

Legend

Fauna Sites

- ▲ Habitat Assessment Number

Fauna Habitat

- Swales (29.08 ha)
- Lake Margin (6.42 ha)

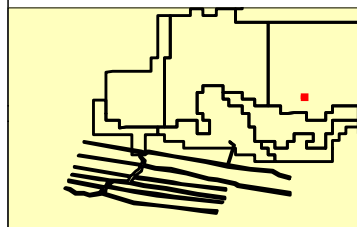
NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
 - LOCALITY MAP SOURCED LANDGATE 2006
 - TENEMENTS SOURCED FROM AGRIMIN 2017
 - RARE AND PRIORITY FLORA SOURCED DPAW 2017
 - AERIAL PHOTOGRAPHY SOURCED LANDGATE 2007
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0 50 100 150 200
 Meters
 1:5,000 @ A3

LOCALITY MAP



PROJECT ID	DATE
2188	4/08/2017

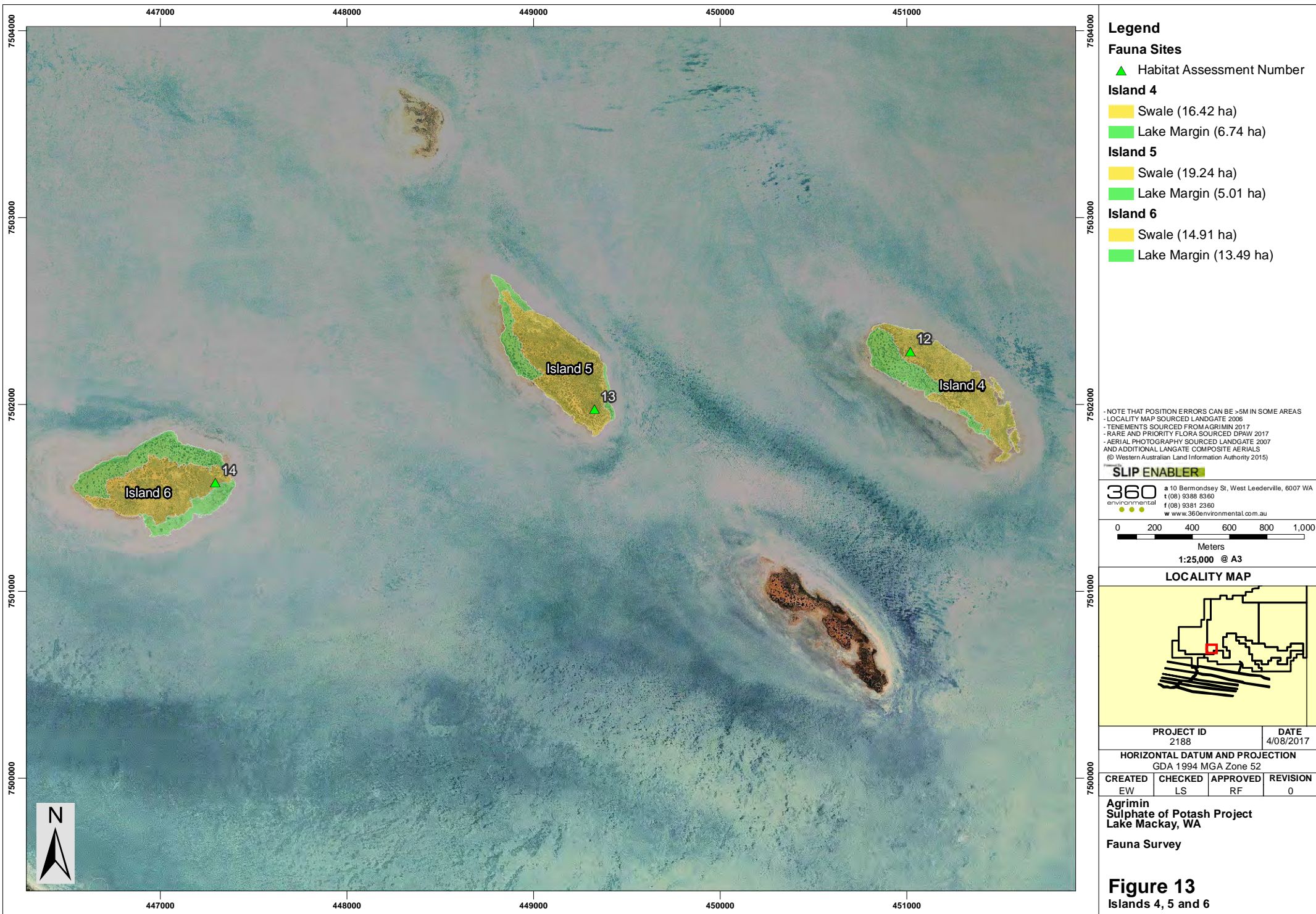
HORIZONTAL DATUM AND PROJECTION
 GDA 1994 MGA Zone 52

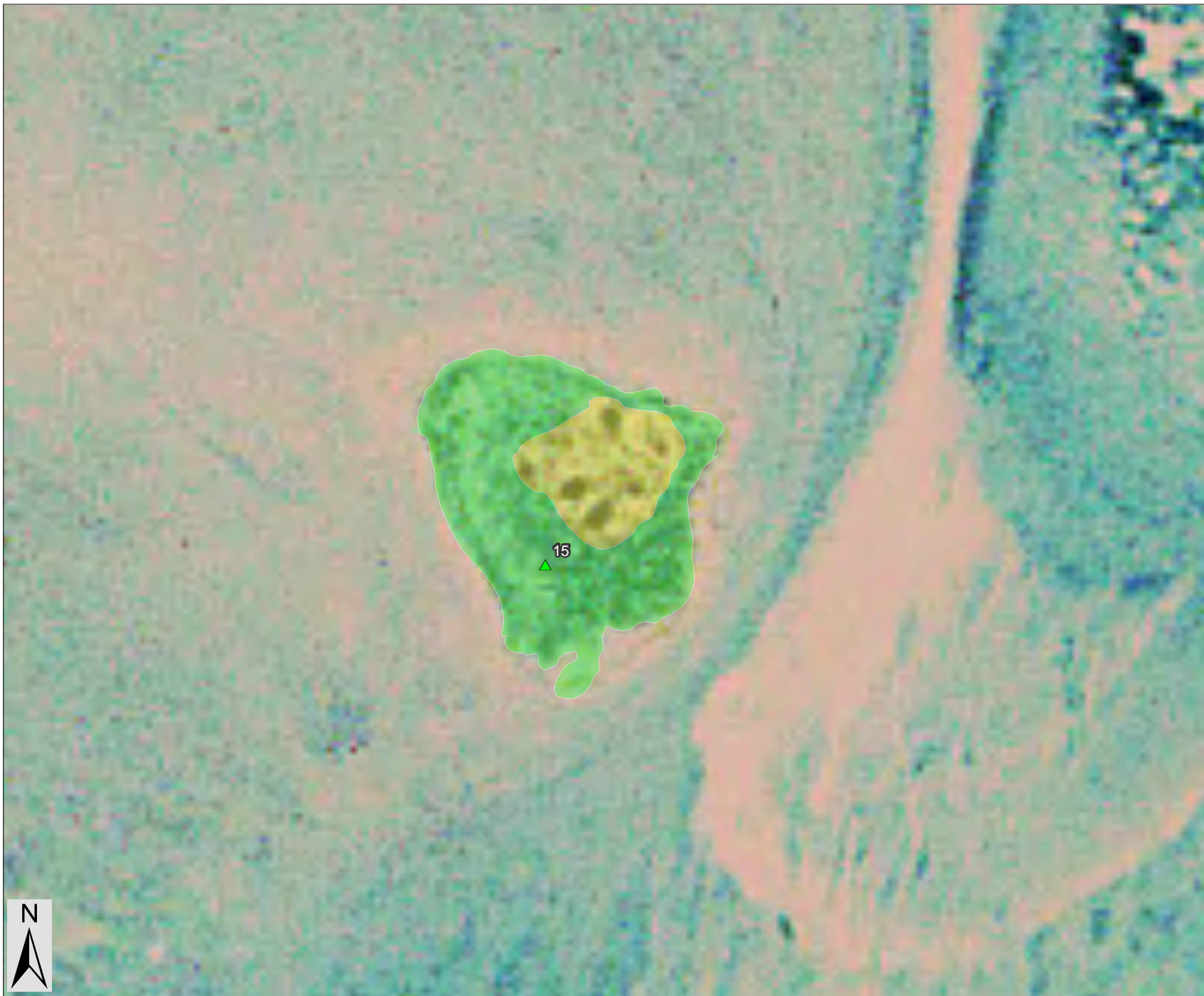
CREATED	CHECKED	APPROVED	REVISION
EW	LS	RF	0

Agrimin
 Sulphate of Potash Project
 Lake Mackay, WA

Fauna Survey

Figure 12
 Island 3





Legend

Fauna Sites

- ▲ Habitat Assessment Number

Fauna Habitat

- Swale (0.09 ha)
■ Lake Margin (0.27 ha)

- NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
- LOCALITY MAP SOURCED LANDGATE 2006
- CADASTRE SOURCED FROM LANDGATE 22 DEC 2015
- AERIAL PHOTOGRAPHY SOURCED LANDGATE SEPT 2015
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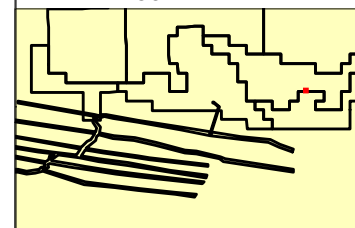
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0 10 20 30 40 50
Meters

1:1,250 @ A3

LOCALITY MAP



PROJECT ID	DATE
2188	4/08/2017

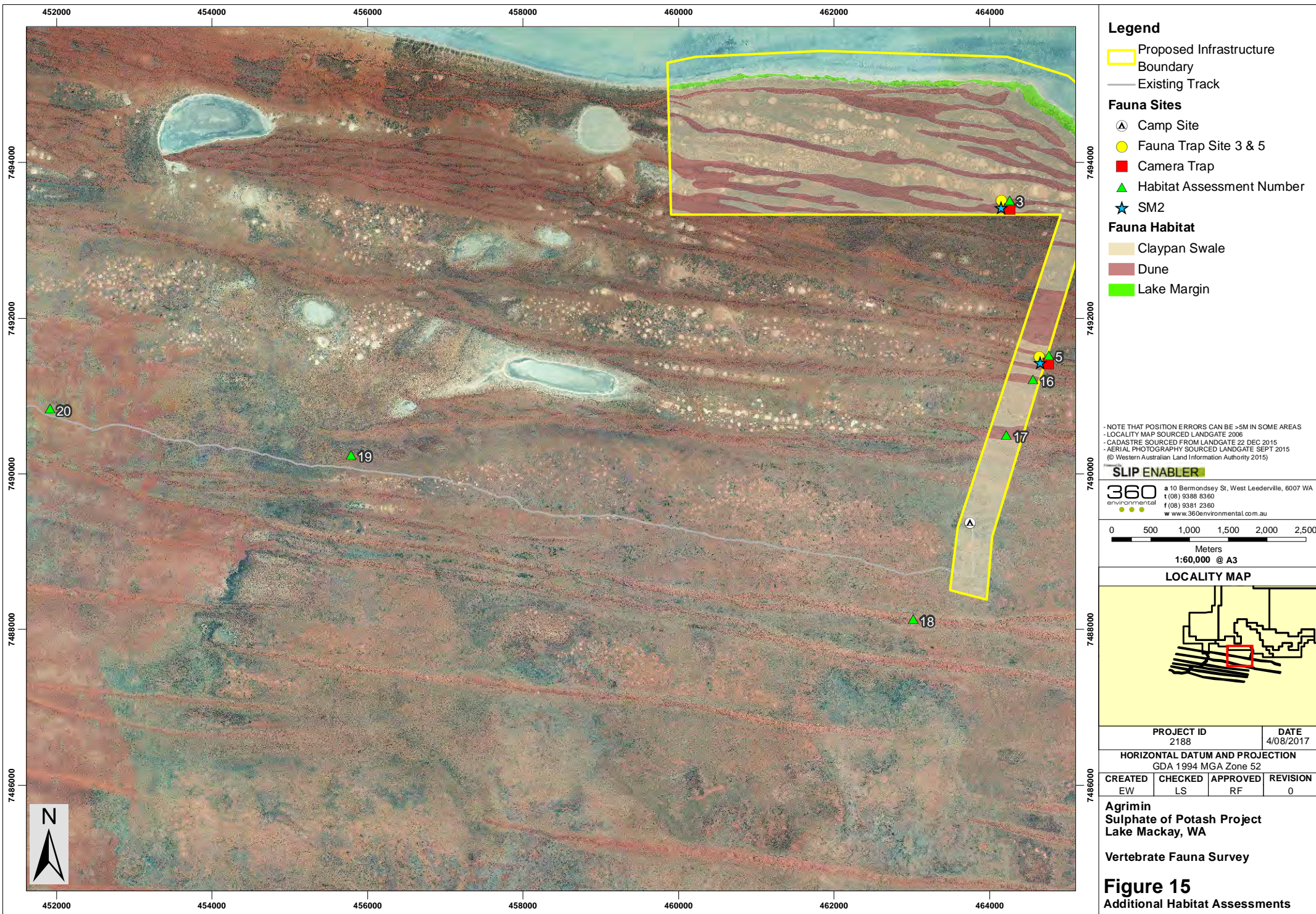
HORIZONTAL DATUM AND PROJECTION
GDA 1994 MGA Zone 52

CREATED	CHECKED	APPROVED	REVISION
EW	LS	RF	0

Agrimin
Sulphate of Potash Project
Lake Mackay, WA

Fauna Survey

Figure 14
Island 7



4 Results

4.1 Fauna Survey Limitations and Constraints

Survey constraints are often difficult to predict, as is the extent to which they influence survey effort. The survey limitations and constraints of the fauna survey are outlined below in Table 8.

Table 8: Limitations and constraints associated with the survey.

VARIABLE	IMPACT ON SURVEY OUTCOMES
Access	<p>The Survey Area is extremely remote. The nearest township is the Kiwirrkurra Community which is approximately 65 km to the south-west of the lake/ Survey Area. It is virtually untouched, with very few existing access tracks. Access was provided exclusively by helicopter to each trap site and other assessment locations. This remoteness limited the extent to which opportunistic searches and more general fauna habitat assessments could be undertaken. Nevertheless, searches were undertaken as far as practicable <i>in lieu</i> of the access and transportation constraints.</p> <p>The focus of the survey effort was primarily on the proposed infrastructure areas, two large islands on the lake and other, smaller locations. The six trap sites were located in habitats that are representative of those found in the Survey Area. However, given the Survey Area's size, there were sections that were not accessed, although the habitats that these areas supported were assessed in other locations throughout the Survey Area, where possible.</p>
Experience	<p>The personnel who undertook the survey were practitioners suitably qualified in their respective fields:</p> <ul style="list-style-type: none"> • Project Manager, Field Staff and Report Review: Dr Ron Firth (Principal Zoologist); and • Field Staff, Data Interpretation and Reporting: Laura Stevens (Zoologist).
Timing, weather, season	<p>The survey was undertaken from the 10 – 19 May 2017. The most relevant and reliable Bureau of Meteorology (BoM) weather station for the Survey Area is Walungurru Airport (Site No. 15664), approximately 80 km south-east</p>

VARIABLE	IMPACT ON SURVEY OUTCOMES
	<p>of the southern boundary of the Survey Area. Walungurru Airport weather station recorded 804.2 mm of rain in the 12 months prior to survey (May 2016 – April 2017) which is 498.1 mm above the long-term average rainfall for the same period (see Figure 2). In the three months prior to the survey (February 2017 – April 2017), 119.4 mm of rainfall was recorded which is just below the 130.8 mm average rainfall for the same period (BoM 2017).</p> <p>During the survey period, no rainfall was noted in the Survey Area and none was recorded at the Walungurru Airport weather station (see Table 1). On average, rainfall in May is relatively low with the long-term average being 20.6 mm. Maximum temperatures during the survey were close to the long-term average, though slightly higher on five of the 10 survey days (Table 1). Minimum temperatures during the survey were relatively close to the long-term average on four of the 10 days, but below the long-term average on six of the 10 days (noticeably lower on five of the six days) (see Table 1).</p> <p>It is worth noting that the Survey Area is a substantial distance from the Walungurru Airport weather station. As a result, there are likely to be differences in rainfall and temperature records related to localised effects, though these are unlikely to be significant.</p>
Scope: Life forms sampled	<p>This was a Level 2 fauna survey, comprising a desktop review of secondary data and a field survey that included baseline trapping, habitat assessments, systematic and opportunistic observations, acoustic micro bat call recordings and camera traps. Vertebrate groups targeted during the survey were reptiles, birds and mammals (including micro bats).</p>
Sources of information	<p>The desktop analysis used several sources to produce a list of fauna species previously recorded in the vicinity of the Survey Area. This includes records from the DPaW Threatened Fauna Database Search, (DPaW 2017a), the EPBC Protected Matters Search Tool (DEE 2017) and NatureMap (DPaW 2017b) as well as past consultant reports, field guides and other scientific literature (although</p>

VARIABLE	IMPACT ON SURVEY OUTCOMES
	this was relatively limited for the general area).
Completeness	A total of 94 fauna species were recovered from database searches and a total of 94 species were also recorded during the survey. A total of six trap sites were surveyed over seven nights. Pitfall trap survey effort at trap sites totalled 409 nights, funnel traps 672 nights, Elliott traps 420 nights, cage traps 168 nights and bird survey effort was 480-person minutes. SM2 units and camera traps were placed at each of the six trap sites and 24 hours of opportunistic searches were undertaken. Spotlighting (based near camp due to trap site access constraints) totalled 120 minutes. Habitat assessments were undertaken at 22 locations across the Survey Area, including at trap sites.
Disturbances	Likely due to its remote location, pre-existing disturbance in the Survey Area is considered extremely low. Very minor existing disturbances included animal tracks (camels) and vehicle tracks.

4.2 Fauna Results

4.2.1 Database Results

Database searches returned 94 vertebrate species from 40 families. Of these, 37 were reptile species from eight families, 36 were bird species from 21 families and 21 were mammal species from 11 families.

A total of 21 conservation significant species (including Priority species) were identified during the desktop review of database searches (Appendix B). These comprised one reptile species, 16 bird species from 11 families and three mammal species from two families. The likelihood of them occurring in the Survey Area is outlined in Table 8 and reported in the results.

The DPaW threatened fauna database, NatureMap and the EPBC Protected Matters Search Tool (PMST) returned a small number of species known to be historical records of species now extinct in the local area e.g. Red-tailed Phascogale (*Phascogale calura*) (locally called Kenngoor) and the Central Hare-wallaby (*Macropodidae lagorchestes asomatus*) (locally called Kuluwarri). Also, there were a number of database errors including the Grey Wagtail (*Motacilla cinerea*) which is a rare visitor and has just two confirmed records (Johnstone & Storr 1998). These species have been omitted from any further discussion.

It is important to note that the EPBC PMST is not entirely based on point records but also on broader information (e.g. bioclimatic distribution models), whereas the DPaW threatened fauna database and NatureMap are solely based on point records. Consequently, the results of the EPBC PMST are in some cases less accurate, particularly at a local scale (e.g. the Yellow Wagtail (*Motacilla flava*)). As a result, the EPBC PMST can include species that do not occur in the Survey Area because, for example, there is no habitat available or they are now known to be locally extinct.

In addition, many fauna species are not distributed evenly across the landscape, being more abundant in some places than others where they can be more readily detectable (Currie 2007). Furthermore, some small, common, ground-dwelling reptile and mammal species tend to be habitat specific, and many bird species can occur as regular migrants, occasional visitors or vagrants. Therefore, all of these species have been omitted from any further discussion regarding fauna results.

With the aforementioned species removed, a total of 21 conservation significant species (including Priority species) were identified during the review of the database searches as potentially occurring in the Survey Area. Of these, five species were recorded during the survey (this includes during the recent waterbird survey), 10 species are considered Likely to occur, one species is considered Possible to occur and five species are considered Unlikely to occur in the Survey Area (Table 9). All 21 conservation significant species are discussed in section 5.1. The Striated Grasswren (*Amytornis striatus*) was not returned from database results, however, the species is also included for consideration in this report since its distribution is considered Likely to include Lake Mackay (section 5.1.1).

The Likelihood of each species occurring is based on the following criteria:

- Recorded: Recorded during the field survey or site reconnaissance;
- Likely: Suitable habitat is present in the Survey Area and the Survey Area is in the species' known distribution;
- Possible: Limited or no suitable habitat is present in Survey Area, but is nearby. The species has good dispersal abilities and is known from the general area; and
- Unlikely: No suitable habitat is present in Survey Area but is nearby, the species has poor dispersal abilities but is known from the general area or suitable habitat is present, however, the Survey Area is outside of the species' known distribution.

Table 9: Conservation significant fauna recorded and potentially occurring in the Survey Area.

IUCN listing – En = Endangered, Vu = Vulnerable and LC = Least Concern. En = Listed as Endangered under the EBPC Act, Vu = Listed as Vulnerable under the EBPC Act, Mi = Listed as Migratory under the EBPC Act, Ma = Listed as Marine under the EBPC Act, S = Scheduled (1 - 7) under the WC Act, P = Listed as Priority (1 – 5) by DPaW.

SPECIES	CONSERVATION STATUS (EPBC ACT, WC ACT & PRIORITY)	LIKELIHOOD
Reptiles		
Great Desert Skink (<i>Liopholis kintorei</i>) (locally called Tjakura)	Vu, S3	Likely
Birds		
Fork-tailed Swift (<i>Apus pacificus</i>)	MiMa, S5	Recorded
Cattle Egret (<i>Ardea ibis</i>)	MiMa, S5	Unlikely
Eastern Great Egret (<i>Ardea modesta</i>)	MiMa, S5	Unlikely
Grey Falcon (<i>Falco hypoleucos</i>)	Vu, S3	Unlikely
Oriental Plover (<i>Charadrius veredus</i>)	MiMa, S5	Likely
Australian Painted Snipe (<i>Rostratula australis</i>)	En, S2	Recorded
Common Sandpiper (<i>Actitis hypoleucos</i>)	MiMa, S5	Likely
Sharp-tailed Sandpiper (<i>Calidris acuminata</i>)	MiMa, S5	Recorded
Pectoral Sandpiper (<i>Calidris melanotos</i>)	MiMa, S5	Likely
Common Greenshank (<i>Tringa nebularia</i>)	MiMa, S5	Recorded
Red-necked Stint (<i>Calidris ruficollis</i>)	MiMa, S5	Recorded
Oriental Pratincole (<i>Glareola maldivarum</i>)	MiMa, S5	Likely
Night Parrot (<i>Pezoporus occidentalis</i>)	En, S1	Possible
Princess Parrot (<i>Polytelis alexandrae</i>)	Vu	Likely
Rainbow Bee-eater (<i>Merops ornatus</i>)	Ma, S5	Likely
Barn Swallow (<i>Hirundo rustica</i>)	Ma, S5	Unlikely
Striated Grass-wren (<i>Amytornis striatus striatus</i>)	P4	Likely
Mammals		
Brush-tailed Mulgara (<i>Dasycercus blythi</i>)	P4	Likely
Bilby (<i>Macrotis lagotis</i>) (locally called Ninu)	Vu, S3	Likely
Northern Marsupial Mole (<i>Notoryctes caurinus</i>) (locally called Kararratul)	P4	Likely

4.2.2 Survey Results

During the field survey 94 species from 46 families were recorded. This consisted of two amphibian species from one family, 24 species of reptile from seven families, 57 bird

species from 31 families and 11 mammal species from seven families. Three of the 11 mammal species were introduced - the Red Fox (*Vulpes vulpes*), the European Rabbit (*Oryctolagus cininculus*) and the Camel (*Camelus dromedarius*).

Figure 16 shows the frequency of all species captured at the trap sites during the field survey across all habitat types using pitfall and funnel trap captures. Reptiles were the most frequently recorded group, followed by mammals, with amphibians the least frequently recorded group.

Trap site data can be seen in Appendix D. This appendix is a record of all captures across the six trap sites. Data was recorded opportunistically throughout the survey and is presented in Appendix F. This appendix is a record of all species recorded in the overall Survey Area. It includes species that were recorded during spotlighting, when flying between trap sites and when walking in a more general nature in the Survey Area. Photographs of some species captured during the survey can be seen in Appendix G including the Short-tailed Pygmy Monitor (*Varanus brevicaudus*), Three-lined Knob-tail (*Nephrurus levis*) and Thorny Devil (*Moloch horridus*).

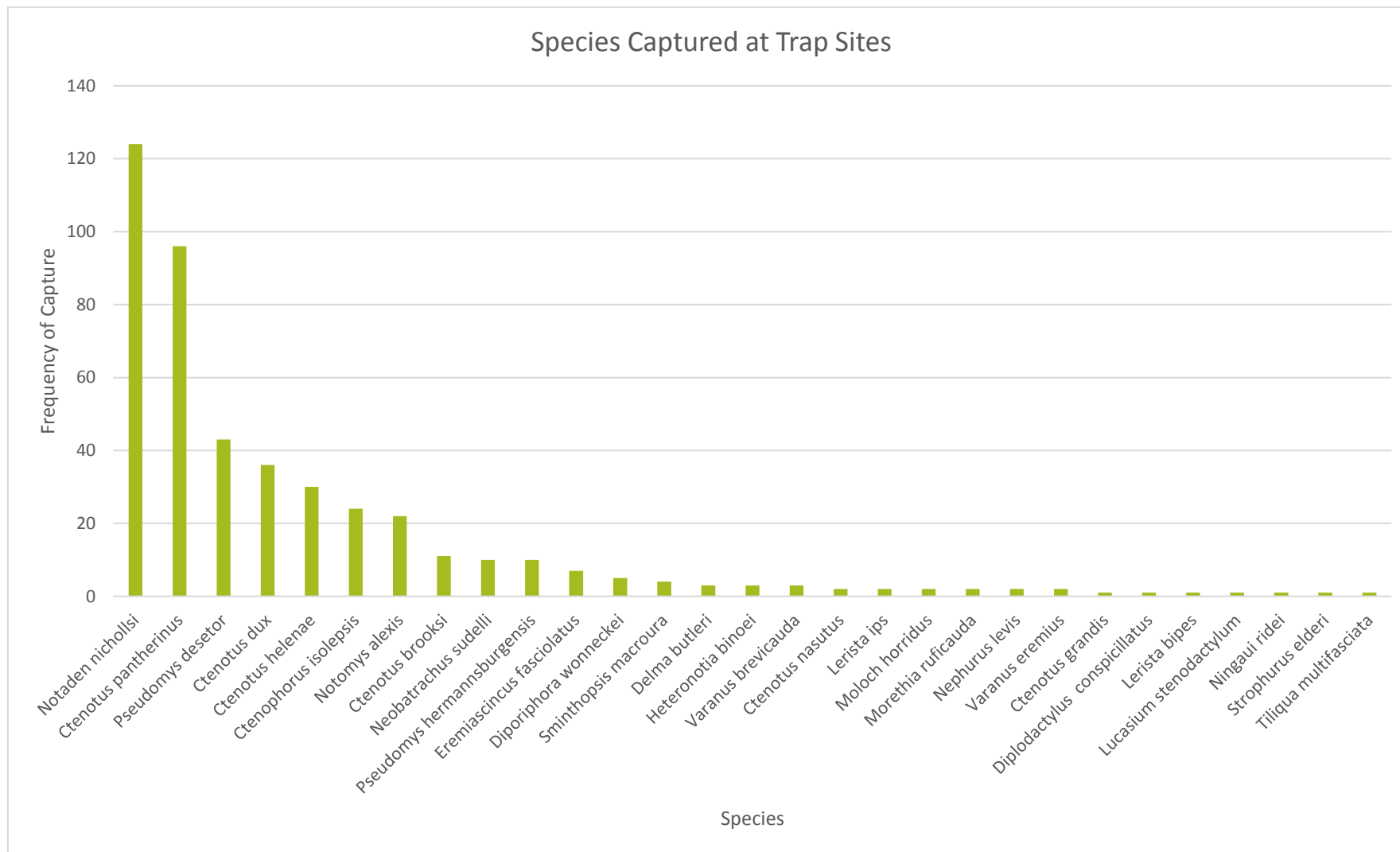


Figure 16: Frequency of Species Captured at Trap Sites during the Survey.

4.2.2.1 Amphibians

From the database searches, no amphibians have previously been recorded in the surrounding area (as per the database search parameters defined in section 3.2.1). During the survey, two amphibian species were recorded. The Desert Spade Frog (*Notaden nichollsi*) was recorded on 214 occasions and Sudell's Frog (*Neobatrachus sudelli*) was recorded on 10 occasions. Both species were recorded at all trap sites with the exception of trap site 2.

4.2.2.2 Reptiles

From the database searches, a total of 37 species of reptile have been previously recorded in the surrounding area (as per the database search parameters defined in section 3.2.1). During the field survey, 24 species of reptile were recorded (Appendix C). The most frequently recorded species was the Leopard Ctenotus (*Ctenotus pantherinus*) with 96 captures in total and recorded at all trap sites. This was followed by the Fine Side-lined Ctenotus (*Ctenotus dux*) with 36 captures in total, recorded at all six trap sites and the Clay-soil Ctenotus (*Ctenotus helenae*) which was recorded on 30 occasions from trap sites 3-6.

4.2.2.3 Birds

From the database searches, a total of 36 bird species have been previously recorded in the surrounding area (as per the database search parameters defined in section 3.2.1). During the field survey, 57 species of bird were identified including those recorded during the waterbird survey (Appendix C). Bird species were recorded at all trap sites as well as opportunistically. The most frequently recorded (not necessarily the most abundant) bird species were the Singing Honeyeater (*Lichenostomus virescens*), Willie Wagtail (*Rhipidura leucophrys*) and Zebra Finch (*Taeniopygia guttata*), each of which was recorded at all six trap sites (with the exception of the Willie Wagtail at trap site 2) as well as opportunistically throughout the Survey Area.

The Singing Honeyeater was heard and seen in small groups at each trap site and heard in numerous locations throughout the Survey Area. The Willie Wagtail was observed singularly or in small groups and the Zebra Finch was mainly observed flying in flocks at each trap site and throughout the Survey Area.

4.2.2.4 Mammals

From the database searches, 21 species of mammal have previously been recorded in the surrounding area (as per the database search parameters defined in section 3.2.1). During the field survey, 11 species of mammal were recorded (Appendix C). Of these 11 species, five were recorded at the trap sites, two were Bat species recorded on the SM2 units and the remainder were recorded opportunistically. Three were introduced species.

During the field survey, the most frequently recorded mammal at the trap sites was the Desert Mouse (*Pseudomys desertor*) which was caught on 43 occasions at all trap sites,

with the exception of trap site 2. This was followed by the Spinifex Hopping-mouse (*Notomys alexis*) which was caught a total of 22 times from trap sites 3-6 and the Sandy Inland Mouse (*Pseudomys hermannsbergensis*) which was caught 10 times from trap sites 3, 4 and 6.

4.3 Fauna Habitat

Four broad fauna habitats types were identified in the Survey Area:

- Dune;
- Swale;
- Claypan Swale; and
- Lake Margin.

These habitats are widespread and common in areas adjacent to the Survey Area and more broadly across the region.

The fauna habitats are mapped in Figures 7-15 and the habitat assessment undertaken in each of the four habitats is detailed in Appendix E. The extent of each habitat in the Survey Area is presented in Table 10.

Table 10: Habitat types and extent in the Survey Area.

HABITAT TYPE	EXTENT IN THE SURVEY AREA (HA)
Dune	1078.21
Swale	3088.00
Claypan Swale	797.73
Lake Margin	573.91
Total Area	5547.29

Of the four habitats types described, Swale was by far the most extensive fauna habitat occurring in the Survey Area. Descriptions and photographs of fauna habitats are provided below.

4.3.1 Dune Fauna Habitat

The dune habitat is characterised by areas of dune crest that typically includes scattered *Eucalyptus sp.* or *Corymbia sp.* trees over *Acacia* shrubland with a hummock grass layer of spinifex (*Triodia sp.*) on deep sandy soils (refer Plates 3-8 for examples of Dune habitat in the Survey Area).

A moderate diversity of microhabitats is present. While lacking tree hollows and logs, leaf litter and debris were present. The soils present are suitable for digging and

burrowing animals such as the Robust Duneslider (*Lerista ips*) and Narrow-banded Sand-swimmer (*Eremiascincus fasciolatus*), both of which were recorded in this habitat.

The Dune habitat has the potential (in areas where the sand is less-soft) to support several conservation significant vertebrate fauna species including the Great Desert Skink (*Liopholis kintorei*) and Brush-tailed Mulgara (*Dasycercus blythi*). The Dune habitat also provides shelter and foraging habitat for a number of bird species including the Masked Woodswallow (*Artamus personatus*), Splendid Fairy-wren (*Malurus splendens*), Horsfield's Bronze Cuckoo (*Chrysococcyx basalis*) and a number of Honeyeater species, all of which were recorded in this habitat.

The Dune habitat also provides shelter and foraging habitat for a number of small mammal species including the Desert Mouse, Sandy Inland Mouse, and Spinifex Hopping Mouse, all of which were recorded in Dune habitat. Due to the structure of this habitat, it is considered to be of moderate value to fauna in the Survey Area.



Plate 3: Dune Habitat.



Plate 4: Dune Habitat showing Trap Site number 5.

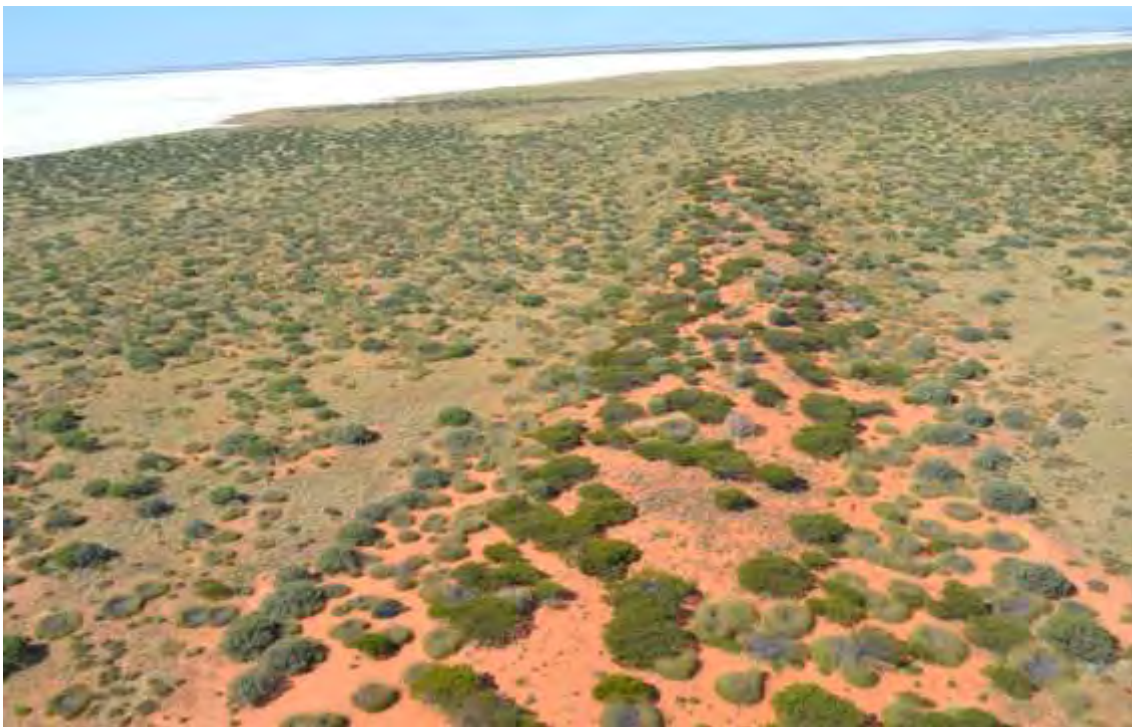


Plate 5: Dune Habitat.



Plate 6: Dune Habitat.



Plate 7: Dune Habitat.



Plate 8: Dune Habitat.

4.3.2 Swale Fauna Habitat

The Swale habitat is characterised by the lower areas lying between the dune slopes and crests in the Survey Area. Swale habitat is characterised by low, open shrubland of *Acacia* sp. and *Melaleuca* sp. over hummock grassland of *Triodia* sp. on sandy soils. Soils were more compact than in the Dune habitat and, in some areas, calcrete was present (e.g. on Island 2 and Trap Site 4) which may limit habitat opportunities to some extent for some burrowing species (see Plates 9-13 for examples of Swale habitat in the Survey Area).

Allocasuarina decaisneana (Desert Oak) is scattered through this habitat, particularly on Island 1, providing habitat for some bird and reptile species. A moderate diversity of microhabitats is present, with some leaf litter and debris. The soils present in the Swale habitat are typically suitable for digging and burrowing animals such as *Delma butleri* (Unbanded Delma).

Swale habitat has the potential to support several conservation significant fauna species, including *M. lagotis* (Bilby) in areas of more compact sand in which larger burrows can be constructed. Swale habitat also has the potential to support *L. kintorei* (Great Desert Skink), *(D. blythi)* Brush-tailed Mulgara and *P. alexandrae* (Princess Parrot). Due to the structure of this habitat, it is considered to be of moderate value to fauna in the Survey Area.



Plate 9: Swale Habitat.



Plate 10: Swale Habitat.



Plate 11: Swale Habitat showing Trap Site number 2.



Plate 12: Swale Habitat.



Plate 13: Swale Habitat.

4.3.3 Claypan Swale Fauna Habitat

The Claypan Swale habitat is characterised by the lower areas between the dune slopes and crests in the Survey Area where claypans are present. Claypan Swale habitat is characterised by low open shrubland of *Acacia* sp. and *Melaleuca* sp. over hummock grassland of *Triodia* sp., with some areas of compacted clay soils. Some areas still contain sandy soils, however, they are typically more compact than in Swale habitat. The Claypan Swale habitat contains areas where fresh water pools (probably mostly from run-off) as was observed during the fauna survey (see Plates 14-19 for examples of Claypan Swale habitat in the Survey Area).

Larger areas of *Melaleuca* are present in Claypan Swale habitat, providing important habitat for many bird, mammal and reptile species. A moderate diversity of microhabitats is present, with some leaf litter and debris. Although the soils are the most compact of the Survey Area, they are still suitable for digging and burrowing species.

During the survey, some areas of this habitat had claypans that were dry which provides little value to fauna. However, a number contained freshwater which provides important habitat for reptile and mammal species (particularly in vegetation around the periphery of the claypans, when present), including *Sminthopsis macroura* (Stripe-faced Dunnart) and *Pseudomys hermannsbergensis* (Sandy Inland Mouse). Most significantly, however, this wetland habitat provides habitat to waterbirds including *Malacorhynchus membranaceus* (Pink-eared Duck), *Ardea novaehollandie* (White-faced Heron) and *Recurvirostra novaehollandiae* (Red-necked Avocet), all of which were recorded at Trap Site 4.

Claypan Swale habitat has the potential to support several conservation significant vertebrate fauna species including *Rostratula australis* (Australian Pained Snipe) and migratory waders such as *Tringa nebularia* (Common Greenshank) and *Calidris acuminata* (Sharp-tailed Sandpiper). Claypan Swale habitat is, therefore, considered to be of high value to fauna in the Survey Area.

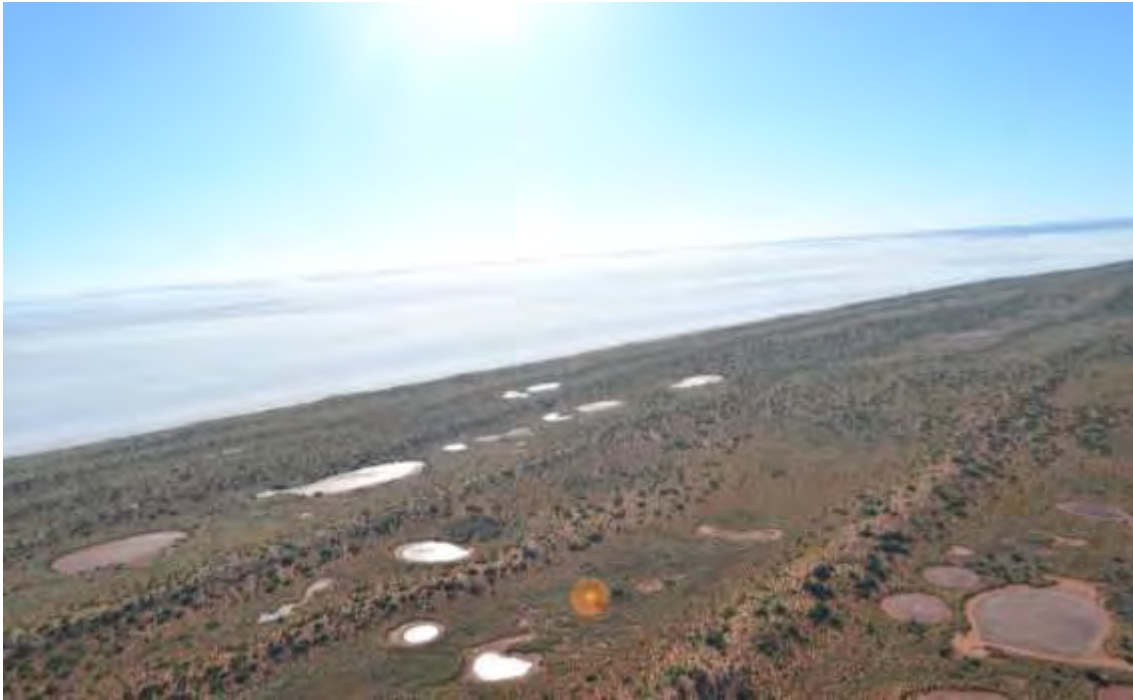


Plate 14: Claypan Swale Habitat.



Plate 15: Claypan Swale Habitat.



Plate 16: Claypan Swale Habitat.



Plate 17: Claypan Swale Habitat.



Plate 18: Claypan Swale Habitat.



Plate 19: Claypan Swale Habitat.

4.3.4 Lake Margin Fauna Habitat

Lake Margin habitat is comprised of various *Tecticornia* species over scattered tussock grassland on sandy soils and is found on island edges as well as the edge of the lake on the mainland (see Plates 20-25 for examples of Lake Margin habitat in the Survey Area).

Lake Margin habitat has a limited diversity of microhabitats present, lacking the structure of an over or midstorey and very limited leaf litter.

This habitat has a relatively low potential of supporting conservation significant fauna species, although it may be utilised by migratory species including the Fork-tailed Swift as well as wading birds such as *Actitis hypoleucos* (Common Sandpiper) and *Calidris ruficollis* (Red-necked Stint) at certain times following large rainfall events. These birds, however, are all more likely to use areas of freshwater during these times. Lake Margin habitat is, therefore, considered to be of low value to fauna in the Survey Area.



Plate 20: Lake Margin Habitat.



Plate 21: Lake Margin Habitat.



Plate 22: Lake Margin Habitat.



Plate 23: Lake Margin Habitat.



Plate 24: Lake Margin Habitat.

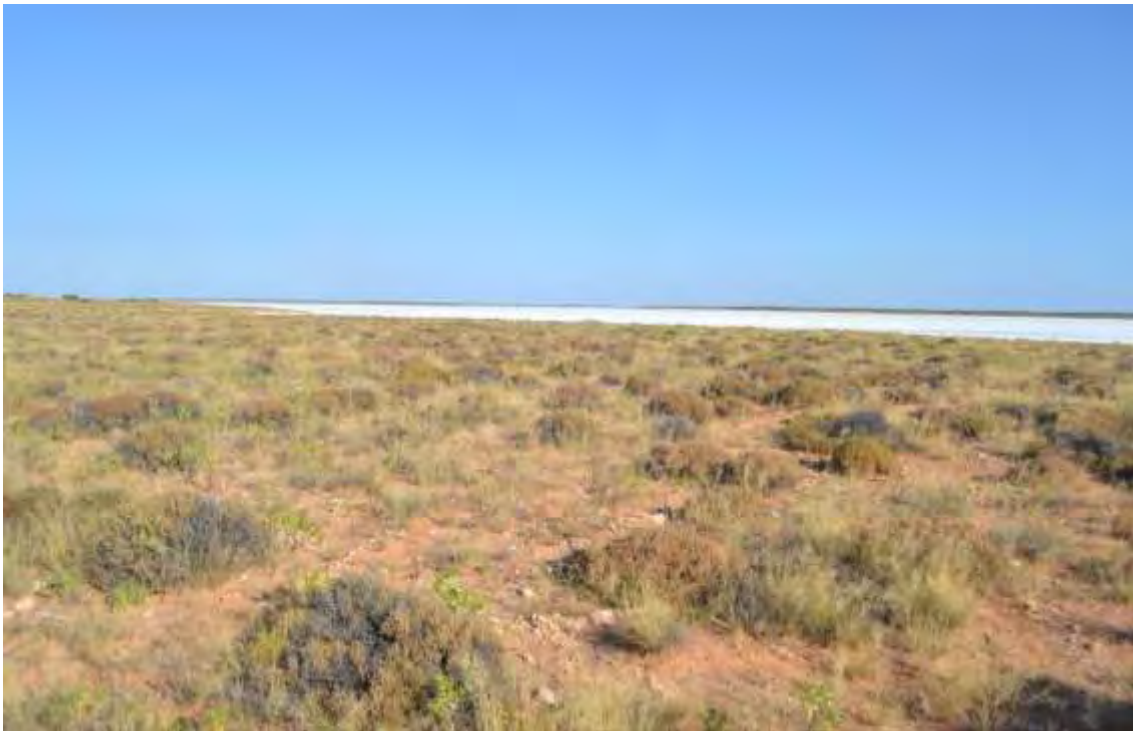


Plate 25: Lake Margin Habitat.

4.4 Camera Trap Results

The following species were recorded on the camera traps (Plates 26-28):

- *Canis lupus dingo* (Dingo) – recorded at trap site 4;
- *Vulpes vulpes* (Red Fox) – recorded at trap sites 2 and 6; and
- *Notomys alexis* (Spinifex Hopping-mouse) recorded at trap site 6.

No species of conservation significance were recorded on motion cameras during the survey.



Plate 26: *Canis lupus dingo* (Dingo) recorded at Trap Site 4.



Plate 28: *Vulpes vulpes* (Fox) recorded at Trap Site 2.



Plate 29: *Notomys alexis* (Spinifex Hopping Mouse) recorded at Trap Site 6.

4.5 SM2 Unit Results

The following two bat species were recorded on the SM2 unit during the survey:

- *Taphozous hilli* (Hills Sheath-tailed Bat); and
- *Austronomus australis* (White-striped Free-tailed Bat).

The Night Parrot was not recorded on the SM2 unit during the survey.

5 Discussion

5.1 Conservation Significant Fauna

A total of 21 conservation significant fauna species (including Priority species) were either recorded during the survey or identified during the desktop review of database searches as potentially occurring in the Survey Area. These species are discussed below, including some brief ecological information for each species and the reasons for their likelihood of occurrence in the Survey Area. More information is presented for those species recorded during the survey and / or where there is substantial information (particularly ecological information) available in the literature.

5.1.1 Conservation Significant Species Recorded

Five conservation significant species in total were recorded during the 10-day field survey and the recent waterbird survey, including the Fork-tailed Swift, Australian Painted Snipe (recorded during the waterbird survey), Sharp-tailed Sandpiper, Common Greenshank, and Red-necked Stint (these three species were also recorded during the recent waterbird survey).

Fork-tailed Swift (*Apus pacificus*)

The Fork-tailed Swift is listed as Migratory under the EPBC Act and as S5 under the WC Act. It is a non-breeding visitor to all states and territories of Australia (Higgins 1999). The Fork-tailed Swift is a summer migrant to Australia usually during the months of October-April. The Fork-tailed Swift is an aerial species which forages high above the tree canopy and is independent of terrestrial habitats. It occurs in flocks of up to 2,000 birds and is often seen accompanying Tree Martins and Masked Wood swallows (Johnstone & Storr 1998).

The DPaW threatened fauna database did not return any records of the Fork-tailed Swift. The species was observed flying overhead on Island 3 and, while it will not be reliant on the habitats of the Survey Area, it is likely to utilise the Survey Area as part of its larger foraging home range.

Australian Painted Snipe (*Rostratula australis*)

The Australian Painted Snipe (Painted Snipe) is listed as Endangered under the EPBC Act. It inhabits shallow, vegetated, temporary or infrequently filled inland wetlands of Australia. Numbers of the Painted Snipe are thought to have declined substantially since European settlement, particularly over the last 50 years, due to the loss and alteration of wetlands (Garnett *et al.* 2011).

Migration patterns of the Painted Snipe are poorly known (Pringle 1987), although the species is believed to disperse widely as evidenced by irregular and infrequent occurrences and breeding throughout Australia (Marchant & Higgins 1993). Movements

have been attributed to local conditions- birds move to flooded areas, from drying to permanent wetlands and away from areas affected by drought.

There are no records of the Australian Painted Snipe in the DPaW threatened fauna database for the Survey Area, however, one Australian Painted Snipe was recorded during the recent Waterbird survey (April 2017). It is important to note that there was only one record of the Australian Painted Snipe and it was observed approximately 25 km to the east of the nearest proposed infrastructure development area. It was recorded at a claypan and aerial imagery, together with careful observations from scheduled helicopter survey flights across the Survey Area over a 10 day period, show that potentially 1,000s of similar claypans occur around Lake Mackay.

Recorded Waterbirds

The following three waterbirds were recorded at Lake Mackay and they are all listed as Marine Migratory under the EPBC Act and as S5 under the WC Act:

- Sharp-tailed Sandpiper (*Calidris acuminata*);
- Common Greenshank (*Tringa nebularia*); and
- Red-necked Stint (*Calidris ruficollis*).

The above species are birds that inhabit the shorelines of coasts and inland water bodies during most of their life cycles. Most of these birds are from two taxonomic families, the Sandpipers (*Scolopacidae*) and the Plovers (*Charadriidae*) (DoE 2015).

Australia is geographically and ecologically an important location for migratory shorebirds within the East Asian–Australasian flyway. Thirty-six of the 37 Australian migratory shorebird species breed in the northern hemisphere and migrate annually to southern nonbreeding areas including Australia (DoE 2015).

Migratory shorebird species are mostly present in Australia during the non-breeding period, from as early as August to as late as April/May each year (excluding the double-banded plover, which is generally present from March to September). After arrival in Australia at the end of long migrations, they disperse throughout the country to a wide variety of habitats. These coastal and inland habitats include:

- Coastal wetlands, estuaries, mudflats, rocky inlets, reefs and sandy beaches, often supporting mangroves; and
- Inland wetlands, floodplains and grassland areas, often with ephemeral water sources.

These important habitats in Australia allow adult birds to build up the energy reserves necessary to support northward migration and subsequent breeding. While they support large numbers of adult shorebirds during the non-breeding period, many also support smaller numbers of immature shorebirds of many species during the breeding season.

Immature birds of some species remain in Australia for a number of years before reaching maturity and migrating north to breed for the first time (DoE 2015).

The DPaW threatened fauna database did not return any records of these bird species, however, the Survey Area appears to contain suitable habitat in terms of shallow freshwater and salt water bodies where they might feed on insects and small molluscs. These species were recorded as part of the Waterbird Survey undertaken by 360 Environmental in April 2017 (360 Environmental 2017) – see Table 11.

Table 11: Waterbirds recorded in the Survey Area

WATERBIRD	LAKE (INDIVIDUALS)	CLAYPAN (INDIVIDUALS)	TOTAL (INDIVIDUALS)
Sharp-tailed Sandpiper	6	31	37
Common Greenshank	0	4	4
Red-necked Stint	252	250	502

5.1.1 Species Considered as Likely to Occur

A total of 10 species of conservation significance are considered as Likely to occur in the Survey Area including the Great Desert Skink, the Oriental Plover, Pectoral Sandpiper, Oriental Pratincole, Rainbow Bee-eater, Princess Parrot, Striated Grasswren, Brush-tailed Mulgara, Bilby and Northern Marsupial Mole.

Great Desert Skink (*Liopholis kintorei*)

The Great Desert Skink is listed as Vulnerable under the EPBC Act and as Schedule 3 under the WC Act. It is a burrowing species in which large and complex burrow systems may be occupied by family groups. Regular defecating spots are used (on the surface) and generally indicate occupied burrow systems. The Great Desert Skink is found in a variety of desert habitats on sandy, clay and loamy soils.

The DPaW threatened fauna database returned 33 records of the Great Desert Skink in the search area (as per the database search parameters defined in section 3.2.1), all from the vicinity of Kiwirrkurra. With the exception of three records, they are all from 2014 and 2016. A Bushblitz Survey undertaken in the vicinity of Kiwirrkurra and Lake Mackay in 2015 also recorded the Great Desert Skink (Bushblitz 2015).

The Survey Area is within the known distribution of the species and suitable habitat is present. The Great Desert Skink is, therefore, considered Likely to occur in the Survey Area.

Waterbirds

The following four waterbirds are all listed as Marine Migratory under the EPBC Act and as S5 under the WC Act:

- Oriental Plover (*Charadrius veredus*);
- Common Sandpiper (*Actitis hypoleucos*);

- Pectoral Sandpiper (*Calidris melanotos*); and
- Oriental Pratincole (*Glareola maldivarum*).

As previously mentioned, Australia is geographically and ecologically an important location for migratory shorebirds within East Asian–Australasian flyway. Migratory shorebird species are mostly present during the non-breeding period, from as early as August to as late as April/May each year.

The above mentioned waterbirds were not recorded during the waterbird survey or during this current survey and records of them were not present in the DPaW threatened fauna database. However, suitable habitat in terms of bare ground and samphire flats next to fresh water and saltlakes was present in the Survey Area. As such, these waterbirds are considered Likely to occur in the Survey Area when the lake has sufficient and suitable resources.

Rainbow Bee-eater (*Merops ornatus*)

The Rainbow Bee-eater is listed as Marine under the EPBC Act and S5 under the WC Act. This species is one of the most common and widespread birds in Australia with a distribution that covers the majority of Australia (Barrett *et al.* 2003). The Rainbow Bee-eater is a common and widespread species in WA, except the drier interior of the State and the far south-west. It occurs in lightly wooded, often sandy country, preferring areas near water. It feeds on airborne insects and nests throughout its range in WA in burrows excavated in sandy ground or banks, often at the margins of roads and tracks (Johnstone & Storr 1998). In WA, this bird can occur as a 'resident, breeding visitor, postnuptial nomad, passage migrant and winter visitor' (Johnstone & Storr 1998).

There is a single record in the DPaW threatened fauna database, but it was not recorded during the survey. It was, however, recorded throughout the Survey Area during the Ecologia survey (Ecologia 2017). The Survey Area provides suitable foraging habitat and, as such, it is considered Likely to occur in the Survey Area.

Princess Parrot (*Polytelis alexandrae*)

The Princess Parrot is listed as Vulnerable under the EPBC Act and P4 under the DPaW Priority list. It is scattered and irregular across the arid regions from near Oodnadatta in South Australia, west to near Coolgardie and the east Murchison River in WA and north to near the Fitzroy River in WA and Howell Ponds in the Northern Territory. It may be concentrated in the Great Sandy Desert, Gibson, Tanami and Great Victoria Deserts and in the Central ranges (Higgins 1999).

The species inhabits shrublands and savanna woodlands in swales between sand dunes, with occupied sites typically consisting of *Triodia* spp. and a variety of shrubs and scattered emergent trees. The Princess Parrot feeds on the seeds of grasses, including spinifex, and nests have been found in Desert Oak (*Allocasuarina decaisneana*) (Higgins 1999) which is a tree species recorded on Island 1 in Swale habitat.

The DPaW threatened fauna database returned a single record of the Princess Parrot from Kiwirrkurra in 2012. As a result of its known distribution and the presence of suitable habitat in the Survey Area, the Princess Parrot is considered Likely to occur in the Survey Area.

Striated Grasswren (*Amytornis striatus striatus*)

The Striated Grasswren (*striatus*) is listed as P4 under the DPaW Priority list. The Striated Grasswren was not returned in any of the database searches, however, previous experience indicates that the DPaW records have the subspecies listed incorrectly. *Amytornis striatus striatus* (P4) is known from the Gibson Desert and *Amytornis striatus whitei* is known from the Pilbara. DPaW records appear to have these two subspecies confused. *Amytornis striatus striatus* has a known distribution in the Survey Area, therefore, it has been considered in this report.

The Striated Grasswren (*striatus*) inhabits spinifex sand ridges and inter-dunes with spinifex and acacia where it feeds on insects and seeds, including *Triodia spp.*

The Survey Area is within the known distribution of the species and suitable habitat is present, therefore, it is considered Likely to occur.

Brush-tailed Mulgara (*Dasycercus blythi*)

DPaW lists the Brush-tailed Mulgara as Priority 4. It is distributed widely across inland Australia with a population that fluctuates somewhat in response to seasonal conditions, but is probably substantially >10,000 individuals even at its lowest point. The population size has declined historically but may now be stable. If still declining, this is at a rate of <10% over ten years (Woinarski *et al.* 2014).

Brush-tailed Mulgara habitat is bound broadly by the Tanami Desert in the north, the Simpson Desert in the east, the Great Victoria Desert in the south and the Carnarvon, Murchison and Pilbara IBRA regions in the west (Woinarski *et al.* 2014).

The Brush-tailed Mulgara is associated mostly with hummock (spinifex) grasslands but also uses other vegetation types (often sandplains, grasslands and woodlands) when mixed with or adjacent to hummock grasslands. It is mainly nocturnal and shelters during the day in excavated burrow systems. Brush-tailed Mulgara burrows typically contain between two and nine entrances with tunnels mostly found on a single level at a below ground depth of about 300 mm. The lumen for a burrow entrance is typically an arch over a flat bottom with a height of 70-80 mm and a width of 80-100 mm at the base (Thompson & Thompson 2007). The diet of the Brush-tailed Mulgara comprises a broad range of invertebrates and small vertebrates (Woinarski *et al.* 2014).

The DPaW threatened fauna database returned 13 records (seven records were labelled as secondary signs in the database, i.e. most likely burrows) for the Brush-tailed Mulgara from Kiwirrkurra and Lake Mackay from 2012 to 2016, six of which were from a survey undertaken at Lake Mackay in 2012 (most likely Outback Ecology 2012).

The Survey Area contains suitable habitat in terms of sandy areas in which Brush-tailed Mulgara can construct burrows. This suitable habitat is most likely the Swale and Claypan Swale habitat where the sand is sufficiently compact in which to construct burrows. Although Dune habitat may be suitable in places, it is likely too soft in most areas to allow Brush-tailed Mulgara to construct their burrows.

During the survey, no Brush-tailed Mulgara were captured in traps, none were recorded on camera traps and no signs such as scats were observed. In addition, no Brush-tailed Mulgara were recorded in the Level 1 survey undertaken by Ecologia (Ecologia 2017). However, although no signs of the Brush-tailed Mulgara were recorded in the survey, due to the number of records in vicinity, as well as suitable habitat being present in the Survey Area, the Brush-tailed Mulgara is considered Likely to occur in the Survey Area.

Bilby (*Macrotis lagotis*)

The Bilby is listed as Vulnerable under the EPBC Act and as S3 under the WC Act. Before European settlement, the Bilby was found in over 70% of the Australian mainland. Contraction in its geographic range means it is now only found in a few locations in Australian sandy deserts and the Pilbara (Thompson & Thompson 2008). The population size is estimated to be fewer than 10,000 mature individuals and is undergoing continuing decline estimated to exceed 10% over the last three generations (12 years) and that is likely to continue (Woinarski *et al.* 2014).

Bilbies occupy a variety of habitats including Mitchell Grass and stony downs country of cracking clays, desert sandplains and dune fields sometimes containing laterite, hummock grasslands (Spinifex) and massive red earths with Acacia shrubland (Southgate *et al.* 2007, Van Dyck 2008). Free surface water is not typically available in the Bilby's range. As a result, they derive most of their water from the food that they consume. They are omnivorous and have a diet consisting of insects and their larvae, seeds, fruit and fungi, the proportions of which can vary depending on location (Southgate & Carthew 2006).

Bilbies are powerful diggers and can construct burrows systems that may be 3 m long and up to 1.8 m deep (Van Dyck 2008). Bilbies typically use two to three burrows each night and live in small groups of two to four individuals (Lavery & Kirkpatrick 1997).

Male Bilbies have been found to have a home range of 3.2 km (Moseby & O'Donnell 2003). They are mostly solitary and typically occur at low densities of < 1 km². They are also relatively mobile, moving between a series of scattered burrows that can be more than 1 km apart (Moseby & O'Donnell 2003; Southgate *et al.* 2005). Male Bilbies can also move up to 5 km between burrows on consecutive nights (Southgate *et al.* 2007). These factors make it difficult to detect their presence i.e. detectability is low for this species.

The Survey Area contains suitable habitat in terms of sandy areas in which Bilbies can construct burrows. This suitable habitat is most likely the Swale and Claypan Swale habitat where the sand is sufficiently compact in which to construct burrows. Although

Dune habitat may be suitable in places, it is likely too soft in most areas to allow Bilbies to construct their burrows.

The DPaW threatened fauna database returned 70 records for the Bilby from Kiwirrkurra from 2000 to 2016. With the exception of four camera trap records, all were secondary signs. During the survey, no Bilbies were captured in traps, none were recorded on camera traps and no signs, such as scats, were observed. In addition, no Bilbies were recorded in the Level 1 survey undertaken by Ecologia (Ecologia 2017). A Bushblitz Survey undertaken in the vicinity of Kiwirrkurra and Lake Mackay in 2015, however, did return Bilby records. During this survey, Bilbies were recorded on camera traps and through signs such as burrows (Bushblitz 2015).

Although no signs of the Bilby were recorded in this survey, recent local records, together with the presence of suitable habitat in the Survey Area means that the Bilby is considered Likely to occur in the Survey Area.

The Northern Marsupial Mole (*Notoryctes caurinus*)

DPaW list the Northern Marsupial Mole as Priority 4. The species occurs in the Great Sandy, Little Sandy and the northern Gibson Deserts of WA. It is also likely to occur in the western Tanami of WA and the western Northern Territory.

The distribution of the Northern Marsupial Mole follows that of the sand dune country which they seem to prefer. The connectivity of dunes in determining distribution appears important, i.e. mole signs are less common where there is low dune connectivity and isolated areas of dunes may not be inhabited (Woinarski *et al.* 2014).

The Northern Marsupial Mole inhabits sand dunes and to a lesser extent adjacent swales where there is suitable deep, loose sand. It spends almost its entire life underground, only very occasionally coming to the surface and remaining on the surface for a very short time (Woinarski *et al.* 2014).

DPaW's threatened fauna database returned a single record of the Northern Marsupial Mole from a survey undertaken in 2012. Ecologia (2017) recorded old signs (tunnel in a dune) during their assessment. The Survey Area is within the known distribution of the species and suitable habitat is present. The Northern Marsupial Mole is, therefore, considered Likely to occur in the Survey Area.

5.1.2 Species Considered as Possibly Occurring

One species of conservation significance considered as Possibly occurring in the Survey Area is the Night Parrot.

Night Parrot (*Pezoporus occidentalis*)

The Night Parrot is listed as Endangered under the EPBC Act and Schedule 1 under the WC Act. It is an enigmatic species thought possibly to be extinct until the recent recoveries of two dead specimens from Queensland (and new locations more recently). The type specimen and many early sightings, however, came from WA (Johnstone *et al.* 2013). A more recent sighting of the Night Parrot in the Pilbara comes from 12 April 2005 at a well near the Fortescue Marshes (Davis & Metcalf 2008), followed by breeding observations at Pullen Pullen Reserve in Western Queensland (Murphy *et al.* 2017). This was followed more recently by a sighting near Matuwa (Lorna Glen), north-east of Wiluna, in 2009 (Hamilton *et al.* 2017).

DPaW's threatened fauna database has no records of the Night Parrot in the search area (as per the database search parameters defined in section 3.2.1) and there is very limited ecological information available for this species such as its preferred habitat (only very broad information). However, with increasing conservation focus being given to this species, more information is likely to become available, e.g. the discovery of Night Parrot nests in large Spinifex hummocks in Queensland (Murphy *et al.* 2017) which is a common and widespread habitat type throughout much of south-east Queensland and WA, including the Survey Area. In March 2017, a population was observed and photographed at an interior salt lake in central Western Australia (at this stage no more details are available). As such, although there is an absence of nearby records and a very limited total number of records in WA, the Night Parrot is considered as Possibly occurring in the Survey Area due to the presence of suitable habitat.

5.1.3 Species Considered as Unlikely to Occur

Three species of conservation significance are considered Unlikely to occur in the Survey Area - the Cattle Egret, Grey Falcon and Barn Swallow.

Cattle Egret (*Ardea ibis*)

The Cattle Egret is listed as Migratory Marine under the EPBC Act and Schedule 5 under the WC Act. It is not listed by IUCN. It occurs in the wetter parts of WA, in particular the Kimberley and the south-west. The species inhabits short grass, especially damp pastures and wetlands, usually in the company of cattle and occasionally other livestock. In WA, it is an irregular visitor, occurring mostly in autumn, and is not thought to breed regularly (Johnstone & Storr 1998).

The DPaW threatened fauna database returned no records for the Cattle Egret. Records were from the ERPBC PMST only. This search is based on broader information, for example bioclimatic distribution models and the results are, in some cases, less accurate,

particularly at a local scale (see section 4.2.1 above). As such, the Cattle Egret is considered Unlikely to occur in the Survey Area.

Eastern Great Egret (*Ardea modesta*)

The Eastern Great Egret is listed as migratory under the EPBC Act and Schedule 5 under the WC Act. It is not listed by IUCN. It occurs in the Kimberley, Pilbara and on the west coast from the Murchison River south, throughout the south-west, and east to Cape Arid (Johnstone & Storr 1998). This species is an uncommon to very common visitor, usually in ones, twos or small flocks and, occasionally, in very large aggregations (up to 1,200), e.g. in Mandora Marsh in October 1999 and June 2000, and Fortescue Marsh in June 2000 (Johnstone *et al.* 2013).

The DPaW threatened fauna database returned no records for the Eastern Great Egret. Records were from the ERPBC PMST only. This search is based on broader information, for example bioclimatic distribution models and the results are in some cases less accurate, particularly at a local scale (see section 4.2.1 above). The Survey Area is outside of the known distribution of the Eastern Great Egret and as such it is considered Unlikely to occur in the Survey Area.

Grey Falcon (*Falco hypoleucos*)

The Grey Falcon is listed as Vulnerable under the EPBC Act and as S3 under the WC Act. It is a poorly known endemic of inland Australia and is considered Australia's rarest Falcon and among the rarest *Falco* species in the world (Schoenjahn 2013).

The species is a resident or nomadic visitor to inland parts of all states (except Tasmania) from a range of habitats, but is mainly found where annual rainfall is <500 mm, except when wet years are followed by drought and then they are more widespread (Garnett *et al.* 2011). Nesting has been recorded from River Red Gum (*E. camaldulensis*) and Coolibah (*E. coolabah*) trees up to 15 m above ground level (Johnstone and Storr 1998; Garnett *et al.* 2011).

The DPaW threatened fauna database returned four records of the Grey Falcon, all from 1980. The Survey Area is within the species known distribution, however, it lacks the lightly wooded coastal and riverine plains the species inhabits and lacks the large River Red Gum trees required for nesting. The Grey Falcon is, therefore, considered Unlikely to occur in the Survey Area.

Barn Swallow (*Hirundo rustica*)

The Barn Swallow is listed as Migratory under the EPBC Act and as S5 under the WC Act. The Barn Swallow is a widespread house swallow of the northern hemisphere, visiting coastal northern Australia south to Learmonth and appears as a vagrant further south. It inhabits open country, agricultural land, especially near towns and wetlands including sewage and saltwork ponds, river pools, swamps, tidal creeks and reservoirs (Johnstone and Storr 1998).

The DPaW threatened fauna database returned no records for the Barn Swallow. Records were from the ERPBC PMST only. This search is based on broader information, for example bioclimatic distribution models and the results are, in some cases, less accurate, particularly at a local scale (see section 4.2.1 above). As such, the Barn Swallow is considered Unlikely to occur in the Survey Area.

6 Conclusion

Five species of conservation significance have been directly observed as part of the recent waterbird survey and this current field survey, with four listed as Migratory Marine species:

- Fork-tailed Swift (*Apus pacificus*);
- Sharp-tailed Sandpiper (*Calidris acuminata*);
- Common Greenshank (*Tringa nebularia*); and
- Red-necked Stint (*Calidris ruficollis*).

These migratory shorebirds (and other waterbirds) recorded during the fauna survey will likely utilise the Survey Area sporadically and are unlikely to depend exclusively on the foraging habitat present. This habitat is also widespread and common in the vicinity of the Survey Area and, importantly, is also more broadly represented around the lake and across the region. It should also be noted that these migratory bird species are likely to only visit the lake and its claypans when episodically significant rainfall events occur and fill these waterbodies.

The Australian Painted Snipe (*Rostratula australis*) was recorded during the recent waterbird survey and is listed as Endangered under the EPBC Act. It is important to note that there was only one record of the Australian Painted Snipe and it was observed approximately 25 km to the east of the nearest proposed infrastructure development area. It was recorded at a claypan and aerial imagery, together with careful observations from scheduled helicopter survey flights across the Survey Area over a 10 day period, show that potentially 1,000s of similar claypans occur around Lake Mackay.

The following species are also listed as Migratory Marine and are considered Likely to occur in the Survey Area:

- Oriental Plover (*Charadrius veredus*);
- Common Sandpiper (*Actitis hypoleucos*);
- Pectoral Sandpiper (*Calidris melanotos*); and
- Oriental Pratincole (*Glareola maldivarum*).

As mentioned above, these Migratory Marine bird species will only be present when local waterbodies fill as a result of significant rainfall events.

The following species are considered to Likely occur or Possibly occur in the Survey Area:

- Great Desert Skink (*Liopholis kintorei*);
- Night Parrot (*Pezoporus occidentalis*);

- Princess Parrot (*Polytelis alexandrae*);
- Rainbow Bee-eater (*Merops ornatus*);
- Striated Grasswren (*Amytornis striatus striatus*);
- Brush-tailed Mulgara (*Dasycercus blythi*);
- Bilby (*Macrotis lagotis*); and
- Northern Marsupial Mole (*Notoryctes caurinus*).

In total, four natural, broad fauna habitats were identified in the Survey Area. These include Dune, Swale, Claypan Swale and Lake Margin, the conditions of which were classed as Pristine throughout the Survey Area. These habitats are widespread not only within the Survey Area but also, more importantly, across the region.

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8 Limitations

This report is produced strictly in accordance with the scope of services set out in the contract or otherwise agreed in accordance with the contract. 360 Environmental makes no representations or warranties in relation to the nature and quality of soil and water other than the visual observation and analytical data in this report.

In the preparation of this report, 360 Environmental has relied upon documents, information, data and analyses ("client's information") provided by the client and other individuals and entities. In most cases where client's information has been relied upon, such reliance has been indicated in this report. Unless expressly set out in this report, 360 Environmental has not verified that the client's information is accurate, exhaustive or current and the validity and accuracy of any aspect of the report including, or based upon, any part of the client's information is contingent upon the accuracy, exhaustiveness and currency of the client's information. 360 Environmental shall not be liable to the client or any other person in connection with any invalid or inaccurate aspect of this report where that invalidity or inaccuracy arose because the client's information was not accurate, exhaustive and current or arose because of any information or condition that was concealed, withheld, misrepresented, or otherwise not fully disclosed or available to 360 Environmental.

Aspects of this report, including the opinions, conclusions and recommendations it contains, are based on the results of the investigation, sampling and testing set out in the contract and otherwise in accordance with normal practices and standards. The investigation, sampling and testing are designed to produce results that represent a reasonable interpretation of the general conditions of the site that is the subject of this report. However, due to the characteristics of the site, including natural variations in site conditions, the results of the investigation, sampling and testing may not accurately represent the actual state of the whole site at all points.

It is important to recognise that site conditions, including the extent and concentration of contaminants, can change with time. This is particularly relevant if this report, including the data, opinions, conclusions and recommendations it contains, are to be used a considerable time after it was prepared. In these circumstances, further investigation of the site may be necessary.

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APPENDIX A

Definition of Threatened Fauna Species

Western Australian Threatened Fauna Categories Wildlife Conservation Act 1950 (WA)

CATEGORY	CODE	DESCRIPTION
Schedule 1	S1	Rare or likely to become extinct as critically endangered fauna.
Schedule 2	S2	Fauna that is rare or is likely to become extinct as endangered fauna.
Schedule 3	S3	Fauna that is rare or is likely to become extinct as vulnerable fauna.
Schedule 4	S4	Fauna presumed to be extinct.
Schedule 5	S5	Migratory birds protected under an international agreement.
Schedule 6	S6	Fauna that is of special conservation need as conservation dependent fauna.
Schedule 7	S7	Other specially protected fauna

DPaW Fauna Priority Codes

CATEGORY	CODE	DESCRIPTION
Priority 1	P1	Taxa with few, poorly known populations on threatened lands.
Priority 2	P2	Taxa with few, poorly known populations on conservation lands.
Priority 3	P3	Taxa with several, poorly known populations, some on conservation lands.
Priority 4	P4	Taxa in need of monitoring: not currently threatened or in need of special protection, but could become so. Usually represented on conservation lands.
Priority 5	P5	Taxa in need of monitoring: not considered threatened, but the subject of a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of Threatened Fauna Species under the EPBC Act

CONSERVATION CODE	DESCRIPTION
Ex	Extinct Taxa which at a particular time if, at the time, there is no reasonable doubt that the last member of the species has died.
ExW	Extinct in the Wild Taxa which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CONSERVATION CODE	DESCRIPTION
CE	Critically Endangered Taxa which at a particular time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
En	Endangered Taxa which is not critically endangered and it is facing a very high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
Vu	Vulnerable Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

Source: *Environment Protection and Biodiversity Conservation Act 1999*

Conservation Categories of Threatened Species assessed by the IUCN

IUCN	CONSERVATION CATEGORY	CODE
The IUCN Red List ranks species at risk of extinction but also considers the status of all species from an increasing number of taxonomic groups based on a series of criteria.	IUCN Extinct	Ex
	IUCN Extinct in the Wild	EW
	IUCN Critically Endangered	CR
	IUCN Endangered	EN
	IUCN Vulnerable	VU
	IUCN Near Threatened	NT
	IUCN Least Concern	LC
	IUCN Data Deficient	DD
	IUCN Not Evaluated	NE

APPENDIX B

Database Searches

NatureMap Species Report

Created By Guest user on 19/06/2017

Kingdom Animalia
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 128° 38' 59" E, 22° 39' 38" S
Buffer 40km
Group By Family

Family	Species	Records
Accipitridae	1	1
Agamidae	5	8
Araneidae	1	1
Camelidae	1	1
Canidae	2	2
Caprimulgidae	1	1
Columbidae	3	3
Corvidae	1	1
Cracticidae	1	1
Dasyuridae	1	6
Diplodactylidae	2	3
Estrilidae	1	1
Falconidae	2	2
Felidae	1	1
Gekkonidae	2	3
Lamponidae	1	1
Lycosidae	1	1
Meliphagidae	4	5
Motacillidae	2	2
Muridae	4	5
Nephilidae	1	1
Notoryctidae	1	1
Otididae	1	17
Pachycephalidae	1	1
Pardalotidae	1	1
Psittacidae	2	2
Pygopodidae	1	1
Scincidae	9	15
Scolopendridae	3	4
Varanidae	1	1
Zodariidae	1	2
TOTAL	59	95

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
Accipitridae				
1.	25540 <i>Elanus caeruleus</i> (Black-shouldered Kite)			
Agamidae				
2.	30833 <i>Amphibolurus longirostris</i> (Long-nosed Dragon)			
3.	25459 <i>Ctenophorus isolepis</i> (Crested Dragon, Military Dragon)			
4.	24882 <i>Ctenophorus nuchalis</i> (Central Netted Dragon)			
5.	24904 <i>Moloch horridus</i> (Thorny Devil)			
6.	30955 <i>Tympanocryptis centralis</i> (Central Earless Dragon)			
Araneidae				
7.	<i>Backobourkia collina</i>			
Camelidae				
8.	24254 <i>Camelus dromedarius</i> (Dromedary, Camel)	Y		
Canidae				
9.	24039 <i>Canis lupus subsp. dingo</i> (Dingo)	Y		
10.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
Caprimulgidae				
11.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
Columbidae				
12.	24401 <i>Geopelia cuneata</i> (Diamond Dove)			
13.	25585 <i>Geopelia striata</i> (Zebra Dove)			
14.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Corvidae				
15.	25593 <i>Corvus orru</i> (Torresian Crow)			
Cracticidae				
16.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
Dasyuridae				
17.	30903 <i>Dasyercus blythi</i> (Brush-tailed Mulgara, Ampurta)		P4	
Diplodactylidae				
18.	30933 <i>Lucasium stenodactylum</i>			
19.	24927 <i>Strophurus elderi</i>			
Estrilidae				
20.	30870 <i>Taeniopygia guttata</i> (Zebra Finch)			
Falconidae				
21.	25621 <i>Falco berigora</i> (Brown Falcon)			
22.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
Felidae				
23.	24041 <i>Felis catus</i> (Cat)	Y		
Gekkonidae				
24.	24959 <i>Gehyra variegata</i>			
25.	24961 <i>Heteronotia binoei</i> (Bynoe's Gecko)			
Lamponidae				
26.	<i>Asadipus auld</i>			
Lycosidae				
27.	<i>Hoggicosa alfi</i>			
Meliphagidae				
28.	24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
29.	24568 <i>Epthianura aurifrons</i> (Orange Chat)			
30.	24570 <i>Epthianura tricolor</i> (Crimson Chat)			
31.	25665 <i>Melithreptus gularis</i> (Black-chinned Honeyeater)			
Motacillidae				
32.	25670 <i>Anthus australis</i> (Australian Pipit)			
33.	24599 <i>Anthus australis subsp. australis</i> (Australian Pipit)			
Muridae				
34.	24223 <i>Mus musculus</i> (House Mouse)	Y		
35.	24224 <i>Notomys alexis</i> (Spinifex Hopping-mouse)			
36.	24235 <i>Pseudomys desertor</i> (Desert Mouse)			
37.	24237 <i>Pseudomys hermannsburgensis</i> (Sandy Inland Mouse)			
Nephilidae				
38.	<i>Nephila edulis</i>			
Notoryctidae				
39.	24147 <i>Notoryctes caurinus</i> (Northern Marsupial Mole, Kakarratul)		P4	
Otididae				
40.	24610 <i>Ardeotis australis</i> (Australian Bustard)			
Pachycephalidae				
41.	24618 <i>Oreoica gutturalis</i> (Crested Bellbird)			
Pardalotidae				
42.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
Psittacidae				
43.	25715 <i>Cacatua roseicapilla</i> (Galah)			
44.	24736 <i>Melopsittacus undulatus</i> (Budgerigar)			
Pygopodidae				
45.	25005 <i>Lialis burtonis</i>			
Scincidae				
46.	25045 <i>Ctenotus helenae</i>			
47.	25052 <i>Ctenotus leonhardii</i>			
48.	25057 <i>Ctenotus nasutus</i>			
49.	25066 <i>Ctenotus quattuordecimlineatus</i>			
50.	25073 <i>Ctenotus saxatilis</i> (Rock Ctenotus)			
51.	25125 <i>Lerista bipes</i>			
52.	41412 <i>Liopholis kintorei</i> (Great Desert Skink, Tjakura)		T	
53.	25184 <i>Menetia greyii</i>			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
54.	25202	<i>Tiliqua multifasciata</i> (Central Blue-tongue)			
Scolopendridae					
55.		<i>Cormocephalus aurantiipes</i>			
56.		<i>Ethmostigmus rubripes</i>			
57.		<i>Scolopendra morsitans</i>			
Varanidae					
58.	25218	<i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
Zodariidae					
59.		<i>Minasteron perfoliatum</i>			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

NatureMap Species Report

Created By Guest user on 19/06/2017

Kingdom Animalia
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 128° 27' 19" E, 22° 36' 21" S
Buffer 40km
Group By Family

Family	Species	Records
Accipitridae	1	1
Agamidae	7	18
Araneidae	1	1
Camelidae	1	1
Canidae	2	2
Caprimulgidae	1	1
Carphodactylidae	1	4
Columbidae	3	3
Corvidae	1	1
Cractidae	1	1
Dasyuridae	4	11
Diplodactylidae	4	11
Elapidae	1	2
Estrilidae	1	1
Falconidae	2	2
Felidae	1	1
Gekkonidae	4	12
Lamponidae	2	3
Lycosidae	1	1
Meliphagidae	4	5
Motacillidae	2	2
Muridae	4	11
Nephtidae	1	1
Notoryctidae	1	1
Otididae	1	17
Pachycephalidae	1	1
Pardalotidae	1	1
Psittacidae	2	2
Pygopodidae	3	3
Scincidae	17	51
Scolopendridae	4	8
Varanidae	3	3
Zodariidae	2	4
TOTAL	85	187

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Accipitridae				
1.	25540 <i>Elanus caeruleus</i> (Black-shouldered Kite)			
Agamidae				
2.	30833 <i>Amphibolurus longirostris</i> (Long-nosed Dragon)			
3.	25459 <i>Ctenophorus isolepis</i> (Crested Dragon, Military Dragon)			
4.	24876 <i>Ctenophorus isolepis</i> subsp. <i>isolepis</i> (Crested Dragon, Military Dragon)			
5.	24882 <i>Ctenophorus nuchalis</i> (Central Netted Dragon)			
6.	42401 <i>Diporiphora paraconvergens</i> (Grey-striped Western Desert Dragon)			
7.	24904 <i>Moloch horridus</i> (Thorny Devil)			
8.	30955 <i>Tympanocryptis centralis</i> (Central Earless Dragon)			
Araneidae				
9.	<i>Backobourkia collina</i>			
Camelidae				
10.	24254 <i>Camelus dromedarius</i> (Dromedary, Camel)	Y		
Canidae				
11.	24039 <i>Canis lupus</i> subsp. <i>dingo</i> (Dingo)	Y		
12.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
Caprimulgidae				
13.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Carphodactylidae				
14.	24966 <i>Nephrurus laevisissimus</i>			
Columbidae				
15.	24401 <i>Geopelia cuneata</i> (Diamond Dove)			
16.	25585 <i>Geopelia striata</i> (Zebra Dove)			
17.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
Corvidae				
18.	25593 <i>Corvus orru</i> (Torresian Crow)			
Cracticidae				
19.	24420 <i>Cracticus nigrogularis</i> (Pied Butcherbird)			
Dasyuridae				
20.	30903 <i>Dasycercus blythi</i> (Brush-tailed Mulgara, Ampurta)		P4	
21.	24094 <i>Ningai ridei</i> (Wongai Ningai)			
22.	24116 <i>Sminthopsis macroura</i> (Stripe-faced Dunnart)			
23.	24120 <i>Sminthopsis youngsoni</i> (Lesser Hairy-footed Dunnart)			
Diplodactylidae				
24.	30933 <i>Lucasium stenodactylum</i>			
25.	24982 <i>Rhynchoedura ornata</i> (Western Beaked Gecko)			
26.	24924 <i>Strophurus ciliaris</i> subsp. <i>aberrans</i>			
27.	24927 <i>Strophurus elderi</i>			
Elapidae				
28.	25305 <i>Simoselaps anomalus</i> (Desert Banded Snake)			
Estrilidae				
29.	30870 <i>Taeniopygia guttata</i> (Zebra Finch)			
Falconidae				
30.	25621 <i>Falco berigora</i> (Brown Falcon)			
31.	25622 <i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
Felidae				
32.	24041 <i>Felis catus</i> (Cat)	Y		
Gekkonidae				
33.	24956 <i>Gehyra pilbara</i>			
34.	24957 <i>Gehyra purpurascens</i>			
35.	24959 <i>Gehyra variegata</i>			
36.	24961 <i>Heteronotia binoei</i> (Bynoe's Gecko)			
Lamponidae				
37.	<i>Asadipus auld</i>			
38.	<i>Lamponina scutata</i>			
Lycosidae				
39.	<i>Hoggicosa alfi</i>			
Meliphagidae				
40.	24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
41.	24568 <i>Epthianura aurifrons</i> (Orange Chat)			
42.	24570 <i>Epthianura tricolor</i> (Crimson Chat)			
43.	25665 <i>Melithreptus gularis</i> (Black-chinned Honeyeater)			
Motacillidae				
44.	25670 <i>Anthus australis</i> (Australian Pipit)			
45.	24599 <i>Anthus australis</i> subsp. <i>australis</i> (Australian Pipit)			
Muridae				
46.	24223 <i>Mus musculus</i> (House Mouse)	Y		
47.	24224 <i>Notomys alexis</i> (Spinifex Hopping-mouse)			
48.	24235 <i>Pseudomys desertor</i> (Desert Mouse)			
49.	24237 <i>Pseudomys hermannsburgensis</i> (Sandy Inland Mouse)			
Nephilidae				
50.	<i>Nephila edulis</i>			
Notoryctidae				
51.	24147 <i>Notoryctes caurinus</i> (Northern Marsupial Mole, Kakarratul)		P4	
Otididae				
52.	24610 <i>Ardeotis australis</i> (Australian Bustard)			
Pachycephalidae				
53.	24618 <i>Oreoica gutturalis</i> (Crested Bellbird)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Pardalotidae				
54.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
Psittacidae				
55.	25715 <i>Cacatua roseicapilla</i> (Galah)			
56.	24736 <i>Melopsittacus undulatus</i> (Budgerigar)			
Pygopodidae				
57.	30830 <i>Delma desmosa</i>			
58.	25001 <i>Delma nasuta</i>			
59.	25005 <i>Lialis burtonis</i>			
Scincidae				
60.	30893 <i>Cryptoblepharus buehneri</i>			
61.	25461 <i>Ctenotus brooksi</i>			
62.	25045 <i>Ctenotus helenae</i>			
63.	25050 <i>Ctenotus leae</i>			
64.	25052 <i>Ctenotus leonhardii</i>			
65.	25057 <i>Ctenotus nasutus</i>			
66.	25064 <i>Ctenotus pantherinus</i> subsp. <i>ocellifer</i> (Leopard Ctenotus)			
67.	25066 <i>Ctenotus quattuordecimlineatus</i>			
68.	25073 <i>Ctenotus saxatilis</i> (Rock Ctenotus)			
69.	43381 <i>Eremiascincus pallidus</i> (Western Narrow-banded Skink, Narrow-banded Sand Swimmer)			
70.	25125 <i>Lerista bipes</i>			
71.	25142 <i>Lerista ips</i>			
72.	25178 <i>Lerista vermicularis</i>			
73.	41412 <i>Liopholis kintorei</i> (Great Desert Skink, Tjakura)		T	
74.	25184 <i>Menetia greyii</i>			
75.	25194 <i>Morethia ruficauda</i> subsp. <i>ruficauda</i>			
76.	25202 <i>Tiliqua multifasciata</i> (Central Blue-tongue)			
Scolopendridae				
77.	<i>Cormocephalus aurantiipes</i>			
78.	<i>Ethmostigmus rubripes</i>			
79.	<i>Scolopendra laeta</i>			
80.	<i>Scolopendra morsitans</i>			
Varanidae				
81.	25210 <i>Varanus brevicauda</i> (Short-tailed Pygmy Monitor)			
82.	25215 <i>Varanus gilleni</i> (Pygmy Mulga Monitor)			
83.	25218 <i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
Zodariidae				
84.	<i>Cavasteron crassicalcar</i>			
85.	<i>Minasteron perfoliatum</i>			

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

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Kingdom Animalia
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Core Datasets Only Yes
Method 'By Circle'
Centre 128° 49' 31" E, 22° 22' 51" S
Buffer 40km
Group By Family

Family	Species	Records
Accipitridae	1	1
Agamidae	4	4
Araneidae	1	1
Camelidae	1	1
Canidae	2	2
Caprimulgidae	1	1
Columbidae	3	3
Corvidae	1	1
Cracidae	1	1
Diplodactylidae	1	1
Estrilidae	1	1
Falconidae	2	2
Felidae	1	1
Gekkonidae	2	2
Lamprodactylidae	1	1
Lycosidae	1	1
Macropodidae	1	1
Meliphagidae	4	4
Motacillidae	1	1
Muridae	3	3
Nephrilidae	1	1
Otididae	1	8
Pachycephalidae	1	1
Pardalidae	1	1
Psittacidae	2	2
Pygopodidae	1	1
Scincidae	6	6
Scolopendridae	2	2
Varanidae	1	1
Zodariidae	1	1
TOTAL	50	57

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Accipitridae				
1.	25540 <i>Elanus caeruleus</i> (Black-shouldered Kite)			
Agamidae				
2.	30833 <i>Amphibolurus longirostris</i> (Long-nosed Dragon)			
3.	25459 <i>Ctenophorus isolepis</i> (Crested Dragon, Military Dragon)			
4.	24882 <i>Ctenophorus nuchalis</i> (Central Netted Dragon)			
5.	24904 <i>Moloch horridus</i> (Thorny Devil)			
Araneidae				
6.	<i>Backobourkia collina</i>			
Camelidae				
7.	24254 <i>Camelus dromedarius</i> (Dromedary, Camel)	Y		
Canidae				
8.	24039 <i>Canis lupus subsp. dingo</i> (Dingo)	Y		
9.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
Caprimulgidae				
10.	24368 <i>Eurostopodus argus</i> (Spotted Nightjar)			
Columbidae				
11.	24401 <i>Geopelia cuneata</i> (Diamond Dove)			
12.	25585 <i>Geopelia striata</i> (Zebra Dove)			
13.	24407 <i>Ocyphaps lophotes</i> (Crested Pigeon)			
Corvidae				

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
14.	25593	<i>Corvus orru</i> (Torresian Crow)			
Cracticidae					
15.	24420	<i>Cracticus nigrogularis</i> (Pied Butcherbird)			
Diplodactylidae					
16.	30933	<i>Lucasium stenodactylum</i>			
Estrilidae					
17.	30870	<i>Taeniopygia guttata</i> (Zebra Finch)			
Falconidae					
18.	25621	<i>Falco berigora</i> (Brown Falcon)			
19.	25622	<i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
Felidae					
20.	24041	<i>Felis catus</i> (Cat)	Y		
Gekkonidae					
21.	24959	<i>Gehyra variegata</i>			
22.	24961	<i>Heteronotia binoei</i> (Bynoe's Gecko)			
Lamponidae					
23.		<i>Asadipus auld</i>			
Lycosidae					
24.		<i>Hoggicosa alfi</i>			
Macropodidae					
25.	24121	<i>Lagorchestes asomatus</i> (Central Hare-wallaby)		X	Y
Meliphagidae					
26.	24559	<i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
27.	24568	<i>Epthianura aurifrons</i> (Orange Chat)			
28.	24570	<i>Epthianura tricolor</i> (Crimson Chat)			
29.	25665	<i>Melithreptus gularis</i> (Black-chinned Honeyeater)			
Motacillidae					
30.	25670	<i>Anthus australis</i> (Australian Pipit)			
Muridae					
31.	24223	<i>Mus musculus</i> (House Mouse)	Y		
32.	24224	<i>Notomys alexis</i> (Spinifex Hopping-mouse)			
33.	24235	<i>Pseudomys desertor</i> (Desert Mouse)			
Nephilidae					
34.		<i>Nephila edulis</i>			
Otididae					
35.	24610	<i>Ardeotis australis</i> (Australian Bustard)			
Pachycephalidae					
36.	24618	<i>Oreoica gutturalis</i> (Crested Bellbird)			
Pardalotidae					
37.	25682	<i>Pardalotus striatus</i> (Striated Pardalote)			
Psittacidae					
38.	25715	<i>Cacatua roseicapilla</i> (Galah)			
39.	24736	<i>Melopsittacus undulatus</i> (Budgerigar)			
Pygopodidae					
40.	25005	<i>Lialis burtonis</i>			
Scincidae					
41.	25045	<i>Ctenotus helenae</i>			
42.	25052	<i>Ctenotus leonhardii</i>			
43.	25057	<i>Ctenotus nasutus</i>			
44.	25073	<i>Ctenotus saxatilis</i> (Rock Ctenotus)			
45.	41412	<i>Liopholis kintorei</i> (Great Desert Skink, Tjakura)		T	
46.	25202	<i>Tiliqua multifasciata</i> (Central Blue-tongue)			
Scolopendridae					
47.		<i>Cormocephalus aurantiipes</i>			
48.		<i>Scolopendra morsitans</i>			
Varanidae					
49.	25218	<i>Varanus gouldii</i> (Bungarra or Sand Monitor)			
Zodariidae					
50.		<i>Minasteron perfoliatum</i>			

Name ID Species Name

Naturalised

Conservation Code

¹Endemic To Query
Area

Conservation Codes

T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

FAMILY	GENUS	SPECIES	COMMON_NAME	CONS		METHOD	LOCALITY	SITE_NAME	GDA_LONG	GDA_LAT	YEAR
				CODE	CLASS						
Charadriidae	Charadrius	veredus	oriental plover	IA	BIRD	Observational	GIBSON DESERT NORTH	Gary J Hwy 45km E of Kiwirrku	128.222800000000	-22.946900000000	2010
Dasyuridae	Dasyercus	blythi	Brush-tailed Mulgara	P4	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	128.032500000000	-22.436200000000	2012
Dasyuridae	Dasyercus	blythi	Brush-tailed Mulgara	P4	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	128.422600000000	-22.691400000000	2012
Dasyuridae	Dasyercus	blythi	Brush-tailed Mulgara	P4	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	128.010100000000	-22.926000000000	2012
Dasyuridae	Dasyercus	blythi	Brush-tailed Mulgara	P4	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Jalopa area	128.000000000000	-22.917400000000	2014
Dasyuridae	Dasyercus	blythi	Brush-tailed Mulgara	P4	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Kintore road, 15km E of Kiwirrkura	127.850700000000	-22.877800000000	2014
Dasyuridae	Dasyercus	blythi	Brush-tailed Mulgara	P4	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Kintore road, 20km E of Kiwirrkura	128.069100000000	-22.436800000000	2016
Dasyuridae	Dasyercus	blythi	Brush-tailed Mulgara	P4	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Marruwa	128.071400000000	-22.436800000000	2012
Dasyuridae	Dasyercus	blythi	brush-tailed mulgara	P4	MAMMAL	survey	GIBSON DESERT NORTH	Western Desert, Lake Mackay	128.414500000000	-22.634100000000	2012
Dasyuridae	Dasyercus	blythi	brush-tailed mulgara	P4	MAMMAL	survey	GIBSON DESERT NORTH	Western Desert, Lake Mackay	128.430500000000	-22.706200000000	2012
Dasyuridae	Dasyercus	blythi	brush-tailed mulgara	P4	MAMMAL	survey	GIBSON DESERT NORTH	Western Desert, Lake Mackay	128.430400000000	-22.706700000000	2012
Dasyuridae	Dasyercus	blythi	brush-tailed mulgara	P4	MAMMAL	survey	GIBSON DESERT NORTH	Western Desert, Lake Mackay	128.633600000000	-22.725000000000	2012
Dasyuridae	Dasyercus	blythi	brush-tailed mulgara	P4	MAMMAL	survey	GIBSON DESERT NORTH	Western Desert, Lake Mackay	128.642100000000	-22.725000000000	2012
Dasyuridae	Dasyercus	blythi	brush-tailed mulgara	P4	MAMMAL	survey	GIBSON DESERT NORTH	Western Desert, Lake Mackay	128.673600000000	-22.726800000000	2012
Dasyuridae	Dasyurus	geoffroi	chuditch, western quoll	VU	MAMMAL	Bones	GIBSON DESERT NORTH	near Kiwirrkurra	127.750000000000	-22.816700000000	0
Falconidae	Falco	hypoleucos	grey falcon	VU	BIRD	Observational	GIBSON DESERT NORTH		128.501300000000	-21.498600000000	1980
Falconidae	Falco	hypoleucos	grey falcon	VU	BIRD	Observational	GIBSON DESERT NORTH		128.501300000000	-21.498600000000	1980
Falconidae	Falco	hypoleucos	grey falcon	VU	BIRD	Observational	GIBSON DESERT NORTH		127.501300000000	-22.498600000000	1980
Falconidae	Falco	hypoleucos	grey falcon	VU	BIRD	Observational	NGAANYATJARRA-GILES		128.501300000000	-23.498600000000	1980
Macropodidae	Lagorchestes	asomatus	central hare-wallaby	EX	MAMMAL	Bones	GIBSON DESERT NORTH	Lake Mackay area on the WA/NT border	128.934000000000	-22.262600000000	1935
								Kiwirrkura community and surrounds, vicinity of Lake MacKay, Gisbson Desert (North)			
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Unknown	GIBSON DESERT NORTH		128.612000000000	-22.604900000000	1999
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Caught or trapped	GIBSON DESERT NORTH	Kiwirrkurra NT	128.006700000000	-22.426700000000	2000
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	128.005300000000	-22.426400000000	2000
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.910400000000	-22.883600000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.907100000000	-22.890200000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.907300000000	-22.891000000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.913800000000	-22.898900000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.927700000000	-22.902800000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.975100000000	-22.909700000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.973900000000	-22.912300000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.972700000000	-22.912600000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.975900000000	-22.913300000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.975900000000	-22.913300000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.976500000000	-22.913400000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.976600000000	-22.913600000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	128.006900000000	-22.917400000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Caught or trapped	GIBSON DESERT NORTH	Kiwirrkurra NT, 25 km E of Kiwirrkura	128.006900000000	-22.925000000000	2000
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	127.910200000000	-22.882300000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	127.909400000000	-22.884000000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	127.908900000000	-22.887700000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	127.907100000000	-22.890200000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	127.907300000000	-22.891000000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	127.889000000000	-22.896200000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	127.904100000000	-22.899800000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	127.904500000000	-22.890200000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-2	128.001800000000	-22.922800000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-3	127.909100000000	-22.883400000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-3	127.908800000000	-22.883400000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-3	127.907700000000	-22.883700000000	2016
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, north of road, KK-JAL-3	127.907600000000	-22.884100000000	2016

Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, south of road, KK-JAL-1	127.91160000000	-22.89690000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, south of road, KK-JAL-1	127.92750000000	-22.90310000000	2014
Scincidae	Liopholis	kintorei	great desert skink	VU	REPTILE	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Tjalapa area, south of road, KK-JAL-1	127.92940000000	-22.90440000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Remote camera	GIBSON DESERT NORTH	Kiwirrkurra NT	128.02760000000	-22.44120000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.98500000000	-22.35080000000	2000
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.99720000000	-22.35080000000	2000
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.98970000000	-22.37330000000	2012
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	128.34140000000	-22.42060000000	2000
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	128.31420000000	-22.43560000000	2000
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	128.03250000000	-22.43620000000	2012
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.58570000000	-22.79830000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.76110000000	-22.80530000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.74810000000	-22.80970000000	2000
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.87360000000	-22.81000000000	2000
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.59680000000	-22.83260000000	2012
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT	127.91720000000	-22.92470000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, 1km N Kiwirrkurra	127.76120000000	-22.80570000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, 1km N of Kiwirrkura	127.99740000000	-22.42950000000	2012
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, 5km S of Murruwa	127.55000000000	-22.76460000000	2003
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Kintore road S of Jalopa area	127.99200000000	-22.41460000000	2012
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Remote camera	GIBSON DESERT NORTH	Kiwirrkurra NT, Kiwirrkurra- 1 km E	128.00620000000	-22.43790000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Kiwirrkurra area	128.00290000000	-22.43810000000	2015
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Kiwirrkurra area	127.68810000000	-22.83570000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Kiwirrkurra area	127.69130000000	-22.83820000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Marrapinti area	127.55650000000	-22.80950000000	2003
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Marruwa	127.76040000000	-22.80430000000	2015
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Murruwa	128.34420000000	-22.41190000000	2000
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Murruwa	127.78890000000	-22.82580000000	2000
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Murruwa	127.77470000000	-22.86060000000	2003
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, N of Marapinti	127.99400000000	-22.42280000000	2012
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Marruwa	127.54030000000	-22.77670000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Marruwa	127.95630000000	-22.81120000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Marruwa	127.96150000000	-22.81280000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Tjuntupul	127.53310000000	-22.77610000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Tjuntupul	127.54050000000	-22.77710000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Tjuntupul	127.53410000000	-22.77750000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Tjutalpi	127.54290000000	-22.77650000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Near Tjutalpi	127.54470000000	-22.77910000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.99070000000	-22.37550000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.98720000000	-22.37610000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	128.00340000000	-22.43700000000	2014
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54180000000	-22.77210000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54290000000	-22.77640000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54410000000	-22.77890000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54480000000	-22.77920000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54450000000	-22.77940000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54460000000	-22.78080000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54200000000	-22.78330000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54190000000	-22.78460000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.54110000000	-22.78920000000	2016
Peramelidae	Macroctis	lagotis	bilby, dalgtye, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.78020000000	-22.80850000000	2016

Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.782100000000	-22.810900000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.778000000000	-22.811600000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.775600000000	-22.811600000000	2015
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.682400000000	-22.833000000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.682800000000	-22.833600000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.683600000000	-22.834300000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.688000000000	-22.835500000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.684400000000	-22.836000000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, North of Karilwarra	127.692500000000	-22.837600000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Remote camera	GIBSON DESERT NORTH	Kiwirrkurra NT, Nyinmi area	127.573400000000	-22.794900000000	2014
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Remote camera	GIBSON DESERT NORTH	Kiwirrkurra NT, On road between Lake Mackay and Marruwa	128.039900000000	-22.270400000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.541300000000	-22.773700000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.541100000000	-22.774300000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.543100000000	-22.776300000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.542300000000	-22.776400000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.545700000000	-22.780300000000	2015
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.543700000000	-22.780900000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.540800000000	-22.786800000000	2015
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.573500000000	-22.795000000000	2015
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, Wala Wala road	127.688100000000	-22.835400000000	2016
Peramelidae	Macrotis	lagotis	bilby, dalgyte, ninu	VU	MAMMAL	Secondary sign	GIBSON DESERT NORTH	Kiwirrkurra NT, west of Nyinmi	127.996500000000	-22.429400000000	2016
Meropidae	Merops	ornatus	rainbow bee-eater	IA	BIRD	Observational	GIBSON DESERT NORTH	Gary Junction Rd 12	128.365300000000	-22.993100000000	2009
Notoryctidae	Notoryctes	caurinus	northern marsupial mole	P4	MAMMAL	survey	GIBSON DESERT NORTH	Western Desert, Lake Mackay	128.642100000000	-22.718800000000	2012
Dasyuridae	Phascogale	calura	red-tailed phascogale	CD	MAMMAL	Subfossil material	GIBSON DESERT NORTH		128.500000000000	-21.999900000000	1958
Dasyuridae	Phascogale	calura	red-tailed phascogale	CD	MAMMAL	Subfossil material	GIBSON DESERT NORTH	Gibson Desert	128.000000000000	-21.999900000000	1958
Dasyuridae	Phascogale	calura	red-tailed phascogale	CD	MAMMAL	Subfossil material	GIBSON DESERT NORTH	Gibson Desert	127.583300000000	-22.916600000000	1958
Dasyuridae	Phascogale	calura	red-tailed phascogale	CD	MAMMAL	Subfossil material	GIBSON DESERT NORTH	Gibson Desert	129.416600000000	-23.249900000000	1958
Psittacidae	Polytelis	alexandrae	Princess Parrot	P4	BIRD	Sighting	GIBSON DESERT NORTH	Kiwirrkurra NT	128.291600000000	-22.445200000000	2012



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 27/03/17 18:21:34

[Summary](#)

[Details](#)

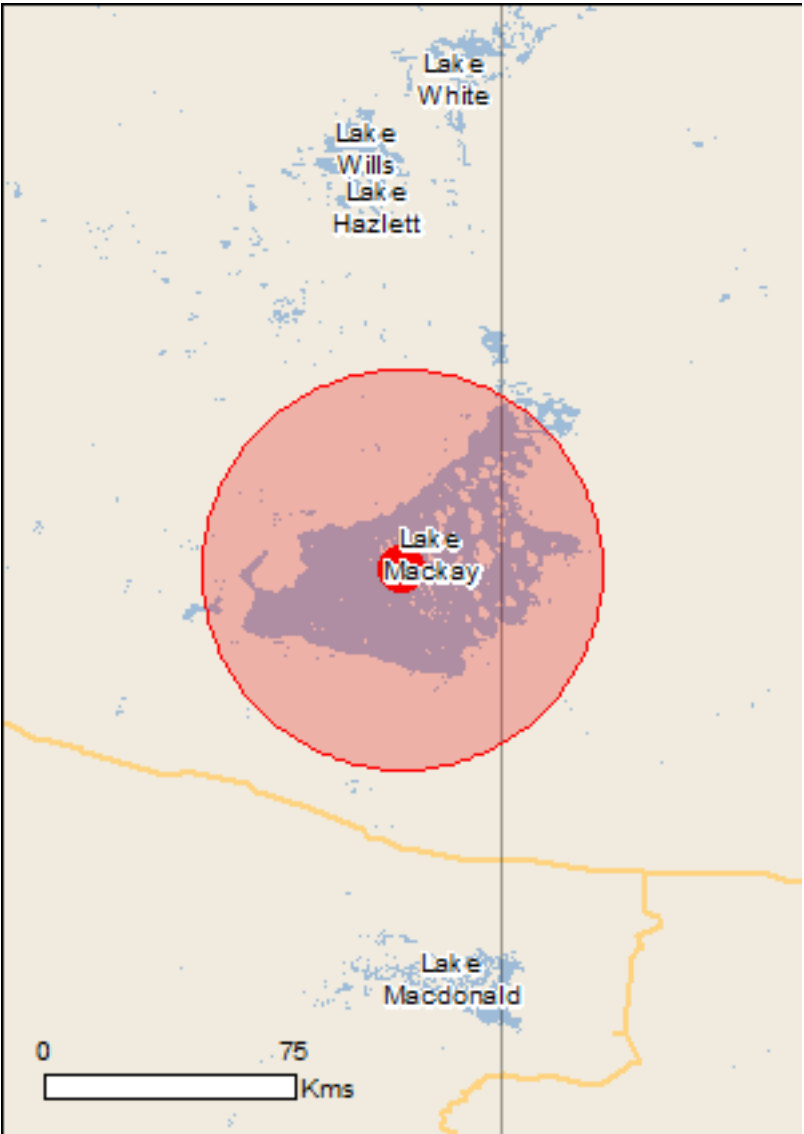
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are
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[Coordinates](#)

Buffer: 60.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	4
Listed Migratory Species:	6

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	9
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	7
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area
Mammals		
Macrotis lagotis Greater Bilby [282]	Vulnerable	Species or species habitat known to occur within area
Reptiles		
Liopholis kintorei Great Desert Skink, Tjakura, Warrarna, Mulyamiji [83160]	Vulnerable	Species or species habitat known to occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Charadrius veredus		
Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum		
Oriental Pratincole [840]		Species or species habitat may occur within area
Hirundo rustica		
Barn Swallow [662]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves		[Resource Information]
Name		State
Kiwirrkurra		WA
Southern Tanami		NT
Invasive Species		[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.		
Name	Status	Type of Presence

Name	Status	Type of Presence
Mammals		
Camelus dromedarius Dromedary, Camel [7]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-22.43951 128.73826

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

APPENDIX C

Fauna Species List

Key: EPBC = Environmental Protection and Biodiversity Conservation Act 1999, WC = Wildlife Conservation Act 1950, DPaW = Department of Parks and Wildlife Priority Code, A = Listed in Naturemap, B= DPaW Threatened and Priority fauna search, C = EPBC Protected Matters search, D= Fauna Survey

Note: For Definitions of Conservation Codes see Appendix A.

AMPHIBIANS		Conservation Codes						
Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D
LIMNODYNASTIDAE								
<i>Neobatrachus sudelli</i>	Sudells Frog							X
<i>Notaden nichollsi</i>	Desert Spade Frog							X

Key: EPBC = Environmental Protection and Biodiversity Conservation Act 1999, WC = Wildlife Conservation Act 1950, DPaW = Department of Parks and Wildlife Priority Code, A = Listed in Naturemap, B= DPaW Threatened and Priority fauna search, C = EPBC Protected Matters search, D= Fauna Survey

Note: For Definitions of Conservation Codes see Appendix A.

REPTILES		Conservation Codes						
Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D
CARPHODACTYLIDAE								
<i>Nephrurus laevis</i>	Smooth Knob-tail				X			
<i>Nephrurus levis</i>	Three-lined Knob-tail							X
DIPLODACTYLIDAE								
<i>Diplodactylus conspicillatus</i>	Fat-tailed Gecko							X
<i>Lucasium stenodactylum</i>	Pale-snouted Ground Gecko				X			X
<i>Rhynchoedura ornata</i>	Western Beaked Gecko				X			
<i>Strophurus ciliaris aberrans</i>					X			
<i>Strophurus elderi</i>					X			X
GEKKONIDAE								
<i>Gehyra pilbara</i>					X			
<i>Gehyra purpurascens</i>					X			
<i>Gehyra variagata</i>	Tree Dtella				X			
<i>Heteronotia binoei</i>	Bynoe's Gecko				X			X
PYGOPODIDAE								
<i>Delma butleri</i>								X
<i>Delma desmosa</i>					X			
<i>Delma nasuta</i>					X			
<i>Lialis burtonis</i>					X			X
SCINCIDAE								
<i>Cryptoblepharus buechananii</i>					X			
<i>Ctenotus brooksi</i>					X			X
<i>Ctenotus dux</i>								X
<i>Ctenotus grandis</i>								X
<i>Ctenotus helenae</i>					X			X
<i>Ctenotus leae</i>					X			
<i>Ctenotus leonhardii</i>					X			
<i>Ctenotus nasutus</i>					X			X

REPTILES		Conservation Codes						
Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D
<i>Ctenotus pantherinus</i>	Leopard Ctenotus				X			X
<i>Ctenotus quattuordecimlineatus</i>					X			
<i>Ctenotus saxatilis</i>	Stony-soil Ctenotus				X			
<i>Eremiascincus fasciolatus</i>								X
<i>Eremiascincus pallidus</i>	Western Narrow-banded Skink				X			
<i>Lerista bipes</i>					X			X
<i>Lerista ips</i>					X			X
<i>Liopholis kintorei</i>	Great Desert Skink (Tjakura)	Vu			X	X	X	
<i>Menetia greyii</i>	Common Dwarf Skink				X			
<i>Morethia ruficauda</i>	Fire-tailed Skink							X
<i>Tiliqua multifasciata</i>	Centralian Blue-tongued Lizard				X			X
AGAMIDAE								
<i>Ctenophorus isolepis</i>	Military Sand Dragon				X			X
<i>Ctenophorus nuchali</i>	Central Netted Dragon				X			
<i>Diporiphora paraconvergens</i>	Grey-striped WesternDesert Dragon				X			
<i>Diporiphora wonneckeii</i>								X
<i>Gowidon longirostris</i>	Long-nosed Dragon				X			X
<i>Moloch horridus</i>	Thorny Devil				X			X
<i>Tympanocryptis centralis</i>	Central Earless Dragon				X			
VARANIDAE								
<i>Varanus brevicauda</i>	Short-tailed Pygmy Monitor				X			X
<i>Varanus eremius</i>	Pygmy Desert Monitor							X
<i>Veranus gilleni</i>	Pygmy Mulga Monitor				X			
<i>Varanus gouldii</i>	Sand Monitor				X			
ELAPIDAE								
<i>Simoselaps anormalus</i>	Desert Banded Snake				X			

Key: EPBC = Environmental Protection and Biodiversity Conservation Act 1999, WC = Wildlife Conservation Act 1950, DPaW = Department of Parks and Wildlife
Priority Code, A = Listed in Naturemap, B = DPaW Threatened and Priority fauna search, C = EPBC Protected Matters search, D = Fauna Survey, E = Water Bird
Survey (360 Environmental 2017)

Note: For Definitions of Conservation Codes see Appendix A.

BIRDS		Conservation Codes							
Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D	E
PODICIPEDIDAE									
<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe							X	X
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe							X	
ANATIDAE									
<i>Dendrocygna eytoni</i>	Plumed Whistling Duck								X
<i>Stictonetta naevosa</i>	Freckled Duck								X
<i>Cygnus atratus</i>	Black Swan								X
<i>Anas superciliosa</i>	Pacific Black Duck							X	X
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck							X	X
<i>Anas gracilis</i>	Grey Teal							X	X
<i>Aythya australis</i>	Hardhead							X	X
COLUMBIDAE									
<i>Geopelia cuneata</i>	Diamond Dove				X			X	
<i>Geopelia striata</i>	Peaceful Dove				X				
<i>Ocyphaps lophotes</i>	Crested Pigeon				X				
<i>Phaps chalcoptera</i>	Common Bronzewing							X	
CAPRIMULGIDAE									
<i>Eurostopodus argus</i>	Spotted Nightjar				X				
APODIDAE									
<i>Apus pacificus</i>	Fork-tailed Swift	MiMa	S5				X	X	
ARDEIDAE									
<i>Ardea ibis</i>	Cattle Egret	MiMa	S5				X		
<i>Ardea modesta</i>	Eastern Great Egret	MiMa	S5				X		
<i>Ardeanovaeahollandie</i>	White-faced Heron							X	X
<i>Ardea pacifica</i>	White-necked Heron							X	
ACCIPITRIDAE									
<i>Elanus axillaris</i>	Black-shouldered Kite				X				
<i>Hamirostra melanosternon</i>	Black-breasted Buzzard							X	
<i>Haliastur spheurnus</i>	Whistling Kite							X	
<i>Milvus migrans</i>	Black Kite				X				
FALCONIDAE									
<i>Falco cenchroides</i>	Nankeen Kestrel							X	
<i>Falco berigora</i>	Brown Falcon				X			X	
<i>Falco cenchroides</i>	Nankeen Kestrel				X				
<i>Falco hypoleucos</i>	Grey Falcon		S1			X			
RALLIDAE									
<i>Fulica atra</i>	Eurasian Coot							X	X
<i>Tribonyx ventralis</i>	Black-tailed Native-hen								X

BIRDS		Conservation Codes							
Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D	E
OTIDIDAE									
<i>Ardeotis australis</i>	Australian Bustard				X			X	
RECURVIROSTRIDAE									
<i>Himantopus himantopus</i>	Black-winged Stilt							X	X
<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet								X
<i>Cladorhynchus leucocephalus</i>	Banded Stilt								X
CHARADRIIDAE									
<i>Elseyornis melanops</i>	Black-fronted Dotterel								X
<i>Erythronyctes alba</i>	Red-kneed Dotterel								X
<i>Charadrius ruficapillus</i>	Red-capped Plover								X
<i>Charadrius veredus</i>	Oriental Plover	MiMa	S5			X	X		
<i>Vanellus tricolor</i>	Banded Lapwing								X
ROSTRATULIDAE									
<i>Rostratula australis</i>	Australian Painted Snipe	En							X
SCOLOPACIDAE									
<i>Actitis hypoleucos</i>	Common Sandpiper	MiMa	S5				X		
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	MiMa	S5				X		X
<i>Calidris melanotos</i>	Pectoral Sandpiper	MiMa	S5				X		
<i>Tringa nebularia</i>	Common Greenshank	MiMa	S5						X
<i>Calidris ruficollis</i>	Red-necked Stint	MiMa	S5						X
TURNICIDAE									
<i>Turnix velox</i>	Little Button-quail							X	X
GLAREOLIDAE									
<i>Glareola maldivarum</i>	Oriental Pratincole	Mi					X		
LARIDAE									
<i>Chroicocephalus novaehollandiae</i>	Silver Gull								X
<i>Gelochelidon macrotarsa</i>	Australian Gull-billed Tern								X
<i>Sterna hybrida</i>	Whiskered Tern								X
CACATUIDAE									
<i>Cacatua roseicapilla</i>	Galah				X				
PSITTACIDAE									
<i>Melopsittacus undulatus</i>	Budgerigar				X			X	
<i>Pezoporus occidentalis</i>	Night Parrot	En					X		
<i>Polytelis alexandrae</i>	Princess Parrot	Vu		P4		X	X		
CUCULIDAE									
<i>Chrysococcyx basalus</i>	Horsfield's Bronze Cuckoo							X	
HALCYONIDAE									
<i>Todiramphus pyrrhopygius</i>	Red-backed Kingfisher							X	
MEROPIIDAE									
<i>Merops ornatus</i>	Rainbow Bee-eater	Ma	S5			X	X		
ACANTHIZIDAE									
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill							X	
PARDALOTIDAE									
<i>Pardalotus striatus</i>	Striated Pardalote				X				
MELIPHAGIDAE									

BIRDS		Conservation Codes							
Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D	E
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater				X				
<i>Certhionyx variegatus</i>	Pied Honeyeater							X	
<i>Epthianura aurifrons</i>	Orange Chat				X				
<i>Epthianura tricolor</i>	Crimson Chat				X				
<i>Gavicalis virescens</i>	Singing Honeyeater							X	
<i>Lacustrocia whitei</i>	Grey Honeyeater							X	
<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater							X	
<i>Lichmera indistincta</i>	Brown Honeyeater							X	
<i>Melithreptus gularis</i>	Black-chinned Honeyeater				X				
PSOPHODIDAE									
<i>Psophodes occidentalis</i>	Chiming Wedgebill							X	
CAMPEPHAGIDAE									
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike							X	
PACHYCEPHALIDAE									
<i>Oreoica gutturalis</i>	Crested Bellbird				X				
ARTAMIDAE									
<i>Artamus personatus</i>	Masked Woodswallow							X	
CRACTICIDAE									
<i>Cracticus nigrogularis</i>	Pied Butcherbird				X				
<i>Cracticus torquatus</i>	Grey Butcherbird							X	
RHIPIDURIDAE									
<i>Rhipidura leucophrys</i>	Willie Wagtail							X	
CORVIDAE									
<i>Corvus bennetti</i>	Little Crow							X	
<i>Corvus orru</i>	Torresian Crow				X				
PETROICIDAE									
<i>Petroica goodenovii</i>	Red-capped Robin							X	
MALURIDAE									
<i>Malurus splendens</i>	Splendid Fairy-wren							X	
HIRUNDINIDAE									
<i>Hirundo neoxena</i>	Welcome Swallow							X	
<i>Hirundo nigricans</i>	Tree Martin							X	
<i>Hirundo rustica</i>	Barn Swallow	Ma	S3				X		
ESTRILDIDAE									
<i>Taeniopygia guttata</i>	Zebra Finch				X			X	
MOTACILLIDAE									
<i>Anthus australis</i>	Australian Pipit				X			X	
<i>Motacilla cinerea</i>	Grey Wagtail	MiMa					X		
<i>Motacilla flava</i>	Yellow Wagtail	MiMa					X		

Key: EPBC = Environmental Protection and Biodiversity Conservation Act 1999, WC = Wildlife Conservation Act 1950, DPaW = Department of Parks and Wildlife Priority Code, A = Listed in Naturemap, B= DPaW Threatened and Priority fauna search, C = EPBC Protected Matters search, D= Fauna Survey

Note: For Definitions of Conservation Codes see Appendix A.

MAMMALS		Conservation Codes						
Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D
DASYURIDAE								
<i>Dasyercus blythi</i>	Brush-tailed Mulgara			P4	X	X		
<i>Dasyurus hallucatus</i>	Northern Quoll	En	S1			X		
<i>Ningauai redei</i>	Wonngai Ningau				X			X
<i>Phascogale calura</i>	Red-tailed Phascogale	CD				X		
<i>Sminthopsis macroura</i>	Stripe-faced Dunnart				X			X
<i>Sminthopsis youngsoni</i>	Lesser Hairy-footed Dunnart				X			
THYLACOMYIDAE								
<i>Macrotis lagotis</i>	Bilby	Vu	S1			X	X	
MACROPODIDAE								
<i>Lagorchestes asomatus</i>	Central Hare-Wallaby				X	X		
NOTORYCTIDAE								
<i>Notoryctes caurinus</i>	Northern Marsupial Mole			P4	X	X		
EMBALLONURIDAE								
<i>Taphozous hilli</i>	Hills Sheath-tailed Bat					X		X
MOLOSSIDAE								
<i>Austronomus australis</i>	White-striped Free-tailed Bat					X		X
MURIDAE								
<i>Mus musculus</i>	House Mouse				X		X	
<i>Notomys alexis</i>	Spinifex Hopping-mouse				X			X
<i>Pseudomys desertor</i>	Desert Mouse				X			X
<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse				X			X
CANIDAE								
<i>Canis lupus familiaris</i>	Domestic Dog						X	
<i>Canis lupus dingo</i>	Dingo				X			X
<i>Vulpes vulpes</i>	Red Fox				X		X	X
FELIDAE								
<i>Felis catus</i>	Feral Cat				X		X	
LEPORIDAE								
<i>Oryctolagus ciniculus</i>	European Rabbit						X	X
CAMELIDAE								
<i>Camelus dromedarius</i>	Dromedary				X		X	X

APPENDIX D

Trap Site Data

Survey Trap Site Species Records

Species	No. recorded	Site	Trap Type	Date	Time
<i>Pseudomys desetor</i>	2	1	Elliott	11/05/2017	AM
<i>Pseudomys desetor</i>	1	1	Pitfall	11/05/2017	AM
<i>Ctenotus dux</i>	1	1	Funnel	11/05/2017	AM
<i>Ctenotus dux</i>	4	1	Pitfall	11/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	2	Pitfall	11/05/2017	AM
<i>Ctenotus pantherinus</i>	2	2	Pitfall	11/05/2017	AM
<i>Ctenotus dux</i>	1	2	Pitfall	11/05/2017	AM
<i>Ctenotus pantherinus</i>	1	3	Pitfall	11/05/2017	AM
<i>Ctenotus pantherinus</i>	1	3	Hand	11/05/2017	AM
<i>Notaden nichollsi</i>	3	3	Pitfall	11/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	3	Pitfall	11/05/2017	AM
<i>Eremiascincus fasciolatus</i>	1	3	Funnel	11/05/2017	AM
<i>Ctenotus brooksi</i>	1	3	Pitfall	11/05/2017	AM
<i>Lucasium stenodactylum</i>	1	3	Pitfall	11/05/2017	AM
<i>Notaden nichollsi</i>	3	3	Pitfall	11/05/2017	AM
<i>Notaden nichollsi</i>	1	1	Pitfall	11/05/2017	AM
<i>Ctenotus dux</i>	1	4	Pitfall	12/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	4	Pitfall	12/05/2017	AM
<i>Pseudomys hermannsburgensis</i>	1	4	Pitfall	12/05/2017	AM
<i>Pseudomys desetor</i>	1	4	Pitfall	12/05/2017	AM
<i>Pseudomys hermannsburgensis</i>	1	4	Pitfall	12/05/2017	AM
<i>Ctenotus pantherinus</i>	2	2	Funnel	12/05/2017	AM
<i>Ctenotus pantherinus</i>	2	2	Pitfall	12/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	2	Pitfall	12/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	1	Pitfall	12/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	1	Funnel	12/05/2017	AM
<i>Ctenotus dux</i>	1	1	Pitfall	12/05/2017	AM
<i>Ctenotus dux</i>	2	1	Funnel	12/05/2017	AM
<i>Ctenotus pantherinus</i>	1	1	Pitfall	12/05/2017	AM
<i>Ctenotus pantherinus</i>	1	1	Funnel	12/05/2017	AM
<i>Notaden nichollsi</i>	8	1	Pitfall	12/05/2017	AM
<i>Ctenotus pantherinus</i>	2	3	Pitfall	12/05/2017	AM
<i>Ctenotus pantherinus</i>	3	3	Funnel	12/05/2017	AM
<i>Pseudomys hermannsburgensis</i>	1	3	Pitfall	12/05/2017	AM
<i>Ctenotus dux</i>	2	3	Pitfall	12/05/2017	AM
<i>Ctenotus dux</i>	2	3	Funnel	12/05/2017	AM
<i>Ctenotus brooksi</i>	3	3	Pitfall	12/05/2017	AM
<i>Eremiascincus fasciolatus</i>	2	3	Pitfall	12/05/2017	AM
<i>Eremiascincus fasciolatus</i>	1	3	Funnel	12/05/2017	AM

<i>Notaden nichollsi</i>	8	5	Pitfall	12/05/2017	AM
<i>Notaden nichollsi</i>	1	5	Pitfall	12/05/2017	PM
<i>Ctenotus pantherinus</i>	4	5	Funnel	12/05/2017	PM
<i>Ctenotus pantherinus</i>	1	5	Pitfall	12/05/2017	PM
<i>Ctenotus helenae</i>	1	5	Funnel	12/05/2017	PM
<i>Ctenotus pantherinus</i>	3	2	Funnel	12/05/2017	PM
<i>Ctenotus pantherinus</i>	1	2	Pitfall	12/05/2017	PM
<i>Ctenotus dux</i>	3	2	Funnel	12/05/2017	PM
<i>Ctenotus dux</i>	2	2	Pitfall	12/05/2017	PM
<i>Ctenophorus isolepsis</i>	3	2	Pitfall	12/05/2017	PM
<i>Ctenotus pantherinus</i>	2	1	Pitfall	12/05/2017	PM
<i>Ctenotus dux</i>	2	1	Pitfall	12/05/2017	PM
<i>Ctenotus pantherinus</i>	1	3	Funnel	12/05/2017	PM
<i>Ctenotus pantherinus</i>	1	3	Pitfall	12/05/2017	PM
<i>Ctenotus dux</i>	1	3	Pitfall	12/05/2017	PM
<i>Diporiphora wonnecke</i>	1	3	Funnel	12/05/2017	PM
<i>Notaden nichollsi</i>	8	6	Pitfall	13/05/2017	AM
<i>Pseudomys sp.</i>	1	6	Pitfall	13/05/2017	AM
<i>Ctenotus dux</i>	1	6	Pitfall	13/05/2017	AM
<i>Notaden nichollsi</i>	9	5	Pitfall	13/05/2017	AM
<i>Eremiascincus fasciolatus</i>	1	5	Funnel	13/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	5	Pitfall	13/05/2017	AM
<i>Ctenotus dux</i>	1	5	Pitfall	13/05/2017	AM
<i>Ctenotus dux</i>	1	5	Pitfall	13/05/2017	AM
<i>Notaden nichollsi</i>	10	3	Pitfall	13/05/2017	AM
<i>Eremiascincus fasciolatus</i>	2	3	Funnel	13/05/2017	AM
<i>Ctenotus pantherinus</i>	3	3	Funnel	13/05/2017	AM
<i>Ctenotus helenae</i>	1	3	Funnel	13/05/2017	AM
<i>Pseudomys desetor</i>	1	3	Elliott	13/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	3	Pitfall	13/05/2017	AM
<i>Notomys alexis</i>	1	3	Elliott	13/05/2017	AM
<i>Ctenotus pantherinus</i>	7	3	Pitfall	13/05/2017	AM
<i>Ctenotus pantherinus</i>	2	3	Funnel	13/05/2017	AM
<i>Ctenotus dux</i>	1	1	Pitfall	13/05/2017	AM
<i>Ctenotus pantherinus</i>	5	2	Pitfall	13/05/2017	AM
<i>Ctenotus pantherinus</i>	3	2	Funnel	13/05/2017	AM
<i>Ctenotus dux</i>	1	2	Pitfall	13/05/2017	AM
<i>Pseudomys desetor</i>	3	4	Elliott	13/05/2017	AM
<i>Pseudomys desetor</i>	1	4	Pitfall	13/05/2017	AM
<i>Sminthopsis macroura</i>	1	4	Pitfall	13/05/2017	AM
<i>Ctenotus helenae</i>	4	4	Funnel	13/05/2017	AM
<i>Ctenotus dux</i>	2	4	Pitfall	13/05/2017	AM
<i>Ctenophorus isolepsis</i>	2	4	Pitfall	13/05/2017	AM
<i>Ctenotus pantherinus</i>	1	4	Pitfall	13/05/2017	AM
<i>Ctenotus grandis</i>	1	4	Pitfall	13/05/2017	AM
<i>Pseudomys hermensbergensis</i>	1	6	Pitfall	13/05/2017	AM
<i>Heteronotia binoei</i>	1	4	Pitfall	13/05/2017	PM
<i>Sminthopsis macroura</i>	1	4	Pitfall	13/05/2017	PM

<i>Moloch horridus</i>	1	6	Hand	13/05/2017	PM
<i>Notaden nichollsi</i>	1	3	Pitfall	13/05/2017	PM
<i>Ctenotus helenae</i>	1	6	Pitfall	13/05/2017	PM
<i>Ctenotus helenae</i>	1	6	Funnel	13/05/2017	PM
<i>Diporiphora wonnecke</i>	1	6	Pitfall	13/05/2017	PM
<i>Ctenotus pantherinus</i>	1	6	Funnel	13/05/2017	PM
<i>Ctenotus brooksi</i>	2	3	Hand	13/05/2017	PM
<i>Ctenotus dux</i>	1	3	Pitfall	13/05/2017	PM
<i>Ctenotus helenae</i>	1	3	Pitfall	14/05/2017	AM
<i>Notaden nichollsi</i>	7	6	Pitfall	14/05/2017	AM
<i>Neobatrachus sudelli</i>	2	6	Pitfall	14/05/2017	AM
<i>Pseudomys desotor</i>	1	6	Pitfall	14/05/2017	AM
<i>Notomys alexis</i>	1	3	Pitfall	14/05/2017	AM
<i>Notomys alexis</i>	1	3	Funnel	14/05/2017	AM
<i>Notaden nichollsi</i>	1	3	Funnel	14/05/2017	AM
<i>Notaden nichollsi</i>	7	3	Pitfall	14/05/2017	AM
<i>Ctenotus helenae</i>	1	3	Pitfall	14/05/2017	AM
<i>Ctenotus brooksi</i>	1	3	Pitfall	14/05/2017	AM
<i>Notaden nichollsi</i>	5	5	Pitfall	14/05/2017	AM
<i>Ctenotus helenae</i>	1	5	Funnel	14/05/2017	AM
<i>Ctenotus pantherinus</i>	1	5	Funnel	14/05/2017	AM
<i>Ctenophorus isoleps</i>	1	5	Funnel	14/05/2017	AM
<i>Ctenotus brooksi</i>	1	5	Funnel	14/05/2017	AM
<i>Ctenotus brooksi</i>	1	5	Pitfall	14/05/2017	AM
<i>Pseudomys desotor</i>	2	4	Pitfall	14/05/2017	AM
<i>Pseudomys desotor</i>	2	4	Funnel	14/05/2017	AM
<i>Nephurus levis</i>	1	4	Funnel	14/05/2017	AM
<i>Sminthopsis macroura</i>	1	4	Pitfall	14/05/2017	AM
<i>Ctenotus helenae</i>	2	4	Funnel	14/05/2017	AM
<i>Ctenotus helenae</i>	1	4	Pitfall	14/05/2017	AM
<i>Ctenotus dux</i>	1	4	Pitfall	14/05/2017	AM
<i>Ctenotus dux</i>	1	4	Pitfall	14/05/2017	PM
<i>Ctenotus pantherinus</i>	4	4	Funnel	14/05/2017	PM
<i>Pseudomys desotor</i>	1	4	Pitfall	14/05/2017	PM
<i>Pseudomys desotor</i>	1	4	Funnel	14/05/2017	PM
<i>Ctenotus pantherinus</i>	7	2	Funnel	14/05/2017	PM
<i>Ctenotus pantherinus</i>	1	2	Pitfall	14/05/2017	PM
<i>Delma butleri</i>	1	2	Pitfall	14/05/2017	PM
<i>Ctenophorus isoleps</i>	1	2	Pitfall	14/05/2017	PM
<i>Notaden nichollsi</i>	1	4	Pitfall	15/05/2017	AM
<i>Pseudomys desotor</i>	1	4	Elliott	15/05/2017	AM
<i>Notomys alexis</i>	2	4	Elliott	15/05/2017	AM
<i>Heteronotia binoei</i>	1	4	Funnel	15/05/2017	AM
<i>Lerista ips</i>	1	4	Pitfall	15/05/2017	AM
<i>Ctenotus pantherinus</i>	6	3	Funnel	15/05/2017	AM
<i>Ctenotus pantherinus</i>	1	3	Pitfall	15/05/2017	AM
<i>Ctenotus helenae</i>	1	3	Funnel	15/05/2017	AM
<i>Notaden nichollsi</i>	5	3	Funnel	15/05/2017	AM

<i>Ctenophorus isolepsis</i>	1	3	Funnel	15/05/2017	AM
<i>Pseudomys desetor</i>	1	3	Elliott	15/05/2017	AM
<i>Diporiphora wonnecke</i>	1	5	Hand	15/05/2017	AM
<i>Notaden nicholli</i>	6	5	Pitfall	15/05/2017	AM
<i>Neobatrachus sudelli</i>	1	5	Pitfall	15/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	5	Pitfall	15/05/2017	AM
<i>Varanus brevicauda</i>	1	5	Pitfall	15/05/2017	AM
<i>Ctenotus pantherinus</i>	1	5	Pitfall	15/05/2017	AM
<i>Ctenotus pantherinus</i>	1	5	Pitfall	15/05/2017	AM
<i>Ctenotus brooksi</i>	1	5	Pitfall	15/05/2017	AM
<i>Ctenotus nasutus</i>	1	5	Pitfall	15/05/2017	AM
<i>Ctenotus helenae</i>	4	6	Pitfall	15/05/2017	AM
<i>Notaden nicholli</i>	6	6	Pitfall	15/05/2017	AM
<i>Ctenotus pantherinus</i>	2	6	Pitfall	15/05/2017	AM
<i>Notomys alexis</i>	1	6	Elliott	15/05/2017	AM
<i>Pseudomys desetor</i>	1	6	Elliott	15/05/2017	AM
<i>Ctenotus pantherinus</i>	3	6	Funnel	15/05/2017	AM
<i>Ctenotus pantherinus</i>	1	1	Pitfall	15/05/2017	PM
<i>Ctenotus dux</i>	1	1	Pitfall	15/05/2017	PM
<i>Ctenophorus isolepsis</i>	1	1	Pitfall	15/05/2017	PM
<i>Ctenotus pantherinus</i>	1	2	Pitfall	15/05/2017	PM
<i>Ctenophorus isolepsis</i>	1	2	Hand	15/05/2017	PM
<i>Nephurus levis</i>	1	4	Funnel	16/05/2017	AM
<i>Heteronotia binoei</i>	1	4	Funnel	16/05/2017	AM
<i>Notaden nicholli</i>	1	4	Pitfall	16/05/2017	AM
<i>Varanus eremius</i>	1	4	Pitfall	16/05/2017	AM
<i>Notomys alexis</i>	1	6	Elliott	16/05/2017	AM
<i>Pseudomys desetor</i>	3	6	Elliott	16/05/2017	AM
<i>Notaden nicholli</i>	5	6	Pitfall	16/05/2017	AM
<i>Ctenotus helenae</i>	2	6	Pitfall	16/05/2017	AM
<i>Pseudomys desetor</i>	2	3	Elliott	16/05/2017	AM
<i>Pseudomys desetor</i>	1	3	Pitfall	16/05/2017	AM
<i>Pseudomys hermensbergensis</i>	1	3	Pitfall	16/05/2017	AM
<i>Notomys alexis</i>	1	3	Elliott	16/05/2017	AM
<i>Ctenotus helenae</i>	1	3	Elliott	16/05/2017	AM
<i>Ctenotus helenae</i>	1	3	Pitfall	16/05/2017	AM
<i>Ctenotus pantherinus</i>	2	3	Funnel	16/05/2017	AM
<i>Notaden nicholli</i>	4	3	Pitfall	16/05/2017	AM
<i>Diplodactylus conspicillatus</i>	1	5	Funnel	16/05/2017	AM
<i>Ctenotus helenae</i>	1	5	Pitfall	16/05/2017	AM
<i>Diporiphora wonnecke</i>	1	5	Pitfall	16/05/2017	AM
<i>Notaden nicholli</i>	2	5	Pitfall	16/05/2017	AM
<i>Neobatrachus sudelli</i>	1	5	Pitfall	16/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	5	Pitfall	16/05/2017	AM
<i>Pseudomys desetor</i>	3	4	Elliott	16/05/2017	AM
<i>Pseudomys desetor</i>	1	4	Pitfall	16/05/2017	AM
<i>Sminthopsis macroura</i>	1	4	Pitfall	16/05/2017	AM
<i>Ctenotus helenae</i>	1	4	Funnel	16/05/2017	AM

<i>Notaden nichollsi</i>	2	4	Pitfall	16/05/2017	AM
<i>Ctenotus pantherinus</i>	3	1	Funnel	16/05/2017	AM
<i>Ctenotus dux</i>	1	1	Pitfall	16/05/2017	AM
<i>Ctenotus dux</i>	1	1	Funnel	16/05/2017	PM
<i>Pseudomys desetor</i>	2	1	Elliott	16/05/2017	PM
<i>Ctenotus pantherinus</i>	4	2	Pitfall	16/05/2017	PM
<i>Delma butleri</i>	1	2	Pitfall	16/05/2017	PM
<i>Ctenotus dux</i>	1	2	Pitfall	16/05/2017	PM
<i>Morethia ruficauda</i>	1	6	Pitfall	16/05/2017	PM
<i>Notaden nichollsi</i>	5	6	Pitfall	16/05/2017	PM
<i>Ctenotus pantherinus</i>	1	6	Funnel	16/05/2017	PM
<i>Pseudomys desetor</i>	2	6	Elliott	17/05/2017	AM
<i>Pseudomys hermensbergensis</i>	1	4	Pitfall	17/05/2017	AM
<i>Ctenotus helenae</i>	1	4	Pitfall	17/05/2017	AM
<i>Lerista bipes</i>	1	4	Pitfall	17/05/2017	AM
<i>Notaden nichollsi</i>	1	4	Pitfall	17/05/2017	AM
<i>Notomys alexis</i>	1	5	Hand	17/05/2017	AM
<i>Ctenotus brooksi</i>	1	5	Pitfall	17/05/2017	AM
<i>Notaden nichollsi</i>	4	5	Pitfall	17/05/2017	AM
<i>Neobatrachus sudelli</i>	1	5	Pitfall	17/05/2017	AM
<i>Diporiphora wonneckeii</i>	1	5	Pitfall	17/05/2017	AM
<i>Ctenophorus isolepsis</i>	1	5	Pitfall	17/05/2017	AM
<i>Notomys alexis</i>	3	6	Elliott	17/05/2017	AM
<i>Pseudomys desetor</i>	2	6	Elliott	17/05/2017	AM
<i>Pseudomys desetor</i>	1	6	Pitfall	17/05/2017	AM
<i>Pseudomys hermensbergensis</i>	1	6	Elliott	17/05/2017	AM
<i>Notaden nichollsi</i>	2	6	Pitfall	17/05/2017	AM
<i>Moloch horridus</i>	1	3	Elliott	17/05/2017	AM
<i>Ctenotus pantherinus</i>	2	3	Funnel	17/05/2017	PM
<i>Ctenotus helenae</i>	1	3	Funnel	17/05/2017	PM
<i>Notaden nichollsi</i>	3	3	Pitfall	17/05/2017	PM
<i>Neobatrachus sudelli</i>	3	3	Pitfall	17/05/2017	PM
<i>Pseudomys hermensbergensis</i>	1	3	Pitfall	17/05/2017	PM
<i>Notomys alexis</i>	2	3	Elliott	17/05/2017	PM
<i>Ctenophorus isolepsis</i>	1	3	Pitfall	17/05/2017	PM
<i>Pseudomys desetor</i>	2	1	Elliott	17/05/2017	PM
<i>Ctenotus pantherinus</i>	1	1	Funnel	17/05/2017	PM
<i>Ctenotus pantherinus</i>	1	1	Pitfall	17/05/2017	PM
<i>Notaden nichollsi</i>	3	1	Pitfall	17/05/2017	PM
<i>Neobatrachus sudelli</i>	1	1	Pitfall	17/05/2017	PM
<i>Tiliqua multifasciata</i>	1	2	Funnel	17/05/2017	PM
<i>Ctenophorus isolepsis</i>	2	2	Pitfall	17/05/2017	PM
<i>Ctenotus nasutus</i>	1	2	Pitfall	17/05/2017	PM
<i>Ctenotus pantherinus</i>	1	2	Pitfall	17/05/2017	PM
<i>Ctenotus helenae</i>	1	4	Pitfall	17/05/2017	PM
<i>Morethia ruficauda</i>	1	4	Funnel	17/05/2017	PM
<i>Notomys alexis</i>	2	6	Elliott	18/05/2017	AM
<i>Pseudomys desetor</i>	1	6	Elliott	18/05/2017	AM


<i>Pseudomys desetor</i>	1	6	Pitfall	18/05/2017	AM
<i>Pseudomys hermensbergensis</i>	1	6	Elliott	18/05/2017	AM
<i>Varanus brevicauda</i>	1	6	Pitfall	18/05/2017	AM
<i>Neobatrachus sudelli</i>	1	6	Pitfall	18/05/2017	AM
<i>Ningauai ridei</i>	1	6	Pitfall	18/05/2017	AM
<i>Ctenotus helenae</i>	2	4	Pitfall	18/05/2017	AM
<i>Notomys alexis</i>	2	4	Elliott	18/05/2017	AM
<i>Pseudomys desetor</i>	1	4	Elliott	18/05/2017	AM
<i>Varanus eremius</i>	1	5	Pitfall	18/05/2017	AM
<i>Delma butleri</i>	1	5	Pitfall	18/05/2017	AM
<i>Ctenotus pantherinus</i>	2	5	Pitfall	18/05/2017	AM
<i>Notaden nichollsi</i>	2	5	Pitfall	18/05/2017	AM
<i>Lerista ips</i>	1	6	Pitfall	18/05/2017	PM
<i>Notomys alexis</i>	3	6	Elliott	19/05/2017	AM
<i>Notomys alexis</i>	1	6	Funnel	19/05/2017	AM
<i>Pseudomys desetor</i>	2	6	Elliott	19/05/2017	AM
<i>Strophurus elderi</i>	1	6	Funnel	19/05/2017	AM
<i>Varanus brevicauda</i>	1	6	Pitfall	19/05/2017	AM
<i>Rhipidura leucophrys</i>	4	6	Bird Census	14/05/2017	AM
<i>Lichenostomus virescens</i>	>10	6	Bird Census	14/05/2017	AM
<i>Lichmera indistincta</i>	>10	6	Bird Census	14/05/2017	AM
<i>Coracina novaehollandiae</i>	1	6	Bird Census	14/05/2017	AM
<i>Taeniopygia guttata</i>	>10	6	Bird Census	14/05/2017	AM
<i>Taeniopygia guttata</i>	>10	3	Bird Census	14/05/2017	AM
<i>Rhipidura leucophrys</i>	>10	3	Bird Census	14/05/2017	AM
<i>Lichenostomus virescens</i>	1	3	Bird Census	14/05/2017	AM
<i>Artamus personatus</i>	>20	3	Bird Census	14/05/2017	AM
<i>Lichmera indistincta</i>	>10	3	Bird Census	14/05/2017	AM
<i>Melopsittacus undulatus</i>	5	3	Bird Census	14/05/2017	AM
<i>Coracina novaehollandiae</i>	1	3	Bird Census	14/05/2017	AM
<i>Malurus splendens</i>	>10	5	Bird Census	14/05/2017	AM
<i>Taeniopygia guttata</i>	>10	5	Bird Census	14/05/2017	AM
<i>Craicticus torquatus</i>	1	5	Bird Census	14/05/2017	AM
<i>Corvus bennetti</i>	1	5	Bird Census	14/05/2017	AM
<i>Rhipidura leucophrys</i>	>10	5	Bird Census	14/05/2017	AM
<i>Lichmera indistincta</i>	>10	5	Bird Census	14/05/2017	AM
<i>Petroica goodenovii</i>	1	4	Bird Census	14/05/2017	AM
<i>Rhipidura leucophrys</i>	>10	4	Bird Census	14/05/2017	AM
<i>Malacorhynchus membranaceus</i>	>50	4	Bird Census	14/05/2017	AM
<i>Aythya australis</i>	>50	4	Bird Census	14/05/2017	AM
<i>Tachybaptus novaehollandiae</i>	10	4	Bird Census	14/05/2017	AM
<i>Anas gracilis</i>	>20	4	Bird Census	14/05/2017	AM
<i>Fulica atra</i>	10	4	Bird Census	14/05/2017	AM
<i>Turnix velox</i>	1	4	Bird Census	14/05/2017	AM
<i>Haliastur sphenurus</i>	1	4	Bird Census	14/05/2017	AM
<i>Taeniopygia guttata</i>	>10	4	Bird Census	14/05/2017	AM
<i>Lichenostomus virescens</i>	>10	2	Bird Census	14/05/2017	PM
<i>Rhipidura leucophrys</i>	>10	2	Bird Census	14/05/2017	PM



<i>Petrochelidon nigricans</i>	1	4	Bird Census	15/05/2017	PM
<i>Phaps chalcoptera</i>	1	4	Bird Census	15/05/2017	PM
<i>Hirundo neoxena</i>	2	4	Bird Census	15/05/2017	PM
<i>Anthus novaeseelandiae</i>	1	4	Bird Census	15/05/2017	PM
<i>Conopophila whitei</i>	1	3	Bird Census	15/05/2017	PM
<i>Artamus personatus</i>	>50	1	Bird Census	15/05/2017	PM
<i>Melopsittacus undulatus</i>	>30	1	Bird Census	15/05/2017	PM
<i>Lichenostomus virescens</i>	>5	1	Bird Census	15/05/2017	PM
<i>Artamus personatus</i>	>20	3	Bird Census	16/05/2017	AM
<i>Taeniopygia guttata</i>	>10	3	Bird Census	16/05/2017	AM
<i>Rhipidura leucophrys</i>	>5	3	Bird Census	16/05/2017	AM
<i>Certhionyx variegatus</i>	1	3	Bird Census	16/05/2017	AM
<i>Lichenostomus virescens</i>	>10	5	Bird Census	16/05/2017	AM
<i>Psophodes occidentalis</i>	1	5	Bird Census	16/05/2017	AM
<i>Artamus personatus</i>	>10	5	Bird Census	16/05/2017	AM
<i>Rhipidura leucophrys</i>	>10	5	Bird Census	16/05/2017	AM
<i>Malurus splendens</i>	1	5	Bird Census	16/05/2017	AM
<i>Geopelia cuneata</i>	1	4	Bird Census	16/05/2017	AM
<i>Ardea pacifica</i>	1	4	Bird Census	16/05/2017	AM
<i>Taeniopygia guttata</i>	>10	4	Bird Census	16/05/2017	AM
<i>Lichenostomus virescens</i>	>10	4	Bird Census	16/05/2017	AM
<i>Lichenostomus virescens</i>	>5	4	Bird Census	16/05/2017	AM
<i>Rhipidura leucophrys</i>	2	4	Bird Census	16/05/2017	AM
<i>Lichenostomus virescens</i>	>10	6	Bird Census	16/05/2017	PM
<i>Rhipidura leucophrys</i>	>10	4	Bird Census	17/05/2017	AM
<i>Lichmera indistincta</i>	>5	4	Bird Census	17/05/2017	AM
<i>Lichenostomus virescens</i>	>5	4	Bird Census	17/05/2017	AM
<i>Corvus bennetti</i>	1	5	Bird Census	17/05/2017	AM
<i>Lichenostomus virescens</i>	1	5	Bird Census	17/05/2017	AM
<i>Rhipidura leucophrys</i>	1	5	Bird Census	17/05/2017	AM
<i>Chalcites basalis</i>	1	5	Bird Census	17/05/2017	AM
<i>Taeniopygia guttata</i>	>10	5	Bird Census	17/05/2017	AM
<i>Lichenostomus virescens</i>	1	5	Bird Census	17/05/2017	AM
<i>Rhipidura leucophrys</i>	1	5	Bird Census	17/05/2017	AM
<i>Melopsittacus undulatus</i>	3	5	Bird Census	17/05/2017	AM
<i>Melopsittacus undulatus</i>	>25	3	Bird Census	17/05/2017	PM
<i>Rhipidura leucophrys</i>	>5	3	Bird Census	17/05/2017	PM
<i>Artamus personatus</i>	>50	3	Bird Census	17/05/2017	PM
<i>Lichenostomus virescens</i>	>10	3	Bird Census	17/05/2017	PM
<i>Lichenostomus virescens</i>	>10	1	Bird Census	17/05/2017	PM
<i>Taeniopygia guttata</i>	>10	1	Bird Census	17/05/2017	PM
<i>Taeniopygia guttata</i>	>10	2	Bird Census	17/05/2017	PM
<i>Lichenostomus virescens</i>	>5	2	Bird Census	17/05/2017	PM
<i>Chalcites basalis</i>	1	2	Bird Census	17/05/2017	PM
<i>Taeniopygia guttata</i>	>10	4	Bird Census	17/05/2017	PM
<i>Rhipidura leucophrys</i>	1	4	Bird Census	17/05/2017	PM
<i>Lichenostomus virescens</i>	>5	4	Bird Census	17/05/2017	PM
<i>Melopsittacus undulatus</i>	15	4	Bird Census	18/05/2017	AM



<i>Taeniopygia guttata</i>	5	4	Bird Census	18/05/2017	AM
<i>Rhipidura leucophrys</i>	4	4	Bird Census	18/05/2017	AM
<i>Artamus personatus</i>	10	4	Bird Census	18/05/2017	AM
<i>Petrochelidon nigricans</i>	10	4	Bird Census	18/05/2017	AM
<i>Melopsittacus undulatus</i>	>20	5	Bird Census	18/05/2017	AM
<i>Artamus personatus</i>	>20	5	Bird Census	18/05/2017	AM
<i>Malurus splendens</i>	5	5	Bird Census	18/05/2017	AM
<i>Lichenostomus virescens</i>	2	5	Bird Census	18/05/2017	AM
<i>Lichenostomus virescens</i>	1	6	Bird Census	18/05/2017	PM
<i>Taeniopygia guttata</i>	>10	6	Bird Census	18/05/2017	PM



APPENDIX E



Habitat Assessments



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL												
(North West)												
Location: Lake Mackay (Island 1)						Habitat Assessment: 1 Trap Site 1						
Project: 2188												
Date: 14/05/2017			Easting: 04581698			Aspect	N	NE	SW	NW		
Quadrat Size: 100 x 100			Northing: 7525386				E	S	W	N/A		
												
Soil Texture	(Red) sand		sandy-loam		loam		cracking clay		clay			
VEGETATION												
Vegetation Description	Hummock Grassland	Other:		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey	Allocasuarina decaisneana		0 <5%	1 <20%	2 20-60%	3 60-100%				
	Other Grassland	Midstorey	Acacia ligulata, Eremophila latrobei, Melaleuca glomerata		0 <5%	1 <20%	2 20-60%	3 60-100%				
	Euc Woodland	Ground Cover	Triodia sp.		0 <5%	1 <20%	2 20-60%	3 60-100%				
CONDITION												
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General		0 heavy	1 medium *	2 mild	3 none	Cattle		0 heavy	1 medium	2 mild	3 none	
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
See Appendix D for species recorded at this site						Dragon burrows						

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL											
(North West)											
Location: Lake Mackay (Island 2)						Habitat Assessment: 2 Trap Site 2					
Project: 2188											
Date: 15/05/2017				Easting: 481698		Aspect	N	NE	SW	NW	
Quadrat Size: 100 x 100				Northing: 7519278			E	S	W	N/A	
											
Soil Texture	sand		sandy-loam		loam		cracking clay		clay		
VEGETATION											
Vegetation Description	Hummock Grassland	Other: Sand dune		Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey				0 <5%	1 <20%	2 20-60%	3 60-100%		
	Other Grassland	Midstorey	Acacia ligulata, Eremophila latrobei, Melaleuca glomerata			0 <5%	1 <20%	2 20-60%	3 60-100%		
	Euc. Woodland	Ground Cover	Triodia sp.			0 <5%	1 <20%	2 20-60%	3 60-100%		
	CONDITION										
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr	
DISTURBANCE											
General				Cattle							
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none		
GROUND COVER											
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%		
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%		
MICROHABITATS											
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common		
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common		
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common		
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common		
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m		
Suitability for Bats	YES			NO			Termite Mounds	0 none	1 rare	2 moderate	3 common
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common		
SPECIES											
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs							
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs							
Quoll	YES	NO									
Pebble Mouse	YES	NO									
Birds				Mammals				Reptiles			
See Appendix D for species recorded at this site											



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL																	
(North West)																	
Location: Lake Mackay (proposed eastern infrastructure area)						Habitat Assessment: 3 Trap Site 3											
Project: 2188																	
Date: 15/05/2017				Easting: 464156				Aspect		N		NE		SW		NW	
Quadrat Size: 100 x 100				Northing: 7493512						E		S		W		N/A	
																	
Soil Texture	sand			sandy-loam			loam			cracking clay			clay				
VEGETATION																	
Vegetation Description	Hummock Grassland	Other: Sand dune and adjacent to claypan			Vegetation Species	Average Height (m)	Cover										
	Acacia Shrubland	Stratum					Scattered Plants	Sparse	Moderate	Thick							
	Riverine Woodland	Overstorey				0	1	2	3								
	Other Grassland	Midstorey			Acacia sp.	2	0	1	2	3							
	Euc Woodland	Ground Cover			Triodia sp., Eragrostis sp., and Eriachne sp.	0.5	0	1	2	3							
							<5%	<20%	20-60%	60-100%							
CONDITION																	
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	LAST FIRE										
							0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr							
General																	
DISTURBANCE																	
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none								
Cattle																	
GROUND COVER																	
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%								
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%								
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%								
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%								
MICROHABITATS																	
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common								
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common								
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common								
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common								
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m								
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common							
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common								
SPECIES																	
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs													
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs													
Quoll	YES	NO															
Pebble Mouse	YES	NO															
Birds			Mammals			Reptiles											
See Appendix D for species recorded at this site																	



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL (North West)												
Location: Lake Mackay						Habitat Assessment: 4 Trap Site 4						
Project: 2188												
Date: 15/05/2017			Easting: 477761			Aspect	N	NE	SW	NW		
Quadrat Size: 100 x 100			Northing: 7487342				E	S	W	N/A		
												
Soil Texture	sand		sandy-loam		loam		cracking clay		clay			
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Claypan		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey				0 <5%	1 <20%	2 20-60%	3 60-100%			
	Other Grassland	Midstorey	Melaleuca glomerata			2 <5%	1 <20%	2 20-60%	3 60-100%			
	Euc Woodland	Ground Cover	Mixed grasses including Triodia sp., herbs and sedges including Cyperus sp.			<0.5 0 <5%	1 <20%	2 20-60%	3 60-100%			
CONDITION												
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General		0 heavy	1 medium *	2 mild	3 none	0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other: (sedges)	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
See Appendix D for species recorded at this site												



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL												
(North West)												
Location: Lake Mackay (proposed eastern infrastructure area)						Habitat Assessment: 5 trap Site 5						
Project: 2188												
Date: 15/05/2017			Easting: 464656			Aspect	N	NE	SW	NW		
Quadrat Size: 100 x 100			Northing: 7491479				E	S	W	N/A		
												
Soil Texture	sand		sandy-loam		loam		cracking clay		clay			
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Sand dune and swale		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey	Corymbia chippendaleia and Eucalyptus gammophylla		0 <5%	1 <20%	2 20-60%	3 60-100%				
	Other Grassland	Midstorey	Acacia sp.		0 <5%	1 <20%	2 20-60%	3 60-100%				
	Euc Woodland	Ground Cover	Triodia sp. Aristida sp. and mixed herbs		0 <5%	1 <20%	2 20-60%	3 60-100%				
CONDITION												
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General		0 heavy	1 medium *	2 mild	3 none	0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES		NO		Termite Mounds	0 none	1 rare	2 moderate	3 common			
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
See Appendix D for species recorded at this site												

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL (North West)												
Location: Lake Mackay (proposed western infrastructure area)							Habitat Assessment: 6 Trap Site 6					
Project: 2188												
Date: 15/05/2017			Easting: 442302				Aspect	N	NE	SW	NW	
Quadrat Size: 100 x 100			Northing: 7499967					E	S	W	N/A	
 												
Soil Texture	sand		sandy-loam		loam		cracking clay		clay			
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Sand dune and swale		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey				0 <5%	1 <20%	2 20-60%	3 60-100%			
	Other Grassland		Acacia sp., Eucalyptus gammophylla, Eremophila sp.	0 <5%	1 <20%	2 20-60%	3 60-100%					
		Midstorey		2								
	Euc. Woodland	Ground Cover	Triodia sp.	0.5	0 <5%	1 <20%	2 20-60%	3 60-100%				
CONDITION												
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General			Cattle									
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
See Appendix D for species recorded at this site												



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL												
(North West)												
Location: Lake Mackay						Habitat Assessment: 7 (Island 1)						
Project: 2188												
Date: 14/05/2017				Easting: 0481524				Aspect	N	NE	SW	NW
Quadrat Size: 100 x 100				Northing: 7525082					E	S	W	N/A
												
Soil Texture	sand			sandy-loam		loam		cracking clay		clay		
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Dune Crest		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey				0 <5%	1 <20%	2 20-60%	3 60-100%			
	Other Grassland	Midstorey	Acacia sp., Grevillea sp.			2 <5%	1 <20%	2 20-60%	3 60-100%			
	Euc Woodland	Ground Cover	Triodia sp.			0.5 <5%	1 <20%	2 20-60%	3 60-100%			
	CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
General			DISTURBANCE				Cattle					
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
White-plumed Honeyeater												
Singing Honeyeater												



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL											
(North West)											
Location: Lake Mackay						Habitat Assessment: 8 (site 6 to lake)					
Project: 2188											
Date: 14/05/2017				Easting: 442450		Aspect	N	NE	SW	NW	
Quadrat Size: 100 x 100				Northing: 7500115			E	S	W	N/A	
											
Soil Texture	sand		sandy-loam		loam		cracking clay		clay		
VEGETATION											
Vegetation Description	Hummock Grassland	Other: Dune Crest		Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey				2	0 <5%	1 <20%	2 20-60%	3 60-100%	
	Other Grassland	Midstorey	Acacia sp.				0 <5%	1 <20%	2 20-60%	3 60-100%	
	Euc Woodland	Ground Cover	Triodia sp.			0.5	0 <5%	1 <20%	2 20-60%	3 60-100%	
	CONDITION										
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr	
General			DISTURBANCE			Cattle					
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none		
GROUND COVER											
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%		
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%		
MICROHABITATS											
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common		
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common		
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common		
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common		
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m		
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common	
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common		
SPECIES											
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs							
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs							
Quoll	YES	NO									
Pebble Mouse	YES	NO									
Birds			Mammals			Reptiles					



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL											
(North West)											
Location: Lake Mackay						Habitat Assessment: 9 (site 6 to lake)					
Project: 2188											
Date: 14/05/2017			Easting: 442364			Aspect	N	NE	SW	NW	
Quadrat Size: 100 x 100			Northing: 7500332				E	S	W	N/A	
											
Soil Texture	sand		sandy-loam		loam		cracking clay		clay		
VEGETATION											
Vegetation Description	Hummock Grassland	Other: Lake Margin		Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick		
	Riverine					0	1	2	3		
	Woodland	Overstorey				<5%	<20%	20-60%	60-100%		
	Other Grassland	Midstorey				0	1	2	3		
	Euc Woodland	Ground Cover	Triodia sp., Aristida sp., Eragrostis sp., Tecticornia sp.			0	1	2	3		
<div> <div>CONDITION</div> <div>LAST FIRE</div> </div>											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr	
<div> <div>General</div> <div>DISTURBANCE</div> <div>Cattle</div> </div>											
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none		
GROUND COVER											
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%		
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%		
MICROHABITATS											
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common		
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common		
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common		
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common		
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m		
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common	
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common		
SPECIES											
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs							
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs							
Quoll	YES	NO									
Pebble Mouse	YES	NO									
<div> <div>Birds</div> <div>Mammals</div> <div>Reptiles</div> </div>											
White Plumed Honeyeater											
Singing Honeyeater											



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL														
(North West)														
Location: Lake Mackay						Habitat Assessment: 10 (Island 3)								
Project: 2188														
Date: 15/05/2017				Easting: 0484133				Aspect	N	NE	SW	NW		
Quadrat Size: 100 x 100				Northing: 7506796					E	S	W	N/A		
														
Soil Texture	sand			sandy-loam			loam			cracking clay			clay	
VEGETATION														
Vegetation Description	Hummock Grassland	Other: Dune Swale			Vegetation Species	Average Height (m)	Cover							
	Acacia Shrubland	Stratum					Scattered Plants	Sparse	Moderate	Thick				
	Riverine Woodland	Overstorey				0	1	2	3					
						<5%	<20%	20-60%	60-100%					
	Other Grassland	Midstorey	Acacia sp., Eremophila sp.			0	1	2	3					
						<5%	<20%	20-60%	60-100%					
Euc Woodland	Ground Cover	Aristida sp., Eragrostis sp.			0	1	2	3						
					<5%	<20%	20-60%	60-100%						
CONDITION														
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr				
DISTURBANCE														
General						Cattle								
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none					
GROUND COVER														
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%					
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%					
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%					
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%					
MICROHABITATS														
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common					
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common					
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common					
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common					
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m					
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common				
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common					
SPECIES														
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs										
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs										
Quoll	YES	NO												
Pebble Mouse	YES	NO												
Birds			Mammals			Reptiles								
Singing Honeyeater														
Willie Wagtail														
Masked Wood Swallow														



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL											
(North West)											
Location: Lake Mackay						Habitat Assessment: 11 (Island 3)					
Project: 2188											
Date: 15/05/2017				Easting: 0484286		Aspect	N	NE	SW	NW	
Quadrat Size: 100 x 100				Northing: 7506734			E	S	W	N/A	
											
Soil Texture	sand		sandy-loam		loam		cracking clay		clay		
VEGETATION											
Vegetation Description	Hummock Grassland	Other: Lake Margin		Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey				0	1	2	3		
	Grassland	Midstorey				<5%	<20%	20-60%	60-100%		
	Euc Woodland	Ground Cover	<i>Aristida sp.</i> , <i>Eragrostis sp.</i> , <i>Swainsonasp.</i>			0	1	2	3		
						<5%	<20%	20-60%	60-100%		
CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr	
DISTURBANCE											
General		0 heavy	1 medium *	2 mild	3 none	0 heavy	1 medium	2 mild	3 none		
GROUND COVER											
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%		
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%		
MICROHABITATS											
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common		
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common		
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common		
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common		
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m		
Suitability for Bats	YES		NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common		
SPECIES											
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs							
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs							
Quoll	YES	NO									
Pebble Mouse	YES	NO									
Birds				Mammals				Reptiles			
Willie Wagtail				Rabbit Scats				No reptile burrows			
Splendid Fairy Wren								Lerista tracks?			



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL												
(North West)												
Location: Lake Mackay						Habitat Assessment: 12 (Island 4)						
Project: 2188												
Date: 16/05/2017				Easting: 0451020				Aspect	N	NE	SW	NW
Quadrat Size: 100 x 100				Northing: 7502283					E	S	W	N/A
												
Soil Texture	sand			sandy-loam			loam			cracking clay		clay
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Swale			Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum					Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey					0 <5%	1 <20%	2 20-60%	3 60-100%		
	Other Grassland	Midstorey					0 <5%	1 <20%	2 20-60%	3 60-100%		
	Euc Woodland	Ground Cover					0 <5%	1 <20%	2 20-60%	3 60-100%		
CONDITION												
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General			Cattle									
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs (island probabl								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds				Mammals				Reptiles				
Zebra Finch				Rabbit scats				Agamid (dragon) burrows				



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL (North West)												
Location: Lake Mackay						Habitat Assessment: 13 (Island 5)						
Project: 2188												
Date: 16/05/2017				Easting: 449328		Aspect	N	NE	SW	NW		
Quadrat Size: 100 x 100				Northing: 7501974			E	S	W	N/A		
												
Soil Texture	sand		sandy-loam		loam		cracking clay		clay			
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Swale		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey				0 <5%	1 <20%	2 20-60%	3 60-100%			
	Other Grassland	Midstorey	Melaleuca sp.			2 <5%	1 <20%	2 20-60%	3 60-100%			
	Euc. Woodland	Ground Cover	Triodia sp., Aristida sp.			0.5 <5%	1 <20%	2 20-60%	3 60-100%			
	CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General						Cattle						
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
			Rabbit scats									


FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL												
(North West)												
Location: Lake Mackay						Habitat Assessment: 14 (Island 6)						
Project: 2188												
Date: 16/05/2017				Easting: 0447296			Aspect	N	NE	SW	NW	
Quadrat Size: 100 x 100				Northing: 7501579				E	S	W	N/A	
												
Soil Texture	sand			sandy-loam		loam		cracking clay		clay		
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Herbland/Grassland		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey				0 <5%	1 <20%	2 20-60%	3 60-100%			
	Other Grassland	Midstorey				0 <5%	1 <20%	2 20-60%	3 60-100%			
	Euc Woodland	Ground Cover	Triodia sp. and mixed shrubs			0.5	0 <5%	1 <20%	2 20-60%	3 60-100%		
	CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General							Cattle					
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
Splendid Fairy Wren			Rabbit scats									



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL											
(North West)											
Location: Lake Mackay						Habitat Assessment: 15 (Island 7)					
Project: 2188											
Date: 16/05/2017				Easting: 482625		Aspect	N	NE	SW	NW	
Quadrat Size: 100 x 100				Northing: 7497221			E	S	W	N/A	
											
Soil Texture	sand		sandy-loam		loam		cracking clay		clay		
VEGETATION											
Vegetation Description	Hummock Grassland	Other: Lake margin		Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey				0	1	2	3		
						<5%	<20%	20-60%	60-100%		
	Other Grassland	Midstorey	Melaleuca sp.			1.5	0	1	2	3	
						<5%	<20%	20-60%	60-100%		
Euc. Woodland	Ground Cover	Eragrostis sp.	<0.5	0	1	2	3				
					<5%	<20%	20-60%	60-100%			
CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	LAST FIRE				
							0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr	
DISTURBANCE											
General						Cattle					
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none		
GROUND COVER											
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%		
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%		
MICROHABITATS											
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common		
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common		
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common		
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common		
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m		
Suitability for Bats	YES		NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common		
SPECIES											
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs							
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs							
Quoll	YES	NO									
Pebble Mouse	YES	NO									
Birds			Mammals			Reptiles					
Pelican eggs/nests (possibly)											



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL (North West)											
Location: Lake Mackay						Habitat Assessment: 16					
Project: 2188											
Date: 18/05/2017			Easting: 0464557			Aspect		N	NE	SW	NW
Quadrat Size: 100 x 100			Northing: 7491208					E	S	W	N/A
											
Soil Texture	sand		sandy-loam		loam		cracking clay		clay		
VEGETATION											
Vegetation Description	Hummock Grassland	Other: Dune		Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey	Corymbia chippendaleia		4	0 <5%	1 <20%	2 20-60%	3 60-100%		
	Other Grassland	Midstorey	Acacia sp.		2	0 <5%	1 <20%	2 20-60%	3 60-100%		
	Euc. Woodland	Ground Cover	Triodia sp.		0.5	0 <5%	1 <20%	2 20-60%	3 60-100%		
	CONDITION										
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr	
LAST FIRE											
DISTURBANCE											
General		0 heavy	1 medium *	2 mild	3 none	0 heavy	1 medium	2 mild	3 none		
GROUND COVER											
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%		
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%		
MICROHABITATS											
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common		
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common		
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common		
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common		
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m		
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common	
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common		
SPECIES											
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs							
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs							
Quoll	YES	NO									
Pebble Mouse	YES	NO									
Birds				Mammals				Reptiles			
Horsefields Bronze Cuckoo				Camel tracks							
Splendid Fair Wren											
Zebra Finch											



FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL												
(North West)												
Location: Lake Mackay						Habitat Assessment: 17						
Project: 2188												
Date: 18/05/2017				Easting: 0484220				Aspect	N	NE	SW	NW
Quadrat Size:				Northing: 7490499					E	S	W	N/A
												
Soil Texture	sand			sandy-loam		loam		cracking clay		clay		
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Dune		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey	Corymbia chippendaleia			0 <5%	1 <20%	2 20-60%	3 60-100%			
	Other Grassland	Midstorey	Acacia sp.			0 <5%	1 <20%	2 20-60%	3 60-100%			
	Euc Woodland	Ground Cover	Triodia sp.			0 <5%	1 <20%	2 20-60%	3 60-100%			
	CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General			Cattle									
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO	Termite Mounds	0 none	1 rare	2 moderate	3 common			
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
Singing Honeyeater												
Willie Wagtail												
Brown Honeyeater												

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL												
(North West)												
Location: Lake Mackay						Habitat Assessment: HA18						
Project: 2188												
Date: 19/05/2017				Easting: 0463019			Aspect	N	NE	SW	NW	
Quadrat Size:				Northing: 7488129				E	S	W	N/A	
												
Soil Texture	sand			sandy-loam		loam		cracking clay		clay		
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Dune		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey	Corymbia chippendaleia			0 <5%	1 <20%	2 20-60%	3 60-100%			
	Other Grassland	Midstorey	Acacia sp.			0 <5%	1 <20%	2 20-60%	3 60-100%			
	Euc. Woodland	Ground Cover	Triodia sp., Aristida sp., other grasses & herbs			0 <5%	1 <20%	2 20-60%	3 60-100%			
	CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
DISTURBANCE												
General			Cattle									
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
Budgies			Hopping Mouse tracks			Burrows of Agamids						
Willie Wagtail						Lerista tracks						
Zebra Finch						Other reptile sp tracks						

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL												
(North West)												
Location: Lake Mackay						Habitat Assessment: 19						
Project: 2188												
Date: 19/05/2017				Easting: 0455788				Aspect		N		
Quadrat Size:				Northing: 7490241						E		
										NE		
										SW		
										NW		
										N/A		
												
Soil Texture	sand			sandy-loam			loam			cracking clay		
clay												
VEGETATION												
Vegetation Description	Hummock Grassland	Other: Claypan			Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum					Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey					0	1	2	3		
	Other Grassland	Midstorey					<5%	<20%	20-60%	60-100%		
	Euc Woodland	Ground Cover					0	1	2	3		
		Triodia sp					<5%	<20%	20-60%	60-100%		
CONDITION												
LAST FIRE												
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr		
General												
DISTURBANCE												
Cattle												
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other: Sedoes	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds												
Mammals												
Reptiles												
Horsefields Bronze Cuckoo								unknown scat				
Zebra Finch												

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL										
(North West)										
Location: Lake Mackay						Habitat Assessment: 20				
Project: 2188										
Date: 19/05/2017			Easting: 0451920			Aspect	N	NE	SW	NW
Quadrat Size: 100 x 100			Northing: 7490834				E	S	W	N/A
										
Soil Texture	sand		sandy-loam		loam		cracking clay		clay	
VEGETATION										
Vegetation Description	Hummock Grassland	Other: Sand Plain		Vegetation Species	Average Height (m)	Cover				
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick	
	Riverine Woodland	Overstorey	<i>Eucalyptus gammophylla</i>			0 <5%	1 <20%	2 20-60%	3 60-100%	
	Other Grassland	Midstorey				0 <5%	1 <20%	2 20-60%	3 60-100%	
	Euc. Woodland	Ground Cover	<i>Triodia sp.</i>			0 <5%	1 <20%	2 20-60%	3 60-100%	
	CONDITION									
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr
LAST FIRE										
DISTURBANCE										
General		0 heavy	1 medium *	2 mild	3 none	0 heavy	1 medium	2 mild	3 none	
GROUND COVER										
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%	
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%	
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%	
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%	
MICROHABITATS										
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common	
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common	
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common	
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common	
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m	
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common	
SPECIES										
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs						
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs						
Quoll	YES	NO								
Pebble Mouse	YES	NO								
Birds			Mammals			Reptiles				
Zebra Finch						Thorny Devil				

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL (North West)												
Location: Lake Mackay						Habitat Assessment: 21 (Island 1)						
Project: 2188												
Date: 14/05/2017			Easting: 0481312			Aspect	N	NE	SW	NW		
Quadrat Size: 100 x 100			Northing: 754729				E	S	W	N/A		
												
Soil Texture	(Red) sand		sandy-loam		loam		cracking clay		clay			
VEGETATION												
Vegetation Description	Hummock Grassland	Other:		Vegetation Species	Average Height (m)	Cover						
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick			
	Riverine Woodland	Overstorey			0 <5%	1 <20%	2 20-60%	3 60-100%				
	Other Grassland	Midstorey	Acacia ligulata, Eremophila latrobei, Melaleuca glomerata		0 <5%	1 <20%	2 20-60%	3 60-100%				
	Euc Woodland	Ground Cover	Triodia sp.		0 <5%	1 <20%	2 20-60%	3 60-100%				
	CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	LAST FIRE					
	0 heavy	1 medium *	2 mild	3 none		0 heavy	1 medium	2 mild	3 none			
DISTURBANCE												
GROUND COVER												
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%			
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%			
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%			
MICROHABITATS												
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common			
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common			
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common			
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Prescence	0 none	1 rare	2 moderate	3 common			
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m			
Suitability for Bats	YES			NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common			
SPECIES												
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs								
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs								
Quoll	YES	NO										
Pebble Mouse	YES	NO										
Birds			Mammals			Reptiles						
						Agamid (Dragon) burrows						

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL (North West)											
Location: Lake Mackay						Habitat Assessment: 22 (Island 1)					
Project: 2188											
Date: 14/05/2017			Easting: 0481095			Aspect	N	NE	SW	NW	
Quadrat Size: 100 x 100			Northing: 7524240				E	S	W	N/A	
											
Soil Texture	(Red) sand		sandy-loam		loam		cracking clay		clay		
VEGETATION											
Vegetation Description	Hummock Grassland	Other: Dune		Vegetation Species	Average Height (m)	Cover					
	Acacia Shrubland	Stratum				Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey				0 <5%	1 <20%	2 20-60%	3 60-100%		
	Other Grassland	Midstorey	Eremophila, Melaleuca and Acacia			0 <5%	1 <20%	2 20-60%	3 60-100%		
	Euc. Woodland	Ground Cover	Triodia sp.			<0.5	0 <5%	1 <20%	2 20-60%	3 60-100%	
CONDITION											
Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 4-5 Yr	3 >5 Yr	
DISTURBANCE											
General		0 heavy	1 medium *	2 mild	3 none	0 heavy	1 medium	2 mild	3 none		
GROUND COVER											
Bare Ground	0 <5%	1 <20%	2 20-60%	3 60-100%	Hummock Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Rock	0 <5%	1 <20%	2 20-60%	3 60-100%	Other Grass	0 <5%	1 <20%	2 20-60%	3 60-100%		
Leaf Litter	0 <5%	1 <20%	2 20-60%	3 60-100%	Herbs	0 <5%	1 <20%	2 20-60%	3 60-100%		
Logs >10cm	0 <5%	1 <20%	2 20-60%	3 60-100%	Other:	0 <5%	1 <20%	2 20-60%	3 60-100%		
MICROHABITATS											
Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common		
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Tree Hollows	0 none	1 rare	2 moderate	3 common		
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Tree Hollows	0 none	1 rare	2 moderate	3 common		
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Presence	0 none	1 rare	2 moderate	3 common		
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m		
Suitability for Bats	YES		NO		Termite Mounds	0 none	1 rare	2 moderate	3 common		
Caves	Absent	Present			Woody Debris	0 none	1 rare	2 moderate	3 common		
SPECIES											
Mulgara	YES	NO	DETAILS	Suitable habitat with sandy soil and within distribution but no signs							
Bilby	YES	NO		Suitable habitat with sandy soil and within distribution but no signs							
Quoll	YES	NO									
Pebble Mouse	YES	NO									
Birds			Mammals			Reptiles					
						Dragon burrows					

APPENDIX F

Opportunistic Data

Opportunistic Records

Species	No. sighted	Date	Day / Night
<i>Ctenotus brooksi</i>	1	11/05/2017	Day
<i>Morethia rificauda</i>	1	11/05/2017	Day
<i>Recurvirostra novaehollandiae</i>	2	12/05/2017	Day
<i>Anas superciliosa</i>	> 10	12/05/2017	Day
<i>Rhipidura leucophrys</i>	2	10/05/2017	Day
<i>Ardea pacifca</i>	1	12/05/2017	Day
<i>Melopsittacus undulatus</i>	> 10	13/05/2017	Day
<i>Lichenostomus virescens</i>	> 10	13/05/2017	Day
<i>Egretta novaehollandiae</i>	1	13/05/2017	Day
<i>Chalcites basalis</i>	1	13/05/2017	Day
<i>Falco berigora</i>	1	13/05/2017	Day
<i>Hamirostra melanosternon</i>	1	13/05/2017	Day
<i>Ardeotis australis</i>	2	13/05/2017	Day
<i>Canis lupus dingo</i>	> 10	13/05/2017	Day
<i>Camelus dromedarius</i>	> 10	13/05/2017	Day
<i>Artamus personatus</i>	> 10	13/05/2017	Day
<i>Morethia riuficauda</i>	1	15/05/2017	Day
<i>Notomys alexis</i>	3	15/05/2017	Night
<i>Notaden nichollsi</i>	> 10	15/05/2017	Night
<i>Tachybaptus novaehollandiae</i>	1	15/05/2017	Night
<i>Elsyornis melanops</i>	1	15/05/2017	Night
<i>Pseudomys desetor</i>	2	15/05/2017	Night
<i>Lialis burtonis</i>	1	15/05/2017	Night
<i>Notomys alexis</i>	10	15/05/2017	Night
<i>Pseudomys desetor</i>	3	15/05/2017	Night
<i>Pseudomys hermensbergensis</i>	2	15/05/2017	Night
<i>Gowidon longirostris</i>	1	18/05/2017	Day
<i>Todiramphus pyrrhopygius</i>	1	19/05/2017	Day
<i>Acanthiza uropygialis</i>	1	19/05/2017	Day
<i>Moloch horridus</i>	2	19/05/2017	Day
<i>Moloch horridus</i>	1	19/05/2017	Day
<i>Taeniopygia guttata</i>	> 10	19/05/2017	Day

APPENDIX G

Photographs



Military Dragon (*Ctenotus isolepis*)



Wedge Snout Ctenotus (*Ctenotus brooksi*)



Fine Side-lined Ctenotus (*Ctenotus dux*)



Desert Mouse (*Pseudomys desertor*)



Short-tailed Pygmy Monitor (*Varanus brevicaudus*)



Grand Ctenotus (*Ctenotus grandis*)



Bynoe's Prickly Gecko (*Heteronotia binoei*)



Three-lined Knob-tail (*Nephurus levis*)



Wongai Ningau (*Ningau ridei*)



Thorny Devil (*Moloch horridus*)