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# OPERATION

# WANJARRI

Sponsorship proposal to WMC Resources



DEPARTMENT OF



**Conservation**  
AND LAND MANAGEMENT





young mala



mulgara

## BACKGROUND

Western Shield is the massive wildlife recovery plan run by the Department of Conservation and Land Management (CALM). More than 3.5 million hectares of CALM-managed lands were baited for introduced predators last financial year, with support from sponsors Alcoa Australia, Cable Sands Pty Ltd and Westralian Sands.

Western Shield was launched in 1996, following smaller programs to control introduced foxes and cats and return native animals to their former habitats. Since that time, some species of native mammals have increased in abundance to the point where three have been taken off State and Commonwealth lists of threatened fauna. In 1998, Western Shield won the prestigious national Banksia Award for fauna conservation.

The semi-arid and arid regions of Australia have experienced an alarming decline in medium-size mammals over the past 40 to 50 years. About 90 per cent of this group of mammals have declined or have become extinct in the region and predation by foxes and feral cats are implicated in these declines.

One of the key elements of Western Shield was a substantial increase in research into controlling feral cats as a means to protect native animals. The feral cat is the most successful and widespread feral predator in Western Australia and a serious impediment to fauna reconstruction in semi-arid and arid regions.

Broad-scale baiting offers the best option to control feral cats and CALM has recently developed a bait that has shown promise in field trials. Further research will focus on determining the best time to bait and on the development of cost-effective baiting regimes to control feral cats.

Innovative techniques have also been developed to assess baiting efficacy and to census feral cat populations. As cats and foxes are controlled in target areas, it will be possible to return native animals to their former habitats.

This sponsorship proposal offers an opportunity to participate in a fauna conservation program of national and international significance by extending predator control and wildlife reintroductions to the north-eastern Goldfields. Our long-term goal is to reconstruct the original suite of mammalian fauna in the region and to provide an opportunity for world-class ecotourism attractions at Wanjarri Nature Reserve where visitors will be able to see and appreciate Western Australia's unique wildlife.








## OPERATION WANJARRI

Many native mammal species that once occurred in the north-eastern Goldfields are now restricted to several offshore islands and others have undergone dramatic contractions in their former mainland range. Small population sizes and restricted geographic ranges mean that these species are vulnerable to extinction.

A crucial first stage in achieving the long-term goal of fauna conservation and reconstruction is to control introduced predators. Feral cat research conducted in the area to date has shown not only the need for control but also its feasibility. The proposal is to develop, implement and evaluate a unique operational program centred on Wanjarri Nature Reserve, with a 20-kilometre buffer. The total area to be baited is 4,422 square kilometres making it the largest feral cat control program in the world. The program differs from other feral predator control programs in that a buffer zone, and not a costly fence, will provide continued protection to the native fauna.

This project aims to protect native animal populations still present in the area, including the endangered mulgara and malleefowl, and allow them to increase in number. When effective and sustained control of feral cats and foxes can be demonstrated, then the potential exists for the reintroduction of several native mammal species once abundant in the north-eastern Goldfields.

Operation Wanjarri priorities are listed in chronological order and discussed in detail in Appendix A:

-  determine the timing of feral cat baiting programs to maximise efficiency;
-  assess baiting efficacy;
-  assess potential non-target species at risk from baiting;
-  monitor benefits of the baiting programs to extant fauna;
-  examine re-invasion by feral cats and foxes to determine baiting regimes to provide cost effective control.

## REINTRODUCTIONS

Reintroductions will be possible only when predator control can be demonstrated. CALM's captive breeding facilities at Dryandra and Shark Bay will be the source of animals for reintroduction. Candidate species for reintroduction include the golden bandicoot, rufous hare-wallaby (mala), chuditch, numbat, bilby, burrowing bettong, brush-tailed possum, greater stick-nest rat, and Shark Bay mouse. All of these animals were once found in the region. Species to be reintroduced and the timing of reintroductions will be subject to CALM's translocation proposal approval process.

These species are highly visible and adaptable. It is likely that they will eventually be common residents around areas of human habitation, particularly in grassed areas. In addition to a significant contribution to the conservation of these species, Operation Wanjarri offers great potential for the public to enjoy these animals and to learn about them.

Operation Wanjarri will build on the good land management programs that have been developed by WMC Resources.



Shark Bay mouse



CALM scientist with bilby

## SPONSORSHIP

Operation Wanjarri is seeking sponsorship to augment CALM's commitment to the program. Sponsorship would give WMC Resources the opportunity to be involved in a high-profile award-winning wildlife conservation program and the chance to work more closely with the local community.

Curtin University, Kalgoorlie Applied Sciences, for example, has a continuing interest in assisting with some of the field work involved in Operation Wanjarri, such as fauna monitoring and the assessment of bait uptake risks to non-target species. Data collection at Wanjarri and analysis would form part of the students' course work.

The program also offers considerable scope to employ local Aborigines to help in various aspects of the work, and to attract Federal funding to support this employment. The knowledge and field skills of local Aborigines would be of particular benefit during the cat tracking and reintroduction phases.

Sponsorship of about \$90,000 per annum for five years is sought for Operation Wanjarri, (budget details are presented in Appendix B).

## BENEFITS TO WMC RESOURCES

As well as increased involvement with local communities, this proposal offers WMC the opportunity to build on its strong image as an environmentally-conscious organisation. Operation Wanjarri is an ambitious project - ultimately seeking to reconstruct much of the ecology of the area - and will attract public interest and support. The project will make it possible for people to visit WMC operations and witness the co-existence of mining operations and a rich fauna. It will be a living example of the mining industry delivering a major wildlife conservation benefit to Western Australia.

The project offers numerous promotional opportunities, such as a media event to launch the project and regular media releases to update progress, education packages, eco-tours, joint WMC/CALM signage at Wanjarri Nature Reserve and annual reports.



radio tracking released animals



golden bandicoot



malleefowl

## APPENDIX A Operation Wanjarri control program

### Locality

The proposed program is centred on Wanjarri Nature Reserve, about 50 kilometres north of Leinster and 80 kilometres south of Wiluna. The nature reserve, which extends approximately 26 kilometres by 27 kilometres, will serve as the core baiting area and a 20-kilometre buffer will be applied, encompassing parts of neighbouring pastoral leases. The total area baited will be 4,422 square kilometres.

### Timing of baiting programs to maximise efficiency

Research has suggested that the percentage of the cat population that will consume a bait may be influenced by the availability of predator-vulnerable young prey, which is a function of season/rainfall. This baiting window occurs in autumn in areas influenced by temperate climatic regimes when live young, predator-vulnerable prey are not present. In the arid zone where rainfall is unreliable, the time and intensity of rainfall events such as cyclones and thunderstorms will determine the abundance of live prey.

Examination of whether bait uptake is influenced by the time of year and if so, when bait uptake is at its peak, will determine the optimum timing of control programs to maximise efficiency.

Bait uptake is to be monitored at monthly intervals during the first year to highlight possible differences in bait consumption over time with respect to seasonal/rainfall influences. This will indicate a broad optimum period, or periods, for baiting. Should this/these periods be relatively narrow, assessment of bait uptake will be conducted in the following year, to refine the optimum baiting period.

Operation Wanjarri will draw initially on the results of bait uptake trials conducted on Albion Downs Station. The spinifex and sand plain/sand dune system has been targeted for this work because it supports a high density of cats, allows easy track identification and is representative of the baiting area.

### Assess potential non-target species at risk from baiting

A series of field trials is to be conducted using non-toxic, biomarked baits in areas where several critical indicator species, in particular the dasyurids (mulgara), are present. The biomarker used is Rhodamine B, a systemic bait marker, which produces markings that are incorporated into the structure of growing hair. This technique has advantages over other bait markers in being relatively non-invasive, simple and inexpensive. These trials, of necessity, will begin prior to the operational baiting program and at the time of year when their food availability is low and therefore the likelihood of bait consumption is highest. Results of the trials will provide information on bait consumption by individuals and thus the likely impact of an operational baiting program on species' populations.

### Monitoring of the benefits to the extant fauna

In addition to paving the way for the re-establishment of locally extinct fauna populations, feral predator control is expected to provide significant benefits to the extant fauna.

This program offers a unique opportunity to improve our understanding of the impacts of predation on local fauna populations. The threatened/vulnerable mulgara and malleefowl are two species of particular interest. However, work carried out in the area to date has demonstrated that feral predators rely on a wide range of native vertebrate species.

Annual monitoring of local fauna, both within and outside the control zone, will permit direct measurement of the impacts of feral cat predation.





burrowing bettong release



bilby



burrowing bettong

Examine reinvasion and baiting efficacy to determine baiting frequency and provide cost effective control

The use of a buffer zone surrounding a core area where reintroduction of species could occur has a number of advantages over baiting the core area alone.

- ② The buffer acts as a vacuum into which cats will invade prior to moving into the core area. Thus the buffer reduces the extent of reinvasion over time into the core area and provides greater protection for the reintroduced species.
- ② Provision of a buffer may lead to a reduction of the extent and frequency of baiting, particularly of the core area. It is possible that further baiting programs may be confined to the buffer.
- ② Refinement of the baiting programs will lead to a more effective and cost efficient control strategy.
- ② Research has shown cat abundance in certain habitats to be very low – these areas may form natural barriers to cat reinvasion.

Direct assessment of baiting efficacy will be achieved by baiting with Rhodamine-labelled baits, prior to the operational bait, and trapping to measure the proportion of individuals that consumed a bait. The fitting of mortality collars to trapped cats will allow confirmation of baiting efficacy, following operational baiting with toxic baits.

To be able to assess the effectiveness of the bait barrier barrier, track counts will be conducted on a monthly basis across the buffer and core areas prior to implementing the baiting program. Following baiting, the same series of transects will be assessed for track activity over time at monthly intervals. Data collected will provide information on the extent and timing of movement into the buffer and core areas.

The program outlined will be responsive to the level of control achieved.

### Operational baiting

The initial baiting area will be 4,422 square kilometres making it the largest feral cat control program in the world. At a baiting density of 10 baits per square kilometre, 44,220 baits are required for a single baiting. A single baiting can be completed in 3.5 days, including a total of 21 flying hours. This blanket baiting regime is an initial approach only. Significant refinements are expected through the monitoring of baiting efficacy and the rate of reinvasion/recovery. Subsequent baiting regimes will depend entirely on these factors.

### TIMELINE OF ACTIVITIES

	2001	2002	2003	2004	2005
Bait uptake (monthly)					
Non-target bait uptake (once)					
Baiting efficacy (once)					
Fauna monitoring (once/yr)					
Operational baiting (once/yr)			Annual baiting if needed		
Examination of re-invasion (monthly)					
Potential fauna reintroductions					



brush-tailed possum



numbat

## APPENDIX B Operation Wanjarri, feral cat control budget

		2001	2002	2003	2004	2005	CALM	WMC	Project total
Research officers	Level								
Algar (50%)	6/1 WPA	\$38,910	\$40,240	\$41,616	\$43,082	\$45,305	\$209,154		\$209,154
Angus (50%)	2/4 3 WPA	24,063	25,743	27,435	30,057	31,766	139,065		139,065
Laboratory consultancy									
Sinagra		6,000	6,000	6,000	6,000	6,000		30,000	30,000
Bait uptake	Vehicle	25,920						25,920	25,920
	Baits	4,200						4,200	4,200
	Travel allowance	7,560						7,560	7,560
Non-target	Vehicle	3,600						3,600	3,600
Monitoring	Baits	420						420	420
	Plane charter	3,480						3,480	3,480
	Travel allowance	900						900	900
	Consumables	2,935						2,935	2,935
	Traps and trapping	2,152					2,152		2,152
Uptake/reinvasion	Vehicle		28,800	29,568	30,336	31,104		119,808	119,808
	Travel allowance		7,600	7,560	7,560	7,560		30,280	30,280
	Baits		1,400					1,400	1,400
Fauna monitoring	Vehicle		3,750	3,850	3,950	4,050		15,600	15,600
	Travel allowance		900	900	900	900		3,600	3,600
	Traps and trapping		2,152	2,152	2,152	2,152	8,608		8,608
	Consumables (WMC)		500	500	500	500		2,000	2,000
Operational baiting	Vehicle		3,150					3,150	3,150
	Baits		15,750	16,000	16,500	17,000		65,250	65,250
	Plane charter		10,875	11,125	11,375	11,625		45,000	45,000
	Consumables		500	500	500	500		2,000	2,000
	Travel allowance		1,260					1,260	1,260
	Bait transport		3,120	3,380	3,640	3,900		14,040	14,040
Baiting efficacy	Vehicle		3,450					3,450	3,450
	Baits		5,250					5,250	5,250
	Plane charter		6,090					6,090	6,090
	Radio collars		5,000					5,000	5,000
	Travel allowance		1,350					1,350	1,350
	Bait transport		3,120					3,120	3,120
	Cat traps		10,000				10,000		10,000
	Cat lures		5,000				5,000		5,000
	Radio receivers		1,500				1,500		1,500
Reintroduction	Translocation			15,000	15,000	15,000		45,000	45,000
Indirect costs	CALM overheads	54,063	86,625	74,514	77,198	79,813	372,214		372,214
	Total CALM	119,189	171,260	145,717	152,489	159,037	747,692		
	Total WMC	55,015	107,865	94,383	96,261	98,139		451,663	
Total project costs	Total project costs	\$174,204	\$279,125	\$240,100	\$248,750	\$257,176	\$747,692	\$451,663	\$1,199,355



malleefowl



rufous hare-wallaby

