GORGON GAS DEVELOPMENT

THREATENED AND PRIORITY SPECIES TRANSLOCATION AND REINTRODUCTION PROGRAM

ANNUAL REPORT

2010/2011

Department of
Environment and Conservation
Our environment, our future

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1. Executive Summary

This annual report for the Threatened and Priority Species Translocation and Reintroduction Program Account covers the period 1 July 2010 to 30 June 2011.

The Threatened and Priority Species Translocation and Reintroduction Program commenced in February 2010, and continued in 2011.

In 2011, two mammal species and two bird species from Barrow Island were translocated to three island sites. Boodies were translocated to Alpha Island (Montebello group), and golden bandicoots translocated to Doole Island (Exmouth Gulf). Restocking of Hermite Island with spinifexbirds and black and white fairy-wrens was also completed, following the successful reintroduction of these species in 2010.

Regular monitoring at all sites continued. Golden bandicoots and spectacled hare-wallabies translocated to Hermite Island in 2010 have established and now occupy all of Hermite Island. Golden bandicoots and boodies translocated to the fenced enclosure at Lorna Glen have also established and populations have increased significantly. Northern brushtail possums reintroduced to Cape Range National Park in 2010 have failed to establish, due to fox predation. A study commenced to determine why the fox baiting program was not more effective at controlling foxes. Other activities related to the translocation program included continuing to study the health of translocated animals, the commencement of a study into the role of digging mammals on soil characteristics, and an expanded feral cat baiting program at Lorna Glen.

A translocation program is being developed for 2012, and regular monitoring will continue at all sites. A PhD study into the genetic variability of translocated mammals will commence.

2. Introduction

The Gorgon Gas Development Revised and Expanded Proposal: Barrow Island Nature Reserve was approved by the Western Australian Government subject to a number of conditions and a commitment by the Gorgon Joint Venture participants to fund a series of "Additional Gorgon Joint Venture Undertakings". One of these is the Threatened and Priority Species Translocation and Reintroduction Program. The Program is designed to translocate and/or reintroduce selected threatened and priority fauna species from Barrow Island to other suitable habitat within Australia, and includes monitoring and management of the fauna populations and habitats. The Program is developed and implemented by the Department of Environment and Conservation (DEC) and will run over 12 years at a cost of $10 million (2007 $).

Arrangements for governance, consultation and reporting have been agreed between the Barrow Island Act Minister, the Minister for Environment and the Gorgon Joint Venture participants. These arrangements stipulate that:

"each year, within one month of completing the agency's annual report, provide to the CALM Act Minister, the Barrow Island Act Minister and the Joint Venturers an annual report showing the opening balance, income, expenditure and closing balance of the Account, and including a description of the Threatened Species Translocation and

Reintroduction Program activities undertaken during the past year, the results of those activities, and a summary of the Threatened Species Translocation and Reintroduction Program activities to be undertaken in the following year."

This report fulfills these requirements for the 2010/11 financial year.

3. Threatened and Priority Species Translocation and Reintroduction Program Activities 2010/2011

One major fauna translocation program was conducted during 2010/11. From Barrow Island, 40 boodies, 92 golden bandicoots, 12 spinifexbirds and 10 black and white fairy-wrens were translocated to secure island locations (see Table 1). A brief overview of the methods employed by DEC staff during the Barrow Island phase of the program is given below, followed by a summary of monitoring results for each destination site. Presentations on the progress of the translocations were provided to Chevron and Gorgon contractor staff on Barrow Island and in Perth.

3.1 Mammal translocations

The fauna translocation program was conducted from 20 June to 22 July 2011. Although the program continued into the 2011/12 reporting year, the effort and results of the entire program are reported here for completeness.

Table 1: Species, number of individuals and destinations for animals translocated from Barrow Island during 2010/11

Species *(number captured on Barrow Island)*	Destination
Golden bandicoot (*92*)	Doole Island (Exmouth Gulf)
Boodie (*40*)	Alpha Island (within Montebello Island group)
Spinifexbird (*12*)	Hermite Island (within Montebello Island group)
Black and white fairy-wren (*10*)	Hermite Island (within Montebello Island group)

Trapping effort (300 cage trap-nights) for boodies on Barrow Island focused near the Airport. Trapping effort for golden bandicoots (105 cage and 167 Elliott trap-nights) was undertaken in the Construction Village, the proposed LNG Operations Centre, and John Wayne. Mist netting for birds was undertaken mainly at the south of the island, near Bandicoot Bay.

A quarantine-compliant helicopter (Heliwest) was chartered to transport boodies, spinifexbirds and black and white fairy-wrens from Barrow Island to Hermite Island in the Montebello Islands, and Shark Bay mice. A fixed wing aircraft (Beechcraft Bonanza) was used to fly the golden bandicoots direct from Barrow Island to Bullara Station, from where they were transported by dinghy to Doole Island. Flights were usually on alternate days.

3.1.1 Montebello Islands

None of the fauna translocated from Barrow Island to the Montebello Islands (Hermite and Alpha Islands) in 2010/11 were fitted with radio-tracking devices and

because of the timing of this year's translocations no monitoring has yet been undertaken, other than that during the period of release.

The golden bandicoots and spectacled hare-wallabies released onto Hermite Island in 2010 have increased in abundance and now occupy the whole island. Bandicoots have also been observed on Buttercup Island which is connected to Hermite Island at low tide. The spinifexbirds and black and white fairy-wrens released in 2010 have also established and expanded their range on Hermite Island.

The first bird monitoring session on Hermite Island was conducted in August 2010. In summary, both species appear to have established themselves, with both occupying habitat within and beyond the release area (Figure 1). A number of birds were calling strongly, suggesting that they are healthy and defending adequate territories. A report on the progress of the bird translocations was prepared by Burbidge and Hamilton (2010). Several unexpected bird deaths occurred during the mid 2011 translocation, and while possible causes are still being investigated, it is thought that all deaths were stress related, resulting in social interactions that were more intense than usual during the captive phase of the translocation. This was possibly brought about because both species were in breeding condition due to the good seasonal conditions experienced during the previous months on Barrow Island. This has implications for the timing of any future translocations, but timing may be problematic because both species could respond to aseasonal rainfall events.

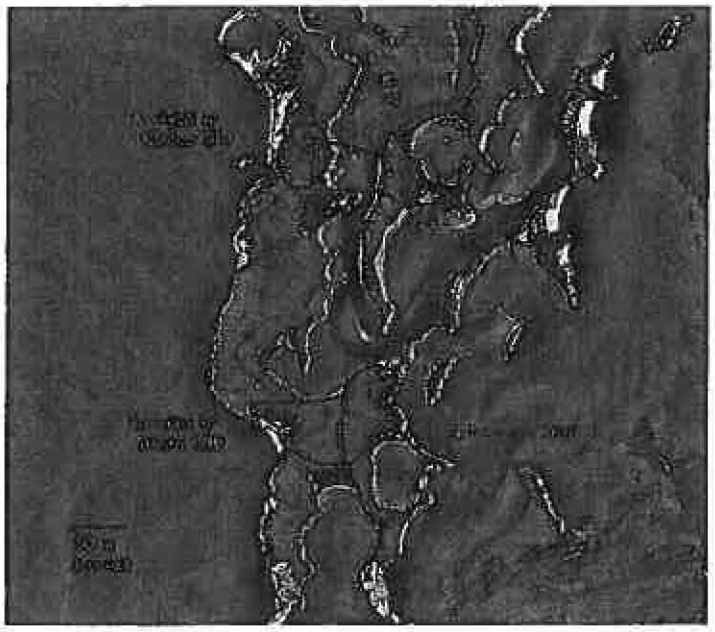

Figure 1: Areas occupied by spinifexbirds and black and white fairy wrens on Hermite Island

There have been five mammal monitoring sessions on Hermite Island (February, March, May/June and October 2010 and April 2011) since the reintroduction of the bandicoots and hare-wallabies. A combination of radio-tracking, trapping and opportunistic surveys for tracks has shown both species have dispersed widely across the island and now occur in all habitat types. Both species show good signs of breeding. During the October monitoring session a total of 108 bandicoots were trapped, 65 of which were new recruits (born on the island), and of the adult females trapped, 71.4% (n=28) had pouch young or were lactating. Monitoring of the hare-

wallabies was problematic due to the high density of the bandicoots; only five hare-wallabies were trapped in the April 2011 monitoring session. However, spotlighting surveys, track surveys and incidental flushing of animals during the day indicate that hare-wallabies are in good numbers. Of the latest four captured females, three had pouch young or young at heel; this fecundity has been as high as 100% (n=8) in earlier trapping sessions. Both species have shown positive increases in body weight (Figures 2 and 3).

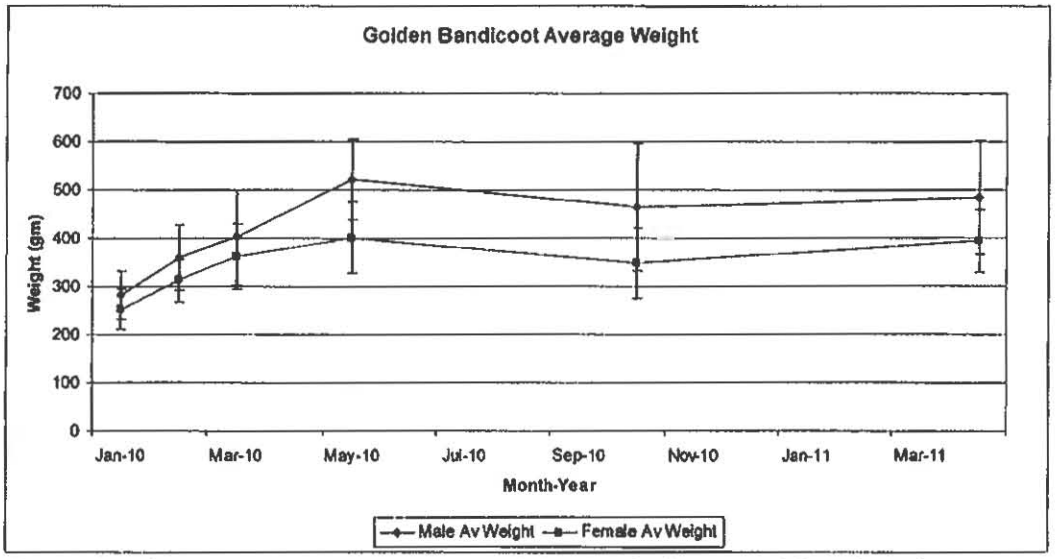

Figure 2: Change in mean body weight (+/-SD) for golden bandicoots on Hermite Island from release in February 2010 to April 2011

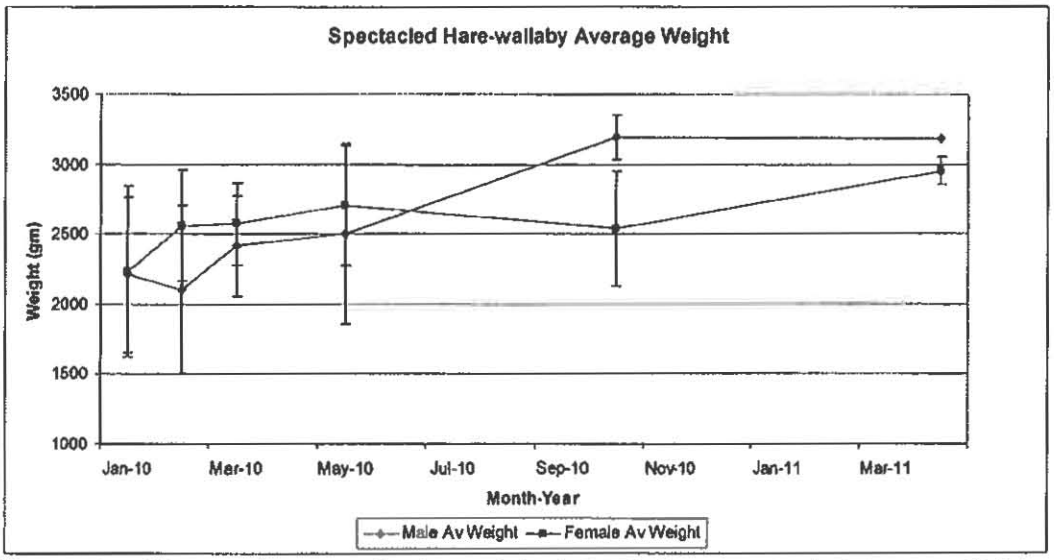

Figure 3: Change in mean body weight (+/-SD) for spectacled hare-wallabies on Hermite Island from release in February 2010 to April 2011

3.1.2 Doole Island

None of the 92 golden bandicoot translocated to Doole Island were fitted with radio-tracking devices. Bandicoots were monitored during the five day period of release by track and animal observations. Two trapping grids were established on Doole Island and monitoring is planned for September and November 2011, and April and June 2012.

3.1.3 Lorna Glen

Monitoring of the golden bandicoots and boodies translocated to Lorna Glen from Barrow Island in February 2010 continued at 8 – 12 week intervals. The number of animals known to be alive is summarised in Figures 4 and 5 below. Most recent captures included 76 individual boodies and 86 individual bandicoots. Adult animal body weight changes are summarised in Figures 6 (boodies) and 7 (golden bandicoots) below. Boodies have maintained body weight since being translocated from Barrow Island. Golden bandicoots initially increased body weight but have now stabilised at approximately 30% higher body weight than when translocated.

The cumulative number of new (Lorna Glen born) individuals trapped in the enclosure is shown in Figure 8. As expected the cumulative number of new animals is increasing at each monitoring trip and these will eventually replace the founder animals. It is possible that the carrying capacity of the 1100 ha enclosure has been reached, and it is likely that some of the bandicoots will be released outside the enclosure in 2012.

The average proportion of adult female boodies with pouch young throughout the trapping was 63.2%. The proportion of adult female bandicoots with pouch young was 87.5%.

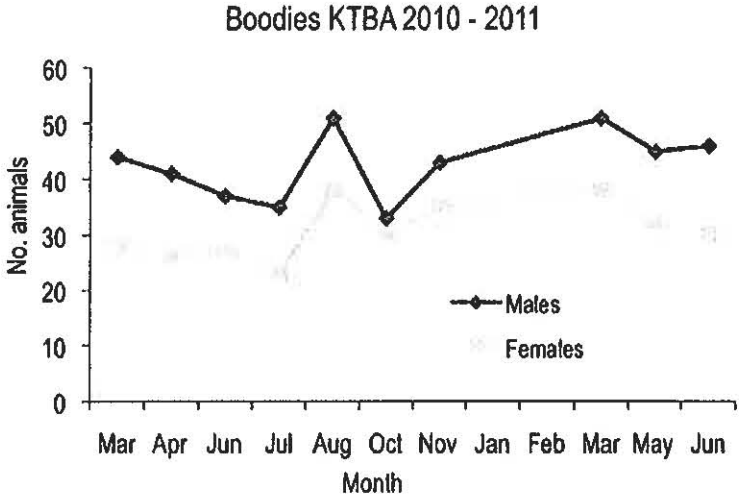

Figure 4: The number of individual boodies known to be alive within the enclosure based on trapping. The spike in August represents a second release of animals from Return to Dryandra.

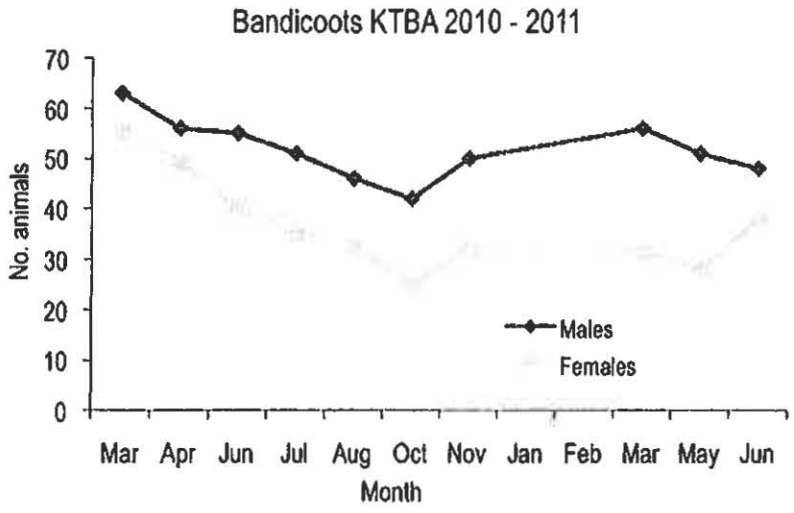

Figure 5: The number of individual golden bandicoots known to be alive within the enclosure based on trapping

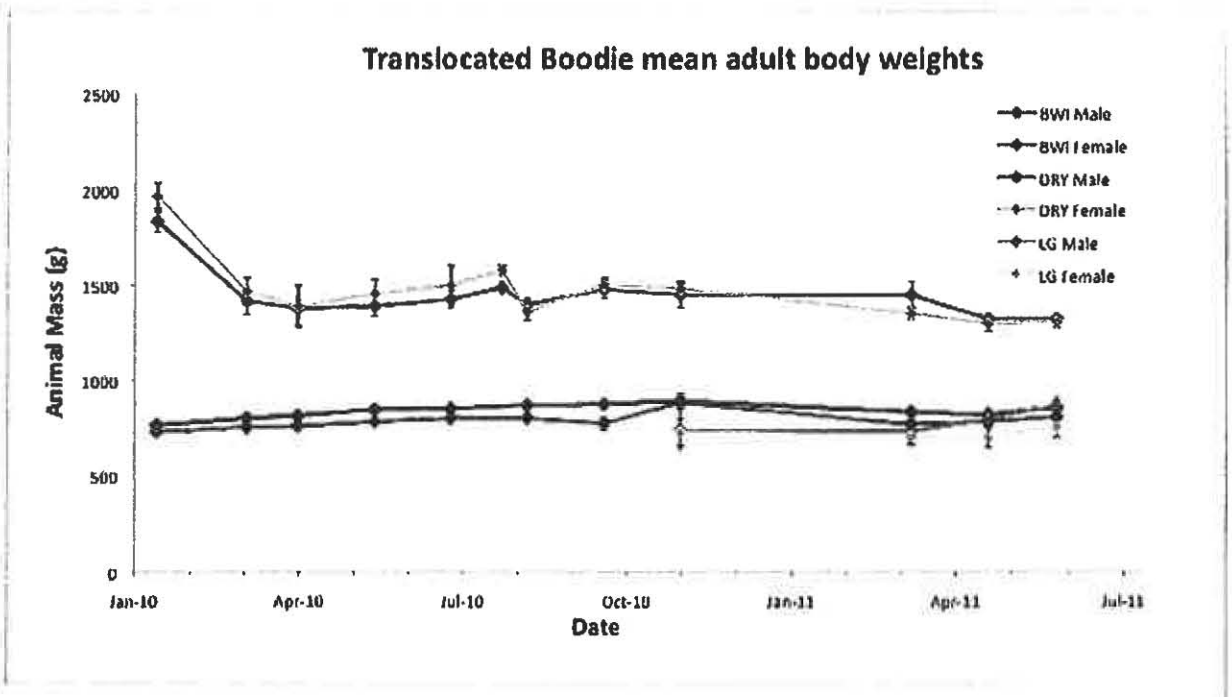

Figure 6: Changes in body weight (mean ± s.e.) over time for the reintroduced Return to Dryandra (DRY) and Barrow Island (BWI) boodies, and the new adults born at Lorna Glen (LG)

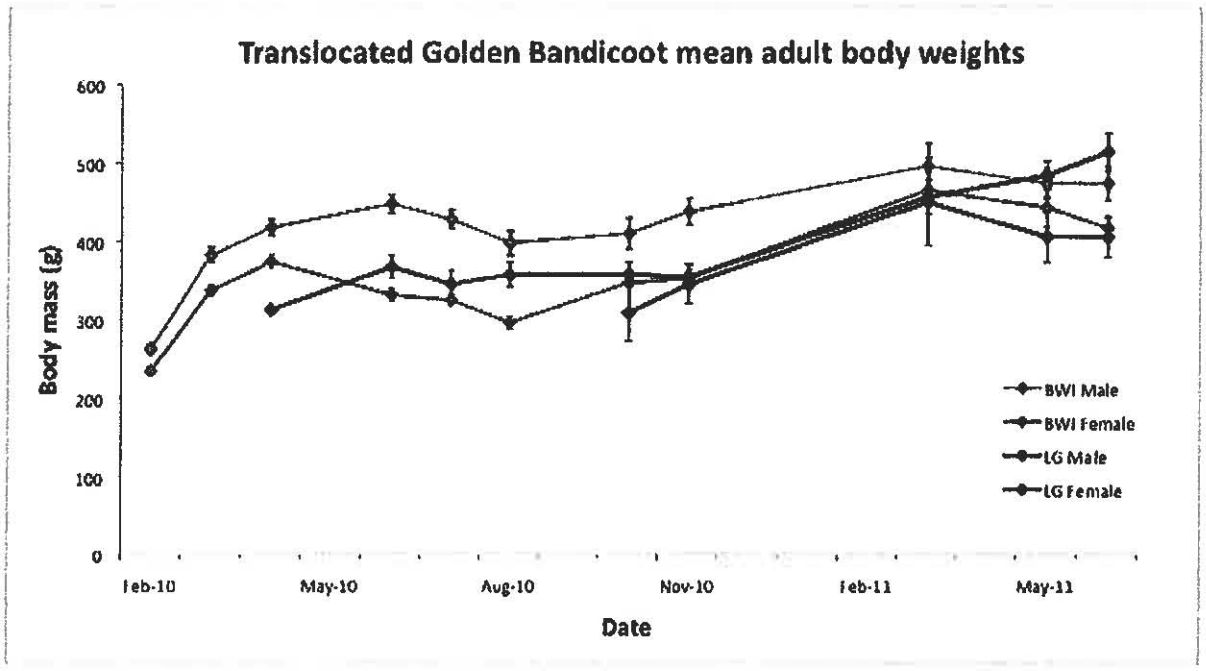

Figure 7: Changes in body weight (mean ± s.e.) over time for the reintroduced Barrow Island (BWI) golden bandicoots, and the new adults born at Lorna Glen (LG)

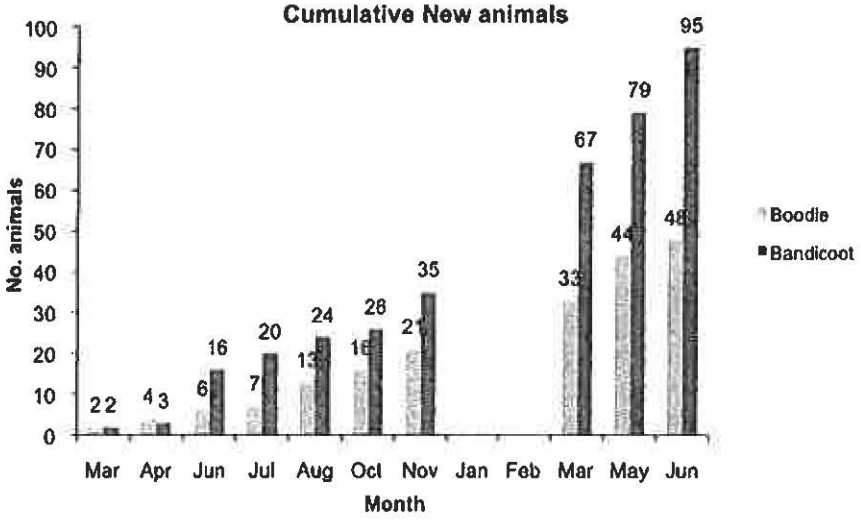

Figure 8: The progressive number of wild born animals in the enclosure at Lorna Glen

3.1.4 Cape Range National Park

Three brushtail possum monitoring trips were undertaken to Cape Range National Park in 2010/11 and the results of these are summarised in Table 2 below. The decline in possums appears to have continued, although the animals trapped were in good condition suggesting that the habitat was suitable. An investigation into the effectiveness of fox control commenced in June 2011. The results of this work will be discussed in next year's annual report.

Table 2: Summary of brushtail possum monitoring at Cape Range National Park 2010/11

Monitoring trip	# Trap nights	# Possums trapped	# Founders trapped	Body weight change	Comments
July 2010	972	5 (3 females, 2 males)	4	+262.5 g	Furred pouch young with female
October 2010	621	5 (2 females, 3 males)	3	+304.7 g	
April 2011	258	1	1	+ 399.0 g	

3.2 Water Rat survey on Barrow Island

Water rats are one of the species identified as a potential species for translocation to the Montebello Islands. It has not been reported on the Montebello Islands since the 1980s. However little is known about water rats on Barrow Island and a survey of distribution and studies to obtain better information on refuge sites, movement patterns, breeding and diet will be undertaken in 2011/12.

A related issue that arose was the potential for incorrect identification of black rats and water rats. DEC, with assistance from MSc student Karen Bettink, is now preparing identification charts for the native and potential introduced rodents on Barrow Island. DEC will also be undertaking some trials to examine the non-target take of non-toxic "Detex" wax blocks which, in their toxic form (brodifacoum), are used to eradicate introduced rodents.

4. Threatened and Priority Species Translocation and Reintroduction Program Account

The Threatened and Priority Species Translocation and Reintroduction Program Account was created by DEC in 2009. In December 2010, Chevron Australia paid $1,463,073 into the account, being the required amount of $1.3 million plus indexing according to Clause 11(3) of the *Gorgon Gas Processing and Infrastructure Project Agreement 2003*, as varied by Clause 11A(5) in 2009.

In January 2011, both the Minister for Environment and Chevron Australia, on behalf of the Gorgon Joint Venturers, endorsed a proposal to support DEC's Gorgon Project Coordinator from the funds in this Account, the other two active Gorgon offset programs, the Net Conservation Benefits Account and the funds available to support DEC staff on Barrow Island. In 2010/11, the Gorgon Project Coordinator spent approximately 0.16 FTE (full time equivalent) on the Threatened and Priority Species Translocation and Reintroduction Program.

A summary of Account activity for 2010/11 is provided in Table 3 below with more detail regarding expenditure provided in Table 4.

Table 3: Summary of Threatened and Priority Species Translocation and Reintroduction Program Account Activity 2010/11

	Opening balance (1 July 2010)	Income (2010/11)	Expenditure (2010/11)	Closing balance (30 June 2011)
	$304,213			
Payment from Chevron Australia		$1,418,714		
Interest		$38, 559		
Private recoup		$5,800		
Capture, translocation and monitoring of reintroductions			$1,124,634	
Total	**$304,213**	**$1,463,073**	**$1,124,634**	**$642,682**

Table 4: Expenditure against the Threatened and Priority Species Translocation and Reintroduction Program Account 2010/2011

Salaries	$440,803[¥]
Staff costs	$8,577
Travel	$78,480
Establishment and consumables	$31,447
Materials, contracts and services	$446,697
Light fleet	$100,274
Other expenses	$18,356
Total expenditure 2010/11	**$1,124,634**

[¥] includes 0.16 FTE salary for Gorgon Project Coordinator

5. Planned Threatened and Priority Species Translocation and Reintroduction Program Activities for 2011/2012

a) Mammal and bird monitoring - Montebello Islands

Scheduled monitoring of mammals and birds on Hermite Island will be undertaken in October 2011, and April and June 2012 to assess survivorship, breeding and patterns of movement. Intensity of monitoring of golden bandicoots and spectacled hare-wallabies will be reduced, with the focus being on the establishment of boodies on Alpha Island. The spread of birds (and potentially bandicoots and hare-wallabies) to other islands close to, or connected to Hermite Island will also be monitored in 2012. Vegetation monitoring will be undertaken in the two exclosures erected in 2010/11 to examine the impact of bandicoots and hare-wallabies on buffel grass.

Estimated expenditure: $215,000

b) Golden bandicoot monitoring - Doole Island

Scheduled monitoring of golden bandicoots on Doole Island will be undertaken in September and November 2011, and April and June 2012. Monitoring will assess the spread of bandicoots, breeding and habitat use. Photographic monitoring of the buffel grass will also be continued.

Estimated expenditure: $75,000

c) Mammal monitoring - Lorna Glen

Scheduled monitoring of golden bandicoots, boodies, Shark Bay mice and mala will be undertaken three monthly at Lorna Glen. This will include animals inside the fenced enclosure and those released outside the enclosure.

Estimated expenditure: $250,000

d) Monitoring at Cape Range

Monitoring of brushtail possum presence at Cape Range will be undertaken throughout 2011 using remote cameras. The program to determine and improve the effectiveness of fox control will also be continued with the recapture of foxes fitted with GPS radiocollars and their survivorship monitored after operational aerial fox baiting.

Estimated expenditure: $100,000

e) Fauna translocations from Barrow Island to other secure island or mainland sites

The species for translocation and the sites for 2012 have not yet been determined. Workshops in August and October 2011 will update key DEC staff on progress to date and help to determine what species are to be translocated, and to where. This discussion will include the need to restock existing translocation sites if necessary. Whether water rats can be translocated from Barrow Island to the Montebello Islands will be determined following further investigation. Options for translocation may include the establishment of a captive breeding colony of water rats with the harvest of young for the translocation. Consideration will also be given to supplementing the mala and Shark Bay mice at Lorna Glen depending on how well they establish.

Estimated expenditure: $400,000

f) Release of animals outside fenced enclosure at Lorna Glen

In order to achieve the aim of establishing wild populations on the mainland, groups of golden bandicoots will be released outside the fenced enclosure at Lorna Glen into surrounding suitable areas. This will occur after an audit of total numbers of bandicoots inside the enclosure and confirmation that the annual cat baiting has been effective at reducing feral cat abundance. The bandicoots remaining inside the enclosure will subsequently increase in numbers again before another group is released outside the fence. The initial release of golden bandicoots outside the fenced enclosure is planned for April 2012.

Costs are included in the monitoring costs at (c) above.

g) DEC support

This includes costs associated with DEC management of the translocation program. It includes a contribution to fund the position of Gorgon Project Coordinator, which is essential to maintain coordination and delivery of all Gorgon undertakings and offset programs.

Estimated expenditure: $ 100,000

h) Other activities related to management of translocation sites

• Expansion of fenced enclosure at Lorna Glen	$150,000
• Feral cat baiting at Lorna Glen	$35,000
• Ongoing health and condition monitoring	$20,000
• Commence study into genetic diversity of translocated populations	$20,000
Total:	**$ 225,000**

Estimated total expenditure 2011/2012: $1,365,000
(plus a contingency of ca. $100,000)

6. Conclusions

Summary of major activities in 2010/11:

- golden bandicoots, spectacled hare-wallabies, black and white fairy-wrens and spinifexbirds have been successfully reintroduced onto Hermite Island. Bandicoots and hare-wallabies now occupy all of Hermite Island;
- golden bandicoots and boodies have successfully established within a fenced enclosure at Lorna Glen, and sufficient numbers are now available to release animals outside the fenced enclosure;
- golden bandicoots were successfully translocated to Doole Island;
- boodies were successfully translocated to Alpha Island;
- brushtail possums appear to be continuing to decline at Cape Range National Park due to predation by foxes. An examination into the effectiveness of fox baiting has commenced; and
- presentations on the translocation program were given to Gorgon staff on Barrow Island and in Perth.

Summary of activities forecast for 2011/12:

- translocation of mala and Shark bay mice from the Montebello Islands to Lorna Glen;
- further translocation program to be determined following workshops with DEC staff;
- year three of the translocation program will be implemented on Barrow Island;
- monitoring of survivorship, health and condition, and breeding will be continued at all release sites;

- release of boodies and golden bandicoots outside the enclosure at Lorna Glen;
- a study into effectiveness of fox control at Cape Range will continue; and
- a survey of the Montebello Islands and other islands around Barrow Island for water rats will be undertaken.

7. References

Burbidge, A.H., and Hamilton, N. (2010). Reintroduction of spinifexbirds and Barrow Island black and white fairy-wrens from Barrow Island to Hermite Island. Progress Report June 2010. Unpublished report, DEC.

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1. Executive Summary

The Threatened and Priority Species Translocation and Reintroduction Program commenced in February 2010.

Four mammal species and two bird species were translocated to one island and two mainland sites, and a regular monitoring program was implemented. Golden bandicoots, spectacled hare-wallabies, spinifex birds and black and white fairy-wrens were successfully translocated to Hermite Island (Montebello group) and appear to have established. Golden bandicoots and boodies have been successfully translocated to an introduced predator-proof fenced enclosure at Lorna Glen in the northern Goldfields. Northern brushtail possums were reintroduced to Cape Range National Park, however fox predation has limited their establishment. A study is underway to determine why the existing fox baiting program has not been more effective at controlling foxes.

A translocation program has been developed for 2011. Further bird, mammal and reptile reintroductions will be made to the Montebello Islands, golden bandicoots will be translocated to Doole Island in Exmouth Gulf, and golden bandicoots and spectacled hare-wallabies will be translocated to Enderby Island in the Dampier Archipelago. Regular monitoring at all translocation sites will continue. Investigations into the disease status, genetic variability and 1080 tolerance of translocated species will continue.

2. Introduction

The Gorgon Gas Development Revised and Expanded Proposal: Barrow Island Nature Reserve was approved by the Western Australian Government subject to a number of conditions and a commitment by the Gorgon Joint Venture participants to fund a series of "Additional Gorgon Joint Venture Undertakings". One of these is the Threatened and Priority Species Translocation and Reintroduction Program. The Program is designed to translocate and/or reintroduce selected threatened and priority fauna species from Barrow Island to other suitable habitat within Australia, and includes monitoring and management of the fauna populations and habitats. The Program is developed and implemented by the Department of Environment and Conservation (DEC) and will run over 12 years at a cost of $10 million.

Arrangements for governance, consultation and reporting have been agreed between the Barrow Island Act Minister, the Minister for Environment and the Gorgon Joint Venture participants. These arrangements stipulate that:

"each year, within one month of completing the agency's annual report, provide to the CALM Act Minister, the Barrow Island Act Minister and the Joint Venturers an annual report showing the opening balance, income, expenditure and closing balance of the Account, and including a description of the Threatened Species Translocation and Reintroduction Program activities undertaken during the past year, the results of those activities, and a summary of the Threatened Species Translocation and Reintroduction Program activities to be undertaken in the following year."

This report fulfills these requirements.

3. Threatened and Priority Species Translocation and Reintroduction Program Activities 2009/2010

Two major fauna translocation programs were conducted during 2009/10. The first was the translocation of 605 individuals of four priority mammal species from Barrow Island to three destination sites within Western Australia (see Table 1). A brief overview of the methods employed by DEC staff during the Barrow Island phase of the program is given below (Mammal Translocations), followed by a summary of monitoring results for each destination site. The second major program involved the capture of 69 individuals of two bird species on Barrow Island and translocation of 62 of these to Hermite Island. The methods and results are described below (Bird Translocation). Presentations on the progress of the translocations were provided to Chevron and Gorgon contractor staff on Barrow Island and in Perth.

Table 1. Species, number of individuals and destinations for animals translocated from Barrow Island during 2010.

Species *(number captured on Barrow Island)*	**Destination**
Golden bandicoot (*161*)	Hermite Island (within Montebello Island group)
Spectacled hare-wallaby (*111*)	Hermite Island (within Montebello Island group)
Spinifex bird (*38*)	Hermite Island (within Montebello Island group)
Black and white fairy wren (*31*)	Hermite Island (within Montebello Island group)
Golden bandicoot (*164*)	Lorna Glen (ex-pastoral lease in northern Goldfields)
Boodie (*65*)	Lorna Glen (ex-pastoral lease in northern Goldfields)
Brushtail possum (*104*)	Cape Range National Park (south of Exmouth)

3.1 Mammal translocations

The mammal translocation program was conducted from 27 January to 1 March 2010. As daytime temperatures were expected to be high, the majority of activities were conducted during the night to avoid trapped animals being exposed to excessive heat.

Trapping effort focused on the construction footprint of the proposed gas processing plant. DEC staff, in coordination with Kellogg Joint Venture (KJV) construction representatives, worked systematically through the area prior to vegetation clearing and operated approximately 150 trapping points, each with two traps (1 x Elliott and 1 x cage) per night for an intensive 28 day period. Some Thomas traps were also deployed.

Additional targeted trapping for brushtail possums was conducted on the western side of the island, and spectacled hare-wallabies were hand netted within the fenced perimeter of the Barrow Island airport.

A total of 3,652 trapnights were achieved comprising 2,028 cage, 1,458 Elliott and 166 Thomas trapnights.

A quarantine-compliant helicopter was chartered to transport animals from Barrow Island to Hermite Island in the Montebello Islands or to Karratha depending on the species and/or destination required. Animals flown to Karratha were transferred subsequently by fixed wing aircraft to either Cape Range National Park (near Exmouth) or Lorna Glen in the northern Goldfields. This sequence of transportation links from Barrow Island to the respective destination sites varied over the translocation program, with some flights servicing only one or two locations depending on the species to be translocated. Flights occurred on consecutive days and, for a period, also on alternate days depending on trapping activity and pilot requirements.

Results

Hermite Island

Fifteen of the 111 spectacled hare-wallabies released were fitted with a mortality sensing radio-collar to allow monitoring of survivorship and movements over the first three months after release. There were two hare-wallaby deaths recorded during the translocation program, one as a result of a fall from a small cliff and the other was of unknown causes.

None of the 161 golden bandicoots released on Hermite Island were fitted with radio-collars and there were no mortalities recorded for this species.

There have been three follow-up monitoring sessions on Hermite Island (March, April, and May/June). A combination of radio-tracking and trapping has shown both species have dispersed widely across the island and now occur in all habitat types. Both species show good signs of breeding. During the May/June monitoring session a total of 103 bandicoots were trapped, 28 of which were new recruits (born on the island), and of the 35 females trapped, 19 had pouch young. A total of 28 hare-wallabies were also trapped, one of which was a new recruit. Of the 18 females trapped, 12 were with pouch young and three with young at foot. Both species have shown positive increases in body weight (Table 2).

Table 2. Change in mean body weight for golden bandicoots and spectacled hare-wallabies on Hermite Island from release in February 2010 to June 2010.

Bandicoot	***Release weight***	***Current weight***	***Change in weight***
Male	243.7g (+/5.8 se)	430g (+/14.7 se)	+186g (76 %)
Female	240g (+/6.2g se)	429g (+/14.4 se)	189g (78 %)
SH Wallaby			
Male	2220.5g (+/55.9 se)	2724g (+/107.9 se)	+500g (23 %)
Female	2215g (+/59.1 se)	2596g (+/154.1 se)	+380g (17 %)

Lorna Glen

Boodies and golden bandicoots were released at Lorna Glen into a large fenced and predator-proof pen (1100ha) as part of the DEC Rangelands Restoration project. A progress report on all the translocations to Lorna Glen was prepared by Miller *et al.* 2010. Supplementary feed and water were provided in the enclosure due to harsh summer conditions.

Fifteen of the 65 boodies released at Lorna Glen were fitted with a mortality sensing radio-collar to allow monitoring of survivorship and movements over the first three

months after release. Two boodies are known to have died, most likely from exposure as a result of failure to enter a warren system on release.

The location of the pen enclosed several 'old' boodie warren systems, all of which have been re-excavated by boodies since the translocation. Encouragingly, boodies have also been excavating new warren systems.

None of the 164 bandicoots released at Lorna Glen were fitted with radio-collars, however two bandicoots are known to have died in traps during the first monitoring program.

Recent monitoring has also shown positive signs of reproduction in both species, with 11 out of 25 female bandicoots having pouch young and a further 10 showing signs of lactation indicating recently weaned young in the population. Monitoring of boodies showed 11 of 16 females had pouch young. Both species have shown consistent gains in body weight since the translocation but this is expected to plateau in the near future as an optimal weight range is reached (Table 3).

Table 3. Change in mean body weight for golden bandicoots and boodies at Lorna Glen from release in February 2010 to June 2010.

Bandicoot	***Release weight***	***Current weight***	***Change in weight***
Male	270.1g (+/5.4 se)	387g (+/12 se)	+117g (43 %)
Female	241g (+/4.1 se)	290g (+/8.4 se)	+49g (20 %)
Boodie			
Male	748.8g (+/17.8 se)	871.8g (+/18.6 se)	+123g (16 %)
Female	730g (+/17.4 se)	831g (+/36.7 se)	+101g (14 %)

Cape Range National Park

One hundred and four brushtail possums were relocated to Cape Range National Park. Twenty of 27 radio-collared possums are most likely to have died from fox predation, despite an intensive monthly fox baiting program. Further work is being planned to examine why the fox baiting program has not been effective, and no further translocations will occur to Cape Range until this has been resolved.

At least seven possums are known to be persisting in areas away from the gorges translocation area and these are in good condition and increasing in body weight. A recent monitoring session reported a juvenile at 350g that is assumed to have been born post release as no females were translocated with pouch young. Individual weight gains for surviving possums range from 90-500g suggesting that, other than the presence of introduced predators, the area contains suitable habitat for possums.

3.2 Bird translocations

The bird translocation program ran from 10-31 May 2010 with helicopter transport operating between Barrow Island and Hermite Island on alternate days for approximately two weeks. DEC staff with specialist bird banding qualifications set up mist-net transects in areas of suitable habitat. Nets were checked and cleared of birds early morning and late afternoon for the duration of the program. Some activities were conducted within the LNG construction area but, in general, disturbance levels in this area were high and bird activity low. As a result the majority of birds were caught in the south-west part of Barrow Island.

Results

Thirty-one black and white fairy-wrens were captured and four of these died during processing or while being held awaiting transport to Hermite Island. Thirty eight spinifexbirds were captured, of which three died before release on Hermite Island. Autopsies were undertaken on all dead birds but there was no clear reason for the deaths.

Although outside the reporting period, the first bird monitoring session on Hermite Island was conducted in August 2010. In summary, both species appear to have established themselves, with both occupying habitat within and beyond the release area. A number of birds were calling strongly, suggesting that they are healthy and defending adequate territories. A report on the progress of the bird translocations was prepared by Burbidge and Hamilton (2010).

4. Threatened and Priority Species Translocation and Reintroduction Program Account

The Threatened and Priority Species Translocation and Reintroduction Program Account was created by DEC in 2009. In December 2009, Chevron Australia paid $1,395,531 into the account, being the required amount of $1.3 million plus indexing according to Clause 11(3) of the *Gorgon Gas Processing and Infrastructure Project Agreement 2003*, as varied by Clause 11A(5) in 2009. A summary of Account activity for 2009/10 is provided in Table 4.1 below with more detail regarding expenditure provided in Table 4.2.

Table 4.1: Summary of Threatened and Priority Species Translocation and Reintroduction Program Account Activity 2009/2010

	Opening balance	Income (2009/10)	Expenditure (2009/10)	Closing balance (30 June 2010)
	$0			
Payment from Chevron Australia		$1,395,531		
Capture, translocation and monitoring of reintroductions			1,091,289	
Total	**$0**	**$1,395,531**	**$1,091,289**	**$304,243**

Table 4.2: Expenditure against the Threatened and Priority Species Translocation and Reintroduction Program Account 2009/2010

Payroll	$ 257,792
Allowances	$ 80,112
Staff costs	$ 9,690
Asset purchases	$ 5,779
Establishment and consumables	$ 23,254
Materials, contracts and services	$ 658,475
Light fleet	$ 56,186
TOTAL	**$ 1,091,289**

5. Planned Threatened and Priority Species Translocation and Reintroduction Program Activities for 2010/2011

a) Bird and mammal monitoring Hermite Island – August, October 2010

Scheduled monitoring of mammals and birds on Hermite Island will be undertaken in August and October 2010 to assess survivorship, breeding and patterns of movement. During this trip a quad bike and trailer will also be transported to Hermite Island to allow access to the north of the island and the establishment of a second monitoring grid. Twelve vegetation monitoring plots (six fenced and six unfenced controls) will also be established and a desalination unit fitted to improve the availability of water for staff on the island.

Estimated expenditure: $102,000

b) Bird and mammal monitoring Hermite Island – April 2011

Scheduled monitoring of mammals and birds on Hermite Island will occur in April 2011 to assess survivorship, breeding and patterns of distribution. Vegetation monitoring sites will also be assessed.

Estimated expenditure: $54,000

c) Fauna translocations: From Barrow Island to Montebello Islands and Lorna Glen - June 2011

Two translocation programs are planned for the 2011 calendar year. The first of these is likely to be in June 2011 and will target several Barrow Island species to 'top up' the previous bird translocations, and to reintroduce other species to the Montebello Islands. These include boodies, common rock-rats, western chestnut mice, *Pseudantechinus* sp. and the skink *Ctenotus pantherinus.* Additional boodies and golden bandicoots may be taken to Lorna Glen if required. Trapping on Barrow Island will target areas to be cleared, such as the LNG pipe trench site, but will not be limited to these sites. A second fauna translocation program is being planned for August 2011.

Estimated expenditure (June 2011 translocations): $350,000

d) Release of animals outside fenced enclosure at Lorna Glen

In order to achieve the aim of establishing wild populations, groups of golden bandicoots and boodies will be released outside the fenced enclosure at Lorna Glen into surrounding areas. The animals remaining in the enclosure will subsequently increase in numbers again before another group is released outside the fence. The initial release of boodies outside the fenced enclosure is planned for October 2010.

e) Mammal monitoring at Lorna Glen

Scheduled monitoring of golden bandicoots and boodies will be undertaken every eight weeks at Lorna Glen. This will include animals inside the fenced enclosure and those released outside the enclosure.

Estimated expenditure: $300,000

f) Monitoring at Cape Range

Monitoring of brushtail possum survivorship and distribution will continue at Cape Range (October 2010, April 2011). A program to determine and improve the effectiveness of fox control will also be commenced in May 2011.

Estimated expenditure: $207,000

g) DEC support

This includes costs associated with DEC management of the translocation program. It includes a contribution to fund the position of Gorgon Project Coordinator, which position is essential to maintain coordination and delivery of all Gorgon undertakings and offset programs.

Estimated expenditure: $ 100,000

Estimated total expenditure 2010/2011: $1,213,000

6. Conclusions

Summary of major activities in 2009/2010:

- Golden bandicoots, spectacled hare-wallabies, black and white fairy-wrens and spinifexbirds have been successfully reintroduced onto Hermite Island.
- Golden bandicoots and boodies have successfully established within a fenced enclosure at Lorna Glen.
- Brushtail possums were successfully released at Cape Range but significant predation by foxes, despite an intensive fox baiting program, has threatened this translocation.
- Six presentations on the translocation program were given to Gorgon staff on Barrow Island and in Perth.
- Numerous press releases were issued at the time of translocations.
- The Minister for Environment visited Barrow Island during the translocation program.

Summary of activities forecast for the year ahead:

- Translocations to Montebello Islands, Dampier Archipelago and Doole Island are planned.
- Monitoring of survivorship, health and condition, and breeding will be continued at all release sites.
- Release of boodies and golden bandicoots outside the enclosure at Lorna Glen.
- A study into effectiveness of fox control at Cape Range will commence.

7. References

Burbidge, A.H., and Hamilton, N. (2010). Reintroduction of spinifexbirds and Barrow Island black and white fairy-wrens from Barrow Island to Hermite Island. Progress Report June 2010. Unpublished Report, DEC.

Miller, E., Dunlop, J. and Morris, K. (2010). Rangelands Restoration: Fauna recovery at Lorna Glen, Western Australia. Progress Report August 2008 – June 2010. Unpublished Report, DEC.