Level 2 Fauna Survey

MEELUP REGIONAL PARK

APRIL 2015

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Document Verification

Project Title: MEELUP REGIONAL PARK

Project Number:	5354
Project File Name:	Meelup Regional Park Level 2 Fauna Survey v20150115

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
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Final	17/04/15	Shane Priddle (SW Environmental)	Shane Priddle (SW Environmental)	Shane Priddle (SW Environmental)

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EXECUTIVE SUMMARY

The Meelup Regional Park Management Committee on behalf of the City of Busselton received funding from a Lotterywest grant to conduct a fauna survey within Meelup Regional Park. The 11.5 kilometre long (~575 ha) Park is a coastal A Class Reserve vested in the City for the purpose of conservation and recreation. It is located between Dunsborough and Bunker Bay, on the western extremity of Geographe Bay on the eastern edge of Cape Naturaliste.

A series of fauna surveys have previously been undertaken in the Park by Hart, Simpson and Associates Pty Ltd during 1994, 1996 and 1997, the results of which are summarised in a single report (Hart *et al.* 1997). MRPMC engaged **ngh**environmental to conduct a new fauna survey, the results of which will assist the MRPMC in identifying priorities and to guide future management of the Park in response to increasing pressures. In addition to a species inventory, the survey will provide baseline information for the ongoing monitoring of threatened species to help ensure their future viability in the Park.

The Level 2 fauna survey was carried out by Shane Priddle and zoologist Greg Harewood over 11 days (9-19th) in December, 2014. Drainage line surveys were conducted on 13th October 2014. In addition to a desktop assessment, nine types of survey methods were employed. The methods included:

- Ground vertebrate fauna trapping (Elliot, cage, funnel and pit traps, drift fencing),
- Motion sensing infrared cameras ("camera traps"),
- Bird surveys,
- Nocturnal surveys,
- Call playback (owls only),
- Acoustic bat recordings,
- Drainage line surveys,
- Opportunistic surveys, and
- Invertebrate sampling (nets).

The Meelup Regional Park contains significant areas of excellent quality fauna habitat. Fauna habitats identified within the Park include:

- Sandy or rocky beaches and rocky headlands,
- Coastal vegetation,
- Creeks and dams,
- Granite outcrops (and granitic apron),
- *C. graniticus* closed heath,
- Mixed granitic closed low heath,
- Jarrah, Marri open forest and woodland on sandy soil,
- Jarrah, Marri low open and open forest on lateritic soil,
- Jarrah, Marri low open and open forest on loam soils, and
- Jarrah, Marri low woodland to open tree mallee.

Of the total 293 vertebrate fauna taxa (13 amphibians, 205 birds, 33 mammals, 42 reptiles) that occur within 10km of the Park, 102 fauna species were observed in the Park (excluding fish and invertebrates). Six of the eleven introduced species recorded locally were also found in the Park. Of the fauna recorded eight species are of conservation significance and are listed by state and/or federal agencies as migratory, vulnerable or endangered. These include

- Western False Pipistrelle (*Falsistrellus mackenziei*) P4

- Southern Brown Bandicoot (*Isoodon obesulus fusciventer*) P5
- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) S1 EN, EN
- Western Ringtail Possum (*Pseudocheirus occidentalis*) S1 EN, VU
- Baudin's Cockatoo (*Calyptorhynchus baudinii*) S1 EN, VU
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) S1 VU, VU
- Caspian Tern (*Sterna caspia*) S3, Mig
- Rainbow Bee-eater (*Merops ornatus*) S3, Mig

Refer to Section 2.4 and Appendix B for conservation codes.

The Park is likely to be of high importance for the persistence of conservation significant fauna in the local area; the species listed above are species thought to be in decline in other parts of their respective ranges. While not recorded to date, there is potential for several other species of conservation significance to also be present. The Park represents a significant habitat resource for all three species of black cockatoos. All three species were recorded as foraging in the Park and the potential exists for some species (e.g. the Forest Red-tailed Black Cockatoo) to also breed in the area.

Zone 6 contains fauna habitat in varying condition, however it does support extensive areas of large trees, many of which are hollow bearing. Zone 6 may provide habitat for the conservation significant species referred to above (except the Caspian Tern). Ongoing revegetation and weed control will improve fauna habitat within this section of the Park over the long term.

With regard to previous surveys in the Park (Hart *et al*. 1997), an additional 26 species of amphibians, mammals and reptiles were found in the current survey. Fifty-nine birds were also found in the Park; birds were not surveyed in the 1997 report.

1 INTRODUCTION

1.1 BACKGROUND

The Meelup Regional Park Management Committee ("MRPMC") on behalf of the City of Busselton ("the City") received funding from a Lotterywest grant to conduct a fauna survey within Meelup Regional Park ("the Park"). The 11.5 kilometre long (~575 ha) Park is a coastal A Class Reserve vested in the City for the purpose of conservation and recreation. It is located between Dunsborough and Bunker Bay, on the western extremity of Geographe Bay on the eastern edge of Cape Naturaliste (Figure 1-1).

The Park is valued for its unique natural environment and conservation values, scenic landscape, and range of passive and creative recreational, educational and research opportunities for present and future generations. It is managed in accordance with the *Meelup Regional Park Management Plan (2010)*, approved by both the Council and the State Minister for Regional Development and Lands.

A series of fauna surveys have previously been undertaken in the Park by Hart, Simpson and Associates Pty Ltd during 1994, 1996 and 1997, the results of which are summarised in a single report (Hart *et al.* 1997). The results of this work are now considered outdated and therefore to provide a more current snapshot of the Parks fauna values, the MRPMC engaged **ngh**environmental to conduct a new fauna survey, the results of which will assist the MRPMC in identifying priorities and to guide future management of the Park in response to increasing pressures. In addition to a species inventory, the survey will provide baseline information for the ongoing monitoring of threatened species to help ensure their future viability in the Park.

The Park is divided into 23 management units and corresponding management zones. Zone 6 is popular for mountain biking and has a formal bike park planned. It is located within the south western corner of Park, off Cape Naturaliste Road, west and north-west of Dunsborough and Districts Country Club Golf Course (see Figure 1-2). One priority of the survey is to provide specific information and recommendations on the values of Zone 6 in relation to fauna and habitat. A small partially vegetated corridor which connects vegetation within private property to a section of the Park at a central point along its western boundary (see Figure 1-2) is also specifically commented on with respect to its current and potential future value as an ecological linkage.

Figure 1-1 Location of Meelup Regional Park

Figure 1-2 Meelup Regional Park management zone boundaries; southern section showing Zone 6 and the corridor

1.2 SURVEY SCOPE

The fauna survey scope includes a Level 2 survey, specifically (generally as requested by MRPMC)

- **Desktop review**
- **Field assessment**
    a) Habitat assessment
    b) Ground vertebrate fauna trapping
    c) Bird census
    d) Bat survey
    e) Call playback
    f) Nocturnal surveys (spotlighting and head torch)
    g) Camera traps
    h) River/wetland surveys (if streams are flowing at the time of the survey)
    i) Opportunistic diurnal surveys
    j) Targeted surveys for conservation significant fauna
- **Report**

The survey complies with general criteria for 'Level 2 fauna surveys' as defined in *Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia, Guidance for the Assessment of Environmental Factors No 56*, Environmental Protection Authority, 2004. Methods used are based on those detailed in the *Environmental Protection Authority Technical guide* (EPA 2010). *Terrestrial Biological Surveys as an Element of Biodiversity Protection, Position Statement No. 3*, Environmental Protection Authority, 2002 were also considered.

Invertebrates have not specifically been addressed in this survey, though larger invertebrates (i.e. gilgies/marron) were included in the river/wetland component. Conservation significant invertebrates have been considered in the report.

1.3 PHYSICAL ENVIRONMENT

1.3.1 Biogeographic Setting

The Interim Biogeographic Regionalisation for Australia (IBRA) classifies Australia's landscapes into 89 geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information (CoA, 2009). Meelup Regional Park is located within the Southern Jarrah Forest (JAR02) sub-region of the Jarrah Forest bioregion (DEC, 2002). A forest of Jarrah is the characteristic vegetation of the bioregion. This occurs on a laterized plateau with loamy soil in the valleys (Beard 1990, Webb 2013).

1.3.2 Climate

The broader Jarrah Forest (JAR) bioregion is characterised by a warm Mediterranean climate with 600-1200mm of annual rainfall and 5-6 dry months per year (DEC, 2002). The nearby Cape Naturaliste weather station has recorded minimum and maximum monthly temperatures of 10.2 -16.8 ^{o}C (July) and 16.0 - 26.6 ^{o}C (February), Figure 1-3. It averages 808mm of rain with 152 rain days per year (Weatherzone, 2014).

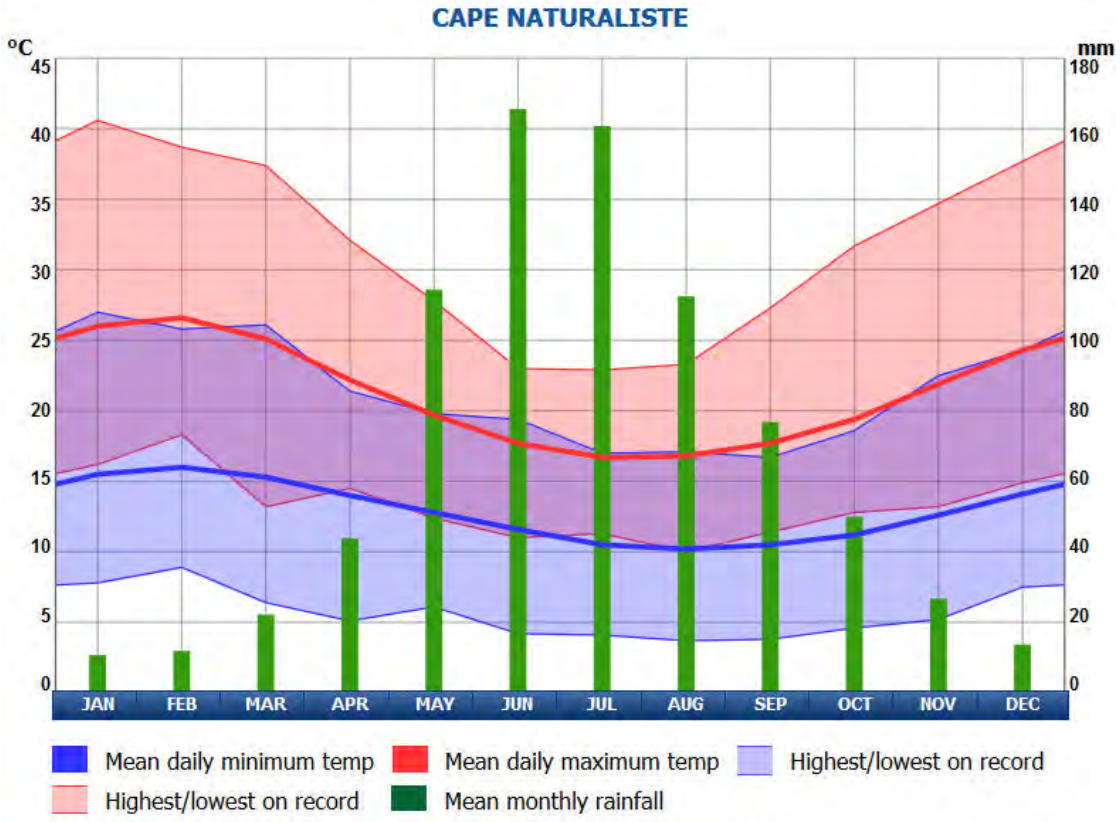

Figure 1-3 Cape Naturaliste annual temperatures and rainfall (Weatherzone, 2014)

1.3.3 Topography and Soils

The Park occurs over Precambrian granite and gneiss of the Leeuwin Block, within the Margaret River Plateau. The Plateau is characterized by a lateritic soil profile; a result of in situ weathering. The Park supports some of the largest areas of exposed granitic bedrock of the Plateau landform. The uplands of the reserve retain a lateritic soil profile and the lower coastal slopes support exposed boulders (Webb, 2013).

Meelup Regional Park broadly faces northeast, with a relief of just over 100m. Slopes are generally low, less than five degrees, along the western boundary of the Park. Steeper slopes occur through incised drainage lines (10-20 degrees)[1] closer to Geographe Bay.

As outlined in Webb (2013), soil landscape mapping involves the subdivision of the landscape based recurring patterns of topography, geology and soils, with some reference to vegetation. Soils at the site are mapped as Cowaramup Uplands, Gracetown Ridge and Wilyabrup Valleys (Tille and Lantzke 1990 and DAFWA 2004).

The Cowaramup Uplands consist of gently undulating plains of laterized granitic basement of the Leeuwin Block. These uplands range in elevation in the Meelup area from 80-140m above sea level. The Wilyabrup Valleys are the undulating valley slopes and low hills found below the Cowaramup Uplands; the soils of the valleys are commonly loamy gravels, duplex sandy gravels and loamy earths (Tille and Lantzke 1990).

[1] from a GIS slope map derived from 10m^2 grid based on GIS data provided by CoB, 2014

The lower slopes of the Meelup Wilyabrup valleys are associated with shallow rocky soils and granitic outcrops. Both the Cowaramup and Wilyabrup land systems can have areas of deep bleached sand overlying the basement rock (Webb 2013). The Gracetown Ridge system occurs in the lower dunes and rocky coastal areas and consists of yellow and red deep sands, calcareous deep sands and calcareous stony soils (Tille and Lantzke 1990).

1.3.4 Surface Hydrology

The Park has several ephemeral surface streams. Jingarmup Brook, at Eagle Bay, and the Meelup and Dolugup Brooks (entering the ocean at Meelup Beach and Castle Bay respectively) are the major creek lines.

A small fenced perennial dam feature has been constructed near the mouth of Meelup Brook. It is linked to Meelup Bay by a small rocky weir and subsequently has no saline influence. A small artificial dam is also located at the top of Meelup Brook (321700 E 6282830 N, GDA94). In addition to these a permanently wet groundwater seep locally known as Kangaroo seep is located at 320850E 6284530 N (see Figure 1-2). The dam has been dug into the seep and is likely to be permanently wet.

1.3.5 Vegetation

Fauna habitat types and quality are generally a function of local differences in structural vegetation types and other landscape factors such as substrate and drainage. Webb (2013) provides a description of the vegetation and landscape within the Park, summarised below.

> The Meelup reserve supports an intact granitic landscape and associated vegetation from the top of the landscape to the bottom.
>
> The uplands and the upper slopes of the reserve system has vegetation on a lateritic gravelly loam, the result of in situ weathering, these soils are dominated by forests of Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*). North-west of the junction of Meelup road and Cape Naturaliste Drive some limited areas of exposed granite are found high in the landscape.
>
> In the mid-slopes the lateritic soils have been stripped by erosional forces to only be a shallow profile of either lateritic gravel or loam soils over the granite bedrock which in place is exposed. These soils are characterised by a shrubland with woodland of stunted Jarrah and Marri. In areas the overlying soil becomes particularly shallow over massive granite rock and a closed heath form of vegetation becomes dominant.
>
> The lower slopes of Meelup are characterised by exposed granite as either massive or small boulders, the soil here is a clayey loam and a *Calothamnus graniticus* heath is the characteristic community. At the northern extent of Meelup reserve, areas of deeper loamy soil over granite extend to the lower slopes allowing a low forest community to extend to the beach.
>
> The incised valleys/creek lines of the reserve system generally have relatively deep loamy soils allowing for a taller forest to extend down the valleys to almost the ocean. An exception to this would be the informally named Stoney Creek adjacent to Eagle Bay which cuts a narrow valley through shallow soils and exposed granite, this creek line lacks forest trees and is instead fringed by *Melaleuca viminea*.
>
> Small areas of the Meelup landscape support what is termed an “apron” in relation to the granite outcrop ecosystem; this is where the edges of outcropping granite are covered in shallow soil of varying depths resulting in the soil alternating between waterlogged and dry throughout the

> seasons. These areas within the Meelup reserve system, depending on the depth of soil over the underlying rock, can support a plant community ranging from an annually renewed herbland to a wetland taxa influenced scrub community.
>
> The coastal fringe of Meelup is generally granitic rock with loamy soils although small beaches of calcareous sand have formed in the bays. No limestone is found in the Meelup reserve system.
>
> Webb (2013)

Webb (2013) mapped vegetation associations within the Park as:

- Jarrah, Marri Forests (Communities 1, 1b, 2, 2b)
- Jarrah, Marri Woodland (Community 4)
- Banksia Woodland (Community 3)
- Granitic Heath (Community 6)
- *Calothamnus graniticus* Closed Heath (Community 5)
- Granitic Apron (Community 7)
- Creek lines (Community 8)
- Coastal Vegetation (Community 9)

Detailed descriptions of vegetation associations are provided in Appendix A. Most areas within the Park consist of remnant vegetation - around 90% according to Webb (2013), excluding Zone 6. Zone 6 has a history of disturbance including gravel extraction and landfill. It is now characterised by areas of significant weed infestation and degraded native vegetation, amongst remnant and naturally regenerating native vegetation. Fauna survey locations generally targeted each of the different vegetation associations.

Vegetation associations are mapped in Figures 1-4 and 1-5.

Figure 1-4 Vegetation associations based on Webb (2013); northern half of the site

Figure 1-5 Vegetation associations based on Webb (2013); southern half of the site

2 METHODS

2.1 DESKTOP REVIEW: FAUNA INVENTORY

2.1.1 Database Searches

Searches within ten kilometres of the Park were carried out using the Atlas of Living Australia (ALA, 2013) and Naturemap (2014) databases. Both of these amalgamate records from sources including but not limited to

- WA Museum,
- Department of Parks and Wildlife (DPaW),
- Birds Australia.

GIS datasets were also queried, including

- Havel and Mattiske (2000) and Webb (2013) vegetation mapping datasets,
- Soils mapping datasets from Department of Agriculture and Food Western Australia (DAFWA),
- Aerial photography,
- GIS datasets (e.g. drainage lines and wetlands) sourced from the City of Busselton, SLIP etc.

2.1.2 Previous Fauna Surveys in the Area

Numerous fauna surveys have been conducted locally, though only those conducted by Hart *et al.* in 1994-1997 (Hart *et al.* 1997) were conducted within the Park. The full list and species records are provided in Appendix B. Targeted surveys have been undertaken by volunteers (e.g. Hooded Plover surveys by MRPMC volunteers). Beatty *et al.* (2006) also undertook freshwater fish and crayfish surveys within the Park's major water courses as part of a broader survey (refer to Appendix B).

2.1.3 References

Publications consulted for general distribution of fauna included:

- A Field Guide to the Mammals of Australia (Menkhorst and Knight, 2011),
- Field Companion to The Mammals of Australia (Van Dyck *et al*., 2013),
- Scats, Tracks and Other Traces: A field guide to Australian mammals (Triggs, 2008),
- Australian Bats (Churchill, 2008),
- The Field Guide to the Birds of Australia (Pizzey and Knight, 2012),
- The New Atlas of Australian Birds (Barrett *et al.,* 2003),
- Michael Morcombe's Birds of Australia eGuide, (Michael Morcombe, 2011),
- Handbook of Western Australian Birds (Volume 1 & 2)(Johnstone and Storr, 1998, 2004),
- A Complete Guide to Reptiles of Australia (Wilson and Swann, 2013),
- Reptiles and Frogs in the Bush: Southwestern Australia (Bush *et al.*, 2007),
- Reptiles and Amphibians of Australia (Cogger 2014),
- Tadpoles and Frogs of Australia (Anstis, 2013),
- Field guide to frogs of Western Australia (Doughty and Tyler, 2009),

- Field Guide to the Freshwater Fishes, Crayfishes and Mussels of South Western Australia (Morgan *et al.* 2011),
- Numerous online publications (see References section).

2.2 DESKTOP REVIEW: FAUNA HABITATS

Fauna habitats were generally based on recent vegetation association mapping by Webb (2013), but have been updated in some areas following site visits and in line with soil mapping (DAFWA 2004). Habitats previously identified by Hart *et al.* (1997) were also considered. Additional habitats were added where relevant and revised following ground truthing (see Section 4.2 for more information).

2.3 DETAILED SURVEY: FAUNA INVENTORY

2.3.1 Survey Timing and Weather

Detailed surveys were conducted over 11 days (9-19th) in December, 2014. Drainage line surveys were conducted on 13th October 2014. Table 2-1 shows the weather conditions during the surveys.

Table 2-1 Weather at the time of the surveys, showing minimum-maximums, anomalies from long term averages and rainfall (Weatherzone 2015)

Date	Min (°C)	Anomaly (°C)	Max (°C)	Anomaly (°C)	Rainfall (mm)
Mon 13/10/2014	10.4	-0.8	21.2	+1.8	0.0
Tue 09/12/2014	12.8	-1.3	19.5	-4.8	0.0
Wed 10/12/2014	10.4	-3.7	24.4	+0.1	0.0
Thu 11/12/2014	12.7	-1.4	28.1	+3.8	0.0
Fri 12/12/2014	16.9	+2.8	21.6	-2.7	0.0
Sat 13/12/2014	10.8	-3.3	21.6	-2.7	0.0
Sun 14/12/2014	10.3	-3.8	21.9	-2.4	0.0
Mon 15/12/2014	14.5	+0.4	22.9	-1.4	0.2
Tue 16/12/2014	11.8	-2.3	22.1	-2.2	0.0
Wed 17/12/2014	12.3	-1.8	21.7	-2.6	0.0
Thu 18/12/2014	9.7	-4.4	25.1	+0.8	0.0
Fri 19/12/2014	13.6	-0.5	28.9	+4.6	0.0

Weather was considered conducive to field surveys although cooler than usual for the time of year; on average nearly 2°C cooler at night and almost 1°C cooler during the day during the detailed survey. The survey period was mostly dry with only a light shower on the night of 15/12/2014.

2.3.2 Survey Team

Field ecologists included Shane Priddle (SW Environmental) and zoologist Greg Harewood. The field survey was conducted under Regulation 17 "Licence to Take Fauna for Scientific Purposes" No. SF010090

issued by the Department of Parks and Wildlife (DPaW). Analysis of bat recordings was completed by Bat Call WA Pty Ltd (Bob Bullen).

Meelup Regional Park has a rich history of volunteer involvement. Small groups (generally of 1-3) volunteers assisted at different times of the field survey under the guidance of the ecologists. Their assistance is gratefully acknowledged.

2.3.3 Site Selection and Habitat Assessment

Representative fauna habitats previously identified by Hart *et al.* (1997) and derived from Webb (2013) were examined, and updated where relevant during the desktop assessment and following ground truthing (Sections 2.2 and 4.2). Each of the identified habitats were subject to a combination of systematic fauna sampling and targeted/opportunistic searches using various survey methodologies, with specific consideration given to areas in use or likely to be used by conservation significant species.

2.3.4 Survey Methods

To maximise the survey effort and likelihood of indentifying different fauna types (including target species), nine survey methods were employed. The methods included:

- Ground vertebrate fauna trapping (Elliot, cage, funnel and pit traps, drift fencing),
- Motion sensing infrared cameras ("camera traps"),
- Bird surveys,
- Nocturnal surveys,
- Call playback (owls only),
- Acoustic bat recordings,
- Drainage line surveys,
- Opportunistic surveys, and
- Invertebrate sampling (nets).

Methods are described below. Survey effort within the Park is shown in Figure 2-1 (diurnal) and Figure 2-2 (nocturnal). Note some methods mapped are not strictly diurnal or nocturnal (e.g. camera traps operate both day and night, but are only shown in Figure 2-1).

Figure 2-1 Diurnal survey effort within Meelup Regional Park

Figure 2-2 Nocturnal survey effort within Meelup Regional Park

Ground Vertebrate Fauna Trapping

To aid in the identification of the ground fauna assemblage present (amphibians, reptiles, and some mammals), trapping utilising a combination of Elliott traps (Elliott A and Elliott B), cage traps, pitfall traps (20L buckets) with flywire drift fencing and funnel traps was conducted.

Six main trap lines (each consisting of 10 arrays comprising a combination of trap types) were used. With the exception of trap site 4, each trap array consisted of a flywire drift fence approximately seven metres long with a centrally located pitfall trap (20L bucket) dug into the ground. A funnel trap was placed at each end of the drift fence. A small Elliott (A), a large Elliott (B) or a cage trap were placed nearby (in total each trap line had two cage traps, four small Elliotts and four large Elliotts). Trap site 4 was positioned around a rocky outcrop and it was not possible to install pit traps, and in some cases drift fences at this location.

Elliott and cage traps were baited with "universal bait" (rolled oats, peanut butter and sardines with the addition of chicken fat and fish oil). Trap arrays within each trap line were placed generally between 10 and 30 metres apart (i.e. each total trap line was up to 270 metres long).

At least one trap line was placed in each of the main representative habitats (described in Section 4.2); with the more extensive habitat sites being subject to more than one trap line. Traps were left open for a minimum of seven consecutive nights (most were left open for eight nights). Using the above trapping combination and methods a total of 1,880 trap nights was be achieved (see Table 2-2). See Appendix C for further details on trapping effort. All traps were checked daily, some twice daily during or following warm weather.

The survey effort for this phase of the fauna survey compared favourably with the previous assessment by Hart *et al*. (1995) which achieved a total of 800 trap nights (80 pitfall traps + 20 Elliott (A) traps, open for eight nights) with an additional 16 trap nights (eight pitfall traps open for two nights) in 1996 (Hart *et al*. 1996).

Table 2-2 Trap effort (main trap lines only).

Trap Site Number	Trap Nights					
	Pitfall Traps	Funnel Traps	Elliott "A"	Elliott "B"	Cage Traps	Total
1	80	160	32	32	16	320
2	80	160	32	32	16	320
3	80	160	32	32	16	320
4	80	160	32	32	16	320
5	80	160	32	32	16	320
6	70	140	28	28	14	280
Total	**470**	**940**	**188**	**188**	**94**	**1,880**

The photos below show the general habitat characteristics at each site.

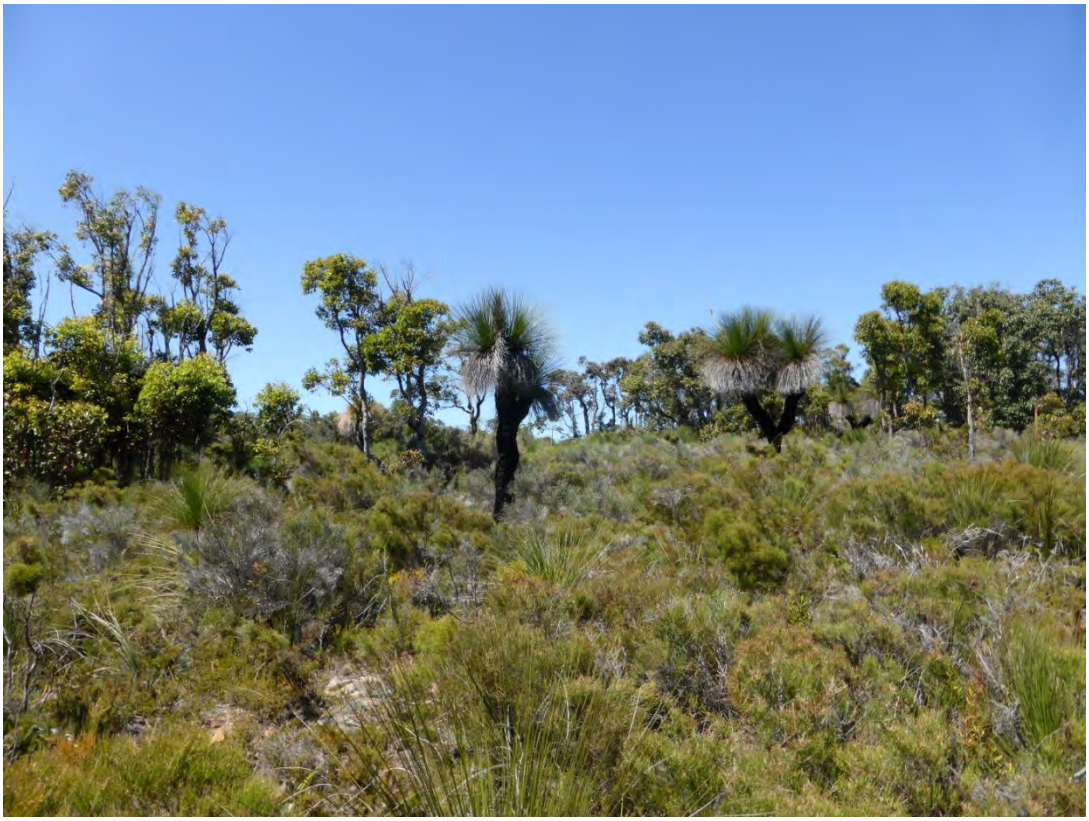

Photo 2-1 Trap site 1; Jarrah, Marri low open and open forest on lateritic soil

Photo 2-2 Trap site 2; Jarrah, Marri open forest and woodland on sandy soil

Photo 2-3 Trap site 3; Jarrah, Marri low open and open forest on lateritic soil

Photo 2-4 Trap site 4; Rocky outcrop, *C.graniticus* closed heath on granitic apron

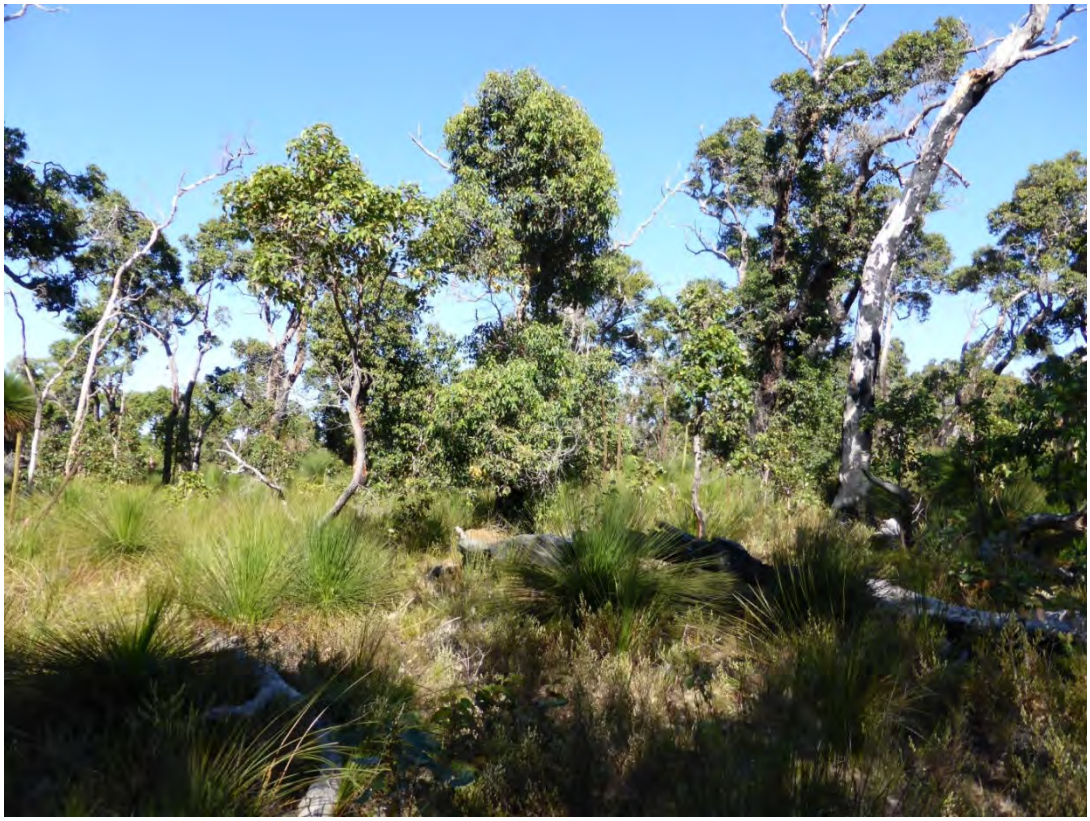

Photo 2-5 Trap site 5; Jarrah, Marri low open and open forest on lateritic soil (Zone 6)

Photo 2-6 Trap site 6; Jarrah, Marri low open and open forest loam soils

Motion Sensing Infrared Cameras

Ten motion sensing, infrared camera traps were placed in strategic locations around the Park to provide additional information on the presence and distribution of fauna species. Camera traps were baited with a combination of chicken fat and fish oil. The camera traps were installed in September 2014, approximately three months prior to trapping, to maximise survey effort. They were active on average 65 days each and took a total of 17,346 photos (note: some were misfires due to swaying branches etc.).

Table 2-3 Camera trap effort. * denotes numerous photos caused by plant movement

Camera ID	mE	mN	Open	Closed	Days	No. of photos
Cam 1	323709	6280982	13/09/2014	30/11/2014	78	1,534
Cam 3	323023	6281197	13/09/2014	10/12/2014	88	711
Cam 5	323589	6282309	28/09/2014	6/10/2014	8	3,312*
Cam 6	323169	6282061	28/09/2014	15/12/2014	78	2,032
Cam 7	320864	6284532	28/09/2014	12/12/2014	75	750
Cam 8	322242	6282831	13/09/2014	17/09/2014	4	2,690*
Cam 9	321627	6283046	13/09/2014	12/12/2014	90	1,025
Cam 10	321225	6284152	28/09/2014	12/11/2014	45	3,147*
Cam 11	321831	6282031	13/09/2014	14/12/2014	92	1,242
Cam 21	322190	6283318	13/09/2014	12/12/2014	90	903

Bird Surveys

Bird surveys were conducted over all representative fauna habitat types including rocky headlands and beaches to provide a species listing for each area. The surveys used the species-time curve approach (maximises the number of birds recorded, survey effort is related to number of species present). They were also conducted during the diurnal transects (Figure 2-1). Opportunistic observations of birds were also made during other phases of the fauna survey.

Nocturnal Surveys

Nocturnal surveys were carried out over three non-consecutive nights (13, 15 and 17.11.2014) over a total of approximately 25.8km (Figure 2-2). This involved surveying along transects with halogen/LED head torches by foot traverse at selected locations. One night also included a series of transects by slow moving car (17.11.2014) for rapid assessment along the road verges. A hand held spot light supplemented the head torches during the vehicular survey.

Call Playback

Attempts to determine the presence of the Barn, Barking and Masked Owls were made using call playback on two nights (15 and 17.12.2014) at two locations across the site; at the upper section of Meelup Brook and within Zone 6 (refer to Figure 2-2). Surveys involved five minutes of listening, followed by five minutes of playback of pre-recorded calls of the target species using a megaphone system and pre-recorded calls. This was followed by spotlighting the vicinity and a further five minutes of listening.

Acoustic Bat Recordings

Acoustic recordings were undertaken at four sites for one night each (see Table 2-3) using a Wildlife Acoustics SongMetre SM2BAT+ Ultrasonic Bat Detector (refer to Figure 2-2). The detector targeted key habitat features such as woodland/forest, flight corridors, watering points and ridge tops, and set to record between sunset and sunrise. The detectors convert ultrasonic echolocation signals produced by bats into audible electronic signals that are then recorded. The recordings were later processed by Bat Call WA Pty Ltd (Bob Bullen) to determine the presence of species specific calls.

Table 2-4 Acoustic bat recording survey effort

Recording ID	mE	mN	Open	Closed	Nights	Comments
Bat 1	323077	6281126	12/12/2014	13/12/2014	1	Trap Site 5 (Zone 6)
Bat 2	322380	6283534	13/12/2014	14/12/2014	1	Dam - Meelup Brook
Bat 3	320848	6284538	14/12/2014	15/12/2014	1	Dam - Kangaroo Soak
Bat 4	322711	6282296	15/12/2014	16/12/2014	1	Revegetation area in old gravel pit

Drainage Line Surveys

Major drainage lines were assessed on 13th October 2014. This primarily involved walking along a drainage line where it occurred within the Park, setting fish traps and hand netting and photographing small fish where they were observed. Evidence (or lack thereof) of Engaewa, Gilgi and Marron was also noted. The permanent water features were surveyed again during the detailed survey period.

Opportunistic Surveys

During the course of all the survey work non-systematic opportunistic observations of fauna species were made and recorded. Secondary evidence of fauna such as tracks, diggings and scats were also noted.

Active searching was undertaken in specific areas with the aim of locating the more elusive frog and reptile species that may inhabit the site. Searches generally included investigating burrows, investigating scats, tracks and other traces, turning fallen timber and rocks, opening standing timber crevices etc.

Invertebrates

Where invertebrates are collected during surveys, a high percentage are likely to be unknown, or for known species there can be limited knowledge or information on their distribution (Harvey 2002). Invertebrate surveys were therefore limited to the watercourses for Marron, Gilgie, Yabby, Carter's Freshwater Mussell, and Engaewa (water logged soils). Survey methods included visual inspection, use of drop nets and fish traps, as well as searching for characteristic mounds made by Engaewa.

2.4 FAUNA OF CONSERVATION SIGNIFICANCE

2.4.1 State, Federal and International Fauna Status Classifications

The conservation status of fauna species in Western Australia is assessed under the federal *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the state administered *Western Australian Wildlife Conservation Act 1950 (*WC Act*)*.

Species listed as threatened, migratory or priority under the above legislation are referred to collectively in this document as 'conservation significant fauna'.

WC Act

Species of fauna are afforded Declared Rare or Priority conservation status where their populations are restricted geographically or threatened by local processes. DER administers this Act. DER recognises these threats of extinction and consequently applies regulations towards population and species protection. The Western Australian Minister for the Environment regularly gazettes a notice where taxa are listed as protected and classified under Schedule 1 through to Schedule 4 according to their conservation status or need for protection. The most recent was issued on 4 December 2014.

- S1: Schedule 1 Rare or likely to become extinct (Endangered (EN) or Vulnerable (VU))
- S2 - Extinct
- S3 - Protected under International agreements
- S4 - Other specially protected fauna

DPaW also produces a list of priority species that have not been assigned statutory protection under the WC Act, but are under consideration as 'Scheduled' taxa, and are in urgent need of further survey or regular monitoring, and although not currently threatened may become so in the future.

- P 1: Taxa with few, poorly known populations on threatened lands.
- P 2: Taxa with few, poorly known populations on conservation lands.
- P 3: Taxa with several, poorly known populations, some on conservation lands.
- P 4: Taxa in need of monitoring.
- P 5: Taxa in need of monitoring.

EPBC Act

In accordance with Commonwealth legislation, the EPBC Act provides a list of matters of 'National Environmental Significance' (NES), which includes significant fauna, flora and communities. Under the EPBC Act threatened fauna may be listed in any one of the following categories as defined in *Section 179* of the Act:

- Extinct;
- *Extinct in the wild;
- *Critically endangered (CE);
- *Endangered (En);
- *Vulnerable (Vu); and
- Conservation dependent.

*Only species in those categories marked with an asterix are matters of NES under the Act.

The EPBC Act also lists migratory species that are recognized under international treaties including the Japan Australia Migratory Bird Agreement (JAMBA), the China Australia Migratory Bird Agreement

(CAMBA) and the Bonn Convention (The Convention on the conservation of Migratory Species of Wild Animals). Species listed under JAMBA are also protected under Schedule 3 of the WC Act.

IUCN Red List

The IUCN Red List is an inventory of the global conservation status of species and used to assist DPAW and other agencies in attributing a given threatened species status. It does not have any statutory authority.

2.4.2 Other Species of Significance

A number of unlisted other species may also have regional conservation significance. These include species that have a restricted range, those that occur in breeding colonies and those at the limit of their range.

3 LIMITATIONS OF THE STUDY

Certain species may not have been detected during field investigations (trapping and opportunistic observations) due to:

- seasonal inactivity during field survey,
- species present within micro habitats not surveyed,
- cryptic species able to avoid detection, and
- transient wide-ranging species not present during survey period.

The lack of observational data on some species should therefore not be taken as necessarily indicating that a species is absent from the site.

The habitat requirements and ecology of many of the species known to occur in the wider area are often not well understood or documented. It can therefore be difficult to include/exclude species from the potential list based on the apparent presence or absence of a specific habitats or microhabitats within the study area. As a consequence of this limitation the potential fauna list produced for this report is most likely an overestimation of those species that actually utilise the study area. Some species may be present in the general area but may only use the study area itself on rare occasions or as vagrants.

In recognition of survey limitations, a precautionary approach has been adopted for this survey. Any fauna species that would possibly occur within the study area (or immediately adjacent), as identified through ecological databases, publications, discussions with local experts/residents and the habitat knowledge of the Authors, has been assumed to potentially occur in the study area.

In accordance with the EPA *Guidance Statement No. 56*, potential limitations of the fauna survey have been identified below:

Potential constraint	Survey limitation Yes/No: Significant, Moderate, Negligible	Comments on survey outcomes
Competency	No	Suitably qualified and licensed individuals carried out the survey work: zoologist Greg Harewood and Shane Priddle (Certified Environmental Practitioner No.310). A Regulation 17 (SF010090) license was held for the

Potential constraint	Survey limitation Yes/No: Significant, Moderate, Negligible	Comments on survey outcomes
		duration of fieldwork. Volunteers operated under the close supervision of the ecologists.
Scope	Yes, negligible	A level 2 fauna survey was undertaken and supplemented with desktop research. The EPA guidelines (EPA 2004) typically recommend fauna trapping in the south west province be carried out in October-December (primary survey) and again in February-March (secondary survey). The single survey may have had some impact on the number of species observed though the survey effort applied is considered adequate to have met the scope of works and budget.
Proportion of fauna identified, recorded and/or collected	No	Over one hundred fauna species (103) were observed in the Park excluding fish; approximately one third of the species recorded locally. This is considered appropriate and accurate reflection of the fauna likely to occur within the Park.
Sources of information	No	The local area has been subject to several fauna surveys (both Level 1 and 2), including the Park itself.
The proportion of the task achieved and further work	No	The field surveys were completed adequately, with the trapping program and other aspects of the survey carried out to a sufficient level with respect to required scope of works.
Timing/weather/season/ cycle	No	Field surveys were undertaken in summer and conditions considered suitable for the assessment. Drainage lines survey results may have been improved by conducting these closer to winter, when water levels may have been higher. Given the site is coastal, numerous mobile species in particular marine or coastal species of birds, may frequent the site only intermittently for foraging. It is probable that many of these species have not been identified in this survey.
Disturbances (e.g. fire, flood, accidental human intervention etc.) which affected results of survey	No	None observed.
Intensity (in retrospect, was the intensity adequate)	No	Based on the results the survey is considered adequate to meet the project scope.
Completeness (e.g. was relevant area fully surveyed);	No	Density of trap lines and other survey work were considered adequate. Survey effort was higher than previous surveys conducted in the Park by Hart *et al.* (1997).
Resources (e.g. degree of expertise available in animal identification to taxon level);	No	No unresolved problems/uncertainties arose with respect to identifying observed fauna species.
Remoteness and/or access	No	Most of the study area was easily accessed by foot

Potential constraint	Survey limitation Yes/No: Significant, Moderate, Negligible	Comments on survey outcomes
problems;		traverse or vehicle.
Availability of contextual (e.g. biogeographic) information on the region.	No	WAM and DPaW reports and databases, specialist books/publications, consultant reports and previous fauna survey data for the Park and locality were consulted.

4 RESULTS

4.1 DESKTOP REVIEW

4.1.1 Local fauna records

A review of local fauna survey results and database records from within 10 km of the Park identified a total of 305 vertebrate fauna taxa (Appendix B). It includes 13 amphibians, 205 birds, 33 mammals, 42 reptiles, five invertebrates and seven fish that may occur in aquatic/brackish environments. The Wadandi translations for relevant fauna are provided in Appendix F; (Wayne, Toni and Zac Webb are gratefully acknowledged for providing this information).

The list is not exhaustive. Numerous invertebrates, marine species (fish in particular, marine turtles, etc) and non-breeding visitors (birds) have generally been omitted. Some records may also be seasonal visitors.

Eleven introduced species (six mammals, three birds, one fish and one invertebrate) have previously been recorded locally.

4.1.2 Conservation significant fauna

Species of conservation significance that may occur within the Park include

- Four specially protected species (a reptile, two mammals and one bird),
- 18 migratory species (birds),
- 13 Priority species (three reptiles, five mammals, four birds and one invertebrate),
- 21 threatened species (two reptiles, four mammals, 14 birds and one invertebrate).

Many of the threatened species listed above may be marine, seasonal or intermittent visitors and may spend little or no time in the Park.

4.2 FAUNA HABITATS

Fauna habitats identified within the Park are mapped in Figure 4-1 and 4-2. They include:

- Sandy or rocky beaches and rocky headlands,
- Coastal vegetation,
- Creeks and dams,
- Granite outcrops (and granitic apron),
- *C. graniticus* closed heath,
- Mixed granitic closed low heath,
- Jarrah, Marri open forest and woodland on sandy soil,
- Jarrah, Marri low open and open forest on lateritic soil,
- Jarrah, Marri low open and open forest on loam soils, and
- Jarrah, Marri low woodland to open tree mallee.

The extent of the fauna habitats generally conform to recent vegetation association mapping by Webb (2013), but have been updated in some areas following site visits and in line with soil mapping (DAFWA 2004). For example the vegetation mapping of *Banksia low open forest* has been revised to *Jarrah, Marri*

open forest and woodland on sandy soil following site observations (it is almost entirely lost to dieback). Note that mapping has been conducted at a broad scale and there are localised variations between soil types sometimes within each mapping unit (typically between gravels, loams and sands) and as a consequence there are also variations in vegetation composition and structure not fully reflected in the broader vegetation/habitat descriptions.

Numerous microhabitats also occur within the Park, within and between the broad habitats identified above. Examples include:

- Ecotones between woodland/forest areas and cleared areas (foraging opportunities for owls, raptors and bats),
- Hollow-bearing trees (refuge and nesting opportunities),
- Fallen timber and hollow bearing logs,
- Smaller rocky outcrops, rocky crevices, and
- Seasonal pools or soaks.

Generally vegetation is in good or better condition throughout the areas of remnant vegetation, which includes most of the Park. Localised disturbances such as fire breaks, vehicular and walking tracks, recreational areas (parking and picnic facilities along the coastal sections) occur throughout the Park. Zone six is unique in that it has been subject to more disturbance historically (clearing, dumping, illegal trails etc) than the rest of the Park and has plans for ongoing formalisation of a mountain bike park. Whilst parts have been disturbed there are still extensive patches of good habitat throughout, including extended areas of intact heath in the north east of Zone 6 and large hollow bearing timber throughout the mid slopes over the southern half of the site.

Hollow bearing trees are critical elements for many fauna species, including some arboreal mammals and many birds, and it can take many decades for hollows to form. For example a study by Mawson *et al.* (1994) found that hollows utilised by the medium sized Long-billed Corella (which can utilise smaller hollows than Black Cockatoos which occur in the Park) may take on average around 450 years to form in Marri and over 1000 years in Jarrah. Vegetation most likely to contain or develop abundant or large (>10cm diameter) hollows, i.e. Jarrah and Marri woodland and forest, has been extracted in Figure 4-3. Figure 4-3 is based on broad scale vegetation association mapping so may not be entirely accurate. Further, hollow bearing trees are generally considered a rare resource and distributed unevenly across the landscape so abundances and quality of hollows may vary within the mapped areas.

Figure 4-1 Broad scale fauna habitats (derived and updated from Webb 2013); northern half of the site

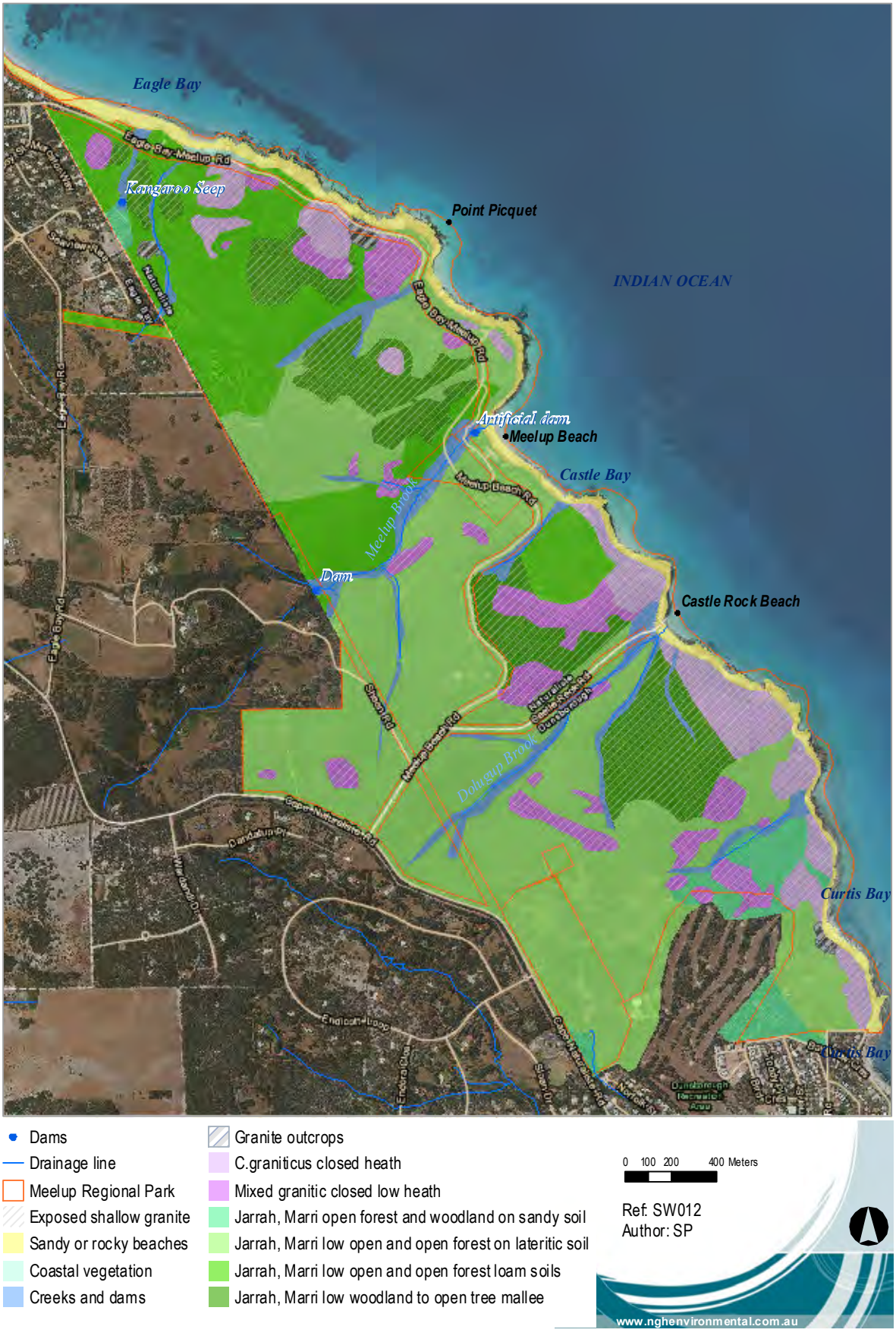

Figure 4-2 Broad scale fauna habitats (derived and updated from Webb 2013); southern half of the site

Figure 4-3 Vegetation most likely to contain or develop abundant or large (>10cm diameter) hollows

4.3 FAUNA INVENTORY - DETAILED SURVEY

A total of 103 fauna species were observed in the Park excluding fish; approximately one third of the total species recorded locally. They consist of

- Seven amphibians (54% of the 13 amphibians recorded locally),
- 59 birds (29% of the 205 birds recorded locally),
- one invertebrate (20% of the five invertebrates targeted from local records),
- 19 mammals (58% of the 33 mammals recorded locally), and
- 17 reptiles (40% of the 42 reptiles recorded locally).

A breakdown of the results by various trapping methods is provided below.

4.3.1 Ground Fauna Trapping and Opportunistic Surveys

The ground trapping and opportunistic survey results have been amalgamated given that some species were identified whilst the trapping was being conducted. Numerous birds were observed opportunistically (and a low number through trapping) though for the purposes of reporting results these have been provided in Section 4.3.3. Raw data results are provided in Appendix D. The ground trapping and opportunistic survey identified

- Seven amphibians,
- 11 non-volant mammals, and
- 17 reptiles.

4.3.2 Infrared Cameras

A summary of the species recorded are included in Appendix E. Only a single record for each species is provided given the large number of actual records for some species. In total 22 species of fauna were recorded via this method; 12 birds, nine mammals and one reptile. Example photos are shown in Photo 4-1 through to 4-5, below.

Photo 4-1 Southern Brown Bandicoot

Photo 4-2 Echidna

Photo 4-3 Western Ringtail Possum (four individuals were recorded)

Photo 4-4 Fox

Photo 4-5 Sacred Kingfisher

4.3.3 Bird Census

A total of 59 bird species were observed during the 12 days of survey. With the exception of Painted Button Quail which was trapped with three juveniles, all were identified by eye or call. One introduced species, Laughing Kookaburra (*Dacelo novaeguineae*), was observed, a species now naturalised throughout the south west.

4.3.4 Nocturnal Surveys

The nocturnal surveys identified

- 27 Common Brushtail Possums, and
- 89 Western Ringtail Possums (with an additional four indentified by camera traps).

The spotlighting results, supplemented with scat identification and drey locations, are shown in Figures 4-4 and 4-5.

These results only show individuals observed within, on average, (approximately) 20m of spotlighting transect lines (shown in Figure 2-2). It is possible that some individuals may have been counted more than once due to multiple survey nights and multiple surveyors. However given that transects were spread widely and the survey effort only accounted for a small proportion of the Park, these counts are only likely to represent a small subset of the individuals utilising the Park. Assuming the area of Park subject to spotlighting was around 114 ha (28.5km by a search distance of 20m either side) then less than 20% of the Park was surveyed by this method (spotlighting did not always include both sides of a transect route).

Figure 4-4 Spotlighting results plus scat identification and drey locations; northern half of the site

Figure 4-5 Spotlighting results plus scat identification and drey locations; southern half of the site

4.3.5 Call Playback

No target species (Barn, Barking and Masked Owls) or otherwise were identified during the call playback sessions.

4.3.6 Acoustic Bat Recordings

Eight bat species were recorded, including the Western False Pipistrelle (a DPaW Priority 4 species) at two sites.

Bat	Site 1 12th Dec	Site 2 13th Dec	Site 3 14th Dec	Site 4 15th Dec
Gould's wattled bat (*Chalinolobus gouldii*)	✓	✓	✓	✓
Chocolate wattled bat (*Chalinolobus morio*)		✓	✓	
Western False Pipistrelle (*Falsistrellus mackenziei*)	✓		✓	
South-western free-tailed bat (*Mormopterus kitcheneri*)[2]	✓			x
Lesser Long-eared Bat (*Nyctophilus geoffroyi*)	✓	✓	✓	✓
Gould's long-eared bat (*Nyctophilus gouldi*)		✓		
White-striped Bat (*Tadarida australis*)	✓			
Southern Forest Bat (*Vespadelus regulus*)	✓	✓	✓	✓

4.3.7 Drainage Line Surveys and Invertebrate fauna

Meelup and Jingarmup Brooks contained water and were open to Meelup Beach and Eagle Bay respectively at the time of the October survey. Only a small section of Jingarmup Brook (around 40m at the mouth to Geographe Bay) is actually located within the Park. Dolugup Brook, at Castle Bay, was dry during the survey period.

No fish or crustaceans were observed within Meelup Brook, within its pools or in the small artificial dam at Meelup Beach. Trapping within the dam did not yield any fish or crustaceans. Beatty *et al.* identified Sea Mullet and Marron at this location in 2006.

Several small fish tentatively identified as Swan River Goby (*Pseudogobius olorum)* and juvenile Sea Mullet (*Mugil cephalus*) were observed at the entrance to Jingarmup Brook whilst it was open to Geographe Bay. In addition to these species the Rosie Barb (*Puntius conchonius* – introduced) and Gilgie (*Cherax quinquecarinatus*) were also found further up steam by Beatty *et al.* (2006). It is possible that these species also occur in the Jingarmup Brook where it passes through the Park.

One introduced invertebrate was trapped, Yabby (*Cherax destructor*), found in Kangaroo Seep where they appeared fairly abundant.

Photos are shown in Photo 4-6 through to 4-13, below.

[2] previously known as *M. planiceps*

Photo 4-6 Jingarmup Brook entrance to Eagle Bay (October 2014)

Photo 4-7 Jingarmup Brook looking west (October 2014)

Photo 4-8 Minor drainage line down slope from Kangaroo Seep (October 2014)

Photo 4-9 Kangaroo Seep (October 2014)

Photo 4-10 Dam at Meelup Brook car park (October 2014)

Photo 4-11 Meelup Brook weir overflow and entrance to Meelup Beach (October 2014)

Photo 4-12 Example of a pool upstream along Meelup Brook (October 2014)

Photo 4-13 Dolugup Brook which was not flowing (October 2014)

5 FAUNA INVENTORY - SUMMARY

5.1 NON-VOLANT MAMMALS

5.1.1 Non-Volant Mammal Assemblage

Eleven non-volant (non-flying) mammals (four of which are introduced) were identified within Meelup Regional Park. These include:

- Echidna (*Tachyglossus aculeatus*),
- Honey Possum (*Tarsipes rostratus*),
- Western Pygmy-possum (*Cercartetus concinnus*),
- Western Ringtail Possum (*Pseudocheirus occidentalis*) (S1 EN Vu),
- Common Brushtail Possum (*Trichosurus vulpecula*),
- Southern Brown Bandicoot (*Isoodon obesulus fusciventer*) (P5),
- Western Grey Kangaroo (Macropus fuliginosus),
- House Mouse (*Mus musculus*)*,
- Black Rat (*Rattus rattus*)*,
- Rabbit (*Oryctolagus cuniculus*)*, and
- Red Fox (*Vulpes vulpes*)*.

The Western Pygmy-possum and House Mouse were not recorded in the Hart *et al.* (1997) surveys.

The Grey-bellied Dunnart (*Sminthopsis griseoventer*), Western Brush Wallaby (*Macropus irma*) and Cat (*Felis catus*) were recorded by Hart *et al.* (1997) but no evidence of their presence was found during the most recent survey reported on here.

Hart *et al.* (1997) noted that Dunnarts were widespread but possibly rare with only two adult females being captured at in Jarrah / Marri woodland off Cape Naturaliste Rd (500m southwest of the Trap site 3 from this report).

The current status of the Western Brush Wallaby (a DPaW Priority 4 species) within the Park is unclear however it appears they no longer occur. The species occurs naturally in relatively low densities and requires large undisturbed areas to persist. Connectivity of the Park with other larger bush remnants in the general area is very tenuous and based on available evidence it would seem that this species has died out in the Park with no recruitment from adjoining areas having taken place.

Though no cats were seen during the Hart surveys, only tracks along the coast, they were presumed to be common and widespread in 1997, particularly around Zone 6 when it was an active rubbish dump. It is very likely Cats are still present within the park but simply remained undetected during the most recent survey reported on here.

5.1.2 Non-Volant Mammals of Conservation Significance

Two non-volant mammal species of conservation significance were recorded dung the survey period, these being the Southern Brown Bandicoot and the Western Ringtail Possum. An additional seven species have previously been recorded in the wider area, some of which may also occur in the Park, despite not being recorded during the survey period.

Southern Brown Bandicoot (P5) - present

Southern Brown Bandicoot's habitat consists of dense scrubby, often swampy vegetation with a dense cover up to one metre high particularly near watercourses and wetlands. It often feeds in adjacent forest and woodlands that are burnt on a regular basis. Nests can be concealed next to or under old logs, shrubs or piles of debris and are made up of ground litter piled up over a shallow depression providing internal chambers. Home ranges vary with population density, and range from 5-8.6 ha for males and 1-6 ha for females (DEC 2010). They feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogeous fungi. Their searches for food often create distinctive conical holes in the soil (DECCW 2010).

Hart *et al.* (1997) failed to catch any Southern Brown Bandicoot individuals and concluded that there were only 'a few individuals surviving' and they were 'endangered within the Park'. During the 1997 surveys only signs of their presence (diggings and runways) were observed, primarily with vegetation bordering the coast at Curtis Bay, Point Piquet, near Eagle Bay, and in Meelup Brook.

It appears that subsequent to Hart's 1997 surveys that Southern Brown Bandicoots have increased in numbers with high abundances trapped at Trap site 2 (near Dunsborough), some in Trap sites 4 and 5 (Zone 6), camera trap 1, 5 and 9, in addition to signs of their presence being found along the upper section of Meelup Brook and on the coastal walk between Dunsborough and Eagle Bay (see Figure 5-1). They are also likely to occur in several other areas of the Park, where their preferred habitat i.e. dense ground cover (such as coastal heath, wet/swampy areas) is present.

Photo 5-1 Southern Brown Bandicoot

Western Ringtail Possum (S1 EN Vu) - present

Present populations of Western Ringtail Possum (WRPs) mostly inhabit Peppermint and Peppermint - Tuart associations from Bunbury to Albany (SPRAT 2014). A range of nest types on or near the ground have been recorded where predators are absent, including low shrub thickets, sedges, rushes, and grass trees. Otherwise tree hollows and dreys in tree canopies are usually used. In dense, coastal Peppermint forest, home ranges are about 0.5 hectares to 1.5ha and in eucalypt forests about 2.5ha. In the northern Jarrah forests, home ranges are larger and have been recorded to at least 5.6ha.

Peppermint leaves form the basis of their diet in coastal areas (between 79-100% based on a study near Busselton by Jones *et al.* 1994), but when unavailable, the dominant myrtaceous species are preferred. In

the inland forest, Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) are the main food source. Garden plant varieties are also exploited in urban areas.

Western Ringtail Possums are common throughout the Park, and were observed in highest abundances through the drainage lines, inland sections of the Park where taller trees (and hollow bearing trees) were more common and in the coastal vegetation where Peppermint (*Agonis flexuosa*) was a core element. Four WRP individuals were recorded by camera trap with an additional 89 sightings being made during spotlight transects (a total of 93 observations during the survey period). Several Western Ringtail Possums were found in '*C. graniticus* closed heath' particularly where there were small pockets of Mallee, along the coastal fringes. Seventeen Western Ringtail Possum dreys were observed during the opportunistic surveys, along with scats being observed ant numerous locations throughout the Park (see Figures 4-4 and 4-5).

Photo 5-2 Western Ringtail Possum

Photo 5-3 Western Ringtail Possum drey

Southern Brush-tailed Phascogale (S1 VU) - not observed, may be present

Southern Brush-tailed Phascogales (*Phascogale tapoatafa ssp*) although not listed by any nearby sources, may also occur within the Park. This species generally requires large areas of woodland or forest with

abundant hollows or fallen timber to seek refuge. It is a cryptic species and most likely to occur within the Marri/Jarrah woodland forest areas shown in Figure 4-3.

Water Rat (P4) - not observed, probably not present

Water Rats (*Hydromys chrysogaster*) are usually found in permanent fresh or brackish water but can be found in marine environments. Fresh water habitats include swamps, lakes, dams, even urban drainage swamps. It typically forages close to the shoreline, restricting its movements to shallow water (up to 2 m in depth) (CSIRO, 2004). In a study at Two Peoples Bay NR they preferentially utilised wetland habitats characterised by dense, low-lying vegetation (0-30cm from ground), low-density canopy cover and shallow, narrow water bodies (Speldewinde 2013).

No evidence of this species was found during the survey period and observations suggest that under normal circumstances it is unlikely to be present. This conclusion is based on the lack of suitable habitat required for a population to persist within the Park boundaries itself with the wetland habitats within the Park are very limited in extent and largely seasonal in nature. Individuals may very occasionally transit the coastline but visitations would be temporary.

Western Brush Wallaby (P4) - not observed, probably not present

The Western Brush Wallaby (*Macropus irma*) inhabits open Jarrah forest or woodland and seasonally wet flats with low grasses and scrubby thickets, but also areas of mallee and heathland. Common dietary flora includes *Carpobrotus edulis, Cynodon dactylon* and *Nuytsia floribunda* (DEC, 2008a).

With respect to the it status in the Park, it was noted in the Hart *et al.* (1997) report as being very rare and probably endangered, possibly with a population that is no longer viable at that time (only one sighting from 1997 in the centre of the Park). Although Harewood (2008) recorded the species from remnant vegetation in nearby private property, no evidence of the species was found during the recent surveys and it is considered no longer to persist in the Park.

Chuditch (S1 VU Vu) - not observed, probably not present

Chuditch (*Dasyurus geoffroii*) in the past, occupied a range of habitats including forest, woodland and desert, though in the southwest they are now largely restricted to Jarrah forest or scattered through the southern and the eastern wheat belt (DEC 2010). Current records indicated that this only represents approximately 5% of their former range. In the Jarrah forest populations occur in both moist, densely vegetated, steeply sloping forest and drier, open, gently sloping forest, with higher densities in riparian areas.

Habitat attributes which are likely to be critical to the life cycle for the Chuditch are large areas of undisturbed habitat which a sufficient variety of key food and other resources such as large hollow logs, burrows or small caves at ground level for denning. To be suitable as den sites, logs must have a diameter of at least 30 cm but usually greater than 50 cm, a hollow diameter of 7–20 cm and generally 1m long (Orell and Morris 1994). Annually, an adult female Chuditch will utilise an estimated average of 66 logs and 110 burrows within her home range. A large amount of den sites are required for both sexes. They occupy relatively large home ranges, with males utilising over 15 km^2 and females' 3-4 km^2 (Orell and Morris 1994).

Chuditch appear to be absent for the Park, probably a consequence of the sites relatively small size which is likely to insufficient to support a viable population, though other factors such as the presence of feral predators would also have impacted on the ability for the species to persist in the area. The species

status in nearby larger bush remnants is unclear but it is considered unlikely that individuals would move between these areas to the Park on any regular basic even if a population was present.

Quokka (S1 VU Vu) - not present

The current distribution of the Quokka (*Setonix brachyurus*) includes Rottnest and Bald Islands, and at least 25 sites on the mainland, including several National Parks and swamp/creek areas through the south-west forests from Jarrahdale to Walpole. The mainland quokka lives in the Darling Range and south-west regions of WA, mostly inhabiting densely vegetated swamps and sometimes tea-tree thickets on sandy soils along creek systems and dense heath on slopes (DEC, 2010). No evidence of the species was found during the recent surveys nor does any suitable habitat occur.

New Zealand Fur Seal (S4) - present

In Australia New Zealand Fur Seals (*Arctocephalus forsteri*) are found along the south of WA across to the Eastern states. They breed and haul out on rocky boulders rather than rock shelf, and forage at night on cephalopods, lobsters penguins and pelagic fish (Menkorst and Knight 2011).

A colony of approximately 30 individuals is located approximately one kilometre north of Meelup Regional Park, on the eastern side of Cape Naturaliste. Individuals have been observed on rocks and in the shallows, within the Park (around Rocky Pt and Bunker Bay) though they do not appear to use the mainland Park as a breeding site (Shane Priddle pers obs).

Australian Sea Lion (S4 En) - not observed, probably not present

The Park is located within the species non-breeding range. Australian Sea Lion (*Neophoca cinerea*) usually forages around 20-30km offshore within 150m of water (Menkorst and Knight 2011). The species was not observed but may be a rare visitor to the Park.

Figure 5-1 Southern Brown Bandicoot survey results (some locations indicate multiple records and recaptures)

5.2 BATS

5.2.1 Bat Assemblage

Eight of the nine potential bat species were recorded within the Park during the December 2014 survey. Particularly high activity was recorded at the dam behind the beach at Site 2 (Meelup), with five species being recorded in one night. The highest bat activity was recorded at Site 1 (Zone 6) with six of the eight species being recorded at this location. Zone 6 is characterised by a high density of relatively large trees, with many appearing to contain hollows of some sort. It is assumed that these represent a significant daytime refuge resource for bats. Sites 3 (near Kangaroo Seep) and 4 (upper Dolugup Brook at Castle Bay) each recorded five and three different species, respectively.

The Western Long-eared Bat (*Nyctophilus major*) was the only locally occurring bat species not recorded within the Park. Western Long-eared Bat inhabits wet-damp Eucalypt forest throughout the southwest, roosting in tree hollows, under bark in and crevices. It forages low on arthropods from foliage and the ground along with insects in flight (Menkhorst and Knight 2011). Suitable habitat occurs within the Park, mostly through the drainage lines; due to the low flying habit of this species it is possible that it was missed by the bat detector, had it been present.

5.2.2 Bats of Conservation Significance

One bat species of conservation significance was recorded during the survey period (Western False Pipistrelle). No other bat species of conservation significance occur in the area.

Western False Pipistrelle (P4) - present

Western False Pipistrelle (*Falsistrellus mackenziei*) (P4) is considered to be declining in the southwest. It occurs in wet sclerophyll forest dominated by Karri (*Eucalyptus diversicolor*), and in the high rainfall zones of the Jarrah (*E. marginata*) and Tuart (*E. gomphocephala*) forests. It has also been recorded in mixed Tuart-Jarrah tall woodlands on the adjacent coastal plain. Marri (*E. calophylla*), Sheoak (*Casuarina heugeliana*) and Peppermint (*Agonis flexuosa*) trees are often co-dominant at its collection localities (DEWHA, 2009). The species feed on flying insects between and below the forest canopy. This species roosts in tree hollows (Phillips and Inwards 1985) in colonies of 5 to 30 bats (Aust Museum, 2009).

The Western False Pipistrelle was recorded at Bat Site 1 (Zone 6) and Bat Site 3 (Kangaroo Seep) (Figure 5-2).

Figure 5-2 Western False Pipistrelle (P4) recordings

5.3 BIRDS

5.3.1 Bird Assemblage

A total of 59 bird species were observed during the December 2014 survey period, approximately one third of the total species recorded locally. This is unsurprising given that many of the locally recorded species are seasonal visitors, wetland species or those requiring different habitats to those present within the Park. Hart *et al.* (1997) did not record birds and as far as the Authors are aware no other previous comprehensive bird surveys within the Park have been carried out.

The most abundant species were those of the family Pardalotidae (Pardalotes, Bristlebirds, Scrubwrens, Gerygones, Thornbills) with seven species observed. Following that there were four species each of the families Accipitridae (Kites, Goshawks, Eagles and Harriers), Cacatuidae (Cockatoos and Corellas), Meliphagidae (Honeyeaters and Chats) and Psittacidae (Parrots).

A number of relatively widespread, common birds that were not detected may also occur within the Park, such as Horsfield's Bronze Cuckoo (*Chrysococcyx basalis*), Magpie-lark (*Grallina cyanoleuca*) and Australian Pelican (*Pelecanus conspicillatus*). Birds of prey that may forage within the Park as well as surrounding areas but were also not detected might include Brown Falcon (*Falco berigora*), Whistling Kite (*Haliastur sphenurus*) and Australian Kestrel (*Falco cenchroides*) among others.

Several species might use the dams from time to time. They may include Australian Wood Duck (*Chenonetta jubata*) and the Australian Shelduck (*Tadorna tadornoides*). Various species of migratory shorebirds may also be seasonal visitors to the beaches bordering the park though habitat for many is probably marginal (except for temporary roosting). The relatively high level of human activity along the coastline during the summer months would also limit the value of these areas to migratory shorebirds and shorebirds in general.

Owls such as Barn Owl (*Tyto alba*), Barking Owl (*Ninox connivens connivens*) (P2) and Masked Owl (*Tyto n. novaehollandiae)* (P3) have some potential to occur but were not detected during the surveys. If they do occur locally it is likely that Park is only part of a larger habitat patch required to support any individuals.

5.3.2 Birds of Conservation Significance

Five birds of conservation significance were recorded within the Park during the survey period. An additional three "bush" birds of conservation significance may also occur. Numerous species of migratory waders (i.e. sandpipers, stints, sand plovers), migratory pelagic seabirds (i.e. albatrosses, petrels and shearwaters) and migratory terns have also previously been recorded in the vicinity of Meelup. (see Appendix B). Birds of conservation significance known to be locally/regionally extinct are not discussed (e.g. Malleefowl).

Baudin's Black Cockatoo (Calyptorhynchus baudinii) (S1 EN Vu) - present
Carnaby's Black Cockatoo (Calyptorhynchus latirostris) (S1 EN En) – present
Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso) (S1 VU Vu) – present

Black cockatoos are long-lived, slow-breeding birds that display strong pair bonds that are suffering the effects of population decline and habitat loss. All three species breed in breed in hollows that are usually only found in trees that are more than 200 years old and are known to breed throughout the southwest (SEWPAC 2012). Each species has specific requirements though they generally forage on Eucalypt woodlands and forest, and proteaceous woodland and heaths (often Marri (seeds, flowers, nectar and grubs) and proteaceous trees and shrubs).

All three Black cockatoo species (or signs thereof) were observed throughout the Park. The areas within the Park are likely to have the most potential to contain suitable nesting trees, i.e. Marri or Jarrah trees with the potential to develop abundant or large hollows (greater than 10cm diameter) are shown in Figure 4-3.

Caspian Tern (*Hydroprogne caspia*) (S3 Mig JA CA ROK) – present

In Western Australia the Caspian Tern is widespread in coastal regions, occurring from the Great Australian Bight to the Dampier Peninsula. Breeding occurs from the Recherche Archipelago to Dirk Hartog Island and Faure Island in Shark Bay, and also in the Pilbara region from around Point Cloates to North Turtle Island, and more rarely, in the Kimberley (Pizzey & Knight 2012).

Only a single observation of this species was made during the survey period but they are likely to frequent the area often while foraging and while roosting on rock headlands and beaches.

Rainbow Bee-eater (*Merops ornatus*) (S3 Mig JA) – present

The Rainbow Bee-eater is a common summer migrant to southern Australia. The species utilises open country, of woodlands, open forest, semi arid scrub, grasslands, clearings in heavier forest and farmlands. It Breeds underground in burrows where areas of suitable soft soil, firm enough to support tunnel building exist (Pizzey & Knight 2012).

A single individual of this species was observed in October 2014 near the Meelup Car Park. Given the relative rocky nature of much of the park it is considered unlikely to breed in the area.

Hooded Plover (*Charadrius rubricollis*) (P4) - not observed, previously recorded

While not observed during the survey period, Hooded Plovers (P4) have previously been recorded within the Park and from local beaches on a relatively regular basis by Ron Glencross and others, with observations dating back to the early 1990s. In WA the species inhabits broad sandy ocean beaches and bays, and coastal and inland salt lakes (Pizzey & Knight 2012).

Masked Owl (*Tyto novaehollandiae novaehollandiae*) (P3) - not observed, may occur occasionally

The south western subspecies of the Masked Owl is found north to Yanchep and east to Yealering, Gnowangerup and Albany, and is casual further north. It can be locally common in the south west but is generally uncommon (Johnstone and Storr 1998). Birds roost and nest in heavy forest, while hunting over open woodlands and farmlands (Morcombe 2011). Masked Owls are thought to breed in forested deep south west with some autumn–winter wanderings northwards (Johnstone and Storr 1998).

This species was not detected during the survey and so its status in the general area is difficult to determine. It may utilise forest and woodland areas within and near the Park for roosting and therefore may forage in more open areas at night. Probably only present rarely.

Barking Owl (*Ninox connivens connivens*) (P2) - not observed, may occur very occasionally

The south western subspecies of the Barking Owl was found north to Perth and east to Northam, Katanning and nearly to Bremer Bay but is now thought the be declining in south west (Johnstone and Storr 1998). It has a preference for dense vegetation, especially forest and thickets of waterside vegetation such as melaleucas and roosts in tree hollows (Johnstone and Storr 1998).

This species was not detected during the survey and so its status in the general area is difficult to determine. There would however appear to be a lack of its preferred habitat so if it does occur it can be expected to be present on very rare occasions at best.

Peregrine Falcon (Falco perigrinus) (S4) - not observed, may occur occasionally

Individuals of this species are uncommon/rare but wide ranging across Australia. It is noted as being moderately common at higher levels of the Stirling Range, uncommon in hilly, north west Kimberley, Hamersley and Darling Ranges and rare or scarce elsewhere. It occurs mainly about cliffs along coasts, rivers and ranges and about wooded watercourses and lakes (Johnstone and Storr 1998). The species utilises the ledges, cliff faces and large hollows/broken spouts of trees for nesting. It will also occasionally use the abandoned nests of other birds of prey.

Individuals of this species potentially utilise some sections of the Park as part of a much larger home range but would only be observed rarely.

Migratory Shorebirds/Waders - various species – none observed – some may occur occasionally

Migratory shorebirds/waders are listed as such under the *EPBC Act* and under international agreements to which Australia is a signatory. Some are also specially protected under Schedule 3 of the *WC Act*. All of the potential species previously recorded in the Meelup area are either widespread summer migrants to Australia or residents. Actual conservation status varies between species. The preferred habitat varies between species but includes beaches and permanent/temporary wetlands varying from billabongs, swamps, lakes, floodplains, sewerage farms, ponds, estuaries, lagoons, mudflats, sandbars, pastures, airfields, sports fields and lawns.

The quality and extent of the shorebird/wader habitat is probably marginal/limited for most of the potential species listed, as certain habitat elements are unfavourable, limited in extent or absent. For example while many species of migratory waders can be found on a range of habitat types from freshwater inland wetlands, coastal mudflats and sandy beaches, most of the available information suggests that intertidal habitats (used for foraging) are the most important for most species of significance that frequent Australia (DEWHA 2005) and this habitat type is not well represented with the Park. While it is possible that migratory waders are present at times along the coastal areas it is unlikely to represent a site of significance and at any one time only a small number of species and total birds are likely to occur. The high level of human activity would also deter shorebirds of all types.

Pelagic Seabirds - various species – none observed – some may occur occasionally

A number of migratory pelagic seabirds such as albatrosses and shearwaters have been recorded off Meelup. It is however unlikely that most would ever come to shore on the mainland given their preferred lifestyle and so none will be discussed further.

Migratory Terns - various species – none observed – some may occur

In addition to the Caspian Tern recorded during the survey period and additional three migratory species of conservation significance also have the potential to frequent the coastline bordering the Park these being the Crested Tern, Arctic Tern and Fairy Tern. Crested and Artic Terns are relatively common and while listed as migratory are not threatened species. The Australian sub-species of the Fairy Tern is however listed as Vulnerable under the *EPBC Act*. Fairy Terns utilise a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands, beaches and spits.

Fairy Terns may occasionally frequent the area but it is unlikely to represent a site of major significance given the species would not breed at this location.

5.4 REPTILES

5.4.1 Reptile Assemblage

Seventeen reptiles were recorded within the Park during the survey period, with the assemblage comprised of two elapid snakes, one gecko, two legless lizards, 11 skinks and a monitor, these being;

- South-western Cool Skink (*Acritoscincus trilineatum*),
- Pretty Worm Lizard (*Aprasia pulchella*),
- Marbled Gecko (*Christinus marmoratus*),
- Fence Skink (*Cryptoblepharus buchananii*),
- Chain-striped Heath Ctenotus (*Ctenotus catenifer*),
- South-western Odd-striped Ctenotus (*Ctenotus impar*),
- Marbel-faced Delma (*Delma australis),*
- Bardick (*Echiopsis curta*),
- King's Skink (*Egernia kingii*),
- Three-toed Mulch Skink (*Hemiergis peronii tridactyla*),
- South-western Four-toed Lerista (*Lerista distinguenda*),
- West Coast Four-toed Lerista (*Lerista elegans*),
- Dwarf Skink (*Menetia greyii*),
- Western Pale-flecked Morethia (*Morethia lineoocellata*),
- Dugite (*Pseudonaja affinis),*
- Bobtail (*Tiliqua rugosa rugosa*), and
- Heath Monitor (*Varanus rosenbergi*).

The Bardick, Chain-striped Heath Ctenotus and West Coast Four-toed Lerista have not been previously recorded in the Park (by Hart *et al.* 1997).

Hart *et al.* (1997) identified 19 reptiles within the Park during his three survey periods carried out in 1994, 1996 and 1997. The following were not observed during the December 2014 surveys:

- Dell's Skink (*Ctenotus delli*)
- Southwest Crevice Skink (*Egernia napoleonis*)
- Black-backed Snake (*Parasuta nigriceps*)
- Western Bearded Dragon (*Pogona minor minor*)
- Southern Blind Snake (*Ramphotyphlops australis*)

Hart's records of Dell's Skink made during his 1995 and 1997 surveys (Hart *et al.* 1997) are highly unusual given all other records of the species in DPaW's NatureMap database are from the Darling Range, all but a few between Collie (110 km east/north east) and Perth. A closely related and similar looking species, the Chain-striped Heath Ctenotus (*Ctenotus catenifer*), not recorded by Hart during his surveys, was captured 10 times during the December 2014 Meelup surveys reported on here. The recording of *Ctenotus catenifer* is not unusual as Meelup is located well within its documented range. Available evidence would therefore suggest that the skinks captured by Hart were possibly incorrectly identified as *Ctenotus delli* when in fact they were *Ctenotus catenifer,* though this is difficult to confirm. One of Hart's specimens is lodge with the WA Museum so it is possible that this could be re-assessed. A tissue sample was also collected from the skinks identified as *Ctenotus catenifer* during the December 2014 surveys and this could also be used to confirm this species identity.

With respect to the other four species not recorded during the December 2014 surveys Hart *et al.* (1997) reports;

- Only four Southwest Crevice Skinks were seen and all were in or near rocks along the coast.
- Six Black-backed Snake individuals were found in four widely scattered sites in heath on granite, stunted woodland and Jarrah woodland.
- Western Bearded Dragon were uncommon and restricted, with only two records found (one in *Banksia grandis* over shrubs between Point Picquet and Gannet Rock, and another in heath over granite in the same general area two years later).
- The Southern Blind Snake was not actually recorded by Hart during his surveys but two individuals were dug up during rehabilitation work near the golf course. These snakes are highly cryptic burrowing species rarely seen on the surface, but are widespread.

Although the above species were not recorded in 2014 it is likely that they still occur within the Park.

An additional 20 species of reptiles are known to occur locally. The list includes common species such as Crowned Snake (*Elapognathus coronatus*), Southwestern Mulch Skink (*Hemiergis gracilipes*), Common Snake Lizard (*Lialis burtonis*) and Tiger Snake (*Notechis scutatus*).

5.4.2 Reptiles of Conservation Significance

None of the species identified during the 2014 survey are of particular conservation significance however the following species have been recorded in the general area previously. Comments on their likelihood of occurrence are provided.

Coastal Plains Skink (*Ctenotus ora*) (P3) - not observed, may be present

Ctenotus ora is a recently described species of medium sized skink with a restricted range within the southern Swan Coastal Plain and Cape Naturaliste area, as far north as Pinjarra and south as far as Yallingup (Kay & Keogh 2012) and it has recently been recorded near Meelup in Dunsborough (Ecoscape 2012). The species has a previously been recorded in areas with sandy substrates and low vegetation (including heath) in open *Eucalyptus/Corymbia* woodland over *Banksia* (Kay & Keogh 2012) located in the sandy coastal plain and coastal dunes (Wilson and Swan 2013).

Given the species has previously been recorded nearby and the presence of habitat within the Park that appears suitable it is considered possible that this species may be present in some sections of the Park.

Short-nosed Snake (*Elapognathus minor*) (P2) - not observed, may be present

The Short-nosed Snake is restricted to the humid coastal plains of the deep south west where it typically inhabits heaths edging swamps, though it is also known to frequent wet sclerophyll forest. The species shelters in low dense vegetation such as tussocks and sedges (Wilson and Swan 2013).

The status of this species in the Park is difficult to determine but it must be considered as likely to occur given that some areas of habitat appear suitable for the species to utilise.

Dell's Skink (Ctenotus delli) (P4) not observed, previously recorded

As previously discussed Hart's records of Dell's Skink are highly unusual given all other records of the species in DPaW's NatureMap database are from the Darling Range. It is however very difficult to determine the validity of this identification without re-examining museum specimens and as such it must still be regarded as a potential species despite the doubt surrounding previous observations.

Southern Carpet Python (*Morelia spilota imbricata*) (S4) - not observed, may be present

This sub species of the Carpet Python has wide distribution within the south west but is uncommon. It occurs north to Geraldton and Yalgoo and east to Pinjin, Kalgoorlie, Fraser Range and Eyre. It has been recorded from semi-arid coastal and inland habitats, *Banksia* woodland, eucalypt woodlands, and grasslands where it typically shelters in burrows made by other animals, hollow tree limbs or logs (especially 150mm approx. diameter hollows extending at least to one metre deep), or rock crevices (Wilson and Swan, 2013).

The Carpet Python has been reported by local residences in the recent past and therefore is a likely inhabitant of the Park despite not having been observed during the 2014 survey period.

5.5 AMPHIBIANS

5.5.1 Amphibians Assemblage

Seven amphibians were identified within the Park during the 2014 survey period:

- Quacking Frog (*Crinia georgiana*),
- Glauert's Froglet (*Crinia glauerti*),
- Squelching Froglet (*Crinia insignifera*),
- Lea's Frog (*Geocrinia leai*),
- Moaning Frog (*Heleioporus eyrei*),
- Slender Tree Frog (*Litoria adelaidensis*), and
- Guenther's Toadlet (*Pseudophryne guentheri*).

All the species recorded are of the family Myobatrachidae, i.e. ground or burrowing frogs, with the exception of the Slender Tree Frog (from the Hylidae family, i.e. tree or water-holding frogs). The Squelching Froglet has not previously been recorded in the Park.

Hart *et al.* (1997) identified 9 amphibians during the surveys in the late 1990s. The following were not observed during the 2014 surveys:

- Whooping Frog (*Heleioporus inornatus*)
- Banjo Frog (*Limnodynastes dorsalis*)
- Nicholls' Toadlet (*Metacrinia nichollsi*)

These frogs are all relatively common species and are therefore likely to occur within parts of the Park despite not being detected during the most recent survey.

5.5.2 Amphibians of Conservation Significance

None of the species identified are of any particular conservation significance, nor do any occur locally.

5.6 FISH AND INVERTEBRATES

5.6.1 Fish and Invertebrate Assemblages

Fish and invertebrate surveys were limited in scope and focussed on the dams, drainage lines and where they interacted with Geographe Bay. Due to the ephemeral nature of most of these, apart from the small dams, they are dry most of the year (some were dry during the surveys).

Fish and invertebrates results are described in Section 4.3.7. The Swan River Goby and juvenile Sea Mullet were observed at the entrance to Jingarmup Brooks whilst it was open to Geographe Bay. It is probable that the Rosie Barb and Gilgie also still occur in Jingarmup Brook as noted by Beatty *et al.* (2006).

One introduced invertebrate was trapped, the Yabby (*Cherax destructor*), found in Kangaroo Seep where they appeared fairly abundant. Given that trapping yielded no specimens, it appears unlikely that Marron (*Cherax cainii*) are still persisting in the artificial dam at Meelup despite being recorded by Beatty in 2006 (Beatty *et al.* 2006).

5.6.2 Fish and Invertebrates of Conservation Significance

None of the identified invertebrates are of conservation significance, however several other species which are have been recorded in nearby areas.

Carters Freshwater Mussel (*Westralunio carteri*) (S1 VU) - not observed, probably not present

Carters Freshwater Mussel is the only freshwater mussel found in southwest WA however very little is known about it. It is a bivalve found in freshwater streams, rivers, billabongs, ponds, wetlands and lakes inland from the coast mostly areas with muddy, silty and sandy bottoms and flowing permanent water. Tracks can be seen along banks and sandy/muddy patches of stream bed where they are present (http://www.musselwatchwa.com).

The lack of fish within the Parks drainage lines also means that they are also unsuitable for Carters Freshwater Mussel. Native fish are critical to the Mussel's lifecycle - larval mussels attach themselves to native fish to spread their population and later develop into juvenile mussels (Murdoch University, 2010). The likelihood of these mussels occurring within the small, likely saline influenced section at the mouth Jingarmup Brooks is also probably low.

Dunsborough Burrowing Crayfish (Engaewa reducta) (S1 EN CE) - not observed, probably not present

The Dunsborough Burrowing Crayfish uses a variety of habitats that provide moist sandy/loamy soils and an accessible watertable. These include vegetated seepages, swamp plains and swampy headwaters of streams. No characteristic mounds were observed within the Park, or within the upper reaches of Meelup Brook - the most likely place the species would occur if present. Meelup Brook is ephemeral and lacks the low wet sumplands with dense vegetative cover that the species requires. Given that Engaewa has extremely limited capacity for dispersal and is geographically isolated, with a highly restricted known range of occurrence (within the Swan Coastal Plan around Carbunup, over 15kms away) and more recently with the Blackwood River, the likelihood that Engaewa would occur in the Park is very low (Shane Priddle pers comm. with Dr. Quinton Burnham 23/03/2015).

5.7 INTRODUCED FAUNA

Six introduced fauna species were found within the Park during the 2014 survey period:

- Laughing Kookaburra
- Yabby
- House Mouse
- Rabbit
- Black Rat
- Red Fox

Rats and mice were most common to the west of the site, around Trap site 6, which is expected as it is fairly degraded and close to residential areas. They also occur around the barbecue areas at Meelup and probably occur at other sites where people may leave food scraps or where there are bins (i.e. the coastal car park and recreation areas).

Yabbies were only found in the Kangaroo Seep and have probably been introduced there in the past by anthropogenic means. Kookaburras as previously noted are an east coast species but now naturalised throughout the south west of WA. Rabbits and Red Foxes occur throughout the Park.

6 SITE VALUES

6.1 CONSERVATION SIGNIFICANCE OF THE STUDY AREA

The conservation significance of Meelup Regional Park has obviously been previously recognised and it now represents the largest coastal reserve located on Geographe Bay within the City of Busselton. The Leeuwin Naturaliste National Park is larger, however, it is located on the West Cape, and is mostly limestone dominated and subject to different climatic conditions hence supporting very different vegetation communities and flora and fauna assemblages.

The significance of the Meelup Regional Park to fauna in the area is demonstrated by the results of this and previous fauna surveys. With respect to native vertebrate fauna a combined total of 17 mammals (including eight bat species), 59 bird, 23 reptile and nine frog species have previously been recorded in the Park during surveys undertaken by Hart in 1994-1997 (Hart *et al.* 1997) and the December 2014 survey reported on here. Of the fauna recorded eight species are of conservation significance and are listed by state and/or federal agencies as migratory, vulnerable or endangered. While not recorded to date, there is potential for several other species of conservation significance to also be present.

There are a number of existing threats to vegetation within the Park, all of which may degrade fauna habitat. Some are extensive throughout the Park:

- Direct clearing and trampling.
- Phytophthora dieback caused by the root-rot water mould *Phytophthora cinnamomi.*
- Root disease is caused by the endemic pathogen, *Armillaria luteobubalina*.
- Canker pathogen *Neofusicoccum australe* which can cause severe dieback symptoms of Peppermint trees and *Allocasuarina spp.*
- Other decline of structural trees species such as Marri, Jarrah and Peppermint.

- Jarrah leafminer (*Perthida glyphopa*), an insect species that has a caterpillar stage which results in diminished vigour and deteriorates crown condition as branches progressively die back from their tips in Jarrah trees.
- Myrtle rust (*Puccina psidii s.l.*) is part of a group of fungi that infects the Myrtaceae family of plants, not yet present in WA.

DPaW (2014)

6.2 IMPORTANCE OF THE PARK TO CONSERVATION SIGNIFICANT FAUNA

The Meelup Regional Park is of great importance to the ongoing persistence of conservation significant fauna in the general area and along with the Leeuwin Naturaliste National Park. Many fauna species of conservation significance require large areas of natural habitat to persist and while connectivity between these two areas is tenuous the contribution the Meelup Regional Park makes to the total area of the conservation estate in the area is significant.

The Park is supporting resident populations of Western Ringtail Possums, Southern Brown Bandicoots and Western False Pipistrelle, all of which are species thought to be in decline in other parts of their respective ranges. The Park also represents a significant habitat resource for all three species of black cockatoos. All three species were recorded as foraging in the Park and the potential exists for some species (e.g. the Forest Red-tailed Black Cockatoo) to also breed in the area.

6.3 LINKAGE AND CORRIDORS

6.3.1 Regional Ecological Linkage

The Meelup Regional Park provides secure tenure of mostly remnant vegetation along the coastal fringe from Dunsborough through to Cape Naturaliste (and Leeuwin Naturaliste National Park), apart from about 400m along Bunker Bay Beach.

This landscape scale ecological linkage is recognised as having regional importance, being a South West Regional Ecological Linkages (SWREL) axis line. The SWREL project was developed by the Local Government Association's Southwest Biodiversity Project and the then Department of Environment and Conservation (DEC) in 2009. The SWREL project identifies regional scale ecological linkages and aims to respond to the issues of fragmentation and climate change through land use planning policy and procedures. It also seeks to retain native vegetation and fauna habitat and reduce the loss of biodiversity and ecological function in the South West (Molloy *et al.* 2009). The SWREL axis lines can be summarised as a series of vegetation patches which due to their proximity, act as habitat stepping stones thereby facilitating ecological processes and movement of organisms within and across the landscape (i.e. at the landscape scale).

In additional to the SWREL line referred to above, Meelup Regional Park is linked to an additional longitudinal SWREL line, located just west of the Park, by the corridor described in Section 1.1. Two additional latitudinal SWREL lines are also recognised as linking also the Park to the Leeuwin Naturaliste National Park to the east. This connectivity to about four regional linkages is recognised as being fairly unique for a single Park along Geographe Bay.

6.3.2 Habitat Corridors

At a local scale the site contains at least a couple wildlife corridors, the coastal fringe from Eagle Bay to Bunker Bay and the 'corridor' along the western edge of the Park (referred to previously as linking to the SWREL line). Both may be important for fauna particularly in the medium longer term as development pressures increase in surrounding insecure tenures.

The 'corridor' is consists of patches of large trees, mostly Marri and Peppermint. It is mostly connected through the canopy though there are some gaps. Both the threatened Western Ringtail Possum and Common Brushtail Possum occur there. It is understood that MRPMC are considering the site potentially to help disperse support Western Ringtail Possum relocation nearby within the Park. Although the appropriateness of Meelup Regional Park for this purpose is not examined in this report, as targeted surveys would need to be conducted, the corridor is likely to be useful in allowing Possums and other fauna to move between vegetation on and offsite. Improvement of the site, through revegetation, would significantly improve this function.

Figure 6-1 Corridor linking Meelup Regional Park to vegetation to the west

Photo 6-1 The corridor entrance to the adjoining Meelup Regional Park.

Photo 6-2 Midway along the corridor, showing connected Marri trees.

6.4 ZONE 6

Zone 6 is approximately 42 ha in area and located in the south western corner of the Park. As discussed in Section 1 it has a history of disturbance and a formal bike trail is proposed. Fauna habitat quality varies greatly within the Zone 6, from very poor to very good. Poor areas are generally associated with cleared, weedy patches or areas where there are extensive planting of non-endemic vegetation. Good areas are generally where there is intact and diverse native vegetation. It should be noted that hollow bearing trees are fairly abundant in some areas throughout Zone 6 and may represent a valuable resource for hollow dependant fauna, some of which are threatened. Whilst Zone 6 was subject to field survey detailed analysis of assemblages between zones was beyond the scope of the project. Based on field observations however, given that Zone 6 is connected to the rest of the Park it can be assumed that fauna assemblages using other corresponding habitat types throughout the Park are probably similar in Zone 6.

Sensitive design of any future land uses (such as the bike park) to avoid clearing and improvement of current vegetation levels (revegetation and weed control) will improve fauna habitat quality over the long term.

7 MANAGEMENT CONSIDERATIONS

7.1 RECOMMENDATIONS FOR MAINTAINING FAUNA VALUES

From a fauna and fauna habitat perspective the Park is generally well managed as outlined in Part C of the Meelup Regional Park Management Plan (2010). Additional considerations and recommendations will assist management in maintaining fauna values over the long term, particularly with regard to Zone 6.

- Prescribed burns

It is understood that prescribed burns are regularly undertaken in the Park, with a burn program based on an assessment of fire history and fuel load. Generally for most cells there is a burn cycle of 8-10 years, with buffers burnt every five years. Sensitive areas (wetlands, foreshore) are avoided and other fire management measures are undertaken here to reduce fuel load (slashing, removal of dead vegetation material etc).

Future prescribed burns conducted should be low intensity and as a mosaic to ensure animals have the opportunity to flee the site. Burns should also avoid the breeding season particularly for conservation significant species, which can vary between species but is typically during spring. Consider impact risk assessment prior to undertaking any burns to ensure particular species are not impacted.

- Feral animals

It is also understood that 1080 fox baiting is carried out at a minimum of two rounds (spring and autumn) and one round for rabbits (at the end of summer). Cat trapping and some basic monitoring has also been carried out in the past and appears to have been relatively successful, given that no cats were observed in the Park. The eradication of rats and mice, particularly around the picnic areas, would be very difficult to achieve.

- Corridor improvement and other revegetation works

Revegetation of disturbed areas (e.g. the 'corridor' and areas within Zone 6), with native local provenance species would improve fauna habitat within those areas. There are a few principles that should be considered in relation to revegetation of habitat corridors (and can be applied generally in relation to Park management).

Generally the wider the corridor the better, particularly in terms of maximising its long term value to birds and mammals and reducing existing edge effects. Edge effects may include:

- Changes in microclimate – usually brighter and drier conditions; leading to a change in flora species composition and abundance. This in turn could create a shift in the vegetation community present and affect the type of habitat available for both flora and fauna species.
- Ingress of weeds (Lindenmayer and Fischer 2006).
- Ingress of predators or increased foraging opportunities.
- Habitat loss and degradation.

It is generally accepted that there is a significant relationship between the edge to area ratio of remnants and their habitat value (May and Norton 1996). The value of areas with lots of edges and little area (such as a narrow linear corridor) become degraded by the impacts of edge effect, to the point where they may no longer be suitable for a range of species (Lindenmayer and Fischer 2006). The current 50m width of the corridor (if planted) would be beneficial for Western Ringtail Possum and many other species, particularly more mobile species such as birds. Lindenmayer and Nix (1993) found that arboreal animals such as Western Ringtail Possum that forage on leaves rather than widely dispersed resources such as nectar, insects, etc., were less affected by narrow corridor widths, probably because they do not need to forage over such a large area. Revegetation should aim to reduce existing edge effects.

- Revegetation and active weed control

As noted any improvements to vegetation are likely to improve fauna habitat. Revegetation and active weed control would improve fauna habitat over the long term. Zone 6, especially would benefit from this. Further clearing and land degradation should be avoided where possible.

- Future survey opportunities and citizen science

MRP has the unique benefit of having a rich history of active volunteer involvement. This provides an opportunity for future surveys to assist in managing the Park values. Examples may include the survey and monitoring of

- feral and pest species (e.g. Black rats and Cats) for pest control,
- shore birds and infrequent visitors (e.g. Hooded Plover, seals, etc),
- threatened species such as Western Ringtail Possums for long term patterns of distribution and abundance,
- setting up camera traps at the base of large hollow bearing trees to identify cryptic species, such as Phascogale.

These surveys can generally be conducted without trapping and therefore without license requirements. Formal trapping should be considered again over the longer term which would help to determine changes in fauna assemblages within the Park.

8 CONCLUSION

The Meelup Regional Park contains significant areas of excellent quality fauna habitat as demonstrated by the high diversity of native fauna occurring within the Park. Of the total 293 vertebrate fauna taxa (13 amphibians, 205 birds, 33 mammals, 42 reptiles) that occur within 10km of the Park, 102 fauna species were observed in the Park (excluding fish and invertebrates). This accounts for approximately one third of the total species recorded locally. Six of the eleven introduced species recorded locally were found in the Park. With regard to previous surveys in the Park (Hart *et al*. 1997), an additional 26 species of amphibians, mammals and reptiles were found in the current survey. Fifty-nine birds were also found in the Park; birds were not surveyed in the 1997 report.

Of the fauna recorded eight species are of conservation significance and are listed by state and/or federal agencies as migratory, vulnerable or endangered. While not recorded to date, there is potential for several other species of conservation significance to also be present.

The Park is likely to be high importance for the persistence of conservation significant fauna in the local area, supporting resident populations of Western Ringtail Possums, Southern Brown Bandicoots and Western False Pipistrelle, all of which are species thought to be in decline in other parts of their respective ranges. The Park also represents a significant habitat resource for all three species of black cockatoos. All three species were recorded as foraging in the Park and the potential exists for some species (e.g. the Forest Red-tailed Black Cockatoo) to also breed in the area. The conservation significance of Meelup Regional Park has obviously been previously recognised and it now represents the largest coastal reserve located on Geographe Bay within the City of Busselton.

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APPENDIX A VEGETATION ASSOCIATIONS WITHIN THE PARK

Vegetation associations (from Webb 2013[3]):

- Jarrah, Marri Forests (Map 3 communities 1, 1b, 2, 2b)

The Jarrah and Marri open forests (trees > 10m, 30-70% cover) of the reserve system are found in the uplands and upper slopes on relatively deep lateritic profile. The uplands are predominantly a heavy lateritic gravelly loam with an understorey dominated by *Calothamnus sanguines*. Near Eagle Bay and the shady northern valley slopes of the Meelup Brook the soils are more of a sandy loam and dominated by Marri with a lesser extent of Jarrah and often Peppermint (*Agonis flexuosa*). The understorey of this community is dominated by *Xanthorrhoea preissii*. These open forest communities are mapped as Communities 1 and 2 respectively.

Both these forms of forest community extend into the mid and lower slopes of the reserve on gentle valley slopes, although with soils becoming shallow over underlying rock the trees become shorter and sparser resembling a low open forest structure (trees <10m, 70-30% cover). The mid to lower slopes of the reserves northern extent adjacent to Eagle Bay are low open forests predominantly on loam soils with small areas of exposed granite and an open understorey with an increasing dominance of shrubs such as *Thomasia foliosa* and the herb *Dampiera lindleyii* reflecting poor drainage. The reserves southern mid to lower slope low open forests are predominantly on lateritic soils; these forests have small areas of exposed granite and occasional areas of poor drainage where the forest becomes sparse and the understorey rich in annually renewed herbs. These low open forests are mapped as Communities 2b and 1b respectively.

The southern most mapped occurrence of Jarrah, Marri low open forest on loam soils (community 2b, Map 3) is unusual in that the community has *Allocasuarina fraseriana* as a dominant tree species. This is the only location in the Meelup reserve system that this tree occurs.

Dominant taxa of the Meelup Jarrah, Marri forest communities include:

Trees: *Corymbia calophylla, Eucalyptus marginata, Agonis flexuosa, Persoonia longifolia*

Shrubs: *Acacia pulchella, Banksia dallanneyi, Bossiaea ornata, Calothamnus sanguines, Chorizema rhombeum, Gompholobium polymorphum, Hakea amplexicaulis, H.lissocarpa, Hibbertia commutata, H.cunninghammii, H.hypericoides, Hovea trisperma, Hypocalymma angustifolia, Pimelea preissii, Philotheca spicatum, Synaphea gracillima, Xanthorrhoea gracilis, X.preissii*

In the sandy loam community *Bossiaea linophylla, Chorizema cordatum, Hibbertia racemosa, Hovea elliptica, Macrozamia reidlei* and *Thomasia foliosa* become more common

Sedges: *Desmocladus fascicularis, Lepidosperma leptostachya, Mesomelaena tetragona, Tetraria capillaris, T.octandra*

Herbs: *Burchardia congesta, Caesia micrantha, Chaemascilla corymbosa, Dampiera linearis, Lagenifera huegelii, Lomandra caespitosa, L.micrantha, L.sericea, Opercularia echinocephala, Patersonia babionoides, Pentapeltis peltigera, Scaveola calliptera, Stylidium amoenum, Trichocline spathulata, Xanthosia candida*

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Dichopogon capillipes is common in the sandy loam community

Grasses: *Austrodanthonia setacea, Neurachne alopecuroidea, Tetrarrhena laevis*. With *Microlaena stipoides* common in the sandy loam community.

- Jarrah, Marri Woodland (Map 3 community 4)

In mid to lower slope areas of the Meelup Reserve system where soils become particularly shallow over granite and occasionally massive laterite the trees become sparse, low in height and often multi-stemmed. Jarrah and Marri are still the dominant tree species, but this association also supports solitary populations of *Eucalyptus virginea* and *E.phylacis*. This low woodland to open mallee vegetation (trees <10m, 10-30% cover) is often over a diverse closed heath understorey (shrubs <1m, 100-70% cover) on either a heavy lateritic gravelly loam or a less gravelly sandy loam.

This community can have a high degree of similarity with open forms of the low open forest vegetation. In some areas, particularly between Castle Bay Road and Meelup Brook, it is difficult to distinguish between the two forms of vegetation. Generally the understorey of the woodland community differs from that of the forest community by an increasing abundance of species typically associated with the Meelup granitic heath vegetation. An approximate extent of this woodland vegetation is shown in Map 3.

Common taxa of the woodland vegetation can include:

Trees: *Banksia grandis, Corymbia calophylla, Eucalyptus marginata, Nuytsia floribunda, Persoonia longifolia*

Shrubs*: Acacia stenoptera, Allocasuarina humilis, Astroloma ciliatum, Banksia dallanneyi, Calothamnus sanguines, Cryptandra arbutifolia, Darwinia vestita, Daviesia horrida, Daviesia preissii, Gastrolobium spinosum, Gompholobium marginata, Grevillea quercifolia, G.trifida, Hakea lissocarpa, H.trifurcata, Hibbertia cunninghammii, H.hypericoides, Hypocalymma angustifolia, Jacksonia alata, Melaleuca systena, Petrophile striata, Philotheca spicata, Stachystemon virgatus, Synaphea gracillima, Trymalium ledifolium, Xanthorrhoea gracilis, X.preissii.*

Herbs*: Chaemascilla corymbosa, Conostylis setigera, Dampiera linearis, Laxmannia sessiliflora, Levenhookia pussila, Lomandra hermaphrodita, L.micrantha, L.sericea, Patersonia juncea, P.occidentalis, Stylidium repens, Xanthosia candida, X.huegelii*

Sedges*: Desmocladus fascicularis, Lepidosperma squamata, Mesomelaena tetragona, Schoenus aff. subflavus, S.nanus, Tetraria capillaris, T.octandra*

Grasses*: Neurachne alopecuroidea*

- Banksia Woodland (Map 3 community 3)

Adjacent to Eagle Bay and to the north of Dunsborough townsite (near Bird Crescent and Cape Naturaliste Road) can be found areas of grey sandy soil that are dominated by Peppermint and Marri often with *Banksia attenuata* and occasionally *Eucalyptus patens*. The vegetation ranges from a low woodland (trees <10m, 30-10% cover) adjacent to Eagle Bay to predominantly a low open forest (trees <10m, 70-30% cover) near Dunsborough. The vegetation is found in a mid to lower slope position with the presence of *E.patens* and occasionally *Banksia littoralis* indicating poor drainage at depth, most likely as a result of the sand overlying relatively impermeable lateritic soil and/or granitic rock.

All occurrences of these grey sands are associated with wetland features lower in the landscape; the deep sands adjacent to Eagle Bay terminate at the permanent groundwater expression locally known as Kangaroo seep, the sandy soils adjacent to Bird Crescent become an unnamed creekline and the Cape Naturaliste Rd occurrence of these soils become a branch of Dandatup Brook.

The woodland vegetation found on these sandy soils can commonly include:

Trees: *Agonis flexuosa, Banksia attenuata, B.littoralis, Corymbia calophylla, Eucalyptus patens, Nuytsia floribunda*

Shrubs: *Acacia pulchella, Adenanthos meisneri, Bossiaea eriocarpa, Hibbertia hypericoides, Gompholobium tomentosum, Isotropis cuneifolia, Jacksonia furcellata, Leucopogon propinquus, Melaleuca scabra, M.thymoides, Phyllanthus calycinus, Pimelea rosea, Stirlingia latifolia*

Herbs: *Anigozanthos manglesii, Asteridea pulverulenta, Dasypogon bromelifolius, Hydrocotyle callicarpa, Hypocharis glabra*, Lomandra micrantha, Patersonia occidentalis, Phlebocarya ciliata, Podotheca angustifolia, Rhodanthe citrina, Sowerbaea laxiflora, Stackhousia monogyna, Trachymene pilosa*

Sedges: *Hypolaena exsulca, Lyginia barbarta, Schoenus curvifolius*

Grasses: *Microlaena stipoides*

Keating and Trudgen (1986) in their mapping of plant communities indicate that Banksia littoralis was once common in this type of vegetation. Plants of this species are now rare, most likely a result of Phytophthora dieback impact.

- Granitic Heath (Map 3 community 6)

In lower to mid slope areas where lateritic and/or loamy soils are very shallow over granite, often intermingling with the Jarrah, Marri woodland association a closed low heath (shrubs <1m, 100-70% cover) will form dominated primarily by *Gastrolobium spinosum, Allocasuarina humilis* and *Dodonaea ceratocarpa.* The southern extents of this vegetation are often also dominated by *Dillwynia laxiflora* which together with *Gastrolobium spinosum* is generally absent from occurrences of the community in the reserves northern extent. In places this community will support occasional plants of *Calothamnus graniticus ssp. graniticus*. This particular type of vegetation supports a range of species many of which are otherwise uncommon in the Meelup reserve system and the larger Leeuwin block landform.

Common species of this association can include:

Trees: *Banksia grandis, Corymbia calophylla, Nuytsia floribunda* (trees when present are very occasional)

Shrubs: *Acacia nervosa, Allocasuarina humilis, Astroloma pallida, Banksia dallanneyi, Boronia tenuis, Calothamnus sanguines, Chorizema aciculare, Cryptandra arbutiflora, Darwinia citriodora, D.vestita, Daviesia horrida, Dillwynia laxiflora, Dodonaea ceratocarpa, Gastrolobium spinosum, Grevillea trifida, Hakea trifurcata, Hibbertia cunninghamii, H.hypericoides, H.spicata, Leucopogon tenuis, Lysinema pentapetalum, Melaleuca systena, Petrophile striata, Pimelea imbricata, Stachystemon virgatus, Synaphea gracillima, Trymalium ledifolium, Xanthorrhoea gracilis, X.preissii*

Herbs: *Burchardia congesta, Comesperma ciliatum, Conostylis setigera, Chaemascilla corymbosa, Laxmannia sessiliflora, Lomandra sericea, Patersonia babianoides, Platysace haplosciadia, Stylidium megacarpum, S.repens, Xanthosia candida, X.huegelii*

Sedges: *Desmocladus fasciculatus, Lepidosperma squamata, Schoenus clandestinus, Tetraria octandra*

Grasses: *Neurachne alopecuroidea*

- *Calothamnus graniticus* Closed Heath (Map 3 community 5)

In areas of massive exposed granite either as small or large boulders with pockets of shallow loam soil the vegetation is dominated by a closed to open heath (shrubs 1-2m, 100-70% or 70-30% cover) of the Leeuwin Block endemic *Calothamnus graniticus ssp. graniticus*. This vegetation is predominantly found

low in the landscape adjacent to the coast but can also be found in some isolated upper slope areas where exposed granitic boulders are dominant.

Common taxa in this vegetation can include:

Trees: very occasional *Corymbia calophylla*

Shrubs: *Boronia tenuis, Calothamnus graniticus ssp. graniticus, Chorizema aciculare, Commersonia cygnorum, Darwinia citriodora, Dodonaea ceratocarpa, Hakea trifurcata, Hibbertia cunninghamii, H.hypericoides, H.spicata ssp. spicata, Melaleuca systena, Phyllanthus calycinus, Thryptomene saxicola, Xanthorrhoea preissii Herbs: Burchardia congesta, Caladenia caesarea ssp. maritima, Cheilanthes austrotenuifolia, Conostylis setigera, Laxmannia sessiliflora, Lomandra micrantha, Stylidium affine, S.megacarpum, S.repens, Stypandra glauca, Xanthosia candida*

Sedges: *Lepidosperma squamata, Tetraria octandra*

Grasses: *Neurachne alopecuroidea*

- Granitic Apron (Map 3 community 7)

On the lowest slopes of the Meelup reserve system within the vicinity of the coast and also fringing the informally named Stoney Creek can be found relatively small deposits of clay soil overlying shallow granite that are saturated in winter months. These soils are mostly dominated by a low shrubland (shrubs <1m, 30-10% cover) over a diverse range of annually renewed herbs in the spring months. In some areas such as adjacent to Curtis Bay and near Eagle Bay the vegetation on these seasonally wet clays are dominated by an open heath (shrubs 1-2m, 70-30% cover) of mostly wetland dependent shrubs.

Examples of this community are often small in size. Good examples of this granitic apron vegetation can be found both sides of Curtis Bay and adjacent to Meelup Drive west of Point Picquet. The largest and most intact example of the community is found adjacent to Stoney Creek. It is also possible that another large occurrence of this vegetation is found in private land due west of Rocky Point.

Common taxa in this association can include:

Trees: *Melaleuca viminea*

Shrubs: *Acacia saligna, Babingtonia camphorosmae, Daviesia horrida, Dodonaea ceratocarpa, Exocarpos odoratus, Phyllanthus calycinus, Spyridium globulosum, Thomasia foliosa, Viminaria juncea, Xanthorrhoea preissii*

Herbs: *Aphelia cyperoides, Borya scirpoidea, Caladenia caesarea ssp. maritima, Centrolepis aristata, Chaemascilla corymbosa, Cicienda filiformis, Dampieria lindleyii, Drosera gigantea, Haemodorum simplex, Hydrocotyle alata, H.callicarpa, Lysimachia arvensis*, Parentucellia latifolia*, Patersonia occidentalis, Podolepis lessonii, Quinetia urvillei, Stylidium crassifolium, Tribonanthes australis*

Sedges: *Chorizandra enodis, Lepidosperma longitudinale, Mesomelaena tetragona, Schoenus asperocarpus, S.bifidus, S.nanus, S.odontocarpus*

Grasses: *Aira caryophyllea*, Briza minor*, Neurachne alopecuroidea*

- Creeklines (Map 3 community 8)

There are a number of seasonal creeklines within Meelup reserve although only two of them seem to be formally named being Meelup Brook and Dolugup Brook (entering the ocean at Meelup Beach and Castle Bay respectively). Meelup and Dolugup Brooks are the largest creeklines of the Meelup reserve system and in areas maintain year round subsoil moisture indicated by the presence of Lepidosperma

tetraquetrum. In addition to creeklines the reserve also supports a permanently wet groundwater seep locally known as Kangaroo seep.

The creeklines of the Meelup reserve system are characterised by loam soils and Kangaroo seep by course grey loamy sand. Meelup Brook and Dolugup Brook are characterised by an overstorey of *Eucalyptus patens, Agonis flexuosa,* and *Corymbia calophylla* with *E.rudis ssp. cratyantha* becoming common in the Brook's lower reaches.

Kangaroo seep is an area of permanent groundwater expression at the base of a Banksia woodland most likely caused by the grey sands becoming shallow over a less permeable soil layer. A dam has been dug into the seep but the remaining vegetation is dominated by a *Baumea rubiginosa* closed sedgeland in the permanently inundated areas which is fringed by the sedges *Cyathochaeta avenacea* and *Lepidosperma pubisquameum* under an overstorey of *Agonis flexuosa*, *Viminaria juncea* and *Acacia divergens*.

The less pronounced creeklines of Meelup reserve are characterised by tree and shrub species that favour moist shaded valleys, *E.patens* if present in these smaller systems will only be found in their lowest reaches. The smallest of the creeklines can often only be distinguished from the adjacent plant communities by species such as *Viminaria juncea, Stylidium crassifolium* and *Philydrella drummondii* within the seasonal drainage channel. The informally named Stoney Creek near Eagle Bay townsite cuts through a rocky valley and is dominated by a *Melaleuca viminea* overstorey over an open understorey of predominantly herbs and sedges (*Dichopogon preissii, Samolus junceus, Lepidosperma longitudinale, Chorizandra enodis*).

Some of the characteristic taxa of the Meelup creeklines include:

Trees: *Agonis flexuosa, Corymbia calophylla, Eucalyptus patens, Melaleuca viminea*

Shrubs: *Acacia alata, A.divergens, A.saligna, Bossiaea linophylla, Hibbertia cuneiformis, Hovea elliptica, Logania vaginalis, Hemigenia incana, Leucopogon hirsutus, Melaleuca incana, Mirbelia dilitata, Myoporum oppositifolium, Paraserianthes lophantha, Tremandra diffusa, Viminaria juncea*

Herbs: *Adiantum aethiopicum, Anigozanthus flavidus, Dampiera trigona, Dichondra repens, Liparophyllaum latifolium, Oxalis perennans, Pteridium esculentum, Trihaloragis hexandra*

Sedges: *Baumea juncea, Juncus pallidus, Lepidosperma longitudinale, L.tetraquetrum*

Grasses: *Microlaena stipoides, Tetrahaena laevis*

- Coastal Vegetation (Map 3 community 9)

With the exception of vegetated foredunes on small beaches, coastal vegetation is otherwise rare within the Meelup reserve system. The reserve's coastal fringe is predominantly combinations of the above described vegetation associations, in particular the *Calothamnus graniticus* heath, the granitic apron and the jarrah, marri forest vegetation.

The jarrah, marri forest vegetation when near the coast is generally on loamy soils and dominated by marri and peppermint. The coastal occurrences of these vegetation associations will typically include several species that within Meelup are only restricted to the coastline.

As mentioned the Meelup reserve system only has small areas of true coastal vegetation on calcareous sands and these are generally dominated by an *Acacia cochlearis, A.cyclops, Spyridium globulosum* open heath over *Lepidosperma gladiatum* sedges.

Apart from coastal weeds, the following native species are some of the taxa within the Meelup reserve system that are only found in the vicinity of the coast, be that both on calcareous sands and within coastal fringing examples of other vegetation associations:

Trees: *Melaleuca lanceolata*

Shrubs: *Acacia cochlearis, A.cyclops, Acanthocarpus preissii, Anthocercis littorea, Beyeria* viscosa, *Chorizema diversifolium, Diplolaena dampieri, Enchylaena tomentosa, Exocarpos sparteus,Frankenia pauciflora, Hakea prostrata, Leucopogon parviflorus, Muehlenbeckia adpressa, Olearia axillaris, Pimelea ferruginea, Pittosporum ligustrifolium, Rhagodia baccata, Scaevola crassifolia, Billardiera fusiformis, Spyridium globulosum, Templetonia retusa*

Herbs: *Apium prostratum, Carpobrotus virescens, Sarcocornia blackiana Sedges: Ficinia nodosa, Juncus kraussii, Lepidosperma gladiatum*

Grasses: *Poa poiformis, Spinifex hirsutus, Sporobolus virginicus, Themeda triandra*

APPENDIX B FAUNA OBSERVED OR POTENTIALLY IN THE STUDY AREA

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Class	Family	Common Name	*Genus and Species*	Status	Species recorded	ALA (2014)	ATA (2006) Smiths Beach	Beatty et al. (2006) Cape Naturaliste	BSD (2003) Eagle Bay	Christensen et al (1985) Boranup	Clay Toby Inlet (2000)	ENV (2007) Busselton to Margaret River	Harewood (2005) Eagle Bay	Harewood (2008) Gracetown	Harewood (2014) Yoongarillup	Hart et al (1997)	How (1987) Cape Naturaliste	McAlpine (1989) Vasse Wonnerup	Environmental Services (2006) Cape Naturaliste	Naturemap (2014)
Amphibians	Hylidae	Slender Tree Frog	*Litoria adelaidensis*	LC	**X**	X					X	X	X			X	X			X
Amphibians	Hylidae	Motorbike Frog	*Litoria moorei*	LC					X		X	X	X				X			
Amphibians	Myobatrachidae	Quacking Frog	*Crinia georgiana*	LC	**X**	X			X		X	X	X			X				X
Amphibians	Myobatrachidae	Glauert's Froglet	*Crinia glauerti*	LC	**X**				X			X	X			X				X
Amphibians	Myobatrachidae	Squelching Froglet	*Crinia insignifera*	LC	**X**							X			X					
Amphibians	Myobatrachidae	Bleating Froglet	*Crinia pseudinsignifera*	LC		X					X									X
Amphibians	Myobatrachidae	Lea's Frog	*Geocrinia leai*	LC	**X**						X	X				X				
Amphibians	Myobatrachidae	Moaning Frog	*Heleioporus eyrei*	LC	**X**		X			X	X	X			X	X	X			X
Amphibians	Myobatrachidae	Whooping Frog	*Heleioporus inornatus*	LC		X						X				X	X			X
Amphibians	Myobatrachidae	Banjo Frog	*Limnodynastes dorsalis*	LC		X	X			X	X	X	X	X	X	X				X
Amphibians	Myobatrachidae	Nicholls' Toadlet	*Metacrinia nichollsi*	LC		X					X	X			X	X	X			X
Amphibians	Myobatrachidae	Turtle Frog	*Myobatrachus gouldii*	LC																X
Amphibians	Myobatrachidae	Guenther's Toadlet	*Pseudophryne guentheri*	LC	**X**	X							X			X	X			X
Birds	Acanthizidae	Shy Heathwren	*Hylacola cautus*	LC		X														
Birds	Accipitridae	Collared Sparrowhawk	*Accipiter cirrocephalus*	LC	**X**	X									X					X
Birds	Accipitridae	Brown Goshawk	*Accipiter fasciatus*	LC	**X**	X							X							X
Birds	Accipitridae	Wedge-tailed Eagle	*Aquila audax*	LC	**X**	X							X		X					X
Birds	Accipitridae	Little Eagle	*Aquila morphnoides*	LC		X								X						
Birds	Accipitridae	Swamp Harrier	*Circus approximans*	LC		X														X
Birds	Accipitridae	Black-shouldered Kite	*Elanus caeruleus*	LC		X						X								
Birds	Accipitridae	Whistling Kite	*Haliastur sphenurus*	LC		X	X			X										X
Birds	Accipitridae	Square-tailed Kite	*Hamirostra isura*	LC	**X**	X								X						
Birds	Aegothelidae	Australian Owlet-nightjar	*Aegotheles cristatus*	LC	**X**															
Birds	Anatidae	Chestnut Teal	*Anas castanea*	LC																
Birds	Anatidae	Grey Teal	*Anas gracilis*	LC		X						X						X		X
Birds	Anatidae	Mallard	*Anas platyrhynchos*	LC																X
Birds	Anatidae	Australasian Shoveler	*Anas rhynchotis*	LC		X														X
Birds	Anatidae	Pacific Black Duck	*Anas superciliosa*	LC	**X**	X						X	X					X	X	X
Birds	Anatidae	Hardhead	*Aythya australis*	LC		X														
Birds	Anatidae	Musk Duck	*Biziura lobata*	LC		X												X	X	X
Birds	Anatidae	Recherche Cape Barren Goose	*Cereopsis novaehollandiae subsp. Grisea*	S1 VU LC																X
Birds	Anatidae	Australian Wood Duck	*Chenonetta jubata*	LC		X						X	X		X				X	X
Birds	Anatidae	Black Swan	*Cygnus atratus*	LC		X												X	X	X
Birds	Anatidae	Pink-eared Duck	*Malacorhynchus membranaceus*	LC		X														
Birds	Anatidae	Blue-billed Duck	*Oxyura australis*	NT																X
Birds	Anatidae	Australian Shelduck	*Tadorna tadornoides*	LC		X						X			X			X		X
Birds	Anhingidae	Darter	*Anhinga melanogaster*	LC		X													X	
Birds	Anhingidae	Australasian Darter	*Anhinga novaehollandae*	LC		X														
Birds	Ardeidae	Great Egret	*Ardea alba*	S3 Mig CA JA LC		X														X
Birds	Ardeidae	Cattle Egret	*Ardea ibis*	S3 Mig CA JA LC		X														
Birds	Ardeidae	White-necked Heron	*Ardea pacifica*	LC		X														X
Birds	Ardeidae	Australasian Bittern	*Botaurus poiciloptilis*	S1 EN En																
Birds	Ardeidae	White-faced Heron	*Egretta novaehollandiae*	LC		X						X	X		X				X	
Birds	Ardeidae	Eastern Reef Egret	*Egretta sacra*			X														
Birds	Ardeidae	Rufous Night Heron	*Nycticorax caledonicus*	LC	**X**															
Birds	Artamidae	Black-faced Woodswallow	*Artamus cinereus*	LC		X						X								X
Birds	Artamidae	Dusky Woodswallow	*Artamus cyanopterus*	LC		X				X				X						X
Birds	Artamidae	Pied Butcherbird	*Cracticus nigrogularis*	LC		X														X
Birds	Artamidae	Australian Magpie	*Cracticus tibicen*	LC	**X**	X	X			X		X	X	X	X					X
Birds	Artamidae	Grey Butcherbird	*Cracticus torquatus*	LC	**X**	X	X					X			X					X
Birds	Artamidae	Grey Currawong	*Strepera versicolor*	LC		X				X					X					X
Birds	Burhinidae	Bush Stone-Curlew	*Burhinus grallarius*	P4 LC		X														
Birds	Cacatuidae	Western Long-billed Corella	*Cacatua pastinator*	LC		X														X

Class	Family	Common Name	*Genus and Species*	Status	Species recorded	ALA (2014)	ATA (2006) Smiths Beach	Beatty et al. (2006) Cape Naturaliste	BSD (2003) Eagle Bay	Christensen et al (1985) Boranup	Clay Toby Inlet (2000)	ENV (2007) Busselton to Margaret River	Harewood (2005) Eagle Bay	Harewood (2008) Gracetown	Harewood (2014) Yoongarillup	Hart et al (1997)	How (1987) Cape Naturaliste	McAlpine (1989) Vasse Wonnerup	Environmental Services (2006) Cape Naturaliste	Naturemap (2014)
Birds	Cacatuidae	Little Corella	*Cacatua sanguinea*	LC								X								X
Birds	Cacatuidae	Forest Red-tailed Black Cockatoo	*Calyptorhynchus banksii naso*	S1 VU Vu LC	**X**	X						X			X					X
Birds	Cacatuidae	Baudin's Cockatoo	*Calyptorhynchus baudinii*	S1 VU Vu C2a(ii)	**X**	X	X			X		X	X	X	X					X
Birds	Cacatuidae	Carnaby's Cockatoo	*Calyptorhynchus latirostris*	S1 EN En A2bcde+3bcde+4bcde	**X**	X									X					X
Birds	Cacatuidae	Galah	*Eolophus roseicapilla*	LC	**X**	X						X	X							
Birds	Campephagidae	Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	LC	**X**	X	X			X		X	X	X	X					X
Birds	Campephagidae	White-winged Triller	*Lalage sueurii*	LC		X														
Birds	Caprimulgidae	Spotted Nightjar	*Eurostopodus argus*	LC																
Birds	Casuariidae	Emu	*Dromaius novaehollandiae*	LC						X		X			X					
Birds	Charadriidae	Greater Sand Plover	*Charadrius leschenaultii*	Mig JA CA ROK LC																X
Birds	Charadriidae	Black-fronted Dotterel	*Charadrius melanops*	LC		X														
Birds	Charadriidae	Lesser Sand Plover	*Charadrius mongolus*	S1 EN LC																X
Birds	Charadriidae	Hooded Plover	*Charadrius rubricollis*	P4 Vu C1		X														X
Birds	Charadriidae	Red-capped Plover	*Charadrius ruficapillus*	LC		X												X		X
Birds	Charadriidae	Masked Lapwing	*Vanellus miles*	LC																
Birds	Charadriidae	Banded Lapwing	*Vanellus tricolor*	LC		X														
Birds	Climacteridae	Rufous Treecreeper	*Climacteris rufa*	LC	**X**															X
Birds	Columbidae	Domestic Pigeon	*Columba livia*	Introduced		X														X
Birds	Columbidae	Crested Pigeon	*Ocyphaps lophotes*	LC		X									X					X
Birds	Columbidae	Common Bronzewing	*Phaps chalcoptera*	LC	**X**	X				X			X	X	X					X
Birds	Columbidae	Brush Bronzewing	*Phaps elegans*	LC		X	X			X				X						X
Birds	Columbidae	Laughing Turtle-Dove	*Streptopelia senegalensis*	Introduced		X														X
Birds	Corvidae	Little Crow	*Corvus bennetti*	LC																
Birds	Corvidae	Australian Raven	*Corvus coronoides*	LC	**X**	X	X			X		X	X	X	X					X
Birds	Cuculidae	Fan-tailed Cuckoo	*Cacomantis flabelliformis*	LC	**X**	X				X		X	X	X						X
Birds	Cuculidae	Horsfield's Bronze Cuckoo	*Chrysococcyx basalis*	LC		X				X				X						X
Birds	Cuculidae	Shining Bronze Cuckoo	*Chrysococcyx lucidus*	LC	**X**	X								X	X					
Birds	Cuculidae	Pallid Cuckoo	*Cuculus pallidus*	LC	**X**	X														X
Birds	Dasyornithidae	Rufous Bristlebird	*Dasyornis broadbenti subsp. litoralis*	EX																X
Birds	Dicaeidae	Mistletoebird	*Dicaeum hirundinaceum*	LC																
Birds	Dicruridae	Magpie-lark	*Grallina cyanoleuca*	LC		X				X		X	X		X					X
Birds	Dicruridae	Grey Fantail	*Rhipidura fuliginosa*	LC	**X**	X	X			X		X	X	X	X					
Birds	Dicruridae	Willie Wagtail	*Rhipidura leucophrys*	LC	**X**	X	X			X		X		X	X					X
Birds	Diomedeidae	Wandering Albatross	*Diomedea exulans*	S1 VU Vu A4bd																X
Birds	Diomedeidae	Indian Yellow-nosed Albatross	*Thalassarche carteri*	S1 EN En A4bde																X
Birds	Diomedeidae	Shy Albatross	*Thalassarche cauta*	S1 VU NT																X
Birds	Diomedeidae	Atlantic Yellow-nosed Albatross	*Thalassarche chlororhynchos*	S1 VU En A4bd;B2ab(v)		X														X
Birds	Falconidae	Brown Falcon	*Falco berigora*	LC		X	X			X										X
Birds	Falconidae	Australian Kestrel	*Falco cenchroides*	LC		X	X			X		X	X							X
Birds	Falconidae	Australian Hobby	*Falco longipennis*	LC		X						X								X
Birds	Falconidae	Peregrine Falcon	*Falco peregrinus*	S4 LC		X														X
Birds	Halcyonidae	Blue-winged Kookaburra	*Dacelo leachii*	LC																X
Birds	Halcyonidae	Laughing Kookaburra	*Dacelo novaeguineae*	Introduced	**X**	X	X			X		X	X	X	X					X
Birds	Halcyonidae	Sacred Kingfisher	*Todiramphus sanctus*	LC	**X**	X				X										X
Birds	Hirundinidae	Welcome Swallow	*Hirundo neoxena*	LC	**X**	X	X					X	X	X	X					X
Birds	Hirundinidae	Tree Martin	*Hirundo nigricans*	LC	**X**	X						X	X		X					
Birds	Hirundinidae	Fairy Martin	*Petrochelidon ariel*	LC		X														
Birds	Hydrobatidae	Wilson's Storm Petrel	*Oceanites oceanicus*	Mig JA LC		X														X
Birds	Laridae	Silver Gull	*Larus novaehollandiae*	LC	**X**	X	X							X						X
Birds	Laridae	Pacific Gull	*Larus pacificus*	LC	**X**	X														X

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Birds	Maluridae	Red-winged Fairy-wren	*Malurus elegans*	LC						X		X			X					X
Birds	Maluridae	Splendid Fairy-wren	*Malurus splendens*	LC	**X**	X	X			X		X	X	X	X					X
Birds	Maluridae	Southern Emu-wren	*Stipiturus malachurus*	LC	**X**		X			X			X	X						X
Birds	Megapodiidae	Malleefowl	*Leipoa ocellata*	S1 VU Vu A2bce+3ce+4bce		X														X
Birds	Meliphagidae	Western Spinebill	*Acanthorhynchus superciliosus*	LC	**X**	X	X						X		X					X
Birds	Meliphagidae	Red Wattlebird	*Anthochaera carunculata*	LC	**X**	X	X			X		X	X	X	X					X
Birds	Meliphagidae	Western Little Wattlebird	*Anthochaera lunulata*	LC		X														X
Birds	Meliphagidae	White-fronted Chat	*Epthianura albifrons*	LC		X														X
Birds	Meliphagidae	Tawny-crowned Honeyeater	*Gliciphila melanops*																	
Birds	Meliphagidae	Singing Honeyeater	*Lichenostomus virescens*	LC		X	X													
Birds	Meliphagidae	Brown Honeyeater	*Lichmera indistincta*	LC	**X**	X	X						X		X					X
Birds	Meliphagidae	Brown-headed Honeyeater	*Melithreptus brevirostris*	LC		X														
Birds	Meliphagidae	Western White-naped Honeyeater	*Melithreptus chloropsis*	LC						X										X
Birds	Meliphagidae	White-naped Honeyeater	*Melithreptus Lunatis*			X														
Birds	Meliphagidae	Tawny-crowned Honeyeater	*Phylidonyris melanops*	LC																X
Birds	Meliphagidae	White-cheeked Honeyeater	*Phylidonyris nigra*	LC		X														X
Birds	Meliphagidae	New Holland Honeyeater	*Phylidonyris novaehollandiae*	LC	**X**	X	X			X			X	X	X					X
Birds	Meropidae	Rainbow Bee-eater	*Merops ornatus*	S3 Mig JA LC	**X**	X						X	X	X	X					X
Birds	Monarchidae	Restless Flycatcher	*Myiagra inquieta*	LC																X
Birds	Motacillidae	Australian Pipit	*Anthus novaeseelandiae*	LC		X				X		X		X	X					X
Birds	Neosittidae	Varied Sittella	*Daphoenositta chrysoptera*	LC	**X**	X						X			X					X
Birds	Pachycephalidae	Grey Shrike-thrush	*Colluricincla harmonica*	LC	**X**	X						X	X	X	X					X
Birds	Pachycephalidae	Golden Whistler	*Pachycephala pectoralis*	LC	**X**	X	X			X		X	X	X	X					X
Birds	Pachycephalidae	Rufous Whistler	*Pachycephala rufiventris*	LC		X				X					X					X
Birds	Pandionidae	Osprey	*Pandion haliaetus*	LC	**X**	X														
Birds	Pardalotidae	Broad-tailed Thornbill	*Acanthiza apicalis*	LC	**X**	X	X			X		X	X	X	X					X
Birds	Pardalotidae	Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*	LC	**X**	X						X	X		X					X
Birds	Pardalotidae	Western Thornbill	*Acanthiza inornata*	LC	**X**	X	X						X							X
Birds	Pardalotidae	Western Gerygone	*Gerygone fusca*	LC	**X**	X						X	X	X	X					X
Birds	Pardalotidae	Spotted Pardalote	*Pardalotus punctatus*	LC		X														X
Birds	Pardalotidae	Striated Pardalote	*Pardalotus striatus*	LC	**X**	X						X	X		X					X
Birds	Pardalotidae	White-browed Scrubwren	*Sericornis frontalis*	LC	**X**	X	X			X		X	X	X	X					X
Birds	Pardalotidae	Weebill	*Smicrornis brevirostris*	LC	**X**	X						X			X					X
Birds	Passeridae	Red-eared Firetail	*Stagonopleura oculata*	LC		X														X
Birds	Pelecanoididae	Common Diving Petrel	*Pelecanoides urinatrix subsp. exsul*	LC																X
Birds	Pelecanoididae	Australian Pelican	*Pelecanus conspicillatus*	LC		X														X
Birds	Petroicidae	Western Yellow Robin	*Eopsaltria australis*	LC	**X**	X						X	X		X					X
Birds	Petroicidae	White-breasted Robin	*Eopsaltria georgiana*	LC	**X**	X	X			X		X	X	X						X
Birds	Petroicidae	Scarlet Robin	*Petroica multicolor*	LC	**X**	X	X			X		X	X		X					X
Birds	Phaethontidae	Red-tailed Tropicbird	*Phaethon rubricauda*	LC		X														X
Birds	Phalacrocoracidae	Great Cormorant	*Phalacrocorax carbo*	LC		X														X
Birds	Phalacrocoracidae	Little Pied Cormorant	*Phalacrocorax melanoleucos*	LC		X														
Birds	Phalacrocoracidae	Little Black Cormorant	*Phalacrocorax sulcirostris*	LC		X							X							X
Birds	Phalacrocoracidae	Pied Cormorant	*Phalacrocorax varius*	LC	**X**	X														X
Birds	Phasianidae	Stubble Quail	*Coturnix pectoralis*	LC		X									X					X
Birds	Phasianidae	Brown Quail	*Coturnix ypsilophora*	LC																X
Birds	Phasianidae	Common Pheasant*	*Phasianus colchicus*	LC		X														
Birds	Podargidae	Tawny Frogmouth	*Podargus strigoides*	LC		X	X			X										X
Birds	Podicipedidae	Hoary-headed Grebe	*Poliocephalus poliocephalus*	LC		X														X
Birds	Podicipedidae	Australasian Grebe	*Tachybaptus novaehollandiae*	LC	**X**	X												X		X
Birds	Procellariidae	Wedge-tailed Shearwater	*Ardenna pacifica*	LC		X														
Birds	Procellariidae	Short-tailed Shearwater	*Ardenna tenuirostris*	S3 LC		X														
Birds	Procellariidae	Southern Fulmar	*Fulmarus glacialoides*	LC																X

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Birds	Procellariidae	Southern Giant Petrel	*Macronectes giganteus*	P4 LC																X
Birds	Procellariidae	Antarctic Prion	*Pachyptila desolata*	LC		X														
Birds	Procellariidae	Little Shearwater	*Puffinus assimilis*	LC																X
Birds	Procellariidae	Hutton's Shearwater	*Puffinus huttoni*	S1 EN En B2ab(ii,iii)																X
Birds	Psittacidae	Purple-crowned Lorikeet	*Glossopsitta porphyrocephala*	LC	**X**	X						X			X					X
Birds	Psittacidae	Elegant Parrot	*Neophema elegans*	LC		X	X						X	X	X					X
Birds	Psittacidae	Rock Parrot	*Neophema petrophila*	LC																X
Birds	Psittacidae	Western Rosella (Western ssp)	*Platycercus icterotis icterotis*	LC	**X**	X	X			X		X	X	X						X
Birds	Psittacidae	Red-capped Parrot	*Platycercus spurius*	LC	**X**	X	X					X	X	X	X					
Birds	Psittacidae	Australian Ringneck Parrot	*Platycercus zonarius*	LC	**X**	X	X			X		X	X	X						X
Birds	Psittacidae	Regent Parrot	*Polytelis anthopeplus*	LC		X														X
Birds	Rallidae	Eurasian Coot	*Fulica atra*	LC		X														X
Birds	Rallidae	Dusky Moorhen	*Gallinula tenebrosa*	LC		X												X		X
Birds	Rallidae	Black-tailed Native-hen	*Gallinula ventralis*	LC																
Birds	Rallidae	Buff-banded Rail	*Gallirallus philippensis*	LC														X		
Birds	Rallidae	Purple Swamphen	*Porphyrio porphyrio*	LC		X														X
Birds	Rallidae	Baillon's Crake	*Porzana pusilla*	LC																
Birds	Rallidae	Spotless Crake	*Porzana tabuensis*	LC																X
Birds	Recurvirostridae	Banded Stilt	*Cladorhynchus leucocephalus*	LC																
Birds	Recurvirostridae	Black-winged Stilt	*Himantopus himantopus*	LC		X														X
Birds	Recurvirostridae	Red-necked Avocet	*Recurvirostra novaehollandiae*	LC		X														
Birds	Scolopacidae	Common Sandpiper	*Actitis hypoleucos*	Mig JA CA ROK LC		X														X
Birds	Scolopacidae	Sharp-tailed Sandpiper	*Calidris acuminata*	Mig JA CA ROK LC																X
Birds	Scolopacidae	Sanderling	*Calidris alba*	Mig JA CA ROK LC																X
Birds	Scolopacidae	Curlew Sandpiper	*Calidris ferruginea*	S1 VU LC																X
Birds	Scolopacidae	Pectoral Sandpiper	*Calidris melanotos*	Mig JA ROK LC																X
Birds	Scolopacidae	Red-necked Stint	*Calidris ruficollis*	Mig JA CA ROK LC																X
Birds	Scolopacidae	Sooty Oystercatcher	*Haematopus fuliginosus*	LC		X														X
Birds	Scolopacidae	Pied Oystercatcher	*Haematopus longirostris*	LC																X
Birds	Scolopacidae	White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Mig CA LC																X
Birds	Scolopacidae	Black-tailed Godwit	*Limosa limosa*	NT		X														
Birds	Scolopacidae	Eastern Curlew	*Numenius madagascariensis*	S1 VU Vu A4bcd		X														X
Birds	Scolopacidae	Whimbrel	*Numenius phaeopus*	Mig JA CA ROK LC																X
Birds	Scolopacidae	Grey-tailed Tattler	*Tringa brevipes*	Mig CA ROK NT																X
Birds	Scolopacidae	Wood Sandpiper	*Tringa glareola*	S3 Mig JA CA ROK LC		X														
Birds	Scolopacidae	Common Greenshank	*Tringa nebularia*	Mig JA CA ROK LC		X														X
Birds	Scolopacidae	Marsh Sandpiper	*Tringa stagnatilis*	Mig JA CA ROK LC		X														X
Birds	Spheniscidae	Little Penguin	*Eudyptula minor subsp. novaehollandiae*	LC		X														X
Birds	Stercorariidae	Brown Skua	*Stercorarius antarcticus*	LC		X														
Birds	Stercorariidae	Arctic Skua	*Stercorarius parasiticus*	LC																X
Birds	Stercorariidae	Pomarine Skua	*Stercorarius pomarinus*	LC																X
Birds	Sternidae	Lesser Noddy	*Anous tenuirostris*	LC		X														
Birds	Sternidae	Crested Tern	*Sterna bergii*	S3 Mig JA CA ROK LC		X														
Birds	Sternidae	Caspian Tern	*Sterna caspia*	S3 Mig JA CA ROK LC	**X**	X														
Birds	Sternidae	Arctic Tern	*Sterna paradisaea*	LC																X
Birds	Sternidae	Fairy Tern	*Sternula nereis*	VU S1 VU Vu C1		X														
Birds	Strigidae	Barking Owl (SW pop.)	*Ninox connivens connivens*	P2 LC																X
Birds	Strigidae	Boobook Owl	*Ninox novaeseelandiae*	LC	**X**	X	X			X			X	X	X					X
Birds	Sulidae	Australasian Gannet	*Morus serrator*	LC		X														
Birds	Sylviidae	Australian Reed Warbler	*Acrocephalus australis*	LC		X														X
Birds	Sylviidae	Brown Songlark	*Cincloramphus cruralis*	LC		X									X					X
Birds	Sylviidae	Rufous Songlark	*Cincloramphus mathewsi*	LC																
Birds	Sylviidae	Little Grassbird	*Megalurus gramineus*	LC																

Class	Family	Common Name	*Genus and Species*	Status	Species recorded	ALA (2014)	ATA (2006) Smiths Beach	Beatty et al. (2006) Cape Naturaliste	BSD (2003) Eagle Bay	Christensen et al (1985) Boranup	Clay Toby Inlet (2000)	ENV (2007) Busselton to Margaret River	Harewood (2005) Eagle Bay	Harewood (2008) Gracetown	Harewood (2014) Yoongarillup	Hart et al (1997)	How (1987) Cape Naturaliste	McAlpine (1989) Vasse Wonnerup	Environmental Services (2006) Cape Naturaliste	Naturemap (2014)
Birds	Threskiornithidae	Yellow-billed Spoonbill	*Platalea flavipes*	LC		X														X
Birds	Threskiornithidae	Royal Spoonbill	*Platalea regia*	LC																X
Birds	Threskiornithidae	Australian White Ibis	*Threskiornis molucca*	LC		X						X			X					X
Birds	Threskiornithidae	Straw-necked Ibis	*Threskiornis spinicollis*	LC		X						X			X				X	X
Birds	Turnicidae	Painted Button-quail	*Turnix varia*	LC	**X**									X						
Birds	Tytonidae	Barn Owl	*Tyto alba*	LC		X				X										
Birds	Tytonidae	Masked Owl (SW pop.)	*Tyto n. novaehollandiae*	P3 LC																
Birds	Zosteropidae	Silvereye	*Zosterops lateralis*	LC	**X**	X	X			X		X	X	X						
Fish	Atherinidae	Western Hardyhead	*Leptatherina wallacei*					X												
Fish	Cyprinidae	Rosy Barb	*Puntius conchonius*	Introduced				X												
Fish	GalaXiidae	Western Minnow	*Galaxias occidentalis*					X												
Fish	Gobiidae	Big-headed Goby	*Afurcagobius suppositus*					X												
Fish	Gobiidae	Swan River Goby	*Pseudogobius olorum*					X												
Fish	Mugilidae	Sea Mullet	*Mugil cephalus*	LC				X												
Fish	Percichthyidae	Western Pygmy Perch	*Edelia vittata*					X												
Invertebrates	Hyriidae	Carter's Freshwater Mussel	*Westralunio carteri*	P4 LC																X
Invertebrates	Parastacidae	Marron	*Cherax cainii*	LC				X												
Invertebrates	Parastacidae	Yabby	*Cherax destructor*	Introduced	**X**			X												
Invertebrates	Parastacidae	Gilgie	*Cherax quinquecarinatus*	LC				X												
Invertebrates	Parastacidae	Dunsborough Burrowing Crayfish	*Engaewa reducta*	S1 CR En B1ab(iii,iv)																X
Mammals	Burramyidae	Western Pygmy-possum	*Cercartetus concinnus*	LC	**X**		X				X		X		X					X
Mammals	Canidae	Dog	*Canis lupus*	Introduced			X							X						
Mammals	Canidae	Red Fox	*Vulpes vulpes*	Introduced	**X**		X			X	X	X	X		X	X				
Mammals	Dasyuridae	Yellow-footed Antechinus, Mardo	*Antechinus flavipes*	LC											X					
Mammals	Dasyuridae	Chuditch	*Dasyurus geoffroii*	S1 VU Vu NT																X
Mammals	Dasyuridae	Southern Brush-tailed Phascogale	*Phascogale tapoatafa ssp*	S1 VU NT											X					X
Mammals	Dasyuridae	Grey-bellied Dunnart	*Sminthopsis griseoventer*	LC						X	X	X		X		X				
Mammals	Felidae	Cat	*Felis catus*	Introduced			X			X	X			X		X				
Mammals	Leporidae	Rabbit	*Oryctolagus cuniculus*	Introduced	**X**		X		X	X	X	X	X	X	X	X				
Mammals	Macropodidae	Tammar Wallaby	*Macropus eugenii subsp. derbianus*	P5 LC																X
Mammals	Macropodidae	Western Grey Kangaroo	*Macropus fuliginosus*	LC	**X**		X		X	X	X	X	X	X	X	X	X			X
Mammals	Macropodidae	Western Brush Wallaby	*Macropus irma*	P4 LC									X			X				X
Mammals	Macropodidae	Quokka	*Setonix brachyurus*	S1 VU Vu B1ab(ii,iii)																X
Mammals	Molossidae	South Western Freetail Bat	*Mormopterus kitcheneri*	LC	**X**		X					X			X					
Mammals	Molossidae	White-striped Freetail-bat	*Tadarida australis*	LC	**X**		X					X			X					
Mammals	Muridae	Water Rat	*Hydromys chrysogaster*	P4 LC								X								X
Mammals	Muridae	House Mouse	*Mus musculus*	Introduced	**X**		X			X			X	X	X		X			X
Mammals	Muridae	Western Bush Rat	*Rattus fuscipes*	LC			X			X		X		X	X		X			
Mammals	Muridae	Black Rat	*Rattus rattus*	Introduced	**X**					X		X			X	X				
Mammals	Otariidae	New Zealand Fur Seal	*Arctocephalus forsteri*	S4 LC																
Mammals	Otariidae	Australian Sea Lion	*Neophoca cinerea*	S4 En A2bd+3d																X
Mammals	Peramelidae	Southern Brown Bandicoot	*Isoodon obesulus fusciventer*	P5 LC	**X**	X			X	X	X	X	X	X	X	X				X
Mammals	Phalangeridae	Common Brushtail Possum	*Trichosurus vulpecula*	LC	**X**		X			X	X	X	X		X	X	X			X
Mammals	Pseudocheiridae	Western Ringtail Possum	*Pseudocheirus occidentalis*	S1 EN Vu B1ab(ii,iii,v)	**X**		X		X		X		X	X		X				X
Mammals	Tachyglossidae	Echidna	*Tachyglossus aculeatus*	LC	**X**				X							X				
Mammals	Tarsipedidae	Honey Possum	*Tarsipes rostratus*	LC	**X**		X				X		X	X		X	X			X
Mammals	Vespertilionidae	Goulds Wattled Bat	*Chalinolobus gouldii*	LC	**X**		X			X	X	X			X					X
Mammals	Vespertilionidae	Chocolate Wattled Bat	*Chalinolobus morio*	LC	**X**		X					X		X	X					
Mammals	Vespertilionidae	Western False Pipistrelle	*Falsistrellus mackenziei*	P4 NT	**X**					X		X		X						
Mammals	Vespertilionidae	Lesser Long-eared Bat	*Nyctophilus geoffroyi*	LC	**X**							X		X	X					
Mammals	Vespertilionidae	Gould's Long-eared Bat	*Nyctophilus gouldi*	LC	**X**															

Class	Family	Common Name	*Genus and Species*	Status	Species recorded	ALA (2014)	ATA (2006) Smiths Beach	Beatty et al. (2006) Cape Naturaliste	BSD (2003) Eagle Bay	Christensen et al (1985) Boranup	Clay Toby Inlet (2000)	ENV (2007) Busselton to Margaret River	Harewood (2005) Eagle Bay	Harewood (2008) Gracetown	Harewood (2014) Yoongarillup	Hart et al (1997)	How (1987) Cape Naturaliste	McAlpine (1989) Vasse Wonnerup	Environmental Services (2006) Cape Naturaliste	Naturemap (2014)
Mammals	Vespertilionidae	Western Long-eared Bat	*Nyctophilus major*	DD								X								
Mammals	Vespertilionidae	Southern Forest Bat	*Vespadelus regulus*	LC	**X**		X			X		X		X	X					X
Reptiles	Agamidae	Western Bearded Dragon	*Pogona minor minor*				X				X			X	X	X	X			
Reptiles	Boidae	Southern Carpet Python	*Morelia spilota imbricata*	S4			X							X						
Reptiles	Cheloniidae	Loggerhead Turtle	*Caretta caretta*	S1 EN En A1abd																X
Reptiles	Dermochelyidae	Leatherback Turtle	*Dermochelys coriacea*	S1 VU Vu A2bd		X														X
Reptiles	Elapidae	Bardick	*Echiopsis curta*		**X**	X	X													X
Reptiles	Elapidae	Crowned Snake	*Elapognathus coronatus*				X			X	X			X	X					
Reptiles	Elapidae	Short-nosed Snake	*Elapognathus minor*	P2 NT																
Reptiles	Elapidae	Tiger Snake	*Notechis scutatus*	LC							X						X			
Reptiles	Elapidae	Gould's Hooded Snake	*Parasuta gouldii*								X						X			X
Reptiles	Elapidae	Black-backed Snake	*Parasuta nigriceps*			X									X	X				X
Reptiles	Elapidae	Dugite	*Pseudonaja affinis*		**X**					X	X	X		X	X	X	X			X
Reptiles	Elapidae	Square-nosed Snake	*Rhinoplocephalus bicolor*	LC																
Reptiles	Gekkonidae	Marbled Gecko	*Christinus marmoratus*		**X**	X	X			X	X	X		X	X	X				X
Reptiles	Gekkonidae	Speckled Stone Gecko	*Diplodactylus polyophthalmus*								X				X					
Reptiles	Pygopodidae	Pretty Worm Lizard	*Aprasia pulchella*		**X**	X	X								X	X				X
Reptiles	Pygopodidae	Sand-plain Worm-lizard	*Aprasia repens*																	X
Reptiles	Pygopodidae	Marbel-faced Delma	*Delma australis*		**X**		X								X	X				
Reptiles	Pygopodidae	Common Snake Lizard	*Lialis burtonis*																	X
Reptiles	Pygopodidae	Southern Scaleyfoot	*Pygopus lepidopodus*							X	X			X						X
Reptiles	Scincidae	South-western Cool Skink	*Acritoscincus trilineatum*	LC	**X**	X	X				X	X	X	X	X	X	X			X
Reptiles	Scincidae	Fence Skink	*Cryptoblepharus buchananii*		**X**	X	X			X	X				X	X				X
Reptiles	Scincidae	Perons Snake-eyed Skink	*Cryptoblepharus plagiocephalus*			X														
Reptiles	Scincidae	Chain-striped Heath Ctenotus	*Ctenotus catenifer*		**X**										X					
Reptiles	Scincidae	Dell's Skink	*Ctenotus delli*	P4		X					X					X				X
Reptiles	Scincidae	South-western Odd-striped Ctenotus	*Ctenotus impar*		**X**	X	X			X					X	X	X			X
Reptiles	Scincidae	Red-legged Skink	*Ctenotus labillardieri*			X	X			X	X	X					X			X
Reptiles	Scincidae	Coastal Plains Skink Skink	*Ctenotus ora*	P3											X					X
Reptiles	Scincidae	King's Skink	*Egernia kingii*	LC	**X**		X				X	X			X	X				
Reptiles	Scincidae	Mourning Skink	*Egernia luctuosa*									X								
Reptiles	Scincidae	Southwest Crevice Skink	*Egernia napoleonis*			X	X			X	X	X		X	X	X	X			X
Reptiles	Scincidae	Southwestern Mulch Skink	*Hemiergis gracilipes*								X									
Reptiles	Scincidae	Three-toed Mulch Skink	*Hemiergis peronii tridactyla*		**X**		X				X	X	X	X	X	X	X			X
Reptiles	Scincidae	South-western Four-toed Lerista	*Lerista distinguenda*		**X**		X				X				X	X	X			X
Reptiles	Scincidae	West Coast Four-toed Lerista	*Lerista elegans*		**X**	X							X	X	X		X			X
Reptiles	Scincidae	Southwestern Five-toed Lerista	*Lerista microtis microtis*									X								
Reptiles	Scincidae	Dwarf Skink	*Menetia greyii*		**X**	X	X		X	X	X		X	X	X	X	X			X
Reptiles	Scincidae	Western Pale-flecked Morethia	*Morethia lineoocellata*		**X**	X	X				X	X	X	X	X	X	X			X
Reptiles	Scincidae	Dusky Morethia	*Morethia obscura*												X					
Reptiles	Scincidae	Western Bobtail	*Tiliqua rugosa rugosa*		**X**		X		X	X	X	X	X	X	X	X	X			X
Reptiles	Typhlopidae	Southern Blind Snake	*Ramphotyphlops australis*				X					X				X				
Reptiles	Varanidae	Rosenburg's Monitor	*Varanus gouldii*	LC							X									
Reptiles	Varanidae	Heath Monitor	*Varanus rosenbergi*	LC	**X**		X				X	X		X	X	X	X			X

Federal WA Priority Fauna IUCN red list

Vu: Vulnerable
En: Endangered
CE: Critically Endangered
These status criterions have been set by the *Environmental Protection and Biodiversity Conservation Act 1999.*

S1: Schedule 1 Rare or likely to become extinct;
VU: Vulnerable
EN: Endangered
S2 - Extinct
S3 - Protected under International agreements
S4 - Other specially protected fauna

This status criterion has been set by the *Wildlife Conservation Act 1950.*

P 1: Taxa with few, poorly known populations on threatened lands.
P 2: Taxa with few, poorly known populations on conservation lands.
P 3: Taxa with several, poorly known populations, some on conservation lands.
P 4: Taxa in need of monitoring.
P 5: Taxa in need of monitoring.
These status criterions have been set by the WA Department of Environment and Conservation.

VU: Vulnerable
EN: Endangered
CE: Critically Endangered
NT: Near Threatened
LC: Least concern

Refer to http://www.iucnredlist.org/technical-documents/categories-and-criteria for full criteria

APPENDIX C TRAP DETAILS

Trap ID	Zone	mE	mN	Opened	Closed	Nights
TS 1.01	50H	322278	6282756	9/12/2014	17/12/2014	8
TS 1.02	50H	322277	6282747	9/12/2014	17/12/2014	8
TS 1.03	50H	322285	6282734	9/12/2014	17/12/2014	8
TS 1.04	50H	322289	6282720	9/12/2014	17/12/2014	8
TS 1.05	50H	322293	6282709	9/12/2014	17/12/2014	8
TS 1.06	50H	322285	6282700	9/12/2014	17/12/2014	8
TS 1.07	50H	322271	6282698	9/12/2014	17/12/2014	8
TS 1.08	50H	322264	6282697	9/12/2014	17/12/2014	8
TS 1.09	50H	322255	6282677	9/12/2014	17/12/2014	8
TS 1.10	50H	322246	6282671	9/12/2014	17/12/2014	8
TS 2.01	50H	323649	6280916	9/12/2014	17/12/2014	8
TS 2.02	50H	323661	6280918	9/12/2014	17/12/2014	8
TS 2.03	50H	323673	6280914	9/12/2014	17/12/2014	8
TS 2.04	50H	323694	6280928	9/12/2014	17/12/2014	8
TS 2.05	50H	323704	6280934	9/12/2014	17/12/2014	8
TS 2.06	50H	323726	6280942	9/12/2014	17/12/2014	8
TS 2.07	50H	323740	6280940	9/12/2014	17/12/2014	8
TS 2.08	50H	323759	6280952	9/12/2014	17/12/2014	8
TS 2.09	50H	323765	6280938	9/12/2014	17/12/2014	8
TS 2.10	50H	323778	6280940	9/12/2014	17/12/2014	8
TS 3.01	50H	321903	6282460	10/12/2014	18/12/2014	8
TS 3.02	50H	321913	6282462	10/12/2014	18/12/2014	8
TS 3.03	50H	321915	6282484	10/12/2014	18/12/2014	8
TS 3.04	50H	321910	6282494	10/12/2014	18/12/2014	8
TS 3.05	50H	321903	6282501	10/12/2014	18/12/2014	8
TS 3.06	50H	321892	6282507	10/12/2014	18/12/2014	8
TS 3.07	50H	321880	6282513	10/12/2014	18/12/2014	8
TS 3.08	50H	321870	6282514	10/12/2014	18/12/2014	8
TS 3.09	50H	321858	6282511	10/12/2014	18/12/2014	8
TS 3.10	50H	321835	6282507	10/12/2014	18/12/2014	8
TS 4.01	50H	321625	6284480	10/12/2014	18/12/2014	8
TS 4.02	50H	321637	6284488	10/12/2014	18/12/2014	8
TS 4.03	50H	321655	6284485	10/12/2014	18/12/2014	8
TS 4.04	50H	321663	6284495	10/12/2014	18/12/2014	8
TS 4.05	50H	321669	6284493	10/12/2014	18/12/2014	8
TS 4.06	50H	321678	6284492	10/12/2014	18/12/2014	8

Trap ID	Zone	mE	mN	Opened	Closed	Nights
TS 4.07	50H	321684	6284492	10/12/2014	18/12/2014	8
TS 4.08	50H	321678	6284481	10/12/2014	18/12/2014	8
TS 4.09	50H	321678	6284466	10/12/2014	18/12/2014	8
TS 4.10	50H	321683	6284449	10/12/2014	18/12/2014	8
TS 5.01	50H	323121	6281151	11/12/2014	19/12/2014	8
TS 5.02	50H	323118	6281140	11/12/2014	19/12/2014	8
TS 5.03	50H	323106	6281141	11/12/2014	19/12/2014	8
TS 5.04	50H	323100	6281132	11/12/2014	19/12/2014	8
TS 5.05	50H	323093	6281132	11/12/2014	19/12/2014	8
TS 5.06	50H	323063	6281114	11/12/2014	19/12/2014	8
TS 5.07	50H	323058	6281115	11/12/2014	19/12/2014	8
TS 5.08	50H	323046	6281121	11/12/2014	19/12/2014	8
TS 5.09	50H	323036	6281119	11/12/2014	19/12/2014	8
TS 5.10	50H	323033	6281119	11/12/2014	19/12/2014	8
TS 6.01	50H	321174	6283800	12/12/2014	19/12/2014	7
TS 6.02	50H	321183	6283791	12/12/2014	19/12/2014	7
TS 6.03	50H	321195	6283784	12/12/2014	19/12/2014	7
TS 6.04	50H	321196	6283767	12/12/2014	19/12/2014	7
TS 6.05	50H	321191	6283754	12/12/2014	19/12/2014	7
TS 6.06	50H	321203	6283749	12/12/2014	19/12/2014	7
TS 6.07	50H	321209	6283740	12/12/2014	19/12/2014	7
TS 6.08	50H	321209	6283726	12/12/2014	19/12/2014	7
TS 6.09	50H	321222	6283726	12/12/2014	19/12/2014	7
TS 6.10	50H	321224	6283713	12/12/2014	19/12/2014	7

APPENDIX D TRAP RESULTS (RAW DATA)

Trap, Opportunistic (excluding birds) and Bat Results

Date	Trap Site	Trap Type	Species	Common Name
13/09/14	Meelup Brook	Opportunistic	*Crinia georgiana*	Quacking Frog
	Meelup Brook	Opportunistic	*Crinia glauerti*	Clicking Froglet
	Sheen Road	Opportunistic	*Macropus fuliginosus*	Western Grey Kangaroo
28/09/14	Opportunistic	Opportunistic	*Crinia georgiana*	Quacking Frog
	Opportunistic	Opportunistic	*Crinia georgiana*	Quacking Frog
	Opportunistic	Opportunistic	*Crinia glauerti*	Clicking Froglet
	Opportunistic	Opportunistic	*Geocrinia leai*	Ticking Frog
	Opportunistic	Opportunistic	*Litoria adelaidensis*	Slender Tree Frog
	Opportunistic	Opportunistic	*Pseudophryne guentheri*	Crawling Toadlet
13/10/14	Jingarmup Brook	Opportunistic	*Oryctolagus cuniculus*	Rabbit
	Meelup Brook	Opportunistic	*Macropus fuliginosus*	Western Grey Kangaroo
	Meelup Brook	Opportunistic	*Pseudocheirus occidentalis*	Western Ringtail Possum
	Meelup Brook	Opportunistic	*Varanus rosenbergi*	Heath Monitor
	Meelup Brook	Opportunistic	*Vulpes vulpes*	Red Fox
	Meelup Brook Dam	Opportunistic	*Litoria adelaidensis*	Slender Tree Frog
	Opportunistic	Opportunistic	*Tiliqua rugosa rugosa*	Bobtail
	Point Picquet Track	Opportunistic	*Macropus fuliginosus*	Western Grey Kangaroo
	Point Picquet Track	Opportunistic	*Morethia lineoocellata*	Western Pale-flecked Morethia
	Point Picquet Track	Opportunistic	*Oryctolagus cuniculus*	Rabbit
	Point Picquet Track	Opportunistic	*Tachyglossus aculeatus*	Echidna
9/12/14	Trap Site 2	Opportunistic	*Menetia greyii*	Dwarf Skink
	TS 1.3	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.6	Bucket	*Menetia greyii*	Dwarf Skink
10/12/14	Opportunistic	Opportunistic	*Varanus rosenbergi*	Heath Monitor
	Trap Site 2	Opportunistic	*Macropus fuliginosus*	Western Grey Kangaroo
	Trap Site 2	Opportunistic	*Oryctolagus cuniculus*	Rabbit
	Trap Site 3	Opportunistic	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 1.9	Funnel	*Menetia greyii*	Dwarf Skink
	TS 2.3	Elliot (B)	*Isoodon obesulus fusciventer*	Quenda
	TS 3.3	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.4	Bucket	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
11/12/14	Opportunistic	Opportunistic	*Varanus rosenbergi*	Heath Monitor
	TS 1.1	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.1	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 1.10	Bucket	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.10	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.10	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.2	Bucket	*Tarsipes rostratus*	Honey Possum

Date	Trap Site	Trap Type	Species	Common Name
	TS 1.3	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.3	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.3	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.3	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.3	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.4	Funnel	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
	TS 1.4	Funnel	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
	TS 1.4	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.5	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.5	Bucket	*Delma australis*	Marble-faced Delma
	TS 1.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.6	Funnel	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.6	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.6	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.6	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.9	Funnel	*Menetia greyii*	Dwarf Skink
	TS 2.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.1	Cage	*Isoodon obesulus fusciventer*	Quenda
	TS 2.1	Cage	*Isoodon obesulus fusciventer*	Quenda
	TS 2.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.10	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.10	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.10	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.10	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 2.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.10	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.10	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.10	Funnel	*Tarsipes rostratus*	Honey Possum
	TS 2.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.2	Bucket	*Crinia insignifera*	Squelching Froglet
	TS 2.2	Bucket	*Crinia insignifera*	Squelching Froglet
	TS 2.2	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.2	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.3	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.3	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.3	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia

Date	Trap Site	Trap Type	Species	Common Name
	TS 2.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.3	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.4	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.4	Funnel	*Menetia greyii*	Dwarf Skink
	TS 2.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.4	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.5	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.5	Elliot (A)	*Isoodon obesulus fusciventer*	Quenda
	TS 2.5	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 2.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.6	Bucket	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.6	Bucket	*Crinia insignifera*	Squelching Froglet
	TS 2.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.7	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.7	Funnel	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 2.7	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 2.7	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.7	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.7	Funnel	*Menetia greyii*	Dwarf Skink
	TS 2.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.7	Funnel	*Pseudonaja affinis*	Dugite
	TS 2.8	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.8	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.8	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.8	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.8	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.8	Funnel	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.9	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.9	Funnel	*Tarsipes rostratus*	Honey Possum
	TS 3.1	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.10	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.10	Funnel	*Christinus marmoratus*	Marbled Gecko
	TS 3.2	Bucket	*Ctenotus catenifer*	Chain-striped Heath Ctenotus

Date	Trap Site	Trap Type	Species	Common Name
	TS 3.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.3	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.6	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.7	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.8	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.9	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.9	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 4.4	Funnel	*Menetia greyii*	Dwarf Skink
12/12/14	Bat Site 1	SM2+ Bat Call Recording	*Chalinolobus gouldii*	Gould's Wattled Bat
	Bat Site 1	SM2+ Bat Call Recording	*Falsistrellus mackenziei*	Western False Pipestrelle
	Bat Site 1	SM2+ Bat Call Recording	*Mormopterus kitcheneri*	Southern Freetail Bat
	Bat Site 1	SM2+ Bat Call Recording	*Nyctophilus geoffroyi*	Lesser Long-eared Bat
	Bat Site 1	SM2+ Bat Call Recording	*Tadarida australis*	White-striped Freetail Bat
	Bat Site 1	SM2+ Bat Call Recording	*Vespadelus regulus*	Southern Forest Bat
	Opportunistic	Opportunistic	*Cherax destructor*	Yabby
	Opportunistic	Opportunistic	*Litoria adelaidensis*	Slender Brown Tree Frog
	Trap Site 4	Opportunistic	*Egernia kingii*	King's Skink
	Trap Site 6	Opportunistic	*Morethia lineoocellata*	Western Pale-flecked Morethia
	Trap Site 6	Opportunistic	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.1	Funnel	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.10	Funnel	*Echiopsis curta*	Bardick
	TS 1.2	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.2	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.3	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.3	Bucket	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
	TS 1.4	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.4	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.4	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.4	Bucket	*Tarsipes rostratus*	Honey Possum
	TS 1.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.6	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 1.6	Funnel	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.9	Funnel	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
	TS 1.9	Funnel	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.1	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.10	Bucket	*Tarsipes rostratus*	Honey Possum
	TS 2.5	Elliot (A)	*Isoodon obesulus fusciventer*	Quenda

Date	Trap Site	Trap Type	Species	Common Name
	TS 2.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.7	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.1	Funnel	*Christinus marmoratus*	Marbled Gecko
	TS 3.1	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 3.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.3	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 3.3	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.3	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.4	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.5	Bucket	*Tarsipes rostratus*	Honey Possum
	TS 3.5	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 3.6	Bucket	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 3.7	Bucket	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 3.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.9	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.1	Cage	*Egernia kingii*	King's Skink
	TS 4.2	Funnel	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 4.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.1	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.3	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 5.4	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 5.5	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.7	Bucket	*Menetia greyii*	Dwarf Skink
13/12/14	Bat Site 2	SM2+ Bat Call Recording	*Chalinolobus gouldii*	Gould's Wattled Bat
	Bat Site 2	SM2+ Bat Call Recording	*Chalinolobus morio*	Chocolate Wattled Bat
	Bat Site 2	SM2+ Bat Call Recording	*Nyctophilus geoffroyi*	Lesser Long-eared Bat
	Bat Site 2	SM2+ Bat Call Recording	*Nyctophilus gouldi*	Gould's Long-eared Bat
	Bat Site 2	SM2+ Bat Call Recording	*Vespadelus regulus*	Southern Forest Bat
	Castle Rock Track South	Opportunistic	*Oryctolagus cuniculus*	Rabbit
	Meelup Brook Dam	Opportunistic	*Litoria adelaidensis*	Slender Tree Frog
	Opportunistic	Opportunistic	*Egernia kingii*	King's Skink
	Opportunistic	Opportunistic	*Morethia lineoocellata*	Western Pale-flecked Morethia
	Opportunistic	Opportunistic	*Morethia lineoocellata*	Western Pale-flecked Morethia
	Opportunistic	Opportunistic	*Tachyglossus aculeatus*	Echidna
	Sheen Road	Opportunistic	*Macropus fuliginosus*	Western Grey Kangaroo
	Sheen Road	Opportunistic	*Trichosurus vulpecula*	Common Brushtail Possum
	Trap Site 6	Opportunistic	*Cryptoblepharus buchananii*	Buchanan's Snake-eyed Skink

Date	Trap Site	Trap Type	Species	Common Name
	TS 1.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.2	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.3	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.4	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.4	Funnel	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
	TS 1.4	Funnel	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
	TS 1.4	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 1.4	Bucket	*Delma australis*	Marble-faced Delma
	TS 1.4	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.4	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.4	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.4	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.4	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.4	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.6	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.6	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.6	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.7	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 1.7	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 1.7	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 1.8	Funnel	*Delma australis*	Marble-faced Delma
	TS 1.9	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.1	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.10	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.10	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.2	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.2	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.3	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.3	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia

Date	Trap Site	Trap Type	Species	Common Name
	TS 2.7	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.7	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.8	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.2	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.3	Funnel	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
	TS 3.3	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.3	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.4	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.4	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 3.5	Bucket	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.5	Funnel	*Tiliqua rugosa rugosa*	Bobtail
	TS 3.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.7	Bucket	*Aprasia pulchella*	Pretty Worm Lizard
	TS 3.7	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.7	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.8	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.8	Bucket	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 3.8	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.9	Bucket	*Echiopsis curta*	Bardick
	TS 3.9	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 4.1	Funnel	*Tiliqua rugosa rugosa*	Bobtail
	TS 4.10	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.2	Funnel	*Egernia kingii*	King's Skink
	TS 4.2	Funnel	*Egernia kingii*	King's Skink
	TS 4.2	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 4.3	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 4.3	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 4.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.6	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.1	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.1	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 5.10	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.10	Funnel	*Tiliqua rugosa rugosa*	Bobtail
	TS 5.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia

Date	Trap Site	Trap Type	Species	Common Name
	TS 5.6	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.6	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.7	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.9	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.1	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.10	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.2	Funnel	*Lerista elegans*	West Coast Four-toed Lerista
	TS 6.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 6.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 6.3	Bucket	*Christinus marmoratus*	Marbled Gecko
	TS 6.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.3	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.4	Bucket	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.4	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 6.4	Bucket	*Lerista elegans*	West Coast Four-toed Lerista
	TS 6.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.4	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.4	Elliot (B)	*Mus musculus*	House Mouse
	TS 6.5	Bucket	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 6.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 6.5	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.6	Funnel	*Lerista elegans*	West Coast Four-toed Lerista
	TS 6.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.7	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.8	Bucket	*Cercartetus concinnus*	Western Pygmy Possum
	TS 6.8	Elliot (A)	*Egernia kingii*	King's Skink
	TS 6.8	Bucket	*Heleioporus eyrei*	Moaning Frog
	TS 6.8	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.9	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
14/12/14	Bat Site 3	SM2+ Bat Call Recording	*Chalinolobus gouldii*	Gould's Wattled Bat
	Bat Site 3	SM2+ Bat Call Recording	*Chalinolobus morio*	Chocolate Wattled Bat
	Bat Site 3	SM2+ Bat Call Recording	*Falsistrellus mackenziei*	Slender Tree Frog

Date	Trap Site	Trap Type	Species	Common Name
	Bat Site 3	SM2+ Bat Call Recording	*Nyctophilus geoffroyi*	Lesser Long-eared Bat
	Bat Site 3	SM2+ Bat Call Recording	*Nyctophilus geoffroyi*	Lesser Long-eared Bat
	Opportunistic	Opportunistic	*Pseudonaja affinis*	Dugite
	TS 1.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.2	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.4	Bucket	*Aprasia pulchella*	Pretty Worm Lizard
	TS 2.10	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.3	Elliot (B)	*Isoodon obesulus fusciventer*	Quenda
	TS 2.4	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.5	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.6	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.7	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.7	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.7	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 4.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 4.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 4.2	Cage	*Isoodon obesulus fusciventer*	Quenda
	TS 4.4	Elliot (B)	*Egernia kingii*	King's Skink
	TS 4.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.3	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.4	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 5.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.7	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 5.7	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.8	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.9	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.1	Elliot (A)	*Mus musculus*	House Mouse
	TS 6.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.4	Bucket	*Lerista elegans*	West Coast Four-toed Lerista
	TS 6.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.6	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.6	Funnel	*Menetia greyii*	Dwarf Skink

Date	Trap Site	Trap Type	Species	Common Name
	TS 6.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.7	Funnel	*Cercartetus concinnus*	Western Pygmy Possum
	TS 6.7	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
15/12/2014	Bat Site 4	SM2+ Bat Call Recording	*Chalinolobus gouldii*	Gould's Wattled Bat
	Bat Site 4	SM2+ Bat Call Recording	*Mormopterus kitcheneri*	Southern Freetail Bat
	Bat Site 4	SM2+ Bat Call Recording	*Nyctophilus geoffroyi*	Lesser Long-eared Bat
	Bat Site 4	SM2+ Bat Call Recording	*Vespadelus regulus*	Southern Forest Bat
	TS 1.10	Funnel	*Ctenotus catenifer*	Chain-striped Heath Ctenotus
	TS 1.7	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.9	Funnel	*Menetia greyii*	Dwarf Skink
	TS 2.1	Bucket	*Heleioporus eyrei*	Moaning Frog
	TS 2.10	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.2	Bucket	*Crinia insignifera*	Squelching Froglet
	TS 2.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.4	Bucket	*Heleioporus eyrei*	Moaning Frog
	TS 2.4	Bucket	*Lerista elegans*	West Coast Four-toed Lerista
	TS 2.4	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.4	Bucket	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.5	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.6	Bucket	*Lerista elegans*	West Coast Four-toed Lerista
	TS 2.6	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.6	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.6	Elliot (A)	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.8	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 3.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.1	Opportunistic	*Menetia greyii*	Dwarf Skink
	TS 3.3	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.4	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.4	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.6	Elliot (A)	*Tiliqua rugosa rugosa*	Bobtail
	TS 3.7	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 4.2	Funnel	*Egernia kingii*	King's Skink
	TS 4.3	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 5.1	Bucket	*Crinia insignifera*	Squelching Froglet
	TS 5.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.10	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.2	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista

Date	Trap Site	Trap Type	Species	Common Name
	TS 5.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.4	Funnel	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 5.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.1	Elliot (A)	*Mus musculus*	House Mouse
	TS 6.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 6.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.3	Bucket	*Lerista elegans*	West Coast Four-toed Lerista
	TS 6.3	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.3	Elliot (B)	*Mus musculus*	House Mouse
	TS 6.4	Funnel	*Heleioporus eyrei*	Moaning Frog
	TS 6.4	Opportunistic	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.7	Bucket	*Christinus marmoratus*	Marbled Gecko
	TS 6.8	Bucket	*Heleioporus eyrei*	Moaning Frog
	TS 6.9	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 6.9	Cage	*Egernia kingii*	King's Skink
	TS 6.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
16/12/2014	TS 1.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.10	Elliot (A)	*Tiliqua rugosa rugosa*	Bobtail
	TS 1.4	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.4	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 1.5	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.6	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 1.6	Funnel	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.10	Elliot (A)	*Isoodon obesulus fusciventer*	Quenda
	TS 2.10	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.5	Elliot (B)	*Isoodon obesulus fusciventer*	Quenda
	TS 2.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.6	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.6	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.6	Bucket	*Heleioporus eyrei*	Moaning Frog
	TS 2.6	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 2.7	Funnel	*Lerista elegans*	West Coast Four-toed Lerista

Date	Trap Site	Trap Type	Species	Common Name
	TS 3.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.4	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 3.5	Bucket	*Tiliqua rugosa rugosa*	Bobtail
	TS 3.5	Elliot (A)	*Tiliqua rugosa rugosa*	Bobtail
	TS 3.9	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 3.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 4.2	Funnel	*Egernia kingii*	King's Skink
	TS 4.2	Cage	*Isoodon obesulus fusciventer*	Quenda
	TS 5.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.4	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 5.4	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 5.5	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 5.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.6	Funnel	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 5.6	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.6	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.6	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.9	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.10	Bucket	*Egernia kingii*	King's Skink
	TS 6.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.2	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.4	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.4	Funnel	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.6	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.7	Bucket	*Lerista elegans*	West Coast Four-toed Lerista
	TS 6.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.8	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia

Date	Trap Site	Trap Type	Species	Common Name
	TS 6.8	Elliot (A)	*Mus musculus*	House Mouse
	TS 6.9	Cage	*Rattus rattus*	Black Rat
17/12/2014	TS 1.2	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 1.4	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 1.7	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.8	Funnel	*Menetia greyii*	Dwarf Skink
	TS 1.9	Funnel	*Menetia greyii*	Dwarf Skink
	TS 2.1	Cage	*Isoodon obesulus fusciventer*	Quenda
	TS 2.10	Bucket	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 2.2	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.4	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.4	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 2.5	Elliot (B)	*Isoodon obesulus fusciventer*	Quenda
	TS 2.6	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 2.7	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 2.7	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.7	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.8	Funnel	*Menetia greyii*	Dwarf Skink
	TS 2.8	Funnel	*Menetia greyii*	Dwarf Skink
	TS 2.8	Bucket	*Menetia greyii*	Dwarf Skink
	TS 2.9	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 3.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.1	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.10	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.5	Elliot (A)	*Tiliqua rugosa rugosa*	Bobtail
	TS 3.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.8	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 3.9	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.10	Funnel	*Pseudonaja affinis*	Dugite
	TS 4.2	Cage	*Egernia kingii*	King's Skink
	TS 4.6	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 4.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.8	Funnel	*Christinus marmoratus*	Marbled Gecko
	TS 5.1	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia

Date	Trap Site	Trap Type	Species	Common Name
	TS 5.10	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.6	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 5.6	Funnel	*Hemiergis peronii tridactyla*	Three-toed Mulch Skink
	TS 5.6	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.6	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.9	Funnel	*Ctenotus impar*	South-western Odd-striped Ctenotus
	TS 5.9	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.9	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.1	Elliot (A)	*Mus musculus*	House Mouse
	TS 6.4	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 6.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.5	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.6	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.6	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.8	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.8	Elliot (A)	*Mus musculus*	House Mouse
	TS 6.9	Funnel	*Egernia kingii*	King's Skink
	TS 6.9	Cage	*Rattus rattus*	Black Rat
18/12/2014	Opportunistic	Opportunistic	*Cryptoblepharus buchananii*	Buchanan's Snake-eyed Skink
	Trap Site 4	Opportunistic	*Pseudonaja affinis*	Dugite
	TS 3.2	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.3	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 3.3	Funnel	*Turnix varia*	Painted Button Quail
	TS 3.3	Funnel	*Turnix varia*	Painted Button Quail
	TS 3.3	Funnel	*Turnix varia*	Painted Button Quail
	TS 3.5	Funnel	*Lerista elegans*	West Coast Four-toed Lerista
	TS 3.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 3.6	Funnel	*Menetia greyii*	Dwarf Skink
	TS 3.7	Funnel	*Christinus marmoratus*	Marbled Gecko
	TS 3.9	Bucket	*Menetia greyii*	Dwarf Skink
	TS 4.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 4.10	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.2	Funnel	*Egernia kingii*	King's Skink
	TS 4.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 4.5	Elliot (B)	*Egernia kingii*	King's Skink
	TS 4.5	Funnel	*Egernia kingii*	King's Skink
	TS 4.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.1	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.10	Bucket	*Menetia greyii*	Dwarf Skink

Date	Trap Site	Trap Type	Species	Common Name
	TS 5.5	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 5.5	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.6	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 5.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.9	Cage	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.2	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.2	Funnel	*Menetia greyii*	Dwarf Skink
	TS 6.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.3	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.3	Elliot (B)	*Mus musculus*	House Mouse
	TS 6.6	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.8	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
19/12/2014	TS 5.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 5.10	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 5.10	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.4	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 5.5	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 5.5	Bucket	*Lerista distinguenda*	South-western Four-toed Lerista
	TS 5.5	Bucket	*Menetia greyii*	Dwarf Skink
	TS 5.5	Elliot (B)	*Tiliqua rugosa rugosa*	Bobtail
	TS 5.6	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.7	Funnel	*Menetia greyii*	Dwarf Skink
	TS 5.7	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 5.8	Funnel	*Tiliqua rugosa rugosa*	Bobtail
	TS 6.1	Funnel	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.1	Elliot (A)	*Mus musculus*	House Mouse
	TS 6.10	Bucket	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.10	Bucket	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.10	Funnel	*Egernia kingii*	King's Skink
	TS 6.2	Bucket	*Lerista elegans*	West Coast Four-toed Lerista
	TS 6.2	Bucket	*Menetia greyii*	Dwarf Skink
	TS 6.2	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.3	Funnel	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.3	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia
	TS 6.5	Bucket	*Acritoscincus trilineatum*	South-western Cool Skink
	TS 6.5	Bucket	*Morethia lineoocellata*	Western Pale-flecked Morethia

Date	Trap Site	Trap Type	Species	Common Name
	TS 6.5	Elliot (B)	*Mus musculus*	House Mouse
	TS 6.6	Elliot (A)	*Mus musculus*	House Mouse
	TS 6.7	Funnel	*Menetia greyii*	Dwarf Skink

APPENDIX E CAMERA TRAP RESULTS

Class	Common Name	Genus and Species
Bird	Australian Owlet-nightjar	*Aegotheles cristatus*
Bird	Rufous Treecreeper	*Climacteris rufa*
Bird	Australian Raven	*Corvus coronoides*
Bird	Australian Magpie	*Cracticus tibicen*
Bird	Laughing Kookaburra	*Dacelo novaeguinea*
Bird	Splendid Fairy-wren	*Malurus splendens*
Bird	Striated Pardalote	*Pardalotus striatus*
Bird	Scarlet Robin	*Petroica multicolor*
Bird	Common Bronzewing	*Phaps chalcoptera*
Bird	New Holland Honeyeater	*Phylidonyris novaehollandiae*
Bird	White-browed Scrubwren	*Sericornis frontalis*
Bird	Sacred Kingfisher	*Todiramphus sanctus*
Mammal	Southern Brown Bandicoot, Quenda	*Isoodon obesulus fusciventer*
Mammal	Western Grey Kangaroo	*Macropus fuliginosus*
Mammal	Rabbit	*Oryctolagus cuniculus*
Mammal	Western Ringtail Possum	*Pseudocheirus occidentalis*
Mammal	Black Rat	*Rattus rattus*
Mammal	Echidna	*Tachyglossus aculeatus*
Mammal	Bobtail	*Tiliqua rugosa aspera*
Mammal	Common Brushtail Possum	*Trichosurus vulpecula*
Mammal	Red Fox	*Vulpes vulpes*
Reptile	Heath Monitor	*Varanus rosenbergi*

APPENDIX F WADANDI FAUNA TRANSLATIONS

The Wadandi translation of the Meelup Regional Park fauna species list was undertaken by Wadandi elders and custodians. Some species are not individually identified, or are instead covered by generic terms. Other interpretations may exist of the translations.

Class	Common Name	*Genus & Species*	Wadandi translation	Notes
Birds	Antarctic Prion	*Pachyptila desolata*	Not available	
Birds	Arctic Skua	*Stercorarius parasiticus*	Not available	
Birds	Arctic Tern	*Sterna paradisaea*	Kaljirgang	Generic tern
Birds	Australasian Darter	*Anhinga novaehollandae*	Mimmal	
Birds	Atlantic Yellow-nosed Albatross	*Thalassarche chlororhynchos*	Wulwul-wulwul	
Birds	Australasian Bittern	*Botaurus poiciloptilis*	Bardanitj	
Birds	Australasian Gannet	*Morus serrator*	Not available	
Birds	Australasian Grebe	*Tachybaptus novaehollandiae*	Not available	
Birds	Australasian Shoveler	*Anas rhynchotis*	Wynbin	
Birds	Australian Hobby	*Falco longipennis*	Not available	
Birds	Australian Kestrel	*Falco cenchroides*	Martirt	
Birds	Australian Magpie	*Cracticus tibicen*	Kulbardi/Koolbardi	
Birds	Australian Owlet-nightjar	*Aegotheles cristatus*	Kukubert/kukubut	
Birds	Australian Pelican	*Pelecanus conspicillatus*	Puttarlung	
Birds	Australian Pipit	*Anthus novaeseelandiae*	Warradjulon	
Birds	Australian Raven	*Corvus coronoides*	Kwaggam	
Birds	Australian Reed Warbler	*Acrocephalus australis*	Warryl-burdang	
Birds	Australian Ringneck Parrot	*Platycercus zonarius*	Tdowarn	
Mammals	Australian Sea Lion	*Neophoca cinerea*	Manyinni	
Birds	Australian Shelduck	*Tadorna tadornoides*	Karbunga	
Birds	Australian White Ibis	*Threskiornis molucca*	Not available	
Birds	Australian Wood Duck	*Chenonetta jubata*	Wannana/Wonanna	
Birds	Baillon's Crake	*Porzana pusilla*	Warrajah	
Birds	Banded Lapwing	*Vanellus tricolor*	Not available	
Birds	Banded Stilt	*Cladorhynchus leucocephalus*	Not available	
Amphibians	Banjo Frog	*Limnodynastes dorsalis*	Twonk	
Reptiles	Bardick	*Echiopsis curta*	Not available	
Birds	Barking Owl (SW pop.)	*Ninox connivens connivens*	Wulbulgi/wulboo-gli	
Birds	Barn Owl	*Tyto alba*	Yonja/binar	
Birds	Baudin's Cockatoo	*Calyptorhynchus baudinii*	Maanitj	Generic cockatoo/corella

Class	Common Name	*Genus & Species*	Wadandi translation	Notes
Fish	Big-headed Goby	*Afurcagobius suppositus*	Dgildjit/djiljit	Generic fish
Mammals	Black Rat	*Rattus rattus*	Not available	
Birds	Black Swan	*Cygnus atratus*	Kooljark	
Reptiles	Black-backed Snake	*Parasuta nigriceps*	Norna	
Birds	Black-faced Cuckoo-shrike	*Coracina novaehollandiae*	Googoonut	
Birds	Black-faced Woodswallow	*Artamus cinereus*	Beewooten	
Birds	Black-fronted Dotterel	*Charadrius melanops*	Nidjul Yorong	
Birds	Black-shouldered Kite	*Elanus caeruleus*	Gedurn-muluk	
Birds	Black-tailed Godwit	*Limosa limosa*	Not available	
Birds	Black-tailed Native-hen	*Gallinula ventralis*	Belgarbedjal	
Birds	Black-winged Stilt	*Himantopus himantopus*	Djanjarak	
Amphibians	Bleating Froglet	*Crinia pseudinsignifera*	Kakitt	Generic frog
Birds	Blue-billed Duck	*Oxyura australis*	Bwuta	
Birds	Blue-winged Kookaburra	*Dacelo leachii*	Ngarilgul	
Birds	Boobook Owl	*Ninox novaeseelandiae*	Goorgurda	
Birds	Broad-tailed Thornbill	*Acanthiza apicalis*	Djulbidjubung	
Birds	Brown Falcon	*Falco berigora*	Karagyn/tdon tdon	
Birds	Brown Goshawk	*Accipiter fasciatus*	Gudjelum	
Birds	Brown Honeyeater	*Lichmera indistincta*	Djinjogor	
Birds	Brown Quail	*Coturnix ypsilophora*	Mooreetj	Generic quail moridtj
Birds	Brown Skua	*Stercorarius antarcticus*	Not available	
Birds	Brown Songlark	*Cincloramphus cruralis*	Not available	
Birds	Brown-headed Honeyeater	*Melithreptus brevirostris*	Wyradjindong	
Birds	Brush Bronzewing	*Phaps elegans*	Woodtah	
Birds	Buff-banded Rail	*Gallirallus philippensis*	Not available	
Birds	Bush Stone-Curlew	*Burhinus grallarius*	Kweelyu/kwealya	
Birds	Carnaby's Cockatoo	*Calyptorhynchus latirostris*	Maanitj	Generic cockatoo/corella
Invertebrates	Carter's Freshwater Mussel	*Westralunio carteri*	Inbee	
Birds	Caspian Tern	*Sterna caspia*	Kaljirgang	Generic tern
Mammals	Cat	*Felis catus*	Not available	
Birds	Cattle Egret	*Ardea ibis*	Not available	
Reptiles	Chain-striped Heath Ctenotus	*Ctenotus catenifer*	Not available	
Birds	Chestnut Teal	*Anas castanea*	Ngwol-yinaggirang	
Mammals	Chocolate Wattled Bat	*Chalinolobus morio*	Babill	Generic bat

Class	Common Name	*Genus & Species*	Wadandi translation	Notes
Mammals	Chuditch	*Dasyurus geoffroii*	Chuditj/tjuditj	
Reptiles	Coastal Plains Skink Skink	*Ctenotus ora*	Not available	
Birds	Collared Sparrowhawk	*Accipiter cirrocephalus*	Djilli djilli	
Birds	Common Bronzewing	*Phaps chalcoptera*	Woodtja	Generic pigeon
Mammals	Common Brushtail Possum	*Trichosurus vulpecula*	Koomal	
Birds	Common Diving Petrel	*Pelecanoides urinatrix subsp. exsul*	Not available	
Birds	Common Greenshank	*Tringa nebularia*	Not available	
Birds	Common Pheasant*	*Phasianus colchicus*	Not available	
Birds	Common Sandpiper	*Actitis hypoleucos*	Not available	
Reptiles	Common Snake Lizard	*Lialis burtonis*	Not available	
Birds	Crested Pigeon	*Ocyphaps lophotes*	Woodtja	Generic pigeon
Birds	Crested Tern	*Sterna bergii*	Kaljirgang	Generic tern
Reptiles	Crowned Snake	*Elapognathus coronatus*	Not available	
Birds	Curlew Sandpiper	*Calidris ferruginea*	Not available	
Birds	Darter	*Anhinga melanogaster*	Not available	
Reptiles	Dell's Skink	*Ctenotus delli*	Not available	
Mammals	Dog	*Canis lupus*	Dwert	
Birds	Domestic Pigeon	*Columba livia*	Woodtja	Generic pigeon
Reptiles	Dugite	*Pseudonaja affinis*	Dujitj	
Invertebrates	Dunsborough Burrowing Crayfish	*Engaewa reducta*	Dtjil	
Birds	Dusky Moorhen	*Gallinula tenebrosa*	Gnolyaang	
Reptiles	Dusky Morethia	*Morethia obscura*	Not available	
Birds	Dusky Woodswallow	*Artamus cyanopterus*	Beewoowen	
Reptiles	Dwarf Skink	*Menetia greyii*	Not available	
Birds	Eastern Curlew	*Numenius madagascariensis*	Weela	
Birds	Eastern Reef Egret	*Egretta sacra*	Not available	
Mammals	Echidna	*Tachyglossus aculeatus*	Nginang	
Birds	Elegant Parrot	*Neophema elegans*	Guliyidarang	
Birds	Emu	*Dromaius novaehollandiae*	Waitj	
Birds	Eurasian Coot	*Fulica atra*	Moolya windu	
Birds	Fairy Martin	*Petrochelidon ariel*	Wallung	
Birds	Fairy Tern	*Sternula nereis*	Kannamit	
Birds	Fan-tailed Cuckoo	*Cacomantis flabelliformis*	Djudarran	
Reptiles	Fence Skink	*Cryptoblepharus buchananii*	Not available	
Birds	Forest Red-tailed Black Cockatoo	*Calyptorhynchus banksii naso*	Karrak	
Birds	Galah	*Eolophus roseicapilla*	Not available	
Invertebr	Gilgie	*Cherax quinquecarinatus*	Gilgie	

Class	Common Name	*Genus & Species*	Wadandi translation	Notes
ates				
Amphibians	Glauert's Froglet	*Crinia glauerti*	Kakitt	Generic frog
Birds	Golden Whistler	*Pachycephala pectoralis*	Pedilmidang	
Reptiles	Gould's Hooded Snake	*Parasuta gouldii*	Not available	
Mammals	Gould's Long-eared Bat	*Nyctophilus gouldi*	Babill	Generic bat
Mammals	Goulds Wattled Bat	*Chalinolobus gouldii*	Babill	
Birds	Great Cormorant	*Phalacrocorax carbo*	Tsarbanga	
Birds	Great Egret	*Ardea alba*	Not available	
Birds	Greater Sand Plover	*Charadrius leschenaultii*	Not available	
Birds	Grey Butcherbird	*Cracticus torquatus*	Koorabeet	
Birds	Grey Currawong	*Strepera versicolor*		
Birds	Grey Fantail	*Rhipidura fuliginosa*	Gadjinnak	
Birds	Grey Shrike-thrush	*Colluricincla harmonica*	Gnulargo	
Birds	Grey Teal	*Anas gracilis*	Kwaiart ngoonern	
Mammals	Grey-bellied Dunnart	*Sminthopsis griseoventer*	Not available	
Birds	Grey-tailed Tattler	*Tringa brevipes*	Not available	
Amphibians	Guenther's Toadlet	*Pseudophryne guentheri*	Kakitt	Generic frog
Birds	Hardhead	*Aythya australis*	Not available	
Reptiles	Heath Monitor	*Varanus rosenbergi*	Wuridji	
Birds	Hoary-headed Grebe	*Poliocephalus poliocephalus*	Wyooda	
Mammals	Honey Possum	*Tarsipes rostratus*	Balgara	
Birds	Hooded Plover	*Charadrius rubricollis*	Nidjul Yorong	
Birds	Horsfield's Bronze Cuckoo	*Chrysococcyx basalis*	Djuritj	Generic cuckoo
Mammals	House Mouse	*Mus musculus*	Not available	
Birds	Hutton's Shearwater	*Puffinus huttoni*	Not available	
Birds	Indian Yellow-nosed Albatross	*Thalassarche carteri*	Not available	
Reptiles	King's Skink	*Egernia kingii*	Not available	
Birds	Laughing Kookaburra	*Dacelo novaeguineae*	Not available	
Birds	Laughing Turtle-Dove	*Streptopelia senegalensis*	Not available	
Amphibians	Lea's Frog	*Geocrinia leai*	Kakitt	Generic frog
Reptiles	Leatherback Turtle	*Dermochelys coriacea*	Yakyn	Generic turtle
Mammals	Lesser Long-eared Bat	*Nyctophilus geoffroyi*	Babill	Generic bat
Birds	Lesser Noddy	*Anous tenuirostris*	Not available	
Birds	Lesser Sand Plover	*Charadrius mongolus*	Not available	

Class	Common Name	*Genus & Species*	Wadandi translation	Notes
Birds	Little Black Cormorant	*Phalacrocorax sulcirostris*	Tsarbanga	Generic cormorant
Birds	Little Corella	*Cacatua sanguinea*	Not available	
Birds	Little Crow	*Corvus bennetti*	Wardong	
Birds	Little Eagle	*Aquila morphnoides*	Waalitj	Generic eagle
Birds	Little Grassbird	*Megalurus gramineus*	Garganween	
Birds	Little Penguin	*Eudyptula minor subsp. novaehollandiae*	Gano-kwinok	
Birds	Little Pied Cormorant	*Phalacrocorax melanoleucos*	Kogoko	
Birds	Little Shearwater	*Puffinus assimilis*	Not available	
Reptiles	Loggerhead Turtle	*Caretta caretta*	Not available	
Birds	Magpie-lark	*Grallina cyanoleuca*	Dilabert	
Birds	Mallard	*Anas platyrhynchos*	Not available	
Birds	Malleefowl	*Leipoa ocellata*	Gnow	Wheatbelt
Reptiles	Marbel-faced Delma	*Delma australis*	Not available	
Reptiles	Marbled Gecko	*Christinus marmoratus*	Biptarl	Generic gecko
Invertebrates	Marron	*Cherax cainii*	Marron	
Birds	Marsh Sandpiper	*Tringa stagnatilis*	Not available	
Birds	Masked Lapwing	*Vanellus miles*	Not available	
Birds	Masked Owl (SW pop.)	*Tyto n. novaehollandiae*	Not available	
Birds	Mistletoebird	*Dicaeum hirundinaceum*	Moonejetang	
Amphibians	Moaning Frog	*Heleioporus eyrei*	Kakitt	Generic frog
Amphibians	Motorbike Frog	*Litoria moorei*	Kakitt	Generic frog
Reptiles	Mourning Skink	*Egernia luctuosa*	Not available	
Birds	Musk Duck	*Biziura lobata*	Gatdarra gatdarra	
Birds	New Holland Honeyeater	*Phylidonyris novaehollandiae*	Bandin	Generic honeyeater
Mammals	New Zealand Fur Seal	*Arctocephalus forsteri*	Balkut	Generic seal
Amphibians	Nicholls' Toadlet	*Metacrinia nichollsi*	Kakitt	Generic frog
Birds	Osprey	*Pandion haliaetus*	Yoondoordoo	
Birds	Pacific Black Duck	*Anas superciliosa*	Ngoonrrn	
Birds	Pacific Gull	*Larus pacificus*	Ngarkul	
Birds	Painted Button-quail	*Turnix varia*	Mooroolung	
Birds	Pallid Cuckoo	*Cuculus pallidus*	Not available	
Birds	Pectoral Sandpiper	*Calidris melanotos*	Not available	
Birds	Peregrine Falcon	*Falco peregrinus*	Gwetalbur	
Reptiles	Perons Snake-eyed Skink	*Cryptoblepharus plagiocephalus*	Not available	
Birds	Pied Butcherbird	*Cracticus nigrogularis*	Dangaruk	

Class	Common Name	*Genus & Species*	Wadandi translation	Notes
Birds	Pied Cormorant	*Phalacrocorax varius*	Gogogo	
Birds	Pied Oystercatcher	*Haematopus longirostris*	Goran-goran	
Birds	Pink-eared Duck	*Malacorhynchus membranaceus*	Whymbin	
Birds	Pomarine Skua	*Stercorarius pomarinus*	Not available	
Reptiles	Pretty Worm Lizard	*Aprasia pulchella*	Not available	
Birds	Purple Swamphen	*Porphyrio porphyrio*	Kweelya	
Birds	Purple-crowned Lorikeet	*Glossopsitta porphyrocephala*	Cowara	
Amphibians	Quacking Frog	*Crinia georgiana*	Kakitt	Generic frog
Mammals	Quokka	*Setonix brachyurus*	Kwokka	
Mammals	Rabbit	*Oryctolagus cuniculus*	Not available	
Birds	Rainbow Bee-eater	*Merops ornatus*	Birunbirun	
Birds	Recherche Cape Barren Goose	*Cereopsis novaehollandiae subsp. Grisea*	Not available	
Mammals	Red Fox	*Vulpes vulpes*	Not available	
Birds	Red Wattlebird	*Anthochaera carunculata*	Djang gang	
Birds	Red-capped Parrot	*Platycercus spurius*	Dyarylbardang	
Birds	Red-capped Plover	*Charadrius ruficapillus*	Didar	
Birds	Red-eared Firetail	*Stagonopleura oculata*	Djirri	
Reptiles	Red-legged Skink	*Ctenotus labillardieri*	Not available	
Birds	Red-necked Avocet	*Recurvirostra novaehollandiae*	Yarjingoorong	
Birds	Red-necked Stint	*Calidris ruficollis*	Not available	
Birds	Red-tailed Tropicbird	*Phaethon rubricauda*	Not available	
Birds	Red-winged Fairy-wren	*Malurus elegans*	Djarjilya	Generic fairy wren
Birds	Regent Parrot	*Polytelis anthopeplus*	Warkonga	
Birds	Restless Flycatcher	*Myiagra inquieta*	Djitti-ngat	
Birds	Rock Parrot	*Neophema petrophila*	Djalyup	
Reptiles	Rosenburg's Monitor	*Varanus gouldii*	Not available	
Fish	Rosy Barb	*Puntius conchonius*	Not available	
Birds	Royal Spoonbill	*Platalea regia*	Melkullya	
Birds	Rufous Bristlebird	*Dasyornis broadbenti subsp. litoralis*	Djardalya	
Birds	Rufous Night Heron	*Nycticorax caledonicus*	Djilimilyan	Generic heron
Birds	Rufous Songlark	*Cincloramphus mathewsi*	Not available	
Birds	Rufous Treecreeper	*Climacteris rufa*	Djinni	
Birds	Rufous Whistler	*Pachycephala rufiventris*	Not available	
Birds	Sacred Kingfisher	*Todiramphus sanctus*	Kanyinnuk	
Birds	Sanderling	*Calidris alba*	Not available	

Class	Common Name	*Genus & Species*	Wadandi translation	Notes
Reptiles	Sand-plain Worm-lizard	*Aprasia repens*	Not available	
Birds	Scarlet Robin	*Petroica multicolor*	Gooba-gooba	
Fish	Sea Mullet	*Mugil cephalus*	Kulta/culta	
Birds	Sharp-tailed Sandpiper	*Calidris acuminata*	Not available	
Birds	Shining Bronze Cuckoo	*Chrysococcyx lucidus*	Djuritj	Generic cuckoo
Reptiles	Short-nosed Snake	*Elapognathus minor*	Not available	
Birds	Short-tailed Shearwater	*Ardenna tenuirostris*	Not available	
Birds	Shy Albatross	*Thalassarche cauta*	Albatross	
Birds	Shy Heathwren	*Hylacola cautus*	Tjuringa/churinka/ churinga	Generic wren
Birds	Silver Gull	*Larus novaehollandiae*	Dji-ji-nup	
Birds	Silvereye	*Zosterops lateralis*	Bindgelung	
Birds	Singing Honeyeater	*Lichenostomus virescens*	Tdoorumtdoorum	
Amphibians	Slender Tree Frog	*Litoria adelaidensis*	Kakitt	Generic frog
Birds	Sooty Oystercatcher	*Haematopus fuliginosus*	Not available	
Mammals	South Western Freetail Bat	*Mormopterus kitcheneri*	Babill	Generic bat
Reptiles	Southern Blind Snake	*Ramphotyphlops australis*	Not available	
Mammals	Southern Brown Bandicoot	*Isoodon obesulus fusciventer*	Kwenda/kwinda	
Mammals	Southern Brush-tailed Phascogale	*Phascogale tapoatafa ssp*	Palikk	
Reptiles	Southern Carpet Python	*Morelia spilota imbricata*	Wogarl	
Birds	Southern Emu-wren	*Stipiturus malachurus*	Tjuringa/churinka/ churinga	
Mammals	Southern Forest Bat	*Vespadelus regulus*	Babill	Generic bat
Birds	Southern Fulmar	*Fulmarus glacialoides*	Not available	
Birds	Southern Giant Petrel	*Macronectes giganteus*	Not available	
Reptiles	Southern Scaleyfoot	*Pygopus lepidopodus*	Not available	
Reptiles	Southwest Crevice Skink	*Egernia napoleonis*	Not available	
Reptiles	South-western Cool Skink	*Acritoscincus trilineatum*	Not available	
Reptiles	Southwestern Five-toed Lerista	*Lerista microtis microtis*	Not available	
Reptiles	South-western Four-toed Lerista	*Lerista distinguenda*	Not available	
Reptiles	Southwestern Mulch Skink	*Hemiergis gracilipes*	Not available	
Reptiles	South-western Odd-striped Ctenotus	*Ctenotus impar*	Not available	
Reptiles	Speckled Stone Gecko	*Diplodactylus polyophthalmus*	Biptarl	Generic gecko
Birds	Splendid Fairy-wren	*Malurus splendens*	Djarjilya	Generic fairy wren
Birds	Spotless Crake	*Porzana tabuensis*	Not available	

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Birds	Spotted Nightjar	*Eurostopodus argus*	Kalga	
Birds	Spotted Pardalote	*Pardalotus punctatus*	Wedup wedup	
Reptiles	Square-nosed Snake	*Rhinoplocephalus bicolor*	Not available	
Birds	Square-tailed Kite	*Hamirostra isura*	Mararl	
Amphibians	Squelching Froglet	*Crinia insignifera*	Kakitt	Generic frog
Birds	Straw-necked Ibis	*Threskiornis spinicollis*	Not available	
Birds	Striated Pardalote	*Pardalotus striatus*	Wida wida	
Birds	Stubble Quail	*Coturnix pectoralis*	Barraberri	
Birds	Swamp Harrier	*Circus approximans*	Tdilyurdu	
Fish	Swan River Goby	*Pseudogobius olorum*	Dgildjit/djiljit	Generic fish
Mammals	Tammar Wallaby	*Macropus eugenii subsp. derbianus*	Tamma	
Birds	Tawny Frogmouth	*Podargus strigoides*	Tduldah	
Birds	Tawny-crowned Honeyeater	*Gliciphila melanops*	Wyrodjudong	
Reptiles	Three-toed Mulch Skink	*Hemiergis peronii tridactyla*	Not available	
Reptiles	Tiger Snake	*Notechis scutatus*	Norna	Same as black backed
Birds	Tree Martin	*Hirundo nigricans*	Gabbykallangoorong	
Amphibians	Turtle Frog	*Myobatrachus gouldii*	Kakitt	Generic frog
Birds	Varied Sittella	*Daphoenositta chrysoptera*	Gumalbidyt	
Birds	Wandering Albatross	*Diomedea exulans*	Not available	
Mammals	Water Rat	*Hydromys chrysogaster*	Gnurju	
Birds	Wedge-tailed Eagle	*Aquila audax*	Waalitj	Generic eagle
Birds	Wedge-tailed Shearwater	*Ardenna pacifica*	Not available	
Birds	Weebill	*Smicrornis brevirostris*	Geeaterbat/geeatabut	
Birds	Welcome Swallow	*Hirundo neoxena*	Kunnameet	
Reptiles	West Coast Four-toed Lerista	*Lerista elegans*	Not available	
Reptiles	Western Bearded Dragon	*Pogona minor minor*	Kularli	
Reptiles	Western Bobtail	*Tiliqua rugosa rugosa*	Nyorna	
Mammals	Western Brush Wallaby	*Macropus irma*	Kwoora	
Mammals	Western Bush Rat	*Rattus fuscipes*	Not available	
Mammals	Western False Pipistrelle	*Falsistrellus mackenziei*	Babill	Generic bat
Birds	Western Gerygone	*Gerygone fusca*	Not available	
Mammals	Western Grey Kangaroo	*Macropus fuliginosus*	Yonga	
Fish	Western Hardyhead	*Leptatherina wallacei*	Dgildjit/djiljit	Generic fish

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Birds	Western Little Wattlebird	*Anthochaera lunulata*	Djunggung	
Birds	Western Long-billed Corella	*Cacatua pastinator*	Maanitj	Generic cockatoo/corella
Mammals	Western Long-eared Bat	*Nyctophilus major*	Babill	Generic bat
Fish	Western Minnow	*Galaxias occidentalis*	Not available	
Reptiles	Western Pale-flecked Morethia	*Morethia lineoocellata*	Not available	
Fish	Western Pygmy Perch	*Edelia vittata*	Dgildjit/djiljit	Generic fish
Mammals	Western Pygmy-possum	*Cercartetus concinnus*	Mordit	
Mammals	Western Ringtail Possum	*Pseudocheirus occidentalis*	Gnuren	
Birds	Western Rosella (Western ssp)	*Platycercus icterotis icterotis*	Guddan-guddan	
Birds	Western Spinebill	*Acanthorhynchus superciliosus*	Buljit	
Birds	Western Thornbill	*Acanthiza inornata*	Miamit	
Birds	Western White-naped Honeyeater	*Melithreptus chloropsis*	Djingee	
Birds	Western Yellow Robin	*Eopsaltria australis*	Bambuu	
Birds	Whimbrel	*Numenius phaeopus*	Not available	
Birds	Whistling Kite	*Haliastur sphenurus*	Jandoo/djandoo/djandu	
Birds	White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Waalitj	Generic eagle
Birds	White-breasted Robin	*Eopsaltria georgiana*	Boydjeet	
Birds	White-browed Scrubwren	*Sericornis frontalis*	Gurgal	
Birds	White-cheeked Honeyeater	*Phylidonyris nigra*	Bandin	Generic honeyeater
Birds	White-faced Heron	*Egretta novaehollandiae*	Wyann	
Birds	White-fronted Chat	*Epthianura albifrons*	Not available	
Birds	White-naped Honeyeater	*Melithreptus Lunatis*	Banggin	
Birds	White-necked Heron	*Ardea pacifica*	Djilimilyan	Generic heron
Mammals	White-striped Freetail-bat	*Tadarida australis*	Babill	Generic bat
Birds	White-winged Triller	*Lalage sueurii*	Not available	
Amphibians	Whooping Frog	*Heleioporus inornatus*	Kakitt	
Birds	Willie Wagtail	*Rhipidura leucophrys*	Willeran/willering	
Birds	Wilson's Storm Petrel	*Oceanites oceanicus*	Not available	
Birds	Wood Sandpiper	*Tringa glareola*	Not available	
Invertebrates	Yabby	*Cherax destructor*	Yabby	
Birds	Yellow-billed Spoonbill	*Platalea flavipes*	Kaaka baaka	
Mammal	Yellow-footed	*Antechinus flavipes*		

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s	Antechinus, Mardo			
Birds	Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*	Djida	