



RETURN TO Eden

by Carolyn Thomson and Ron Shepherd

It is fitting that Peron Peninsula, within sight of the first known European landing on Australia, should be the site of the first experiment in large-scale control of introduced predators in the arid zone. The Department of Conservation and Land Management's Project Eden aims to remove virtually all feral cats, foxes and rabbits from a massive 1050 square kilometre area of the Shark Bay World Heritage Area.



Almost four centuries ago, in 1616, Dirk Hartog became the first European to land on Australian soil at Cape Inscription on the northern end of the island which now bears his name. There, he saw wallabies that have long since disappeared. Looking across the azure waters of the Bay he would have seen the red sandstone cliffs of Peron, one of Western Australia's largest peninsulas, with an area of around 1 050 square kilometres. Had he landed and spent the night there he would have seen an amazing diversity of animals, including at least 20 mammal species.

Today, only six of these species remain. The rest are extinct, not only on Peron but, in many cases, on the rest of mainland Australia as well. The only natural wild populations of some of these species, such as the boodie, western barred bandicoot, and Shark Bay mouse, now survive on a few offshore islands, including Bernier and Dorre in Shark Bay itself. Others, like the crescent naitail wallaby and lesser stick-nest rat, have disappeared. Their disappearance is almost certainly due largely to predation by introduced predators, the fox and feral cat.

Now, a new project is under way that aims to restore the original suite of animal species to the Shark Bay area. Project Eden, announced recently by CALM, aims to remove virtually all feral cats, foxes, goats and rabbits from Peron Peninsula—the first time this has been attempted in such a large area of the Australian mainland.



MORE THAN DOLPHINS

People inevitably associate Shark Bay with the Monkey Mia dolphins. But the bay is also famed for its stromatolites, dugongs, Shell Beach, Zuytdorp Cliffs, offshore islands supporting numerous endangered species, and many other attractions. This amazing area was placed on the World Heritage list in 1991, and is one of only a handful of places in the world that satisfy all four natural criteria for listing. Other Australian World Heritage Areas include the Great Barrier Reef, the Tasmanian Wilderness and the wet tropics of Queensland.

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The red-tailed phascogale, now extinct on the peninsula, is a possible candidate for reintroduction.

Photo – Wade Hughes/Lochman Transparencies

Below: Cape Peron, on the tip of the Peron Peninsula, is the proposed site for initial reintroductions.

Photo – Bill Bachman

The Peron Peninsula is a landscape of attractions. The rolling red sand dunes and dense acacia shrublands afford four-wheel-drive visitors a wilderness experience. Small birds and reptiles are abundant among the wattle. The coastline provides a contrast of colour and stunning scenery, from red vertical cliffs to sweeping white beaches. It is also known for its series of gypsum-filled hollows known as birridas, which were formerly land-locked inlets when sea levels were much higher than at present.

The peninsula was run as a pastoral lease from the early 1900s. However, pastoral activities ceased in 1990 after the State Government purchased the land to establish Francois Peron National Park on the northern end of the peninsula.

Peron Peninsula offers the perfect site for Project Eden because of its unusual shape. It is virtually a large island joined to the mainland by an extremely narrow neck or isthmus. This means that migration of feral animals can be controlled by fencing and baiting. There is already a goat-proof fence that runs three kilometres across the isthmus, successfully restricting the entry of goats and sheep onto the peninsula. Because of its size, the peninsula could support large and stable populations of a number of endangered species, considerably increasing their chances of long-term survival and providing the Shark Bay World Heritage Area with an added tourist attraction.





Above: The feral cat is innocent in appearance, but a deadly predator.
Photo – Babs and Bert Wells/CALM

Right: Studying the foe—Dave Algar fits a radio-collar to a fox.
Photo – Babs and Bert Wells/CALM

Below right: The vermin-proof fence at Heirisson Prong. A similar fence will be built across the narrow isthmus of the Peron Peninsula.
Photo – Jiri Lochman



FOCUS ON FERALS

It was CALM scientist Per Christensen who first put forward evidence, in 1978, that implied the fox was a devastating destroyer of our unique marsupial fauna. It is hard to imagine now, but the idea that predators could wipe out their prey species was ridiculed by the Australian conservation community. Research by CALM's Jack Kinnear and others subsequently proved Per's hypothesis beyond doubt, by showing that fox control resulted in substantial increases in numbers of endangered mammal species. In recent years, CALM and other agencies around Australia have pursued a policy of baiting foxes in selected areas to increase numbers in existing populations of threatened species. Reintroductions of species to suitable areas where they were formerly known to exist, has also been carried out.

As a result of fox baiting with 1080, animals such as the woylie (which may soon be removed from the endangered list), numbat, chuditch, quenda (or southern brown bandicoot) and brushtail possum have increased greatly in number. Fox baiting can be carried out without danger to native species. The compound 1080 occurs naturally in native poison pea plants in the genus *Gastrolobium*. Over thousands of years, native animals have evolved a high level of resistance to these otherwise nutritious poison plants, so 1080 baits kill foxes without harming native animals (see '1080: The Toxic Paradox', *LANDSCOPE*, Winter 1991).



Fox control was stepped up dramatically in April 1994, when CALM and Alcoa of Australia commenced Operation Foxglove. In this massive wildlife recovery program baiting is being carried out four times a year in almost 500 000 hectares in the northern jarrah forest between Mundaring and Collie.

FERAL CATS

Despite the ground-breaking work by CALM on feral predators in the forests and woodlands of the South West, a potent problem still lurked in Australia's deserts and, partly because of these successes, it was poorly understood. CALM had long been conducting research in the Gibson Desert, to discover the reasons for the dramatic decline in mammal species

there, despite the relative lack of disturbance to the desert ecosystem. In fact, several mammal species that still survived in south-west forests, such as the chuditch, numbat and woylie, had been long gone from the arid zone.

The Desert Dreaming project was the result of this work. After controlling foxes, CALM scientists experimentally reintroduced endangered boodies and golden bandicoots to the desert from thriving colonies on Barrow Island. They undertook extensive baiting for foxes and cats at the reintroduction site. Foxes were all but eradicated from the release site. However, the researchers found it puzzling that few cats took the baits they laid. They were aware that a handful of cats still existed in the area but, given

their experience of fox control in the forests, did not believe this would pose a serious problem for the reintroduced mammals. The boodies and bandicoots initially thrived but, to CALM's dismay, it seems that most eventually fell prey to feral cats. Scientists observed that after foxes had been removed from the site, feral cats in the area actually increased four-fold! (See 'Hunting the Hunter', *LANDSCOPE*, Summer 1994-95.)

This outcome was disappointing to all those who put years of work into the project.

However, Desert Dreaming, by demonstrating the incredible resilience and ruthless efficiency of feral cats in the desert, and by showing that current baiting techniques were hopelessly inadequate for cats, was in many ways a resounding success. The data it provided clearly demonstrated that the conditions required for successful predator control in the arid zone are vastly different to those adequate in the south-west forests. Cats originated from the arid areas of Africa and are better adapted to the desert. Foxes, on the other

hand, are more at home in the cooler and wetter south-west. Desert Dreaming thus laid the foundations for Project Eden and provided the impetus for important new research into cat control.

One of the problems was that feral cats were reluctant to take baits, preferring instead to hunt and kill their prey. In the wake of Desert Dreaming, CALM scientist Dave Algar has dedicated the last two years to developing an effective large-scale means of controlling feral cats. Dave played an important role in developing the sophisticated methods of fox control now used by CALM. Since turning his attention to cats, he has tested a range of bait mediums and attractants on feral cats, together with methods for enticing cats to take baits, and is developing a promising new method of feral cat control. However, Dave's baits still need further development.

PROJECT EDEN

Dave's baits will be further tested on a large-scale in Project Eden, one of the most exciting developments in conservation management to occur in Australia.

Although Australia's forested areas have tended to become the focus of most attention in conservation matters, it has in fact been in the deserts where a conservation tragedy of enormous dimensions has been played out. The decline and disappearance of many of our native mammal species in the arid zone has been almost catastrophic (see 'Australia's Vanishing Desert Dwellers' in *LANDSCOPE*, Winter 1987). Project Eden is the most important measure so far attempted in addressing this catastrophe.

Project Eden is also the first that deals with a number of feral animal species at the same time. As well as controlling feral cats and foxes, CALM aims to control rabbits, goats and feral sheep from the peninsula. Goat numbers have already been reduced from an



Above left: Malleefowl are now very scarce on the peninsula. Predator control should result in increased numbers.

Left: The mala or rufous hare-wallaby, once common on the peninsula, is now almost extinct on the mainland and is a candidate for reintroduction.
Photos - Babs & Bert Wells/CALM

estimated 20 000 to about 1 500 in number. Rabbits are also a problem on the peninsula and control of their numbers is an essential part of Project Eden. The relationship between cat and fox numbers and rabbits is not well understood, but the removal of foxes and cats could result in an increase in rabbits unless broad-scale rabbit control is achieved beforehand.

Project Eden will be carried out in two phases. The first phase—the reduction of feral animals on the peninsula—is expected to last two years and will demonstrate whether the control of feral cats and foxes is possible on a large scale. This in itself will have immediate benefits for the peninsula's existing wildlife species. Species such as the endangered thick-billed grasswren and malleefowl, for instance, should increase in abundance. If the first phase works, the reintroduction will begin. Mammal species that will be considered for reintroduction include the woylie, red-tailed phascogale, rufous hare-wallaby, banded hare-wallaby, western barred bandicoot and chuditch, to name but a few. However, no species of native mammals will be reintroduced to Peron Peninsula until CALM scientists are certain that they have reduced feral animals to a tiny proportion of their former abundance on the peninsula and completely eliminated them from the area around the initial release sites.

Other work on mammal reintroduction by CSIRO scientist Jeff Short in Shark Bay has provided encouraging results. The Useless Loop Community Biosphere Project Group and the CSIRO appear to have eradicated foxes and controlled feral cats on the smaller Shark Bay peninsula of Heirisson Prong (about 8 500 hectares). Although Peron Peninsula is a much larger area, Heirisson Prong is an important model for Project Eden. Burrowing bettongs and Shark Bay mice were recently released on the prong and monitoring has shown they are doing well.

RESTORING EDEN

Work on Project Eden has already begun. A dynamic team of experienced CALM scientists and personnel has been established, headed by Per Christensen. An initial reconnaissance, based on the number of tracks, has shown that Peron



Peninsula supports extremely high numbers of foxes—estimates are around 1 000, approximately one per square kilometre—and rabbits. Large-scale baiting for foxes, feral cats and rabbits will begin in April. CALM is also seeking sponsorship to build a fox- and cat-proof fence at the neck of the peninsula.

One thing is certain. Project Eden is a major conservation project with the potential to establish Peron Peninsula as one of the wonders of the world. It would also have spin-offs for the local community, providing a significant boost to the emerging nature-based tourism industry in Shark Bay. In years to come, if the project is successful, tourists may flock to the Shark Bay World Heritage Area to see native animals in the wild, as well as the Monkey Mia dolphins.

Can CALM really turn back the clock and reinstate the original mammal fauna to something resembling its former state? No-one knows for sure. However, if

The western barred bandicoot is now only found on two offshore islands. It is another top candidate for reintroduction to Peron Peninsula. Photo – M & I Morcombe

Australia's problems with endangered wildlife are ever going to be solved, scientists will have to keep trying to find new ways to do things—and then actually do them! All those who care about Australia's natural environment will be keeping their fingers crossed.

Carolyn Thomson has been a frequent contributor to *LANDSCOPE*.

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Flower arrangements featuring eucalyptus foliage are becoming popular with florists. Find out why on page 35.



Unseen for more than 100 years and believed to have been extinct, Gilbert's potoroo turned up quite unexpectedly. See page 28.



Salinity is a problem in the State's south-west, but farmers, communities and government agencies are working to find solutions. See page 39.



A giant dragonfly lives in the south-west of Western Australia. You can find out more about this ancient relict of the jarrah forest in 'Western Petalura' on page 52.



The thick-billed grasswren is one of several animals that may be reintroduced to Shark Bay as part of an ambitious project. See 'Return to Eden' on page 22.

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COVER

The stunning royal robe (*Scaevola striata*) is one of a host of fabulous fanflowers found in Western Australia. Suzanne Curry discusses this and other species in the family Goodeniaceae on page 10.

The illustration is by Philippa Nikulinsky.



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