

# PARUNA WILDLIFE SANCTUARY ANNUAL REPORT 2009

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## INTRODUCTION

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Paruna Wildlife Sanctuary is located in the Avon Valley east of Perth, and was established by the Australian Wildlife Conservancy (AWC) in 1998 to create a 2,000 ha wildlife corridor between two regionally significant National Parks: Walyunga National Park to the southwest and Avon Valley National Park to the northeast. The majority of the Paruna Sanctuary is dominated by Wandoo and Powderbark woodlands though some areas been grazed in the past. There is a great diversity of habitats present within the sanctuary due to the complex geology and topography.

One of the primary aims was to link the two National Parks. AWC consolidated a number of properties to provide an unbroken corridor that extends 14 km between the two National Parks. The 2,000 ha Paruna Wildlife Sanctuary, in conjunction with the adjacent government conservation reserves, has created a combined area of approximately 19,500 ha, which is dedicated to nature conservation. AWC proposed to re-establish the mammal fauna that had once flourished in the region, and in cooperation with the Department of Environment and Conservation (DEC), the entire area is now managed for this purpose. This is being achieved through ongoing extensive feral animal control and the reintroduction of four mammal species: Woylie (2000), Quenda (2000), Tammar Wallaby (2001) and Black-flanked Rock Wallaby (2001). These populations have been supplemented several times since the initial releases. The existing population of Brushtail Possums was also supplemented and Chuditch have recolonised the area.

The purpose of this report is to summarise monitoring and research activity undertaken on Paruna Wildlife Sanctuary during 2009. This includes monitoring of translocated species to satisfy agreed reporting commitments between AWC and DEC

## METHODS AND RESULTS: FAUNA

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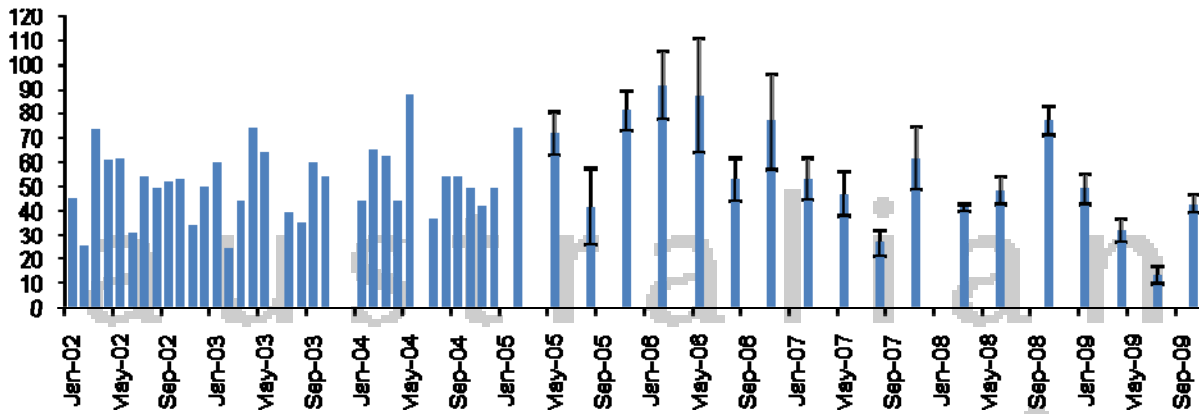
### SPOTLIGHTING

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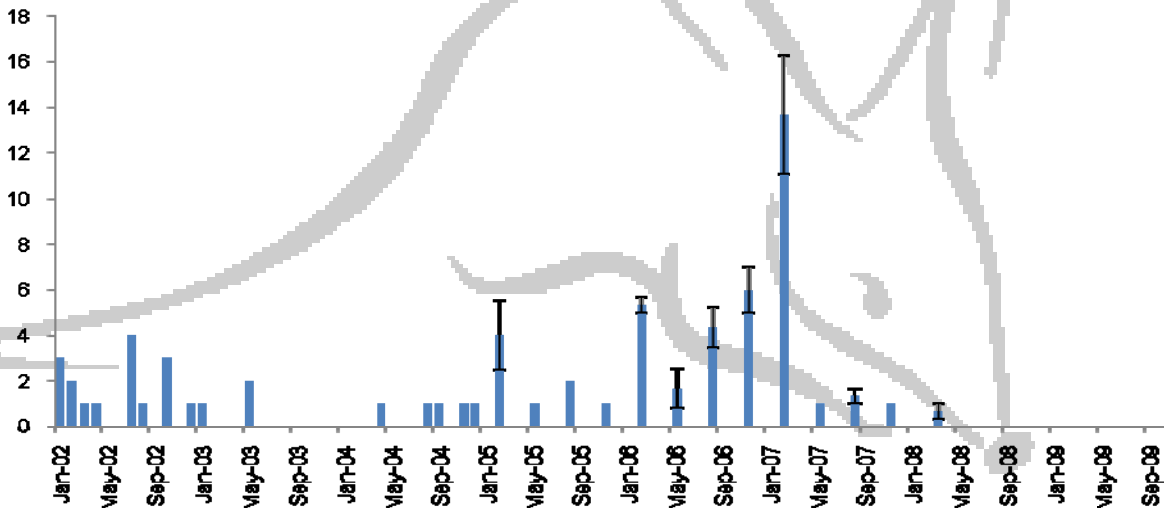
On four occasions per year (approximately every 3 months) a 7km / 1hr spotlighting drive transect is conducted incorporating some of the different habitats within the sanctuary (see 2006 report for a map of the route). On each occasion, spotlighting was undertaken for three consecutive nights and the results to date are reported as mean ( $\pm$ SE) number of animals recorded per night (figure 1). The results indicate the recent decline of the Woylie at Paruna (also see next section). In previous years, sub-adult Tammar Wallabies are usually observed during spring surveys though none were seen this year. Such observations coupled with poor results from a Tammar translocation to Paruna in June 2009 (discussed in the next section), may suggest that predation or resource pressure may be impacting the population, though the spotlighting data does not yet indicate a decline. There were no Brushtail Possums or Chuditch sighted in 2009 at Paruna, however, in previous years these species were only ever recorded occasionally.

Frogs recorded calling during the wetter months during spotlighting transects included: *Crinia georgiana*, *C. glauerti*, *C. pseudinsignifera*, *Litoria moorei*, *L. adalaidensis* and *Limnodynastes dorsalis*.

a) Western Grey Kangaroos



b) Woylies



c) Tamar Wallabies

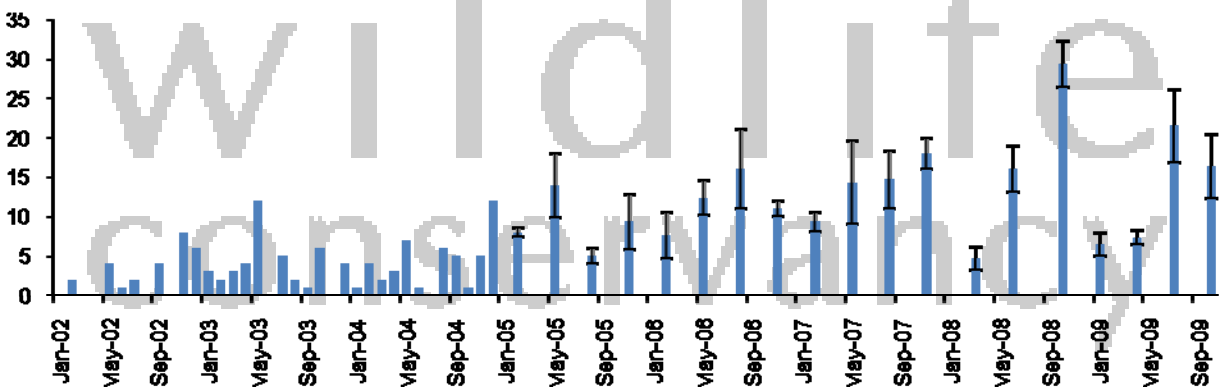


Figure 1: Mean ( $\pm$ SE) number of animals per night recorded during spotlighting transects (2005-2008) for a) Western Grey Kangaroos, b) Woylies, and c) Tamar Wallabies (the trendline is a simple linear regression).

## TRAPPING AND TRANSLOCATIONS

One cage trapping session was undertaken in April 2009 consisting of 140 cage traps over three consecutive nights set along a permanently marked transect. Table 1 presents the number of mammals captured during this trapping effort. The number of all species has decreased in comparison to the six previous years.

Table 1: Number of mammals captured during trapping sessions held in April 2009, April 2008 and October 2008

Species	# April 09	# April 08	# October08
Brushtail Possum	2	2	3
Chuditch	3	6	1
House Mouse	4	7	1
Black Rat	1	0	0
Quenda	1	10	1
Tamar Wallaby	2	0	0
Woylie	0	0	1

In April/ May 2009, 50 pit and funnel trap nights were conducted to further assess the fauna at Paruna. This effort resulted in very low capture rates; limited to only two skinks, 2 House mice and 1 Honey Possum.

In December, seven hours of active searches (focusing on reptiles) were assess if this was a better method than pit trapping at Paruna and to contribute to on-going inventory work. Fifteen individuals from five species were caught. No new or rare species were recorded and capture rates were considered very low.

In 2006, 96 Woylies were translocated from Karakamia Wildlife Sanctuary to Paruna. Unfortunately there has been a steady decline in the number of Woylies trapped since then with only one Woylie trapped in 2008 and none in 2009 (figure 2). This data was the basis for the decision to postpone any further Woylie translocation plans to Paruna until we can better quantify the abundance of feral animals and the effectiveness of our control methods.

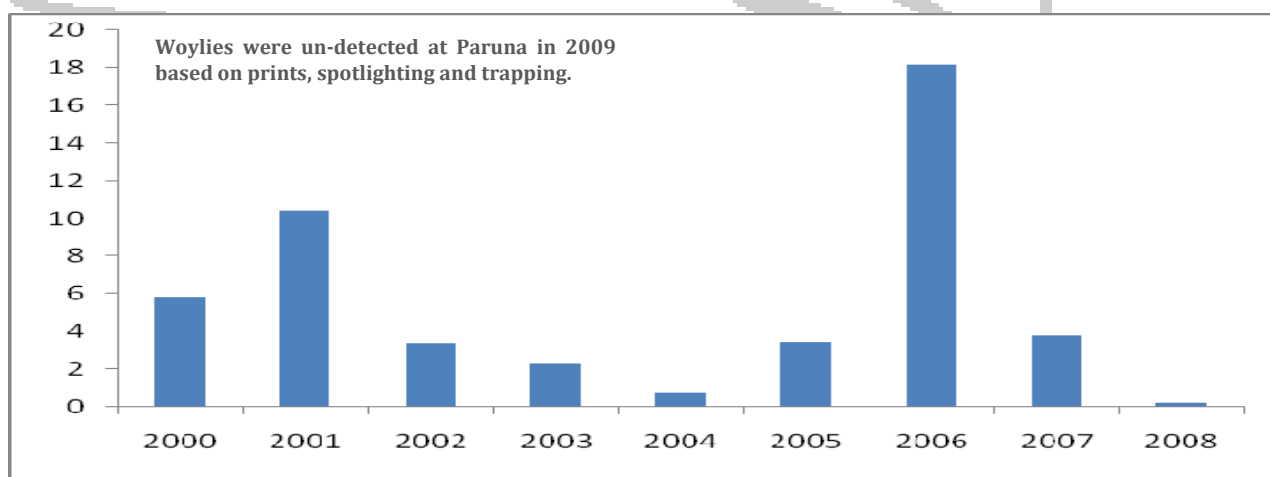


Figure 2: Trap rate of Woylies trapped at Paruna since 2000

In June 2009 17 one year old, captive bred Tammar Wallabies were translocated from the University of Western Australia to Paruna. Ten of these wallabies were radio-collared to access dispersal and survival post translocation. The results (table 2) show the varied dispersal patterns and high mortality recorded. These results have (along with similar results for past Woylie translocations) led to AWC suspend all translocations into Paruna Sanctuary until the management of introduced predators can be adequately assessed and monitored.

Table 2: Summary of dispersal patterns and fate of the radio-collared Tamar Wallabies released at Paruna in June 2009.

Individual	Dispersal pattern	Fate
1	Initial daily movements of 500m, then settled 1km from release site.	Mortality signal detected after 5months, unknown cause (collar not retrieved)
2	300m movement	Dead after 2 days. Collar retrieved, predation suspected (predator unknown).
3	Initial daily movements of 500m then settled 1km from release site.	Mortality signal detected after 5months, unknown cause (collar not retrieved)
4	Early collar failure, trapped back 250m from release site.	Trapped back after 6 months in good condition, collar removed
5	Daily movements of ±1km	Dead after 3 weeks. Predation suspected (predator unknown).
6	Daily movements of ±1km	Dead after 2 weeks. Predation suspected (predator unknown).
7	Initially 4km movement, then collar failure.	Unknown
8	Gradual movement to 500m west of release site then settled.	Dead after 1 week. Predation suspected (predator unknown).
9	Movement 4km east in the first week then settled.	Mortality signal after 5months, unknown cause (collar not retrieved)
10	Initial daily movements of 250m	Dead after 1 week. Predation suspected (predator unknown).

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### FERAL ANIMAL CONTROL

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There is an on-going feral animal control program at Paruna. This strategy includes trapping, shooting and baiting targeting several introduced species. The feral control efforts at Paruna in 2009 include nearly 3000 1080 meat and egg baits delivered on a monthly basis. Over 300 rabbits, 30 pigs, 3 cats, 13 sheep and 3 goat deaths were recorded. These efforts will be enhanced in 2010 with improved monitoring programs in an attempt to better quantify the success of our control program.

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### BIRD SURVEYS (BAWA)

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Annually Birds Australia WA undertakes surveys at Paruna. In 2009 this was undertaken in October. No new species were recorded and due to rainy weather the species diversity and total number of individuals was down from previous years.

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### OTHER OBSERVATIONS

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Between 2001 and 2007, 65 Black-flanked Rock-wallabies (*Petrogale lateralis lateralis*) were translocated to Paruna. Monitoring the Paruna Rock-wallaby population has been conducted using several methods including radio-tracking, scat counts and searches, direct observation and motion sensor camera surveillance. During 2009 systematic searches of areas with suitable habitat for scats were carried out. The results confirm that Rock Wallabies have dispersed through the sanctuary, though the scats vary in age and abundance at different sites. At Paruna the Rock Wallabies are most abundant within 1km of the original release site; the release site is also the largest continuous area of suitable habitat on the property. This species was also translocated to both the neighboring Avon Valley and Walylunga National Parks though it is not known if Paruna is acting as the source or sink for the Wallabies in the wider Avon Valley region. Motion sensor cameras and scat searches will guide trapping efforts in 2010 to address this question and provide more information on population demographics and distribution.

## METHODS AND RESULTS: FLORA

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Monitoring of vegetation has been undertaken by photopoints at 5 vegetation sites plus an additional 12 rehabilitation sites at six monthly intervals since 1999. These photographs are stored at Karakamia. Intensive species counts in all quadrats are undertaken every five years. An extensive field herbarium is maintained with over 270 completed specimens.

## CONCLUSION

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Data collecting in 2009 support the hypothesis that the translocated Woylie population in Paruna is in decline and not sustainable. Tammar Wallaby populations at Paruna may not be as stable as previously thought and increased monitoring efforts in 2010 will help clarify this concern. The Rock Wallaby population at Paruna will also be the focused of increased monitoring effort in 2010 to help confirm the status of this population. Other trapping results were also disappointing in 2009 and as a result several aspects of predator population monitoring and the impacts on native wildlife will continue to be expanded in 2010. This will be undertaken in conjunction with increased integrated feral animal control strategies.

## FURTHER INFORMATION

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