STEPPING CLOSER TO **1616**:

MORE MAMMALS RETURN TO DIRK HARTOG ISLAND

The ecological restoration project for Western Australia's largest island, Dirk Hartog Island National Park ('Wirruwana' to the Malgana people of Shark Bay), continues apace.

by Saul Cowen, Colleen Sims, Cathy Lambert and Tony Friend

Following the successful eradication of sheep, goats and cats, '*Return to 1616*' restoration project at Dirk Hartog Island is now well into the planned program of fauna translocations, aiming to restore 13 native species to the island.

WINNING WALLABIES

The first two species to be released were the banded hare-wallaby (*Lagostrophus fasciatus*) and rufous hare-wallaby (*Lagorchestes hirsutus*), which were brought over from nearby Bernier and Dorre islands nature reserves. After a successful trial translocation of 12 of each species in 2017 (see 'Welcoming wallabies to Wirruwana', *LANDSCOPE*, Winter 2018), a full-scale release took place in 2018 of 90 banded and 50 rufous hare-wallabies. In 2019, another 50 rufous hare-wallabies were released to ensure an adequate founder population of both species.

The rufous hare-wallabies have wasted no time in establishing themselves in their new home and post-release monitoring of both species has shown they are surviving, breeding and generally thriving. However, neither species of hare-wallaby has shown an inclination to enter live-capture traps and while camera traps have proved useful in tracking their occupation of the island, this method is potentially tricky for estimating population sizes.

The use of DNA derived from faecal pellets (scats) has proved valuable in calculating estimates of populations of bilbies (*Macrotis lagotis*) (see 'DNA: unlocking secrets', *LANDSCOPE* Summer 2016–17) and in 2018, trials to assess the utility of this technique for hare-wallabies was tested in collaboration with the Australian Wildlife Conservancy.

Moisture and ultra-violet rays are the enemies of DNA and the mix of moist Indian Ocean air and Shark Bay sun means there is no shortage of either on Dirk Hartog Island. Fortunately, despite these obstacles, this technique shows real promise and in 2019 a trial monitoring program was rolled out to develop a survey method that relies on poo not traps!

Previous page
Main Dibbler and bandicoot release on Dirk Hartog Island.
Above left Dibbler ready for release.
Photos – K Rayner/DBCA
Above right Releasing a Shark Bay bandicoot.

Above left Rufous hare-wallaby first released on the island in 2017.
Photos – T Duselli/DBCA

Above Helicopter lifting off from Bernier Island with bandicoots bound for Dirk Hartog Island.
Photo – Colleen Sims/DBCA

THE RETURN OF LITTLE MARL

Next to join the hare-wallabies, was that diminutive denizen of Bernier and Dorre islands, the Shark Bay bandicoot (*Perameles bougainville*). After a recent taxonomic revision, the species has cast off its moniker of 'western barred bandicoot', but the smallest member of this tribe also goes by the handle of 'little marl'.

This was the first true 'reintroduction' to Dirk Hartog Island, and it was with considerable excitement that 72 animals were released there in spring 2019. It became rapidly apparent that the new arrivals were very much at home and within weeks, their release sites were peppered with tracks and diggings.

The foraging behaviour of bandicoots means that they can turn over vast quantities of soil and leaf-litter and returning these little diggers to the island could have a dramatic effect on the island's ecosystems. Radio tracking of 12 bandicoots over the first month or so after the release found some were ranging widely (more than 4km from their release site) but finding food was clearly not an issue based on some of the weight gains over this period (up 20 per cent of their original capture weight!).

However, despite their cute appearance, little marls have an ugly secret. The Bernier Island population harbours an unusual disease caused by Bandicoot Papillomatosis Carcinomatosis Virus 1, which causes cancerous warts and lesions that may ultimately prove fatal.

Transmission of the virus to Dirk Hartog was the biggest fear of this

translocation, but to ensure the new population had the best possible genetics, it was vital that some Bernier stock was included. Quarantining the bandicoots would be both costly and stressful, so all animals (including from Dorre) were thoroughly checked for any symptoms of the virus before release.

DIBBLER CASTAWAYS

Joining the bandicoots in spring 2019 was another charming small marsupial, the iconic dibbler. Once thought extinct, this small but feisty dasyurid, related to quolls and Tasmanian devils, persists in populations scattered across the southern coast of WA (in part thanks to releases of captive-bred stock) as well as on three small islands off Jurien Bay. The latter location was chosen as the source for Dirk Hartog Island, partly to help preserve the genetics of these highly threatened populations.

The very small islands of Boullanger, Whitlock and Escape hold tiny numbers of dibblers, and removing enough animals to establish another population would all but wipe them out. Instead, a total of 10 pairs of were taken from Whitlock and Escape islands in 2018 (Boullanger's population was too small at the time to take any animals at all) and transferred to the Native Species Breeding Program facility at Perth Zoo.

The zoo has extensive experience in breeding dibblers, but the new arrivals weren't quite as productive as hoped. By October 2019, just 26 adults and juveniles were available for release on Dirk Hartog, but the breeding program will continue, boosting the numbers released on the island over the coming years. As can be typical for dibblers, the new arrivals promptly disappeared but trapping a month later found an adult female in good health, indicating they (like the bandicoots) weren't having any trouble finding food.

Monitoring with traps and cameras will continue for both bandicoots and dibblers and as they settle into their new, much larger, island home, it is hoped their numbers will swell and they are encountered more frequently.

PLANNING FOR THE FUTURE

Planning such a large reintroduction program is complex and requires careful consideration of a multitude of factors.

DBCA's decision scientist, Dr Megan Barnes, has recently facilitated a process to better understand the possible implications of various interactions between species. Modelling experts at the Queensland University of Technology have applied an innovative scientific approach that will allow researchers to have confidence in our decisions both now and into the future.

Above left Shark Bay bandicoot being processed prior to release.

Above Searching for radio collared Shark Bay bandicoots on Dirk Hartog Island.
Photos – T Duselli/DBCA

Below Shark Bay bandicoot tracks.
Photo – Saul Cowen/DBCA

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