MAMMAL MONITORING

BARROW ISLAND NATURE RESERVE

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SUMMARY

Monitoring of abundance and condition of native mammals on Barrow Island was conducted during October 2003 at five trapping locations and along two spotlighting transects as described in previous reports. In addition, trapping of Black-flanked Rock-wallabies was conducted at Well Q21 and two transects on the west coast were searched on foot for rock-wallabies using a hand-held spotlight.

The trap success rates and total number of each species trapped on each grid, while varying somewhat from previous years, do not suggest any major changes in population numbers for any mammal species. Golden Bandicoot condition indices varied significantly between grids with animals on John Wayne and S62 grids being in better condition that those from M21 (centre of island), Landing and Bandicoot Bay grids.

Counts of mammals on the two vehicle spotlighting transects were lower, compared with previous years, for all commonly-sighted species except Boodies; however, this is likely to be due to strong winds. The DISTANCE analyses again demonstrated that effective strip widths (or effective detection radii) are larger in the South, where there are numerous cleared oil well sites, tracks and regenerating 'borrow' pits, compared to the largely undisturbed North transect. There were significantly more Boodies and Hare-wallabies present on the North transect compared with the South transect ($p<0.05$). Counts in previous years also showed higher densities for some mammals species in some years in the North, outside oilfield, transect compared to the South, within oilfield, transect.

We have now trialed several methods of monitoring rock-wallabies; none is satisfactory. Trapping, which can be effective in mainland colonies, is not efficient on Barrow Island because of the large number of Brushtail Possums, which enter traps or steal bait. Further work is required to develop rock-wallaby monitoring techniques.

Mammals (including threatened species) exploiting shade and shelter provided by Lufkin oil pumps continue to die as a result of the sudden start-up of the electric-powered, intermittently operating pumps. If the modified spiked mats that ChevronTexaco has been progressively installing on Lufkins do not prove effective in reducing Euro casualties, barriers may need to be erected to prevent mammals accessing the pumps. Cages around drive belts may also require modification.

We recommend that the mammal monitoring project should be reviewed in the light of any approval for the construction of a major gas plant on Barrow Island to process natural gas from the Gorgon field. Work in 2004 should include developing rock-wallaby monitoring techniques and monitoring nearby islands where rats were eradicated some years ago.

1. INTRODUCTION

Barrow Island, as well as being of enormous nature conservation significance for other reasons, is one of Australia's most important mammal conservation areas. It supports 14 terrestrial mammal species (more than any other WA island), of which five are listed as threatened pursuant to the Western Australian *Wildlife Conservation Act 1950* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, while another is listed only under Western Australian legislation (Table 1). The introduced House Mouse *Mus domesticus* and Black Rat *Rattus rattus* have been present on Barrow Island, but have been eradicated (Morris 2002). Barrow Island has been a producing oil field since 1964; until 1999 the operator was West Australian Petroleum Pty Ltd (WAPET); the operator now is ChevronTexaco Australia Pty Ltd (CVX).

The Interim Management Guidelines (IMG) for Barrow Island Nature Reserve (CALM 1999) provided that a formal mammal monitoring program be established. The former National Parks and Nature Conservation Authority, in reporting on a visit in September 1997, also recommended additional mammal monitoring. The IMG, Section 6.4: Management Actions states:

- "Establish protocols for terrestrial fauna monitoring on Barrow Island. These need to include:
  a) monitoring of mammal populations inside and outside the oilfield with a combination of spotlight transects and trapping;
  b) monitoring fauna recovery where rat eradication was undertaken (south end); and
  c) monitoring to ensure that feral animals, especially rodents and cats, do not establish.
- Establish protocols for determining the impact, if any, of road kills on mammal populations.
- Monitor the reintroduced population of Boodie *Bettongia lesueur* on Boodie Island.
- Continue monitoring the marine turtle rookeries on the west and east coasts of Barrow Island."

The mammal monitoring program was commenced in 1998 as a joint Department of Conservation and Land Management (CALM) and ChevronTexaco (CVX) project. It aims to address the first three of the above dot points; however, the full trapping program did not commence until 2000. Marine turtle rookeries are being monitored under a separate program. Unpublished reports (Burbidge *et al.* 1998, 2000, and Morris *et al.* 1999, 2001, 2002) provide the results of previous mammal monitoring surveys. The reintroduced boodie population on Boodie Island was last monitored in 1998 as part of this program, but was not inspected in 2003.

2. OBJECTIVES

The objectives for the 2003 work were:

1. To monitor abundance and condition of native terrestrial mammals (excluding bats). Euros, Spectacled Hare-wallabies, Brushtail Possums and Boodies were sighted during spotlight runs, while Boodies, Golden Bandicoots, Brushtail Possums, native rodents and small dasyurid marsupials were trapped.
2. Monitoring for rock-wallabies (the least abundant mammal on Barrow Island) has been unsatisfactory in the past. This year we trialed walking transects on the west coast and also trapped the population in an isolated cliff and scree near Well Q21. Rock-wallaby scat

collections continued at Well Q21; this study is aimed at developing indirect estimates of population numbers.
3. To collect tissue and voucher specimens of reptiles trapped on the mammal trapping grids for the WA Museum so that taxonomic research into the isolated Barrow Island populations can be conducted.
4. To identify potential improvements to oilfield facilities and/or operational practices necessary to reduce the risk of detrimental impact on mammal abundance.

3. METHODS

3.1 Trapping

Five trapping grids, each covering one hectare, were established in November 1998 and completed in October 1999; however, all grids were not fully operational until 2000. A brief description of each is included in Burbidge *et al.* 1998. In 2000, the four corner points of each grid were located with GPS for long-term future reference and placing on CVX operational maps, so that disturbance is avoided.

Sheffield cage traps, medium Elliott traps and pitfall traps were set on all grids in a 5 x 5 pattern (20 m trap spacings) for four nights. In addition, 65 medium Elliott traps were set near WAPET Landing for four nights with the aim of detecting introduced rats and mice, if present. Bromilow traps were set near well Q21 to monitor rock-wallabies. During the latter part of trapping at Q21, two cage traps was set at each Bromilow in an attempt to keep 'non-target' species (mainly possums) out of the Bromilow traps. A summary of the trapping effort is shown in Table 2.

For the second year, all larger mammals trapped on grids were marked by a permanent implanted transponder (PIT) implanted just beneath the skin on the back of the neck between the animal's shoulder blades. The smaller Rock Rats, Barrow Island Mouse, *Pseudantechinus* sp. and *Planigale* sp. continued to be marked with ear notches.

The use of ear notches to mark animals had only provided information on the year that animals had been captured previously. This provided some information on the population dynamics each year and an approximate estimation on the age of some individuals. However, with the use of the PITs information on an individual's growth, sexual maturation and movements will be available. This knowledge will enable more detailed analysis of growth and survivorship for several of the mammal species on the island. In addition, PIT tags avoid the problem of distinguishing ear notches from ear damage caused by fighting.

Trap success rates for Spectacled Hare-wallabies, Boodies and Brushtail Possums were calculated on cage trap numbers only; those for Golden Bandicoots on cage and Elliott trap numbers; those for the *Pseudantechinus* sp., Barrow Island Mouse and Common Rock Rat on Elliott and pit trap numbers; and those for the *Planigale* on pit trap numbers only. Rock-wallabies were captured only in Bromilow traps.

Condition indices were calculated for each animal weighed and measured following Caughley *et al.* (1988) ie, body weight in grams$^{1/3}$ / pes length in mm.

Reptiles trapped on the grids were identified and some tissue and voucher specimens were collected for the WA Museum to aid taxonomic research via DNA analysis.

3.2 Rock-wallaby scats

Rock-wallaby scats were again collected from the colony near Well Q21 for David Pearson's study on estimating rock-wallaby abundance from scat accumulations. Collections were relatively limited due to a visit to the site a month earlier by Keith Morris (CALM) who collected the scats and an apparently low number of rock-wallabies present during the survey period. In past years, rock-wallabies were easily observed at Q21 and the local population was estimated to be in the range of 8-10 animals. On this trip, only two were trapped and only one other seen, suggesting numbers may be down to just 3-4 resident in the main section of the Q21 outcrop sampled by the scat count plots. Scat samples have yet to be sorted.

3.3 Spotlighting

The standard spotlighting transects (one in the largely undisturbed northern end of the island and one within the oilfield towards the southern end of the island) were counted on six nights (22/10, 23/10, 25/10, 26/10, 27/10 and 28/10/2003). Each transect is about 30 km long. A four-wheel-drive, tray-top vehicle was driven at 13 - 15 km/h with one spotlighter standing on the tray behind the cab observing animals. Estimated distance from the centre-line of the transect was recorded for each sighting to enable density calculations. To reduce observer bias, the same spotlighting team recorded on each transect on consecutive nights and the data from the two nights were combined. A road closure near Well P74 affected the South Transect on the last three nights, forcing us to reduce its length by about 900 m.

Spotlighting data were analysed using the software program DISTANCE 3.5 (© 1998-1999 Research Unit for Wildlife Population Assessment, University of St. Andrews). Data from the six nights of spotlighting were combined and the Half Normal + Cosine model was used with no truncation of data. The uniform + cosine model was chosen after testing several models on a selection of data, based on the Akaike information criterion, as being the best model overall (Buckland *et al.* 2001) – for further discussion see Morris *et al.* (2002).

Two transects were set up on the west coast and searched by foot at night with a backpack battery and 75 W spotlight. Transect 1 was from the John Wayne area north to the coast opposite Well YS88 (2.7 km) along the top of the cliffs and transect 2 was from the coast at the Boodie Warren cave north to Obe's Beach (2.5 km). The transects were established during daytime to ensure they traversed safe areas and were plotted on a hand held Magellan Meridian Gold GPS receiver. Two people walked the transects at night; one held the spotlight and the other navigated to ensure that the walked route closely followed that stored in the GPS receiver. All mammals seen were recorded.

3.4 Introduced mammal searches

All staff looked for introduced mammal tracks during routine work. In addition, 65 medium Elliott traps were laid for four nights adjacent to WAPET Landing, where equipment is unloaded from barges.

3.5 Rainfall

Rainfall data for Barrow Island Airport were obtained from the Bureau of Meteorology.

4. RESULTS

4.1 Grid trapping

The mean trap success rates for mammals trapped on all five grids since 1998 are shown in Table 4. Trap success rates for each of the grids is shown in Figures 1 – 5, and species trap success rates are shown in Figures 6 – 13. A summary of the grid trapping results showing the number of individuals trapped is shown in Appendix 1.

This was the second year that we marked each of the larger animals captured with a PIT. The number of animals of each species recaptured from 2002 and earlier years is shown below. (The first figure is number of recaptures from 2002, the second figure is number of animals recaptured in 2003 that were not trapped in 2002 but were trapped in earlier years, while the figure in brackets is total number of individuals trapped on the grid in 2003.)

	John Wayne	Bandicoot Bay	M21	S62	Landing	TOTAL
Golden Bandicoot	19+1 (40)	9+1 (39)	7+0 (22)	18+2 (37)	15+1 (28)	68+5 (166)
Brushtail Possum	7+0 (12)	1+0 (3)	0+0 (10)	12+1 (21)	5+0 (14)	25+1 (60)
Boodie	0+0 (0)	3+0 (7)	0+0 (2)	3+0 (3)	6+0 (10)	12+0 (22)

4.2 Rock-wallaby trapping

Two rock-wallabies were trapped at Q21 on the first night that traps were set (22/23 October). Both were recaptures from 2002. No further rock-wallabies were trapped on the next two nights and we noted that possums were removing the bait (apples) without entering the traps. The traps were left closed and unbaited for two nights and then re-opened with, in half of the traps, the bait suspended on string and with two Sheffield cage traps with universal bait set alongside each Bromilow trap. One further rock-wallaby was trapped on 27/28 October; this animal was one of those captured earlier in the trip. We noted that the suspended apple bait did prevent possums eating the bait without entering the trap; however, the capture rate of rock-wallabies did not increase. Apart from Brushtail Possums, we also trapped Golden Bandicoots and a *Pseudantechinus* sp. (in a Sheffield cage trap) at this location.

4.3 Vehicle spotlighting

Unanalysed spotlighting data are presented in Table 5 and Figures 14-18. Numbers of three of the four most-commonly-sighted species (golden bandicoots, possums, hare-wallabies) were lower compared with 2002 and 2001; however, boodie numbers were slightly higher (Table 5). The DISTANCE analyses (Table 6) showed that Spectacled Hare-wallabies and Boodies were significantly more abundant on the North Transect than on the South, while there were no significant differences between North and South for Golden Bandicoots or Brushtail Possums. Effective strip widths (or effective detection radii) were consistently larger for all commonly-sighted species in the South compared with the North (Table 7). Weather during all spotlighting runs was cool for the time of year with fresh to strong south-westerly to westerly winds.

A white-coloured, presumably albino Boodie was sighted twice on the North Transect.

4.4 Rock-wallaby spotlighting on foot

The time available allowed only a single count on each of the two transects. On 24 October no rock-wallabies were sighted on Transect 1, while three rock-wallabies were sighted on Transect 2 on 29 October. Strong winds prevailed on both walks. Other mammals seen on the transects were Golden Bandicoot, Brushtail Possum, Spectacled Hare-wallaby and Barrow Island Euro.

4.5 Rainfall

Rainfall data are presented in Table 8. The mean rainfall for the 'Barrow Island' station from 1967 to 1988 was 318 mm, while the median was 285 mm. Rainfall in 1999 (*ca* 450 mm) was well above average and due primarily to rain in May (295 mm). Rainfall data for 2000 (289 mm) were near the long term median, while rainfall in 2001 (108 mm), 2002 (127 mm) and 2003 up to the end of September (117 mm) was well below the median and the mean.

4.6 Introduced mammals

We saw no evidence of introduced mammals on Barrow Island. We did not visit the south end of Barrow Island (where black rats occurred some years ago) or any of the outlying islands and islets on this visit. The medium Elliott traps set near WAPET Landing captured Golden Bandicoots, juvenile Boodies, Common Rock-rats and Barrow Island Mice.

4.7 Mammal casualties due to oilfield activities

Animal casualty data extracted from the CVX incident databases are presented in Table 9.

4.7 Reptiles

A list of reptile species collected from trapping grids in given in Table 3. All species were previously known from Barrow Island.

5. DISCUSSION

5.1 Grid trapping

The trap success rates and total number of each species trapped on each grid, while varying somewhat from previous years, does not suggest any major changes in population numbers for any species.

The proportion of animals recaptured in 2003 that had been marked in 2002 varied from 0% to over 50%. The overall high proportion of recaptures will allow information to be collected on life history parameters of individual animals in the future.

Golden Bandicoot condition indices (Table 10) varied significantly between grids with animals on John Wayne and S62 grids (both near the west coast) being in better condition that those from M21 (centre of island), Landing and Bandicoot Bay grids. We place little reliance on condition index figures for the Brushtail Possum, as the pes is difficult to measure in this species, which has strong heavily clawed feet. A condition index based on short pes or head length may be of more value for this species. We tried to repeatedly measure head length in this and other species and found considerable variability, so this measurement also presents problems when used on

live animals. Numbers of Boodies and Hare-wallabies are too small for valid comparisons in condition indices.

5.2 Rock-wallaby trapping

Two rock-wallabies, a male and a female, were trapped at Q21, with the male being re-trapped a few days later. Both had been trapped in 2002.

Rock-wallaby scats have been collected in plots at Q21 over the last three years. Arrangements were made for CVX staff to collect these monthly in future in the hope that more detailed sampling may allow the development of an indirect measure to establish population trends in rock-wallaby colonies.

5.3 Vehicle spotlighting

As discussed in the 2002 report, spotlighting data collected on Barrow Island are not highly robust, particularly because transects were not randomly selected. Night to night variability within a trip is reduced by counting over six nights and pooling data. Variability between trips is difficult to interpret because of differing weather (particularly wind strength), moon conditions and observers.

Counts and calculated density for most species (but not Boodies) were lower in 2003 than in preceding years. This may be due to the prevailing drought conditions, with below average rainfall since mid-2000. However, the windy conditions during spotlighting may also have resulted in fewer mammals being sighted. It is notable that trap success data were not lower in 2003 compared with most previous years, suggesting that the spotlighting conditions were a factor.

The DISTANCE analyses again demonstrated that effective strip widths are larger in the South, where there are numerous cleared oil well sites, tracks and regenerating 'borrow' pits allowing animals to be observed further from the road than in the largely undisturbed North transect. There were significantly more Boodies and Hare-wallabies present on the North transect compared with the South transect ($p<0.05$).

Greater densities of the commonly-sighted mammals on the North transect were also reported in previous years; however, different species were found to be at higher density in different years (Table 6): Golden Bandicoot in 2000, Brushtail Possum in 2000 and 2002, Boodie in 2000 and 2002, and Spectacled Hare-wallaby in 1998 and 2001. Numbers may be lower in the South because of habitat loss; however, habitat differences can not be discounted.

Density data from Barrow Island, developed from the spotlighting transects, can be used to calculate minimum population numbers of commonly-sighted mammal species on the island. Calculations were carried out by averaging the densities and confidence limits on the North and South transects, dividing by six (the number of times the transects were counted) and multiplying by the area of the island in hectares. Results since 1998 (with upper and lower 95% confidence limits) are provided in Table 11.

These calculations should be viewed with considerable caution, as the method used (averaging density data from two non-random transects) is not sound. It should also be emphasised that these are minimum estimates, as not all animals within the effective strip width are actually sighted. Bandicoots are particularly difficult to see as they are usually hidden behind spinifex

hummocks. At the other end of the size scale, most Euros near the transects would be sighted; however, numbers seen per transect are low (especially in the South) and confidence limits are correspondingly large. These minimum figures vary from estimates by Butler (1970) and Short *et al.* (1988) (Table 12). Butler's estimates were not based on sampling data, but were based on his extensive experience on the island, while Short *et al.*'s estimates were based on spotlight surveys along random foot transects, but with no replication.

McKenzie *et al.* (1995) gave an estimate of 60 000-80 000 Golden Bandicoots on Barrow Island. This estimate was derived from work by Bradshaw *et al.* On the 34 ha grid at John Wayne they captured 80-100 individual bandicoots each trip. When allowance is made for the average linear movement of bandicoots (derived from radiotracking) of 300 m and adjusting the capture area accordingly, this equates to about 70 000 individuals when extrapolated over the island. In our 2002 monitoring we captured an average of 28 bandicoots per grid and in 2003 we captured an average of 33 bandicoots per grid. These figures provide estimates of 45 500 and 53 600 bandicoots for the whole island. Even allowing for the majority of our trapping grids being in or adjacent to highly productive areas, these figures, in the tens of thousands for the whole island, appear more realistic than the minimum estimate derived from spotlighting data, suggesting that we sight only a small proportion of bandicoots present near the centre line of the spotlighting transects.

Butler and Short *et al.* did not publish estimates of Brushtail Possum numbers. Our minimum population estimates for Golden Bandicoot and Boodie numbers in 1998 were similar to theirs made over 10 years before; however, our estimates from later years are lower. All our Spectacled Hare-wallaby minimum estimates are near Butler's, but are well below Short *et al.*'s estimate of 8 600. Our Euro minimum estimates are higher than Butler's and lower than Short *et al.*'s. The McKenzie *et al.* bandicoot estimate is well above any other estimate.

5.4 Foot rock-wallaby spotlighting

We sighted three rock-wallabies on the two foot transects, totalling about 5.2 km. Rock-wallabies are the least abundant mammal on Barrow Island. Butler (1970) estimated that there were 500+ rock-wallabies on Barrow Island, but provided no data to support his estimate. Hall *et al.* (1993), after extensive searching of habitat, suggested a total population of about 150 animals. Monitoring rock-wallabies has proved to be difficult. Trapping is ineffective because of large number of possums present in the same habitat, which readily enter traps and/or extract bait from outside the trap; bandicoots are also captured. Spotlighting from a vehicle, attempted in 2001 and 2002, resulted in too few animals being sighted to allow statistically-valid comparisons from year to year.

On two evenings one of us (DJP) used binoculars and night-vision equipment to look for rock-wallabies leaving their shelter sites at Q21 around dusk and soon after dark; however, only a single animal was seen. A brief visit to the coast near Biggada Creek half an hour before sunset resulted in two rock-wallaby sightings. At the Boodie Cave, while waiting to commence a night walk, we observed one rock-wallaby leaving its shelter at local sunset.

We have now tried several methods of monitoring rock-wallabies; none are satisfactory. Trapping, which can be effective in mainland colonies, is not effective on Barrow Island because of the large number of Brushtail Possums, which rapidly enter traps or steal bait. Further work is required to develop rock-wallaby monitoring techniques. Late afternoon observations at a variety of west coast sites may be needed to develop an abundance indicator.

5.5 Introduced mammals

One of Barrow Island's major biodiversity conservation values is that, since the eradication of Black Rats in 1991, it has no exotic mammals. Our methods of detection this year were, apart from the five trapping grids, limited to live trapping near the barge landing and noting tracks in suitable soil types. Searching for Black Rat tracks in sandy soil is relatively simple for experienced workers; however, it is important to note that Black Rats are, unless at very high densities, very difficult to capture in live traps. Other common detection methods, such as spring (kill) traps and 'chew sticks', can not be used on Barrow because of the native animals.

5.6 Mammal casualties due to oil field activities

As stated in past reports, native mammals, including threatened species, are killed on Barrow Island by vehicles driving on roads and by oil well pumps. Staff and contractors are required by CVX to report all instances of animal casualties as environmental incidents and since mid 2002 these have been recorded and analysed via the SITESAFE incident management database. The historical mammal casualty data for Barrow Island were re-compiled from the previous WISE and HAZOB databases during 2003 and are presented, along with 2003 data, in Table 9.

Euro deaths at Lufkin pumps at oil wells remain a concern. The pumps start and stop intermittently, and euros resting in their shade when they are stopped may be killed by the pump counterweights when the pump restarts. CVX is progressively installing spiked mats on wells in an attempt to prevent euros resting in the danger zone. The design of the mats has been revised after it was noted in 2001 that Euros were resting on mats. This year we were told that Brushtail Possums are being killed when they take refuge in cages surrounding drive belts.

6. RECOMMENDATIONS

The mammal monitoring project has now been operating for six years, although trapping was incomplete in 1998 and 1999. When initially planned, it was proposed that monitoring be carried out annually for some years and then change to biennial monitoring. We recommend that

1. Data collected so far be analysed in more detail than has been the case in the summary annual reports such as this one.
2. Once this analysis is complete and written up, the project be reviewed in the light of any changes in the level of development approved on Barrow Island.

The south end of Barrow Island, where the introduced Black Rat (*Rattus rattus*) was eradicated in 1990/91, has not been trapped since 1991 and not searched for rat tracks since 1998. The adjacent Middle, Boodie and Pasco Islands, where the introduced Black Rat was eradicated in 1985, have not been trapped since 1998. Double and Boomerang Islands, where Black Rats were eradicated in 1983 and 1985, were examined in 2002. We recommend that

3. Middle, Boodie and Pasco Islands be searched for rat tracks and trapped for native and introduced mammals in 2004. This will require helicopter or vessel support.

Monitoring rock-wallabies, the least abundant mammal on Barrow Island, has so far proved difficult. Attempting to develop rock-wallaby monitoring methods during recent trips while conducting other work has proved difficult and a concerted effort is needed. We recommend that

4. Rock-wallaby monitoring methods be further developed in 2004.

Native mammals (including nationally- and State-listed threatened species) continue to be killed on oilfield roads and by Lufkin oil pumps. While undesirable, especially on a nature reserve, we accept that there will be some mammal deaths due to vehicle impact because native mammals are abundant on Barrow Island and we support the company's recent decision to reduce road speed limits to 60 km/h in daytime and 40 km/h at night, implemented in August 2003.

Animals are killed by oil pumps due to the pumps starting intermittently. This did not occur prior to 1996 when the pumps were upgraded from gas-powered pumps that ran continuously to electricity-powered models. While efforts have been made to reduce Euro deaths by installing spiked 'Euro mats' in danger areas, these are, as reported in 2001, not totally effective. CVX has revisited the design of the mats and this may help alleviate or overcome the problem. If not, another method of preventing Euros from accessing danger areas may be necessary. For example, a barrier fence may be effective against euros. Consideration also needs to be given to preventing possums from entering cages surrounding drive belts. We recommend that

5. ChevronTexaco reviews the effectiveness of existing measures for preventing mammals accessing danger areas at Lufkin oil pumps and considers the installation of barriers.

In past reports we have made recommendations to ChevronTexaco regarding oil well casualties, quarantine and animal barriers at the camp swimming pool. As far as we are aware, not all of these have not been acted upon and we have seen no formal response from the company. We recommend that

6. CALM formally transmits the above recommendations to ChevronTexaco.

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Species	Conservation Status
Unnamed Planigale, *Planigale* 'species 1' (Blacket *et al.* 2000)	not listed
Pseudantechinus sp.*	not listed
Barrow Island Golden Bandicoot, *Isoodon auratus barrowensis*	Vulnerable
Northern Brushtail Possum, *Trichosurus vulpecula arnhemensis*	not listed
Barrow Island Boodie, *Bettongia lesueur* (Barrow Island subspecies)	Vulnerable
Barrow Island Spectacled Hare-wallaby, *Lagorchestes c. conspicillatus*	Vulnerable
Black-flanked Rock-wallaby, *Petrogale lateralis lateralis*	Vulnerable
Barrow Island Euro, *Macropus robustus isabellinus*	Vulnerable
White-striped Mastiff-bat, *Tadarida australis*	not listed
Common Sheath-tail Bat, *Taphozous georgianus*	not listed
Finlayson's Cave-bat, *Vespadelus finlaysoni*	not listed
Rakali (Water-rat), *Hydromys chrysogaster*	not listed
Djoorri (Common Rock-rat), *Zyzomys argurus*	not listed
Barrow Island Mouse, *Pseudomys nanus ferculinus*	Vulnerable

The Black Flying Fox *Pteropus alecto* has been reported on Barrow, but these records apparently represent vagrants.

* In the 2002 report, we listed this animal as *P. roryi*. Recent research has shown that the *Pseudantechinus* on Barrow Island is genetically different from *Pseudantechinus roryi* and other *Pseudantechinus* spp. from the Pilbara mainland (M. Westerman, pers. comm). Its taxonomy is yet to be resolved.

Table 1. Terrestrial mammals of Barrow Island

DATE	Tue 21/10	Wed 22/10	Thur 23/10	Fri 24/10	Sat 25/10	Sun 26/10	Mon 27/10	Tue 28/10	Wed 29/10	Total
Bandicoot Bay Grid	25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P						**100 C** **100 E** **100 P**
John Wayne Grid	25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P						**100 C** **100 E** **100 P**
M21 Grid		25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P					**100 C** **100 E** **100 P**
S62 Grid					25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P		**100 C** **100 E** **100 P**
Landing Grid					25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P	25 C 25 E 25 P		**100 C** **100 E** **100 P**
Q21 Rock-wallaby		10 B	10 B	10 B			10B 20C	10B 20C	10B 20C	**60 B** **60 C**
WAPET Landing area					65E	65E	65E	65E		**260E**

Table 2. Summary of trapping effort at Barrow Island – October 2003.

Species	site(s) recorded
Diplodactylus sp.	BB
Heteronotia binoei	BB, JW, S62, M21, Landing
Strophurus jeanae	BB, JW, M21
Cyclodomorphus melanops	BB, S62, Landing
Ctenotus saxatilis	BB, JW, S62, M21
Ctenotus grandis	M21
Ctenotus pantherinus	JW, M21
Lerista bipes	BB, JW
Lerista elegans	BB
Lerista muelleri	Landing
Menetia greyii	M21
Ctenophorus caudicinctus	S62, M21, observed
Delma nasuta	M21
Delma sp.	M21
Pygopus nigriceps	M21
Lialis burtonis	BB
Varanus giganteus	Observed
Antaresia stimsoni	Observed
Pseudechis australis	Observed
whip snake	Observed

Table 3. Terrestrial reptile species recorded on Barrow Island, October 2003.

	1998	1999	2000	2001	2002	2003
Golden Bandicoot	25.9%	34.7%	30.0%	27.6%	30.6%	34.5%
Brushtail Possum	6.3%	15.4%	20.0%	24.8%	15.6%	23.6%
Boodie	5.1%	9.2%	8.2%	7.6%	7.8%	8.0%
Spectacled Hare-wallaby	1.5%	3.0%	3.0%	3.6%	2.4%	3.0%
***Planigale* sp.**	0.4%	1.2%	1.8%	2.8%	0.4%	1.2%
***Pseudantechinus* sp.**	0%	1.0%	0.4%	0.4%	0%	0.2%
Barrow Island Mouse	1.9%	1.6%	2.1%	1.7%	0.6%	1.0%
Common Rock Rat	0.1%	0.1%	0.7%	0.6%	0.3%	0.2%

Table 4. Mean trap success rates for mammals on Barrow Island since 1998. Data from all trapping grids.

	Golden Bandicoot	Northern Brushtail Possum	Boodie	Spectacled Hare-wallaby	Barrow Island Euro	Rodents, etc.	Total (excluding rock-wallabies)
1998							
North 3/4 Oct	7±2	6.5±0.5	4±2	30.5±12.5	7.5±0.5	1±0	56.5±16.5
South 3/4 Oct	10±5	5±0	7±1	23.5±2.5	1.5±0.5	2.5±0.5	49.5±3.5
North 5/6 Oct	17±4	8.5±1.5	3.5±3.5	23.5±0.5	4.5±1.5	4.5±1.5	61.5±8.5
South 5/6 Oct	17.5±3.5	9.5±2.5	3±0	32±7	1.5±0.5	6±1	69.5±12.5
North 9/10 Oct	26±5	8±2	11±0	27±4	4±1	0.5±0.5	76.5±6.5
South 9/10 Oct	30±5.5	7±2	7.5±4.5	28.5±1.5	0.5±0.5	2.5±1.5	76.5±10.5
Mean North	**16.7±3.9**	**7.7±0.8**	**6.2±1.9**	**27.0±3.6**	**5.3±0.8**	**2.0±0.8**	**64.8±4.3**
Mean South	**19.3±4.3**	**7.2±1.2**	**5.8±1.5**	**28.0±2.5**	**1.2±0.3**	**3.7±0.9**	**65.2±6.7**
1999							
North 14/15 Oct	21.5±6.5	10±2	8±2	14.5±1.5	4±0	2.5±0.5	60.5±4.5
South14/15 Oct	13.5±1.5	3±1	2.5±1.5	12.5±1.5	2±0	1±1	34.5±2.5
2000							
North 10/11 Oct	16±4	8.5±1.5	8.5±5.5	15.5±1.5	6±0	0	54.5±2.5
South10/11 Oct	15±5	6±2	3±0	23.5±5.5	3±3	2±2	52.5±3.5
North 12/14 Oct	21.5±3.5	11.5±6.5	10±0	21±4	4±2	5.5±5.5	73.5±17.5
South12/14 Oct	23.5±6.5	9.5±4.5	2±0	27.5±2.5	2.5±1.5	4.5±3.5	69.5±13.5
North 15/16 Oct	30±5	14±1	9±5	14.5±6.5	2±2	7±5	76.5±24.5
South15/16 Oct	21±4	10.5±0.5	3.5±0.5	21±2	1.5±0.5	6±6	63.5±11.5
Mean North	**22.5±3.2**	**11.3±2.0**	**9.2±1.9**	**17.0±2.4**	**4.0±1.0**	**4.2±2.3**	**68.2±8.9**
Mean South	**19.8±2.8**	**8.7±1.5**	**2.8±0.3**	**24.0±2.0**	**2.3±0.9**	**4.2±2.0**	**61.8±5.6**
2001							
North 16/17 Oct	13±1	8±2	4.5±2.5	24.5±2.5	0	2±0	52±8
South16/17 Oct	14.5±0.5	9.5±3.5	8±0	27±5	3±2	2±1	64±8
North 19/20 Oct	11±5	8.5±0.5	5±1	7.5±1.5	2.5±0.5	1.5±1.5	36±6
South19/20 Oct	11.5±3.5	7.5±1.5	3±0	19.5±2.5	2±1	5±3	48.5±4.5
North 22/23 Oct	9±0	9.5±4.5	7±4	20±5	2.5±0.5	1.5±0.5	58.5±0.5
South22/23 Oct	17±1	9±5	7.5±0.5	32.5±5.5	1±1	0.5±0.5	67.5±2.5
Mean North	**11.0±1.5**	**8.7±0.6**	**5.5±1.3**	**20.3±4.4**	**1.6±0.6**	**1.7±0.4**	**48.8±5.0**
Mean South	**14.3±1.4**	**8.7±1.7**	**6.2±1.0**	**26.3±3.1**	**2.0±0.7**	**2.5±1.2**	**60.0±4.4**
2002							
North 23/24 Oct	15.5±7.5	12±0	11.5±6.5	22.5±4.5	3±2	1±0	65.5±7.5
South23/24 Oct	18.5±5.5	3.5±0.5	2±1	17±0	3±1	0.5±0.5	44.5±2.5
North 26/27 Oct	14.5±0.5	4.5±1.5	7.5±3.5	19±0	0	1.5±0.5	47±6
South26/27 Oct	16±4	6±1	3.5±1.5	23.5±4.5	6±2	2.5±0.5	57.5±5.5
North 29/30 Oct	13.5±3.5	7±0	9.5±4.5	33.5±0.5	1.5±0.5	1.5±0.5	66.5±0.5
South29/30 Oct	11±5	5.5±1.5	6±4	22.5±2.5	2.5±0.5	1.5±1.5	52±1
Mean North	**14.5±2.2**	**7.8±1.4**	**0.5±2.3**	**25.0±3.0**	**1.5±0.8**	**1.3±0.2**	**59.7±4.7**
Mean South	**15.2±2.6**	**5.0±0.7**	**3.8±1.4**	**22.0±2.1**	**3.8±0.9**	**1.5±0.6**	**51.3±2.9**
2003							
North 22/23 Oct	5±1	3±1	9.5±1.5	16.5±9.5	1±0	1.5±0.5	36.5±11.5
South 22/23 Oct	12.5±4.5	2±2	3.5±1.5	17±3	1.5±1.5	0.5±0.5	37±1
North 25/26 Oct	10±4	7±0	9.5±0.5	12±1.5	6±4	0.5±0.5	45.5±2.5
South 25/26 Oct	14.5±2.5	7.5±4.5	7±2	17.5±0.5	3.5±0.5	1.5±0.5	51.5±5.5
North 27/28 Oct	11.5±1.5	5.5±2.5	8±3	12.5±3.5	3.5±0.5	0.5±0.5	41.5±7.5
South 27/28 Oct	12.5±4.5	4±3	3±2	14.5±5.5	2±0	0.5±0.5	36.5±4.5
Mean North	**8.8±1.7**	**5.2±1.0**	**9.0±0.9**	**13.8±2.8**	**3.5±1.4**	**0.8±0.3**	**41.2±4.3**
Mean South	**13.2±1.8**	**4.5±1.8**	**4.5±1.1**	**16.3±1.7**	**2.3±0.6**	**0.8±0.3**	**41.7±3.6**

Figures are mean ± standard error

Table 5. Barrow Island Nature Reserve, spotlighting data 1998-2003.

Golden Bandicoot

	ESW	D	D LCL	D UCL	D CV	Diff?	?>?
North 1998	6.686	0.917	0.756	1.112	0.098	} ns	
South 1998	7.382	0.963	0.709	1.052	0.100		
North 2000	4.848	1.339	1.179	1.521	0.065	} *	N>S
South 2000	6.711	0.896	0.712	1.127	0.117		
North 2001	10.106	0.573	0.482	0.681	0.087	} ns	
South 2001	13.576	0.434	0.292	0.646	0.202		
North 2002	15.457	0.396	0.333	0.472	0.089	} ns	
South 2002	12.624	0.462	0.345	0.618	0.148		
North 2003	8.206	0.718	0.566	0.909	0.120	} ns	
South 2003	11.101	0.574	0.472	0.698	0.099		

Brushtail Possum

	ESW	D	D LCL	D UCL	D CV	Diff?	?>?
North 1998	12.516	0.429	0.302	0.611	0.177	} ns	
South 1998	21.324	0.266	0.185	0.383	0.183		
North 2000	7.759	0.718	0.598	0.863	0.093	} *	N>S
South 2000	11.664	0.437	0.359	0.532	0.099		
North 2001	17.381	0.332	0.251	0.440	0.141	} ns	
South 2001	14.224	0.366	0.235	0.568	0.223		
North 2002	16.519	0.348	0.259	0.468	0.149	} *	N>S
South 2002	41.434	0.117	0.090	0.152	0.130		
North 2003	12.152	0.491	0.372	0.647	0.139	} ns	
South 2003	23.687	0.259	0.156	0.431	0.255		

Boodie

	ESW	D	D LCL	D UCL	D CV	Diff?	?>?
North 1998	7.879	0.734	0.571	0.943	0.126	} ns	
South 1998	8.060	0.740	0.391	1.402	0.323		
North 2000	6.341	0.964	0.743	1.250	0.131	} *	N>S
South 2000	17.339	0.288	0.227	0.366	0.117		
North 2001	8.549	0.643	0.454	0.911	0.174	} ns	
South 2001	11.033	0.493	0.355	0.686	0.166		
North 2002	9.566	0.662	0.552	0.794	0.092	} *	N>S
South 2002	25.317	0.216	0.147	0.318	0.192		
North 2003	8.851	0.649	0.501	0.841	0.131	} *	N>S
South 2003	17.598	0.320	0.242	0.422	0.139		

Spectacled Hare-wallaby

	ESW	D	D LCL	D UCL	D CV	Diff?	?>?
North 1998	11.501	0.656	0.540	0.797	0.099	} *	N>S
South 1998	30.865	0.193	0.170	0.219	0.063		
North 2000	9.951	0.682	0.563	0.825	0.097	} ns	
South 2000	12.621	0.519	0.439	0.612	0.084		
North 2001	14.673	0.457	0.383	0.545	0.090	} *	N>S
South 2001	28.518	0.234	0.201	0.272	0.077		
North 2002	30.472	0.220	0.167	0.289	0.139	} ns	
South 2002	35.009	0.203	0.165	0.249	0.105		
North 2003	16.349	0.379	0.294	0.488	0.128	} *	N>S
South 2003	33.246	0.202	0.170	0.239	0.086		

Key:
- ESW Effective Strip Width or Effective Detection Radius
- D Density of individuals (animals/ha – note data are total of 6 transects)
- D LCL Density of individuals (lower analytical confidence limit)
- D UCL Density of individuals (upper analytical confidence limit)
- D CV Density of individuals analytical coefficient of variance

ns not significant

* significant difference between North and South transects, p>0.05

Table 6. Vehicle traverse spotlighting data: DISTANCE 3.5 analyses.

	North Transect	South Transect
Golden Bandicoot	16.3	33.2
Brushtail Possum	12.2	23.7
Boodie	8.9	17.6
Spectacled Hare-wallaby	16.3	33.2

Table 7. Effective strip widths (metres), October 2003.

Barrow Island

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Mean	**21.3**	**54.9**	**54.3**	**20.7**	**42**	**60.5**	**18.5**	**10.2**	**3.5**	**0.7**	**1.1**	**12**	**318.2**
Median	**1.2**	**42.9**	**24.1**	**8.9**	**19.6**	**14.8**	**15**	**3.9**	**0**	**0**	**0**	**0**	**284.7**
1991	0	36.2	1.2	0	39.2	169.3	8	3.4	0	0	0	0	**257.3**
1992	0	2	168.2	131.4	0.5	43						0	
1993													
1994									0			5.6	
1995	0.4	102.6		9	2	65	34.6		4.4	0	0	0	**218.0***
1996	0	0.2	0	10	0.2	70.4							
1997	36.4	81	0	1	27.6	2.4	34.2	19.6	4.2	0.6	0	0.2	**207.2**
1998	0	0	1		16.2	0	9.8	13.2	0	0	0.2	50	**90.4***
1999	8	88.6			0								
2000	0												

Barrow Island airport

1999		11.6	40.2	15.4	295		0	2.4	0.2	0	0.2	1.6	**451.8*#**
2000	39.8	7.6	210.6	12	0.8	0	15.2	2.2	0	0	0	0.8	**289.0**
2001	16.2	29	18.6	10.2	33.2	1	0.2	0	0	0	0	0	**108.4**
2002	0	0	8	0.8	11	106	0.8	0.4	0.2	0	0	0	**127.2**
2003	0	2.8	1	62.4	6.8	28.6	0	15.2	0.4	0			

* incomplete data

\# First two months from 'Barrow Island'; last 10 months from 'Barrow Island airport'

Table 8. Bureau of Meteorology rainfall data: 'Barrow Island' and 'Barrow Island Airport'.

Animal	2003 (to 7 December)		2002	
	Road Casualties	Lufkin Related	Road Casualties	Lufkin Related
Golden Bandicoot	13	0	1	0
Northern Brushtail Possum	1	1	0	0
Burrowing Bettong	2	0	0	0
Spectacled Hare-wallaby	6	1	2	1
Barrow Island Euro	7	9	0	1
Unidentified mammal(s)	0	1	0	0
Nankeen Kestrel	0	0	1	0
Singing Honeyeater	1	0	0	0
Perentie	3	0	0	0
Stimson's Python	1	0	1	0
Unidentified snake(s)	4	0	0	0
Totals	**38**	**12**	**5**	**2**

*Unidentified Mammal: No description was made on the incident report form.
*Unidentified Snake: No physical description of the snake was recorded on the incident report form.

	Road deaths				Lufkin pump deaths
Year	Mammals	Birds	Reptiles	Total	Mammals
2000	42	0	11	53	13
2001	21	0	3	24	11
2002	3	1	1	5	2
2003 (to 7 December)	29	1	8	38	12

Table 9. Animal casualty data provided by ChevronTexaco.

	John Wayne Grid	Bandicoot Bay Grid	M21 Grid	S62 Grid	Landing Grid
Golden Bandicoot	2.32±0.08 (36)	2.13±0.08 (38)	2.04±0.08 (22)	2.33±0.06 (34)	2.05±0.06 (29)
Brushtail Possum	7.24±0.16 (11)	8.11±0.20 (4)	8.32±0.61 (9)	6.61±0.17 (18)	7.55±0.24 (13)
Boodie	-	3.30±0.14 (9)	3.85±0.41 (4)	3.36±0.43 (3)	2.88±0.11 (7)
Spectacled Hare-wallaby	6.48±0.42 (2)	7.37±1.71 (3)	5.80±0.26 (2)	-	-

Figures are mean ± standard error. Subadults excluded. Number in brackets is number of adult animals captured and measured (includes some re-trapped animals that were measured again).

Table 10. Condition Indices of commonly-trapped mammals.

Species	1998	2000	2001	2002	2003
Golden Bandicoot	3679 (2867-4235)	1753 (855-1333)	1971 (1515-2597)	1679 (1327-2133)	2528 (2031-3145)
Brushtail Possum	1360 (1149-1945)	650 (491-861)	1366 (951-1973)	910 (683-1213)	1468 (1033-2110)
Boodie	2884 (1883-4589)	564 (444-716)	2223 (1583-3125)	1718 (1368-2176)	1896 (1454-2472)
Spectacled Hare-wallaby	1661 (1389-1988)	1016 (749-1067)	888 (720-1098)	828 (650-1053)	1137 (908-1423)
Barrow Island Euro	914 (554-1526)	761 (462-1268)	935 (497-1714)	528 (305-924)	851 (462-1607)

Table 11. Estimates of minimum total population size, developed from spotlight data, of commonly-sighted mammals on Barrow Island.

	Butler (1970)	Short *et al.* (1988)
Golden Bandicoot	1000+	3200
Boodie	400+	2500
Spectacled Hare-wallaby	1966: 600+; 1969: 800+	8600
Barrow Island Euro	200+	1500

Table 12. Estimates of mammal population size on Barrow Island from Butler (1970) and Short *et al.* (1988).

Figure 1. Mammal trap success rates on the Bandicoot Bay grid, Barrow Island

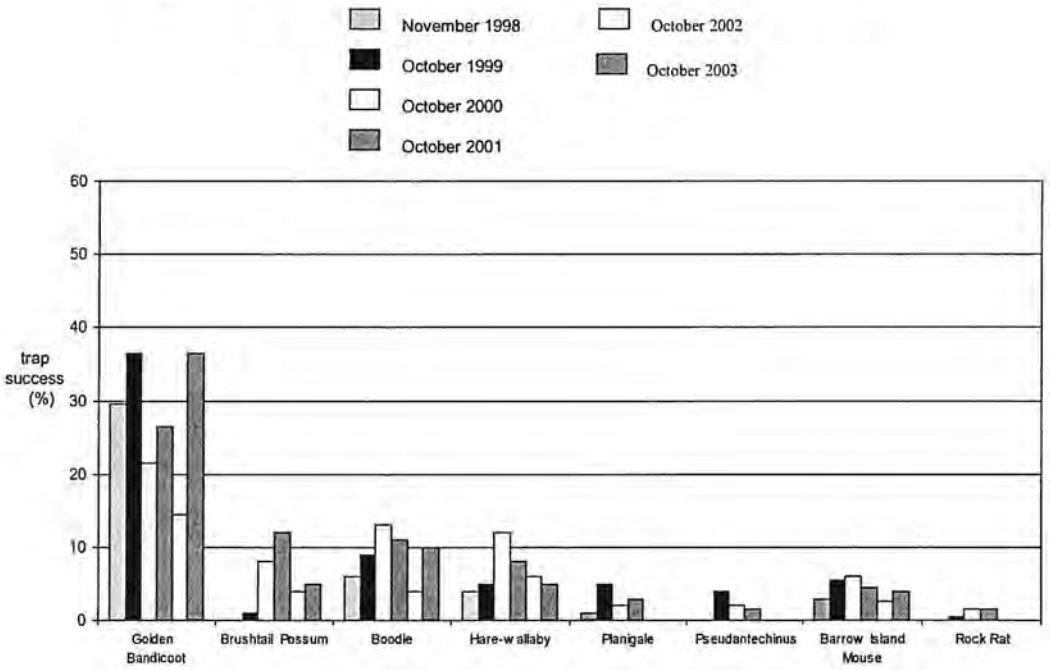


Figure 2. Mammal trap success rates on the John Wayne grid, Barrow Island

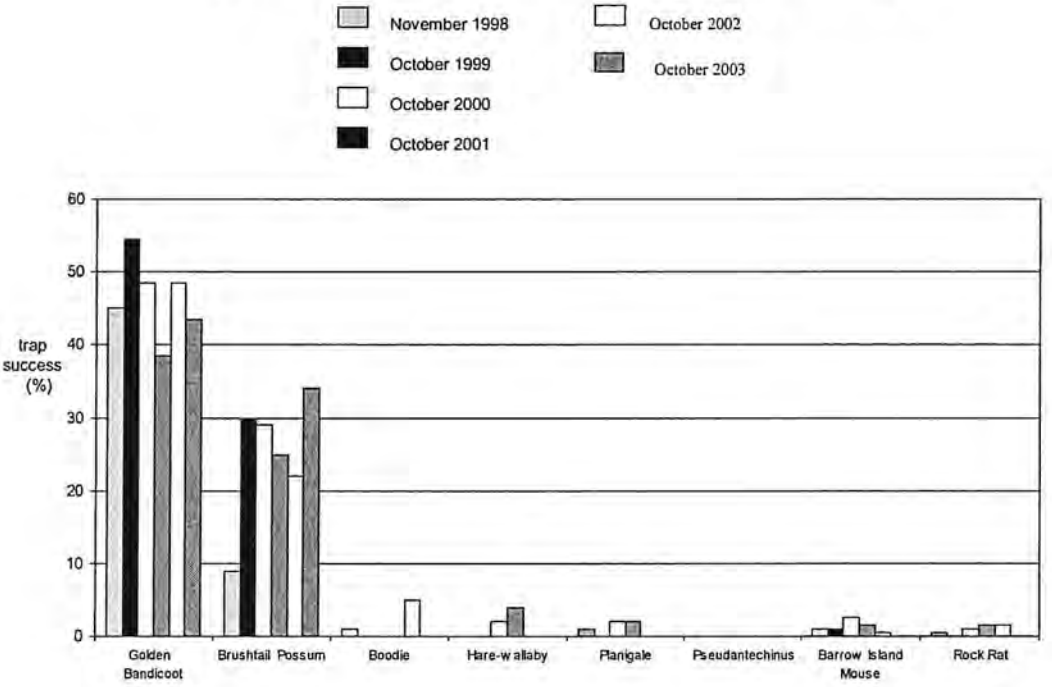


Figure 3. Mammal trap success rates on the Landing grid, Barrow Island

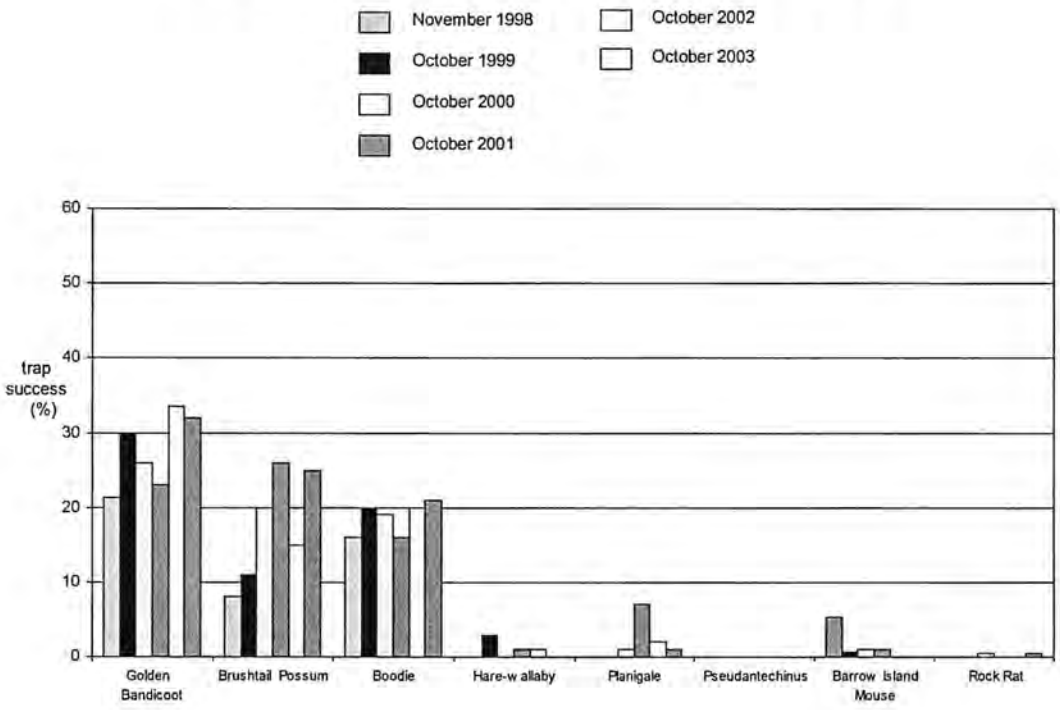


Figure 4. Mammal trap success rates on the M21 grid, Barrow Island

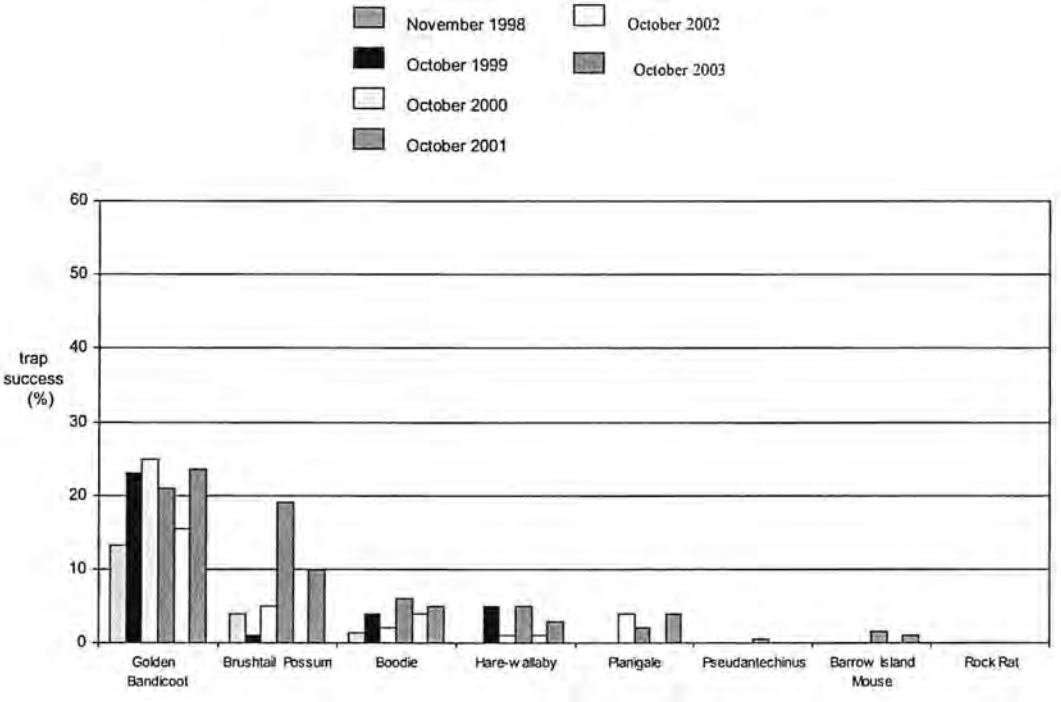


Figure 5. Mammal trap success rates on the S62 grid, Barrow Island.

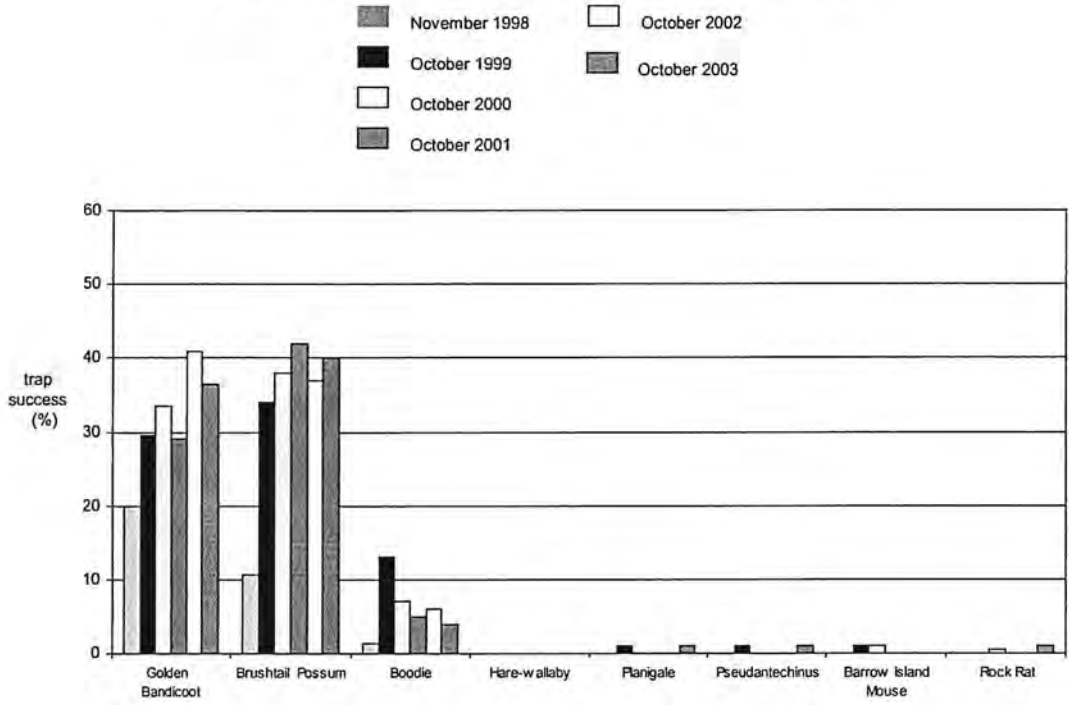


Figure 6. Grid trap success rates for the Golden Bandicoot on Barrow Island

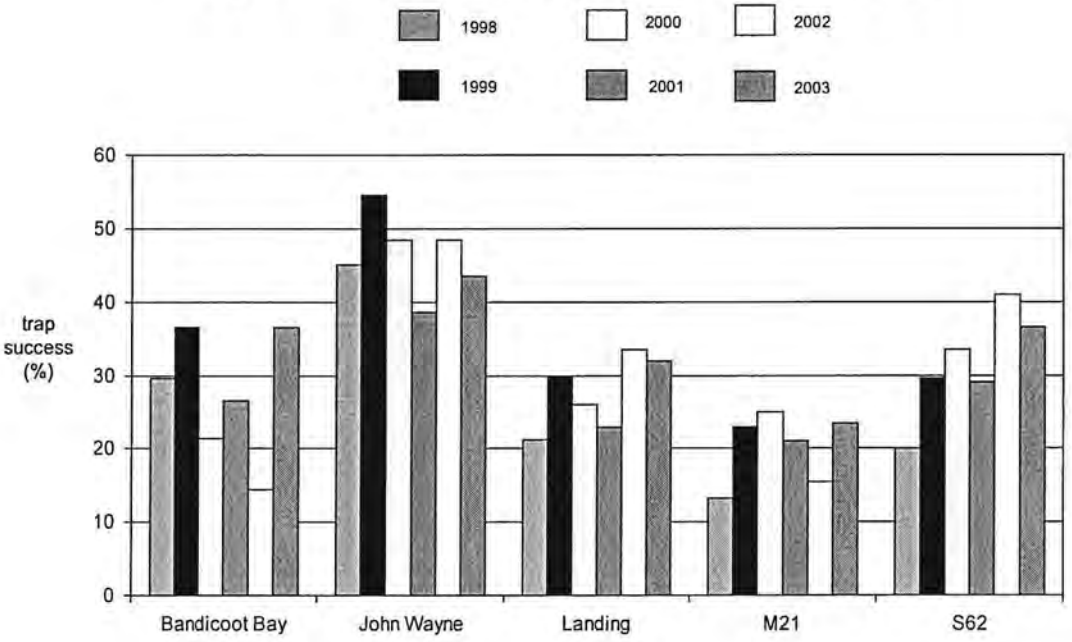


Figure 7. Grid trap success rates for the Brushtail Possum on Barrow Island

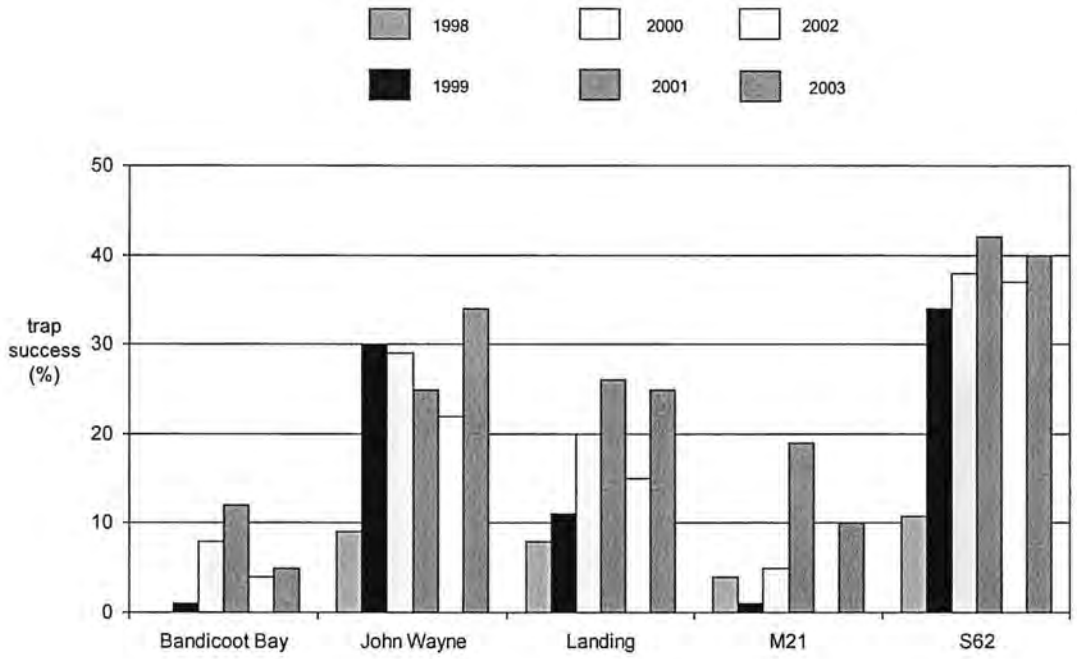


Figure 8. Grid trap success rates for the Boodie on Barrow Island

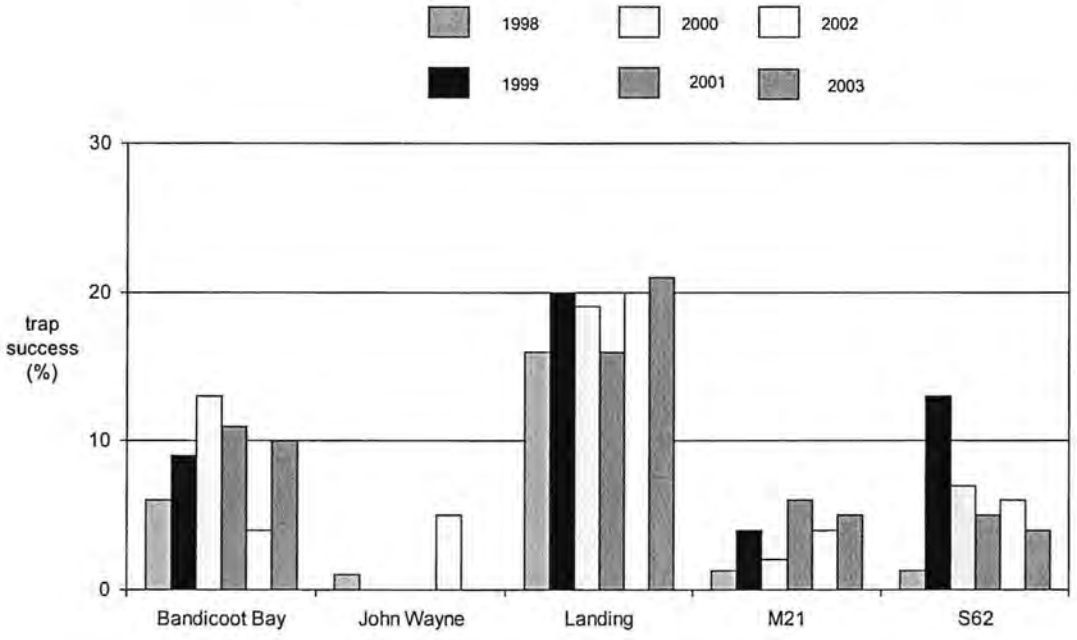


Figure 9. Grid trap success rates for the Planigale on Barrow Island

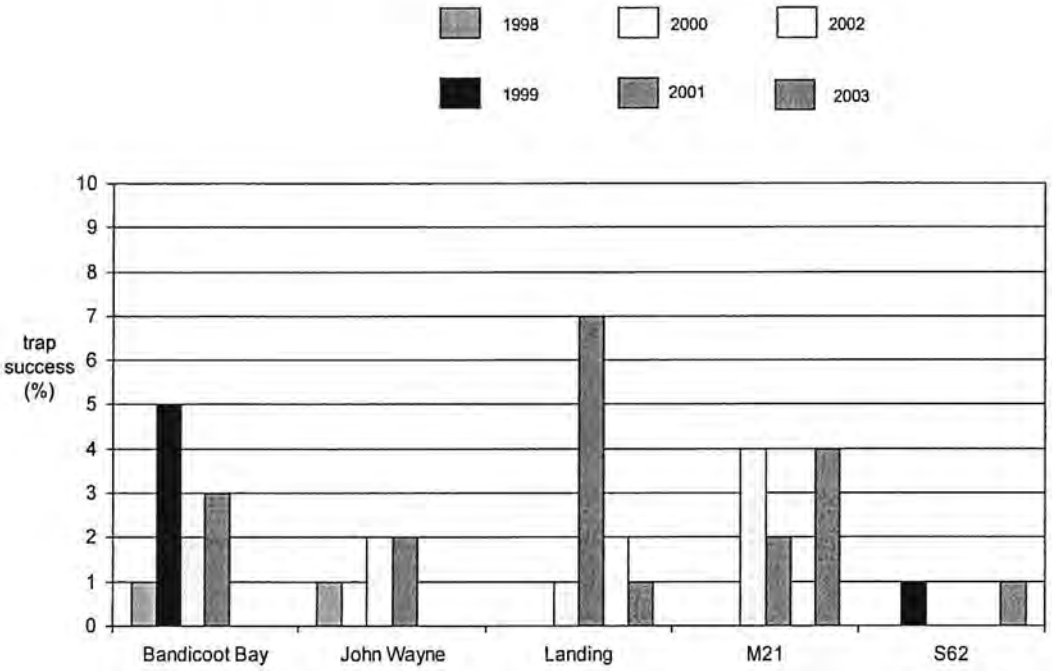


Figure 10. Grid trap success rates for *Pseudantechinus* sp. on Barrow Island

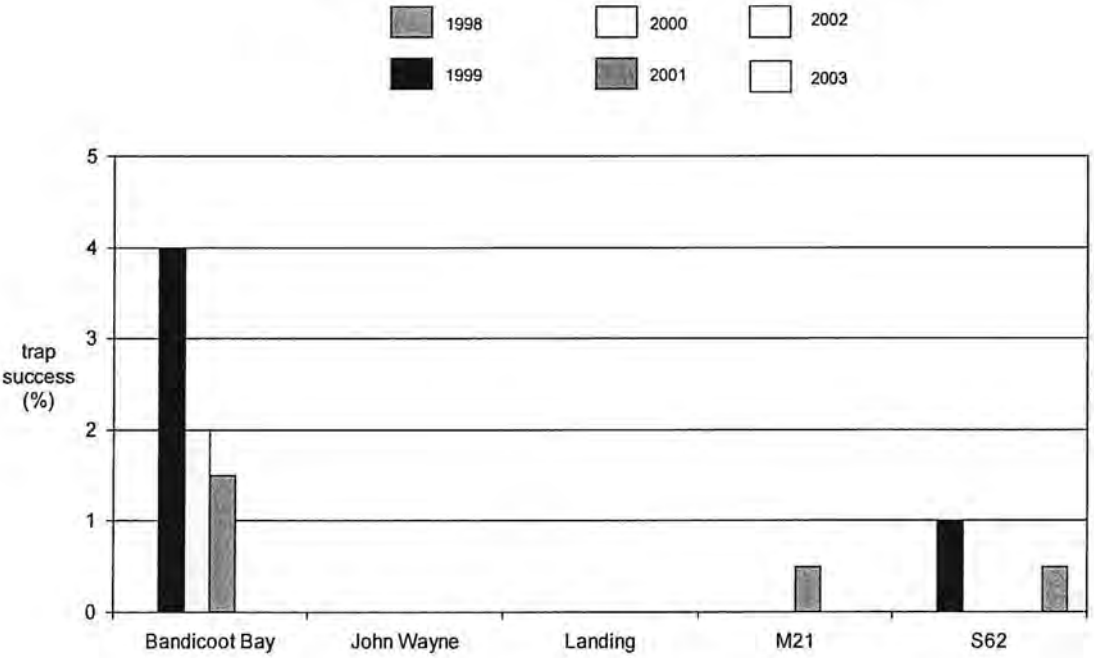


Figure 11. Grid trap success rates for the Barrow Island Mouse on Barrow Island

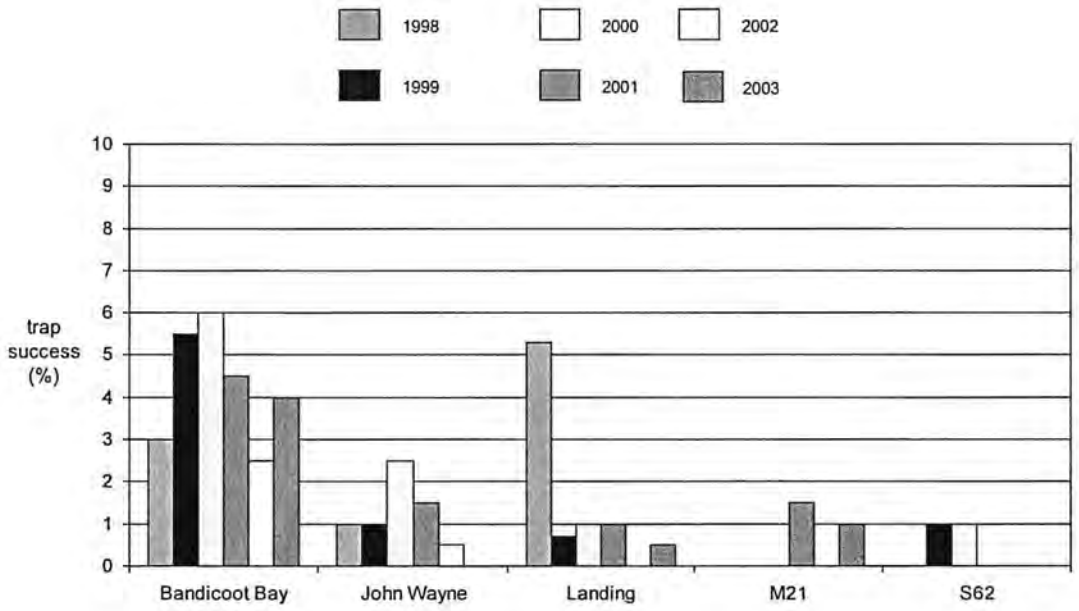


Figure 12. Grid trap success rates for the Rock Rat on Barrow Island

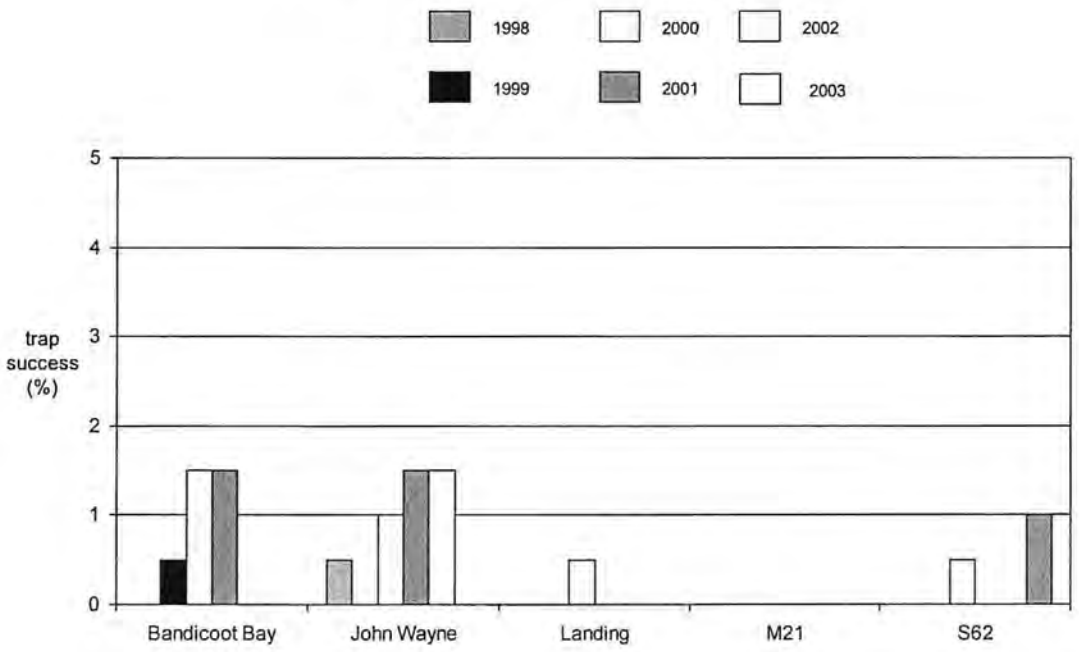


Figure 13. Grid trap success rates for the Spectacled Hare-wallaby on Barrow Island (not reported in 1998 and 1999)

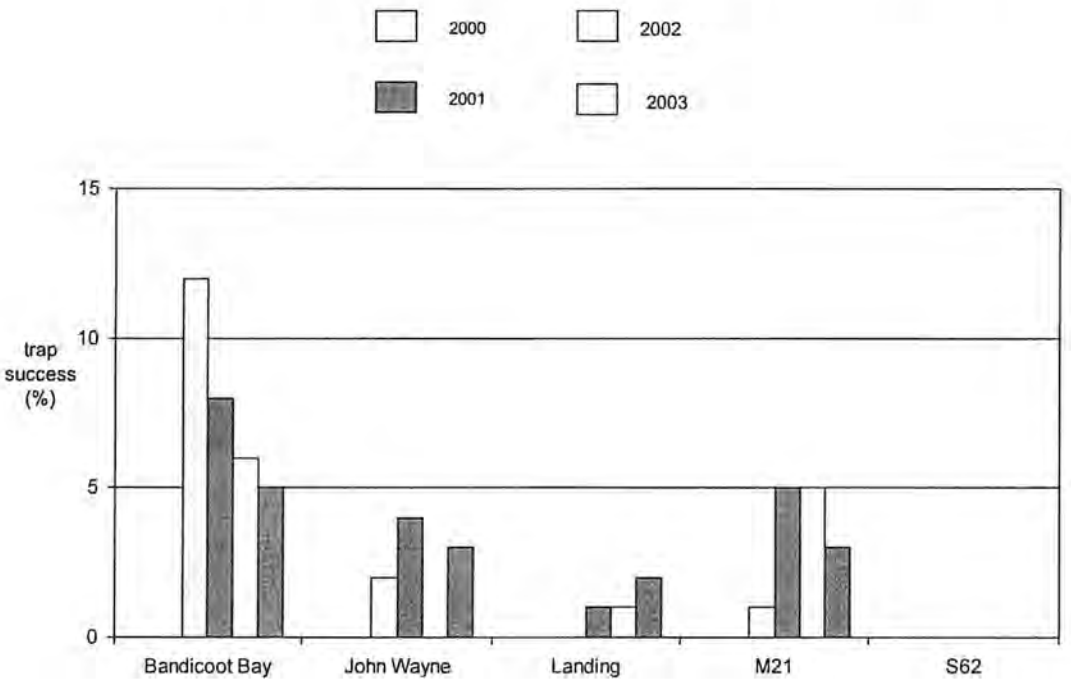


Figure 14. Barrow Island spotlighting transects 1998-2003, unanalysed data

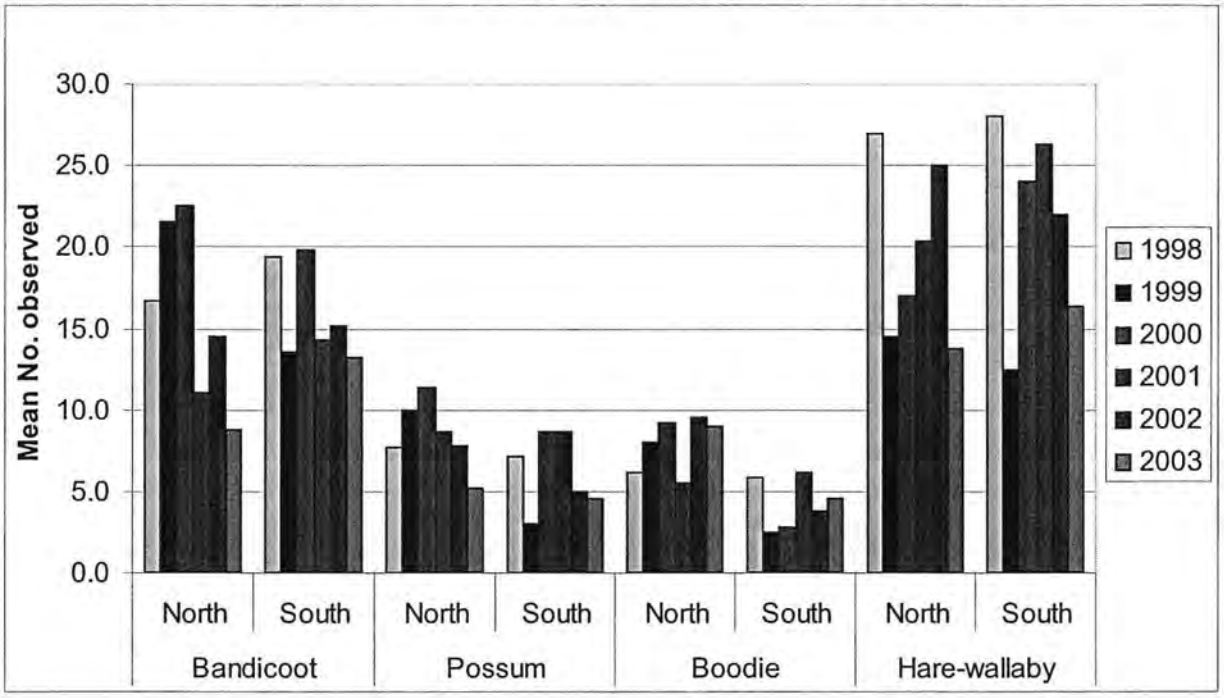


Figure 15. Golden Bandicoot spotlighting data.

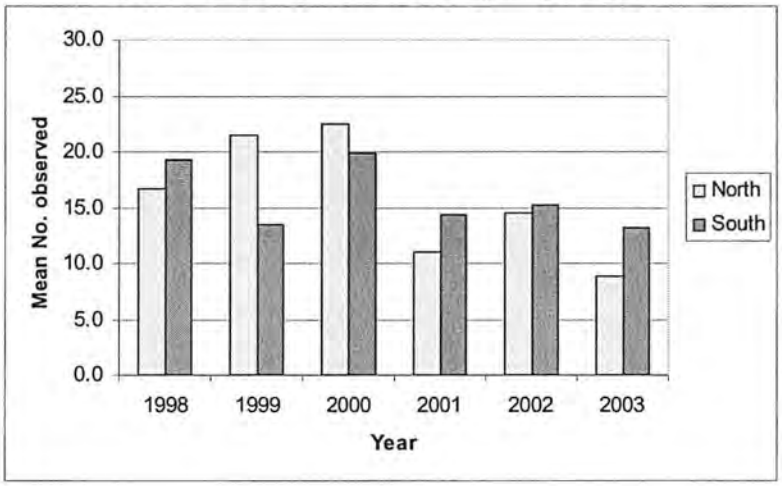


Figure 16. Brushtail Possum spotlighting data.

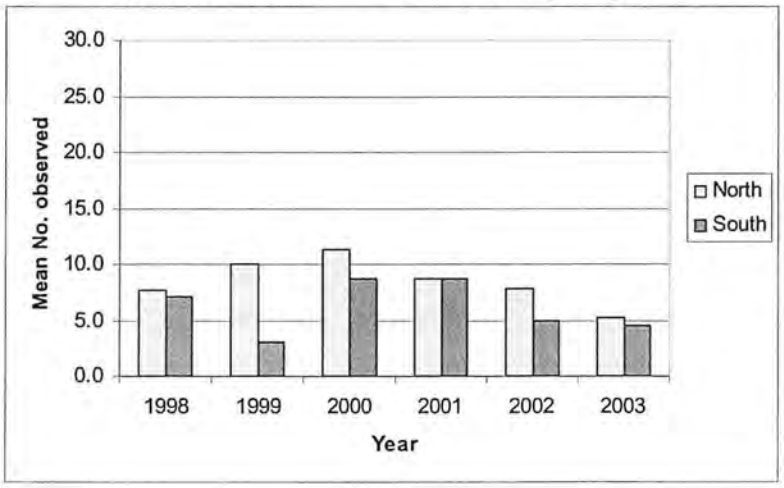


Figure 17. Boodie spotlighting data.

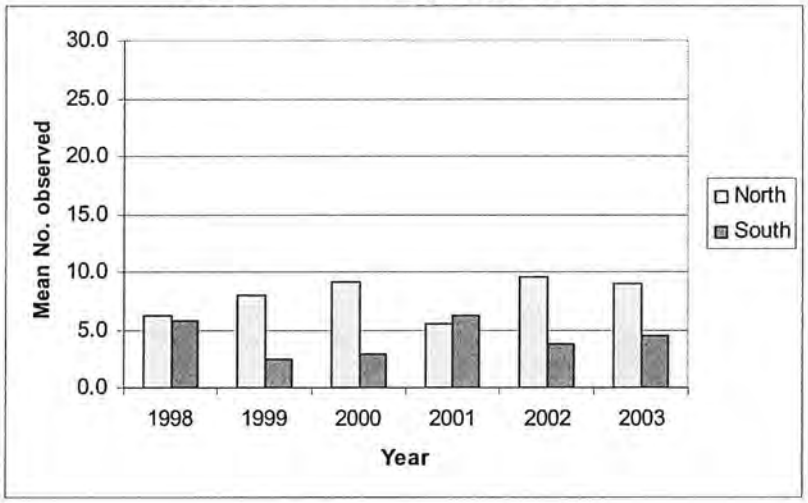
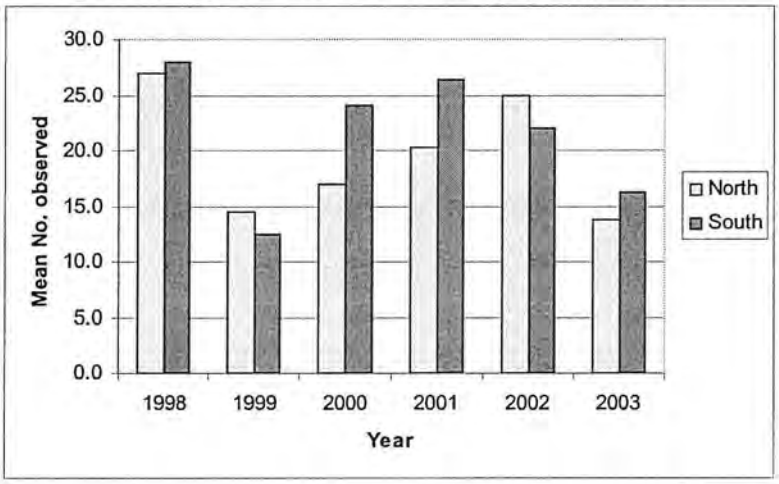


Figure 18. Spectacled Hare-wallaby spotlighting data.



APPENDIX 1. TRAPPING SUMMARY, BARROW ISLAND GRIDS, OCTOBER 2003

JOHN WAYNE GRID

	Golden Bandicoot (200 trapnights)			Brushtail Possum (100 trapnights)			Boodie (100 trapnights)			Spectacled Hare-wallaby (100 trapnights)			Planigale (100 trapnights)			Pseudantechinus (200 trapnights)			Barrow Island Mouse (200 trapnights)			Common Rock Rat (200 trapnights)		
	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT
Total captures	20	20	47	5	7	22	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total individuals	40			12			0			2			0			0			0			0		
Trap success	43.5%			34.0%			0.0%			3.0%			0.0%			0.0%			0.0%			0.0%		

BANDICOOT BAY GRID

	Golden Bandicoot (200 trapnights)			Brushtail Possum (100 trapnights)			Boodie (100 trapnights)			Spectacled Hare-wallaby (100 trapnights)			Planigale (100 trapnights)			Pseudantechinus (200 trapnights)			Barrow Island Mouse (200 trapnights)			Common Rock Rat (200 trapnights)		
	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT
Total captures	29	10	34	2	1	2	4	3	3	3	2	1	0	0	0	0	0	0	5	1	2	0	0	0
Total individuals	39			3			7			5			0			0			6			0		
Trap success	36.5%			5.0%			10.0%			5.0%			0.0%			0.0%			4.0%			0.0%		

M21 GRID

	Golden Bandicoot (200 trapnights)			Brushtail Possum (100 trapnights)			Boodie (100 trapnights)			Spectacled Hare-wallaby (100 trapnights)			Planigale (100 trapnights)			Pseudantechinus (200 trapnights)			Barrow Island Mouse (200 trapnights)			Common Rock Rat (200 trapnights)		
	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT
Total captures	15	7	25	10	0	4	2	0	3	0	2	1	4	0	0	0	0	0	0	1	0	0	0	0
Total individuals	22			10			2			2			4			0			1			0		
Trap success	23.5%			10.0%			5.0%			3.0%			4.0%			0.0%			1.0%			0.0%		

S62 GRID

	Golden Bandicoot (200 trapnights)			Brushtail Possum (100 trapnights)			Boodie (100 trapnights)			Spectacled Hare-wallaby (100 trapnights)			Planigale (100 trapnights)			Pseudantechinus (200 trapnights)			Barrow Island Mouse (200 trapnights)			Common Rock Rat (200 trapnights)		
	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT
Total captures	17	20	36	8	13	19	0	3	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1
Total individuals	37			21			3			0			1			1			0			1		
Trap success	36.5%			40.0%			4.0%			0.0%			1.0%			0.5%			0.0%			1.0%		

LANDING GRID

	Golden Bandicoot (200 trapnights)			Brushtail Possum (100 trapnights)			Boodie (100 trapnights)			Spectacled Hare-wallaby (100 trapnights)			Planigale (100 trapnights)			Pseudantechinus (200 trapnights)			Barrow Island Mouse (200 trapnights)			Common Rock Rat (200 trapnights)		
	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT	N	R	RT
Total captures	12	16	36	9	5	11	4	6	11	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0
Total individuals	28			14			10			2			1			0			1			0		
Trap success	32.0%			25.0%			21.0%			2.0%			1.0%			0.0%			0.5%			0.0%		