species will be progressed, high-throughput SNP arrays will be developed for SBB, RHW & BHW and non-invasive sampling trialed for dibblers.