



Working  
*Western Shield* Translocation Plan

2006 – 2009



Department of  
Environment and Conservation

**WORKING  
WESTERN SHIELD TRANLOCATION PLAN**

Prepared by

Christine Freegard and Peter Orell

in consultation with the  
*Western Shield* Operational Research Committee

September 2006

Species and Communities Branch  
Department of Environment and Conservation  
Locked Bag 104  
Bentley Delivery Centre WA 6983

Maps in Appendix II prepared by Kellie Mantle

# Contents

	Page
1 Introduction.....	4
2 Changes in Conservation Status of Species under <i>Western Shield</i> .....	5
3 Yearly Summary Tables.....	16
4 Costings for High Priority Translocations Proposed for 2006/07.....	32
4.1 Dibbler from Perth Zoo to Stirling Range National Park.....	32
4.2 Red-tailed phascogale from wheatbelt reserves to Peron.....	33
4.3 Numbat from Perth Zoo to a site on the south coast.....	34
4.4 Bilby from RTD and Peron to sunklands.....	36
4.5 Western ringtail possum from Busselton/Bunbury development sites and carers to Leschenault, Yalgorup and Old Bunbury Rd.....	36
4.6 Gilberts potoroo from captive colony/Mt Gardner to Bald Island.....	36
4.7 Boodie from RTD to Dryandra.....	36
4.8 Mala (Rufous Hare-wallaby) from RTD and Peron to Tutanning.....	37
4.9 Mernine (Banded Hare-wallaby) from Peron to Faure Island.....	49
4.10 Black-flanked Rock-wallaby from Mount Caroline and Querekin to Cape Le Grand National Park.....	40
4.11 Black-flanked rock wallaby from Querekin to Paruna Sanctuary.....	41
4.12 Greater Stick-nest Rat from St Peter Island South Australia and Salutation Island to Faure Island and Salutation Island.....	42
4.13 Noisy scrub bird from Mermaid/Waychinicup area to Gull Rock and Porongurup NP.....	43
4.14 Western Swamp Tortoise from Perth Zoo to Mogumber and Moore River.....	43
4.15 White-bellied frog from Witchcliffe area to other sites in Witchcliffe area.....	43
4.16 Quenda from Metro sites to Nambung National Park.....	44
4.17 Woylie from Karakamia to Nambung National Park and North Karlgarin Nature Reserve.....	44
4.18 Tammar Wallabies from Tutanning to Nambung.....	45
4.19 Brushtail Possum from Karakamia and Metro sites to Julimar.....	47
5 Summary of Cost Centres Responsible for Translocations Underway and Proposed ....	48
6 Future Site-based Reintroduction Projects.....	58
6.1 Lorna Glen.....	58
6.2 Dirk Hartog Island.....	58
6.3 Mt Gibson.....	58
7 References.....	59
Appendix I: Mammal Reconstruction on Dirk Hartog Island 2008-2022.....	60
Appendix II: Species maps.....	68

# 1 Introduction

*Western Shield* is a predator control and fauna recovery program initiated by the Department of Conservation and Land Management (CALM) in April 1996. The program is now run by the Department of Environment and Conservation (DEC).

An internal CALM document that outlined the objectives and implementation of *Western Shield* was first prepared in 1995 (see Burbidge *et al.* 1995). This document identified a network of “Fauna Reconstruction Sites” and “Species Recovery Sites” that would “ensure both the conservation of currently existing threatened mammals and the reconstruction... of the original mammal fauna”. It also provided a list of species that would benefit from this recovery program.

The mission, principles, priorities, objectives and strategies of *Western Shield* were formalised in the draft ‘*Western Shield* Fauna Recovery Strategic Plan July 1999 – June 2004 (CALM 1999). There was a focus on the recovery of extant fauna and on fauna reconstruction through translocation. The document provided an expanded list of proposed fauna reconstruction sites and species recovery sites by species and by CALM region.

A review document focusing on the Wheatbelt Region was prepared in 2001 with the aim of establishing translocation priorities for that region (see Orell, 2001).

This translocation plan aims to build on these documents and provide cost estimates for high priority translocations for the 2006/07 financial year. This plan will be reviewed annually.

Species considered in this translocation plan:

## **THREATENED SPECIES**

Chuditch  
Dibbler  
Red-tailed phascogale  
Numbat  
Western barred bandicoot  
Bilby  
Western ringtail possum  
Gilbert’s potoroo  
Boodie (Shark Bay subspecies)  
Boodie (Barrow Island subspecies)  
Mala or Rufous hare-wallaby (Bernier/Dorre Island subspecies)  
Mala or Rufous hare-wallaby (Tanami desert subspecies)  
Mernine or Banded hare-wallaby  
Black-flanked rock-wallaby  
Quokka  
Shark bay mouse  
Heath mouse  
Greater stick-nest rat  
Western ground parrot  
Noisy scrub-bird  
Western bristlebird

Malleefowl  
Western swamp tortoise  
Orange-bellied frog  
White bellied frog  
Margaret River marron  
Burrowing crayfish species  
Cape Leeuwin freshwater snail

## **PRIORITY SPECIES**

Quenda  
Woylie  
Tammar wallaby  
Thick-billed grass-wren

## **NON-THREATENED SPECIES**

Brushtail possum

This list of species includes species from animal groups not usually associated with the *Western Shield* program, such as frogs and invertebrates. The findings of the independent review of *Western Shield* determined that the scope of *Western Shield* should be better defined (Possingham *et al.* 2003). Wording suggested by the panel was: “Feral predator control (where predators include foxes, cats and in particular cases rats and maybe even pigs) for the purpose of recovering remnant, and re-establishing new populations of critical weight range mammals and associated terrestrial vertebrates (eg reptiles, ground-nesting birds).” Whilst the predator control aspect of *Western Shield* may not be relevant to some of the species in this plan, other goals of the *Western Shield* program are relevant, such as fauna reconstruction and improving the conservation status of species. The procedures that have been developed (eg writing and approval of translocation proposals) for translocating species considered part of the *Western Shield* program are equally applicable to species more loosely associated with the program.

Maps have been produced for each species showing previous distribution, records from the Threatened and Priority Fauna Database and translocation sites. These maps are contained in Appendix II.

## 2 Changes in Conservation Status of Species under *Western Shield*

This section explores what is required to improve the conservation status of species as part of the *Western Shield* program. This translocation program will contribute to the actions required to delist species.

Western Australia is in a unique situation where conservation efforts in this state can have a huge influence on the conservation status of many species. Some species are endemic to Western Australia whilst others may have had a much wider distribution across Australia but the only extant populations now occur in Western Australia.

According to the IUCN, three rules govern the movement of taxa between categories. These are:

1. A taxon may be removed from a category of higher threat to a category of lower threat if none of the criteria of the higher threat category has been met for five years or more.
2. If the original classification is found to have been erroneous, the taxon may be transferred to the appropriate category or removed from the threatened categories altogether, without delay.
3. Transfer from categories of lower to higher risk should be made without delay.

Western Australia uses IUCN criteria to assign threat categories to species listed under Schedule 1 of the Wildlife Conservation Act. To remove a species from Schedule 1 therefore requires the species to no longer meet IUCN criteria for listing.

Listed below are examples of criteria that need to be met before a Vulnerable category species can be removed from Schedule 1 of the Wildlife Conservation Act:

- Population size has not declined by more than 30% over the last 10 years or 3 generations (whichever is longer).
- Extent of occurrence is greater than 20 000 km<sup>2</sup>
- Area of occupancy is greater than 2 000 km<sup>2</sup>
- Greater than five populations have persisted for more than five years.
- A population has contained greater than 1 000 individuals for more than five years.

It must be noted that maintaining a species conservation status at its current level is also a valid conservation achievement for many species.

The table only briefly comments on possible goals to be achieved based on the IUCN criteria under which they have been listed. Recovery Plans for the relevant species provide information in detail regarding recovery actions recommended for each species.

Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
Chuditch	Vu C1	Vu	S1 (Vu)	Vu C1	Greater than 10 000 individuals and a continuing decline of less than 10% over ten years or one generation (whichever is longer). Translocate to Francois Peron NP.	Possible translocation to Peron to establish a population in the arid zone.	Continue monitoring. Translocate for fauna reconstruction purposes targeting the arid zone (eg Lorna Glen). Animals may come from the wild or captive bred. If captive bred then the Perth Zoo colony needs to be reactivated.	Reintroduce to Dirk Hartog Island after prey species reintroduced and established on the island.		
<b>Priority 5</b>										
Dibbler	En B1 + 2ce	EN	S1 (En)	En B1 + 2ce	Establish populations in large reserves (The species requires an extent of occurrence of greater than 5000km <sup>2</sup> and an area of occupancy of greater than 500 km <sup>2</sup> , to be downgraded from Endangered to Vulnerable).	Topping-up of the reintroduced population at Stirling Range NP will contribute to establishing a population that will extend the extent of occurrence and area of occupancy of the species on the mainland.	Establish populations in large reserves (eg coastal sites and Dirk Hartog Island)	Establish populations in large reserves (The species requires an extent of occurrence of greater than 20 000km <sup>2</sup> and an area of occupancy of greater than 2 000 km <sup>2</sup> , to be downgraded from Vulnerable to Priority 5).	Establish populations in large reserves.	Establish populations in large reserves.
<b>No change (En B1 +2ce)</b>										
Red-tailed Phascogale	En B1 + 2bd	En	S1 (Vu)	En B1 + 2bd	Establish additional populations in large reserves (The species requires an extent of occurrence of greater than 5000km <sup>2</sup> and an area of occupancy of greater than 500 km <sup>2</sup> , to be downgraded from Endangered to Vulnerable). Protect existing populations on small reserves from stochastic events (eg fire). Implement fire management in currently occupied and proposed translocation sites. <b>Vulnerable</b>	The proposed experimental translocation to Francois Peron NP could result in the establishment of a population in a large reserve outside the current wheatbelt range of the species.	Establish additional populations in large reserves. Implement fire management in currently occupied and proposed translocation sites.	Establish additional populations in large reserves (The species requires an extent of occurrence of greater than 20 000km <sup>2</sup> and an area of occupancy of greater than 2 000 km <sup>2</sup> , to be downgraded from Vulnerable to Priority 5). Protect existing populations on small reserves from stochastic events (eg fire). Implement fire management in currently occupied and proposed translocation sites. <b>Priority 5</b>	Appropriate fire management of occupied reserves	Priority 5
<b>Vulnerable</b>										
Numbat	Vu A1a, D2	Vu	S1 (Vu)	Vu A1a, D2	Reassess ranking as may qualify for Endangered. Investigate ways of increasing ability to produce or access captive bred or wild animals for translocation. <b>No change or upgrade to Endangered</b>	Finish establishment of population in Stirling Range NP. Begin establishment of new population on South coast.	Continue monitoring. Establish greater than 5 populations or establish populations such that distribution is greater than 20 000km <sup>2</sup> . <b>Vulnerable</b>	Continue monitoring. Establish greater than 5 populations or establish populations such that distribution is greater than 20 000km <sup>2</sup> . <b>Vulnerable</b>		

Working Western Shield Translocation Plan – September 2006

Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
Western Barred Bandicoot	En B1 + 3a	En	S1 (En)	En B1 + 3a	Continue work to resolve disease issues. Determine if vaccine can be developed for Western Barred Bandicoots. Determine if disease is species specific. The answers are required to determine appropriate source/s for translocations	<i>The additional release of animals on Faure Island from Heirisson Prong will ensure that an additional secure, disease free population is established. If disease free status is maintained then it is possible that Faure Island may become a source of animals for translocation to other sites.</i>	Establish population on Dirk Hartog Island. Translocation to the mainland is required to downgrade the conservation status of this species. The species requires an extent of occurrence of greater than 5000km <sup>2</sup> and an area of occupancy of greater than 500 km <sup>2</sup> , to be downgraded from Endangered to Vulnerable	The species requires an extent of occurrence of greater than 5000km <sup>2</sup> and an area of occupancy of greater than 2000 km <sup>2</sup> , to be downgraded from Vulnerable to Priority 5	Establish additional populations in large reserves (The species requires an extent of occurrence of greater than 2000km <sup>2</sup> and an area of occupancy of greater than 2000 km <sup>2</sup> , to be downgraded from Vulnerable to Priority 5)	Establish additional populations in large reserves (The species requires an extent of occurrence of greater than 2000km <sup>2</sup> and an area of occupancy of greater than 2000 km <sup>2</sup> , to be downgraded from Vulnerable to Priority 5)
Bilby	Vu C 2a	Vu	S1 (Vu)	Vu C2a	Monitor reintroduced population at Francois Peron National Park to determine if the population size has reached 1000 individuals (Delisting requires a population to be established that contains greater than 1000 individuals). Delisting requires the total population of Bilbies to be greater than 10 000 mature individuals. This could be achieved by establishing at least five populations, each with greater than 2000 individuals. At least 100 individuals would be needed to establish each of these populations. Our capacity to breed bilbies would need to increase to achieve delisting within 10 years.	<i>It is likely that bilbies will be reintroduced to at least two sites over the next three years (Lorna Glen and SW forest ie Sunklands and/or Perup). These sites have the potential to accommodate large populations.</i>	No change	No change	No change	No change
							Translocate to large reserves and the arid zone (eg Lorna Glen, Lake Magenta NR, Stirling Range NP, Fitzgerald River NP, Perup, Kalbarri NP).	Translocate to large reserves and the arid zone (eg Lorna Glen).	Priority 5	Priority 5



Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
Gilbert's Potoroo	CR C2b, D	Cr	S1 (CR)	CR C2b, D	Continue monitoring and establishment of population on Bald Island. Continue work towards cross fostering experiments. Need to increase the capacity to breed/produce animals	<i>Progression of the establishment of a second population of this species that is secure from introduced predators.</i>	Identify new release sites along West and South coast.	No change	No change	No change
Western Ring-tail Possum	Vu C2a	Vu	S1 (Vu)	Vu C2a	To delist this species more than 10 000 mature individuals in the total population is required as well as a single population containing more than 1000 individuals. It is unlikely that the conservation status of this species could be improved given projections of development in the Busselton area and the predictions of climate change. The south coast fringe is likely to be important for the continued survival of the species.		No change	No change	No change	No change
Boodie (Shark Bay)	Vu D2	Vu	S1 (Vu)	Vu D2	<b>No change or upgrade to Endangered</b> Aim for at least six populations to be known or established. A total of four populations are currently known (Bernier Island, Dorre Island, Heirsson Prong and Faure Island).	<i>Animals will be released into at least two new sites (Perup, Lake Magenta NR and/or Lorna Glen). It will be decided is Dryandra is a suitable site for this species (and therefore whether or not to continue releases at this site). If these populations are established for greater than five years then the species may qualify for delisting.</i>	Reintroduce to Dirk Hartog Island. Establish additional population (eg Lake Magenta NR, Dryandra, Perup, Lorna Glen)			<b>Priority 5</b>
Boodie (Barrow Island)	Vu D2	Vu	S1 (Vu)	Vu D2	<b>No change</b>	<i>None</i>				<b>No change</b>

Working Western Shield Translocation Plan – September 2006

Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
Mala (Bernier and Dorre Island subspecies)	Vu D2	Vu	SI (Vu)	Vu D2	An additional four populations would need to be established to improve the conservation status of this species. Being an island endemic the number of possible release sites are limited. <b>No change</b>	None	Establish a population on Dirk Hartog Island.			
Mala (Tanami desert subspecies)	Cr A1a, B1 + 3abcd, C2b, D	En	SI (En)	Cr A1a, B1+3a bcd, C2b, D	Establish population on the mainland (eg Tutanning, Loma Glen, ?Dongolocking) <b>Endangered</b>	<i>Establishment of at least one mainland population is possible.</i>	Establish additional populations (eg Lake Magenta, Fitzgerald River NP) <b>Endangered</b>			
Banded Hare-wallaby	Vu D2	Vu	SI (Vu)	Vu D2	At least 6 populations are required to delist this species. Need to increase capacity to breed animals. New stock may be required from Bernier/Dorre Island. Need to reassess conservation status as may qualify for endangered. <b>No change</b>		Establish a population on Dirk Hartog Island. Establish additional populations (eg Tutanning NR, Dongolocking NR, Lake Magenta NR, ?Stirling Range NP, ?Fitzgerald River NP). <b>No change</b>			
Black-flanked Rock-wallaby	Vu B1+ 2abce, C2a	Vu	SI (Vu)	Vu B1+ 2abce, C2a	Monitor reintroduced population in the Avon Valley to determine if the population size has reached 1000 individuals (Delisting requires a population to be established that contains greater than 1000 individuals). Extend baiting to reserves that could support additional rock-wallaby populations (eg Peak Charles NP, northern Cape Arid NP). Maintain goat control at Kalbarri National Park to allow reintroduction. <b>No change</b>	<i>Further establishment of the Avon Valley populations to ensure populations size exceeds 1000 individuals.</i>	Continue monitoring. Continue translocations for the purpose of fauna reconstruction and good neighbour relations. Bait additional sites to allow further reintroductions. <b>Priority 5</b>			

Working Western Shield Translocation Plan – September 2006

Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
Quokka	Vu Albce, C1	Vu	Sl(Vu)	Vu Albce, C1	Need to identify causes for decline in northern jarrah forest. <b>No change</b>	None				
Shark Bay Mouse	Vu B1 + 2c	Vu	Sl	Not given	Improve conservation status by translocating to island/s (eg Doole, Rotmest or Garden Island) then consider mainland sites. Reintroduce to Dorre Island if evidence found of previous occupation. Use Bernier Island for stock for captive breeding. Need to increase capacity to breed. <b>No change</b>	None	Translocate to mainland site/s (eg Yanchep NP, Nambung NP, Lesueur NP). Reintroduce to Dirk Hartog Island. Establish at least 10 populations.			
Heath Mouse	LR/CD	Vu	Sl (Vu)	Not given	Determine captive husbandry requirements and breed animals in captivity for translocation. Use results of Damien Cancilla's research to help select possible sites for reintroduction. <b>No change</b>	None. Translocation is unlikely to occur for this species within the next 3 years however significant progress in regard to site selection and making animals available for translocation can be made.	Translocate to establish additional populations. Translocate to Dirk Hartog Island.			
Greater stick-nest rat	En A1c	Vu	Sl (Vu)	Not given	Translocate to Faure Island. Need to show that populations size is not reducing. Any efforts to improve/increase the area of occupancy, extent of occurrence or quality of habitat will improve the conservation status of this species. <b>No change</b>	Improved genetics of the Saturation Island population. Establishment of a population on Faure Island.	Translocate to Dirk Hartog Island and other sites where the threat of cat predation has been ameliorated (eg pastoral leases such as Lorna Glen).			

Working Western Shield Translocation Plan – September 2006

Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
Western ground parrot species)	LC (based on species)	En	S1 (CR)	En B1 +2abcd e, C2a	The species requires an extent of occurrence of greater than 5000km <sup>2</sup> and an area of occupancy of greater than 500 km <sup>2</sup> , to be downgraded from Endangered to Vulnerable. Additional criteria for downgrading include a subpopulation with more than 250 mature individuals and for the species to be known from more than five locations. Need to increase the number of known populations and minimise the possible effects of extensive wildfire.	<i>A new population in D'Entrecasteaux NP would increase the area of occupancy and extent of occurrence but not enough for downgrading.</i>	No change	No change	No change	No change
Noisy scrub-bird	VuD2	Vu	S1 (En)	VuD2	At least 6 populations are required to delist this species. Need to investigate post-fire recovery ability.	<i>Establish a new population at Porongurup NP and possibly at Bakers Junction NR.</i>	Establish additional populations	Establish additional populations	Establish additional populations	Establish additional populations
Western Bristlebird	VuD2	Vu	S1 (Vu)	VuD2	At least 6 populations are required to delist this species.	<i>Possibly begin establishment of a new population at Woolbalates.</i>	No change	No change	No change	Priority 5

Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
Malleefowl	Vu A2bce + 3cc	Vu	Sl (Vu)	Vu A1cc + 2bce	Delisting requires that a population reduction of less than 20% occurred over the last three generations (Approx. 45 years) and a decline of less than 20% is predicted to occur over the next three generations. Potential decline of this species in other states will affect the conservation status in WA. Encourage baiting on private property. Bait cats and foxes in rangelands.	<i>Translocation of captive bred malleefowl from the Yongergnow Australian Malleefowl Centre to wheatbelt reserves and/or the eastern edge of the jarrah forest.</i>				
					<b>No change</b>		<b>Priority 5?</b>			
Western Swamp Tortoise	CR A1c, B1 + 2c, C1 + 2b, D	Cr	Sl (CR)	Not applica ble	The long generation time for this species means that it is not likely to meet criteria for downgrading its conservation status in the near future. Goals towards recovery include acquiring suitable or near suitable habitat and rehabilitating for future reintroductions; reintroduce to additional sites and increasing the total number of mature individuals in the wild to more than 50. The capacity of Perth Zoo to breed animals may need to increase if enough release sites can be secured.	<i>Improving genetics of the Mogumber population (recovery after wildfire). Possible establishment of a new population at Moore River Nature Reserve.</i>				
					<b>No change</b>		<b>No change</b>	<b>No change</b>	<b>No change</b>	<b>Endangered</b>
Orange-bellied frog	Vu D2	Vu	Sl (Vu)	Vu	At least 6 populations are required to delist this species. Conserve habitat. Establish additional populations.	<i>None</i>				
					<b>No change</b>		<b>Priority 5</b>			

Working Western Shield Translocation Plan – September 2006

Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
White-bellied frog	CR B2ab (ii, iii, iv, v)	En	SI (CR)	En	Protect existing populations. Translocate to establish additional populations.	<i>Translocations are planned to improve genetics of remnant populations and reestablish populations where the species is thought to be locally extinct. The extent of occurrence will become less fragmented.</i>	Protect existing populations. Translocate to establish additional populations.			
Margaret River marron	Vu A1de	Not listed	SI (CR)	-	Remove competing smooth marron from the Margaret River catchment including dams.	<i>Replace smooth marron in farm dams in the Margaret River catchment with Margaret River marron (hairy). Restock Margaret River.</i>	Remove competing smooth marron from the Margaret River catchment including dams.			
Burrowing crayfish species	Not listed	Not listed	Cr, En and Vu	-	Protect habitat	<i>Possible translocations undertaken to increase extent of occurrence and area of occupancy.</i>				
Cape Leeuwin freshwater snail	VuD2	Not listed	SI (Vu)	-	Translocate to establish additional populations. At least 6 populations are required to delist this species.	<i>Additional populations established.</i>	Establish additional populations			
Woylie	LR/CD	Not listed	Not listed (P5)	LR (CD)	This species may qualify for upgrading its conservation status. Continue monitoring populations. Investigate possible causes/s for recent declines. Continue translocations but with careful monitoring of source populations.	<i>Improved genetics of founder populations at North Karlgarin NR and Nambung NP. Possibly begin establishment of a population at Corackerup NR.</i>	Monitor populations. If decline slows and is found to be less than 30% in the last 10 years or 3 generations (whichever is longer) then it will be eligible for delisting if maintained for more than five years. Reintroduce to Dirk Hartog Island.			
					<b>No change</b>		<b>Priority 5</b>			
					<b>Vu A2ae</b>		<b>Vulnerable</b>		<b>Priority 5</b>	
					<b>No change</b>		<b>Endangered</b>			

Working Western Shield Translocation Plan – September 2006

Species	2000 IUCN Listing	EPBC Act 1999	WC Act 1950	Action Plan	Goal for 5 years	Contribution of the 3 year translocation plan	Goal for 10 years	Goal for 15 years	Goal for 20 years	Goal for 25 years
Quenda	LR/NT	Not listed	Not listed (P5)	LR (NT): a	Continue translocations for fauna reconstruction purposes. Source animals from development sites.	Improve genetics of Nambung NP population. Contribute to restoring the pre-European compliment of mammal fauna at Nambung, Julimar, Peron and possibly Badgingarra/Cooljarloo.				
<b>Priority 5</b>										
Tammar	LR/NT	Not listed	Not listed (P5)	LR (NT): a	Continue translocations for fauna reconstruction purposes and good neighbour relations.	Reintroduction to Nambung N, Kalbarri NP, Lane Poole CP and Lake Magenta NR will contribute to restoring the pre-European compliment of mammal species at the reserves.				
<b>Priority 5</b>										
Thick-billed grass-wren	LC	VU	Priority 4	Near Threatened: a	Translocate for fauna reconstruction purposes.	None. If translocations undertaken the species could be returned to parts of its extensive former distribution.				
<b>No change</b>										
Brush-tail Possum	Lr/LC	Not listed	Not listed	Not listed	Translocate for fauna reconstruction purposes. Source animals from development sites.	Translocation to Lorna Glen will provide valuable information on the suitability of the current level of feral predator control for reintroductions. Translocations to Julimar will help to restore the pre-European compliment of mammals in the reserve.				
<b>No change</b>										

### 3 Yearly Summary Tables

The following tables summarise translocations proposed for each species in each of the next three financial years. The plan is meant to be indicative only and it is expected that not all translocations proposed will be performed within the three years of the plan.

The schedule of releases is influenced by a number of factors. These factors include:

- The capacity of captive breeding facilities to produce the required numbers of animals for founding stock.
- The capacity of wild populations to sustain the removal of animals for translocation to other sites.
- The capacity of district or regional staff to undertake the work required.
- The desirability of “topping up” sites in consecutive years to ensure a good founding population size for establishment of a new population.
- Local environmental conditions providing adequate rainfall and plant growth to sustain translocated populations.
- The achievement of adequate feral animal control to protect translocated populations.

Translocations for each species are priority ranked (1 = highest priority, 2 = medium priority, 3 = low priority) for the first and second years of this plan. The highest priority translocations for the first year are costed in the next section of the plan.



2006 - 07

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
<b>THREATENED SPECIES</b>									
Chuditch									No translocations planned
Dibbler	Perth Zoo Fitzgerald River NP	Science	Stirling Range NP Periup NR	Science/Albany Science/Albany	Y	40 15	Oct-06 Oct-06	2 2	Top up Top up
Red-tailed Phascogale	Wheatbelt reserves	Narrogin/Science	Peron	Narrogin/Science/ Shark Bay	Y	20	Autumn-07		Issue regarding palatability of cat baits to phascogales. Release may be delayed until a bait with encapsulated 1080 is available
Numbat	Perth Zoo Perth Zoo		South coast site TBA Stirling Range NP	Science/Albany Science/Albany	Y	12 12	Dec-06 Dec-06	3	
Western Barred Bandicoot	Heirisson Prong Bernier and Dorre Island NR		Faure Island Faure Island	AWC AWC	Y Y	10 10		2 3	Top up Translocation dependent on first release and findings of research into the wart syndrome on islands.
Bilby	RTD + Peron RTD + Peron RTD + Peron	Narrogin, Shark Bay Narrogin, Shark Bay Narrogin, Shark Bay	Perup Sunklands Julimar SF	Donnelly Blackwood Perth Hills/Science		40 40 40	May-07 Sep-06 May-07	2 3 3	Concerns regarding woylie decline - put on hold Require survey of potential sites. Peron is able to supply approx 10 animals for a 2006 release, more in 12 months time.

2006 - 07

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Western Ringtail Possum	Busseilton/ Bunbury sites	Blackwood	Southern sunklands/ Blackwood River	Blackwood		TBA	Continuous	2	Timing and numbers subject to development sites. Need to select suitable release site/s
	Busseilton/ Bunbury sites + carers	Science/ Blackwood	Leschenault	Science/Wellington	Y	TBA	Continuous		Timing and numbers subject to development sites
	Busseilton/ Bunbury sites + carers	Science/ Blackwood	Yalgorup (3 sites)	Science	Y	TBA	Continuous		Timing and numbers subject to development sites
	Busseilton/ Bunbury sites + carers	Science/ Blackwood	Old Bunbury Rd	Science/ Wellington	Y	TBA	Continuous		Timing and numbers subject to development sites
Gilbert's Potoroo	Captive colony/ Mt Gardner	Science	Bald Island NR	Science	Y	4	Aug-06		Top up
Boodie (Shark Bay)	RTD	Narrogin	Dryandra SF	Narrogin	Y	40	Sep-06		Top up
	RTD	Narrogin	Perup	Donnelly		40	Oct-06	2	Issue regarding woylie decline – put on hold
	RTD	Science/Narrogin	N jarrah forest meso-predator project	Science				2	
Boodies (Barrow Island)								No translocation planned	
Mala or Rufous Hare-wallaby (Islands)									No translocation planned
Mala or Rufous Hare-wallaby (Tanami)	RTD + Peron	Narrogin, Shark Bay	Tutanning NR	Narrogin/Science	Draft	30	Sep-06		Subject to sufficient animals being available for release and effective predator control.
Mermine or Banded hare-wallaby	Peron	Shark Bay	Faure Island	AWC	Y	10- 15	May-07		Top up

2006 - 07

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Black-flanked Rock-wallaby	Mt Caroline + Querekin	SAC, Merredin, Narrogin	Cape Le Grand NP	Esperance	Y	20	May-07	3	Top up
	Mt Caroline + Querekin	SAC, Merredin	Avon Valley NP/ Walyunga NP	Perth Hills	Y	40	May-07	2	Top up
	Mt Caroline + Querekin	SAC, Merredin, AWC	Paruna Sanctuary	AWC	Y	35	Spring 06	3	Top up
Quokka									No translocations planned, Karakamia Sanctuary needs additional founders of mainland stock.
Shark Bay Mouse									No translocations planned
Heath Mouse									No translocations planned
Greater Stick-nest Rat	St Peter Is, SA	Science/Shark Bay	Salutation Is	Science/Shark Bay/AWC	Draft	10	Sep-06	3	Top up (genetic supplementation). Will be undertaken at same time as translocation to Faure Island.
	St Peter Is, SA + Salutation Island	Science/Shark Bay	Faure Island	Science/Shark Bay/AWC	Draft	15	Sep-06	3	Will be undertaken at same time as translocation to Salutation Island.
Western ground parrot	Fitzgerald River NP?	Albany	D'Entrecasteaux NP	Albany/Walpole	Y	5-10	TBA	2	Trial translocation on hold until a suitable source population is found
Noisy Scrub-bird	Mermaid/Waychincup area	Albany	Mount Taylor/ Gull Rock Reserve	Albany	Y	none	May-July 2006	3	Top up
	Mermaid/Waychincup area	Albany	Porongurup NP	Albany	Y	5-10	May-July 2006	3	
	Mermaid/Waychincup area	Albany	Bakers Junction NR	Albany	Y	5-10	May-July 2006	2	Probably 07/08
Western Bristlebird	?	Albany	Woolbales	Albany/Frankland				2	
	?	Albany	Nuyts	Albany/Frankland				3	Top up
Malleefowl									No translocations planned

**2006 - 07**

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Western Swamp Tortoise	Perth Zoo	Perth Zoo/Swan Coastal	Mogumber NR	Swan Coastal	Y	40	Jul-07		Top up
	Perth Zoo	Perth Zoo/Swan Coastal	Moore River NR	Swan Coastal	Y	6	Jul-07	2	Trial introduction. Unlikely to be approved in time for winter release
Orange-bellied frog									No translocations planned
White-bellied frog	Witchcliffe	Blackwood	Other sites in Witchcliffe area	Blackwood	Y?	TBA	Spring-06		Exact number of egg masses or males to be translocated will depend on availability at time of translocation
Margaret River Marron									No translocations planned
Burrowing crayfish species									No translocations planned
Cape Leeuwin freshwater									No translocations planned. Need to select suitable source and release sites.
<b>PRIORITY SPECIES</b>									
Quenda	Metro sites	SAC + Moora	Nambung NP	Moora	Y	40	Continuous		Top up. Dependent on timing of developments, numbers dependent on sites.
	Metro sites	SAC + Shark Bay	Peron	Shark Bay	Y	40	Autumn 07	2	Top up. Dependent on timing of developments, numbers dependent on sites.
	Metro sites	SAC + Narrogin	Julimar SF	SAC + Perth Hills	Y	40	Continuous	3	Top up. Dependent on timing of developments, numbers dependent on sites.
	Metro sites	SAC + AWC	Paruna Sanctuary	SAC + AWC	Y	40	Continuous	3	Top up. Dependent on timing of developments, numbers dependent on sites.
Woylie	Karakamia Sanctuary	SAC + Moora + AWC	Nambung NP	Moora	Y	40	Aug-06		Dependent on AWC approval. Top up to translocation started in 2004
	Karakamia Sanctuary	SAC + Narrogin +AWC	North Karlgarin NR	Narrogin	Y	40	Aug-06		Dependent on AWC approval. Top up to translocation started in 2005

**2006 - 07**

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Tamar Wallaby	Tutanning NR	Narrogin	Nambung NP	Moora	Y	20	Apr-07		Top up
	Tutanning NR	Narrogin	Kalbarri NP	Geraldton		40	Apr-07	2	
	Tutanning NR	Narrogin	Lane Poole CP	Wellington		40	Apr-07	3	
Thick-billed grass-wren								No translocations planned	
<b>NON-THREATENED SPECIES</b>									
Brush-tail Possum	Karakamia + metro sites	SAC + Perth Hills	Julimar SF	Perth Hills	Y	60	Continuous		As opportunity arises with quenda or woylie translocations
	Karakamia Sanctuary	AWC	Paruna Sanctuary	AWC	Y		Continuous	2	

## 2007 - 08

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
<b>THREATENED SPECIES</b>									
Chuditch									No translocations planned
Dibbler	Perth Zoo		Mid west coast site TBA	Science/Moora	Y	40	Oct-07	1	
	Perth Zoo		Stirling Range NP	Science/Albany	Y	40	Oct-07	2	Top up
	Fitzgerald River NP	Science	Peniup	Science/Albany		15	Oct-07	2	Top up
Red-tailed Phascogale	Wheatbelt reserves	Narrogin/Science	Peron	Narrogin/Science/ Shark Bay	Y	20	Autumn-08	1	Issue regarding palatability of cat baits to phascogales
Numbat	Perth Zoo		South coast site TBA	Science/Albany		10- 20	Dec-07	1	
	TBA		Paruna Sanctuary	AWC		10- 20	Dec-07	2	
Western Barred Bandicoot	Bernier and Dorre Island NR		Faure Island	AWC	Y	20		1	Translocation dependent on first release and findings of research into the wart syndrome on islands.
Bilby	RTD + Peron	Narrogin, Shark Bay	Loma Glen	Kalgoorlie/Science		40	Jul-07	1	It is expected that only 2 releases will occur each year given the capacity of breeding facilities to produce 20-30 bilbies each, per year.
	RTD + Peron	Narrogin, Shark Bay	Perup	Donnelly		20	May-08	2	
	RTD + Peron	Narrogin, Shark Bay	Lake Magenta NR	Science		20	Oct-07	3	
	RTD + Peron	Narrogin, Shark Bay	Sunklands	Blackwood		20	Sep-07	2	
	RTD + Peron	Narrogin, Shark Bay	Julimar SF	Perth Hills/Science		20	Sep-07	3	

## 2007 - 08

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Western Ringtail Possum	Busselton/ Bunbury sites	Blackwood	Southern sunklands/ Blackwood River Leschenault	Blackwood	Y	TBA	Continuous	2	Timing and numbers subject to development sites
	Busselton/ Bunbury sites + carers	Science/ Blackwood		Science/Wellington	Y	TBA	Continuous	1	Timing and numbers subject to development sites
	Busselton/ Bunbury sites + carers	Science/ Blackwood	Yalgorup (3 sites)	Science	Y	TBA	Continuous	1	Timing and numbers subject to development sites
	Busselton/ Bunbury sites + carers	Science/ Blackwood	Old Bunbury Rd	Science/ Wellington	Y	TBA	Continuous	1	Timing and numbers subject to development sites
Gilbert's Potoroo	Captive colony/ Mt Gardner	Science	Bald Island NR	Science	Y	3	Mid to late- 07	1	Top up
Boodie (Shark Bay)	RTD	Narrogin	Perup	Donnelly	Y	40	Oct-07	3	
	RTD	Narrogin	Lake Magenta NR	Narrogin/Science		40	Sep-07	1	
	RTD	Narrogin	Lorna Glen	Kalgoorlie/Science		40	Jul-07	2	
	RTD	Science/Narrogin	N jarrah forest meso-predator project	Science				1	
Boodie (Barrow Island)								No translocations planned	
Mala or Rufous Hare-wallaby (Islands)								No translocations planned	
Mala or Rufous Hare-wallaby (Tanami)	RTD + Peron	Narrogin, Shark Bay	Tutanning NR	Narrogin/Science	Draft	30	Sep-07	1	
	RTD + Peron	Narrogin, Shark Bay	Dongolocking NR	Narrogin/Science		30	Sep-07	2	

## 2007 - 08

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Memine or Banded hare-wallaby	Peron	Shark Bay	Tutanning NR	Narrogin/Science		30	Sep-07	1	Subject to effective predator control.
Black-flanked Rock-wallaby	Bernier and Dorre Island NR	Shark Bay/Science	Faure Island/Peron	AWC/ Shark Bay		10		2	Top up. Translocation will improve genetics of Peron breeding population and/or Faure Island population.
	Mt Caroline + Querekin	SAC, Merredin	Kalbarri NP	SAC + Geraldton		30	May-08	1	Need to investigate sightings to determine presence/absence
	Mt Caroline + Querekin	SAC, Merredin	Avon Valley NP/ Wayyunga NP	SAC + Perth Hills	Y	30	May-08	2	Top up (May not be required)
Quokka									No translocations planned. Karakamia Sanctuary needs additional founders of mainland stock.
Shark Bay Mouse									No translocations planned
Heath Mouse									No translocations planned
Greater Stick-nest Rat	East Franklin Island	SA DEH	Salutation Island	Shark Bay/Science Division	Y	7-10	Spring 07	1	If SA Peters Island stock is used in 2006, then need to negotiate for additional animals from E Franklin when possible, as these are the genetics which need replacing on Salutation Island.
Western ground parrot	East Franklin Island/Salutation Island	SA DEH + Shark Bay	Faure Island	AWC/Shark Bay	Y	5	Spring 07	2	Top up
Noisy Scrub-bird	Fitzgerald River NP?	Albany	D'Entrecasteaux NP	Albany/Waipole	Y	5-10		2	Trial translocation on hold until a suitable source population is found
	Mermaid/Waychincup area	Albany	Mount Taylor/ Gull Rock Reserve	Albany	Y	5-10	May-July 2007	3	Top up
	Mermaid/Waychincup area	Albany	Porongurup NP	Albany	Y	5-10	May-July 2007	1	
	Mermaid/Waychincup area	Albany	Bakers Junction NR	Albany	Y	5-10	May-July 2007	2	



## 2007 - 08

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Western Bristlebird	?	Albany	Woolbales	Albany/Frankland				2	
	?	Albany	Nuyts	Albany/Frankland				3	Top up
Malleefowl	Yongergnow captive colony	Narrogin/Albany	Wheatbelt reserves >5000ha, private property?	Narrogin/Merredin		30	Sep-Nov-08	2	Subject to successful raising of chicks in captivity. Need to select suitable release site/s
	Yongermow captive colony	Narrogin/Albany	E edge of Jarrah forest	Wellington/Perth Hills		30	Sep-Nov-08	1	Subject to successful raising of chicks in captivity. Need to select suitable release site/s
Western Swamp Tortoise	Perth Zoo	Perth Zoo/Swan Coastal	Mogumber NR	Swan Coastal		30	Jul-07	1	Top up
	Perth Zoo	Perth Zoo/Swan Coastal	Moore River NR	Swan Coastal		6	Jul-07	2	Trial introduction, more animals if July 06 introduction proceeds and is successful.
Orange-bellied frog									No translocations planned
White-bellied frog	Witchcliffe	Blackwood	Other sites in Witchcliffe area	Blackwood	Y?	TBA	Spring-07	1	Exact number of egg masses or males to be translocated will depend on availability at time of translocation
Margaret River marron	Pemberton captive colony	Pemberton	Margaret River	Blackwood		TBA		2	Subject to agreement of Fisheries WA and support of recovery team.
	Pemberton captive colony	Pemberton	Farm dams in the Margaret River catchment	Blackwood		TBA		1	Subject to agreement of Fisheries WA and support of recovery team.
Burrowing crayfish species									No translocations planned. Need to select suitable source and release sites.
Cape Leeuwin freshwater snail									No translocations planned. Need to select suitable source and release sites.

## 2007 - 08

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
<b>PRIORITY SPECIES</b>									
Quenda	Metro sites	SAC + Narrogin	North Karlgarin NR	Narrogin		40	Spring 07	2	Dependent on timing of developments, numbers dependent on sites. Top up. Dependent on timing of developments, numbers dependent on sites. Dependent on timing of developments, numbers dependent on sites. Top up. Dependent on timing of developments, numbers dependent on sites.
	Metro sites	SAC + Shark Bay	Peron	Shark Bay	Y	40	Autumn 08	1	
	Metro sites	SAC + Moora	Badgingarra/ Cooljarloo	Moora		40	Autumn 08	3	
	Metro sites	SAC + AWC	Paruna Sanctuary	SAC + AWC	Y	40	Continuous	3	
Woylie	Karakamia Sanctuary	SAC + Moora	Nambung NP	Moora	Y	40	Jul-07	2	Dependent on AWC approval
	Karakamia Sanctuary	SAC + Narrogin	North Karlgarin NR	Narrogin	Y	40	Jul-07	1	Dependent on AWC approval
	Karakamia Sanctuary	SAC + Albany	Corackerup NR	Albany	Y	40	Jul-07	3	Dependent on AWC approval
	Karakamia Sanctuary	SAC + Shark Bay	Peron	Shark Bay	N	40	Jul-07	3	Top up. Dependent on AWC approval
	Tutanning NR	SAC + Narrogin	Kalbarri NP	SAC + Geraldton		20	Apr-08	1	
	Tutanning NR	SAC + Narrogin	Lane Poole CP	Wellington		40	Apr-08	2	
Thick-billed grass-wren	Fitzgerald River (PP N of FRNP)	SAC + Albany	Lake Magenta NR	Narrogin/Science		40	Apr-08	3	Potential neighbour problems - impacts on crops
									No translocations planned
<b>NON-THREATENED SPECIES</b>									
Brush-tail Possum	Dryandra + Bendering	Narrogin + SAC	Lorna Glen	Kalgoorlie/Science		60	Jul-07	1	
	Karakamia Sanctuary	SAC + Perth Hills	Julimar SF	Perth Hills	Y	20		2	
	Karakamia Sanctuary	AWC	Paruna Sanctuary	AWC	Y		Continuous	3	

## 2008 - 09

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
<b>THREATENED SPECIES</b>									
Chuditch	Julimar + Avon Valley	Perth Hills	Peron	Shark Bay		40	Autumn-09		
Dibbler	Perth Zoo		Mid west coast site TBA	Science/Moora	Y	40	Oct-08	1	
Red-tailed Phascogale	Wheatbelt reserves	Narrogin/Science	Peron	Narrogin/Science/Shark Bay	Y	20	Autumn-09		Issue regarding palatability of cat baits to phascogales
Numbat	Perth Zoo		South coast site TBA	Science/Albany		10-20	Dec-08	1	
	TBA		Paruna Sanctuary	AWC				2	
Western Barred Bandicoot	Bernier and Dorre Island NR		Faure Island	AWC	Y	10		3	Translocation dependent on first release and findings of research into the wart syndrome on islands.
Bilby	RTD + Peron	Narrogin, Shark Bay	Fitzgerald River NP	South Coast		40	Jul-08	2	It is expected that only 2 releases will occur each year given the capacity of breeding facilities to produce 20-30 bilbies each, per year.
	RTD + Peron	Narrogin, Shark Bay	Lorna Glenn	Kalgoorlie/Science		20	Sep-08	1	
	RTD + Peron	Narrogin, Shark Bay	Lake Magenta NR	Narrogin/Science		20	May-09	1	
	RTD + Peron	Narrogin, Shark Bay	Sunklands	Blackwood		20	Oct-08	3	
Western Ringtail Possum	Busseton/Bunbury sites	Blackwood	Southern sunklands/Blackwood River	Blackwood			Continuous		Timing and numbers subject to development sites
	Busseton/Bunbury sites + carers	Science/Blackwood	Leschenault	Science/Wellington	Y	TBA	Continuous		Timing and numbers subject to development sites
	Busseton/Bunbury sites + carers	Science/Blackwood	Yalgorup (3 sites)	Science	Y	TBA	Continuous		Timing and numbers subject to development sites
	Busseton/Bunbury sites + carers	Science/Blackwood	Old Bunbury Rd	Science/Wellington	Y	TBA	Continuous		Timing and numbers subject to development sites

## 2008 - 09

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Gilbert's Potoroo	Captive colony/ Mt Gardner	Science	Bald Island NR	Science	Y	3	Mid to late-08	2	Top up
	Captive colony/ Mt Gardner	Science	South coast site TBA	Science		3	Mid to late-08	1	
Boodie (Shark Bay)	RTD	Narrogin	Lake Magenta NR	Narrogin/Science		40	Sep-08	1	
	RTD	Narrogin	Perup	Donnelly		40	Oct-08	2	
	RTD	Narrogin	Lorna Glen	Kalgoorlie/Science		30	Jul-08	1	
	RTD	Science/Narrogin	N jarrah forest meso-predator project	Science				2	
Boodie (Barrow Island)								No translocations planned.	
Mala or Rufous Hare-wallaby (Islands)								No translocations planned.	
Mala or Rufous Hare-wallaby (Tanami)	RTD + Peron	Narrogin, Shark Bay	Tutanning NR	Narrogin	Draft	30	Sep-08	1	
	RTD + Peron	Narrogin, Shark Bay	Dongolocking NR	Narrogin		30	May-09	2	
	RTD + Peron	Narrogin, Shark Bay	Lorna Glen	Kalgoorlie/Science		30	Jul-09	3	
Mermine or Banded Hare-wallaby	Peron	Shark Bay	Tutanning NR	Narrogin/Science		15	Sep-08	1	Subject to effective predator control.
	Peron	Shark Bay	Stirling Range NP	Albany/Science		15	May-09	2	Subject to effective predator control.
Black-flanked Rock-wallaby	Mt Caroline + Querekin	SAC, Merredin	Kalbarri NP	Geraldton		30	May-09		
	Mt Caroline + Querekin	SAC, Merredin	Avon Valley NP/ Walyunga NP	Perth Hills	Y	30	May-09		Top up (May not be required)
	Calvert Range	Kalgoorlie	Durba Hills	Kalgoorlie		10	Autumn-09	1	
	Calvert Range	Kalgoorlie	Depuch Island	Kalgoorlie		10	Autumn-09	2	

## 2008 - 09

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Quokka									No translocations planned. Karakamia Sanctuary needs additional founders of mainland stock.
Shark Bay Mouse									No translocations planned
Heath Mouse									No translocations planned
Greater Stick-nest Rat									No translocations planned
Western ground parrot	Fitzgerald River NP?	Albany	D'Entrecasteaux NP	Albany/Walpole	Y	5-10		2	Trial translocation on hold until a suitable source population is found
Noisy Scrub-bird	Mermaid/Waychincup area	Albany	Mount Taylor/ Gull Rock Reserve	Albany	Y	5-10	May-July 2008	3	Top up
	Mermaid/Waychincup area	Albany	Porongurup NP	Albany	Y	5-10	May-July 2008	1	
	Mermaid/Waychincup area	Albany	Bakers Junction NR	Albany	Y	5-10	May-July 2008	2	
Western bristlebird	?	Albany	Woolbales	Albany/Frankland				2	
	?	Albany	Nuyts	Albany/Frankland				3	Top up
Malleefowl	Yongergnow captive colony	Narrogin/Albany	Wheatbelt reserves >5000ha, private property?	Narrogin/Merredin		30	Sep-Nov-08		Subject to successful raising of chicks in captivity. Need to select suitable release site/s
	Yongernow captive colony	Narrogin/Albany	E edge of Jarrah forest	Wellington/Perth Hills		30	Sep-Nov-08		Subject to successful raising of chicks in captivity. Need to select suitable release site/s
Western Swamp Tortoise	Perth Zoo	Perth Zoo/Swan Coastal	Moore River NR	Swan Coastal	Y	30	July-08	1	Dependent on success of first release
Orange-bellied frog									No translocations planned

**2008 - 09**

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
White-bellied frog	Witchcliffe	Blackwood	Other sites in Witchcliffe area	Blackwood	Y?	TBA	Spring-08		Exact number of egg masses or males to be translocated will depend on availability at time of translocation
Margaret River marron	Pemberton captive colony Pemberton captive colony		Margaret River Farm dams in the Margaret River catchment	Blackwood Blackwood		TBA TBA			
Burrowing crayfish species	TBA	Black wood	TBA	Blackwood		TBA	Spring-08		Experimental. Subject to suitable source and release sites being found.
Cape Leeuwin freshwater snail	Cape Leeuwin wild populations	Blackwood	Other Leeuwin-Naturaliste sites	Blackwood					Experimental. Subject to suitable source and release sites being identified
<b>PRIORITY SPECIES</b>									
Quenda	Metro sites	SAC + Narrogin	North Karlgarin NR	Narrogin		40	Spring 08		Top up. Dependent on timing of developments, numbers dependent on sites
	Metro sites	SAC + Moora	Badgjarra/ Cooljarloo	Moora		40	Autumn 09		Dependent on timing of developments, numbers dependent on sites.
	Metro sites	SAC + AWC	Paruna Sanctuary	SAC + AWC	Y	40	Continuous		Top up. Dependent on timing of developments, numbers dependent on sites
Woylie	Karakamia Sanctuary Karakamia Sanctuary Karakamia Sanctuary	SAC + Narrogin SAC + Albany SAC? + Shark Bay	North Karlgarin NR Corackerup NR Peron	Narrogin Albany Shark Bay	Y  N	40 40 40	Jul-08 Jul-08 Jul-08		Top up. Dependent on AWC approval Dependent on AWC approval Top up. Dependent on AWC approval
Tammar Wallaby	Tutanning NR Tutanning NR Fitzgerald River (PP N of FRNP)	SAC + Narrogin SAC + Narrogin SAC + Albany	Kalbarri NP Lane Poole CP Lake Magenta NR	Geraldton Wellington Narrogin/Science		40 40 60	Apr-09 Apr-09 Apr-09		Potential neighbour problems

**2008 - 09**

Species	Source	Cost Centre	Destinations	Cost Centre	TP	No.	Timing	Priority	Comments
Thick-billed grass-wren									No translocations planned
<b>NON-THREATENED SPECIES</b>									
Brushtail Possum	Dryandra + Bending Karakamia Sanctuary	Narrogin + SAC	Loma Glen	Kalgoorlie/Science		60	Jul-08		
	Karakamia Sanctuary	SAC + Perth Hills	Julimar SF	Perth Hills	Y	20	Jul-08		
	Karakamia Sanctuary	AWC	Paruna Sanctuary	AWC	Y		Continuous		

## 4 Costings for High Priority Translocations Proposed for 2006/07

### 4.1 Dibbler from Perth Zoo to Stirling Range National Park

TIMING: October 2006

This translocation will provide additional animals for the establishment of the population at Stirling Range National Park that began in 2004. This translocation is fully funded through a NRM project that finishes in 2007/08. The final release for the site is proposed for October 2007 after which monitoring results will determine if additional releases are considered appropriate in future years.

### 4.2 Red-tailed phascogale from wheatbelt reserves to Peron

TIMING: Autumn 2007

The translocation was postponed in 2004 following concerns regarding the palatability of cat baits to phascogales. The proposed Autumn 2007 release may be delayed until a bait with encapsulated 1080 is available. Despite the fact that neither chuditch nor northern quoll are affected by ground baiting (dried meat baits or Pro bait), field trials in 2004 indicated that 50% of wild red-tailed phascogales ate some portion of the Eradicator bait (which is the product used at Peron). Laboratory trials at the same time indicated that individuals were able to readily ingest sufficient bait to result in mortality based on the recorded LD50 for this species. If this translocation were to proceed in 2006/07 it would need to be considered an experimental release and concerns are likely to be expressed by the AEC. When it proceeds a commitment will be required to provide resources for possible additional releases and monitoring.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Narrogin	Trapping of animals	Salaries	22.5hrs @ \$34.50/hr (L3)	776	
		Overtime-salaries			
		Wages	22.5hrs @ 27.39 (CE L2.6)	616	
		Overtime-wages			
		Allowances			
		Plant	1000km @ 80c/km		800
		Materials	Bait, flagging tape, bag laundry, trap washing etc		500
		<b>SUBTOTAL</b>			<b>1 392</b>
Shark Bay	Transport of animals	Salaries	Level 4.1 x 2 pax x 3 days	1 738	
		Overtime-salaries	4hrs x 1.5 (\$40.80) x 2 pax (L4.1)		327
		Wages			
		Overtime-wages			
		Allowances	Accom. x 2 pax x 2 nights		520
		Plant	Vehicle ~3000km @60c/km		1 800
		Materials	Boxes, bags etc		100
		<b>SUBTOTAL</b>			<b>1 738</b>



Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Shark Bay	Release and monitoring of animals	Salaries	L4.1 x 375hrs over 12 months	14 484	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant		10 000	5000
		Materials	Radiotags (x20), nest boxes etc	500	4600
		<b>SUBTOTAL</b>		<b>24 984</b>	<b>9 600</b>
<b>TOTAL FOR TRANSLOCATION</b>				<b>28 114</b>	<b>13 647</b>

#### 4.3 Numbat from Perth Zoo to a site on the south coast

TIMING: December 2006

It is proposed to select a new site on the south coast to establish a new population of numbats with the first release proposed for December 2006. This translocation is partially funded through NRM however it is estimated that an additional \$35 000 will be required each year to establish a new population on the south coast.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Science	Site selection	Salaries	5 days L2y3, 5 days L7y3	2 900	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	10 person/days accom other		640
		Plant	3000 km		1050
		Materials	Termite vials, preservative, batteries etc		300
		<b>SUBTOTAL</b>		<b>2 900</b>	<b>19 90</b>
Science	Transport and release	Salaries	2 days L2 y3, 2 days L7y3	1 160	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	2 days accom other		160
		Plant	1400 km		1 000
		Materials			
		<b>SUBTOTAL</b>		<b>1 160</b>	<b>1 160</b>
Albany	Transport and release	Salaries	1 day L6, 1 day L3	400	
		Overtime-salaries			
		Wages		250	
		Overtime-wages			
		Allowances			
		Plant	100 km		70
		Materials			
		<b>SUBTOTAL</b>		<b>650</b>	<b>70</b>

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Science	Monitoring	Salaries	3 months L2y3, 10 days L7y3	16 000	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	40 person/days accom other		2 400
		Plant	20,000 km		10 080
		Materials	15 Radio-collars @ \$300, 20 refurbishments @ \$150, receiver, aerial, 24 hrs aircraft hire @ \$250, batteries		12 500
		<b>SUBTOTAL</b>			<b>16 000</b>
Albany	Monitoring	Salaries	3 days L3, 3 days L6	1 200	
		Overtime-salaries			
		Wages		750	
		Overtime-wages			
		Allowances			
		Plant	500 km		300
		Materials			
		<b>SUBTOTAL</b>			<b>1 950</b>
<b>TOTAL FOR TRANSLOCATION</b>				<b>22 660</b>	<b>28 500</b>

#### 4.4 Bilby from RTD and Peron to Sunklands

TIMING: September 2006

Breeding facilities at Dryandra and Peron currently hold a full compliment of breeding stock. It is considered that sufficient bilbies have currently been released at Francois Peron National Park and into Dryandra woodland and so new release sites are required. A site has been selected at Perup but current concerns and research into the recent woylie declines in the area are likely to delay the release of any new species into the area until autumn 2007. It is proposed to select a site in the sunklands east of Nannup for a 2006 release. When this translocation proceeds a commitment will be required to provide resources for additional releases and monitoring. If a SWCC NRM funding application by the Narrogin District is unsuccessful then a further \$142 600 is required to fund a FTE to implement this translocation as well as translocations of Mala to Tutanning (2006/07) and Boodie to Dryandra (2006/07).

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Shark Bay	Production of animals from breeding colony	Salaries	0.33 x L4.3	22 482	
		Overtime-salaries			
		Wages	0.5 x FTE (L1.13) + 0.1 L4.3	31 843	1 871
		Overtime-wages			
		Allowances			
		Plant	0.33 x vehicle running	6 400	
		Materials	Food, medications etc	6 000	1 000
		<b>SUBTOTAL</b>		<b>For ~ 20 animals</b>	<b>66 725</b>

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Narrogin	Production of animals from breeding colony	Salaries			
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant			
		Materials			
		<b>SUBTOTAL</b>	<b>For ~20 animals (\$639.27x20)</b>	<b>12 785</b>	
Black-wood	Survey for suitable release site	Salaries	2 people, 2 days	1 200	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant	1500km @ 80c/km		1 200
		Materials	Maps		100
		<b>SUBTOTAL</b>		<b>1 200</b>	<b>1 300</b>
Science Division	Survey for suitable release site	Salaries	1 person, 2 days	1 000	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	2000km @80c/km		1 600
		Plant			
		Materials			
		<b>SUBTOTAL</b>		<b>1 000</b>	<b>1 600</b>
Narrogin	Trapping of animals	Salaries	22.5hrs @ \$34.50/h (L3)	776	
		Overtime-salaries			
		Wages	67.5hrs @\$27.39 (CE L2.6)	1 848	
		Overtime-wages			
		Allowances			
		Plant			
		Materials	Bait, flagging tape, bag laundry, trap washing	500	
		<b>SUBTOTAL</b>		<b>3 124</b>	
Shark Bay	Trapping of animals	Salaries		817	
		Overtime-salaries			270
		Wages			
		Overtime-wages			
		Allowances			220
		Plant	1725km@80c/km		1 380
		Materials			
		<b>SUBTOTAL</b>		<b>817</b>	<b>1 870</b>

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded	
Black-wood	Receiving and release of animals	Salaries		500		
		Overtime-salaries				
		Wages				
		Overtime-wages				
		Allowances			500	
		Plant				
		Materials	Radio collars			8 000
		<b>SUBTOTAL</b>		<b>500</b>	<b>8 500</b>	
Black-wood	Monitoring for 12 months. (SWCC fauna officer can help Blackwood)	Salaries		6 000		
		Overtime-salaries				
		Wages				
		Overtime-wages				
		Allowances				
		Plant	7 500km @ 80c/km			6 000
		Materials				
		<b>SUBTOTAL</b>		<b>6 000</b>	<b>6 000</b>	
<b>TOTAL FOR TRANSLOCATION</b>				<b>92 151</b>	<b>22 141</b>	

#### 4.5 Western ringtail possum from Busselton/Bunbury development sites and carers to Leschenault, Yalgorup and Old Bunbury Rd area

TIMING: Continuous

These translocations will be undertaken to relocate possums displaced from development sites in the Busselton/Bunbury coastal strip. Primary funding for the translocations is an ARC linkage grant with CALM/DEC, Murdoch University and Sydney University (\$110 000 p.a.). Some costs will be recovered by charging developers (estimated ~\$40 000p.a.). Two PhD students are researching aspects of the reintroductions and are supported by scholarships through Murdoch University and DEC. A further \$5000 has been provided directly from the Director of Nature Conservation to fund these translocations for the 2006/07 financial year.

#### 4.6 Gilberts potoroo from Mt Gardner and captive colony to Bald Island

TIMING: August 2006

This translocation will proceed subject to the success of previous releases. The establishment of a population on Bald Island will significantly improve the conservation status of the species. This project has received NRM funding and funding through the BCI.

#### 4.7 Boodie from RTD to Dryandra

TIMING: September 2006

Boodies were first released into Dryandra Woodland in 2003. The translocation has had limited success to date. The release of additional animals in September 2006 will aim to bolster numbers and trial new release techniques. Funding provided by the Avon Catchment Council (ACC) will significantly contribute towards the costs of this translocation. If a SWCC NRM funding application by the Narrogin District is unsuccessful then a further \$142 600 is required to fund a

FTE to implement this translocation as well as translocations of Mala to Tutanning (2006/07) and bilbies to Perup/Sunklands/Lake Magenta (2006/07 and/or 2007/08).

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Narrogin	Breeding and maintenance of captive colony	Salaries			
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant			
		Materials			
		<b>SUBTOTAL</b>	<b>For ~20 animals (\$639.27x20)</b>	<b>12 785</b>	
Narrogin	Capture and release of animals	Salaries	15hrs @ \$34.50/hr (L3)	517	
		Overtime-salaries			
		Wages	45hrs @ \$27.39/hr (CE L2.6)	1 232	
		Overtime-wages			
		Allowances			
		Plant	500km @ 80c/km		400
		Materials	Bait, flagging tape, bag laundry, trap washing		500
		<b>SUBTOTAL</b>		<b>1 749</b>	<b>900</b>
Narrogin	Monitoring	Salaries	100hr @ \$34.50/hr (L3) over 12 months	3 450	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant	3 125 km @ 80c/km		2 500
		Materials	Radio collars	10 000 (ACC)	
		<b>SUBTOTAL</b>	<b>13 450</b>	<b>2,500</b>	
Science	Monitoring	Salaries		10 000	
		Overtime-salaries			3 000
		Wages			
		Overtime-wages			
		Allowances			1 600
		Plant			1 500
		Materials			1 000
		<b>SUBTOTAL</b>	<b>10 000</b>	<b>7 100</b>	
<b>TOTAL FOR TRANSLOCATION</b>				<b>37 984</b>	<b>10 500</b>

#### 4.8 Mala (Rufous Hare-wallaby) from RTD and Peron to Tutanning

TIMING: September 2006

Captive colonies of mala at Peron and RTD have bred a small number of numbers to provide founding stock for a possible translocation in 2006/07. A larger number of animals would be available for a release in the following year. Tutanning Nature Reserve has been selected for an experimental translocation of this highly cat sensitive species. Research activities at Tutanning Nature Reserve undertaken for the fully funded meso-predator project will contribute to the

monitoring of this translocation. Trapping of tammars for translocation to Nambung (see 3.18) may also provide additional information depending on timing. Funding provided by the Avon Catchment Council (ACC) will significantly contribute towards the costs of this translocation. If a SWCC NRM funding application by the Narrogin District is unsuccessful then a further \$142 600 is required to fund a FTE to implement this translocation as well as translocations of boodie to Dryandra (2006/07) and bilbies to Perup/Sunklands/Lake Magenta (2006/07 and/or 2007/08).

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Science	Capture and transport of animals	Salaries		2 500	
		Overtime-salaries			750
		Wages			
		Overtime-wages			
		Allowances			
		Plant			400
		Materials			800
		<b>SUBTOTAL</b>		<b>2 500</b>	<b>1 950</b>
Narrogin	Breeding and maintenance of captive colony	Salaries			
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant			
		Materials			
		<b>SUBTOTAL</b>	<b>For ~20 animals (\$639.27x20)</b>	<b>12 785</b>	
Narrogin	Capture and transport of animals	Salaries	22.5hr @ \$34.50/hr (L3)	776	
		Overtime-salaries	12hr @ \$34.50/h (L3) x 1.5 & 2		724
		Wages	67.5 hr @ \$27.39 (CE L2.6)	1 848	
		Overtime-wages	18hrs @ \$27.39 (CE L2.6) x 1.5 x 2		862
		Allowances			
		Plant	800km @ 80c/km	640	
		Materials	Bait, flagging tape, bag laundry, trap washing	500	
		<b>SUBTOTAL</b>		<b>3 764</b>	<b>1 586</b>
Narrogin	Monitoring (radio-tracking and trapping)	Salaries		10 120 (ACC)	
		Overtime-salaries			5 000
		Wages			
		Overtime-wages			
		Allowances			
		Plant	Travel	10 000 (ACC)	
		Materials	Radio-collars	10 000 (ACC)	
		<b>SUBTOTAL</b>		<b>30 120</b>	<b>5 000</b>

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Science	Monitoring (radio-tracking and trapping)	Salaries		10 000	
		Overtime-salaries			3 000
		Wages			
		Overtime-wages			
		Allowances			1 600
		Plant			7 000
		Materials	Radio collars		
		<b>SUBTOTAL</b>		<b>10 000</b>	<b>11 600</b>
SAC	Post release monitoring contribution	Salaries	75hrs @40.7/hr (L4)	3 052	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	10 days @45.60/d + \$40 accom		496
		Plant	1000km @ 80c		800
		Materials	Flagging tape, misc		100
		<b>SUBTOTAL</b>		<b>3 052</b>	<b>1 396</b>
Shark Bay	Breeding and maintenance of captive colony	Salaries	0.33 x L4.3	22 482	
		Overtime-salaries			
		Wages	0.5 x FTE (L1.13) + 0.1 x L4.3	31 843	1 871
		Overtime-wages			
		Allowances			
		Plant	0.33 x vehicle running	6 400	
		Materials	Food, medications etc	6 000	1 000
		<b>SUBTOTAL</b>	<b>For ~20 animals</b>	<b>66 725</b>	<b>2 871</b>
Shark Bay	Capture and transport of animals	Salaries		817	
		Overtime-salaries			270
		Wages			
		Overtime-wages			
		Allowances			220
		Plant	1725km@80c/km		1 380
		Materials			
		<b>SUBTOTAL</b>		<b>817</b>	<b>1 870</b>
<b>TOTAL FOR TRANSLOCATION</b>				<b>129 763</b>	<b>26 273</b>

#### 4.9 Mernine (Banded Hare-wallaby) from Peron to Faure Island

TIMING: May 2007

Banded hare-wallabies were first released onto Faure Island in 2004 with an additional release of animals in 2005. These releases involved animals sourced from the breeding program at Peron and a third release is proposed for May 2007. A translocation of animals from Bernier or Dorre Island in 2007/08 may be undertaken to further increase the founder population size used to establish the Faure Island population. These additional animals may be incorporated into the breeding program at Peron (for later release onto Faure Island) or released directly onto Faure Island. The transport and monitoring costs for the 2006/07 translocation will be borne by AWC. Other costs associated with the translocation are detailed below.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Shark Bay	Breeding and maintenance of captive colony. Capture of animals.	Salaries	0.33 x L4.3	22 482	
		Overtime-salaries			
		Wages	0.5 x FTE (L1.13) + 0.1 x L4.3	31 843	1 8 71
		Overtime-wages			
		Allowances			
		Plant	0.33 x vehicle running	6 400	
		Materials	Food, medications etc	7 000	
		<b>SUBTOTAL</b>	<b>For ~20 animals</b>	<b>67 725</b>	<b>1 871</b>
<b>TOTAL FOR TRANSLOCATION</b>				<b>67 725</b>	<b>1 871</b>

#### 4.10 Black-flanked Rock-wallaby from Mount Caroline and Querekin to Cape Le Grand National Park

TIMING: May 2007

Rock-wallabies were first released at Cape Le Grand National Park in 2003 and additional animals were released in 2004 (total of 15 males and 17 females). Monitoring of the population so far has been encouraging with sightings 8km from the release site. The release of additional animals is proposed to increase the founder population size and alleviate problems caused by the species in wheatbelt reserves (eg grazing crops).

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
SAC	Trapping	Salaries	23hrs @ 47.30/hr (L5) + 15hrs @40.7/hr (L4)	2 376	
		Overtime-salaries	4hrs@47.3x1.5+4hrs@ 40.7x1.5		528
		Wages			
		Overtime-wages			
		Allowances	2.4d @45.60/d x2		220
		Plant	600km @ 80c		480
		Materials	Bait, batteries, bags, fl tape, misc		260
		<b>SUBTOTAL</b>		<b>2 376</b>	<b>1 488</b>
SAC	Transport and release	Salaries	15hrs @ 47.30/hr (L5) + 15hrs @40.7/hr (L4)	1 320	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	2.4d @45.60/d x2		220
		Plant	2500km @ 80c		2 000
		Materials			
		<b>SUBTOTAL</b>		<b>1 320</b>	<b>2 220</b>
Merredin	Trapping	Salaries	16hrs @ 40.7/hr	651	
		Overtime-salaries	2hrs @40.7 x 1.5		122
		Wages	21.5 hrs @ 31.20/hr	671	
		Overtime-wages	3hrs @ 31.2 x 1.5		140
		Allowances	2.4d @ 45.60/d x2		220
		Plant	300km @ 80c		240
		Materials	Bait		100
		<b>SUBTOTAL</b>		<b>1 322</b>	<b>822</b>



Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Esper-ance	Receiving animals and release	Salaries	8hr @ 40.94/hr (L5), + 8hrs @ 27.30/hr (L3) + 8hrs @37.92/hr (S/R)	749	
		Overtime-salaries	Nil		
		Wages	Nil		
		Overtime-wages	Nil		
		Allowances	Nil		
		Plant	400km @ 70c	280	
		Materials	Torches, bags, batteries, fl. Tape, misc.	200	
		<b>SUBTOTAL</b>		<b>1 229</b>	
Esper-ance	Monitoring by spotlighting	Salaries	15hrs @ 40.94/hr (L5) + 15hrs @ 27.30/hr (L3) + 10hrs @ 37.92/hr (S/R)	1 630	
		Overtime-salaries	Nil		
		Wages	Nil		
		Overtime-wages	Nil		
		Allowances	Nil		
		Plant	400km @ 70c	280	
		Materials	Torches, batteries, fl. tape, misc.	200	
		<b>SUBTOTAL</b>		<b>2 110</b>	
<b>TOTAL FOR TRANSLOCATION</b>				<b>8 357</b>	<b>4 530</b>

#### 4.11 Black-flanked Rock-wallaby from Querekin to Paruna Sanctuary

TIMING: Spring 2006

This translocation will be undertaken to reduce the population size at Querekin (private property) following the completion of a fence that is being erected to resolve conflict between the farmer and the rock-wallabies. The translocation will also aim to fulfill an approved quota of 50 animals that was partially filled in December 2005 when 15 animals were translocated. AWC will cover costs of transport, release and monitoring of the animals. Other costs associated with the translocation are detailed below.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
SAC	Trapping	Salaries	23hrs @ 47.30/hr (L5) + 15hrs @40.7/hr (L4)	2 376	
		Overtime-salaries	4hrs @ 47.3x1.5 + 4hrs @ 40.7x1.5		528
		Wages			
		Overtime-wages			
		Allowances	2.4d @45.60/d x2		220
		Plant	600km @ 80c		480
		Materials	Bait, batteries, bags, fl tape, misc		260
		<b>SUBTOTAL</b>		<b>2 376</b>	<b>1 488</b>

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Merredin	Trapping	Salaries	16hrs @ 40.7/hr	651	
		Overtime-salaries	2hrs @40.7 x 1.5		122
		Wages	21.5 hrs @ 31.20/hr	671	
		Overtime-wages	3hrs @ 31.2 x 1.5		140
		Allowances	2.4d @ 45.60/d x2		220
		Plant	300km @ 80c		240
		Materials	Bait		100
		<b>SUBTOTAL</b>			<b>1 322</b>
<b>TOTAL FOR TRANSLOCATION</b>				<b>3 698</b>	<b>2 310</b>

#### 4.12 Greater Stick-nest Rat from St Peter Island, South Australia and Salutation Island to Faure Island and Salutation Island

TIMING: September 2006

This translocation will be undertaken jointly with Australian Wildlife Conservancy (AWC). Costs of the translocation will be shared between the organisations. This shared cost will include a reimbursement to the South Australian Department of Environment and Heritage for the collection and transport of the rats from St Peter Island. Funding has been applied for through the BCI.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Science Division	Capture, transport and release	Salaries	Keith Morris & Brent Johnson x 5 days	3 000	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	TA x 2 staff x 5 days		600
		Plant	Vehicle		1 000
		Materials			500
<b>SUBTOTAL</b>			<b>3 000</b>	<b>2 100</b>	
Shark Bay	Capture, transport and release	Salaries	2 staff (~L4.1) x 5 days	2 899	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	TA x 2 staff x 5 days		600
		Plant	Vehicle and boat to Salutation Is	300	300
		Materials	Consumables and bags		500
<b>SUBTOTAL</b>			<b>3 199</b>	<b>1 400</b>	
Shark Bay	Monitoring of population on Salutation Island	Salaries	2 staff (~L4.1) x 5 days	2 899	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	TA x 2 staff x 5 days		600
		Plant	Vehicle and boat to Salutation		600
		Materials	Consumables and bags		500
<b>SUBTOTAL</b>			<b>2 899</b>	<b>1 700</b>	
<b>TOTAL FOR TRANSLOCATION</b>				<b>9 098</b>	<b>5 200</b>

**4.13 Noisy scrub-bird from Mermaid/Waychinicup to Gull Rock and Porongurup NP**

TIMING: May-July 2006

A small number (4) of birds were released into Porongurup National Park in June 2006. Additional releases are planned to establish a population in Porongurup NP and supplement the population at Gull Rock. Funding for Noisy scrub-bird translocations is currently provided through Project Phoenix.

**4.14 Western Swamp Tortoise from Perth Zoo to Mogumber and Moore River Nature Reserve**

TIMING: July 2007

The breeding program at Perth Zoo has bred sufficient numbers to provide animals for release. Some animals will be used to top-up the population being established at Mogumber and others will be used to establish a new population. A new release site in Moore River Nature Reserve has been selected. NHT funding is used to contract Gerald Kuchling to undertake the translocation and monitoring. Cost associated with the translocation would be \$4 000 salary, \$500 vehicle running and \$7 500 equipment/materials. Costs associated with monitoring would be \$40 000 salary, \$3 000 vehicle running and \$3 000 equipment/materials. Only minor costs associated with extra staff helping at the release are not covered by the NHT funding. The project was unsuccessful in obtaining BCI funding.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded	
Swan	Transport and release of animals	Salaries		500		
		Overtime-salaries				
		Wages				
		Overtime-wages				
		Allowances				
		Plant	Vehicle running			100
		Materials				
		<b>SUBTOTAL</b>			<b>500</b>	<b>100</b>
<b>TOTAL FOR TRANSLOCATION</b>				<b>500</b>	<b>100</b>	

**4.15 White-bellied frog from Witchcliffe area to other sites in Witchcliffe area.**

TIMING: Spring 2006

This translocation will be undertaken to improve the conservation status of the species by supplementing the genetics of small existing populations or establishing new population within the species distribution. The translocation was not successful in receiving NRM funding but has been included in a BCI application that is yet to be assessed.

Estimated total cost = \$29000 (\$22000 salary/wages, \$4000 vehicle and \$3000 materials)

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Black-wood	Site selection, capture, transport and monitoring	Salaries		22 000	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant			4 000
		Materials			3 000
		<b>SUBTOTAL</b>			
<b>TOTAL FOR TRANSLOCATION</b>				<b>22 000</b>	<b>7 000</b>

#### 4.16 Quenda from Metro sites to Nambung National Park

TIMING: Continuous

This translocation will provide additional animals to sites in Nambung NP where animals were released in 2005 and 2006 (total of 43 males and 33 females). Costs for this translocation will be charged to the developer at full cost recovery + 42% on-costs. In addition to the regular Western Shield monitoring, trapping, will be undertaken by Jurien (Moora district) staff to target released animals.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
Moora	Monitoring (2 weeks of trapping)	Salaries	75 hrs @ \$40.7/hr		3 052
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant	1000 km @ 80c/km		800
		Materials	Batteries, bait, flagging tape, misc.		100
		<b>SUBTOTAL</b>			
<b>TOTAL FOR TRANSLOCATION</b>					<b>3 952</b>

#### 4.17 Woylie from Karakamia to Nambung National Park and North Karlgarin Nature Reserve

TIMING: August 2006

The translocation of woylies from Karakamia to Nambung and North Karlgarin is likely to be undertaken at the same time. Woylies were first released into Nambung NP in 2004 with an additional release occurring in 2005 bringing the total founders to 64 (40 males, 24 females). The North Karlgarin NR population was started in 2005 with 40 woylies (20 males, 20 females). It is recommended to increase the founding population size of both these populations. As part of the management of the population of woylies at Karakamia AWC has, in the past, offered excess animals to DEC for translocation. The cost of trapping woylies for this translocation will be borne by AWC. Other costs associated with the translocation are detailed in the table below. Both translocation are to locations that are trapped as part of the regular monitoring for Western Shield. Additional trapping may be undertaken by the Moora District to target released animals.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
SAC	Assisting with the processing of trapped animals	Salaries	4hrs @ 47.30/hr (L5) + 4hrs @40.7/hr (L4)	352	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant	60km @ 80c		48
		Materials	Bait, batteries, bags, fl tape, misc		250
		<b>SUBTOTAL</b>		<b>352</b>	<b>298</b>
SAC	Transport to Nambung and release of animals	Salaries	14hrs @ 47.30/hr (L5)	662	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances	\$130 overnight accom in Cervantes		130
		Plant	550km @ 80c/km		440
		Materials			
		<b>SUBTOTAL</b>		<b>662</b>	<b>570</b>
Narrogin	Transport to North Karlgarin and release of animals	Salaries	7.5 hrs @ \$34.50 (L3)	258	
		Overtime-salaries	5 hrs @ \$34.50 (L3) x 1.5 & 2		293
		Wages	7.5 hrs @ \$27.39 (CE L2.6)	205	
		Overtime-wages	5 hrs @ \$27.39 (CE L2.6)x1.5 & 2		232
		Allowances	Meals		50
		Plant	800 km's @ 80c		640
		Materials	Misc		100
		<b>SUBTOTAL</b>		<b>463</b>	<b>1 315</b>
Moora	Monitoring (2 weeks of trapping and 1 day of new release site searching)	Salaries	82.5hrs @40.7/hr		3 357
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant	1 100km @ 80c/km		880
		Materials			
		<b>SUBTOTAL</b>			<b>4 237</b>
<b>TOTAL FOR TRANSLOCATION</b>				<b>1 477</b>	<b>6 420</b>

#### 4.18 Tammar Wallabies from Tutanning to Nambung

TIMING: April 2007

Tammar wallabies were first released into Nambung National Park in 2004. Additional animals were released in 2005 and March 2006. A total of 70 tammars (37 males, 33 females) have been released so far but monitoring of the second release suggested heavy losses to predation. A release in April 2007 should result in a sufficient founding population size and therefore satisfy the need for additional releases unless future monitoring shows further action is required.

Cost Centre	Activity	Components	Details	CRF Funded	Un-funded
SAC	Setting traps, prefeeding and trapping	Salaries	23hrs @ 47.30/hr (L5) + 15hrs @40.7/hr (L4)	2 376	
		Overtime-salaries	4hrs @ 47.3x1.5 + 4hrs @ 40.7x1.5		528
		Wages			
		Overtime-wages			
		Allowances	2.4d @45.60/d x2 +\$40 accom		260
		Plant	550km @ 80c		440
		Materials	Bait, batteries, bags, fl tape, misc + 10 collars @300ea		3250
		<b>SUBTOTAL</b>			<b>2 376</b>
Narrogin	Setting traps, prefeeding and trapping	Salaries	16hrs @ 40.7/hr	651	
		Overtime-salaries	2hrs @40.7 x 1.5		122
		Wages	21.5 hrs @ 31.20/hr	671	
		Overtime-wages	3hrs @ 31.2 x 1.5		140
		Allowances	2.4d @ 45.60/d x2 + 40 accom		260
		Plant	300km @ 80c		240
		Materials	Bait		100
		<b>SUBTOTAL</b>			<b>1 322</b>
Moora	Setting traps, prefeeding and trapping	Salaries	22 hrs @ 40.7/hr		895
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant	650km @ 80c		520
		Materials			
		<b>SUBTOTAL</b>			
Moora	Transport and release of animals at Nambung	Salaries	1hrs +16x6 hrs @ 40.70/hr (L4) 9hrs @ 40.70/hr 3hrs x 1 @ 40.7/hr	4 350	366 122
		Overtime-wages	2hrs @ 40.7x1.5		
		Wages			
		Allowances			
		Plant	900km @80c + 85km @ 80c x16 650km @ 80c 100km x 1 @ 80c/km		1820 520 80
		Materials	Incidental		100
		<b>SUBTOTAL</b>		<b>4 350</b>	<b>3 008</b>
Moora	Post-release monitoring by radio-tracking (6 months)	Salaries		3 000	
		Overtime-salaries			
		Wages			
		Overtime-wages			
		Allowances			
		Plant	7500km @ 80c/km		6 000
		Materials			
		<b>SUBTOTAL</b>		<b>3 000</b>	<b>6 000</b>
<b>TOTAL FOR TRANSLOCATION</b>				<b>11 048</b>	<b>15 763</b>

#### **4.19 Brushtail Possum from Karakamia and Metro sites to Julimar**

**TIMING:** Continuous

Costs for the translocation of brushtail possums from development sites to Julimar will be charged to the developer at full cost recovery + 42% on-costs. There will be no costs associated with the translocation of brushtail possums from Karakamia to Julimar as this will only be undertaken as opportunity arises when translocating woylies. Release sites are located in areas trapped regularly as part of the Western Shield program and no additional monitoring is planned to target released animals.

## 5 Summary of Cost Centres Responsible for Translocations Underway and Proposed

The following table (Table 1) provides a summary that makes it easy to look up which districts are contributing resources towards translocations that are proposed or underway. The table will assist planning and budgeting.

Releases of animals in consecutive years are generally undertaken to establish populations. Once animals have been released at a site there should be an ongoing commitment to monitor and add additional animals in subsequent years. The number of releases that are performed at a site depend on how many animals have been available for earlier releases and indications of survivorship of released animals. In general at least three years of releases are allocated to each translocation to a new site. The actual calendar year/s that the release year number refers to, will depend on factors such as availability of animals and the priority given to the release site.



**Table 1: Summary of cost centres responsible for translocations underway and proposed.**

Note 1: "X"'s may be replaced by cost estimate if/when available.

Note 2: Release year indicates how many years animals have been or will be released at a site. For example a '3' in the release year column indicates it will be the third year that animals have been released at that site.

Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Meredin	Esperance	Albany	Shark Bay	Goldfields	TOTAL	
Chuditch	Julimar + Avon Valley	Peron	1				X											X			
			2					X											X		
			3					X												X	
Dibbler	Perth Zoo	Stirling Range NP	3		X												X				
			1		X													X			
			2		X														X		
	Perth Zoo	Mid west coast site	1		X			X													
			2		X				X												
			3		X				X												
Red-tailed Phascogale	Wheatbelt reserves	Peron	1												X			X			
			2												X			X			
			3												X			X			
Numbat	Perth Zoo	Stirling Range NP	6+		X																
			1		X																
			2		X																
	Perth Zoo	Site on South coast	1		X													X			
			2		X													X			
			3		X													X			

Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Merredin	Esperance	Albany	Shark Bay	Goldfields	TOTAL		
Western Barred Bandicoot	Heirisson Prong + Bernier/Dorre Is	Faure Island	2																			
			3																			
Bilby	RTD + Peron	Perup	1									X						X				
			2									X						X				
			3										X						X			
	RTD + Peron	Sunklands	1							X									X			
			2								X								X			
			3								X								X			
	RTD + Peron	Julimar SF	1				X											X				
			2							X									X			
			3							X									X			
	RTD + Peron	Loma Glen	1															X				
			2															X				
			3																X			
	RTD + Peron	Lake Magenta NR	1															X				
			2															X				
			3																X			
Western ringtail possum	Busselton/Bunbury sites	Southern sunklands/Blackwood River	1		X					X												
			2		X																	
			3		X																	
	Busselton/Bunbury sites + carers	Leschenault	1		X						X											
			2		X							X										
			3+		X							X										
	Busselton/Bunbury sites + carers	Yalgoup NP	1		X																	
			2		X																	
			3+		X																	
	Busselton/Bunbury sites + carers	Old Bunbury Road	1		X																	
			2		X																	
			3+		X																	

Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Merridin	Esperance	Albany	Shark Bay	Goldfields	TOTAL		
Gilbert's Potoroo	Captive/Mt Gardner	Bald Island NR	2		X												X					
			3		X													X				
			4		X														X			
			1		X														X			
Boodie	RTD	South coast site	2		X												X					
			3		X												X					
			3		X													X				
Boodie (Barrow Island)	RTD	Dryandra SF	1																			
			2																			
			3																			
Boodie (Barrow Island)	RTD	Perup	1																			
			2																			
			3																			
Boodie (Barrow Island)	RTD	Lorna Glen	1																			
			2																			
			3																			
Boodie (Barrow Island)	RTD	N jarrah forest meso-predator project	1		X																	
			2		X																	
			3		X																	
Mala (Bernier and Dorre Island subspecies)	RTD	N jarrah forest meso-predator project	1																			
			2																			
			3																			

Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Merridin	Esperance	Albany	Shark Bay	Goldfields	TOTAL		
Mala (Tanami Desert subspecies)	RTD + Peron	Tutanning NR	1											X				X				
			2												X			X				
			3												X				X			
Mernine or Banded Hare-wallaby	Peron + Bernier/ Dorre Is	Faure Island	1															X				
			2																			
			3																			
	Peron	Tutanning NR	1											X				X				
			2												X			X				
			3												X			X				
Black-flanked Rock-wallaby	Mt Caroline + Querekin	Cape Le Grand NR	1	X														X				
			2	X														X				
			3	X															X			
	Querekin	Panama Sanctuary	1	X																		
			5	X																		
	Mt Caroline + Querekin	Avon Valley NP/ Walyunga NP	1	X																		
			3	X																		
	Mt Caroline + Querekin	Kalbarri NP	1	X					X													
			2	X						X												
	Calvert Range	Durba Hills	1	X					X													
			2	X						X												
	Calvert Range	Depuch Island	1																			
			2																			

Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Merridin	Esperance	Albany	Shark Bay	Goldfields	TOTAL
Quokka																				
Shark Bay Mouse																				
Heath Mouse																				
Greater Stick-nest Rat	SA + Salutation Island	Salutation Island + Faure Island	1/2		X													X		
	East Franklin Island	Salutation Island + Faure Island			X													X		
Western ground parrot	Fitz. River NP	D'Entrecasteaux NP	1 2 3										X X X				X X X			
Noisy scrub-bird	Mermaid/Waychinicup	Mt Taylor/ Gull Rock	?														X X X			
	Mermaid/Waychinicup	Porongurup NP	1 2 3+										X X X				X X X			
	Mermaid/Waychinicup	Bakers Junction NR	1 2 3+										X X X				X X X			

Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Merredin	Esperance	Albany	Shark Bay	Goldfields	TOTAL
Western bristlebird	Two Peoples Bay NR	Woolbales	1										X				X			
			2											X				X		
			3										X				X			
	Two Peoples Bay NR	Nuyts	3										X				X			
			4+											X				X		
Malleefowl	Yongemow captive colony	Wheatbelt reserves	1				X								X		X			
			2				X								X		X			
			3				X									X		X		
	Yongemow captive colony	E edge of jarrah forest	1				X								X		X			
2						X								X		X				
3						X									X		X			
Western Swamp Tortoise	Perth Zoo	Mogumber NR	7			X														
			8+			X														
	Perth Zoo	Moore River NR	1			X														
			2			X														
			3+				X													
Orange- bellied frog																				
White-bellied frog	Witchliffe area	Witchliffe area	1																	
			2								X									

Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Merredin	Esperance	Albany	Shark Bay	Goldfields	TOTAL	
Margaret River marron	Pemberton captive colony	Margaret River	1							X											
			2								X										
			3								X										
Burrrowing crayfish species	Capes	Capes	1							X											
			2								X										
			3								X										
Cape Leeuwin freshwater snail	Cape Leeuwin sites	Cape Leeuwin/ Naturaliste	1							X											
			2								X										
			3								X										
Woylie	Karakamia Sanctuary	Nambung NP	3	X				X													
			4	X																	
	Karakamia Sanctuary	North Karlgarin NR	2	X											X						
			3	X											X						
	Karakamia Sanctuary	Corackerup NR	1														X				
			2														X				
			3														X				
	Karakamia Sanctuary	Peron	5	X														X			
			6	X															X		

Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Merredin	Esperance	Albany	Shark Bay	Goldfields	TOTAL	
Quenda	Metro site	Nambung NP	2	X				X													
			3	X																	
	Metro sites	Peron	2	X															X		
			3	X															X		
	Metro sites	Julimar SF	4	X				X													
	Metro sites	Badgingarra/ Cooljarloo	1	X					X												
2			X					X													
3			X					X													
Tamar	Tutanning NR	Nambung NP	4	X				X							X						
			Tutanning NR	Kalbarri NP	1	X				X						X					
					2	X						X					X				
Tutanning NR	Lane Poole CP	1	X								X			X							
		2	X								X			X							
		3	X								X			X							
Tutanning NR	Lake Magenta NR	1												X							
		2												X							
		3												X							
Thick-billed grass-wren																					



Species	Source	Destination	Release Year	SAC	Science	Swan	Perth Hills	Moora	Geraldton	Blackwood	Wellington	Donnelly	Frankland	Narrogin	Merredin	Esperance	Albany	Shark Bay	Goldfields	TOTAL
Brush-tail Possum	Karakamia + metro sites	Julimar SF	2	X			X													
	Dryandra + Bending + Karakamia	Loma Glen	1 2 3		X X X										X X X				X X X	

## 6 Future Site-based Reintroduction Projects

### 6.1 Lorna Glen

The Lorna Glen-Earaheedy complex (Goldfields Region) has been identified as an arid zone fauna reconstruction site because of the diversity of landform systems, potential habitat types and the relatively good condition of these ex pastoral leases. Lorna Glen has been the study site for operation-scale feral cat and fox control. The project aims to demonstrate sustained control for three consecutive years with the view of reintroducing species in subsequent years. The first releases are planned for July 2007 (bilby, brushtail possum and boodie).

### 6.2 Dirk Hartog Island

Dirk Hartog Island will become available in the near future for fauna reconstruction. A project proposal for Mammal Reconstruction on Dirk Hartog Island has been prepared by Keith Morris and Colleen Sims and has been appended to provide additional information (Appendix 1).

Dirk Hartog Island formerly supported at least 13 species of mammals, of which only three species still persist. It is proposed that following the eradication of sheep, goats and feral cats on the island there will be the opportunity to reintroduce at least 12 species of medium-sized mammals to the island. The first releases are proposed to occur in 2011/12 subject to the successful eradication of introduced species. However, some species will be sourced from captive breeding facilities (eg Rufous hare-wallaby and Banded hare-wallaby) and so captive breeding will begin in 2008/09.

The proposed time frame for reintroductions to the island falls largely outside the three year time-frame of this plan, however, it is useful to consider this site for future planning particularly for species that need to be bred in captivity.

### 6.3 Mt Gibson

A project is being undertaken by the Australian Wildlife Conservancy to erect a vermin proof fence around an approximate 1000 ha area of Mt Gibson station in the next 12 to 24 months. The exact size and location of the enclosure has not yet been finalised and will influence the list of potential species for reintroduction. Possible species for reintroduction include:

- Black-flanked rock-wallaby
- Bilby
- Boodie
- Woylie
- Banded hare-wallaby
- Rufous hare-wallaby
- Western barred bandicoot
- Numbat
- Chuditch
- Brushtail possum

## 7 References

Burbidge AA, Start AN, Morris KD and Armstrong R (1995). *Western Shield* – bringing back our wildlife. Department of Conservation and Land Management, Perth.

CALM (1999). *Western Shield* Fauna Recovery Program – Strategic Plan July 1999 to June 2004. Department of Conservation and Land Management, Perth.

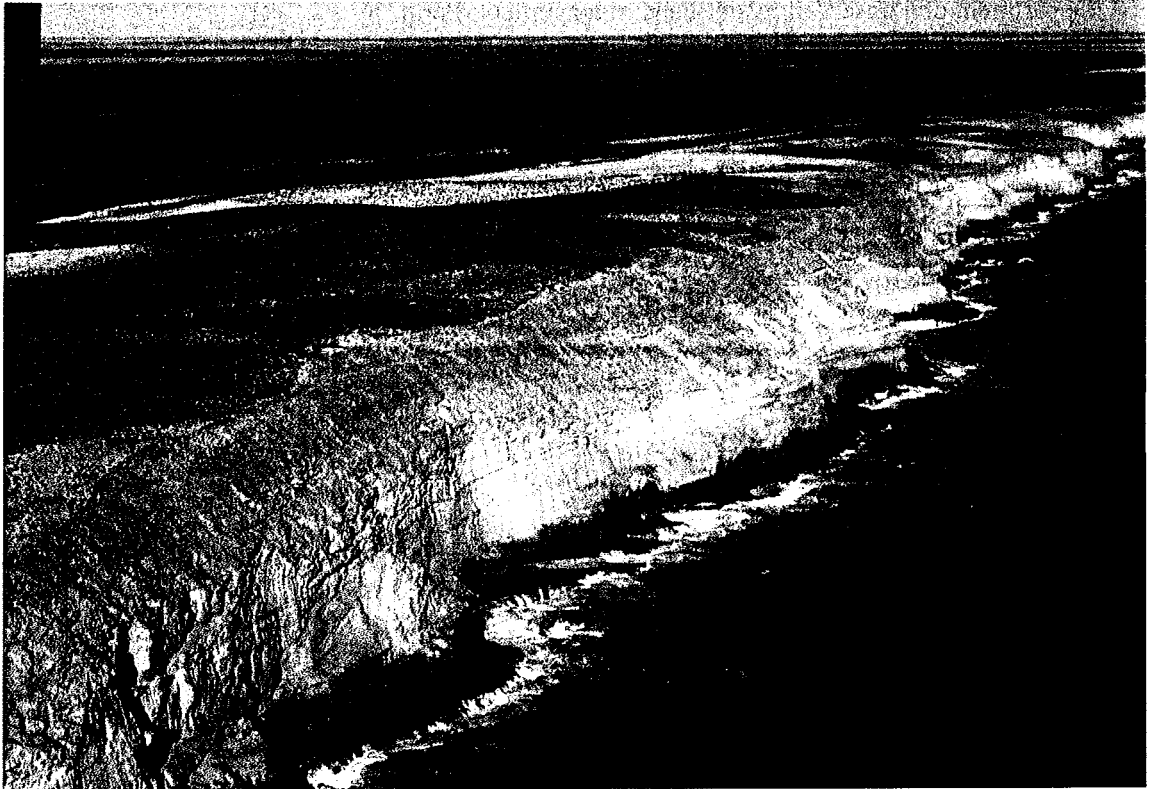
Orell P (2001). Translocation priorities for *Western Shield* 2001-2003 Wheatbelt Region. Department of Conservation and Land Management, Perth.

Possingham H, Jarman P, and Kearns A. (2004). Independent Review of *Western Shield* – February 2003. Conservation Science Western Australia 5 (2): 2-18

APPENDIX 1

**MAMMAL RECONSTRUCTION ON DIRK HARTOG ISLAND**

**2008-2022**



by

Keith Morris  
Science Division, Wildlife Research Centre, Woodvale

and

Colleen Sims  
Shark Bay District, Mid-west Region.

**June 2006**  
Department of Conservation and Land Management  
Western Australia

## SUMMARY

Dirk Hartog Island formerly supported at least 13 species of mammal of which only three species still persist. The island will shortly become available to the Western Australian government as conservation estate and this provides the opportunity to reconstruct the native mammal fauna of this island. It is proposed that, following the successful eradication of sheep, goats and feral cats, at least 12 species of medium-sized mammals will be reintroduced to the island. This reintroduction program will cost an estimated \$8.72 million and is planned to run from July 2008 to June 2022. Details of the species to be translocated and the budget required are provided.

## INTRODUCTION

Dirk Hartog Island in the Shark Bay World Heritage Area is the largest island off the Western Australian coast (58 640a) (Abbott and Burbidge 1992) and once supported at least 13 species of native mammal. (Baynes 1990, McKenzie *et al.* 2000). Since the 1850s Dirk Hartog Island has been a pastoral lease, and grazed by sheep and goats. Cats and house mice were also introduced to the island. Captain Denham attempted to introduce rabbits in 1858, however this was unsuccessful (David 1995).

In 2005 the WA Government finalised arrangements with the pastoral lease holder to relinquish the lease and convert the island to a national park. This offers the opportunity to undertake removal and eradication programs for the feral cats, goats and sheep and if successful, to reconstruct the mammal fauna of the island. Once threatening processes have been controlled (in this case, introduced fauna) it has been demonstrated that mammal translocations to islands are more likely to be successful than translocations to mainland sites (Short *et al.* 1992).

Potentially Dirk Hartog Island could support one of the most diverse mammal assemblages in Australia, and contribute significantly to the long-term conservation of several threatened species. Mammal reconstruction will also contribute significantly to the restoration of the island's ecosystems through activities such as digging the soil and grazing / browsing vegetation.

## PREVIOUS MAMMAL FAUNA

Thirteen species of native terrestrial mammal are known to have previously occurred on Dirk Hartog Island (Baynes 1990, McKenzie *et al.* 2000) (Table 1). This list is derived from knowledge of extant species, historic collections and a brief sub-fossil survey by Dr Alex Baynes. Of these, 10 species of medium-sized mammals are thought to be extinct on the island, although they do occur elsewhere. Only three, smaller sized species still occur on the island. In addition it is possible that the Banded Hare-wallaby (*Lagostrophus fasciatus*) and Rufous Hare-wallaby (*Lagorchestes hirsutus*) also occurred on the island – they both occur on nearby Bernier and Dorre Islands, and previously occurred on adjacent mainland areas. A more thorough sub-fossil survey by Dr Alex Baynes is proposed for July – September 2006, and this should resolve this issue, and perhaps find other species that once occurred on Dirk Hartog Island. For this proposal the hare-wallabies have been included as potential species for translocation. While this project is regarded primarily as a reconstruction project, it may be desirable to include species that did not previously occur on Dirk Hartog Island, but did occur in the Shark Bay area, if there are strong conservation reasons for doing so.

## MAMMAL RECONSTRUCTION

All the species listed in Table 1 that are now extinct on Dirk Hartog Island occur elsewhere and could be reintroduced. Table 2 shows the 12 species that could be reintroduced and the potential source(s) for founder stock.

It is proposed that the Woylie could be translocated from sites in the south-west of WA and / or Karakamia providing the reasons for the current declines of this species have been identified and

addressed. The Greater Stick-nest Rat could also be translocated from the wild at Faure and/ or Salutation Islands, with additional stock from the East and West Franklin Islands if necessary to boost genetic diversity.

In order to minimise pressure on isolated remnant wild populations, the Boodie, hare-wallabies and Western Barred Bandicoot could be sourced primarily from captive colonies at Dryandra and Peron, with supplementation from the wild (Bernier and Dorre Islands, Faure Island), if populations are healthy enough to accommodate the removal of small numbers of individuals.

The Chuditch, Mulgara, Dibbler, Desert Mouse, Heath Mouse and Shark Bay Mouse would require captive breeding, most probably at Perth Zoo. The Desert Mouse and Heath Mouse have not been bred in captivity previously.

This project offers the opportunity to examine the genetic consequences of mixing island populations with low genetic diversity, and mainland populations with higher levels of genetic diversity to try to maximise gene diversity and improve population viability in some species. This issue will be further discussed when translocation plans are prepared.

## **INTRODUCED FAUNA ERADICATION**

The eradication of introduced sheep, goats and feral cats (and black rats, if present) will be crucial to the success of this program and mammal translocations will not proceed unless the eradications are successful. The removal of sheep will be the responsibility of the current pastoral lease holder and is expected to be completed by April 2007. Goat eradication will be undertaken by CALM and is expected to be close to completion by May 2007. Feral cat eradication will be undertaken by CALM and is expected to be completed by July 2008 (Algar and Brazell 2006). Control / eradication of the introduced house mouse is not proposed at this stage. However information on their distribution and abundance on the island will be collected over the next five years and consideration given to an eradication program if considered necessary. Mammal translocations will not commence until a cat / goat / sheep free environment has been confirmed for three years. On the smaller Faure Island (5800ha), nine months was considered adequate time to confirm the success of a cat eradication program in 2000, but on the Montebello islands two years was not adequate time to confirm the success of a black rat eradication program. This proposal is based on the assumption that sheep, goats and cats will have been successfully eradicated from Dirk Hartog Island by July 2008 and that mammal translocations will commence three years later, in July 2011.

## **TRANSLOCATION PROGRAM**

It is proposed that the 12 species listed in Table 2 be reintroduced to Dirk Hartog Island over a 10 year period, with two species being reintroduced in most years. The timing of reintroductions is shown in Table 3. The first translocations would occur in July 2011, however this would be preceded by 2.5 - 3 years of staff appointments, reconnaissance and site selection, infrastructure establishment, and the collection of founders and monitoring of founder populations for the first species to be translocation. This activity would commence in July - October 2008.

Table 3 includes the Rufous Hare-wallaby and Banded Hare-wallaby as species for translocation, despite there being no record at present of their occurrence on Dirk Hartog Island. Their inclusion will be reconsidered after the sub-fossil survey proposed by Alex Baynes in July – October 2006. Even if no sign of the Banded Hare-wallaby is found during this survey, it may still be considered for translocation to Dirk Hartog Island for conservation reasons. Any additional species recorded during the sub-fossil survey will also be included in the translocation program.

A generic set of guidelines would be used where possible for the translocation of each species, however these may be modified depending on the species' ecology, life history and ability of the source population to support removal of animals over two consecutive years. They would include:

- Translocations for each species to occur over two years (assuming translocation in first year is successful) i.e. initial release in year 1 followed by restocking in year 2.
- Translocations to occur in winter / spring.
- At least 40 founders per year are translocated, at the same time.
- At least 20 of these to be intensively monitored via radiotracking.
- Monitoring would include an initial six week period immediately after release, followed by two week monitoring periods of radio-tagged animals every 6-8 weeks for at least the next 2-3 years after each release.
- Additional monitoring of non-radio-tagged animals would occur at least every 6 months after this time and be restricted to cooler months between March/April and September/October each year.
- All releases will be “hard” releases. i.e no temporary holding pens.
- Source populations will be monitored.

## STAFFING

It is envisaged that this project would be undertaken jointly by staff from within the Fauna Conservation Program, Science Division, and Regional Services staff from the Shark Bay District, Mid-west Region. The equivalent of five FTEs is considered to be necessary for this project to be implemented effectively. Three new positions (1 Science, 2 Regional Services) dedicated to this project would be required. The other 2 FTE requirements would be made up from existing staff in the Science Fauna Conservation Program and the Denham District Project Eden team. Perth Zoo would require an average of 2 FTEs for the period they would be involved in captive breeding (2012/13 – 2018/19) and will contribute another 2 FTEs and some existing infrastructure (breeding pens etc) to the captive breeding program.

## BUDGET

A summary of the budget required for new staff salaries, infrastructure establishment, site selection, equipment, captive breeding, translocation and monitoring, and the monitoring of source populations is shown in Table 4, with more details shown at Appendix 1. Costings are based on 2006 dollars. A total of \$8.72 million will be required from July 2008 to June 2022 to undertake this program. After the translocations have been completed in 2022, an ongoing budget of approximately \$123,000 per year will be required to allow routine, less frequent monitoring of the Dirk Hartog Island fauna.

## REFERENCES

- Abbott, I. and Burbidge, A.A. (1995). The occurrence of mammal species on the islands of Australia: a summary of existing knowledge. *CALMScience* **1**(3): 259-324.
- Algar, D, and Brazell, R.I. (2006). Cat eradication on Dirk Hartog Island. An unpublished report to the Department of Conservation and Land Management, March 2006.
- Baynes, A. (1990). The mammals of Shark Bay, Western Australia. P313-325 In: Research in Shark Bay – Report of the France-Australe Bicentenary Expedition Committee. Eds P.F Berry, S.D. Bradshaw and B.R. Wilson. Western Australian Museum, Perth, WA.
- Burbidge, A.A. and George, A.S. (1978). The flora and fauna of Dirk Hartog Island, Western Australia. *Journal of the Royal Society of Western Australia* **60**: 71 – 90.
- David, A. (1995). The voyage of HMS Herald to Australia and South West Pacific 1852-1861 under the command of Captain Henry Mangles Denham. Melbourne University Press, Melbourne.

- McKenzie, N.L., Hall, N. and Muir, W.P. (2000). Non-volant mammals of the southern Carnarvon Basin, Western Australia. *Records of the Western Australian Museum* Supplement No. 61: 479-510.
- Short, J., Bradshaw, S.D., Giles, J., Prince, R.I.T. and Wilson, G.R. (1992). Reintroduction of macropods (Marsupialia: Macropodoidea) in Australia – A review. *Biological Conservation* **62**:189-204.



<b>Species</b>	<b>Last record</b>
Boodie <i>Bettongia lesueur</i>	Extinct - Skull collected by Quoy and Gaimard in 1824, also the Herald expedition in 1858, and sub fossil.
Woylie <i>Bettongia penicillata</i>	Extinct - Sub fossil deposits
Banded Hare-wallaby <i>Lagostrophus fasciatus</i>	Extinct ? - Translocated in 1977. Needs additional sub fossil survey to confirm presence.
Western Barred Bandicoot <i>Perameles bougainville</i>	Extinct - Some reference to a "small opossum" by King's expedition in 1821, Denham took a bandicoot on board the HMS Herald from DHI in 1858, also sub fossil records.
Chuditch <i>Dasyurus geoffroi</i>	Extinct - Sub fossil deposits
Mulgara <i>Dasyercus cristicauda</i>	Extinct - Sub fossil deposits
Dibbler <i>Parantechinus apicalis</i>	Extinct - Sub fossil deposits
Little long-tailed dunnart <i>Sminthopsis dolichura</i>	Extant - Prince 1977 ( <i>pers comm.</i> )
Ash-grey Mouse <i>Pseudomys albocinereus</i>	Extant - Burbidge and George 1978
Sandy Inland Mouse <i>Pseudomys hermannsburgensis</i>	Extant - Burbidge and George 1978
Greater Stick-nest Rat <i>Leporillus conditor</i>	Extinct - Sub fossil deposits
Desert Mouse <i>Pseudomys desertor</i>	Extinct - Sub fossil deposits
Shark Bay Mouse <i>Pseudomys fieldi</i>	Extinct - Sub fossil deposits
Heath Mouse <i>Pseudomys shortridgei</i>	Extinct - Sub fossil deposits

**Table 1. Mammals reported from Dirk Hartog Island.**

Species for reintroduction	Potential source(s) for founders
Boodie <i>Bettongia lesueur</i>	Wild to wild translocation from Bernier and Dorre Islands and / or Faure Island, supplemented by captive breeding at Return to Dryandra (RTD)
Woylie <i>Bettongia penicillata</i>	Wild to wild translocation from south-west sites, would depend on extent of recovery (if any) from current decline
Banded Hare-wallaby <i>Lagostrophus fasciatus</i>	Wild to wild translocation from Faure Island and/or Bernier and Dorre Islands, supplemented by captive breeding at Peron Captive Breeding Centre (PCBC).
Rufous Hare-wallaby <i>Lagorchestes hirus</i>	Wild to wild translocation from Bernier and Dorre Islands, supplemented by captive breeding at PCBC and / or RTD. (issue of mixing mainland and island sub species?)
Western Barred Bandicoot <i>Perameles bougainville</i>	Wild to wild translocation from Bernier and Dorre Islands, supplemented by captive breeding at PCBC and / or RTD. (once disease issues resolved).
Chuditch <i>Dasyurus geoffroii</i>	Wild to captivity at Perth Zoo to build founder numbers, then release onto DHI
Mulgara <i>Dasyercus cristicauda</i>	Wild to captivity at Perth Zoo to build founder numbers, then release onto DHI
Dibbler <i>Parantechinus apicalis</i>	Wild to captivity at Perth Zoo to build founder numbers, then release onto DHI
Greater Stick-nest Rat <i>Leporillus conditor</i>	Wild to wild from Salutation and / or Faure Islands.
Desert Mouse <i>Pseudomys desertor</i>	Wild to captivity at Perth Zoo to build founder numbers, then release onto DHI
Shark Bay Mouse <i>Pseudomys fieldi</i>	Wild to captivity at Perth Zoo to build founder numbers, then release onto DHI
Heath Mouse <i>Pseudomys shortridgei</i>	Wild to captivity at Perth Zoo to build founder numbers, then release onto DHI

**Table 2. Potential sources of founder animals for Dirk Hartog Island.**

Activity / Species	2008/09	2009/10	2010/11	2011/12	2102/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Staffing, infrastructure establishment	X	X	X											
Preparation, site selection		X	X	X										
Rufous hare-wallaby	s/c/b	s/b	b	s T / M	c? T / M	s/m	m	s/m	m	s/m	m	s/m	m	s/m
Banded hare-wallaby	s/c/b	s/b	b	s T / M	c? T / M	s/m	m	s/m	m	s/m	m	s/m	m	s/m
Western Barred Bandicoot	s		s/c/b	s/b	T / M	s T / M	m	s/m	m	s/m	m	s/m	m	s/m
Boodie			s/c/b	s/b	T / M	s T / M	m	s/m	m	s/m	m	s/m	m	s/m
Dibbler			s	s/c/b	s/b	T / M	s T / M	m	s/m	m	s/m	m	s/m	m
Shark Bay Mouse	s			s/c/b	b	s T / M	T / M	s/m	m	s/m	m	s/m	m	s/m
Heath Mouse					s/c/b	s/b	T / M	T / M	s/m	m	m	m	m	m
Desert Mouse					s/c/b	s/b	T / M	T / M	s/m	m	m	m	m	m
Mulgara			s	s/c/b	b	s/b	b	s T / M	T / M	s/m	m	s/m	m	s/m
Woylie	s	s	s	s	s	s	s	c T / M	s/c T / M	s/m	m	s/m	m	m
Stick-nest Rat	s		s		s	s	s		s/c T / M	s/c T / M	s/m	m	s/m	m
Chuditch							s/c/b	s/b	b	T / M	T / M	s/m	m	m

Table 3. Timing of mammal reconstruction activities on to Dirk Hartog Island.

(X = activity commences / underway, T / M = translocation and intensive monitoring, m = ongoing less intensive monitoring, b = captive breeding activities underway, c = capture of new/additional founder stock, s = monitoring of wild source populations)

Activity	2008/ 09	2009/ 10	2010/ 11	2011/ 12	2012/ 13	2013/ 14	2014/ 15	2015/ 16	2016/ 17	2017/ 18	2018/ 19	2019/ 20	2020/ 21	2021/ 22	TOTAL
New salaries and operating	114.0	230.0	240.0	252.0	262.0	275.0	285.0	297.0	307.0	320.0	330.0	342.0	352.0	365.0	3,971.0
Infrastructure establishment and equipment	187.5	312.0	32.0	129.0	9.0	36.0	125.0	33.0	19.0	145.0	15.0	42.0	126.0	18.0	1,118.5
Release site selection	6.5	12.5	12.5	0	0	0	0	0	0	0	0	0	0	0	31.5
Translocations and monitoring	180.0	120.0	260.0	221.0	501.0	467.0	273.0	323.0	203.5	114.0	83.0	19.5	11.5	5.0	2,781.5
Monitoring founder sites		65.0		65.0		65.0	30.0	65.0	60.0	65.0	80.0	65.0	80.0	65.0	705.0
<b>TOTAL</b>	<b>488.0</b>	<b>739.5</b>	<b>544.5</b>	<b>667.0</b>	<b>772.0</b>	<b>843.0</b>	<b>713.0</b>	<b>718.0</b>	<b>589.5</b>	<b>644.0</b>	<b>508.0</b>	<b>468.5</b>	<b>569.5</b>	<b>453.0</b>	<b>8,717.5</b>

**Table 4. Summary of budget required for mammal reconstruction on Dirk Hartog Island.**  
(2006 \$\$, '000)

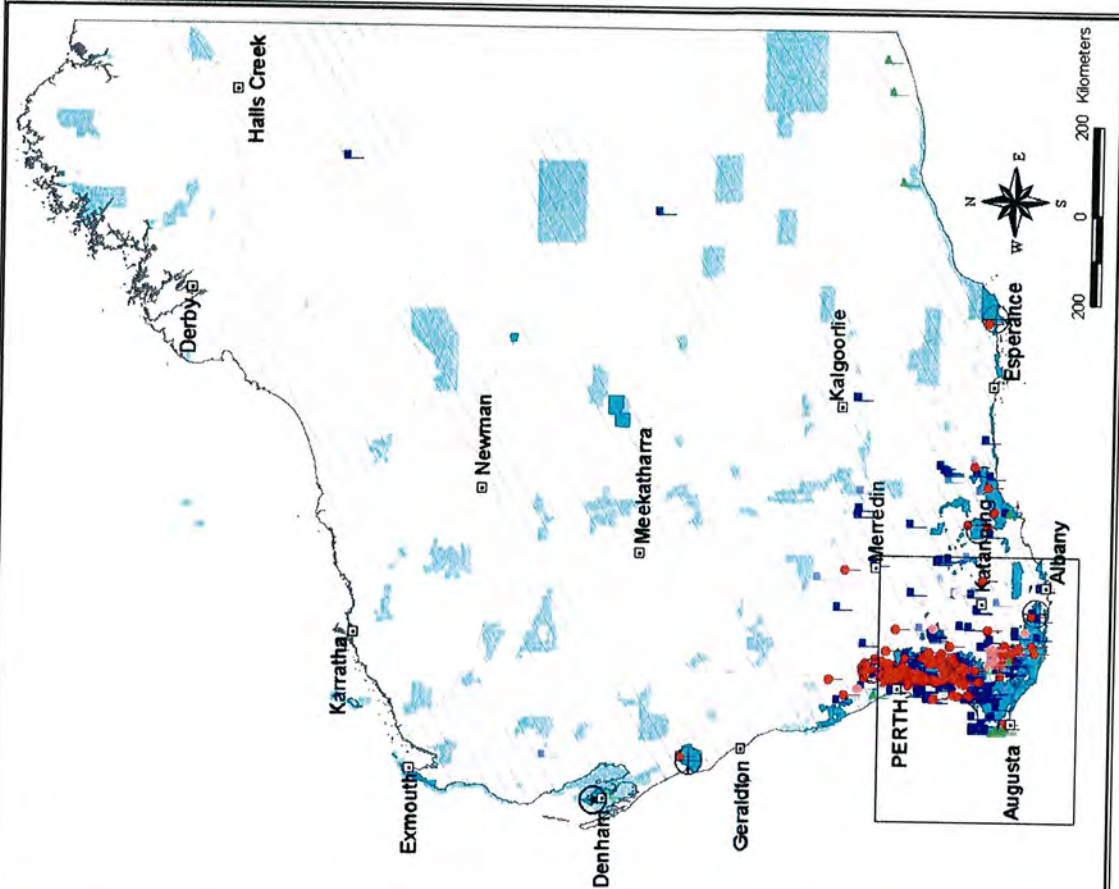
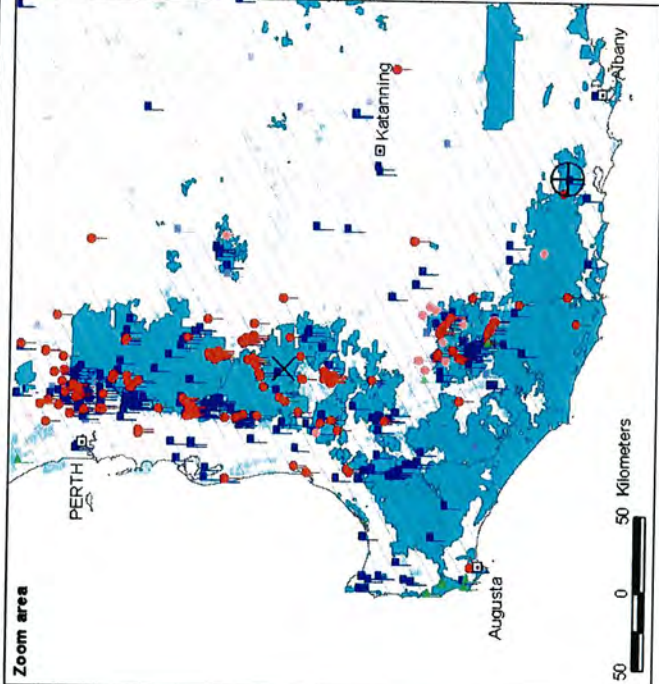
# Chuditch *Dasyurus geoffroii*

<b>Post-1996 Records</b>	<b>Translocation Sites</b>	Previous Distribution
Certain	Failed	Blue hatched area
Moderately Certain	Successful	Baited Area
Unsure	Indeterminate	DEC Managed Lands
<b>Pre-1996 Records</b>	New site	
Certain		
Moderately Certain		
Unsure		
<b>Undated Records</b>		
Certain		
Moderately Certain		
Unsure		

Prepared by K. Marsh  
(Species & Communities Branch)

**July 2006**

Department of  
Environment and Conservation



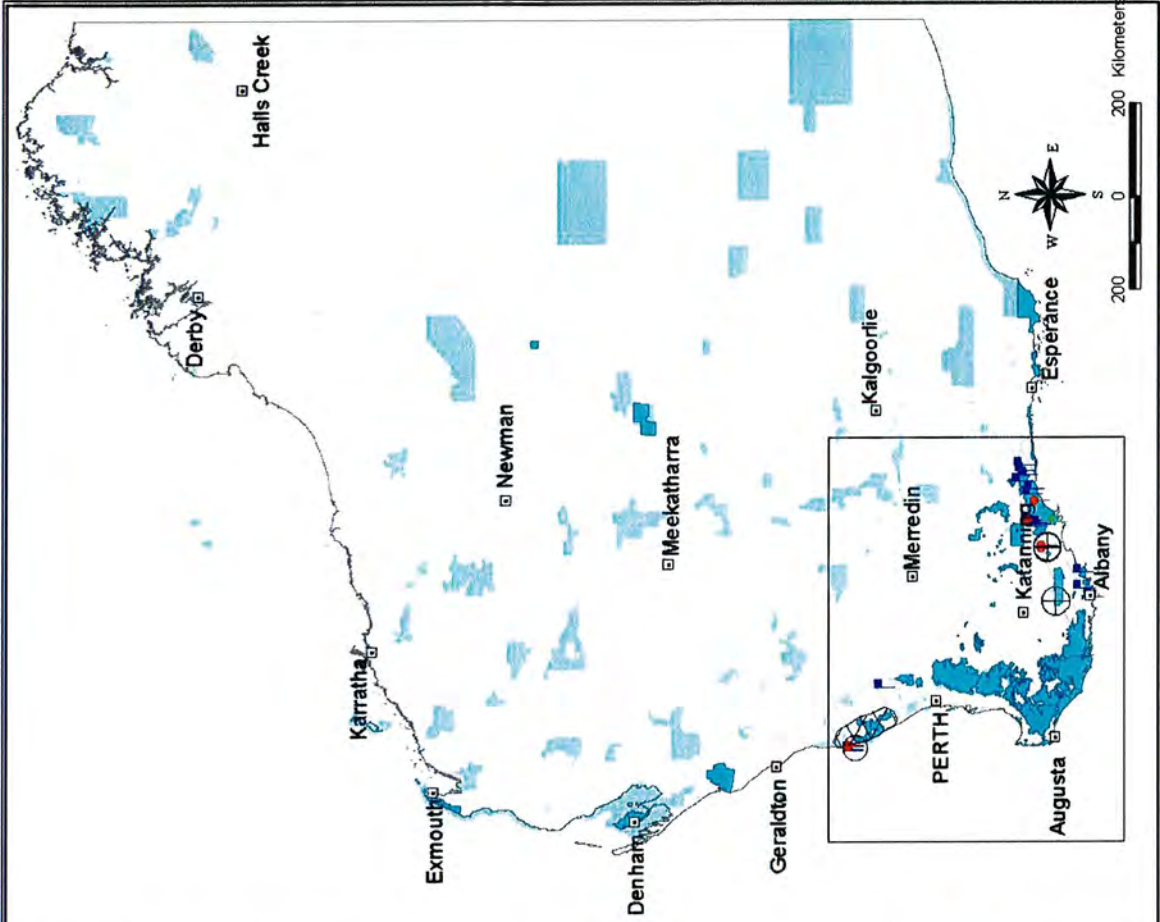
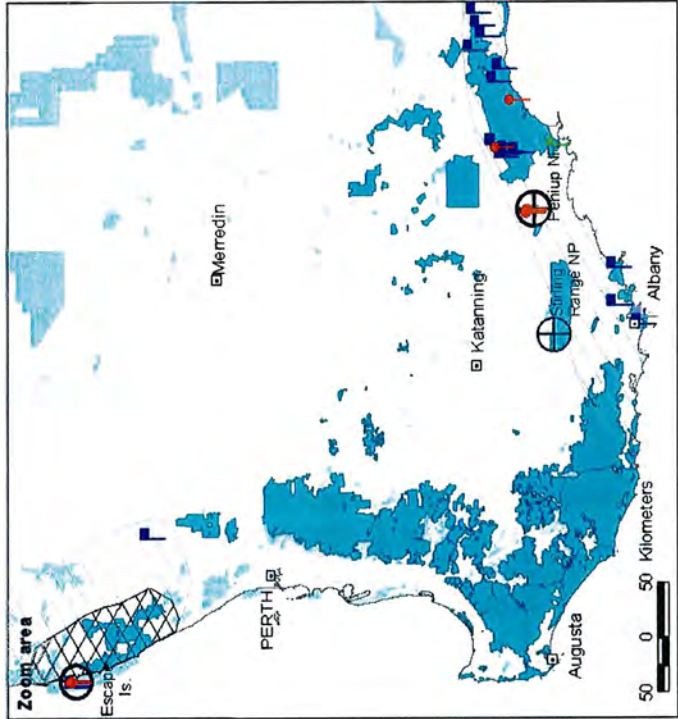
# Dibbler *Parantechinus apicalis*

- |                          |                                  |                       |
|--------------------------|----------------------------------|-----------------------|
| <b>Post-1996 Records</b> | <b>Translocation Sites</b>       | Previous Distribution |
| Certain                  | Failed                           | Baited Area           |
| Moderately Certain       | Successful                       | DEC Managed Lands     |
| Unsure                   | Indeterminate                    |                       |
| <b>Pre-1996 Records</b>  | New site                         |                       |
| Certain                  | Target area for new release site |                       |
| Moderately Certain       |                                  |                       |
| Unsure                   |                                  |                       |
| <b>Undated Records</b>   |                                  |                       |
| Certain                  |                                  |                       |
| Moderately Certain       |                                  |                       |
| Unsure                   |                                  |                       |

Prepared by K. Mannix  
(Species & Communities Branch)

**July 2006**

Department of  
Environment and Conservation



# Red-tailed Phascogale *Phascogale catura*

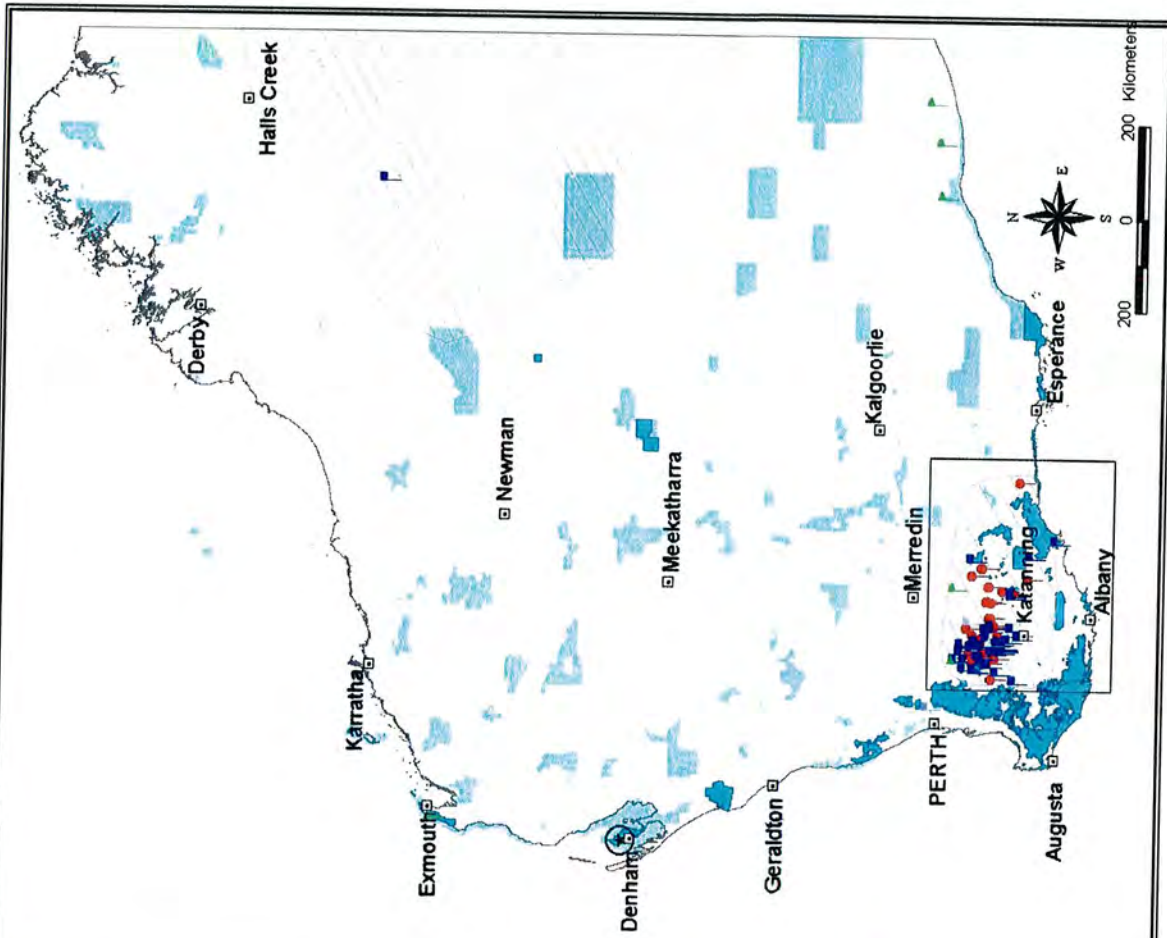
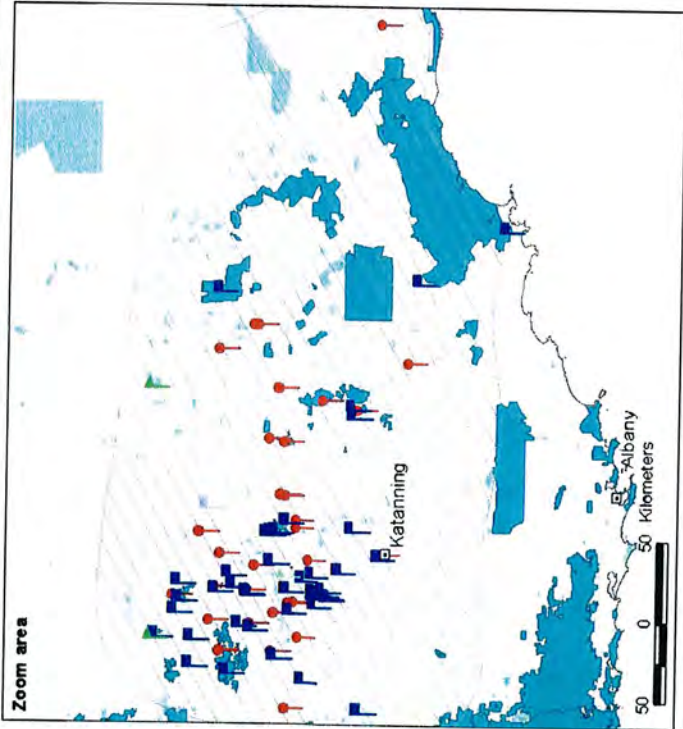
<b>Post-1996 Records</b>	<b>Translocation Sites</b>
<ul style="list-style-type: none"> <li>● Certain</li> <li>● Moderately Certain</li> <li>● Unsure</li> </ul>	<ul style="list-style-type: none"> <li>✕ Failed</li> <li>○ Successful</li> <li>⊕ Indeterminate</li> <li>⊙ New site</li> </ul>
<b>Pre-1996 Records</b>	
<ul style="list-style-type: none"> <li>■ Certain</li> <li>■ Moderately Certain</li> <li>■ Unsure</li> </ul>	
<b>Undated Records</b>	
<ul style="list-style-type: none"> <li>■ Certain</li> <li>■ Moderately Certain</li> <li>■ Unsure</li> </ul>	

<ul style="list-style-type: none"> <li>□ Previous Distribution</li> <li>■ Baited Area</li> <li>■ DEC Managed Lands</li> </ul>
---

Prepared by K. Menik (Species & Communities Branch)	<b>July 2006</b>
 Department of Environment and Conservation	



# Numbat *Myrmecobius fasciatus*

## Post-1996 Records

- Certain
- Moderately Certain
- Unsure

## Pre-1996 Records

- Certain
- Moderately Certain
- Unsure

## Undated Records

- Certain
- Moderately Certain
- Unsure

## Translocation Sites

- ✕ Failed
- Successful
- ⊕ Indeterminate
- ⊗ New site
- ⊞ Target area for new release site

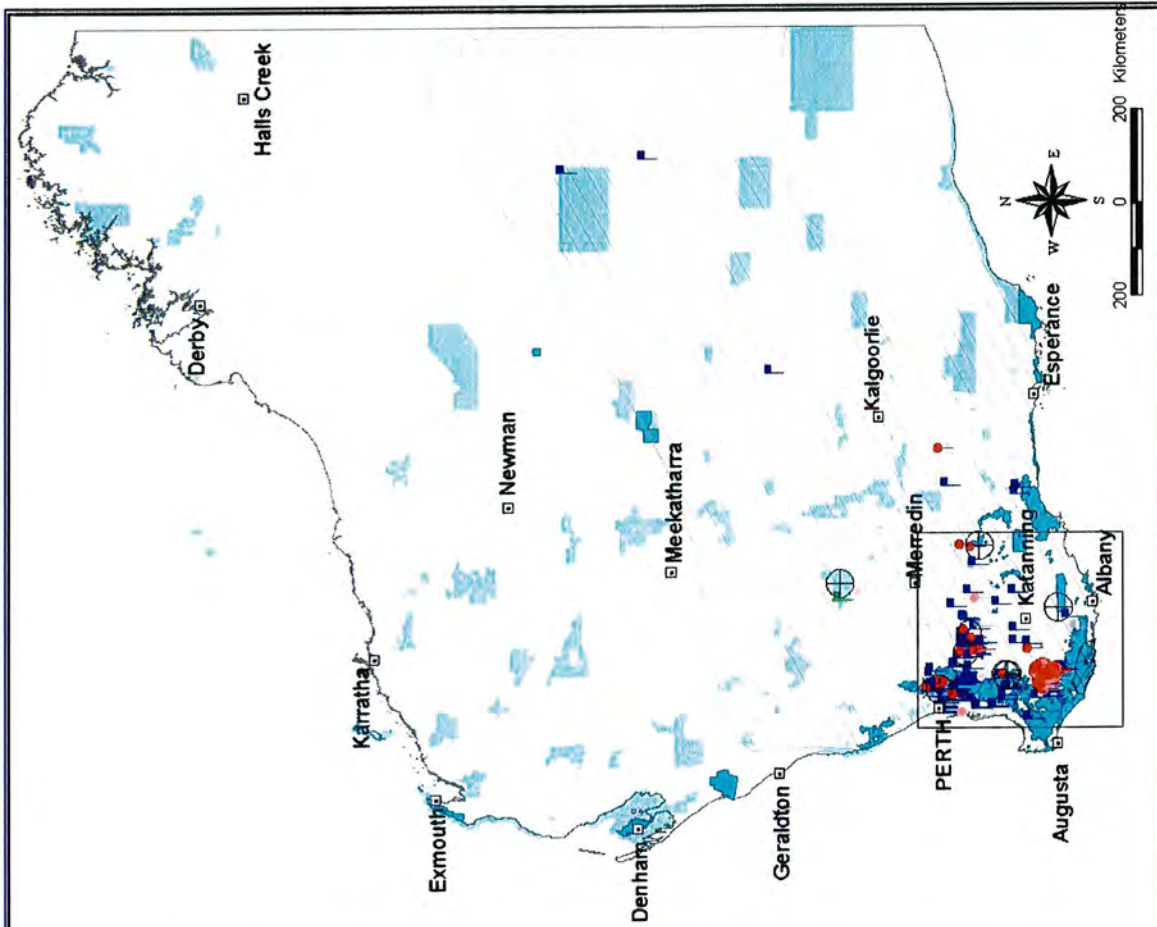
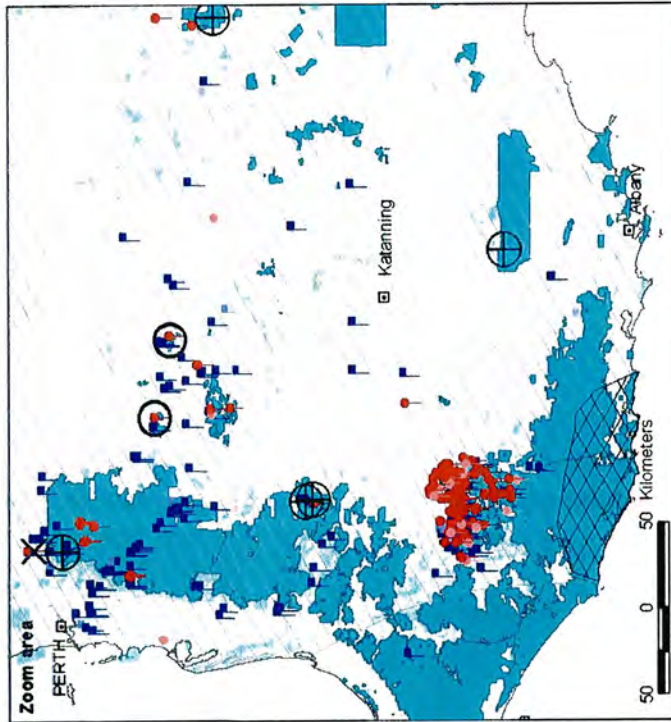
- Previous Distribution
- Baited Area
- DEC Managed Lands

Prepared by K. Manly  
(Species & Communities Branch)



July 2006

Department of  
Environment and Conservation





# Western Barred Bandicoot

*Perameles bougainville*

## Post-1996 Records

- Certain
- Moderately Certain
- Unsure

## Pre-1996 Records

- Certain
- Moderately Certain
- Unsure

## Undated Records

- Certain
- Moderately Certain
- Unsure

## Translocation Sites

- ✕ Failed
- Successful
- ⊕ Indeterminate
- ★ New site

Previous Distribution

Baited Area

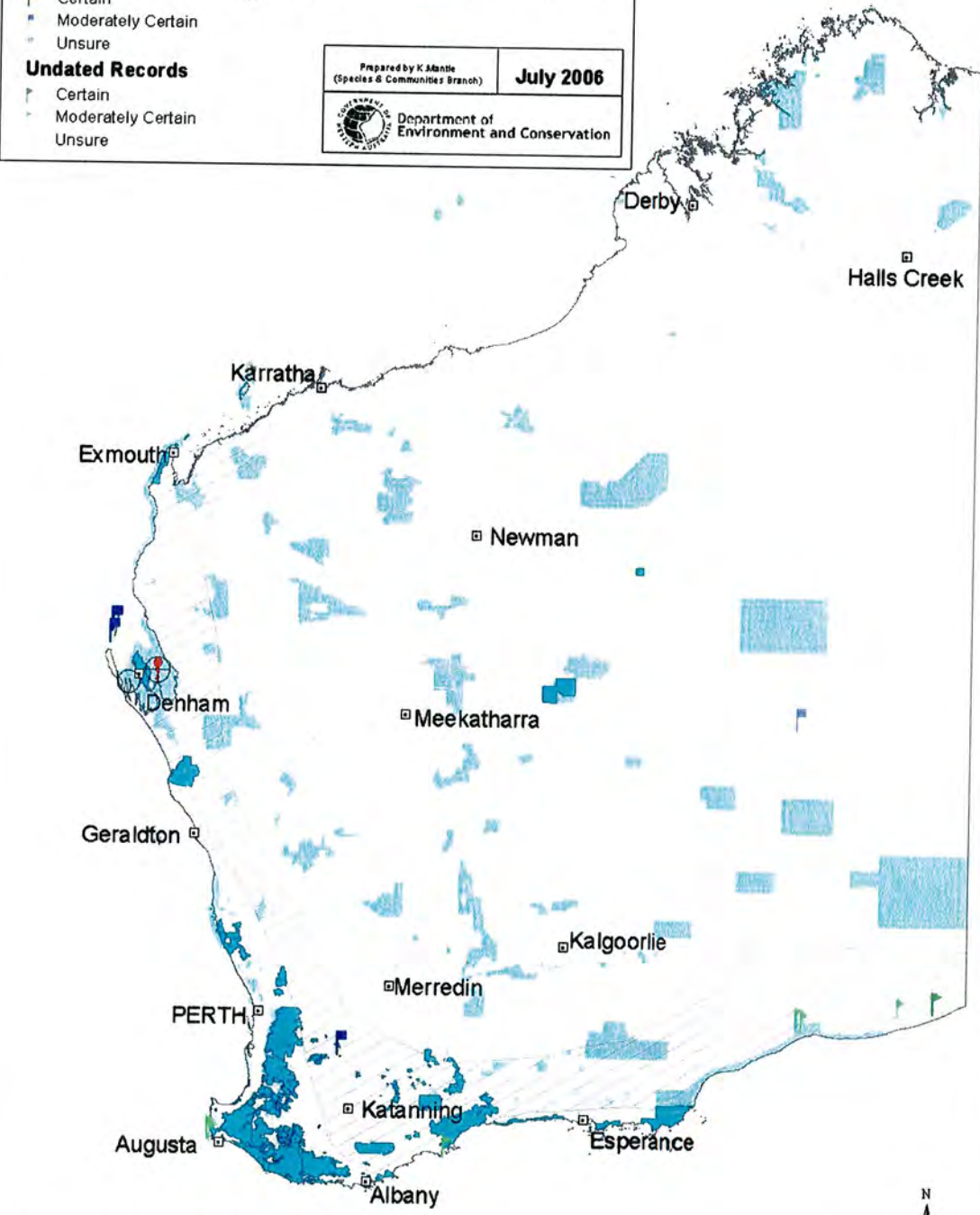
DEC Managed Lands

Prepared by K. Abante  
(Species & Communities Branch)

July 2006



Department of  
Environment and Conservation



200 0 200 400 Kilometers



# Bilby *Macrotis lagotis*

## Post-1996 Records

- ↑ Certain
- ↑ Moderately Certain
- ↑ Unsure

## Pre-1996 Records

- ▬ Certain
- ▬ Moderately Certain
- ▬ Unsure

## Undated Records

- ▬ Certain
- ▬ Moderately Certain
- ▬ Unsure

## Translocation Sites

- × Failed
- Successful
- ⊕ Indeterminate
- ★ New site

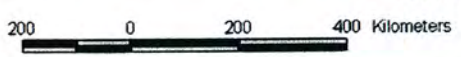
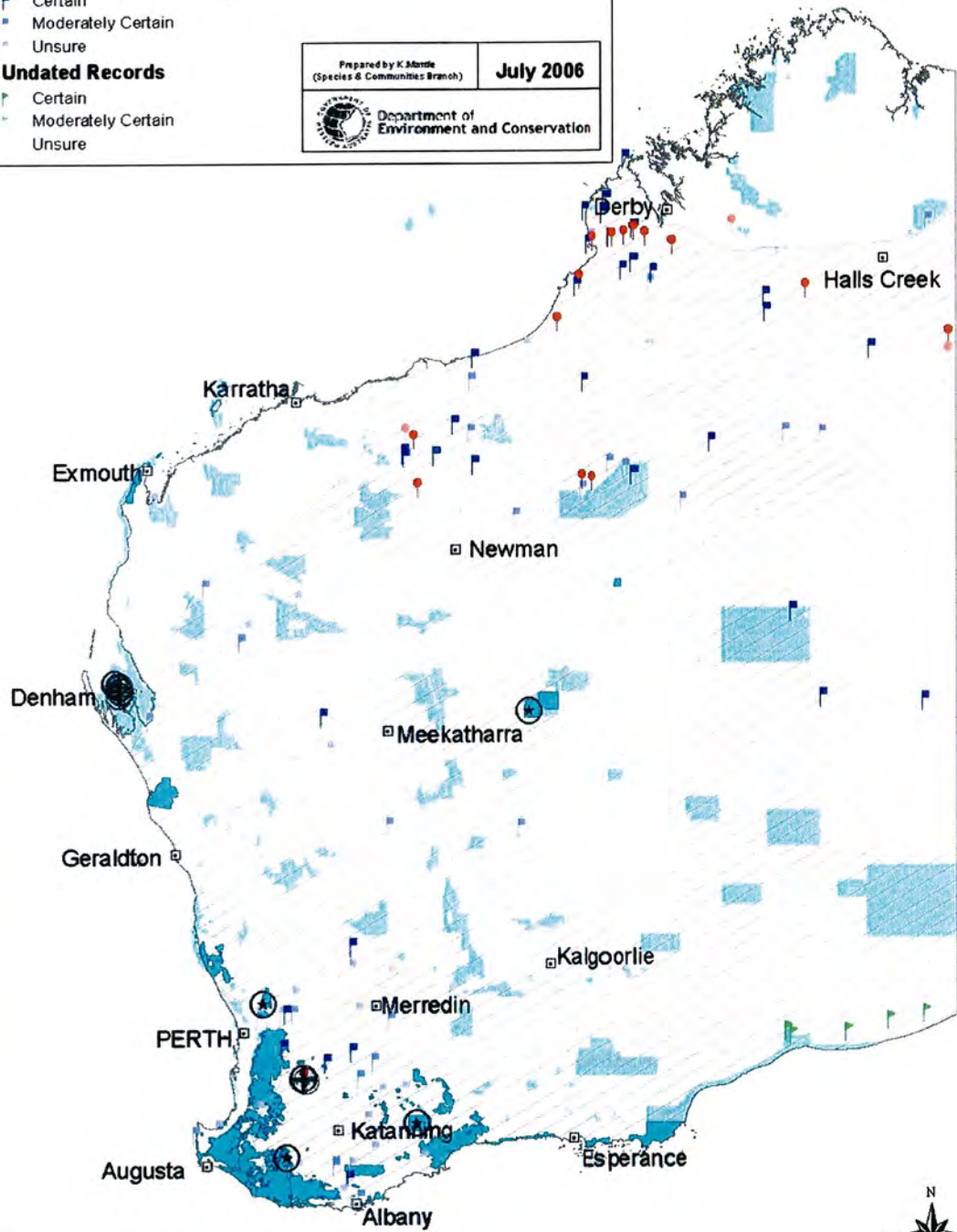
- ▨ Previous Distribution
- Baited Area
- ▨ DEC Managed Lands

Prepared by K. Abadie  
(Species & Communities Branch)

July 2006



Department of  
Environment and Conservation



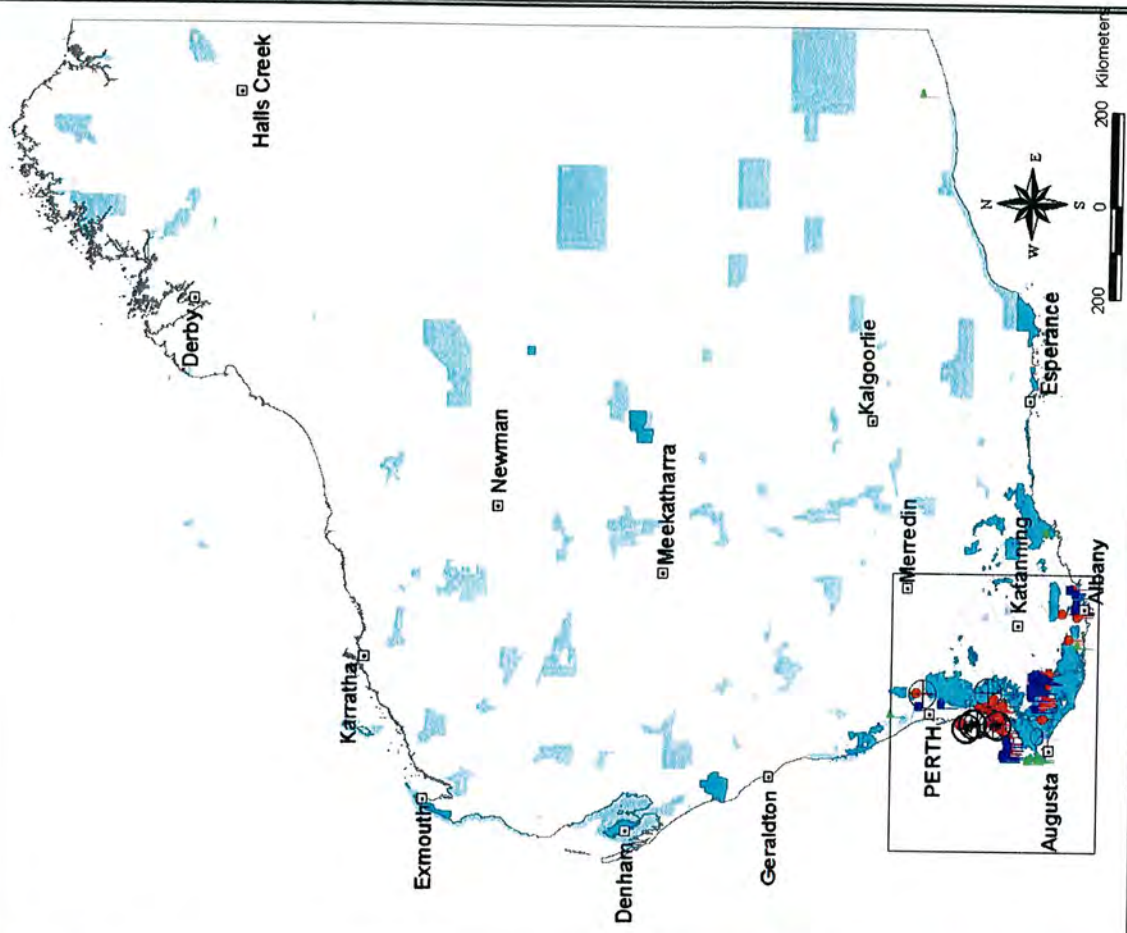
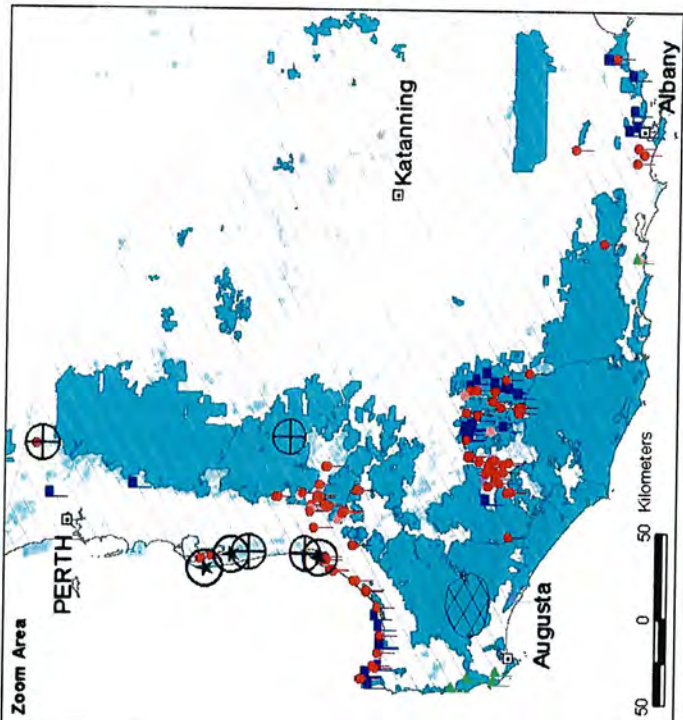
# Western Ringtail Possum *Pseudocheirus occidentalis*

<b>Post-1996 Records</b>	<b>Translocation Sites</b>	<ul style="list-style-type: none"> <li>Previous Distribution</li> <li>Baited Area</li> <li>DEC Managed Lands</li> </ul>
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>	<ul style="list-style-type: none"> <li>Failed</li> <li>Successful</li> <li>Indeterminate</li> <li>New site</li> <li>Target area for new release site</li> </ul>	
<b>Pre-1996 Records</b>		
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>		
<b>Undated Records</b>		
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>		

Prepared by K. Marnie  
(Spiders & Commensals Branch)

**July 2006**

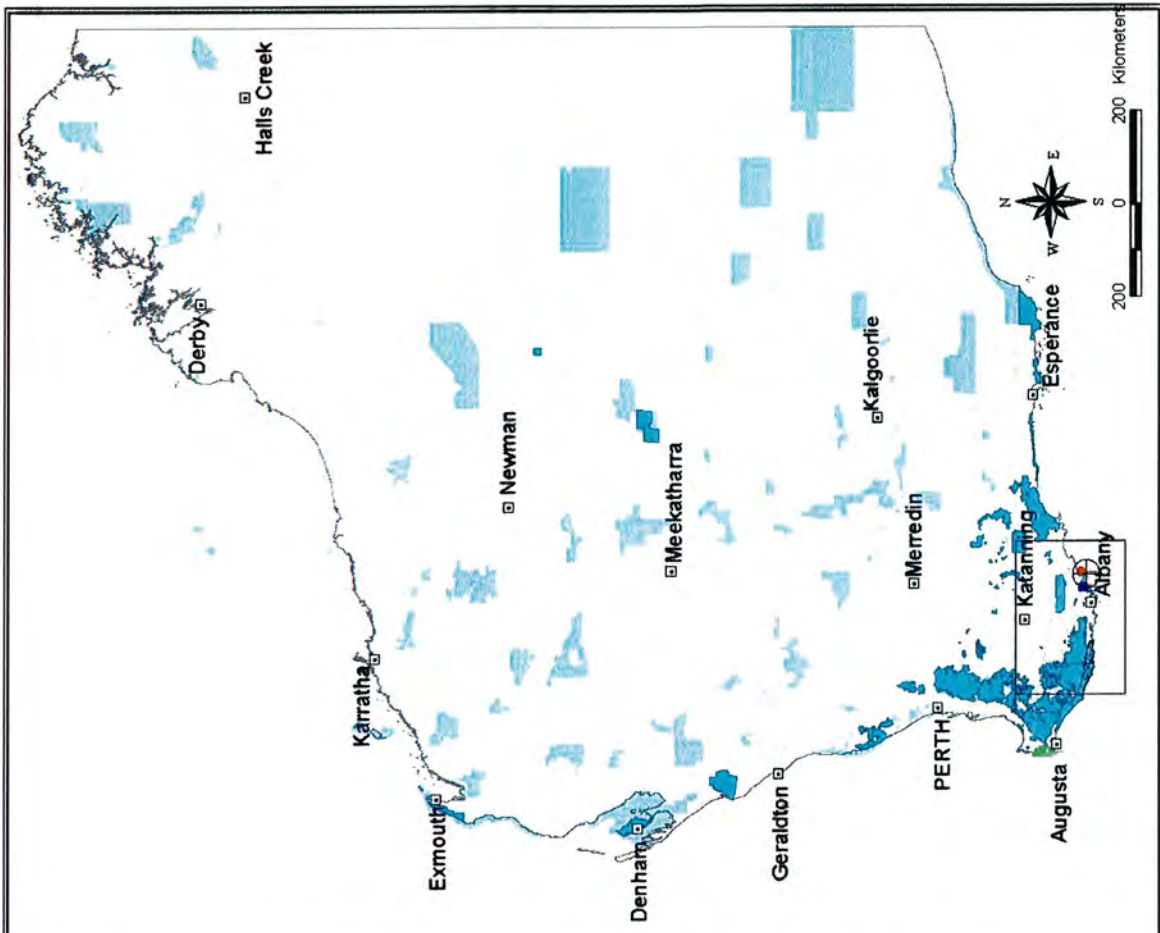
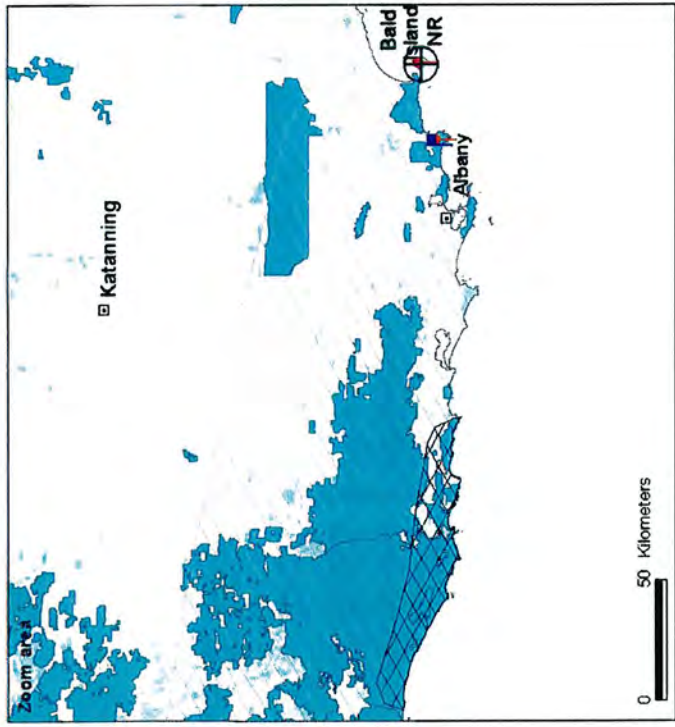
Department of  
Environment and Conservation



# Gilbert's Potoroo *Potorous gilbertii*

<b>Post-1996 Records</b>	<b>Translocation Sites</b>	<b>July 2006</b>
<ul style="list-style-type: none"> <li><span style="color: red;">●</span> Certain</li> <li><span style="color: red;">○</span> Moderately Certain</li> <li><span style="color: red;">□</span> Unsure</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; padding: 2px;">X</span> Failed</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">○</span> Successful</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">+</span> Indeterminate</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">●</span> New site</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">□</span> Target area for new release site</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; padding: 2px;">□</span> Previous Distribution</li> <li><span style="background-color: blue; border: 1px solid black; padding: 2px;">□</span> Baited Area</li> <li><span style="background-color: lightblue; border: 1px solid black; padding: 2px;">□</span> DEC Managed Lands</li> </ul>
<b>Pre-1996 Records</b>		
<ul style="list-style-type: none"> <li><span style="color: blue;">■</span> Certain</li> <li><span style="color: blue;">■</span> Moderately Certain</li> <li><span style="color: blue;">■</span> Unsure</li> </ul>		
<b>Undated Records</b>		
<ul style="list-style-type: none"> <li><span style="color: green;">■</span> Certain</li> <li><span style="color: green;">■</span> Moderately Certain</li> <li><span style="color: green;">■</span> Unsure</li> </ul>		

Prepared by K. Menke (Species & Communities Branch)  
 Department of Environment and Conservation



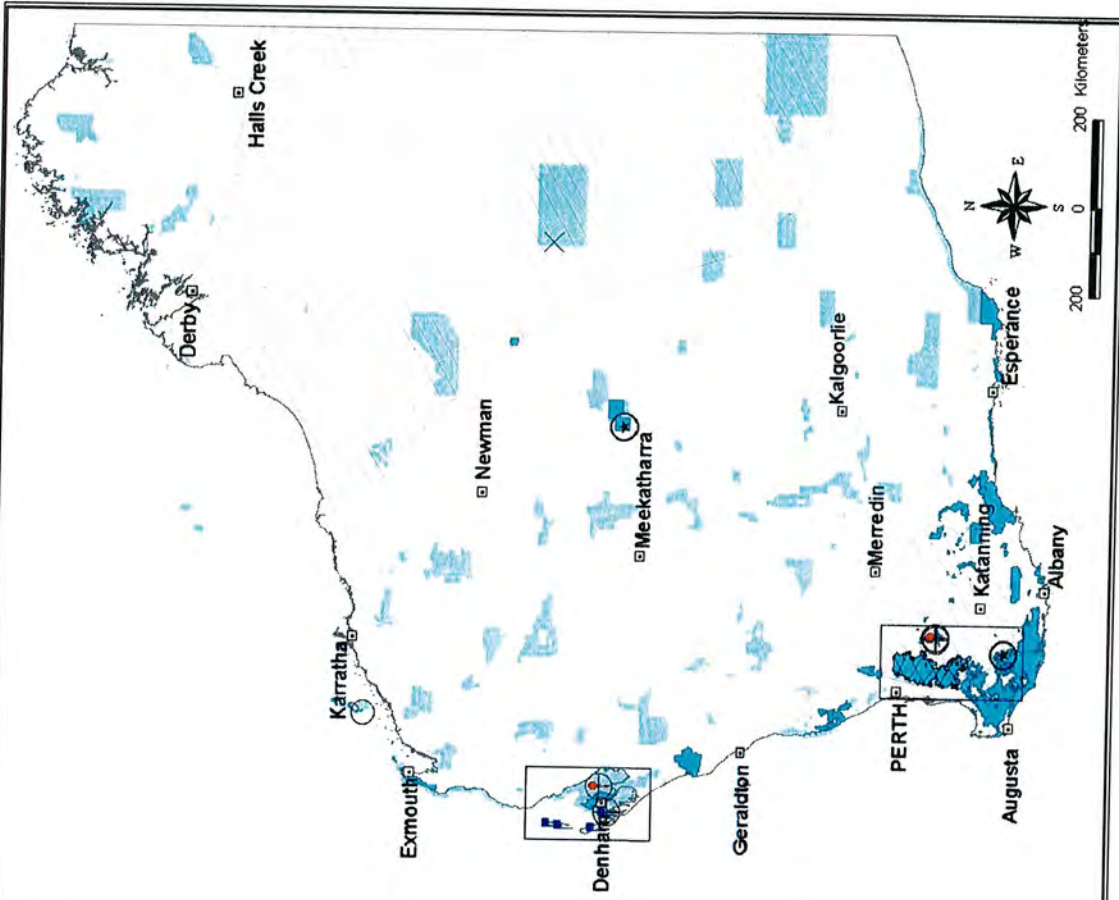
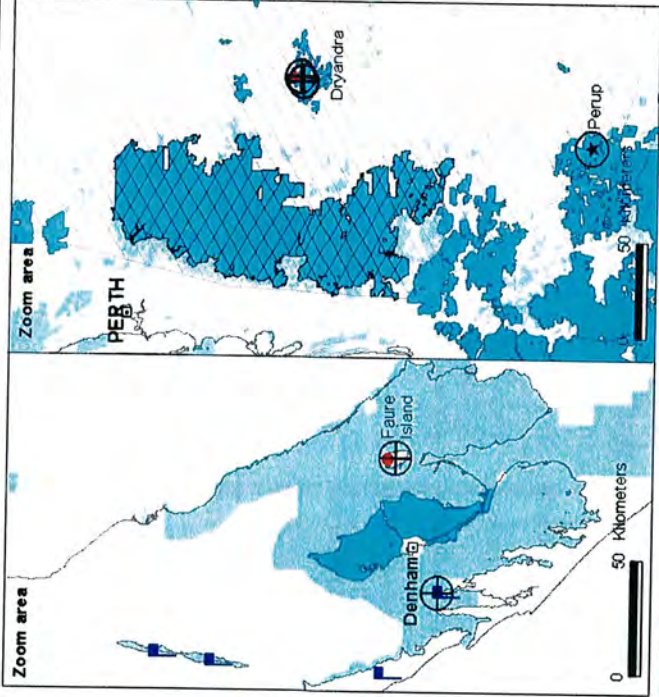
# Boodie *Bettongia lesueur*

<p><b>Post-1996 Records</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">●</span> Certain</li> <li><span style="color: orange;">●</span> Moderately Certain</li> <li><span style="color: yellow;">●</span> Unsure</li> </ul> <p><b>Pre-1996 Records</b></p> <ul style="list-style-type: none"> <li><span style="color: blue;">■</span> Certain</li> <li><span style="color: lightblue;">■</span> Moderately Certain</li> <li><span style="color: cyan;">■</span> Unsure</li> </ul> <p><b>Undated Records</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">■</span> Certain</li> <li><span style="color: lightgreen;">■</span> Moderately Certain</li> <li><span style="color: limegreen;">■</span> Unsure</li> </ul>	<p><b>Translocation Sites</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">✕</span> Failed</li> <li><span style="color: green;">○</span> Successful</li> <li><span style="color: yellow;">⊕</span> Indeterminate</li> <li><span style="color: blue;">⊕</span> New site</li> <li><span style="color: blue;">⊗</span> Target area for new release site</li> </ul>	<p>Previous Distribution</p> <p><span style="color: blue;">■</span> Baited Area</p> <p><span style="color: lightblue;">■</span> DEC Managed Lands</p>
--	---	---

Prepared by K. Meade  
(Species & Communities Branch)

**July 2006**

Department of  
Environment and Conservation



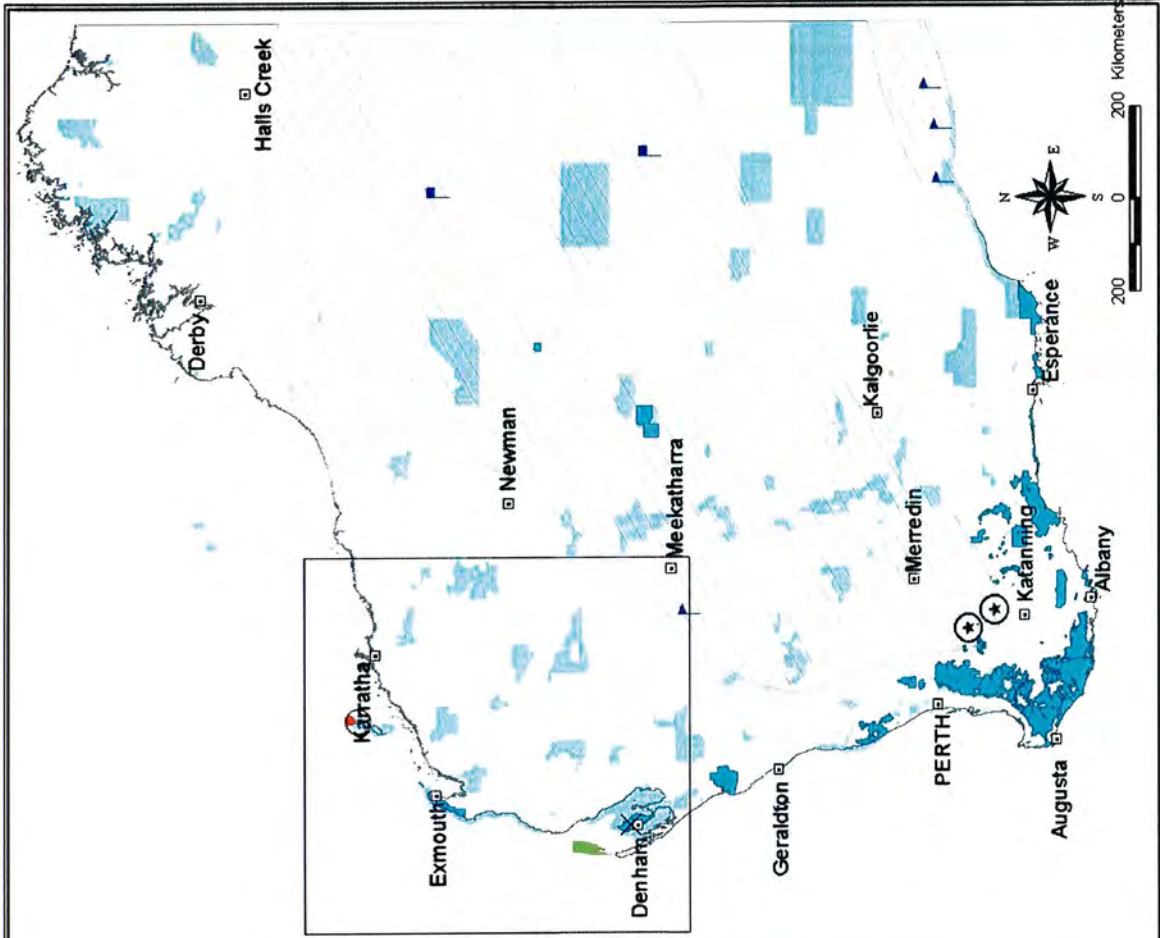
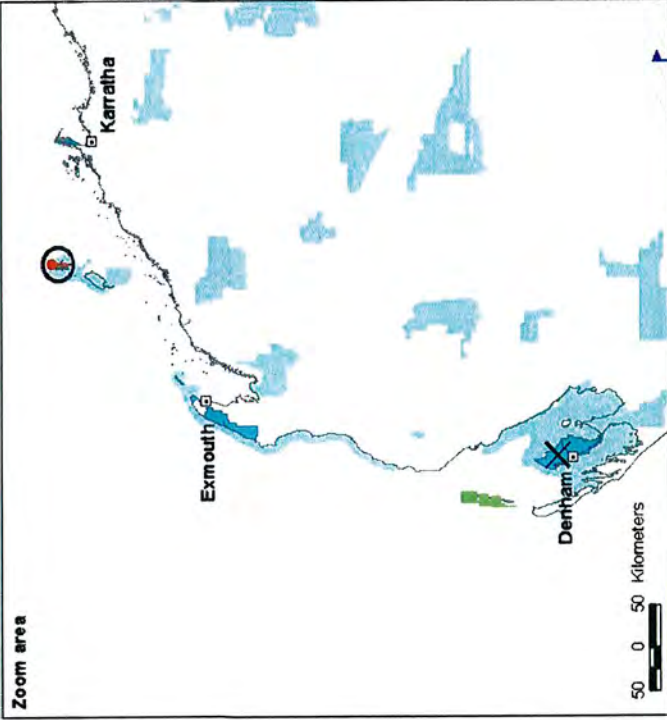
# Rufous Hare-wallaby *Lagorchestes hirsutus*

<b>Post-1996 Records</b>	<b>Translocation Sites</b>	<ul style="list-style-type: none"> <li>Previous Distribution</li> <li>Baited Area</li> <li>DEC Managed Lands</li> </ul>
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>	<ul style="list-style-type: none"> <li>Failed</li> <li>Successful</li> <li>Indeterminate</li> <li>New site</li> </ul>	
<b>Pre-1996 Records</b>		
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>		
<b>Undated Records</b>		
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>		

Prepared by K. Harris  
(Species & Communities Branch)

**July 2006**

Department of  
Environment and Conservation



# Banded Hare-wallaby

*Lagostrophus fasciatus fasciatus*

## Post-1996 Records

- Certain
- Moderately Certain
- Unsure

## Pre-1996 Records

- Certain
- ◻ Moderately Certain
- Unsure

## Undated Records


- ▲ Certain
- Moderately Certain
- Unsure

## Translocation Sites

- ✗ Failed
- Successful
- ⊕ Indeterminate
- ⊕ New site
- Previous Distribution
- Baited Area
- DEC Managed Lands

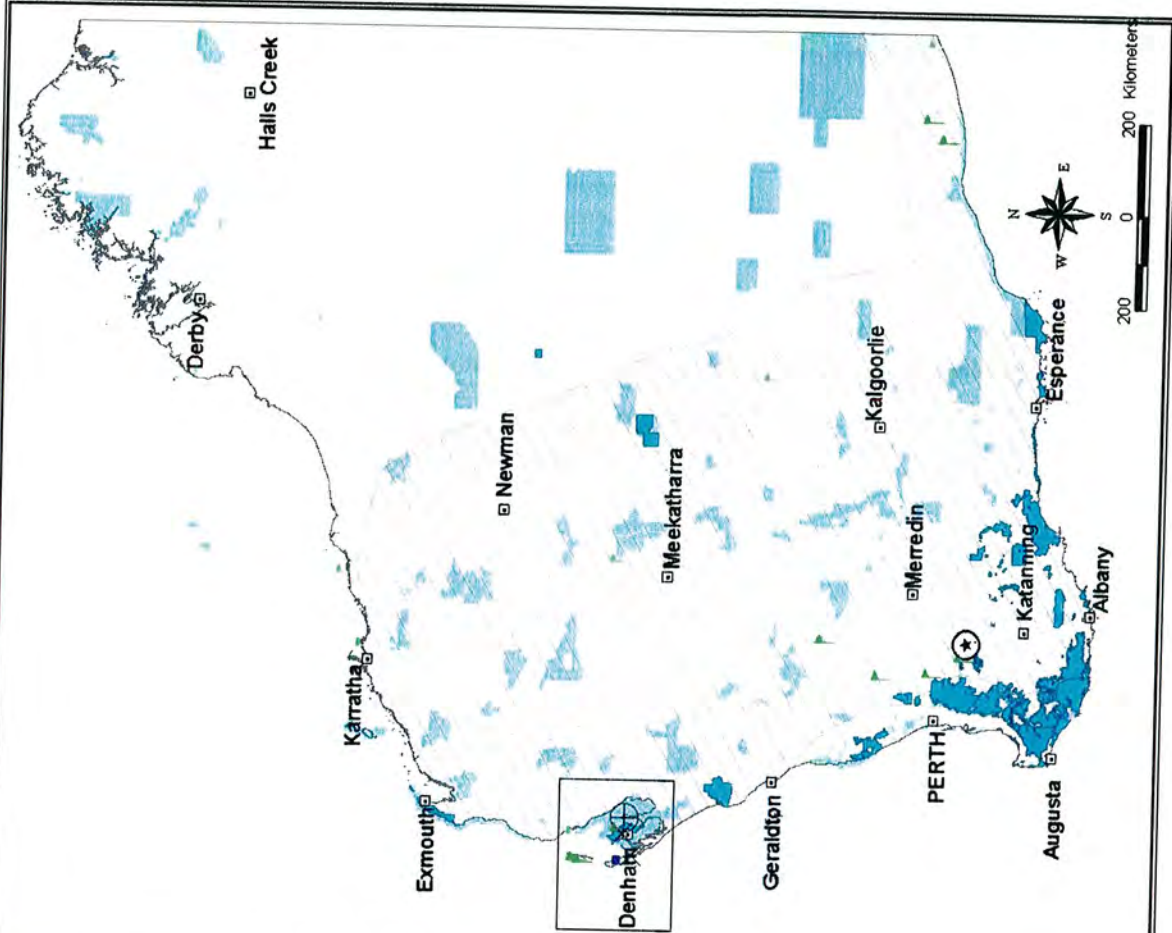
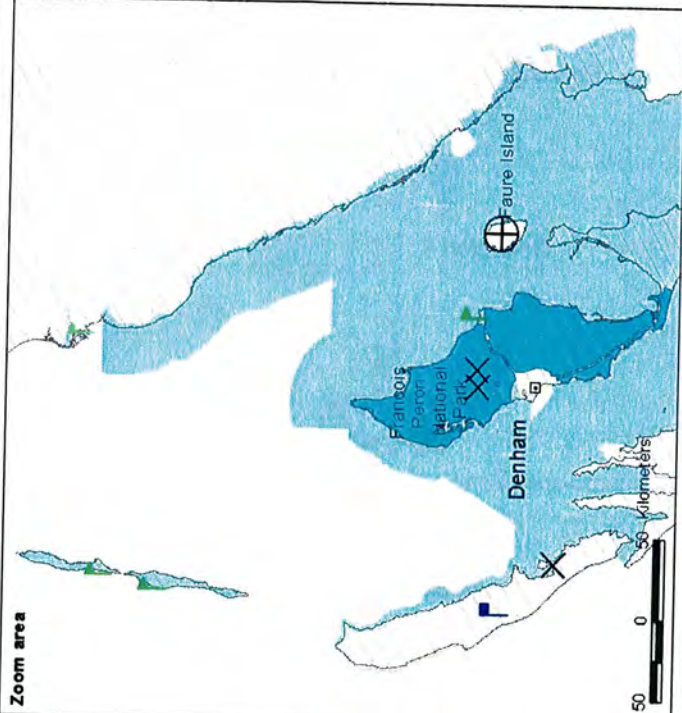
July 2006

Prepared by K. Mennie  
(Species & Communities Branch)



Department of  
Environment and Conservation

Zoom area

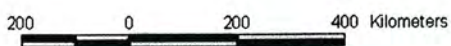
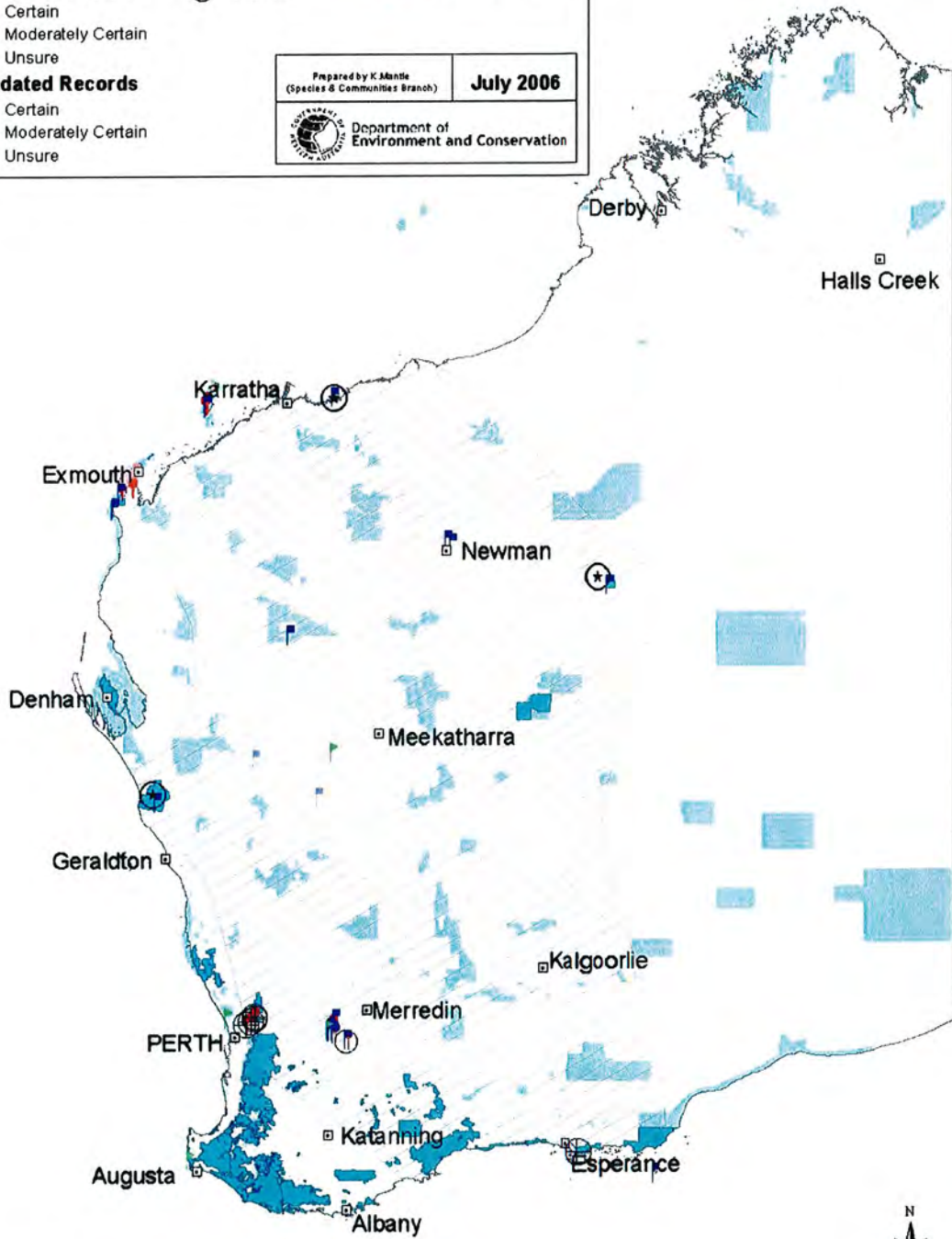


## Black-flanked Rock-wallaby *Petrogale lateralis lateralis*

<p><b>Post-1996 Records</b></p> <ul style="list-style-type: none"> <li>↑ Certain</li> <li>↑ Moderately Certain</li> <li>○ Unsure</li> </ul> <p><b>Pre-1996 Records</b></p> <ul style="list-style-type: none"> <li>▣ Certain</li> <li>▣ Moderately Certain</li> <li>▣ Unsure</li> </ul> <p><b>Undated Records</b></p> <ul style="list-style-type: none"> <li>▣ Certain</li> <li>▣ Moderately Certain</li> <li>▣ Unsure</li> </ul>	<p><b>Translocation Sites</b></p> <ul style="list-style-type: none"> <li>× Failed</li> <li>○ Successful</li> <li>⊕ Indeterminate</li> <li>★ New site</li> </ul>	<ul style="list-style-type: none"> <li>▨ Previous Distribution</li> <li>■ Baited Area</li> <li>▨ DEC Managed Lands</li> </ul>
--	---	---

Prepared by K. Mantle  
(Species & Communities Branch)      **July 2006**

Department of Environment and Conservation






# Quokka *Setonix brachyurus*

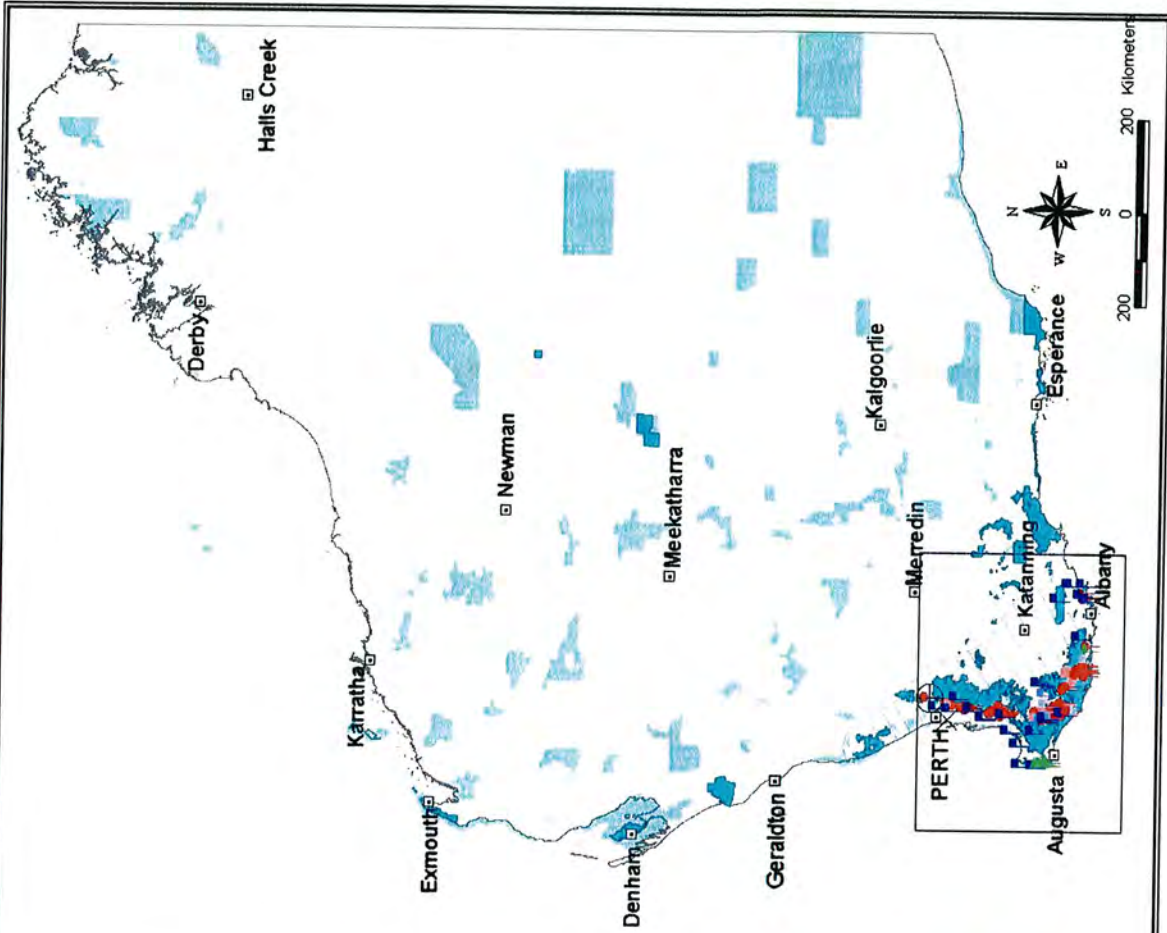
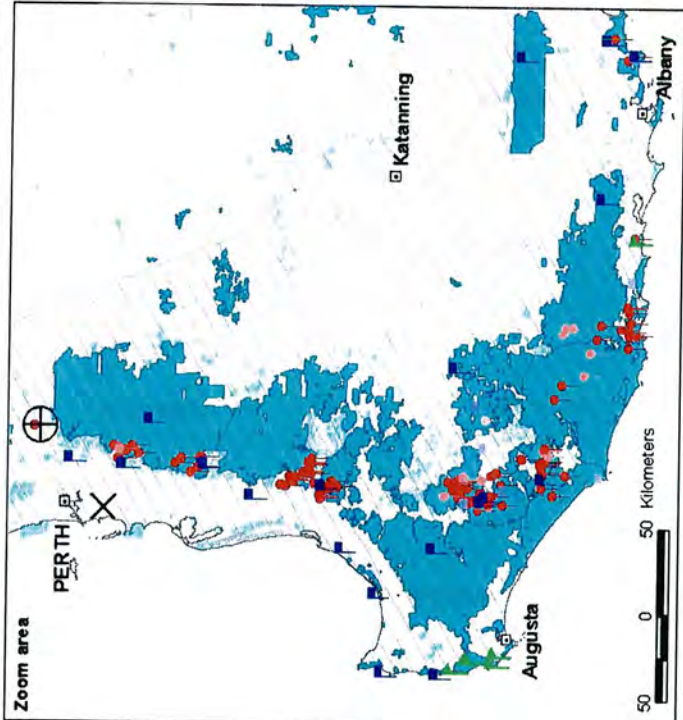
<b>Post-1996 Records</b>	<b>Translocation Sites</b>
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>	<ul style="list-style-type: none"> <li>Failed</li> <li>Successful</li> <li>Indeterminate</li> <li>New site</li> </ul>
<b>Pre-1996 Records</b>	
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>	
<b>Undated Records</b>	
<ul style="list-style-type: none"> <li>Certain</li> <li>Moderately Certain</li> <li>Unsure</li> </ul>	

<ul style="list-style-type: none"> <li>Previous Distribution</li> <li>Baited Area</li> <li>DEC Managed Lands</li> </ul>
---

Prepared by K. Manik (Species & Communities Branch)	<b>July 2006</b>
 Department of Environment and Conservation	



# Shark Bay Mouse *Pseudomys fieldi*

## Post-1996 Records

- ↑ Certain
- ↑ Moderately Certain
- ↑ Unsure

## Pre-1996 Records

- ▬ Certain
- ▬ Moderately Certain
- ▬ Unsure

## Undated Records

- ▬ Certain
- ▬ Moderately Certain
- ▬ Unsure

## Translocation Sites

- × Failed
- Successful
- ⊕ Indeterminate
- ⊛ New site

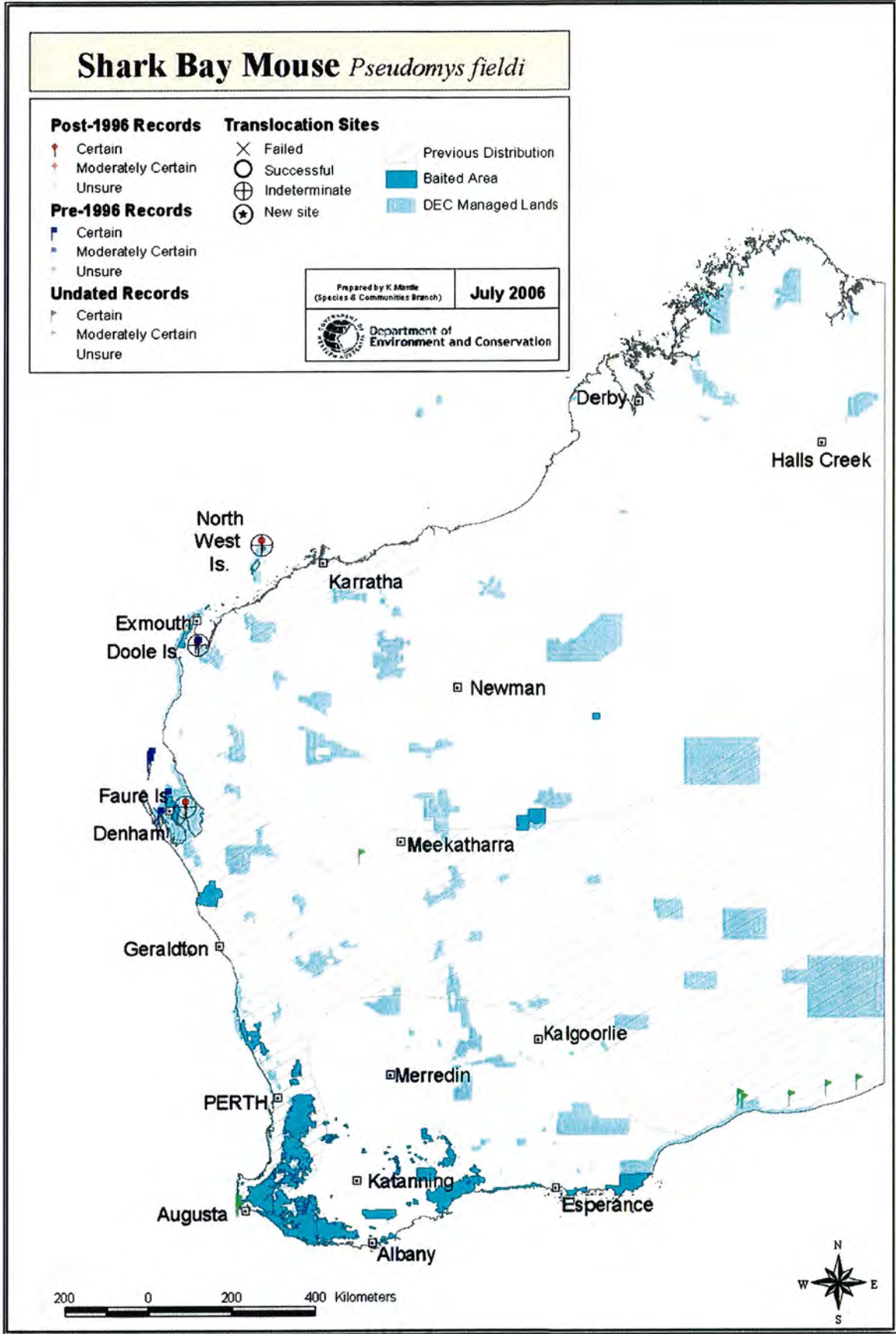
- Previous Distribution
- Baited Area
- DEC Managed Lands

Prepared by K. Abrie  
(Species & Communities Branch)

July 2006






Department of  
Environment and Conservation






# Heath Mouse *Pseudomys shortridgei*




## Post-1996 Records




-  Certain
-  Moderately Certain
-  Unsure

## Pre-1996 Records

-  Certain
-  Moderately Certain
-  Unsure

## Undated Records

-  Certain
-  Moderately Certain
-  Unsure

-  Previous Distribution
-  Baited Area
-  DEC Managed Lands

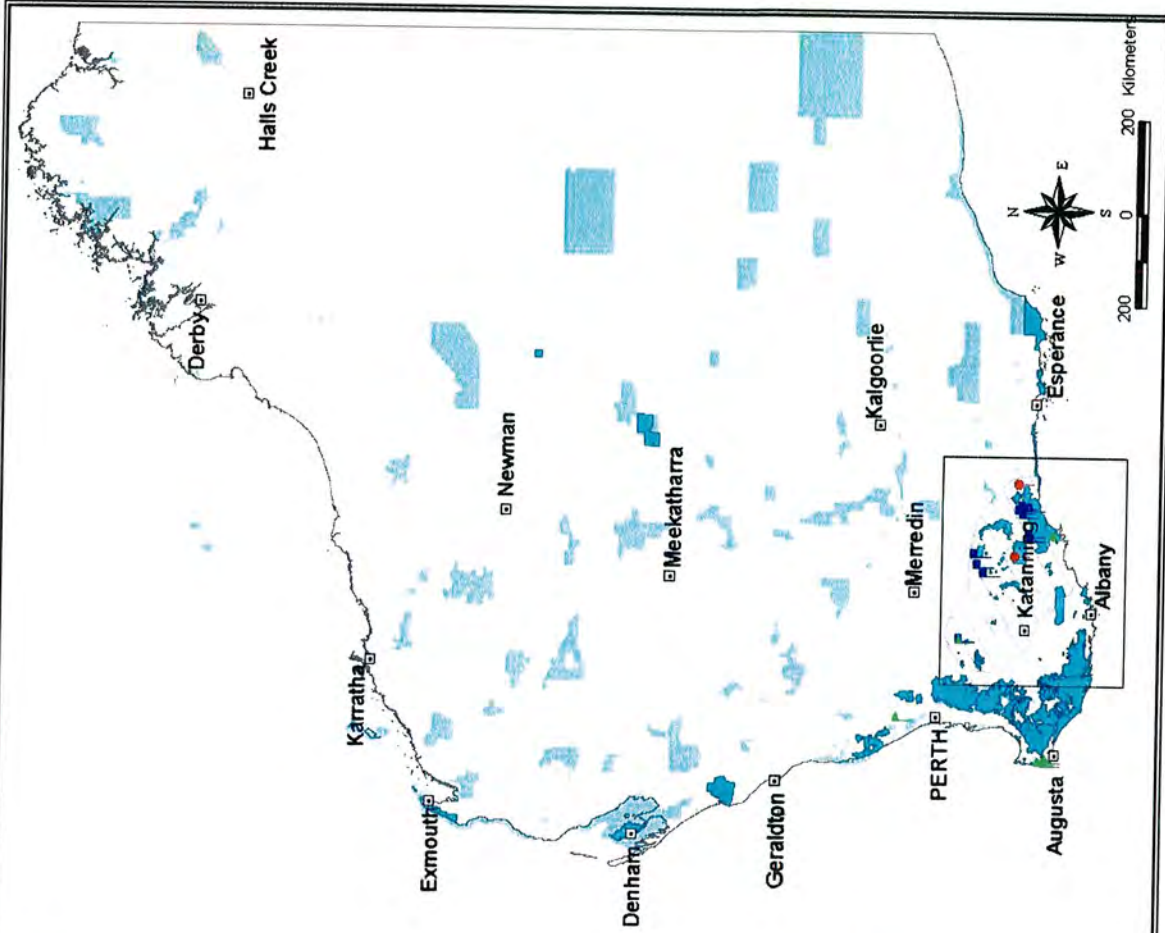
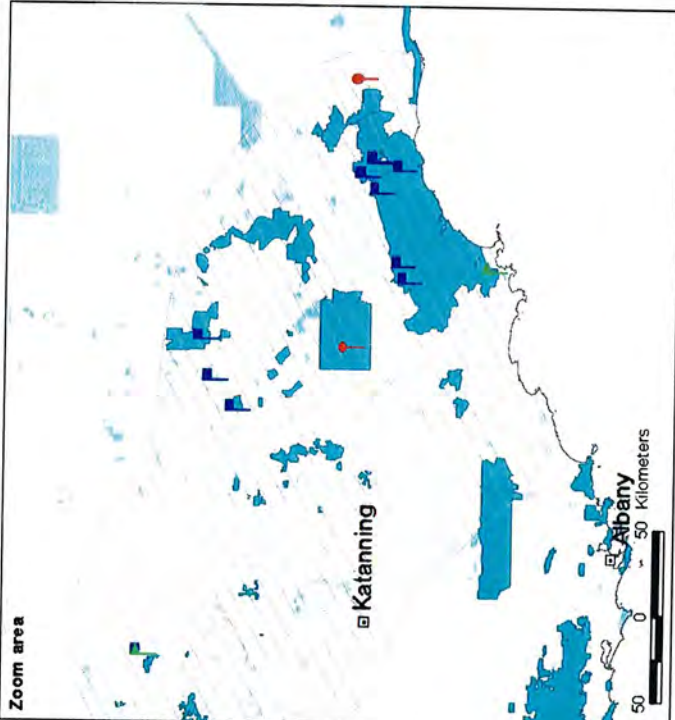
July 2006

Prepared by K. Mantle  
(Species & Communities Branch)



Department of  
Environment and Conservation

Zoom area




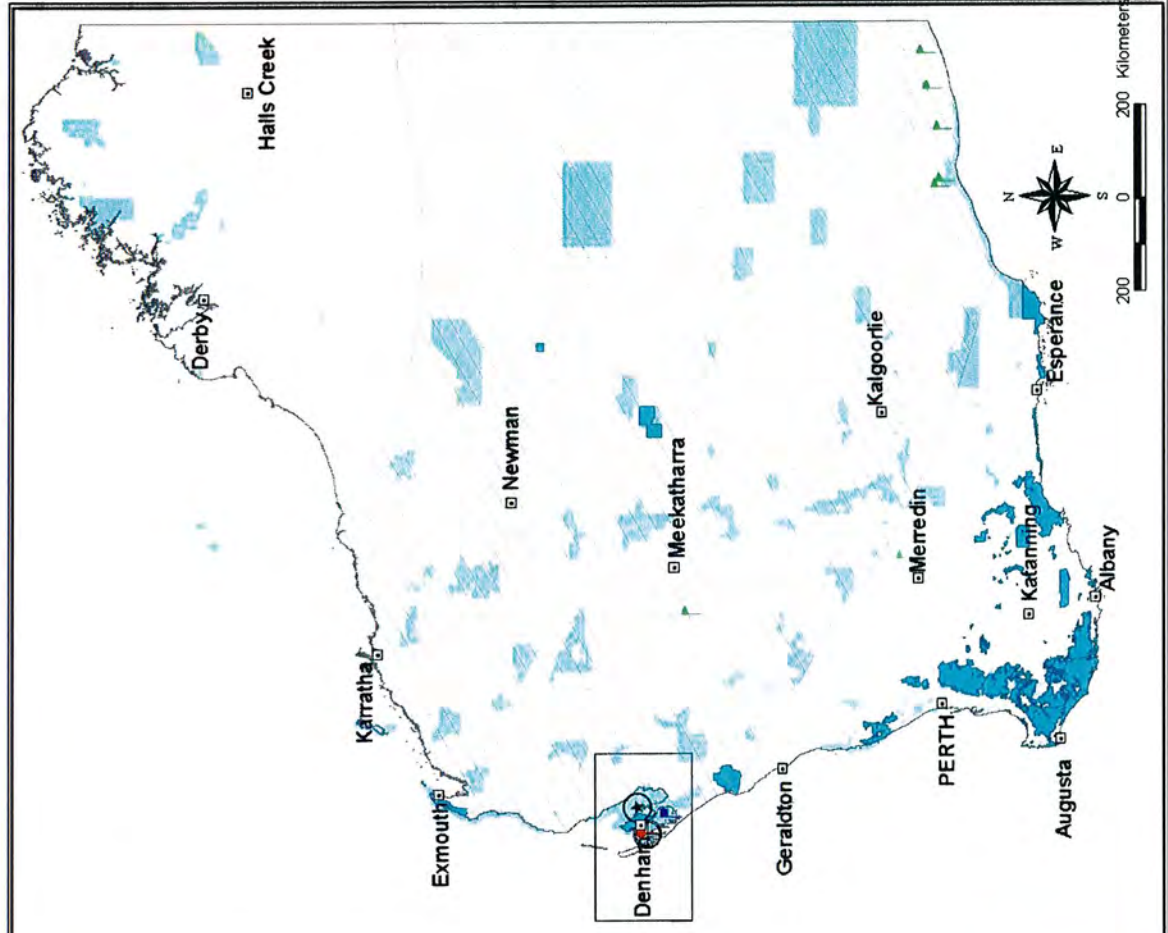
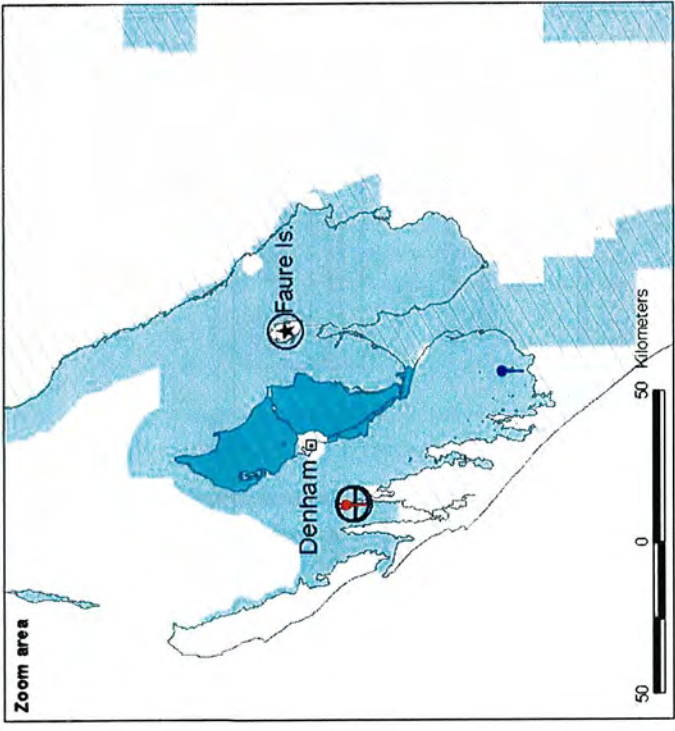
# Greater Stick-nest Rat *Leporillus conditor*

<p><b>Post-1996 Records</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">▲</span> Certain</li> <li><span style="color: red;">●</span> Moderately Certain</li> <li><span style="color: red;">○</span> Unsure</li> </ul> <p><b>Pre-1996 Records</b></p> <ul style="list-style-type: none"> <li><span style="color: blue;">▲</span> Certain</li> <li><span style="color: blue;">●</span> Moderately Certain</li> <li><span style="color: blue;">○</span> Unsure</li> </ul> <p><b>Undated Records</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">▲</span> Certain</li> <li><span style="color: green;">●</span> Moderately Certain</li> <li><span style="color: green;">○</span> Unsure</li> </ul>	<p><b>Translocation Sites</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">✕</span> Failed</li> <li><span style="color: red;">○</span> Successful</li> <li><span style="color: red;">⊕</span> Indeterminate</li> <li><span style="color: red;">⊗</span> New site</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Previous Distribution</li> <li><span style="background-color: blue; width: 10px; height: 10px;"></span> Baited Area</li> <li><span style="background-color: lightblue; width: 10px; height: 10px;"></span> DEC Managed Lands</li> </ul>
--	---	---

Prepared by K. Mannik  
(Species & Communities Branch)

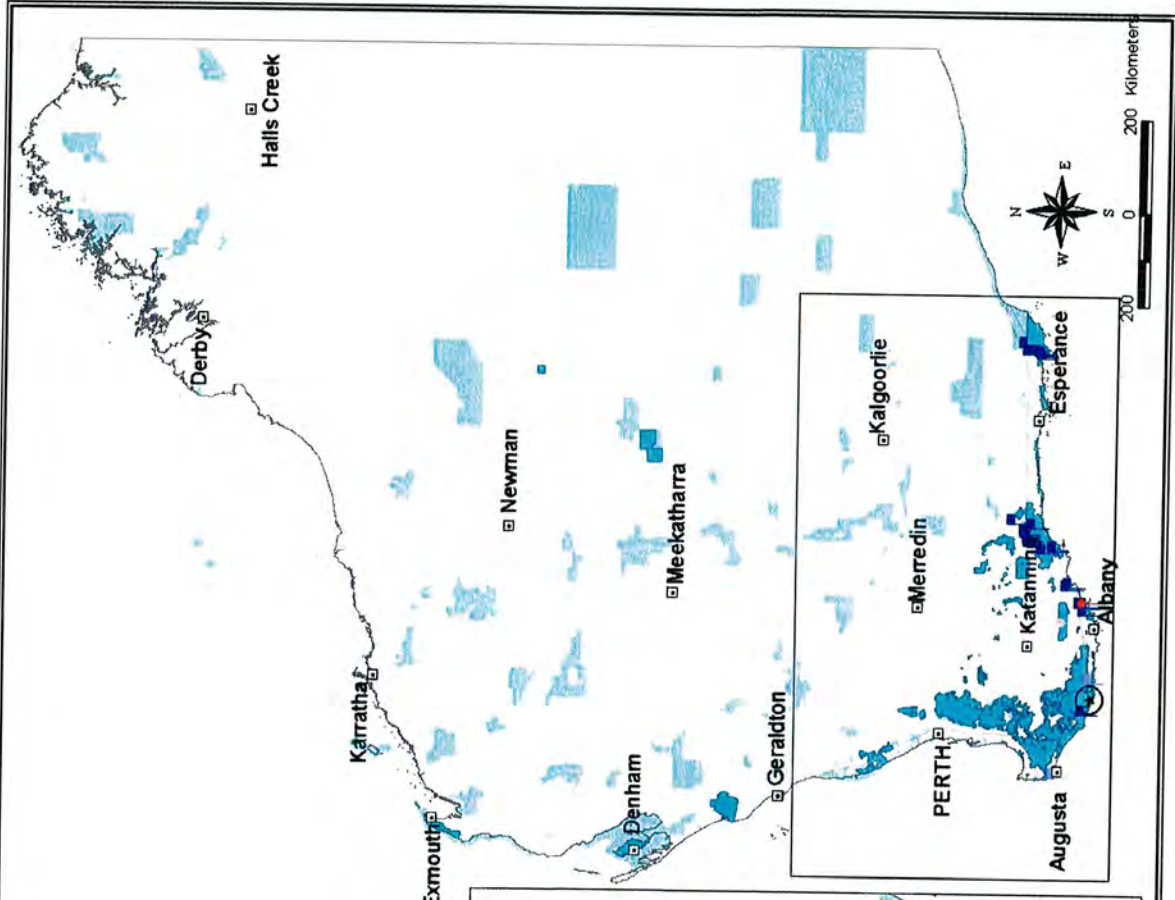
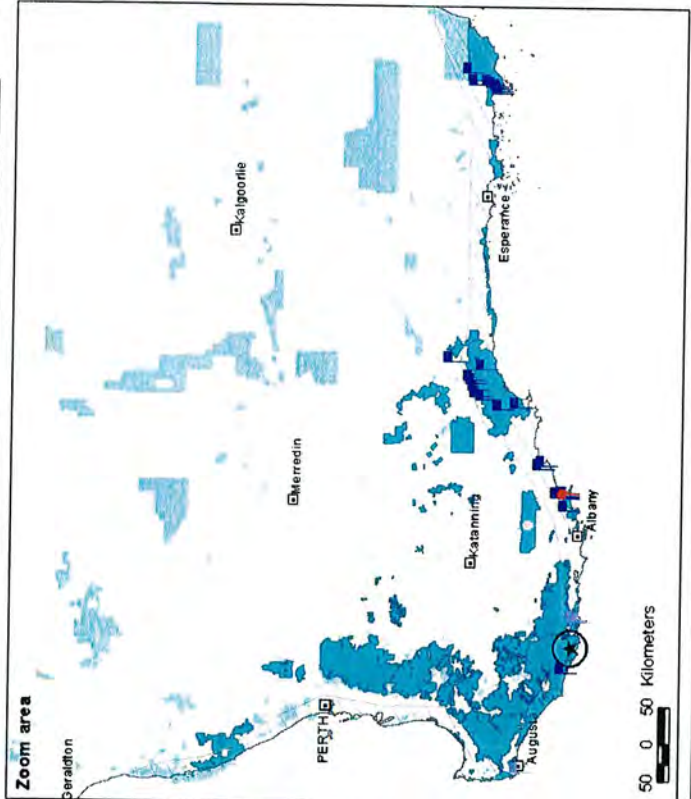
**July 2006**

Department of  
Environment and Conservation

# Western Ground Parrot *Pezoporus wallicus flaviventris*

<b>Post-1996 Records</b>	<b>Translocation Sites</b>
<ul style="list-style-type: none"> <li>↑ Certain</li> <li>↑ Moderately Certain</li> <li>↑ Unsure</li> </ul>	<ul style="list-style-type: none"> <li>× Failed</li> <li>○ Successful</li> <li>⊕ Indeterminate</li> <li>⊙ New site</li> </ul>
<b>Pre-1996 Records</b>	
<ul style="list-style-type: none"> <li>▬ Certain</li> <li>▬ Moderately Certain</li> <li>▬ Unsure</li> </ul>	
<b>Undated Records</b>	
<ul style="list-style-type: none"> <li>▬ Certain</li> <li>▬ Moderately Certain</li> <li>▬ Unsure</li> </ul>	
<p>Prepared by K. Martin (Species &amp; Communities Branch)</p>  <p><b>July 2006</b> Department of Environment and Conservation</p>	



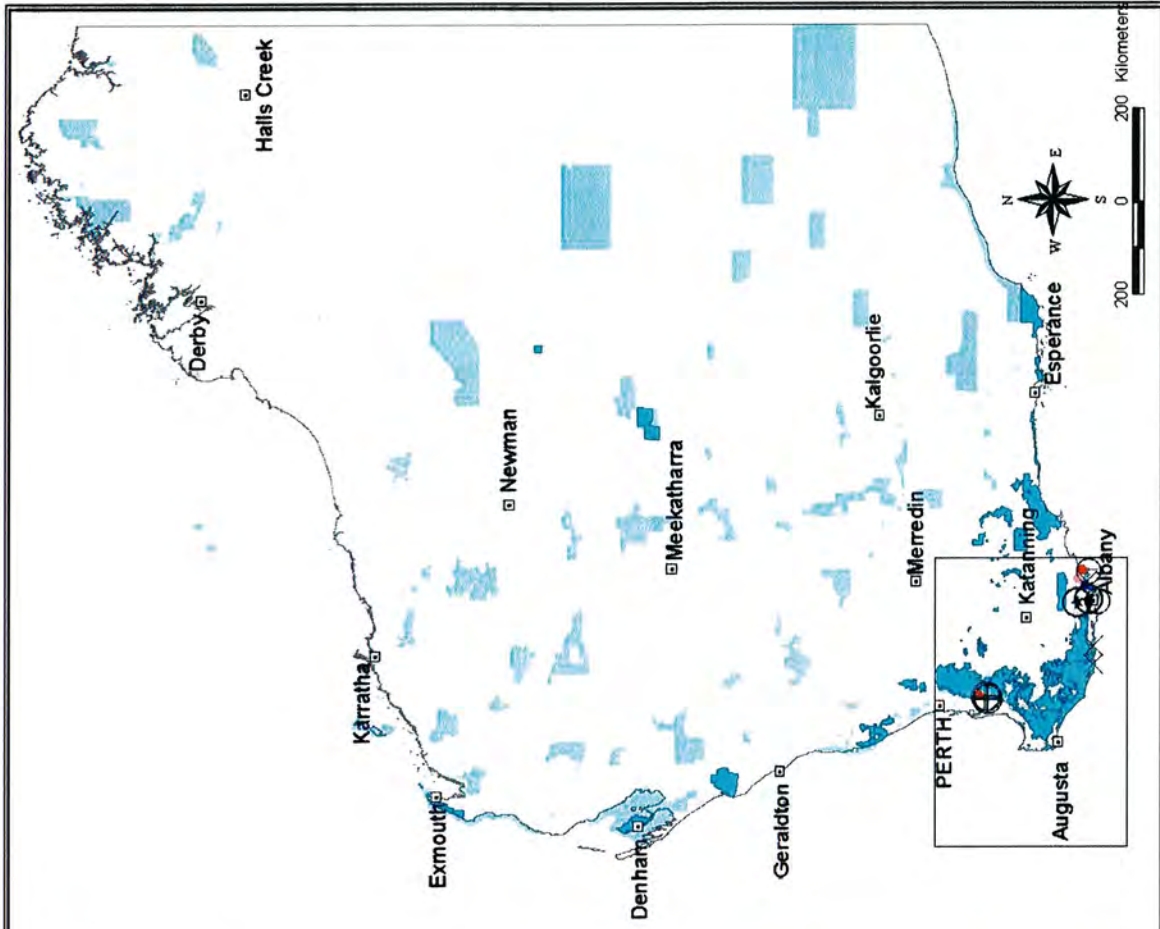
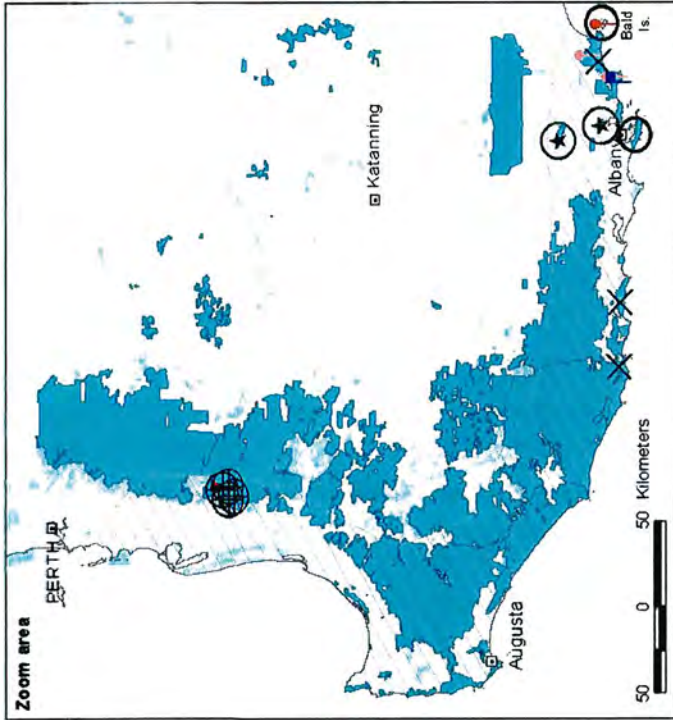
# Noisy Scrub-bird *Trichornis clamosus*

<b>Post-1996 Records</b>	<b>Translocation Sites</b>	Previous Distribution
Certain	Failed	Baited Area
Moderately Certain	Successful	DEC Managed Lands
Unsure	Indeterminate	
<b>Pre-1996 Records</b>	New site	
Certain		
Moderately Certain		
Unsure		
<b>Undated Records</b>		
Certain		
Moderately Certain		
Unsure		

Prepared by F. Munk  
(Species & Communities Branch)

**July 2006**

Department of  
Environment and Conservation



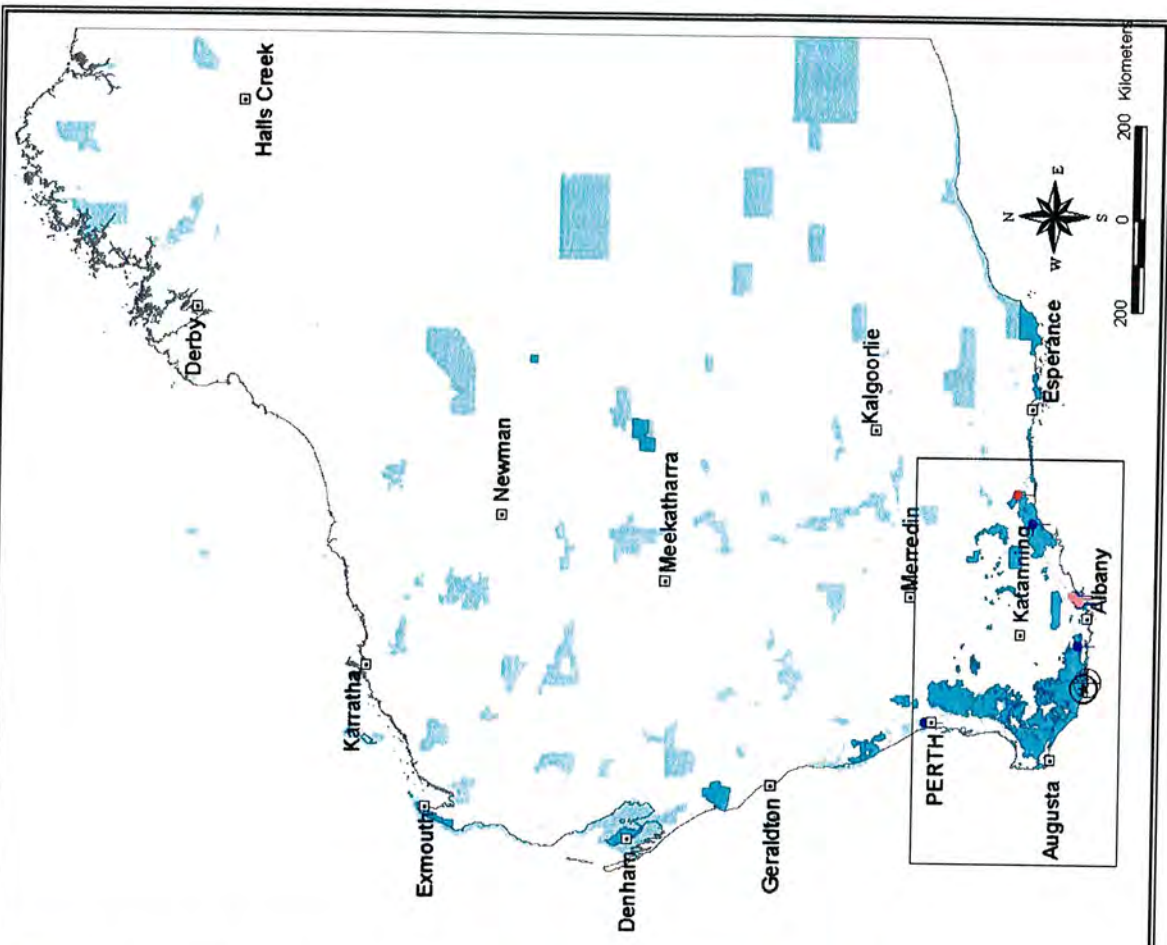
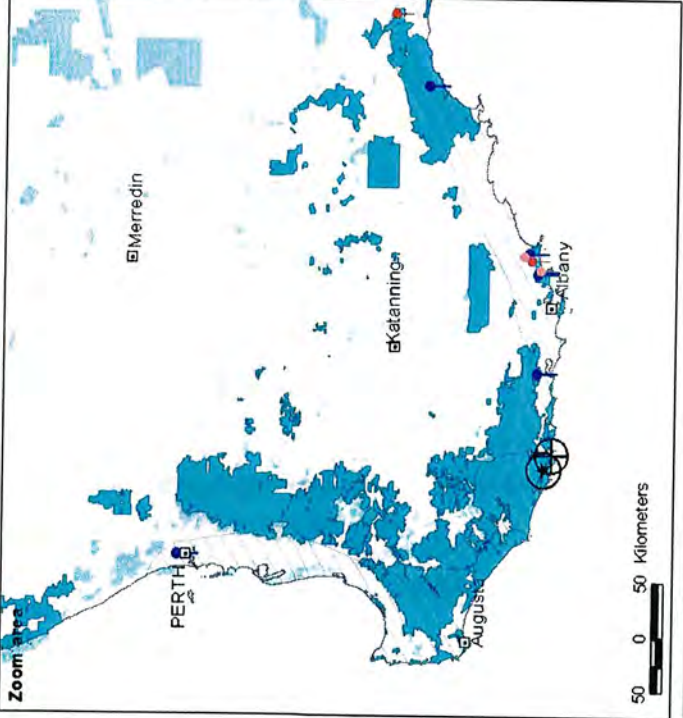
# Western Bristlebird *Dasyornis longirostris*

<b>Post-1996 Records</b>	<b>Translocation Sites</b>	<ul style="list-style-type: none"> <li>○ Previous Distribution</li> <li>■ Baited Area</li> <li>■ DEC Managed Lands</li> </ul>
<ul style="list-style-type: none"> <li>● Certain</li> <li>○ Moderately Certain</li> <li>○ Unsure</li> </ul>	<ul style="list-style-type: none"> <li>× Failed</li> <li>○ Successful</li> <li>⊕ Indeterminate</li> <li>⊕ New site</li> </ul>	
<b>Pre-1996 Records</b>		
<ul style="list-style-type: none"> <li>● Certain</li> <li>○ Moderately Certain</li> <li>○ Unsure</li> </ul>		
<b>Undated Records</b>		
<ul style="list-style-type: none"> <li>● Certain</li> <li>○ Moderately Certain</li> <li>○ Unsure</li> </ul>		

Prepared: K. Marks  
(Species & Communities Branch)

**July 2006**

Department of  
Environment and Conservation



# Malleefowl *Leipoa ocellata*

## Post-1996 Records

- ↑ Certain
- ↑ Moderately Certain
- Unsure

## Pre-1996 Records

- Certain
- Moderately Certain
- Unsure


## Undated Records

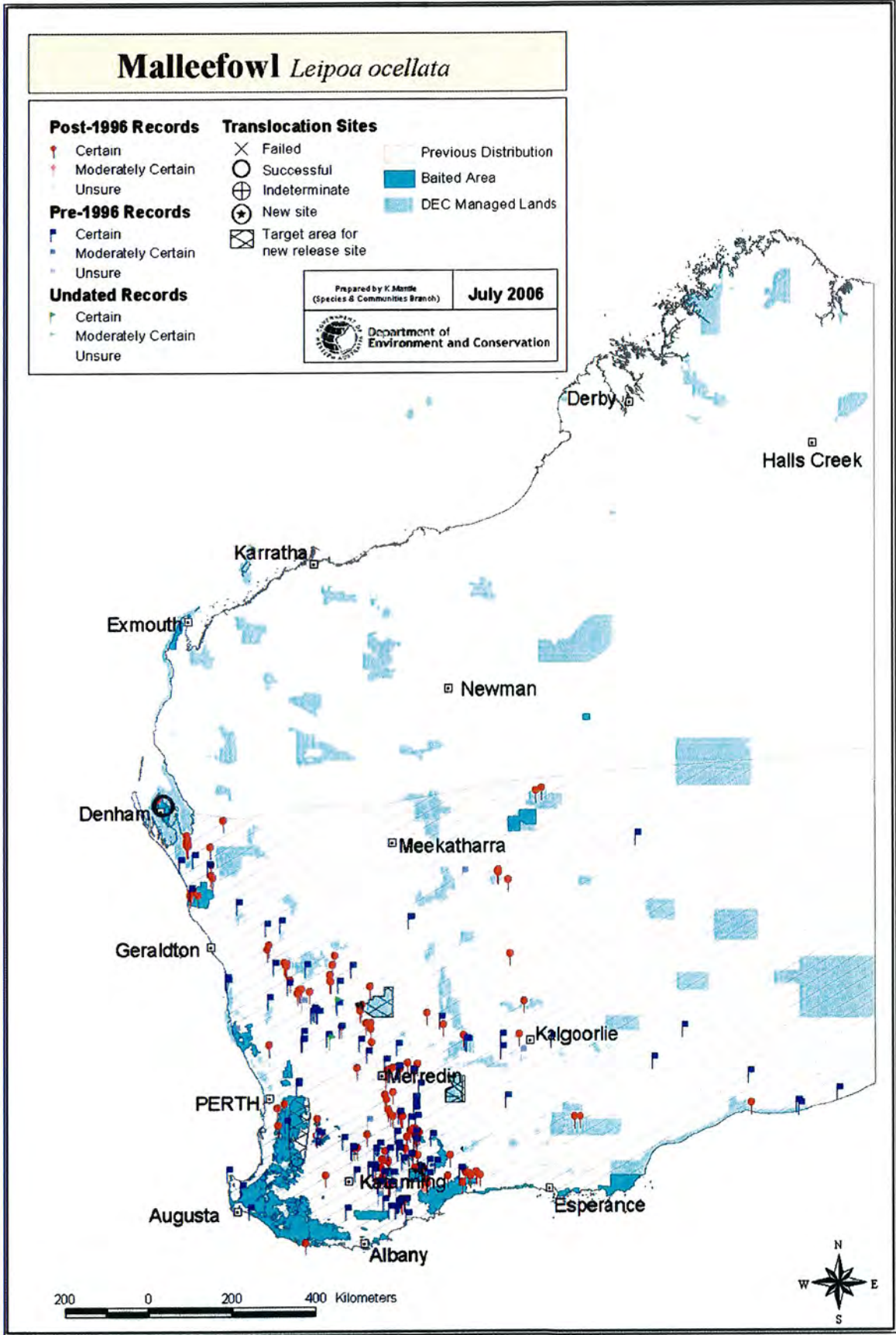
- ▲ Certain
- ▲ Moderately Certain
- ▲ Unsure

## Translocation Sites

- ⊗ Failed
- Successful
- ⊕ Indeterminate
- ★ New site
- ⊠ Target area for new release site

- Previous Distribution
- Baited Area
- ▨ DEC Managed Lands

Prepared by K. Martle  
(Species & Communities Branch) **July 2006**  
 Department of Environment and Conservation





# Western Swamp Tortoise *Pseudemysdura umbrina*

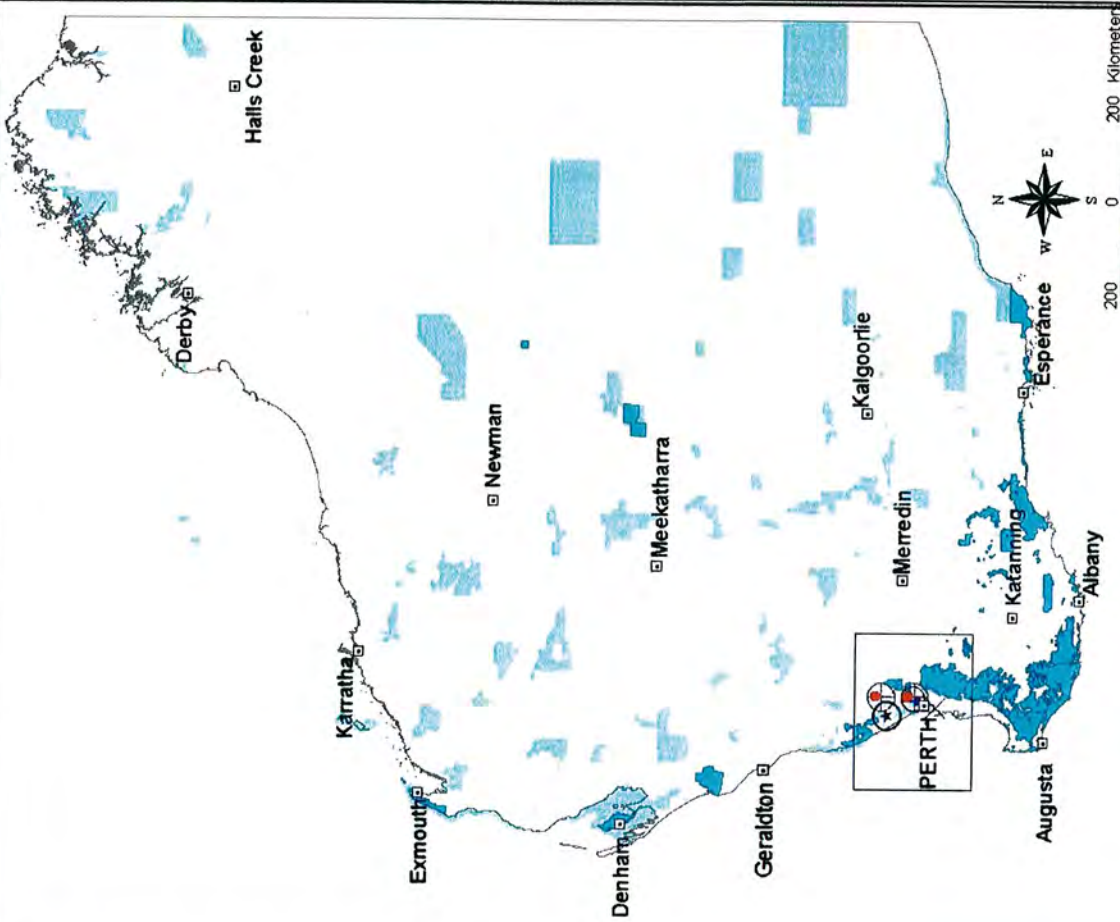
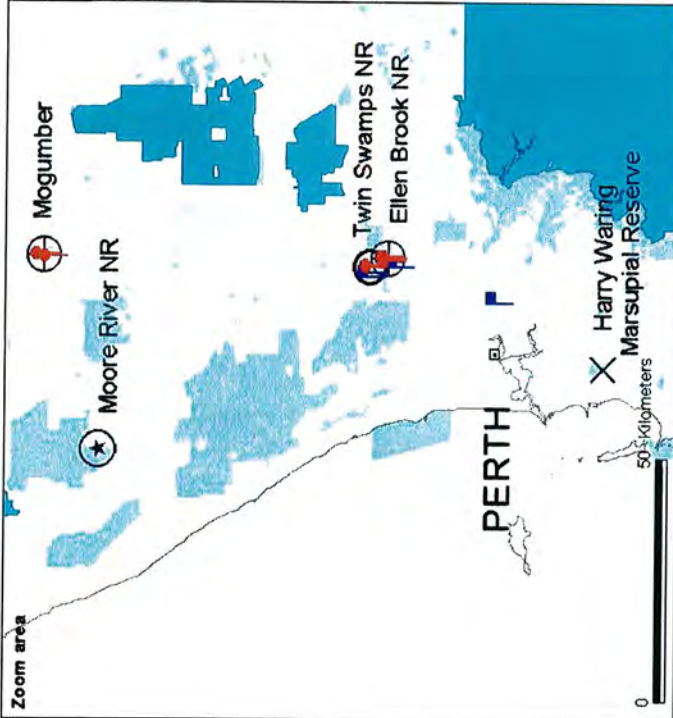
<b>Post-1996 Records</b>	<b>Translocation Sites</b>	Previous Distribution
Certain (red dot)	Failed (X)	Bailed Area (light blue)
Moderately Certain (pink dot)	Successful (O)	DEC Managed Lands (medium blue)
Unsure (grey dot)	Indeterminate (⊕)	
<b>Pre-1996 Records</b>	New site (⊕*)	
Certain (blue square)		
Moderately Certain (light blue square)		
Unsure (grey square)		
<b>Undated Records</b>		
Certain (green triangle)		
Moderately Certain (light green triangle)		
Unsure (grey triangle)		

Prepared by K. Alcock  
(Species & Communities Branch)



Department of  
Environment and Conservation

**July 2006**



## Thick-billed Grasswren *Amytornis textilis textilis*

### Post-1996 Records

- Certain
- Moderately Certain
- Unsure

### Pre-1996 Records

- Certain
- Moderately Certain
- Unsure

### Undated Records

- Certain
- Moderately Certain
- Unsure

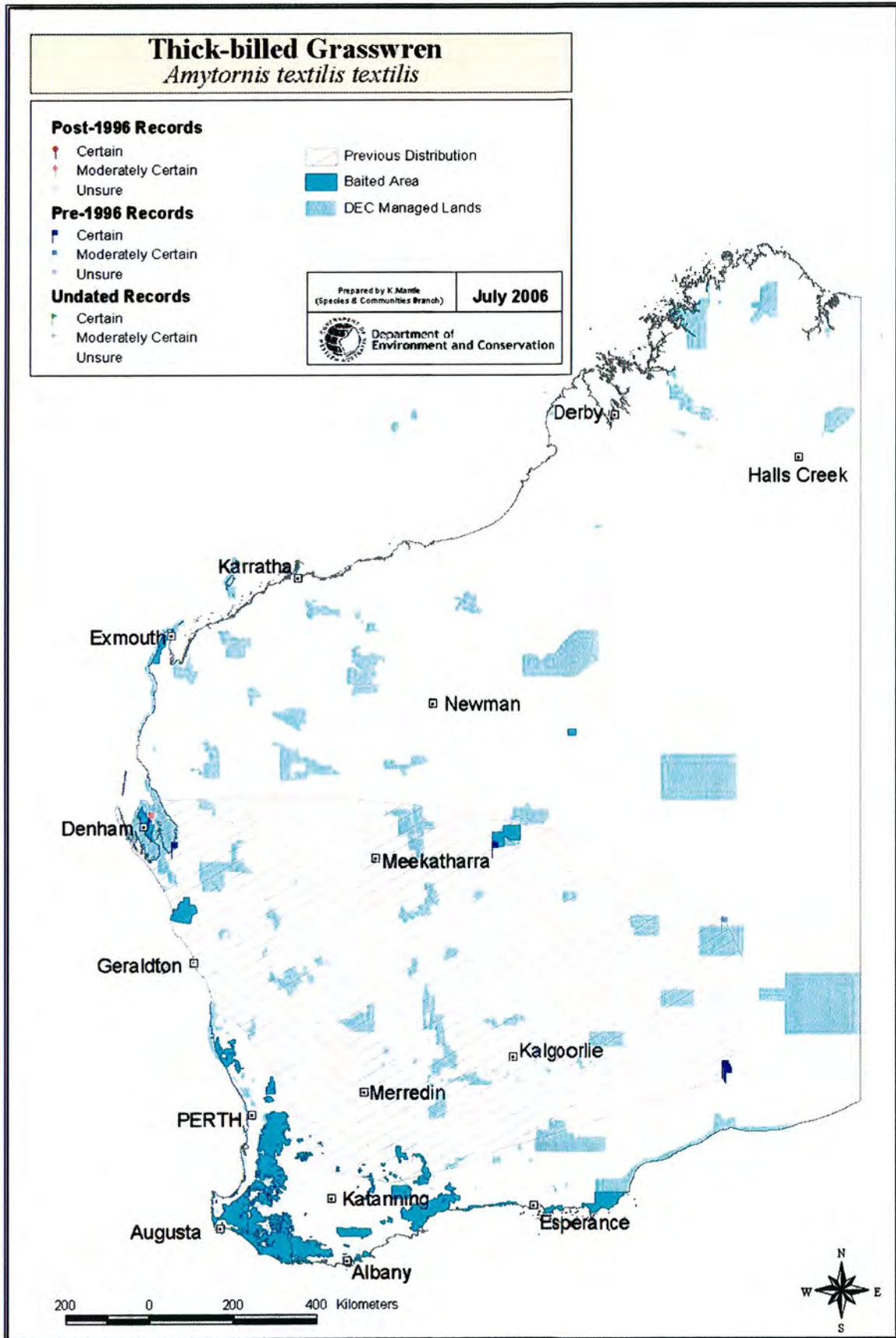
- Previous Distribution
- Baited Area
- DEC Managed Lands

Prepared by K. Manly  
(Species & Communities Branch)

July 2006



Department of  
Environment and Conservation



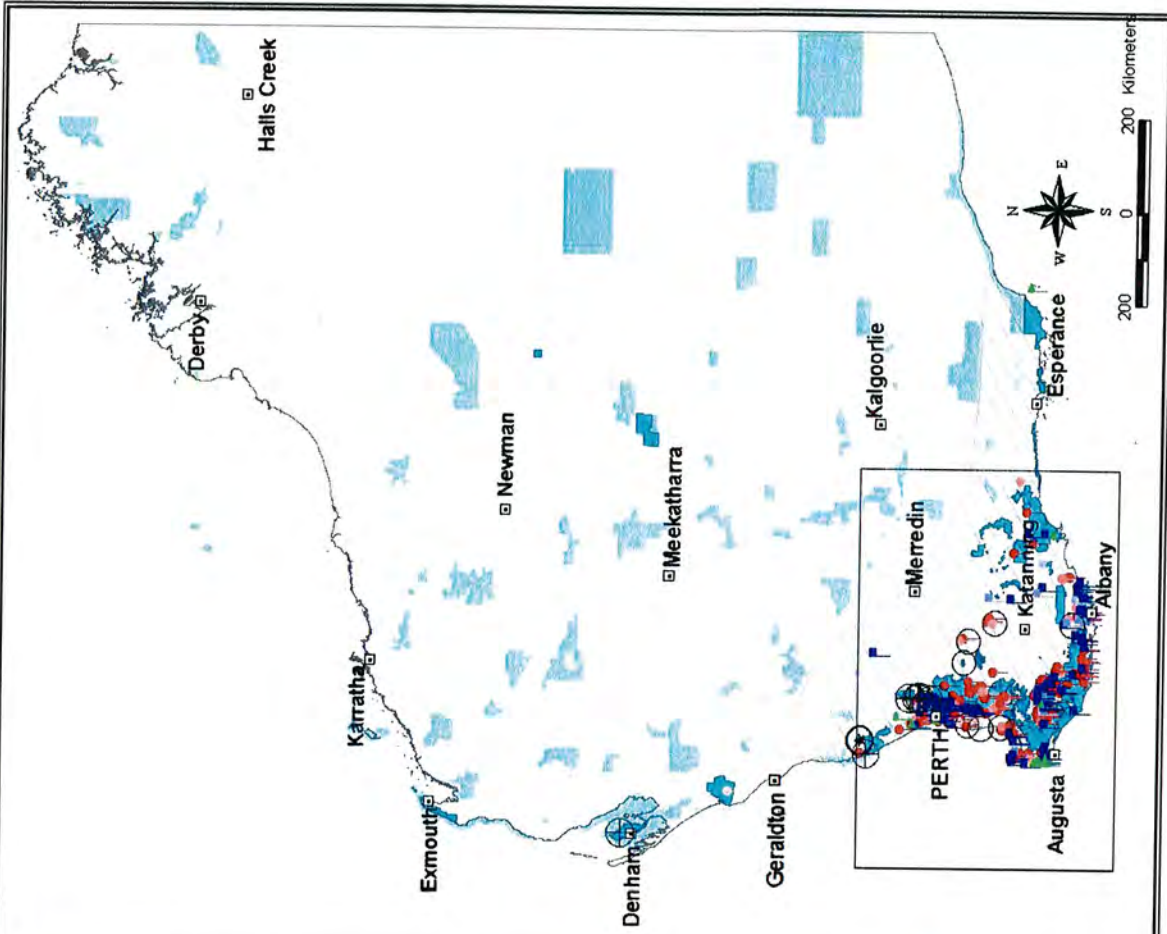
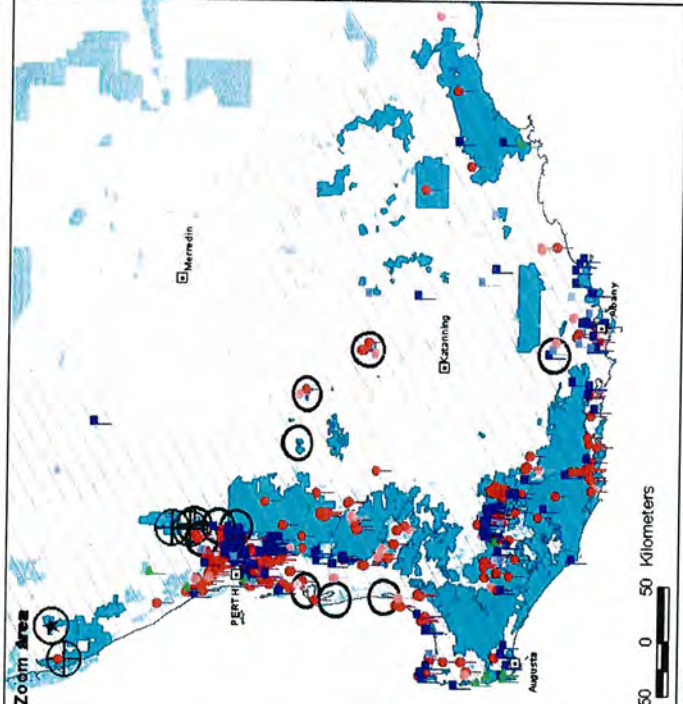
# Quenda *Isodon obesulus fusciventer*

<p><b>Post-1996 Records</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">▲</span> Certain</li> <li><span style="color: red;">●</span> Moderately Certain</li> <li><span style="color: red;">○</span> Unsure</li> </ul> <p><b>Pre-1996 Records</b></p> <ul style="list-style-type: none"> <li><span style="color: blue;">▲</span> Certain</li> <li><span style="color: blue;">●</span> Moderately Certain</li> <li><span style="color: blue;">○</span> Unsure</li> </ul> <p><b>Undated Records</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">▲</span> Certain</li> <li><span style="color: green;">●</span> Moderately Certain</li> <li><span style="color: green;">○</span> Unsure</li> </ul>	<p><b>Translocation Sites</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">✕</span> Failed</li> <li><span style="color: red;">○</span> Successful</li> <li><span style="color: red;">⊕</span> Indeterminate</li> <li><span style="color: red;">★</span> New site</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Previous Distribution</li> <li><span style="background-color: lightblue; display: inline-block; width: 10px; height: 10px;"></span> Baited Area</li> <li><span style="background-color: blue; display: inline-block; width: 10px; height: 10px;"></span> DEC Managed Lands</li> </ul>
--	---	---

Prepared by K. Marks  
(Spiders & Commensal Branch)

**July 2006**

Department of  
Environment and Conservation



# Woylie *Bettongia pencillata ogilbyi*

## Post-1996 Records

- Certain
- Moderately Certain
- Unsure

## Pre-1996 Records

- Certain
- Moderately Certain
- Unsure

## Undated Records

- Certain
- Moderately Certain
- Unsure

## Translocation Sites

- Failed
- Successful
- Indeterminate
- New site

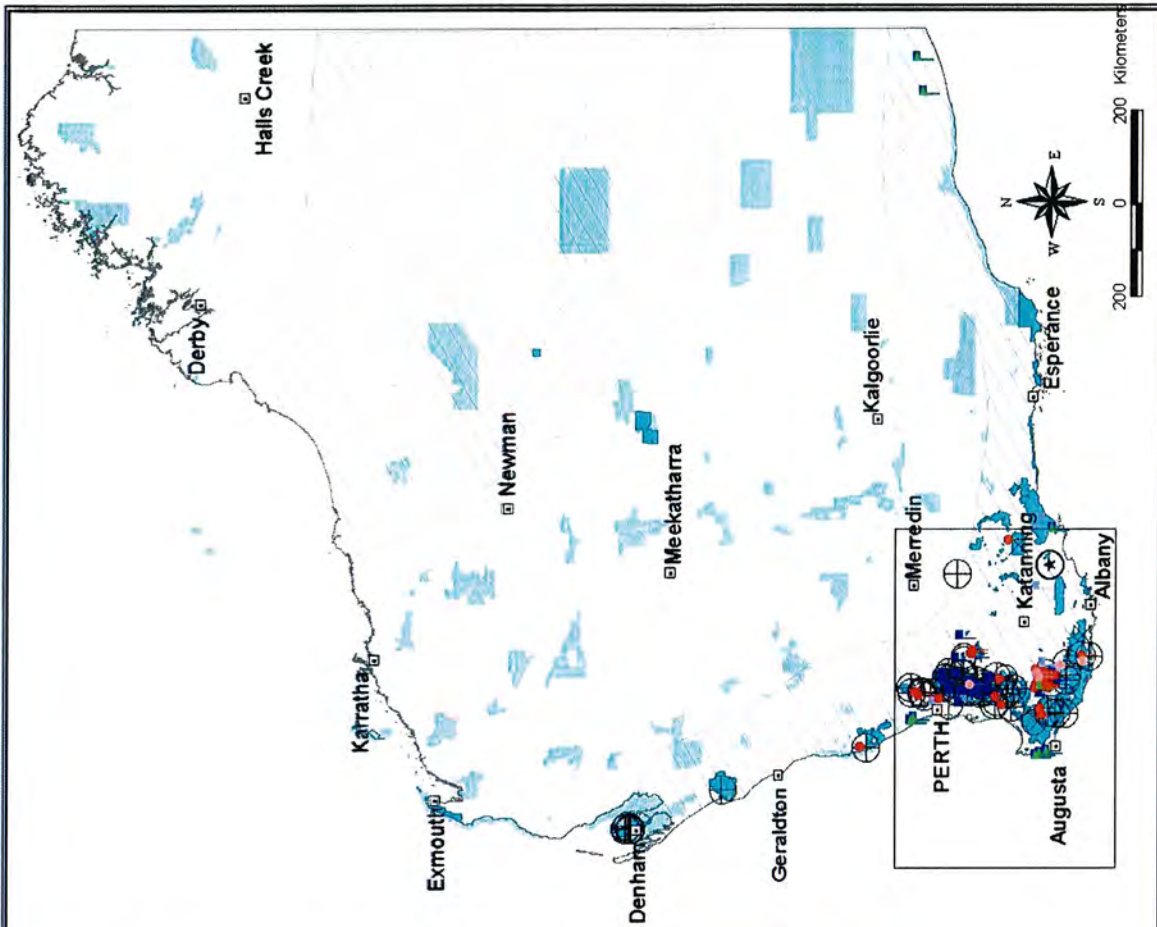
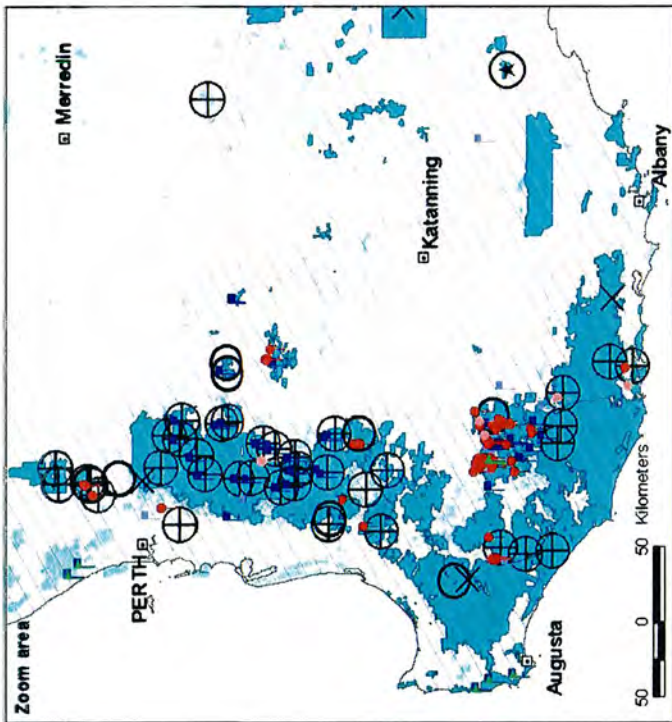
- Previous Distribution
- Baited Area
- DEC Managed Lands

Prepared by K. Manilla  
(Specialist & Communities Branch)



July 2006


Department of  
Environment and Conservation



# Tamar Wallaby *Macropus eugenii derbianus*

<p><b>Post-1996 Records</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">●</span> Certain</li> <li><span style="color: red;">○</span> Moderately Certain</li> <li><span style="color: red;">□</span> Unsure</li> </ul> <p><b>Pre-1996 Records</b></p> <ul style="list-style-type: none"> <li><span style="color: blue;">●</span> Certain</li> <li><span style="color: blue;">○</span> Moderately Certain</li> <li><span style="color: blue;">□</span> Unsure</li> </ul> <p><b>Undated Records</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">●</span> Certain</li> <li><span style="color: green;">○</span> Moderately Certain</li> <li><span style="color: green;">□</span> Unsure</li> </ul>	<p><b>Translocation Sites</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">✕</span> Failed</li> <li><span style="color: red;">○</span> Successful</li> <li><span style="color: red;">⊕</span> Indeterminate</li> <li><span style="color: red;">⊕</span> New site</li> </ul>	<p><b>Previous Distribution</b></p> <ul style="list-style-type: none"> <li><span style="color: lightblue;">■</span> Baited Area</li> <li><span style="color: lightblue;">■</span> DEC Managed Lands</li> </ul>
--	---	--

Prepared by K. Mann  
(Species & Communities Branch)



**July 2006**

Department of Environment and Conservation

