
Bimbowrie Fauna Survey report



Government of South Australia
Department of Environment,
Water and Natural Resources

Bimbowrie Fauna Survey report

Dr Travis How
EBS Ecology

July, 2005



Department of Environment, Water and Natural Resources

GPO Box 1047, Adelaide SA 5001

Telephone National (08) 8463 6946
International +61 8 8463 6946

Fax National (08) 8463 6999
International +61 8 8463 6999

Website www.environment.sa.gov.au

Disclaimer

The Department of Environment, Water and Natural Resources and its employees do not warrant or make any representation regarding the use, or results of the use, of the information contained herein as regards to its correctness, accuracy, reliability, currency or otherwise. The Department of Environment, Water and Natural Resources and its employees expressly disclaims all liability or responsibility to any person using the information or advice. Information contained in this document is correct at the time of writing.

© Crown in right of the State of South Australia, through the Department of Environment, Water and Natural Resources 2005

This work is Copyright. Apart from any use permitted under the Copyright Act 1968 (Cwlth), no part may be reproduced by any process without prior written permission obtained from the Department of Environment, Water and Natural Resources. Requests and enquiries concerning reproduction and rights should be directed to the Chief Executive, Department of Environment, Water and Natural Resources, GPO Box 1047, Adelaide SA 5001.

ISBN 978-1-922174-59-8

Preferred way to cite this publication

How T, 2005, *Bimbowrie Fauna Survey report*, Government of South Australia, through Department of Environment, Water and Natural Resources, Adelaide

Table of Contents

Section	Page
ACKNOWLEDGEMENTS.....	1
1. INTRODUCTION.....	2
2. METHODOLOGY.....	3
2.1 SURVEY PERIOD AND WEATHER CONDITIONS	3
2.2 TRAPPING SITES.....	3
2.3 PITFALL TRAPS	4
2.4 ELLIOTT TRAPS.....	5
2.5 CAGE TRAPS	5
2.6 ACTIVE SEARCHING.....	5
2.7 BIRD SURVEY.....	5
2.8 SPOTLIGHTING.....	6
2.9 MICRO-PITS	6
2.10 ANABAT BAT DETECTOR	6
2.11 MIST AND HARP NETS.....	6
2.12 OPPORTUNISTIC OBSERVATIONS	7
3. RESULTS.....	8
3.1 BIRDS.....	8
3.2 MAMMALS.....	8
3.3 REPTILES AND AMPHIBIANS	9
3.4 COMPARISON WITH NORTH OLARY PLAINS SURVEY SITES	10
4. DISCUSSION	11
4.1 GENERAL DISCUSSION	11
4.2 SPECIES OF SIGNIFICANCE RECORDED DURING THE CURRENT SURVEY	11
4.3 BIRDS.....	13
4.4 MAMMALS.....	14
4.5 REPTILES AND AMPHIBIANS	15
4.6 COMPARISON WITH NORTH OLARY PLAINS SURVEY SITES	16
4.7 RECOMMENDATIONS	17
6. REFERENCES AND BIBLIOGRAPHY.....	18
APPENDIX 1 – TRAPPING SITES FOR THE BIMBOWRIE FAUNA SURVEY	19
APPENDIX 2 – TRAPPING EFFORT AT EACH SITE	20
APPENDIX 3 – BIRD SPECIES RECORDED AT THE TRAPPING SITES.....	21
APPENDIX 4 – MAMMAL SPECIES RECORDED AT THE TRAPPING SITES.....	27
APPENDIX 5 – REPTILE SPECIES RECORDED AT THE TRAPPING SITES	30
APPENDIX 6 – BIRD SPECIES RECORDED OPPORTUNISTICALLY	33
APPENDIX 7 – MAMMAL SPECIES RECORDED OPPORTUNISTICALLY.....	35
APPENDIX 8 – REPTILE SPECIES RECORDED OPPORTUNISTICALLY	36
APPENDIX 9 – ANABAT BAT DETECTOR RESULTS.....	37
APPENDIX 10 – COMPARISON OF BIRD SPECIES RECORDED ON THE NORTH OLARY PLAINS SURVEY AND THE CURRENT SURVEY	38
APPENDIX 11 – COMPARISON OF MAMMAL SPECIES RECORDED ON THE NORTH OLARY PLAINS SURVEY AND THE CURRENT SURVEY.....	40

APPENDIX 12 – COMPARISON OF REPTILE SPECIES RECORDED ON THE NORTH OLARY PLAINS SURVEY AND THE CURRENT SURVEY.....	41
APPENDIX 13 – ADDITIONAL NOTES ON BIRD SPECIES IN THE BIMBOWRIE AREA – GRAHAM CARPENTER.....	42

Acknowledgements

The survey team comprised of the following people:

- Dr Travis How (Environmental and Biodiversity Services) – Survey Co-ordinator
- Tonia Brown (Environmental and Biodiversity Services) – Field Assistant
- Gavin Baird (Environmental and Biodiversity Services) – Field Assistant
- Cath Kemper (South Australian Museum) – Mammals
- Graham Carpenter (Consultant) – Birds
- Chris Loughlin (Sub-consultant) – Reptiles

The survey team would like to thank the following volunteers for their assistance in the field:

- Cathy Chesson
- Chris Kennedy
- Liam Briars
- Kristy Firth
- Zoe Bowen
- Nic How
- Joshua How
- Suzanne Gerard

We would like to thank the following people for their assistance and for information provided during the project:

- Helen Owens (Project Co-ordinator – Department for Environment and Heritage)
- Justin Jay (Vegetation – Department for Environment and Heritage)
- Kirsty Bevan (Vegetation – Department for Environment and Heritage)
- Sue Kenny (Vegetation – Department for Environment and Heritage)
- Frank Kutsche (Vegetation – Department for Environment and Heritage)
- Mark Hutchinson (Reptiles – South Australian Museum)
- Jan Forrest (Entomology – South Australian Museum)
- Gavin Kluske (Biological Survey Co-ordinator – South Australian Museum)
- Terry Reardon (Bats – South Australian Museum)
- Carolyn Secombe (Reptiles – South Australian Museum)
- David Stemmer (Mammals – South Australian Museum)
- Darren Wilson (National Parks and Wildlife Ranger – Bimbowrie)

1. Introduction

Bimbowrie Station is located approximately 20 km north of Olary within the North Olary Plains region of South Australia. This station was a sheep pastoral station for many years until recently when the South Australian Government purchased the property. The property was purchased for general conservation purposes including for the protection of the Yellow-footed Rock Wallaby (*Petrogale xanthopus*), which is considered to be nationally **vulnerable** and the Needle Wattle (*Acacia carneorum*), which is also considered to be nationally **vulnerable**.

Bimbowrie Station is approximately 35 km wide (at the widest point) and 28 km high (at the widest point). A range of habitat types are found within the property including flat chenopod shrublands and rocky native pine woodlands. This fauna survey was undertaken to gather baseline fauna data across some of the different habitats found within the property. The data collected as part of this survey will form part of the basis for the establishing long-term management strategies. Longer-term monitoring is also likely to be implemented within Bimbowrie with this fauna survey comprising the baseline survey data.

The taxonomy of fauna species utilised in this report follows Robinson *et al* (2001).

2. Methodology

2.1 Survey period and weather conditions

The field component of the Bimbowrie Fauna survey was undertaken between the 17th and 29th of May 2005. Six people were present for the entire survey period whilst volunteers were present for varying times across the survey period.

The weather during the survey was generally fine with mild days and cool nights. The warmest maximum temperature, in the sun, was 33.3°C whilst the coolest maximum temperature, in the sun, was 24.1°C. The average maximum temperature across the survey period was 28.7°C. The highest minimum temperature was 11.5°C whilst the coolest minimum temperature was 1.9°C. The average minimum temperature across the survey period was 7.3°C. The only rain which was encountered during the survey was several brief drizzle patches which probably would not have registered on a rain gauge.

2.2 Trapping sites

A total of 25 trapping sites were utilised as part of the Bimbowrie Fauna Survey. These sites consisted of 21 sites which were recently implemented (April 2005) as vegetation survey sites and four sites which were previous biological survey sites. The four previously surveyed sites were first surveyed as part of the North Olary Plains Biological Survey (Playfair and Robinson 1997).

Due to the variety and number of habitats within Bimbowrie Station, not all habitat types were represented in the survey. The sites which were utilised were selected to give a good representation of the dominant habitat types and habitats which may be utilised by different species.

Table 1 indicates the number of trap sites which were placed in different habitat types within Bimbowrie Station. Appendix 1 lists site numbers and details the habitat types which were sampled.

At each trapping site, two trapping lines were utilised as per the method utilised in pastoral areas (Owens 2000). At most sites, two pitfall trap lines, two Elliott trap lines and four cage traps were set at each site. A trap line consisted of six pitfall traps, 15 Elliott traps and two cage traps. The trap lines were placed in the same habitat at each site and generally, were between 100 and 200 m apart. Trap lines were open for four nights at each site. Further details on the methods utilised are detailed in the following sections. The trapping effort for each site is detailed in Appendix 2.

Table 1. Habitat types represented in the Bimbowrie Fauna Survey #193.

Habitat type	No. of trap sites
<i>Eucalyptus socialis</i> Mallee	1
<i>Eucalyptus camaldulensis</i> Open Forest	2
<i>Maireana astrotricha</i> and <i>Atriplex vesicaria</i> Low Open Shrubland	1
<i>Maireana pyramidata</i> and <i>Atriplex vesicaria</i> Low Very Open Shrubland	1
<i>Callitris glaucophylla</i> , <i>Eucalyptus porosa</i> Low Woodland	1
<i>Rhagodia spinescens</i> over <i>Halosarcia pergranulata</i> Shrubland	1
<i>Acacia ayersiana</i> var. <i>latifolia</i> , <i>Acacia beckleri</i> over <i>Dodonaea lobulata</i> Very Low Woodland	1
<i>Callitris glaucophylla</i> over <i>Sida petrophila</i> Woodland	2
<i>Eremophila sturtii</i> , <i>Dodonaea viscosa</i> Open Shrubland	1
<i>Acacia carneorum</i> over <i>Maireana pyramidata</i> Low Open Shrubland	1
<i>Maireana pyramidata</i> Low Open Shrubland	3
<i>Alectryon oleifolius</i> Very Low Woodland	1
<i>Casuarina pauper</i> Low Open Forest	1
<i>Sclerolaena</i> sp. Low Open Shrubland	1
<i>Dodonaea viscosa</i> Open Shrubland	1
<i>Eremophila sturtii</i> Tall Very Open Shrubland	1
<i>Acacia victoriae</i> Tall Very Open Shrubland	1
<i>Acacia aneura</i> Low Open Shrubland	1
<i>Eucalyptus camaldulensis</i> Woodland over <i>Maireana brevifolia</i>	1
<i>Maireana sedifolia</i> Low Very Open Woodland	1
<i>Acacia carneorum</i> Low Open Woodland	1

2.3 Pitfall traps

Pitfall trapping was conducted using the method outlined in ‘*Guidelines for Vertebrate Surveys in South Australia*’ (Owens 2000). Briefly, six pitfall traps were installed for each trap line. Traps were placed 10m apart with a 60m mesh fence installed to connect the traps. Surface spray was utilised where ant numbers warranted it. All pitfall traps were left open for four nights.

Pitfall traps were installed at 19 of the 25 sites surveyed. Six of the sites which were surveyed were extremely rocky and pitfall traps could not be installed. These included BIM02101, BIM02501, BIM02601, BIM02701, BIM03001 and OLA05301. Where possible, additional active searching time was undertaken at these sites. Appendix 2 details a summary of the trap effort for each site.

2.4 Elliott traps

Elliott traps were utilised as detailed by Owens (2000). Fifteen traps were installed for each trap line, with a total of 30 traps used at each site. Elliott traps were placed 10m apart and baited using rolled oats and peanut butter. Generally, all Elliott trap lines ran parallel with the pitfall trap lines and the traps were placed on the ground.

Elliott traps were installed at all of the survey sites. At all except one site, the Elliott traps remained open for four nights. At site BIM02601 the Elliott traps were only left open for three nights due to a shortage of Elliott traps when the trap lines at this site were installed. Appendix 2 details a summary of the trap effort for each site.

2.5 Cage traps

Cage traps were utilised as per the vertebrate survey guidelines. At most sites, two cage traps were utilised at each trap line, with a total of four traps per trapping site being utilised. The cage traps were left open for a total of four nights per site and were baited with a rolled oats and peanut butter mixture.

Cage traps were utilised at all trapping sites except BIM02501 and BIM02601. This was due to a shortage of cage traps when these two sites were installed. At sites BIM01401 and BIM01301 only one cage trap per trap line, instead of two, was utilised. This was also due to a lack of cage traps being available when these sites were installed. Appendix 2 details a summary of the trap effort for each site.

2.6 Active searching

Active searching was undertaken at trapping sites to increase the number of species observed at each site. This was done by lifting rocks, rolling logs, digging burrows and peeling bark. Numerous species, particularly reptiles, were observed using this method. Active searching was undertaken within the trapping sites as well as at several sites which were not trapped but had good quality habitat present.

All of the trapping sites were searched for a minimum of one hour except for two sites, BIM02501 and BIM02801 which were searched for slightly less than an hour. An additional two sites, BIM01201 and BIM02301 were not searched at all due to a lack of time to undertake a search. A number of sites were searched for between three and five hours. Appendix 2 details the search effort for each site. Appendix 2 details a summary of the active searching at each of the trap sites.

2.7 Bird survey

At each of the trapping sites, bird surveys were undertaken. This involved spending a minimum of one hour in the morning and one hour in the afternoon at each site. Observations of all bird species within the same habitat as the trapping site were made within this time.

All sites were surveyed in the morning and afternoon except for BIM01401, which was only surveyed in the morning. This was due to time constraints.

2.8 Spotlighting

Little spotlighting effort was undertaken as part of the Bimbowrie Fauna Survey. Several hours were undertaken on the warmer nights, however, due to the cool nights encountered during the survey, very little fauna activity, other than macropods, was observed.

The spotlighting that was undertaken by slowly driving along dirt roads with handheld spotlights being utilised on both sides of the vehicle. The spotlighting was undertaken in first couple of hours after sunset. No spotlighting was undertaken at any of the trapping sites, although spotlighting was undertaken on roads which went past a number of the sites.

A total of 5 hours were spent spotlighting with two observers at all times. The spotlighting was undertaken on three of the warmer nights during the survey period with only three geckos being observed, none of which were new species for the survey.

2.9 Micro-pits

At each of the pitfall trapping sites, micro-pits were installed to catch invertebrates as per the vertebrate survey guidelines (Owens 2000). This involved installing vials filled with alcohol adjacent to each of the pitfall traps. Therefore, six micro-pits were installed at each trap line and 12 installed at each trap site. Additionally, any invertebrates caught in the pitfall traps were placed in an alcohol filled glass jar at the end of each pitfall line.

2.10 Anabat bat detector

Anabat bat detectors were utilised at 12 of the trapping sites and at two additional opportunistic locations (Appendix 2). The two opportunistic locations were adjacent to open water (dams) and therefore likely to have a higher bat activity. The bat detectors record the calls of bat species which can then be identified. A number of the calls are similar and therefore, some species cannot be separated by call identification only. Additionally, the bat detector will only give the presence of a species and not the abundance of a species. A high number of bat calls may be the result of a high number of bats calling a few times or a low number of bats calling a number of times.

The bat detectors were set up late in the afternoon and picked up when the traps were checked the following day. Therefore, the detectors were recording from sunset to sunrise as a minimum (>12 hours). The files on the bat detectors were downloaded onto a laptop each day to ensure they were working properly.

2.11 Mist and harp nets

Harp nets were set up at three of the trapping sites. These were sites BIM00501, BIM00801 and BIM001201. Harp nets were only set up at sites where appropriate trapping sites, such as along creek beds, was available. Harp nets were also set up at opportunistic sites where good trapping sites were available. This included adjacent to open water (dams) and in potential fly ways (dry Red Gum lines creek beds).

Mist nets were also utilised as part of the survey. Mist netting was not undertaken at any of the trapping sites due to a lack of suitable sites to set up this type of trap. Therefore, opportunistic sites, such as dams, were utilised.

2.12 Opportunistic observations

Opportunistic observations were made throughout the survey period. These observations were made of all fauna species observed outside of trapping sites. This included whilst travelling between trapping sites and around the camp utilised for the duration of the survey. Additionally, several areas were searched which were not trapping sites as they were considered to contain good quality habitat. All observations within these areas were recorded as opportunistic records.

3. Results

3.1 Birds

A total of 920 observations of 79 bird species were made over the duration of the Bimbowrie Fauna Survey. Appendix 3 summarises the survey data from the trapping sites whilst Appendix 6 summarises the data collected opportunistically. Two of the bird species were identified to genus level only whilst three species are introduced species. The bird surveys at the trapping sites had a total of 762 observations of 60 bird species, whilst 158 records of 62 species were made opportunistically. Additional notes on bird species have been provided in Appendix 13.

The most common bird species observed during the survey at the trapping sites were the Emu (*Dromaius novaehollandiae* 43 individuals), Redthroat's (*Pyrrholaemus brunneus* 40 individuals) and the Spiny-cheeked Honeyeater (*Acanthagenys rufogularis* 41 individuals). The most common species observed opportunistically was the Emu (*Dromaius novaehollandiae* 15 individuals) and the Wedge-tailed Eagle (*Aquila audax* 12 individuals).

The trapping sites where the highest number of individual birds were recorded were BIM01201 (68 individuals), BIM02401 (61 individuals) and OLA01101 (56 individuals). The trapping sites with the least number of individuals recorded were BIM02801 (8 individuals) and OLA01301 (9 individuals). The trapping site with the highest diversity of bird species were BIM02401 (31 species) and BIM01201 (28 species). The trapping sites with the lowest bird species diversity were BIM02801 (7 species) and BIM01301 (7 species).

3.2 Mammals

A total of 235 observations of 22 mammal species were made over the duration of the survey. Appendix 4 summarises the survey data from the trapping sites whilst Appendix 7 summarises the data collected opportunistically. Four of the mammal species were only identified to genus level whilst six species are considered to be introduced. The trapping sites recorded 201 individuals of 17 species whilst a total of 134 observations of 17 species were made opportunistically. The Anabat bat detectors recorded four additional bat species, however, two of these were only recorded as possibilities and were not confirmed. Therefore, a total of 24 mammal species were recorded for the survey with an additional two bat species being possibilities.

The most common mammal species observed during the survey at the trapping sites were the Euro (*Macropus robustus* 36 individuals) and the Red Kangaroo (*M. rufus* 37 individuals). The most common species caught in the traps were the House Mouse (*Mus musculus* 23 individuals), Bolam's Mouse (*Pseudomys bolami* 11 individuals) and the Stripe-faced Dunnart (*Sminthopsis macroura* 9 individuals). The most common species observed opportunistically were the Euro (*Macropus robustus* 34 individuals) and the Red Kangaroo (*M. rufus* 39 individuals).

The trapping sites with the highest number of individual mammals recorded were BIM02701 (20 individuals) and BIM00401 (15 individuals). At site BIM02701 the macropods were the most common species whilst at BIM00401, sheep (*Ovis aries*) was the most common species. The sites where the highest number of mammals were trapped were BIM02401 (11 individuals) and BIM00601 (6 individuals). The sites with

the lowest number of individual mammals were OLA01101 (0 individuals), BIM02501 (1 individual) and BIM02601 (1 individual). The sites with the highest species diversity were BIM00601, BIM01101, BIM01701 and BIM01801, all of which had six mammal species recorded. The sites with the lowest species diversity were OLA01101 (0 species), BIM02501 (1 species) and BIM02601 (1 species).

The Anabat bat detector results were analysed by Terry Reardon at the South Australian Museum. A total of six bat species were positively identified from the Anabat recordings (Appendix 9). This included an additional two species (*Chalinolobus gouldii* and *Vespadelus regulus*) which were not identified from the mist netting, harp netting or opportunistic observations. All of the species caught during the mist and harp netting were recorded by the Anabat detectors.

Two species, *Chalinolobus morio* and *Scotorepens balstoni*, were recorded as possibly being present at one site each. They are listed as only a possibility as the recorded calls were not conclusive. Additionally, *Chalinolobus gouldii* / *Mormopterus* sp. was recorded at three sites with calls at these sites not being distinguishable between the two species. At three sites, *Vespadelus* sp. was recorded as the genus could be determined but not the species making the calls.

Calls from bat species were recorded at all of the surveyed sites. The most commonly recorded species was *Tadarida australis* (11 trap sites and 2 opportunistic sites) whilst *Nyctophilus geoffroyi* and *Chalinolobus gouldii* were recorded at nine trap sites and the two opportunistic sites. The least recorded species were *Chalinolobus morio* and *Scotorepens balstoni* which were only recorded as possibly occurring at one site each.

3.3 Reptiles and amphibians

A total of 190 observations of 31 reptile species were made over the duration of the survey. Appendix 5 summarises the survey data from the trapping sites whilst Appendix 8 summarises the data collected opportunistically. Seven of the reptile species were identified to genus only. Species were only identified to genus level when either signs or scats were recorded or the species weren't caught and therefore could not be positively identified. The trapping sites recorded 168 individuals of 30 species whilst 22 observations of 12 species were made opportunistically. No species of amphibians were observed during the current survey.

The most common reptile species observed during the survey at the trapping sites were Bynoe's Gecko (*Heteronotia binoei* 44 individuals), the Tree Dtella (*Gehyra variegata* 19 individuals) and the Sandplain Ctenotus (*Ctenotus schomburgkii* 14 individuals). The most common reptile species encountered opportunistically during the survey were Bynoe's Gecko (*Heteronotia binoei* 6 individuals) and the Tree Dtella (*Gehyra variegata* 3 individuals).

The trapping sites with the highest number of individual reptiles recorded were BIM02601 (20 individuals) and BIM00401 (14 individuals). The most common species at BIM02601 was Bynoe's Gecko (*Heteronotia binoei*) with 15 individuals caught. The trapping sites with the lowest number of individuals caught were OLA01101 (0 individuals) and BIM02101 (1 individual). The sites with the highest reptile species diversity were BIM00401 (8 species), BIM01101 (7 species) and OLA01301 (6 species). The sites within the lowest reptile diversity were OLA01101 (0 species), BIM02101 (1 species) and BIM02501 (1 species).

3.4 Comparison with North Olary Plains Survey sites

Four of the survey sites utilised by the current survey were initially installed as part of the North Olary Plains Survey (Playford and Robinson 1997). Therefore a brief comparison between the two site can be undertaken. Table 2 compares the number of mammal, reptile and bird species recorded at each site for the current survey and the previous North Olary Plains survey. Appendix 10 shows the actual bird, mammal and reptile species recorded at each site for each survey.

The North Olary Plains survey surveyed the sites in July/August 1996. The current survey was undertaken in May 2005. Therefore the two surveys were undertaken at slightly different times of the year.

Two of the sites surveyed (OLA01101 and OLA05301) had a similar number of bird species observed during both species, although the different species were observed during each survey (Table 2). The original survey recorded 10 more bird species at OLA01201 and seven more species at OLA01301 compared to the current survey.

The number of mammal species recorded at each site was similar for both surveys except for site OLA01101 where four mammal species were recorded in the original survey whilst no mammals were recorded at this site during the current survey (Table 2). Three of the species observed at OLA01101 during the original survey were introduced species. Although the number of species observed during both surveys was comparable, there was a slight difference in the species that were recorded between the surveys (Appendix 11). For example, *Pseudomys bolami* (Bolam's Mouse) was recorded during the current survey at OLA01201 not recorded during the original survey of the site (Appendix 11).

A similar number of reptile species were observed during each survey at two of the survey sites (OLA01201 and OLA05301) (Table 2). However, at OLA01101 no reptile species were observed during the current survey whilst four species were observed in the original survey. Additionally, at site OLA01301, six reptile species were observed during the current survey compared to three species in the original survey. Appendix 12 details the species observed at each site during both surveys.

Table 2. A comparison between the number of species observed during the North Olary Plains survey and the current survey at four sites within Bimbowrie Station.

Fauna group	OLA01101		OLA01201		OLA01301		OLA05301	
	Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey
Birds	24	23	24	14	14	7	21	20
Mammals	4	0	3	4	4	5	5	4
Reptiles	4	0	2	3	3	6	5	5
Total species	32	23	29	21	21	18	31	29

4. Discussion

4.1 General discussion

The Bimbowrie Fauna Survey was undertaken during late autumn which is not an ideal time to determine the presence of a number of fauna species, particularly reptiles. Bimbowrie Station had received little rain prior to the survey and a number of the habitats had been heavily grazed and were considered to be in poor condition. However, the number of species recorded during the survey is considered to be comprehensive considering the time of the year and the preceding weather conditions. The weather during the survey period was mild with cool nights and no rain.

It is likely that additional species would be identified within Bimbowrie if a survey was undertaken during the warmer months (spring / early summer) when reptiles are more active and the majority of species are breeding. Additionally, if there was a good season with good soaking rains, the number of species identified is likely to increase.

The very dry conditions experienced prior to and during the survey resulted in relatively low numbers of birds recorded. However, a survey at this time highlights important areas for the more resident species. Some dams still contained water, leading to records of several waterbird species.

Another feature during the survey was the abundance of flowering and fruiting Harlequin Mistletoe *Lysiana exocarpis*, a species that hosts on a variety of tall shrubs and low trees (especially *Alectryon oleifolius*, *Acacia carneorum* and *A. victoriae*). These provided abundant food resources in an environment lacking other flowering and fruiting plants, being used by honeyeaters (several species), Mistletoebirds and parrots (Mallee Ringneck, Mulga Parrot and Blue Bonnet).

Several of the sites which were surveyed returned poor results. There are several reasons why this may have occurred. The habitat quality of several sites such as BIM01301, BIM03001 and BIM02101 was poor with little understorey vegetation. Therefore, a lack of groundcover may result in less small mammals and reptiles. One site, BIM02801, contained a habitat type (*Eucalyptus socialis* Mallee) which covered a very small area. Therefore, due to the small site, less species reliant on that habitat would be supported. Six of the sites were not pitfall trapped due to the rocky nature of the sites and therefore the trapping effort for these sites was reduced. This would also have an impact on the number of species recorded at the different sites.

4.2 Species of significance recorded during the current survey

Two fauna species of national conservation significance were observed during the Bimbowrie Fauna Survey. These were the Yellow-footed Rock-wallaby (*Petrogale xanthopus*) and the Thick-billed Grasswren (*Amytornis textilis modestus*) with both species being listed as nationally **vulnerable**. Two species of state conservation significance were also recorded during the Bimbowrie Fauna Survey. These were the Peregrine Falcon (*Flaco peregrinus*) and the Redthroat (*Pyrrholaemus brunneus*). Both of these species are listed as being **rare** at a state level.

The Yellow-footed Rock-wallaby was recorded at BIM02701 with 13 individuals being observed as well as several skulls and skeletons being collected. Two opportunistic observations were also made during the survey, a sighting of an individual and the

collection of one skull. Prior to the current survey no voucher specimens had been collected and lodged with the SA Museum, for the Bimbowrie population of Yellow-footed Rock-wallabies. Therefore, the collection of the skulls and skeletons from this survey will be valuable for the SA Museum.

The Thick-billed Grasswren is main species of concern in region and its taxonomic status there is uncertain. Black and Baxter (2003) list two records for Bimbowrie. On 2 October 1996 C. Baxter saw five in Blackbush along a small watercourse, 2.5km W of Triangle Hill (31 58, 140 12). On 26 May 1999 he saw three in Blackbush along a watercourse on a treeless flat, 2km SW Poodla Dam (32 01, 140 10). Black and Baxter list another record for Koolka Hill in the north-east of Plumbago Station. Note this is not the Koolka Hill shown in Koolka Paddock on the pastoral assessment map of Bimbowrie Station, which should correctly be named Alconie Hill.

C. Kemper and G. Carpenter glimpsed a grasswren believed to be this species in Blackbush, Bladder saltbush and Elegant wattle along a watercourse in Toraminga paddock on 30 May 2005. This area had a relatively high cover of Bladder saltbush compared with other sites seen during the survey. This is in the same general area as Baxter's record west of Triangle Hill (Bimba Hill). The area of Baxter's observation SW of Poodla Dam was also searched without result. This area has watercourses with Blackbush and scattered Elegant wattle. Other sites with a relatively high cover of Blackbush seen during the survey were immediately south-west of Antro Woolshed and in the vicinity of BIM01701 in West Boolcoomata Paddock.

One Peregrine Falcon was observed opportunistically near a rock outcrop. Evidence of one breeding pair of this species was observed on the rock outcrop (Cathedral Rock) was observed.

Numerous observations of Redthroats were made across most habitats at Bimbowrie. This species was found at numerous trapping sites and also a number of opportunistic locations. In total over 40 individuals were observed during the survey. This suggests that this district is the stronghold for the species within South Australia (Carpenter, pers. comm.).

As well as the species of conservation significance which were observed during the survey, several other species of interest were recorded. These included *Vespadelus regulus* (Southern Forest Bat) and the *Acanthiza apicalis* (Inland Thornbill). *Vespadelus regulus* was recorded using the Anabat bat detector at two sites, OLA01201 and OLA05301. These records are a range extension for this species as they have not been recorded north of the Barrier Highway previously (Reardon, pers. com.).

The population of Inland Thornbills found within Bimbowrie are of interest. It is possible that the population of this species, which were observed in thickets of *Cassinia laevis* on granite outcrops with *Callitris glaucophylla*, is isolated from other populations (Carpenter, pers. com.). Therefore, this population may be of regional significance. Another record of interest was the Pied Butcherbird (*Cracticus nigrogularis*) at BIM01201 which confirms a link between records along the Darling River system and the central Flinders Ranges.

Although now extinct on the mainland, an old Stick-nest Rat (*Leproillus sp.*) nest was found opportunistically under a boulder overhang. This was located at 435750: 6449350 and indicates that one of the Stick-nest Rat species previously occurred in the region.

4.3 Birds

Forty-two bird species have been previously recorded within Bimbowrie Station (Harby, 2005). Of these all but six species were observed during the current survey. The bird species not observed are listed in Table 3. The current survey identified an additional 43 bird species within Bimbowrie. The large increase is likely to be due to the lack of previous survey effort on the property. The additional species are identified in Table 4.

It is likely that during the spring and summer months a number of additional bird species would be observed within Bimbowrie. These would include numerous migratory or vagrant species which may occasionally pass through the area. Several additional species of conservation significance may also occur within Bimbowrie. These species include the nationally **vulnerable** Plain's Wanderer (*Pedionomus torquatus*) and the state **rare** Grey Falcon (*Falco hypoleucus*).

There were surprisingly few records of nocturnal bird species made during the current survey. Species such as the Tawny Frogmouth, the Southern Boobook, and the Barn Owl are expected within this area (Carpenter, pers. comm.). Spotted Nightjar's have been previously recorded within Bimbowrie. There is also potential for the state **rare** Barking Owl to occur along Red Gum watercourses within Bimbowrie.

The Thick-billed Grasswren is not listed as being previously recorded within Bimbowrie Station by Harby (2005). However, Black and Baxter (2003) detail two observations of this species within Bimbowrie. These records do not appear to be on the DEH or SA Museum databases and therefore this species has been included as an additional species.

Table 3. Bird species previously recorded within Bimbowrie Station but not identified during the current survey (adapted from Harby 2005).

Family	Scientific Name	Common Name	No. recorded
Artamidae	<i>Artamus superciliosus</i>	White-browed Woodswallow	1
Cacatuidae	<i>Nymphicus hollandicus</i>	Cockatiel	1
Campephagidae	<i>Lalage tricolor</i>	White-winged Triller	1
Caprimulgidae	<i>Eurostopodus argus</i>	Spotted Nightjar	1
Cuculidae	<i>Chrysococcyx basalus</i>	Horsfield's Bronze-cuckoo	4
Psittacidae	<i>Melopsittacus undulatus</i>	Budgerigar	2

Table 4. Bird species recorded during the current survey but not previously recorded within Bimbowrie Station.

Scientific Name	Common Name
<i>Acanthiza apicalis</i>	Inland Thornbill
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar
<i>Amytornis textilis modestus</i>	Thick-billed Grasswren
<i>Anas gracilis</i>	Grey Teal
<i>Aythya australis</i>	Hardhead (White-eyed Duck)
<i>Calamanthus campestris</i>	Rufous Fieldwren
<i>Cinclosoma cinnamomeum</i>	Cinnamon Quail-thrush
<i>Coracina maxima</i>	Ground Cuckoo-shrike
<i>Corvus bennetti</i>	Little Crow
<i>Corvus mellori</i>	Little Raven
<i>Corvus sp.</i>	

Table 4 Continued

Scientific Name	Common Name
<i>Cracticus nigrogularis</i>	Pied Butcherbird
<i>Cuculus pallidus</i>	Pallid Cuckoo
<i>Euseyornis melanops</i>	Black-fronted Dotterel
<i>Epthianura aurifrons</i>	Orange Chat
<i>Falco berigora</i>	Brown Falcon
<i>Falco longipennis</i>	Australian Hobby
<i>Falco peregrinus</i>	Peregrine Falcon
<i>Geopelia placida</i>	Peaceful Dove
<i>Hirundo neoxena</i>	Welcome Swallow
<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck
<i>Myiagra inquieta</i>	Restless Flycatcher
<i>Neophema elegans</i>	Elegant Parrot
<i>Neopsephotus bourkii</i>	Bourke's Parrot
<i>Nycticorax caledonicus</i>	Nankeen Night Heron
<i>Oreoica gutturalis</i>	Crested Bellbird
<i>Petrochelidon ariel</i>	Fairy Martin
<i>Petrochelidon nigricans</i>	Tree Martin
<i>Petroica goodenovii</i>	Red-capped Robin
<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant
<i>Phaps chalcoptera</i>	Common Bronzewing
<i>Phylidonyris albifrons</i>	White-fronted Honeyeater
<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe
<i>Pyrrholaemus brunneus</i>	Redthroat
<i>Rhipidura albiscapa</i>	Grey Fantail
<i>Smicronis brevirostris</i>	Weebill
<i>Struthidea cinerea</i>	Apostlebird
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe
<i>Todiramphus sp.</i>	
* <i>Columba livia</i>	Rock Dove
* <i>Passer domesticus</i>	House Sparrow
* <i>Sturnus vulgaris</i>	Common Starling

4.4 Mammals

Ten mammal species have been previously recorded within Bimbowrie Station (Harby 2005). All ten of these species were also identified during the current survey. An additional 16 species were identified as part of the current survey (two of which are listed as possibilities), these included *Mus musculus* (House Mouse), *Pseudomys bolami* (Bolam's Mouse), *Sminthopsis macroura* (Striped-faced Dunnart) and *Nyctophilus geoffroyi* (Lesser Long-eared Bat). Refer to Table 5 for a full list of additional species observed.

Harby (2005) identified a number of species as being data deficient in the Bimbowrie area. Several of these species were recorded during the current survey which increases the distribution data available for these species. The species included Bolam's Mouse (*Pseudomys bolami*), Short-beaked Echidna (*Tachyglossus aculeatus*), Inland Forest Bat (*Vespadelus baverstocki*) and Southern Forest Bat (*Vespadelus regulus*).

With future surveys and an increase in observational activity within Bimbowrie Station, it is likely that additional mammal species will be identified within the property.

Undertaking surveys at different times of the year may also increase the species diversity for mammals. Several additional species which may occur within the property are of conservation significance and include:

- *Macropus giganteus* (Eastern Grey Kangaroo) – State **rare**;
- *Chalinolobus picatus* (Little Pied Bat) – State **vulnerable**;

Table 5. Mammal species recorded during the current survey but not previously recorded within Bimbowrie Station.

Species Name	Common Name
* <i>Mus musculus</i>	House Mouse
* <i>Ovis aries</i>	Sheep
<i>Canis sp</i>	Dog
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat
<i>Chalinolobus morio</i> *	Chocolate Wattled Bat
<i>Macropus fuliginosus</i>	Western Grey Kangaroo
<i>Mormopterus sp.</i>	Southern Freetail Bat
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat
<i>Pseudomys bolami</i>	Bolam's Mouse
<i>Scotorepens balstoni</i> *	Inland Broad-nosed Bat
<i>Sminthopsis macroura</i>	Stripe-faced Dunnart
<i>Tadarida australis</i>	White-striped Freetail Bat
<i>Tadarida sp.</i>	Freetail Bat
<i>Vespadelus baverstocki</i>	Inland Forest Bat
<i>Vespadelus regulus</i>	Southern Forest Bat
<i>Vespadelus sp.</i>	Forest Bat

*recorded by the bat detectors and confirmed only as possibilities

4.5 Reptiles and amphibians

Twenty-three reptile species have been previously recorded within Bimbowrie Station (Harby 2005). Sixteen of these species were observed during the current survey whilst seven species previously found were not observed during the current survey. The species previously recorded but not observed in the current survey are listed in Table 6. An additional 15 species were identified during the current survey. These species are listed in Table 7. Several of the additional species identified in the current survey were only identified to genus level and may be species previously recorded at Bimbowrie.

A number of species were listed by Harby (2005) as being data deficient for the area around Bimbowrie Station. Several of these species were recorded during the current survey which increases the number of accurate records for these species within the region. The species include the Painted Dragon (*Ctenophorus pictus*), the Beaded Gecko (*Diplodactylus damaeus*) and the Desert Skink (*Egernia inornata*).

No elapids, pythons, legless lizards or amphibians were recorded during the current survey. However, it is likely that if a survey was undertaken during spring, species representing each of these groups would be observed. A Stimson's Python (*Antaresia stimsoni*) was observed in the vicinity of Old Boolcoommatta Homestead in March 2005 (Wilson, pers. comm.) which indicates that this species does occur in the area. The observed animal was not vouchered but identified from photographs.

Only one amphibian species has been previously recorded at Bimbowrie, the Trilling Frog (*Neobatrachus centralis*). However, several additional species have been recorded within the Bimbowrie region including the Spotted Grass Frog (*Limnodynastes tasmaniensis*), the Painted Frog (*Neobatrachus pictus*), Sudell's Frog (*Neobatrachus sudelli*) and the Common Froglet (*Crinia signifera*). It is likely that several of these species would also be found within Bimbowrie.

Table 6. Reptile and amphibian species previously recorded within Bimbowrie Station but not identified during the current survey (adapted from Harby 2005).

Scientific Name	Common Name
<i>Diplodactylis byrnei</i>	Pink-blotched Gecko
<i>Diplodactylus steindachneri</i>	Map Gecko
<i>Lialis burtonis</i>	Burton's Legless Lizard
<i>Simoselaps australis</i>	Coral Snake
<i>Strophurus williamsi</i>	Eastern Spiny-tailed Gecko
<i>Tympanocryptis lineata</i>	Five-lined Earless Dragon
<i>Neobatrachus centralis</i>	Trilling Frog

Table 7. Reptile species recorded during the current survey but not previously recorded within Bimbowrie Station.

Scientific Name	Common Name
<i>Cryptoblepharus sp.</i>	Wall Skink
<i>Ctenophorus decresii</i>	Tawny Dragon
<i>Ctenophorus pictus</i>	Painted Dragon
<i>Ctenopus regius</i>	Eastern Desert Ctenopus
<i>Ctenopus schomburgkii</i>	Sandplain Ctenopus
<i>Ctenopus sp.</i>	Ctenopus
<i>Diplodactylus damaeus</i>	Beaded Gecko
<i>Egernia inornata</i>	Desert Skink
<i>Egernia sp.</i>	Skink
<i>Morethia adelaidensis</i>	Adelaide Snake-eye
<i>Morethia sp.</i>	Snake-eye
<i>Pogona sp.</i>	Bearded Dragon
<i>Pogona vitticeps</i>	Central Bearded Dragon
<i>Tympanocryptis tetraporophora</i>	Eyrean Earless Dragon
<i>Varanus sp.</i>	Goanna

4.6 Comparison with North Olary Plains Survey sites

There were differences in the number of fauna species observed during the original North Olary Plains Survey and the current survey. Overall, several sites had more species recorded during the North Olary Plains survey compared to the current survey. The number of bird species observed was markedly different at two sites, OLA01201 and OLA01301. This may have been due to different time of the year the surveys were undertaken or due to seasonal conditions. Preceding the current survey, little rainfall had occurred at Bimbowrie resulting in very dry conditions, this could have had a significant impact on bird species at some sites.

The number reptile and mammal species observed during both surveys at all previously surveyed sites was considered to be low. Therefore, it is difficult to analyse the data and to determine reasons for any differences. The differences observed may

be a result of seasonal conditions or it may be by chance that additional species were observed during the two surveys.

4.7 Recommendations

The recommendations below have been made to improve the monitoring and surveying of fauna species on Bimbowrie Station.

- Undertake a survey during spring / early summer to increase the number of species observed within Bimbowrie. It is likely that additional bat, reptile and migratory bird species would be encountered.
- Reduce the number of sites surveyed to 20 instead of 25. Twenty-five sites are too many to adequately survey at one time unless the survey was undertaken over a three week period. Reducing the number of sites to 25 would increase the available time to undertake more intense active searching of trapping sites as well as allowing time to actively search opportunistic sites across the property.
- The number of sites could be reduced by not surveying the following sites:
 - BIM00701 – *Maireana pyramidata* shrublands are well represented in trapping effort across the property;
 - BIM01301 – not a major vegetation type, very degraded habitat;
 - BIM02101 – very little caught or observed, too rocky for pitfalls;
 - BIM03001 – very few reptile or mammal species caught, too rocky for pitfalls;
 - OLA01101 – no reptiles or mammals caught, habitat type represented at other trapping site.

The recommendation to discard these sites has been purely based on identifying as many species as possible within Bimbowrie and reducing the number of sites surveyed.

- The only outstanding issue, which needs to be completed, is confirmation of the mammal voucher specimens from the SA Museum.

6. References and Bibliography

- CARPENTER, G. & REID, J. (1999). 'Bird Species of Conservation Significance in South Australia's Agricultural Regions.' (Unpublished database, Department of Environment & Heritage, SA).
- CASPERSON, K.D., HUTCHINSON, M.N. & ROBINSON, A.C. (2000) 'A List of the Vertebrates of South Australia'. (Department for environment and Heritage).
- COGGER, H. G. (1975). 'Reptiles and Amphibians of Australia.' (A. H. & A. W. Reed, Sydney). (Fifth edition, 1994).
- HARBY, N. (2005). 'Vertebrate Records for Bimbowrie Station – South Australia'. (Unpublished Report- Department of Environment & Heritage, SA).
- HOUSTON, T. (1978). 'Dragon Lizards and Goannas of South Australia.' (Revised by Hutchinson, M. N, South Australian Museum). (Second edition, 1998).
- PLAYFAIR, R.M. & ROBINSON, A.C. (1997). 'A Biological Survey of the North Olary Plains, South Australia, 1995-1997.' (Natural Resources Group, Department of Environment and Natural Resources, South Australia).
- MENKHORST, P. & KNIGHT, F. (2001). 'A Field Guide to the Mammals of Australia.' (Oxford University Press, Australia). (Second edition, 2004)
- OWENS, H. (2000). 'Guidelines for Vertebrate Surveys in South Australia Using the Biological Survey Of South Australia.' (National Parks & Wildlife South Australia).
- REARDON, T. & FLAVEL, S. (1991). 'A Guide to the Bats of South Australia'. (South Australian Museum).
- SIMPSON, K. & DAY, N. (1984). 'Field Guide to the Birds of Australia – A Book of Identification.' (Penguin Books Australia). (Third edition, 1993)
- STRAHAN, R. (1983) 'The Mammals of Australia.' (Angus & Robertson Publishers). (Second edition, 1995, Reed Books Australia)
- TRIGGS, B. (1996). 'Tracks, Scats and Other Traces – A Field Guide to Australian Mammals.' (Oxford University Press, Australia)
- WILSON, S. & SWAN, G (2003). 'A Complete Guide to Reptiles of Australia.' (Reed New Holland).

Appendix 1 – Trapping sites for the Bimbowrie Fauna Survey

Site Identification	Vegetation Community
BIM00301	<i>Maireana pyramidata</i> Low Open Shrubland
BIM00401	<i>Maireana pyramidata</i> Low Open Shrubland
BIM00501	<i>Eremophila sturtii</i> Tall Very Open Shrubland
BIM00601	<i>Acacia carneorum</i> over <i>Maireana pyramidata</i> Very Low Open Woodland
BIM00701	<i>Maireana pyramidata</i> Low Open Shrubland
BIM00801	<i>Casuarina pauper</i> Low Open Forest
BIM01001	<i>Eremophila sturtii</i> , <i>Dodonaea viscosa</i> Open Shrubland
BIM01101	<i>Dodonaea viscosa</i> Open Shrubland
BIM01201	<i>Acacia victoriae</i> Tall Very Open Shrubland
BIM01301	<i>Alectryon oleifolius</i> Very Low Woodland
BIM01401	<i>Eucalyptus camaldulensis</i> Open Forest
BIM01701	<i>Maireana astrotricha</i> and <i>Atriplex vesicaria</i> Low Open Shrubland
BIM01801	<i>Maireana pyramidata</i> and <i>Atriplex vesicaria</i> Low Very Open Shrubland
BIM02101	<i>Acacia aneura</i> Low Open Shrubland
BIM02301	<i>Rhagodia spinescens</i> over <i>Halosarcia pergranulata</i> Shrubland
BIM02401	<i>Eucalyptus camaldulensis</i> Woodland over <i>Maireana brevifolia</i>
BIM02501	<i>Callitris glaucophylla</i> over <i>Sida petrophila</i> Low Woodland
BIM02601	<i>Callitris glaucophylla</i> , <i>Eucalyptus porosa</i> Low Woodland
BIM02701	<i>Callitris glaucophylla</i> over <i>Sida petrophila</i> Low Woodland
BIM02801	<i>Eucalyptus socialis</i> Mallee
BIM03001	<i>Maireana sedifolia</i> Low Very Open Shrubland
OLA01101	<i>Eucalyptus camaldulensis</i> Open Forest
OLA01201	<i>Acacia carneorum</i> Low Open Woodland
OLA01301	<i>Sclerolaena</i> sp. Low Open Shrubland
OLA05301	<i>Acacia ayersiana</i> var. <i>latifolia</i> , <i>Acacia beckleri</i> over <i>Dodonaea lobulata</i> Very Low Woodland

Appendix 2 – Trapping effort at each site

Site	Elliott traps		Pitfall traps		Cage traps		Harp trap	Mist net	Spotlight	Day search	Bat detector
	nights	trap nights	nights	trap nights	nights	trap nights	nights	nights	hours	hours	nights
BIM00301	4	120	4	48	4	16				1.75	1
BIM00401	4	120	4	48	4	16				3	1
BIM00501	4	120	4	48	4	16	1			1.33	1
BIM00601	4	120	4	48	4	16				5	1
BIM00701	4	120	4	48	4	16				2	1
BIM00801	4	120	4	48	4	16	4			5	
BIM01001	4	120	4	48	4	16				5	
BIM01101	4	120	4	48	4	16				3.75	
BIM01201	4	120	4	48	4	16	4				
BIM01301	4	120	4	48	4	8				1	1
BIM01401	4	120	4	48	2	4				3.75	1
BIM01701	4	120	4	48	4	16				2.5	
BIM01801	4	120	4	48	4	16				2.25	
BIM02101	4	120			4	16				1	
BIM02301	4	120	4	48	4	16					
BIM02401	4	120	4	48	4	16				1.25	1
BIM02501	4	120								0.75	1
BIM02601	3	90								3.33	
BIM02701	4	120			4	16				2.5	
BIM02801	4	120	4	48	4	16				2.66	
BIM03001	4	120			4	16				0.85	
OLA01101	4	120	4	48	4	16				1	
OLA01201	4	120	4	48	4	16				3.3	1
OLA01301	4	120	4	48	4	16				4.25	
OLA05301	4	120			4	16				3.75	1
TOTAL	99	2970	76	912	90	348	9	0	0	60.97	11

Appendix 3 – Bird species recorded at the trapping sites

Species Name	Common Name	BIM00301	BIM00401	BIM00501	BIM00601	BIM00701	BIM00801	BIM01001	BIM01101	BIM01201	BIM01301
* <i>Columba livia</i>	Rock Dove										
* <i>Passer domesticus</i>	House Sparrow										
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater		3	3	2	3		2	2	4	2
<i>Acanthiza apicalis</i>	Inland Thornbill										
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill			1						1	
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill	1			1	1	1	1		2	2
<i>Accipiter cirrhocephalus</i>	Collared Sparrowhawk										
<i>Anthus novaeseelandiae</i>	Richard's Pipit										
<i>Aphelocephala leucopsis</i>	Southern Whiteface			2						3	
<i>Aquila audax</i>	Wedge-tailed Eagle	1				1				3	
<i>Artamus cinereus</i>	Black-faced Woodswallow										
<i>Barnardius zonarius</i>	Australian Ringneck, (Ring-necked Parrot)			2						3	3
<i>Cacatua roseicapilla</i>	Galah				1		1	1		2	2
<i>Cacatua sanguinea</i>	Little Corella			1					1	1	
<i>Calamanthus campestris</i>	Rufous Fieldwren										
<i>Cheramoeca leucosternus</i>	White-backed Swallow							1			
<i>Cinclosoma cinnamomeum</i>	Cinnamon Quail-thrush										
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike										
<i>Corvus bennetti</i>	Little Crow										
<i>Corvus coronoides</i>	Australian Raven	2	2	2	1	1	1	1		3	1
<i>Corvus mellori</i>	Little Raven								1		
<i>Cracticus nigrogularis</i>	Pied Butcherbird									1	
<i>Cracticus torquatus</i>	Grey Butcherbird			2	2	1	1	1		1	
<i>Dicaeum hirundinaceum</i>	Mistletoebird		2	4	1	3	2	1	2	4	6
<i>Dromaius novaehollandiae</i>	Emu	1	2	2	2	2	2	2	2	5	2
<i>Epthianura aurifrons</i>	Orange Chat										
<i>Falco berigora</i>	Brown Falcon										
<i>Falco cenchroides</i>	Nankeen Kestrel				1						
<i>Grallina cyanoleuca</i>	Magpie-lark										
<i>Gymnorhina tibicen</i>	Australian Magpie	1			1		1	1	1		1
<i>Hirundo neoxena</i>	Welcome Swallow							1			

*introduced species

Species Name	Common Name	BIM00301	BIM00401	BIM00501	BIM00601	BIM00701	BIM00801	BIM01001	BIM01101	BIM01201	BIM01301
<i>Lichenostomus virescens</i>	Singing Honeyeater	1	4	4	3	3	2	3	2	5	4
<i>Malurus lamberti</i>	Variegated Fairy-wren	2	1	4	2	2		2	2	4	2
<i>Malurus leucopterus</i>	White-winged Fairy-wren	1	3			3		1	2		
<i>Manorina flavigula</i>	Yellow-throated Miner				2				1	1	3
<i>Melanodryas cucullata</i>	Hooded Robin										
<i>Milvus migrans</i>	Black Kite										
<i>Myiagra inquieta</i>	Restless Flycatcher										
<i>Neophema elegans</i>	Elegant Parrot										
<i>Neopsephotus bourkii</i>	Bourke's Parrot							1			
<i>Northiella haematogaster</i>	Blue Bonnet	1		3			4				
<i>Ocyphaps lophotes</i>	Crested Pigeon	1		1	2	2				1	2
<i>Oreoica gutturalis</i>	Crested Bellbird						1				
<i>Pachycephala rufiventris</i>	Rufous Whistler			2							
<i>Pardalotus striatus</i>	Striated Pardalote							1		2	
<i>Petrochelidon ariel</i>	Fairy Martin										
<i>Petrochelidon nigricans</i>	Tree Martin									1	2
<i>Petroica goodenovii</i>	Red-capped Robin		1			1		2		1	
<i>Phaps chalcoptera</i>	Common Bronzewing								1		
<i>Phylidonyris albigularis</i>	White-fronted Honeyeater		1								
<i>Pomatostomus ruficeps</i>	Chestnut-crowned Babbler	3	1	2	1	1	2		1	2	
<i>Psephotus varius</i>	Mulga Parrot					1			1	3	
<i>Psophodes cristatus</i>	Chirruping Wedgebill	2	1	3	1	2			1	4	
<i>Pyrrholaemus brunneus SA: R</i>	Redthroat	3	5	4	2	5		3	2	2	
<i>Rhipidura albiscapa</i>	Grey Fantail					1				2	
<i>Rhipidura leucophrys</i>	Willie Wagtail				1	1	1		2	2	
<i>Smicromnis brevirostris</i>	Weebill									3	
<i>Struthidea cinerea</i>	Apostlebird			1							
<i>Taeniopygia guttata</i>	Zebra Finch	1								2	
<i>Todiramphus sp.</i>											
	Total	21	26	43	26	34	19	25	24	68	32

Species Name	Common Name	BIM01401	BIM01701	BIM01801	BIM02101	BIM02301	BIM02401	BIM02501	BIM02601	BIM02701	BIM02801
* <i>Columba livia</i>	Rock Dove		1								
* <i>Passer domesticus</i>	House Sparrow						1				
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	1			2			1		2	
<i>Acanthiza apicalis</i>	Inland Thornbill								3		
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill					1	3				
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill				3		3	1	3		
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk						1				
<i>Anthus novaeseelandiae</i>	Richard's Pipit			1							
<i>Aphelocephala leucopsis</i>	Southern Whiteface	1		1	5	1	1	1	1		
<i>Aquila audax</i>	Wedge-tailed Eagle	2	1	1	1	3	1	2	3	4	1
<i>Artamus cinereus</i>	Black-faced Woodswallow				2						
<i>Barnardius zonarius</i>	Australian Ringneck, (Ring-necked Parrot)	1					4	2	1		
<i>Cacatua roseicapilla</i>	Galah	3				1	1	1			1
<i>Cacatua sanguinea</i>	Little Corella	1					1				
<i>Calamanthus campestris</i>	Rufous Fieldwren		1	3							
<i>Cheramoeca leucosternus</i>	White-backed Swallow				1						
<i>Cinlosoma cinnamomeum</i>	Cinnamon Quail-thrush		1	1							
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	1					2	1			
<i>Corvus bennetti</i>	Little Crow	2		1							
<i>Corvus coronoides</i>	Australian Raven	2			3	2	1	3	2		1
<i>Corvus mellori</i>	Little Raven										
<i>Cracticus nigrogularis</i>	Pied Butcherbird										
<i>Cracticus torquatus</i>	Grey Butcherbird	1			1		1		1	2	
<i>Dicaeum hirundinaceum</i>	Mistletoebird	1			2				1	1	1
<i>Dromaius novaehollandiae</i>	Emu	1	1		3	2	3		1	2	1
<i>Epthianura aurifrons</i>	Orange Chat										
<i>Falco berigora</i>	Brown Falcon										
<i>Falco cenchroides</i>	Nankeen Kestrel										
<i>Grallina cyanoleuca</i>	Maggie-lark							1			
<i>Gymnorhina tibicen</i>	Australian Magpie	1		1	2	2	1	1	1		1
<i>Hirundo neoxena</i>	Welcome Swallow	1									

*introduced species

Species Name	Common Name	BIM01401	BIM01701	BIM01801	BIM02101	BIM02301	BIM02401	BIM02501	BIM02601	BIM02701	BIM02801
<i>Lichenostomus virescens</i>	Singing Honeyeater	2			2	2	4	1	1		
<i>Malurus lamberti</i>	Variiegated Fairy-wren						4		3		
<i>Malurus leucopterus</i>	White-winged Fairy-wren		3	5		3	1				
<i>Manorina flavigula</i>	Yellow-throated Miner	2					2	1	3	2	2
<i>Melanodryas cucullata</i>	Hooded Robin			1	1						
<i>Milvus migrans</i>	Black Kite									1	
<i>Myiagra inquieta</i>	Restless Flycatcher						2				
<i>Neophema elegans</i>	Elegant Parrot	2									
<i>Neopsephotus bourkii</i>	Bourke's Parrot										
<i>Northiella haematogaster</i>	Blue Bonnet				4	1	1				
<i>Ocyphaps lophotes</i>	Crested Pigeon	1			1		1	1	1	1	
<i>Oreoica gutturalis</i>	Crested Bellbird										
<i>Pachycephala rufiventris</i>	Rufous Whistler	1					3		1		
<i>Pardalotus striatus</i>	Striated Pardalote	2					5	1	2		
<i>Petrochelidon ariel</i>	Fairy Martin									2	
<i>Petrochelidon nigricans</i>	Tree Martin	1				1	2	1	1		
<i>Petroica goodenovii</i>	Red-capped Robin			1	1		1	2			
<i>Phaps chalcoptera</i>	Common Bronzewing							1	1	2	
<i>Phylidonyris albigularis</i>	White-fronted Honeyeater										
<i>Pomatostomus ruficeps</i>	Chestnut-crowned Babbler			1	6	1	1		1		
<i>Psephotus varius</i>	Mulga Parrot	1			1		2	1		1	
<i>Psophodes cristatus</i>	Chirruping Wedgebill		2	3	1	3	1				
<i>Pyrrholaemus brunneus SA: R</i>	Redthroat	1	3	2	1	2	1		2		
<i>Rhipidura albiscapa</i>	Grey Fantail										
<i>Rhipidura leucophrys</i>	Willie Wagtail	1			1		1				
<i>Smicromnis brevirostris</i>	Weebill	1					5	1	2		
<i>Struthidea cinerea</i>	Apostlebird							1	1		
<i>Taeniopygia guttata</i>	Zebra Finch										
<i>Todiramphus sp.</i>											
	Total	34	13	22	44	25	61	25	36	20	8

Species Name	Common Name	BIM03001	OLA01101	OLA01201	OLA01301	OLA05301	TOTAL
* <i>Columba livia</i>	Rock Dove						1
* <i>Passer domesticus</i>	House Sparrow						1
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	2	3	6		3	43
<i>Acanthiza apicalis</i>	Inland Thornbill						3
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill					2	8
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill		1			3	23
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk						1
<i>Anthus novaeseelandiae</i>	Richard's Pipit	1			2	1	6
<i>Aphelocephala leucopsis</i>	Southern Whiteface	2	1	1		3	25
<i>Aquila audax</i>	Wedge-tailed Eagle	1	3	1	1	2	33
<i>Artamus cinereus</i>	Black-faced Woodswallow						2
<i>Barnardius zonarius</i>	Australian Ringneck, (Ring-necked Parrot)		6	2			24
<i>Cacatua roseicapilla</i>	Galah		6	2	1	2	25
<i>Cacatua sanguinea</i>	Little Corella		1				6
<i>Calamanthus campestris</i>	Rufous Fieldwren						4
<i>Cheramoeca leucosternus</i>	White-backed Swallow	1			1		5
<i>Cinlosoma cinnamomeum</i>	Cinnamon Quail-thrush						2
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike		1				5
<i>Corvus bennetti</i>	Little Crow		1	1			5
<i>Corvus coronoides</i>	Australian Raven	2	2	2	1	1	38
<i>Corvus mellori</i>	Little Raven						1
<i>Cracticus nigrogularis</i>	Pied Butcherbird						1
<i>Cracticus torquatus</i>	Grey Butcherbird		1			1	16
<i>Dicaeum hirundinaceum</i>	Mistletoebird		3			1	35
<i>Dromaius novaehollandiae</i>	Emu	2	1	2		2	45
<i>Epthianura aurifrons</i>	Orange Chat				1		1
<i>Falco berigora</i>	Brown Falcon			1			1
<i>Falco cenchroides</i>	Nankeen Kestrel						1
<i>Grallina cyanoleuca</i>	Magpie-lark						1
<i>Gymnorhina tibicen</i>	Australian Magpie	2	6			2	28
<i>Hirundo neoxena</i>	Welcome Swallow						2

*introduced species

Species Name	Common Name	BIM03001	OLA01101	OLA01201	OLA01301	OLA05301	TOTAL
<i>Lichenostomus virescens</i>	Singing Honeyeater	3	2	5		3	59
<i>Malurus lamberti</i>	Variegated Fairy-wren					1	29
<i>Malurus leucopterus</i>	White-winged Fairy-wren	3					28
<i>Manorina flavigula</i>	Yellow-throated Miner		1				20
<i>Melanodryas cucullata</i>	Hooded Robin						2
<i>Milvus migrans</i>	Black Kite						1
<i>Myiagra inquieta</i>	Restless Flycatcher						2
<i>Neophema elegans</i>	Elegant Parrot						2
<i>Neopsephotus bourkii</i>	Bourke's Parrot						1
<i>Northiella haematogaster</i>	Blue Bonnet						14
<i>Ocyphaps lophotes</i>	Crested Pigeon	1	4	2		3	26
<i>Oreoica gutturalis</i>	Crested Bellbird						1
<i>Pachycephala rufiventris</i>	Rufous Whistler		2				9
<i>Pardalotus striatus</i>	Striated Pardalote		5				18
<i>Petrochelidon ariel</i>	Fairy Martin						2
<i>Petrochelidon nigricans</i>	Tree Martin						9
<i>Petroica goodenovii</i>	Red-capped Robin					2	12
<i>Phaps chalcoptera</i>	Common Bronzewing					1	6
<i>Phylidonyris albifrons</i>	White-fronted Honeyeater			2			3
<i>Pomatostomus ruficeps</i>	Chestnut-crowned Babbler			2			25
<i>Psephotus varius</i>	Mulga Parrot		1			1	13
<i>Psophodes cristatus</i>	Chirruping Wedgebill	1				1	27
<i>Pyrrholaemus brunneus SA: R</i>	Redthroat	2					42
<i>Rhipidura albiscapa</i>	Grey Fantail		1				4
<i>Rhipidura leucophrys</i>	Willie Wagtail	1		2			14
<i>Smicromnis brevirostris</i>	Weebill		3				15
<i>Struthidea cinerea</i>	Apostlebird		1				4
<i>Taeniopygia guttata</i>	Zebra Finch				2		5
<i>Todiramphus sp.</i>						1	1
	Total	24	24	56	31	9	774

Appendix 4 – Mammal species recorded at the trapping sites

Species Name	Common Name	BIM00301	BIM00401	BIM00501	BIM00601	BIM00701	BIM00801	BIM01001	BIM01101	BIM01201	BIM01301
* <i>Capra hircus</i>	Goat		1								
* <i>Felis catus</i>	Cat										
* <i>Mus musculus</i>	House Mouse		2	2	4	1		1		3	
* <i>Oryctolagus cuniculus</i>	Rabbit	1		2	2	2	1	1	1	3	1
* <i>Ovis aries</i>	Sheep	1	10								
* <i>Vulpes vulpes</i>	Fox		1		1				2		
<i>Canis sp.</i>	Dog								1		
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	5		1							
<i>Macropus robustus</i>	Euro	1		1	1				1		1
<i>Macropus rufogriseus SA: R</i>	Red-necked Wallaby										
<i>Macropus rufus</i>	Red Kangaroo	4				1	2			5	4
<i>Macropus sp.</i>				1	1	2	2		2	1	
<i>Petrogale xanthopus AUS: VU SA: V</i>	Yellow-footed Rock-wallaby										
<i>Pseudomys bolami</i>	Bolam's Mouse				2	1	2	2			
<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart										
<i>Sminthopsis macroura</i>	Stripe-faced Dunnart		1								
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna								1		
<i>Vespadelus baverstocki</i>	Inland Forest Bat						1			2	
	Total	12	15	7	11	7	8	4	8	14	6

*introduced species

Species Name	Common Name	BIM01401	BIM01701	BIM01801	BIM02101	BIM02301	BIM02401	BIM02501	BIM02601	BIM02701	BIM02801
* <i>Capra hircus</i>	Goat		1	1	2						2
* <i>Felis catus</i>	Cat										1
* <i>Mus musculus</i>	House Mouse		1				8				
* <i>Oryctolagus cuniculus</i>	Rabbit	2	1	1							
* <i>Ovis aries</i>	Sheep										
* <i>Vulpes vulpes</i>	Fox		1	1						1	
<i>Canis lupus dingo</i>	Dingo										
<i>Macropus fuliginosus</i>	Western Grey Kangaroo										
<i>Macropus robustus</i>	Euro		1		2	2	5	1	1	7	
<i>Macropus rufogriseus SA: R</i>	Red-necked Wallaby										
<i>Macropus rufus</i>	Red Kangaroo		4	3	2	2				4	
<i>Macropus sp.</i>		2			1						
<i>Petrogale xanthopus AUS: VU SA: V</i>	Yellow-footed Rock-wallaby									6	
<i>Pseudomys bolami</i>	Bolam's Mouse			2							
<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart			1							
<i>Sminthopsis macroura</i>	Stripe-faced Dunnart					3	3			2	
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna						1				1
<i>Vespadelus baverstocki</i>	Inland Forest Bat										
Total		4	9	9	7	7	17	1	1	20	4

*introduced species

Species Name	Common Name	BIM03001	OLA01101	OLA01201	OLA01301	OLA05301	TOTAL
* <i>Capra hircus</i>	Goat					1	8
* <i>Felis catus</i>	Cat						1
* <i>Mus musculus</i>	House Mouse				1		23
* <i>Oryctolagus cuniculus</i>	Rabbit			1		1	20
* <i>Ovis aries</i>	Sheep					1	12
* <i>Vulpes vulpes</i>	Fox						7
<i>Canis lupus dingo</i>	Dingo						1
<i>Macropus fuliginosus</i>	Western Grey Kangaroo						6
<i>Macropus robustus</i>	Euro	5		1	3	3	41
<i>Macropus rufogriseus SA: R</i>	Red-necked Wallaby				1		1
<i>Macropus rufus</i>	Red Kangaroo	5					41
<i>Macropus sp.</i>		1		1	2		17
<i>Petrogale xanthopus AUS: VU SA: V</i>	Yellow-footed Rock-wallaby						6
<i>Pseudomys bolami</i>	Bolam's Mouse			2			11
<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart				1		2
<i>Sminthopsis macroura</i>	Stripe-faced Dunnart						9
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna						3
<i>Vespadelus baverstocki</i>	Inland Forest Bat						3
	Total	11	0	5	8	6	212

*introduced species

Appendix 5 – Reptile species recorded at the trapping sites

Species Name	Common Name	BIM00301	BIM00401	BIM00501	BIM00601	BIM00701	BIM00801	BIM01001	BIM01101	BIM01201	BIM01301
<i>Cryptoblepharus plagiocephalus</i> "PIB"	Desert Wall skink										
<i>Cryptoblepharus</i> sp.				1							
<i>Ctenophorus decresii</i>	Tawny Dragon										
<i>Ctenophorus pictus</i>	Painted Dragon	1	2					2			
<i>Ctenotus regius</i>	Eastern Desert Ctenotus	1							1		
<i>Ctenotus robustus</i>	Eastern Striped Skink					1					
<i>Ctenotus schomburgkii</i>	Sandplain Ctenotus	2	4		1		1		2	3	
<i>Ctenotus</i> sp.											
<i>Ctenotus strauchii</i>	Short-legged Ctenotus										
<i>Diplodactylus damaeus</i>	Beaded Gecko				2		1				
<i>Egernia inornata</i>	Desert Skink		2								
<i>Egernia striolata</i>	Eastern Tree Skink										
<i>Eremiascincus richardsonii</i>	Broad-banded Sandswimmer										1
<i>Gehyra</i> sp.											
<i>Gehyra</i> sp. '2n=44'	Southern Rock Dtella										
<i>Gehyra variegata</i>	Tree Dtella		1	1		5	1		1		1
<i>Heteronotia binoei</i>	Bynoe's Gecko		1					1	1	2	1
<i>Lerista labialis</i>	Eastern Two-toed Slider							2	1		
<i>Lerista muelleri</i>	Dwarf Three-toed Slider										1
<i>Lerista punctatovittata</i>	Spotted Slider										
<i>Menetia greyii</i>	Dwarf Skink						2		1	1	1
<i>Morethia adalaidensis</i>	Adelaide Snake-eye				1			1			
<i>Morethia boulengeri</i>	Common Snake-eye			1							
<i>Morethia</i> sp.											
<i>Nephrurus milii</i>	Barking Gecko										
<i>Pogona</i> sp.									1		
<i>Pogona vitticeps</i>	Central Bearded Dragon		1								
<i>Tiliqua rugosa</i>	Sleepy Lizard		2	1	1						
<i>Tympanocryptis tetraporophora</i>	Eyrean Earless Dragon										
<i>Varanus</i> sp.	Goanna		1								
Total		4	14	4	5	6	5	6	8	6	5

Species Name	Common Name	BIM01401	BIM01701	BIM01801	BIM02101	BIM02301	BIM02401	BIM02501	BIM02601	BIM02701	BIM02801
<i>Cryptoblepharus plagiocephalus</i> "PIB"	Desert Wall skink										
<i>Cryptoblepharus</i> sp.										1	
<i>Ctenophorus decresii</i>	Tawny Dragon							2			
<i>Ctenophorus pictus</i>	Painted Dragon									1	
<i>Ctenotus regius</i>	Eastern Desert Ctenotus										
<i>Ctenotus robustus</i>	Eastern Striped Skink								3		
<i>Ctenotus schomburgkii</i>	Sandplain Ctenotus										
<i>Ctenotus</i> sp.											
<i>Ctenotus strauchii</i>	Short-legged Ctenotus										
<i>Diplodactylus damaeus</i>	Beaded Gecko										
<i>Egernia inornata</i>	Desert Skink		1	1							
<i>Egernia striolata</i>	Eastern Tree Skink										
<i>Eremiascincus richardsonii</i>	Broad-banded Sandswimmer										
<i>Gehyra</i> sp.											
<i>Gehyra</i> sp. '2n=44'	Southern Rock Dtella		1						1		
<i>Gehyra variegata</i>	Tree Dtella	3									
<i>Heteronotia binoei</i>	Bynoe's Gecko	2	1				2		15	3	5
<i>Lerista labialis</i>	Eastern Two-toed Slider										
<i>Lerista muelleri</i>	Dwarf Three-toed Slider	1									
<i>Lerista punctatovittata</i>	Spotted Slider	3									2
<i>Menetia greyii</i>	Dwarf Skink		2	1		3	2				1
<i>Morethia adelaidensis</i>	Adelaide Snake-eye			1		1					
<i>Morethia boulengeri</i>	Common Snake-eye	3					1				1
<i>Morethia</i> sp.										1	
<i>Nephrurus milii</i>	Barking Gecko								1		
<i>Pogona</i> sp.											
<i>Pogona vitticeps</i>	Central Bearded Dragon										
<i>Tiliqua rugosa</i>	Sleepy Lizard			2						2	
<i>Tympanocryptis tetraporophora</i>	Eyrean Earless Dragon										
<i>Varanus</i> sp.	Goanna		1	1	1						
	Total	12	6	6	1	4	5	2	20	8	9

Species Name	Common Name	BIM03001	OLA01101	OLA01201	OLA01301	OLA05301	TOTAL
<i>Cryptoblepharus plagiocephalus</i> "PIB"	Desert Wall skink			1			1
<i>Cryptoblepharus</i> sp.							2
<i>Ctenophorus decresii</i>	Tawny Dragon						2
<i>Ctenophorus pictus</i>	Painted Dragon						6
<i>Ctenotus regius</i>	Eastern Desert Ctenotus						2
<i>Ctenotus robustus</i>	Eastern Striped Skink					2	6
<i>Ctenotus schomburgkii</i>	Sandplain Ctenotus				1		14
<i>Ctenotus</i> sp.		1					2
<i>Ctenotus strauchii</i>	Short-legged Ctenotus				2		2
<i>Diplodactylus damaeus</i>	Beaded Gecko						3
<i>Egernia inornata</i>	Desert Skink						4
<i>Egernia striolata</i>	Eastern Tree Skink					3	3
<i>Eremiascincus richardsonii</i>	Broad-banded Sandswimmer						1
<i>Gehyra</i> sp.						1	1
<i>Gehyra</i> sp. '2n=44'	Southern Rock Dtella						2
<i>Gehyra variegata</i>	Tree Dtella			4		2	19
<i>Heteronotia binoei</i>	Bynoe's Gecko	2			5	3	46
<i>Lerista labialis</i>	Eastern Two-toed Slider						3
<i>Lerista muelleri</i>	Dwarf Three-toed Slider				1		3
<i>Lerista punctatovittata</i>	Spotted Slider						5
<i>Menetia greyii</i>	Dwarf Skink						14
<i>Morethia adelaidensis</i>	Adelaide Snake-eye						4
<i>Morethia boulengeri</i>	Common Snake-eye						6
<i>Morethia</i> sp.							1
<i>Nephrurus milii</i>	Barking Gecko						1
<i>Pogona</i> sp.							1
<i>Pogona vitticeps</i>	Central Bearded Dragon			1			2
<i>Tiliqua rugosa</i>	Sleepy Lizard				1		9
<i>Tympanocryptis tetraporophora</i>	Eyrean Earless Dragon				2		2
<i>Varanus</i> sp.	Goanna						4
	Total	3	0	6	12	11	171

Appendix 6 – Bird species recorded opportunistically

Species Name	Common Name	No. Observed
<i>*Sturnus vulgaris</i>	Common Starling	1
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	1
<i>Accipiter cirrhocephalus</i>	Collared Sparrowhawk	1
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	2
<i>Amytornis textilis modestus</i>	Thick-billed Grasswren	1
<i>Anas gracilis</i>	Grey Teal	3
<i>Anthus novaeseelandiae</i>	Richard's Pipit	1
<i>Aphelocephala leucopsis</i>	Southern Whiteface	4
<i>Aquila audax</i>	Wedge-tailed Eagle	12
<i>Artamus cinereus</i>	Black-faced Woodswallow	3
<i>Aythya australis</i>	Hardhead (White-eyed Duck)	2
<i>Barnardius zonarius</i>	Australian Ringneck, (Ring-necked Parrot)	6
<i>Cacatua roseicapilla</i>	Galah	1
<i>Cacatua sanguinea</i>	Little Corella	4
<i>Calamanthus campestris</i>	Rufous Fieldwren	1
<i>Cincoloma cinnamomeum</i>	Cinnamon Quail-thrush	2
<i>Coracina maxima</i>	Ground Cuckoo-shrike	1
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	1
<i>Corvus bennetti</i>	Little Crow	2
<i>Corvus coronoides</i>	Australian Raven	2
<i>Corvus mellori</i>	Little Raven	1
<i>Corvus sp.</i>		1
<i>Cracticus nigrogularis</i>	Pied Butcherbird	1
<i>Cuculus pallidus</i>	Pallid Cuckoo	1
<i>Dicaeum hirundinaceum</i>	Mistletoebird	1
<i>Dromaius novaehollandiae</i>	Emu	15
<i>Euseyornis melanops</i>	Black-fronted Dotterel	2
<i>Falco berigora</i>	Brown Falcon	3
<i>Falco cenchroides</i>	Nankeen Kestrel	1
<i>Falco longipennis</i>	Australian Hobby	1
<i>Falco peregrinus</i>	Peregrine Falcon	1
<i>Geopelia placida</i>	Peaceful Dove	3
<i>Grallina cyanoleuca</i>	Magpie-lark	5
<i>Hirundo neoxena</i>	Welcome Swallow	2
<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater	3
<i>Lichenostomus virescens</i>	Singing Honeyeater	1
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	2
<i>Malurus lamberti</i>	Variiegated Fairy-wren	1
<i>Malurus leucopterus</i>	White-winged Fairy-wren	2
<i>Manorina flavigula</i>	Yellow-throated Miner	1
<i>Melanodryas cucullata</i>	Hooded Robin	1
<i>Northiella haematogaster</i>	Blue Bonnet	2
<i>Nycticorax caledonicus</i>	Nankeen Night Heron	1
<i>Ocyphaps lophotes</i>	Crested Pigeon	1
<i>Pachycephala rufiventris</i>	Rufous Whistler	2

*introduced species

Species Name	Common Name	No. Observed
<i>Pardalotus striatus</i>	Striated Pardalote	3
<i>Petrochelidon ariel</i>	Fairy Martin	1
<i>Petrochelidon nigricans</i>	Tree Martin	1
<i>Petroica goodenovii</i>	Red-capped Robin	3
<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant	2
<i>Phaps chalcoptera</i>	Common Bronzewing	2
<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe	6
<i>Psephotus varius</i>	Mulga Parrot	3
<i>Psophodes cristatus</i>	Chirruping Wedgebill	3
<i>Pyrrholaemus brunneus</i>	Redthroat	4
<i>Rhipidura albiscapa</i>	Grey Fantail	4
<i>Rhipidura leucophrys</i>	Willie Wagtail	2
<i>Smicronis brevirostris</i>	Weebill	2
<i>Struthidea cinerea</i>	Apostlebird	5
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe, (Little Grebe)	3
<i>Taeniopygia guttata</i>	Zebra Finch	3
<i>Vanellus tricolor</i>	Banded Lapwing	5
Total		158

*introduced species

Appendix 7 – Mammal species recorded opportunistically

Species Name	Common Name	No. Observed
* <i>Capra hircus</i>	Goat	10
* <i>Felis catus</i>	Cat	1
* <i>Oryctolagus cuniculus</i>	Rabbit	1
* <i>Ovis aries</i>	Sheep	2
* <i>Vulpes vulpes</i>	Fox	1
<i>Leporillus sp.</i>	Stick-nest Rat	1
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	15
<i>Macropus robustus</i>	Euro	34
<i>Macropus rufus</i>	Red Kangaroo	39
<i>Macropus sp.</i>		1
<i>Mormopterus sp.</i>		1
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	7
<i>Petrogale xanthopus</i> AUS: VU SA: V	Yellow-footed Rock-wallaby	2
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	2
<i>Tadarida australis</i>	White-striped Freetail-bat	4
<i>Tadarida sp.</i>		1
<i>Vespadelus baverstocki</i>	Inland Forest Bat	12
	Total	134

*introduced species

Appendix 8 – Reptile species recorded opportunistically

Species Name	Common Name	No. Observed
<i>Ctenophorus decresii</i>	Tawny Dragon	1
<i>Ctenophorus pictus</i>	Painted Dragon	1
<i>Ctenotus robustus</i>	Eastern Striped Skink	1
<i>Diplodactylus damaeus</i>	Beaded Gecko	2
<i>Egernia sp.</i>		1
<i>Egernia striolata</i>	Eastern Tree Skink	1
<i>Eremiascincus richardsonii</i>	Broad-banded Sandswimmer	1
<i>Gehyra sp. '2n=44'</i>	Southern Rock Dtella	1
<i>Gehyra variegata</i>	Tree Dtella	3
<i>Heteronotia binoei</i>	Bynoe's Gecko	6
<i>Nephrurus milii</i>	Barking Gecko	2
<i>Tiliqua rugosa</i>	Sleepy Lizard	2
	Total	22

Appendix 9 – Anabat Bat Detector Results

Species Name	BIM00301	BIM00401	BIM00501	BIM00601	BIM00701	BIM01301	BIM01401
<i>Tadarida australis</i>	✓	✓	✓	✓		✓	✓
<i>Mormopterus sp.</i>			✓			✓	✓
<i>Chalinolobus gouldii</i>	✓					✓	✓
<i>Nyctophilus geoffroyi</i>	✓	✓		✓		✓	✓
<i>Vespadelus regulus</i>							
<i>Vespadelus baverstocki</i>						✓	
<i>Chalinolobus gouldii / Mormopterus sp.</i>			✓	✓			
<i>Vespadelus sp.</i>		✓			✓		
<i>Chalinolobus morio</i>							
<i>Scotorepens balstoni</i>							
Total species	3	3	3	3	1	5	4

Species Name	BIM02401	BIM02501	BIM02801	OLA01201	OLA05301	Bimbowrie Homestead	Calico Well
<i>Tadarida australis</i>	✓	✓	✓	✓	✓	✓	✓
<i>Mormopterus sp.</i>	?	✓	✓	✓	✓	✓	?
<i>Chalinolobus gouldii</i>	✓	✓	✓	✓		✓	✓
<i>Nyctophilus geoffroyi</i>	✓				✓	✓	✓
<i>Vespadelus regulus</i>				✓	✓		
<i>Vespadelus baverstocki</i>				?	?		
<i>Chalinolobus gouldii / Mormopterus sp.</i>					✓		
<i>Vespadelus sp.</i>						✓	
<i>Chalinolobus morio</i>						?	
<i>Scotorepens balstoni</i>							?
Total species	3 +1?	3	3	4 +1?	5	5 + 1?	3 + 2?

Appendix 10 – Comparison of bird species recorded on the North Olary Plains survey and the current survey

Scientific Name	Common Name	OLA01101		OLA01201		OLA01301		OLA05301	
		Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	✓	✓	✓	✓	✓		✓	✓
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	✓				✓			✓
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill		✓					✓	✓
<i>Accipiter cirrhocephalus</i>	Collared Sparrowhawk							✓	
<i>Anthus novaeseelandiae</i>	Richard's Pipit			✓		✓	✓		✓
<i>Aphelocephala leucopsis</i>	Southern Whiteface	✓	✓		✓	✓		✓	✓
<i>Aquila audax</i>	Wedge-tailed Eagle	✓	✓	✓	✓		✓	✓	✓
<i>Artamus cinereus</i>	Black-faced Woodswallow			✓					
<i>Artamus superciliosus</i>	White-browed Woodswallow			✓					
<i>Barnardius zonarius</i>	Australian Ringneck	✓	✓		✓				
<i>Cacatua roseicapilla</i>	Galah	✓	✓	✓	✓	✓	✓	✓	✓
<i>Cacatua sanguinea</i>	Little Corella	✓	✓	✓		✓		✓	
<i>Cheramoeca leucosternus</i>	White-backed Swallow						✓		
<i>Chrysococcyx basalis</i>	Horsfield's Bronze-cuckoo			✓					
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike		✓					✓	
<i>Corvus bennetti</i>	Little Crow		✓		✓				
<i>Corvus coronoides</i>	Australian Raven	✓	✓	✓	✓	✓	✓	✓	✓
<i>Cracticus torquatus</i>	Grey Butcherbird		✓	✓		✓		✓	✓
<i>Dicaeum hirundinaceum</i>	Mistletoebird	✓	✓	✓					✓
<i>Dromaius novaehollandiae</i>	Emu	✓	✓	✓	✓				✓
<i>Epthianura aurifrons</i>	Orange Chat						✓		
<i>Eurostopodus argus</i>	Spotted Nightjar	✓							
<i>Falco berigora</i>	Brown Falcon				✓				
<i>Falco cenchroides</i>	Nankeen Kestrel	✓							
<i>Grallina cyanoleuca</i>	Magpie-lark	✓							
<i>Gymnorhina tibicen</i>	Australian Magpie	✓	✓	✓		✓		✓	✓

Scientific Name	Common Name	OLA01101		OLA01201		OLA01301		OLA05301	
		Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey
<i>Lalage tricolor</i>	White-winged Triller		✓					✓	
<i>Lichenostomus virescens</i>	Singing Honeyeater	✓		✓	✓			✓	✓
<i>Malurus lamberti</i>	Variegated Fairy-wren			✓				✓	✓
<i>Malurus leucopterus</i>	White-winged Fairy-wren					✓			
<i>Manorina flavigula</i>	Yellow-throated Miner	✓	✓						
<i>Melanodryas cucullata</i>	Hooded Robin							✓	
<i>Melopsittacus undulatus</i>	Budgerigar			✓				✓	
<i>Milvus migrans</i>	Black Kite	✓		✓		✓		✓	
<i>Neophema sp.</i>		✓							
<i>Northiella haematogaster</i>	Blue Bonnet			✓					
<i>Nymphicus hollandicus</i>	Cockatiel			✓					
<i>Ocyphaps lophotes</i>	Crested Pigeon		✓	✓	✓	✓		✓	✓
<i>Pachycephala rufiventris</i>	Rufous Whistler	✓	✓						
<i>Pardalotus striatus</i>	Striated Pardalote	✓	✓						
<i>Petroica goodenovii</i>	Red-capped Robin								✓
<i>Phaps chalcoptera</i>	Common Bronzewing								✓
<i>Phylidonyris albifrons</i>	White-fronted Honeyeater				✓				
<i>Pomatostomus ruficeps</i>	Chestnut-crowned Babbler	✓		✓	✓			✓	
<i>Psephotus varius</i>	Mulga Parrot	✓	✓	✓					✓
<i>Psophodes cristatus</i>	Chirruping Wedgebill	✓		✓		✓		✓	✓
<i>Rhipidura albiscapa</i>	Grey Fantail		✓						
<i>Rhipidura leucophrys</i>	Willie Wagtail				✓			✓	
<i>Smicronis brevirostris</i>	Weebill		✓						
<i>Struthidea cinerea</i>	Apostlebird		✓						
<i>Taeniopygia guttata</i>	Zebra Finch	✓		✓		✓	✓		
<i>Todiramphus sp.</i>									✓
TOTAL		14	24	23	24	14	7	21	20

Appendix 11 – Comparison of mammal species recorded on the North Olary Plains survey and the current survey

Scientific Name	Common Name	OLA01101		OLA01201		OLA01301		OLA05301	
		Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey
<i>*Capra hircus</i>	Goat			1				1	1
<i>*Felis catus</i>	Cat	1							
<i>*Mus musculus</i>	House Mouse						1		
<i>*Oryctolagus cuniculus</i>	Rabbit	1		1	1				1
<i>*Ovis aries</i>	Sheep								1
<i>*Vulpes vulpes</i>	Fox	1		1		1		1	
<i>Macropus robustus</i>	Euro				1	1	1	1	1
<i>Macropus rufus</i>	Red Kangaroo					1			
<i>Macropus sp.</i>					1		1	1	
<i>Pseudomys bolami</i>	Bolam's Mouse				1				
<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart					1	1		
<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	1						1	
TOTAL		4	0	3	4	4	5	5	4

Appendix 12 – Comparison of reptile species recorded on the North Olary Plains survey and the current survey

Scientific Name	Common Name	OLA01101		OLA01201		OLA01301		OLA05301	
		Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey	Nth Olary	Current Survey
<i>Cryptoblepharus plagiocephalus</i> "PIB"	Desert Wall skink			1	1				
<i>Ctenotus robustus</i>	Eastern Striped Skink							1	1
<i>Ctenotus schomburgkii</i>	Sandplain Ctenotus						1		
<i>Ctenotus strauchii</i>	Short-legged Ctenotus						1		
<i>Diplodactylus byrnei</i>	Pink-blotched Gecko					1			
<i>Egernia striolata</i>	Eastern Tree Skink							1	1
<i>Gehyra sp.</i>								1	1
<i>Gehyra sp.</i> '2n=44'	Southern Rock Dtella							1	
<i>Gehyra variegata</i>	Tree Dtella	1		1	1	1			1
<i>Heteronotia binoei</i>	Bynoe's Gecko	1					1	1	1
<i>Lerista muelleri</i>	Dwarf Three-toed Slider	1					1		
<i>Menetia greyii</i>	Dwarf Skink	1							
<i>Pogona vitticeps</i>	Central Bearded Dragon				1				
<i>Tiliqua rugosa</i>	Sleepy Lizard					1	1		
<i>Tympanocryptis tetraporophora</i>	Eyrean Earless Dragon						1		
TOTAL		4	0	2	3	3	6	5	5

Appendix 13 – Additional notes on bird species in the Bimbowrie area – Graham Carpenter

The very dry conditions experienced prior to and during the survey resulted in relatively low numbers of birds recorded. However, a survey at this time highlights important areas for the more resident species. Some dams still contained water, leading to records of several waterbird species.

Another feature during the survey was the abundance of flowering and fruiting Harlequin Mistletoe *Lysiana exocarp*, a species that hosts on a variety of tall shrubs and low trees (especially *Alectryon oleifolius*, *Acacia carnei* and *A. victoriae*). These provided abundant food resources in an environment lacking other flowering and fruiting plants, being used by honeyeaters (several species), Mistletoebirds and parrots (Mallee Ringneck, Mulga Parrot and Blue Bonnet).

Emu

Widespread, including evidence of recent breeding (young chicks) but no active nests.

Quails

Lacking as expected reflecting absence of grass. The Plains-wanderer occurs on mitchell grass flats on nearby properties to the east, so is likely to occur on Bimbowrie occasionally.

Bustards

Small numbers are likely to occur in good seasons.

Waterbirds

Few species on dams. More species and numbers expected in wet years.

Raptors

Small nos except for Wedge-tailed Eagles. Evidence of one breeding pair of Peregrine Falcons on a rock outcrop (Cathedral Rock). Grey Falcons are likely to occur occasionally (e.g. August 1983 SAONewsletter 108), also Letter-winged Kites (e.g. Plumbago SAOAN 83).

Australian Pratincole

Likely spring-summer visitor.

Pigeons

Small numbers. Diamond Dove expected in good seasons.

Cockatoos

Status of Elegant and Bourke's Parrot needs to be determined, both could breed locally (e.g. for Bourke's Parrot see discussion by Black 2001 SAO 33:170-172). Elegant Parrots were recorded in a red gum creek at one site. Budgerigar and Cockatiel expected in good seasons. Major Mitchell's and Red-tailed Black-Cockatoos occurred in the district formerly.

Cuckoos

Pallid, Horsfields Bronze and Black-eared likely to be common in spring-summer. Fan-tailed Cuckoos could occasionally occur in winter (e.g 1971 SAO 26:96).

Nocturnal species

Surprisingly few records. Tawny Frogmouth, Southern Boobook, Barn Owl and Spotted Nightjar expected. Potential for Barking Owl along Red Gum watercourses.

Kingfishers

Red-backed and Sacred likely to be spring-summer visitors, along with Rainbow Bee-eater.

Wrens

White-winged and Variegated Fairy-wrens were widespread. Splendid (Black-backed form) recorded nearby at Olary Dam so may also occur on Bimbowrie. The Thick-billed Grasswren is main species of concern in region and its taxonomic status there is uncertain. Black and Baxter (2003) list two records for Bimbowrie. On 2 October 1996 C. Baxter saw five in Blackbush along a small watercourse, 2.5km W of Triangle Hill (31 58, 140 12). On 26 May 1999 he saw three in Blackbush along a watercourse on a treeless flat, 2km SW Poodla Dam (32 01, 140 10). Black and Baxter list another record for Koolka Hill in the north-east of Plumbago Station. Note this is not the Koolka Hill shown in Koolka Paddock on the pastoral assessment map of Bimbowrie Station, which should correctly be named Alconie Hill.

C. Kemper and G. Carpenter glimpsed a grasswren believed to be this species in Blackbush, Bladder saltbush and Elegant wattle along a watercourse in Toraminga paddock on 30 May 2005. This area had a relatively high cover of Bladder saltbush compared with other sites seen during the survey. This is in the same general area as Baxter's record west of Triangle Hill. The area of Baxter's observation SW of Poodla Dam was also searched without result. This area has watercourses with Blackbush and scattered Elegant wattle. Other sites with a relatively high cover of Blackbush seen during the survey were immediately south-west of Antro Woolshed and in the vicinity of Site BIM017 in West Boolcoomata Paddock.

Pardalotes

Striated Pardalotes were widespread in red gums. There is potential for Red-browed Pardalotes (also in red gums) which would be at their southern distribution limit in SA.

Fieldwrens/Redthroat

Rufous Fieldwrens were sparsely distributed, being confined to areas of chenopod shrubland that retained Bladder saltbush. Redthroats were widespread in most habitats, suggesting the district is a stronghold for the species in SA.

Thornbills and Weebills

Of interest is the small and possibly isolated population of Inland Thornbills in thickets of *Cassinia laevis* on granite hills with native pine, Rough-barked coolabah and Mallee box low woodland.

Whitefaces

Southern Whiteface are widespread. There is a remote chance of Banded (on sandflats in the north) and Chestnut-breasted Whiteface (on low rocky hills with Low bluebush chenopod shrubland).

Honeyeaters

Spiny-cheeked and Singing Honeyeaters were widespread and feeding primarily on the fruits and flowers of the Harlequin mistletoe *Lysiana exocarpis*. Pied and Black Honeyeaters are potential visitors in spring (especially to areas with *Eremophila*

maculata). The Painted Honeyeater is also a possible visitor, being recorded in mistletoe at Pitcairn Stn south of Yunta (Woodcock 1985 SAO 29:220). Grey-fronted Honeyeaters occur in native pine, Rough-barked coolabah and Mallee box low woodland in the Flinders Ranges but were not recorded during the survey.

Mistletoebird

This species was widespread and associated with fruiting *Lysiana exocarp*. It presumably leaves the area at other times.

Chats

Only one small group of Orange Chats were recorded. Orange and Crimson Chats are likely to be abundant in good seasons. Gibberbirds are also likely to occur occasionally. The White-fronted Chat may also occur, being on the northern edge of its distribution.

Robins

Hooded Robins occur in mulga woodlands. Red-capped Robins were widespread in low numbers.

Babblers

Chestnut-crowned are widespread and common. No White-browed were recorded, but may also be present.

Wedgebills

Chirruping Wedgebills are widespread in most habitats, often seen with babblers.

Quailthrush

Cinnamon Quailthrush occur in low numbers in chenopod shrublands, usually with Low bluebush *M. astrotricha*.

Grey Shrike-thrush

None recorded but expected along red gum watercourses.

Whistlers

Rufous Whistlers are widespread in small numbers and likely to be more prominent in spring. Gilbert's Whistlers could also occur in areas of dense Elegant wattle (e.g. recorded near Kalabity HS in April 1984, SAOAN 114).

Flycatchers

One Restless Flycatcher was recorded. It is likely to be a non-breeding autumn-winter visitor in small numbers. The same applies to the Grey Fantail.

Cuckoo-shrikes

One small group of Ground Cuckoo-shrikes were recorded. It is likely to be a rare species in the area.

Woodswallows

White-browed and Masked are likely to be abundant in good seasons. Little Woodswallows are likely to be breeding visitors to rock outcrops in good seasons (e.g. Binberrie Hill, 1993 & 1994 SAOA Newsletters 149, 152; Cathedral Rock 1994 SAOAN 152). The Dusky Woodswallow could also occur, being at the northern edge of its distribution (e.g. Plumbago HS, Jan 1980 SAO 29:166). White-breasted Woodswallows could also occur along watercourses in spring-summer.

Butcherbird

The record of the Pied Butcherbird was of interest, confirming a link between records in the Darling River system and the central Flinders Ranges.

Magpies

These were relatively common and most of the black-backed form.

Corvids

Little Ravens were recorded by call during the survey. Specimens are needed to confirm its presence in the area, being north of its known distribution.

Apostlebird

Several groups were recorded along watercourses. This species disperses westwards in autumn, so its breeding status in the area needs to be confirmed.

Bushlarks/Pipits

Bushlarks are possible but are on the edge of their distribution in the area, and are most likely to associate with Mitchell grass flats to the east. Very few Richard's Pipits were recorded on the survey. Both songlark species are likely to occur in spring. Mimicked calls of Rufous Songlarks were given by Redthroats.

Finches

The Painted Finch is a possible visitor to rocky gorges in mulga hills.

Swallows & Martins

Fairy Martins are likely to be breeding visitors in good seasons.



Government of South Australia
Department of Environment,
Water and Natural Resources