APPROACHING EDEN

Foxes and feral cats are the scourge of Australian native wildlife. Before native animals such as the woylie can be moved back into their original territories, we need to be sure that they have the best chance of survival. At Peron Peninsula, CALM's Project Eden is proving that imported predators can be controlled.

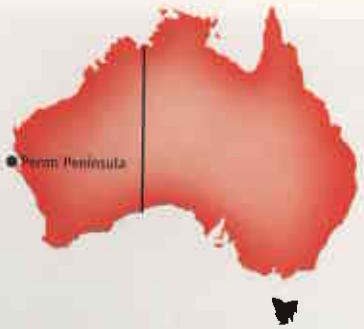
DAVID ALGAR AND RAY SMITH

Project Eden is good news for nature conservation. It is a program designed to restore native wildlife to a large area from which it has become all but extinct. Pioneered by the Department of Conservation and Land Management (CALM), Project Eden is successfully controlling the fox and, in particular, the deadly feral cat throughout the 1050-square-kilometre Peron Peninsula.

Foxes and feral cats are vicious killers not native to Australia. They prey on Australian wildlife and are widely acknowledged as playing a prime role in the disappearance and decline of many small to medium-sized species, including at least ten mammal species

Previous page
Main: Aerial view of Francois Peron National Park.
Photo – Bill Bachman
Insets from left to right:
Three native species being reintroduced: Woylie, photo – Babs & Bert Wells/CALM; malleefowl and western barred bandicoot, photos – Jiri Lochman.

Below: Feral cats are a major introduced predator in Australia.
Photo – Ray Smith/CALM



once found on Peron Peninsula. Across Australia, whenever attempts have been made to reintroduce native species to their former ranges, these killers have been the major cause of failure.

If foxes and feral cats can be controlled on Peron Peninsula, it will be possible to reintroduce the suite of threatened native animal species that once inhabited the peninsula and much of the surrounding mainland. Peron Peninsula will then become the largest conservation area to support a number of stable populations of threatened species in the wild in Australia. Peron's conservation value will be enhanced and the Shark Bay World Heritage Area provided with an added nature-based tourist attraction.

The species proposed for reintroduction makes an impressive list: malleefowl, woylie, bilby, rufous hare-wallaby, chuditch, mulgara, and a number of species such as banded hare-wallaby, western barred bandicoot, stick-nest rat and Shark Bay mouse, whose only wild populations are on a few offshore islands.

Before these native species can be reintroduced, it is necessary to know if foxes and feral cats could be controlled on a large scale. As a target, observers wished to see no more than one fox or cat track per 10-kilometre strip of land.

CLOSING THE DOOR

Peron Peninsula is joined to the mainland by a narrow neck (the 3.4-kilometre-wide wide Taillefer Isthmus). To prevent reinvasion by foxes and feral cats from the mainland, CALM staff built a barrier fence across the isthmus in 1995. The 'cyclone mesh' fence is 2.4 metres high; it consists of a mesh horizontal overhang with two electrified wires to prevent animals climbing over, and a buried mesh to prevent them digging underneath. The fence extends into the water at either end, well beyond low tide levels, to prevent animals entering the peninsula along the beaches.

The weakest link in the fence was the grid on the Hamelin–Denham main road. (A number of foxes crossed the grid onto the peninsula after the first baiting, described later.) Several methods to discourage the predators were considered, but none was successful—until innovative thinking led to the idea of a burglar alarm. A firm in Perth manufactures an electronic 'barking dog' security system, which detects movement and then emits the sound of German Shepherd dogs barking. The intensity of the sound and growl increases as an intruder nears the installation. These units, powered by solar panels, were placed at the edge of the grid to cover all avenues of access.

Sand tracks along the fence and plots at the grid are routinely monitored for movement across the barrier. The fence design has proved very effective, and since the electronic barking dogs began to patrol, about a year ago, there has been no invasion from land or sea.

The peninsula has virtually become an island haven for native wildlife.

FIRST, THE FOX

Over the past ten years, CALM researchers have developed an efficient aerial baiting strategy to control foxes and a technique to measure their abundance. Fox numbers on the peninsula were estimated by trial placement of cyanide baits. These baits were located every 200 metres along 60 kilometres of bush tracks. Death due to cyanide is virtually instantaneous, allowing foxes to be collected at the bait stations and their numbers recorded.

The result was staggering. A total of 146 foxes were retrieved, double the number of foxes taken by this method anywhere else in the State. That number implies a population of approximately 2 500 animals, more than two animals per square kilometre. The peninsula was loaded with foxes.

An aerial baiting campaign was conducted in April 1995. Ten thousand fox baits containing the toxin 1080 (lethal to imported predators, harmless to native wildlife) were dropped over the length and breadth of the peninsula, excluding the Denham Townsite Reserve and Monkey Mia Reserve.

Several weeks later, cyanide baiting was again carried out. The results were again staggering. Over the three nights of baiting, no foxes were collected and no tracks recorded. Only one fox was sighted during a spotlight survey. The baiting had almost eliminated foxes from the area.

Foxes remaining after the baiting, and those that entered the peninsula across the grid before installation of the electronic barking dogs, have been removed via trapping or through the taking of cat baits. No sign of foxes has been observed for the past six months.

It is possible that the fox has been totally eradicated from the peninsula. If so, this will be the first broadscale elimination of a feral predator anywhere in Australia.

THE DEADLY FERAL CAT

Getting rid of the fox was a victory. But it would have been a hollow one if the feral cat had been allowed to remain.

Top: The 3.4-kilometre barrier fence, across Tallifer Isthmus to prevent reinvasion of introduced predators.
Photo – J.A. Sinagra/CALM

Above: Foxes have all but been eliminated on Peron Peninsula after periodic comprehensive baiting.
Photo – Jay Sarson/Lochman Transparencies

Control of feral cats is one of the most pressing problems in the conservation of threatened vertebrates in Australia today. Until recently, limited research had been conducted on strategies to control them. In 1993, CALM formed a Feral Cat Research Group to develop a cat bait, one which could be used in broadscale campaigns.

There is considerable myth and folklore surrounding bait acceptance by cats; it is generally believed that cats will not consume a bait, as they prefer live prey. Past baiting campaigns, using baits designed for other introduced predators, have proved unsuccessful



Six species of native animals being canvassed for potential reintroduction to Peron Peninsula. *Above left to right:* Mulgara, photo – Wade Hughes/Lochman Transparencies; djoongari (Shark Bay mouse), photo – Babs & Bert Wells/CALM; rufous hare-wallaby, photo – Marie Lochman. *Below left to right:* little long-tailed dunnart, photo – Ray Smith/CALM; bilby and banded hare-wallaby, photos – Babs & Bert Wells/CALM



against feral cats, even though they are susceptible to the toxin used. But it was noticed that bait uptake was low in these campaigns, suggesting that the baits were unattractive to cats.

CALM researchers therefore designed and developed a new bait. The medium is a small, moist kangaroo meat bait, coated with ingredients to enhance the flavour.

The removal of the fox on the peninsula actually increased the numbers of feral cats. Some predation of kittens by foxes had probably occurred, but the main impact of the foxes had been on the cats' breeding and feeding. Without the foxes, cat births soared. She-cats can have two or more litters per year, averaging four kittens per litter in good seasons. During the spring and early summer of 1995–96, with the fox all but gone, cat breeding resulted in an estimated increase of cats on the peninsula from approximately 300 to 950 animals. The need for immediate control was urgent.

THE BAITING WINDOW

Bait uptake trials were conducted regularly after fox baiting to decide the best time to bait for cats. These trials assessed how many cats took baits along tracks. Cats through winter, spring and early summer consumed only limited numbers of baits; most were taken through late summer and into autumn. This seasonal pattern of bait consumption, termed a 'baiting window', was also observed the following year.

Studies that have been conducted elsewhere show that, in the absence of rabbits, cats will consume baits throughout the year. But we also know that cats, unlike foxes, will eat only when hungry; if prey is plentiful, cats are less likely to take a bait. It was originally thought that the 'baiting window' might reflect a seasonal lack of prey. Prey on the peninsula does increase after late autumn–winter rains (with the breeding of rabbits and mice and the emergence of reptiles), peaks in spring and early summer, and declines in late summer and autumn—the 'baiting window'. Until rabbit breeding finishes and their numbers decline in late summer, young rabbits provide too easy and reliable a prey for cats on Peron.

The first aerial drop of cat baits took place in autumn 1996. Some 40 000 baits were laid across the peninsula over a seven-day period.

To measure baiting success, 25 feral cats were captured and fitted with radio-collars before the baiting. The activity of these animals was closely followed, and the results were very encouraging. Two of the collars malfunctioned, but of the remaining 23, 21 were located on dead animals. A decline in cat activity along tracks showed similar trends, and it was calculated that around 80 per cent of the feral cat population had been removed.

CURIOSITY KILLS THE FERAL CAT

The baiting program had achieved excellent results, but with another cat breeding season approaching it was essential to move quickly on the cats still remaining.

A trapping method was already being developed to provide a variety of information on cats and to remove residual cats following baiting. The most efficient traps tested were ' Victor Soft-Catch' traps: padded leg-traps capable of capturing feral cats without harming them. The difficulty was developing a lure that could be used anywhere, and across seasons. As with baits, cats will not take a food lure in a

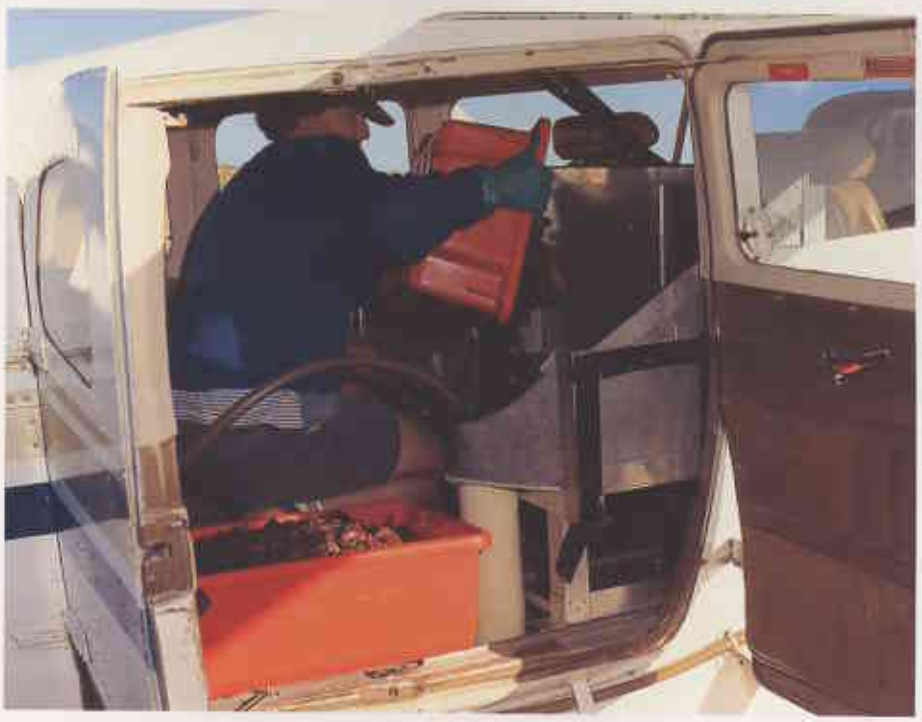
trap if they are not hungry, so a non-food lure was needed.

Although solitary and territorial, cats are very inquisitive about other cats. This curiosity, a quality long ascribed to cats, led to the design of a lure using an audio cat-calling system and a scent attractant (called 'Pongo')—a blend of cat faeces and urine, which appears to be of great interest to cats.

This trapping technique was field-tested on Peron, and has proven invaluable in the control of the feral cat on the Peninsula. A limited trapping program began in late winter 1996 and was continued into late summer. Traps were placed along tracks where cat activity had been observed, to maintain control until the next baiting. During this period more than 100 cats were captured and humanely destroyed.

Bait uptake trials were continued. The results indicated that the next 'baiting window' would open in late March 1997. An aerial baiting, similar to the previous year, was therefore conducted in April. Unfortunately, as soon as the baits were laid, heavy, unseasonal rain fell, washing away the attractant coating. A further baiting program scheduled for May was cancelled due to continuing rain. Baiting was no longer an option for the rest of the year.

Cat numbers had to be reduced before the reintroduction of native animals. To compensate for low baiting success, intensive, continuous trapping was conducted across the entire peninsula. A trapping program of such magnitude had never before, to the best of our knowledge, been conducted anywhere in the world; it was the development and refinement of the lures that made the program possible. Virtually every kilometre of track on the peninsula, approximately 400 kilometres, contained a trap. The trapping program



Above right: CALM technical officer, Bruce Ward, injecting cat baits with 1080 poison.
Photo – Ray Smith/CALM

Right: CALM technical officer, Steve Tritton, loading cat baits into the aircraft prior to aerial baiting.
Photo – Ray Smith/CALM

started at the beginning of June and continued to the end of September. During this four-month period an extremely dedicated crew of five people worked without a break. A total of 261 adult cats and 171 kittens were removed.

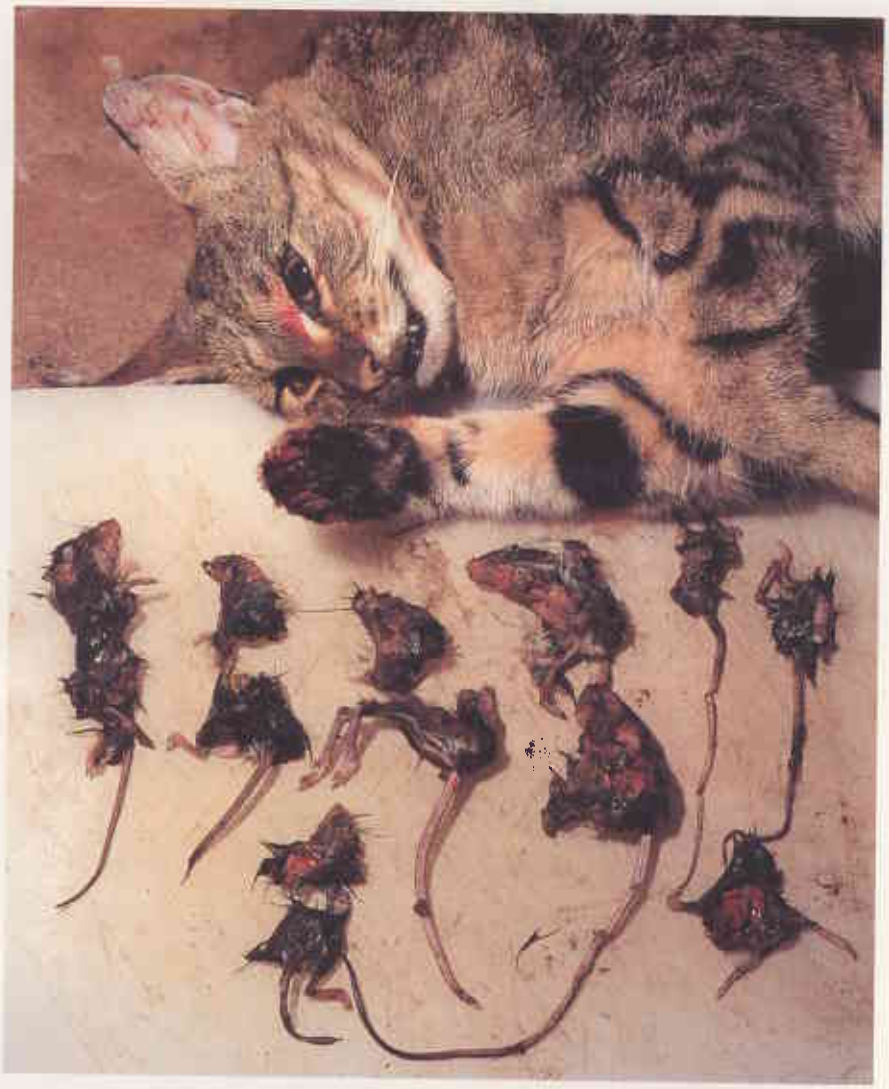
The sustained trapping effort has been very successful, resulting in a significant reduction in cat activity across the peninsula. This remarkable work reduced the cat population to less than one cat per 10 kilometres, the predetermined level of success.

APPROACHING EDEN

The two intensive years of introduced-predator control on the peninsula have been successful. The fox has been eradicated from Peron, and the feral cat population has been reduced to very low numbers. Strategies are in place to reduce cat numbers further, and eradication of this animal now seems possibile. This represents an important milestone, not only for Project Eden, but also for wildlife management in Australia. For the first time, it has been shown that foxes and feral cats can be controlled over broad areas of the continent. This will allow the successful reintroduction of the native species that rightfully belong there. Reintroduction will bring the added benefits of species diversity, environmental stability and nature-based tourism to the area.

The large numbers of foxes and cats on the peninsula before Project Eden must have exerted an enormous predation pressure on native species. Control of the fox and cat has had an immediate benefit. There has been a dramatic increase in the abundance of many of these species, particularly over the past six months. It is true that the past two seasons in Shark Bay have been very good with high rainfall, and must have promoted increases in wildlife populations; but the greater abundance of species such as the thick-billed grasswren, spinifex hopping-mouse, dunnart, echidna, and various snake and goanna species is believed to be a result of reduced predation.

Project Eden has been instrumental in the rapid advancement of cat control techniques. Research has led to the development of a number of techniques that were field-tested immediately, and have been thoroughly tested and refined. The project has provided a vast database for control of the feral cat, and has set priorities for further research. It is hoped that the expertise and technology now being developed within Project Eden for cat control will be used on the rest of the continent.



Stomach contents of a feral cat—four tarrkawarra (spinifex hopping-mice) and two mingkiri (sandy inland mice). Photo – Ray Smith/CALM

THANKS — Community involvement has been a key issue in the success of the project so far. The Project Eden Shark Bay Advisory Committee, composed of local residents, has had been a key contributor to the project since its inception. The committee has provided local knowledge and input as well as feedback on a range of issues, especially cat control.

LANDSCOPE Expeditions in 1996 and 1997 provided many willing hands from paying volunteers who participated in monitoring and research including the recovery of native species following feral predator control.

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LANDSCOPE

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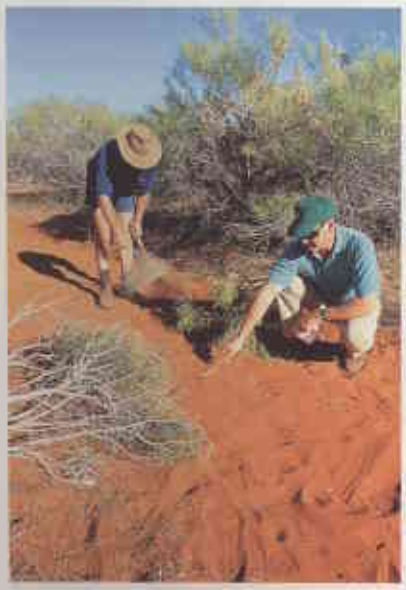
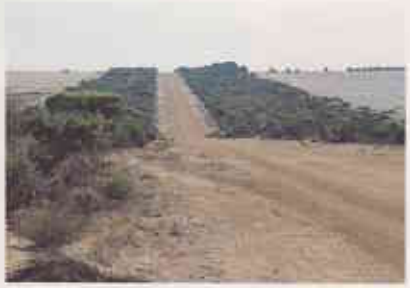
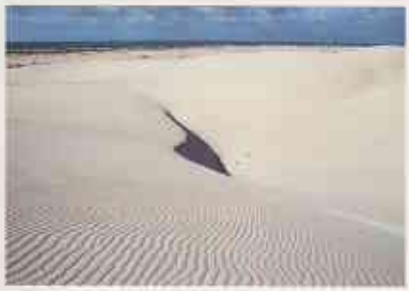


CALM's fight against feral cats gathers ground on Peron Peninsula with the development and testing of a cat bait. See 'Approaching Eden' on page 28.



Roadside vegetation often provides vital links between remnant habitats. See our story on page 23.



What attracted early pioneers to this barren corner of Western Australia? Find out in 'Eucla Pioneers' on page 35.

A new CALM book gives bushwalkers a host of short and longer walks in Western Australia's south-west. See page 10.

Fire is an important part of Western Australia's environment. Scientists continue to discover just how important. See page 17.

FEATURES

REGULARS

COVER

The splendid fairy wren was one of many birds collected by John Gilbert, whose collections of specimens have been fragmented over the past 100 years or so. Now, they are being tracked down in museums around the world, and a more complete picture of their original distributions is emerging from Gilbert's original notes and labels. See story on page 40.

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