

# Rebounding rock-wallabies

a translocation  
success story



Translocating plants and animals for conservation relies on well-considered planning, based on an understanding of their biology and threats to survival, as well as the skills and expertise of a team of dedicated people. When successful, translocations can provide hope for species with an otherwise uncertain future, as appears to be the case for black-flanked rock-wallabies in Kalbarri National Park.

by David Pearson, Mike Paxman, Anthony Desmond, Jazmin Lindley and Juanita Renwick

**T**ranslocation of threatened animals from one place to another to aid their conservation is a widely used technique around the world. It seeks to reduce the risk of extinction or the loss of genetic diversity by establishing new populations. In Western Australia, translocations of animals have been undertaken for more than 30 years.

It may seem a simple enough process: catch animals at one site where they are abundant and then release them at another. Job done. Right? Well, it's not that simple. Sometimes translocations are carried out at short notice because a population is under immediate threat. However, in most cases translocations are the culmination of years of research, careful planning and a coordinated team effort. Each translocation relies on the input of skills and knowledge from many people, who work together to identify what species could benefit from being translocated, where they should be moved and how the success of the translocation will be measured.

The translocation of black-flanked rock-wallabies (*Petrogale lateralis lateralis*) into Kalbarri National Park over a three-year period from 2016 to 2018 is an excellent example of how translocations are organised and the expertise and teamwork required to carry them out. But, despite extensive planning, even this translocation had some unexpected twists.

## ROCK-WALLABIES UNDER DURESS

While most species of rock-wallabies are not considered threatened or endangered, there are significant concerns for a few species whose populations are declining. Some are threatened by introduced predators, such as the fox and feral cat, or more subtly by habitat changes due to frequent bushfires or weed invasion.

WA has five species of rock-wallabies, but the most widespread, the black-flanked rock-wallaby, is further divided into two subspecies and two distinct genetic races. This genetic variation has come about because of the isolation of different populations over many thousands



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Main Western Australia has five species of rock-wallabies.

Photo – Alice McGlashan/Sallyanne Photography

Above Black-flanked rock-wallabies were known to occur in the gorges of Kalbarri National Park.

Photo – David Pearson/DBCA



of years, leading to the development of distinctive localised populations.

The subspecies *Petrogale lateralis lateralis* has the widest distribution of all, extending from one island off the southern WA coast all the way to Cape Range near Exmouth, and Barrow Island off the Pilbara coast. However, across this vast range, the rock outcrops actually occupied by these rock-wallabies are few and far between. There is a reintroduced population in Cape Le Grand National Park and six small populations that occur in the Wheatbelt, near Kellerberrin. At the time of European settlement there were many more individuals and populations. They were recorded as being very numerous in the Avon Valley, where now only small numbers cling to a precarious existence in Avon Valley National Park and Paruna Sanctuary. Heading north from Perth, scattered populations have been recorded in Kalbarri and Cape Range national parks, and in some remote desert ranges along the eastern edge of the Pilbara. A small

population occurs on Barrow Island, and they were driven to extinction by foxes on Depuch Island, near Whim Creek.

## HOW ARE THREATENED SPECIES IDENTIFIED?

The federal and state governments each have a listing process for native species that are thought to be in a position where their continued survival is 'threatened' if existing or future conditions prevail. If species are included on these lists then actions to improve their 'conservation status' are given priority where and when resources are available. For some species, recovery plans are prepared, which summarise threats and identify actions to improve their status. Interim recovery plans are prepared in WA where rapid response is required or there is insufficient information to prepare a full recovery plan. WA currently has more than 249 threatened fauna species, including 41 mammal species, so the task to improve the situation for all of these species is a challenge.



**Above** Ensuring future generations of rock-wallabies have good genetic diversity will help them avoid extinction.  
*Photo – Jazmin Lindley/DBCA*

**Right** A black-flanked rock-wallaby spotted in Nangeen Hill Nature Reserve.  
*Photo – Georgina Anderson*



Hear more about the rock-wallaby translocation

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Determining what species go on the threatened species list is based on International Union for Conservation of Nature (IUCN) criteria and is reliant on the species meeting a number or combination of conditions. These include the size of the population, its fragmentation and recent population trends. Typically, a threatened species committee reviews evidence for listing or changes in listing and receives nominations for species to be included on the list.

## PREPARATION OF A RECOVERY PLAN

A 10-year recovery plan for rock-wallabies in WA was prepared in 2013 and identified a number of recovery actions. For the black-flanked rock-wallaby, one of the most significant actions to improve its conservation outlook was to carry out translocations to increase the overall size and number of the populations. Why? Because as populations shrink or become fragmented, a species becomes more vulnerable to threats such as predation

and environmental catastrophes, and they typically lose genetic diversity, making them at greater risk of extinction. The loss of genetic diversity means a species will be less able to cope and adapt to environmental changes in the future. And so it was for these rock-wallabies.

Genetic work by Dr Mark Eldridge at the Australian Museum used little pieces of ear tissue collected from rock-wallabies captured during regular trapping for monitoring or research. This study indicated that during the past 30 years, the Wheatbelt population had been losing unique genetic material because numbers of rock-wallabies had fluctuated widely and some colonies had declined to just a few individuals. The small size of the outcrops in this area, droughts and challenges associated with the control of foxes and feral cats that infiltrate from surrounding farmland, made the establishment of new populations of rock-wallabies a priority for action. Translocations to large areas of former habitat would serve to increase the

number of individual rock-wallabies and to preserve the current genetic diversity.

## ASSESSING TRANSLOCATION OPTIONS

The process DBCA uses to consider proposed translocations ensures that each one is well researched and planned. A translocation plan is prepared, summarising the known biology of the species, threats to its conservation, how these threats will be managed, the source population and where animals will be released. Monitoring the source and translocated populations is vital so we can understand why translocations are successful or, if they fail, what needs to be modified before any future translocations are carried out.

Then, experts are consulted and available literature is reviewed. In the case of rock-wallabies, members of the recovery team contributed valuable insights and advice that helped in the preparation of the translocation plan. Once the draft plan is complete, it is



**Above** DBCA staff carried traps into the gorges.  
*Photo – David Pearson/DBCA*

**Top right** Releasing a rock-wallaby at Nangeen Nature Reserve.  
*Photo – Georgina Anderson*

**Above centre** Rock-wallaby droppings can be readily identified from those of the Euro which occur in the same rocky habitat.  
*Photo – David Pearson/DBCA*

**Above right** DBCA staff fit a radio-collar onto a rock-wallaby before it is released.  
*Photo – Anthony Desmond/DBCA*



## LOCATION, LOCATION, LOCATION

For many threatened species there are few populations, so there is little or no choice as to where founders for a new population can be obtained. Black-flanked rock-wallabies occur in widely separated areas and there are genetic differences between populations. The Wheatbelt population occurs on six outcrops surrounded by agricultural land and is under particular threat because of the small area of habitat and continuing invasion by foxes and feral cats, held back in part by regular DBCA *Western Shield* baiting. In addition, there is a lack of alternative habitat for dispersal when the Wheatbelt population is growing during good seasons. In the past, too many wallabies in dry times has resulted in over-grazing of their habitat and the rise of unpalatable weeds. So the source of rock-wallabies for the translocation was clear.

But where should they be translocated? A large area of suitable habitat was necessary, where threats to the species could be controlled. Kalbarri National Park proved ideal; rock-wallabies once occupied the gorge and were last seen there in about 1985. The Murchison River, which snakes through the park for about 80 kilometres, and its side gorges are fringed by vast areas of rocky habitat. The area receives winter rains, similar to the Wheatbelt. And regular aerial baiting to control foxes and recently feral cats is undertaken, and feral goat control has been in place since 2006, significantly reducing this once-abundant pest. Additional funds were made available from the Australian Government's National Landcare Programme to undertake wider feral cat control using DBCA's *Eradicat* bait and to monitor its effectiveness.

subject to an internal DBCA check and may be provided to external reviewers for independent advice. Once any concerns and comments are addressed and any required changes made, the translocation plan is reviewed and then endorsed by senior management. Then the on-ground work begins.



**Above** Black-flanked rock-wallabies were carefully transported to Kalbarri National Park ahead of their release.

Photo – Jazmin Lindley/DBCA

**Above right** Bush Ranger cadets helped carry the rock-wallabies into the gorges.

Photo – Anthony Desmond/DBCA



**“We were concerned that if anything happened to these precious animals the unique Kalbarri genes would be lost for good.”**

## SURPRISE!

As we were putting the finishing touches on the translocation plan, a rock climber in Kalbarri National Park snapped a photo of some wallabies near a popular but remote climbing site and sent them to senior park ranger Mike Paxman. He immediately recognised the wallabies as a pair of rock-wallabies (see also ‘Surprise! Rock-wallabies found in Kalbarri National Park’, *LANDSCOPE*, Autumn 2016).

This prompted a rethink of the translocation plan. Searches on foot by DBCA and World Wildlife Fund (WWF) staff and volunteers tried to establish if other rock-wallabies were still in the park. Large areas of habitat were surveyed to obtain sightings or to find the distinctively shaped rock-wallaby droppings. In conjunction with this work, traps were carried into the site where the ‘Kalbarri pair’ resided, with the intention of capturing them to get genetic samples so their relationship to other populations could be determined.

Unfortunately, the Kalbarri pair did not enter our traps, despite our best attempts

to lure them using every bait we could think of, including ‘Pink Lady’ apples, a known favourite of rock-wallabies in other areas. So, we resorted to the next best thing – watching the wallabies closely and then racing out to collect any newly deposited droppings. Advances in genetic techniques now make it possible to obtain sufficient genetic material from fresh droppings to identify genetic profiles. While normally sending parcels of poo through the mail would be considered unsavoury, we sent the samples to Dr Eldridge at the Australian Museum who gladly accepted them and determined that the Kalbarri animals were genetically distinctive from other populations. His results revealed that their closest affinities were to the Calvert Range rock-wallabies (about 900 kilometres away in the Little Sandy Desert, east of Newman), then those in Cape Range National Park and finally to the Wheatbelt animals.

## WHAT NEXT?

The discovery of the ‘Kalbarri pair’ and a failure to find any further individuals, led to a modification in the translocation plan. We were concerned that if anything happened to these precious animals the unique Kalbarri genes would be lost for

good. So it became a priority for us to expand this population and plans were made to translocate 20 rock-wallabies in May 2016 to establish a new population of mixed Wheatbelt (from two of the large outcrops) to ensure the greatest possible mix of DNA, with the intention to include some Cape Range animals later to further improve the genetic diversity.

In addition to the translocation, we undertook a ‘supplementation’, where three Wheatbelt females were released near the Kalbarri pair so the male could breed with them and perpetuate the unique Kalbarri genes.

A second translocation – this time of 25 rock-wallabies – occurred in May 2017, and then, in May 2018, 20 Wheatbelt rock-wallabies and five from Cape Range National Park were released in the park. Teams of DBCA and WWF staff and volunteers worked through the night before the translocations to check the traps set up to collect the animals, so that by early morning the rock-wallabies were ready to be flown to their new home. Each wallaby was placed in a black cloth bag, put in a ‘pet-pack’ and then carefully loaded into the plane. Once in Kalbarri, each rock-wallaby was fitted with a radio-collar so their fate could be monitored.



**Left** A park visitor snapped a black-flanked rock-wallaby near Hawkshead Lookout in Kalbarri National Park.  
*Photo – Larry O'Brien*

**Above** A brush-tailed possum, a species not known to still exist in Kalbarri National Park, was snapped by a remote-sensing camera.  
*Photo – DBCA*

Each radio-collar transmits on a different frequency and is fitted with a 'mortality' feature, which indicates when there has been no movement for several hours. So, if a rock-wallaby dies or the collar falls off, park rangers can recover it and determine the cause of death. In the late afternoon, the rock-wallabies were gently carried into their new home by an enthusiastic team, which included DBCA and WWF staff and *Bush Ranger* cadets from Kalbarri District High School.

## KEEPING AN EYE ON THE WALLABIES

Monitoring translocations is very important. Surveying is carried out at the source site to ensure that the population is not negatively impacted by having animals removed, and at the release site, to determine the success of the translocation. In addition, it is important to monitor threats so these can be adequately managed. Trapping was carried out in the Wheatbelt to estimate numbers of rock-wallabies, while radio-tracking and trapping were used in Kalbarri National Park. Remote-sensing cameras were also set up at each release site to monitor numbers of introduced predators and rock-wallabies. One camera even captured an image of a brush-tailed possum, a species not known to still exist in the park.

Kalbarri National Park rangers regularly travel to high points in the park to listen for radio-collared wallabies. And if any mortality signals are received, they locate the animal and/or collar. So far, one rock-wallaby died in 2016 from a fall; one was killed by a fox in 2017; and in 2018 two were killed by predators and two

others apparently died after falls. Male rock-wallabies frequently wander from the release area and a small aircraft fitted with radio-tracking aerials is used to locate them.

## VERY GOOD SIGNS

After the 2018 release, follow-up trapping at previous release sites was carried out to collect genetic samples. This resulted in several exciting results. Genetic analysis by DBCA's fauna geneticist Kym Ottewell and university researcher Kristen Nilsson found that a translocated Wheatbelt female had a pouch young that possessed unique Kalbarri genes, but not those of the male of the 'Kalbarri pair'. This indicated that other Kalbarri rock-wallabies were still in the area, albeit at very low density. Kalbarri genes were also present in a juvenile male captured where the supplementation was undertaken, meaning the male of the 'Kalbarri pair' had sired a rock-wallaby with a Wheatbelt female. We were also delighted to get large numbers of recaptures from both of the earlier releases with wallabies in good condition and most females carrying pouch young.

When we considered the translocation of rock-wallabies to Kalbarri, we were motivated by the vision that one day the public could again stand at Hawkshead Lookout and other sites in the park and see rock-wallabies in their natural habitat, basking in the morning sun and hopping around in the outcrops. We thought this might take many years to achieve and assumed the population would have to build up both in numbers and a tolerance to visitors. However, much to our surprise and delight, a visitor captured a photo of a

rock-wallaby with radio-collar on, basking in the sun near Hawkshead Lookout in July 2018. And, since then, regular sightings have been reported by park visitors. Those who worked on the translocations – Parks and Wildlife officers from the Wheatbelt, Midwest and Pilbara regions, and DBCA Biodiversity and Conservation Science staff as well as WWF, Kalbarri *Bush Ranger* cadets and numerous volunteers – and the community at large can be optimistic that, with continued monitoring and fox and feral cat control, rock-wallabies will remain a feature of Kalbarri National Park for many years to come.

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