

Orange Springs Road Fauna Assessment Report



Prepared for the Shire of Gingin
January, 2019

Greg Harewood
Zoologist
A.B.N. 95 536 627 336
PO Box 755
BUNBURY WA 6231
M: 0402 141 197
T/F:(08) 9725 0982
E: gharewood@iinet.net.au



PO Box 9179
Picton, Western Australia 6229
enquiries@ecoedge.com.au

Executive Summary

This report details the results of a fauna assessment of over a ~17.5 km section of Orange Springs Road between Brand Highway (SLK 00.00) and Cowalla Road (SLK 17.85) (Survey Area) in the Shire of Gingin (the Shire).

It is understood that the information contained within the report will be used by the Shire to support an application to clear native vegetation to be submitted to the Department of Water and Environmental Regulation (DWER).

The scope of works was to conduct a level 1 fauna survey as defined by the Environmental protection Authority (EPA 2016). Because the general area is known to be utilised by Carnaby's black cockatoos the scope of the survey work was expanded to include a Level 2 (EPA 2016) assessment of the site's significance to these species as well.

The field component of the fauna assessment was carried out on the 18 September 2018 by Greg Harewood (Zoologist). The specific areas that will be subject to clearing were at the time of the field survey undefined. For the purpose of the assessment the survey was therefore defined by the total width of the road reserve as defined by, where present, fence lines along the boundary of bordering farmland. Where fence lines were absent the boundary was taken as being about 10 metres from the existing road edge.

The vast majority of remnant native vegetation bordering the Orange Springs Road is represented by banksia woodland on sand with variations occurring in the density and composition of associated tree and shrub species. Large eucalypts are generally absent or uncommon with the main species being coastal blackbutt (*Eucalyptus todtiana*).

A small area of wetland habitat is present on one site of the road reserve and is dominated by flooded gum (*E. rudis*) and paperbark over a dense shrubland.

The balance of the Survey Area (52%) has been totally or partly cleared and now contains a grassland of introduced species with some areas exhibiting particle regrowth of native shrub species.

Overall the native fauna habitats present are in good condition and are likely to have the capacity to support or be utilised by a high percentage of the listed fauna species and in particular those sections of vegetation directly adjoining larger expanses of similar habitat. The majority of the road reserve which has been cleared or partly cleared would in contrast have a depauperate fauna assemblage and low biodiversity.

Fifteen "habitat trees" were identified within the Survey Area. Thirteen of these did not appear to contain hollows of any size. The hollows observed in the remaining two trees

were all assessed as being unsuitable for black cockatoos to use for nesting due to being too small.

The banksia woodland areas represent the main quality foraging resource making up about 40% of the Survey Area. Black cockatoo foraging evidence was observed at numerous locations along the road reserve and was mainly in the form of chewed *banksia* cones. This evidence was attributed to Carnaby's black cockatoo.

No evidence of roosting activity within the Survey Area was recorded during the survey period and given the general absence of large trees it is considered unlikely that the area is used for this purpose at any time.

Twenty five fauna species were observed during the field survey. With the exception of foraging debris (chewed banksia cones and coastal blackbutt fruits) attributed to the Carnaby's black cockatoo which was observed at several locations, no evidence of any of the conservation significant fauna species identified during the literature review was seen, though this does not eliminate the potential for various species to still occur, if only infrequently.

In summary, one vertebrate fauna species of conservation significance (listed as State or Federal threatened/migratory species or as DBCA priority species) was positively identified as utilising the Survey Area for some purpose during the survey period, this being *Calyptorhynchus latirostris* Carnaby's Black Cockatoo – which is listed under S2 of the Wildlife Conservation Act 1950 and as Endangered under the Environment Protection and Biodiversity Conservation Act 1999.

Impacts on Carnaby's Black cockatoo will primarily relate to the potential loss of quality foraging habitat. The potential impacts on other fauna species of conservation significance and/or their habitat will also need to be taken into consideration during ongoing planning and construction phases of the proposed project. The proposed application to clear vegetation to be submitted by the Shire will be assessed against the ten clearing principles related to native vegetation in the *Environmental Protection Act* by the Department of Water and Environment Regulation.

Taking into consideration that clearing is to be at relatively small, select locations along a relatively narrow linear corridor it is however considered unlikely that any significant impacts on fauna will occur. The presence of large expanses of reserve bushland of similar character in the immediate vicinity also lessens the significance of the potential impacts.

Table of Contents

Executive Summary.....	2
Statement of limitations	5
Reliance on Data	5
Report for Benefit of Client.....	5
1 Introduction	6
1.1 Background.....	6
1.2 Scope of Works.....	6
2 Methods.....	13
2.1 Literature Review	13
2.2 Field Surveys.....	13
2.2.1 Fauna Habitat Assessment.....	13
2.2.2 Black Cockatoo Habitat Assessment.....	14
2.2.3 Black Cockatoo Breeding Habitat	14
2.2.4 Black Cockatoo Foraging Habitat	16
2.2.5 Black Cockatoo Roosting Habitat.....	16
2.2.6 Other Fauna Species of Conservation Significance.....	16
3 Survey Limitations.....	16
4 Results.....	17
4.1 Literature Review	17
4.2 Field Survey	19
4.2.1 Fauna Habitat Assessment.....	19
4.2.2 Black Cockatoo Habitat Assessment.....	21
4.2.3 Other Fauna Species of Conservation Significance.....	15
5 Conservation Significant Fauna Species.....	15
6 Conclusion.....	18
7 References	20
Appendix A. Conservation Codes.....	
Appendix B. Potential fauna species possibly occurring in the area.	
Appendix C. Naturemap & Protected Matters Search Results.....	
Appendix D. Habitat Tree Details.....	

Statement of limitations

Reliance on Data

In the preparation of this report, Ecoedge has relied on data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report. Unless stated otherwise in the report, Ecoedge has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Ecoedge will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, unavailable, misrepresented or otherwise not fully disclosed to Ecoedge.

Report for Benefit of Client

The report has been prepared for the benefit of the Client and for no other party. Ecoedge assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including, without limitation, matters arising from any negligent act or omission of Ecoedge or for any loss or damage suffered by any other party relying on the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions, and should make their own enquiries and obtain independent advice in relation to such matters.

1 Introduction

1.1 Background

This report details the results of a fauna assessment of over a ~17.5 km section of Orange Springs Road between Brand Highway (SLK 00.00) and Cowalla Road (SLK 17.85) (the Survey Area) in the Shire of Gingin (the Shire) (**Figures 1 and 2**).

It is understood that the information contained within the report will be used by the Shire to support an application to clear native vegetation to be submitted to the Department of Water and Environmental Regulation (DWER).

This report details the results of the field survey.

1.2 Scope of Works

The scope of works was to conduct a Level 1 fauna survey as defined by the Environmental Protection Authority (EPA 2016). Because the general area is known to be utilised by Carnaby's black cockatoos the scope of the survey work has been expanded to include a Level 2 (EPA 2016) assessment of the Survey Area's significance to these species as well. The fauna assessment has therefore included:

1. Level 1 fauna assessment (in accordance with EPA (2016) guidelines);
2. Targeted searches for black cockatoo habitat/site use (habitat trees, existing and potential nest hollows, foraging and roosting habitat);
3. Identification of any other potentially occurring significant fauna species and their habitat; and
4. Report summarising methods and results.

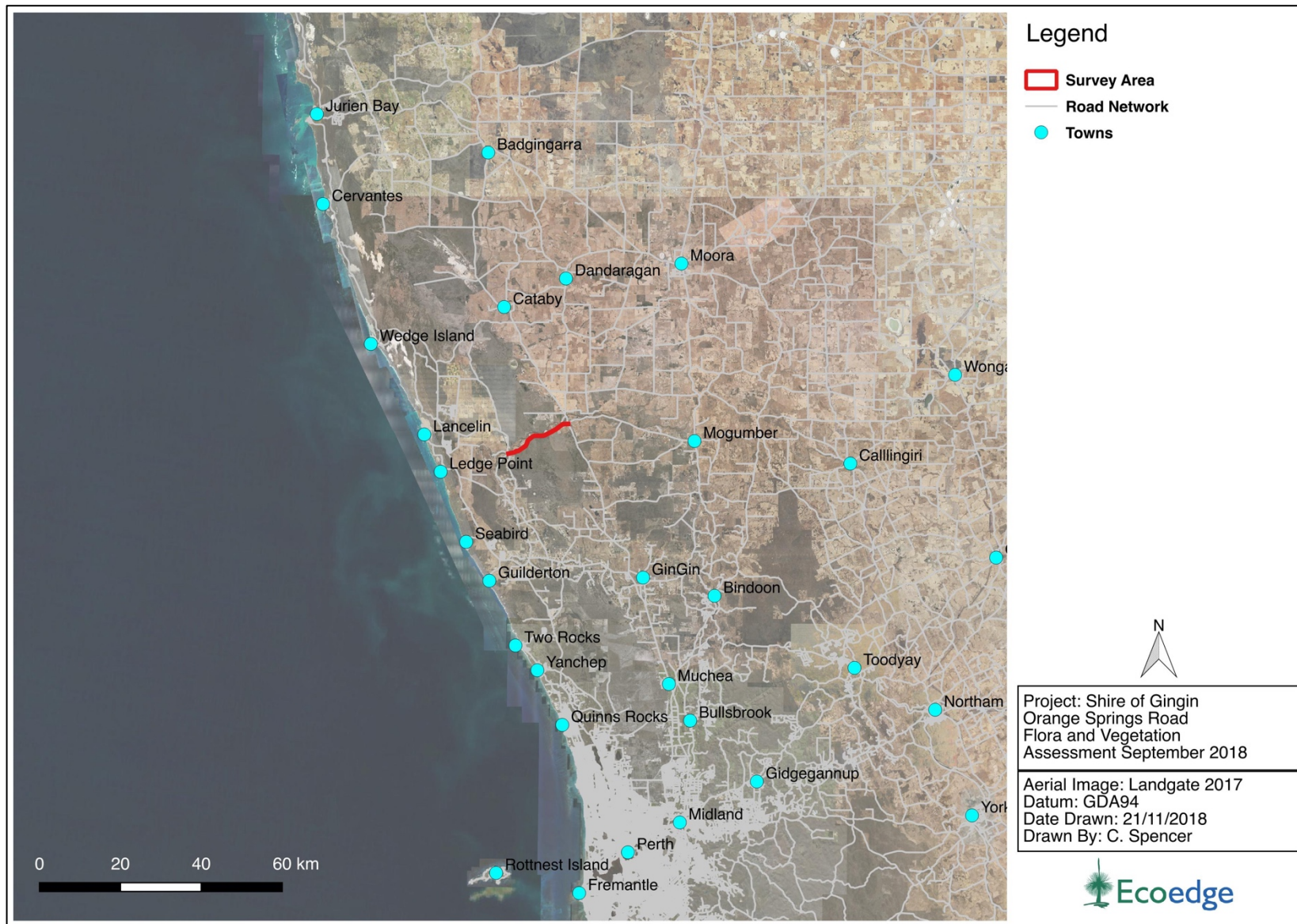


Figure 1. The Survey Area location is shown in red.

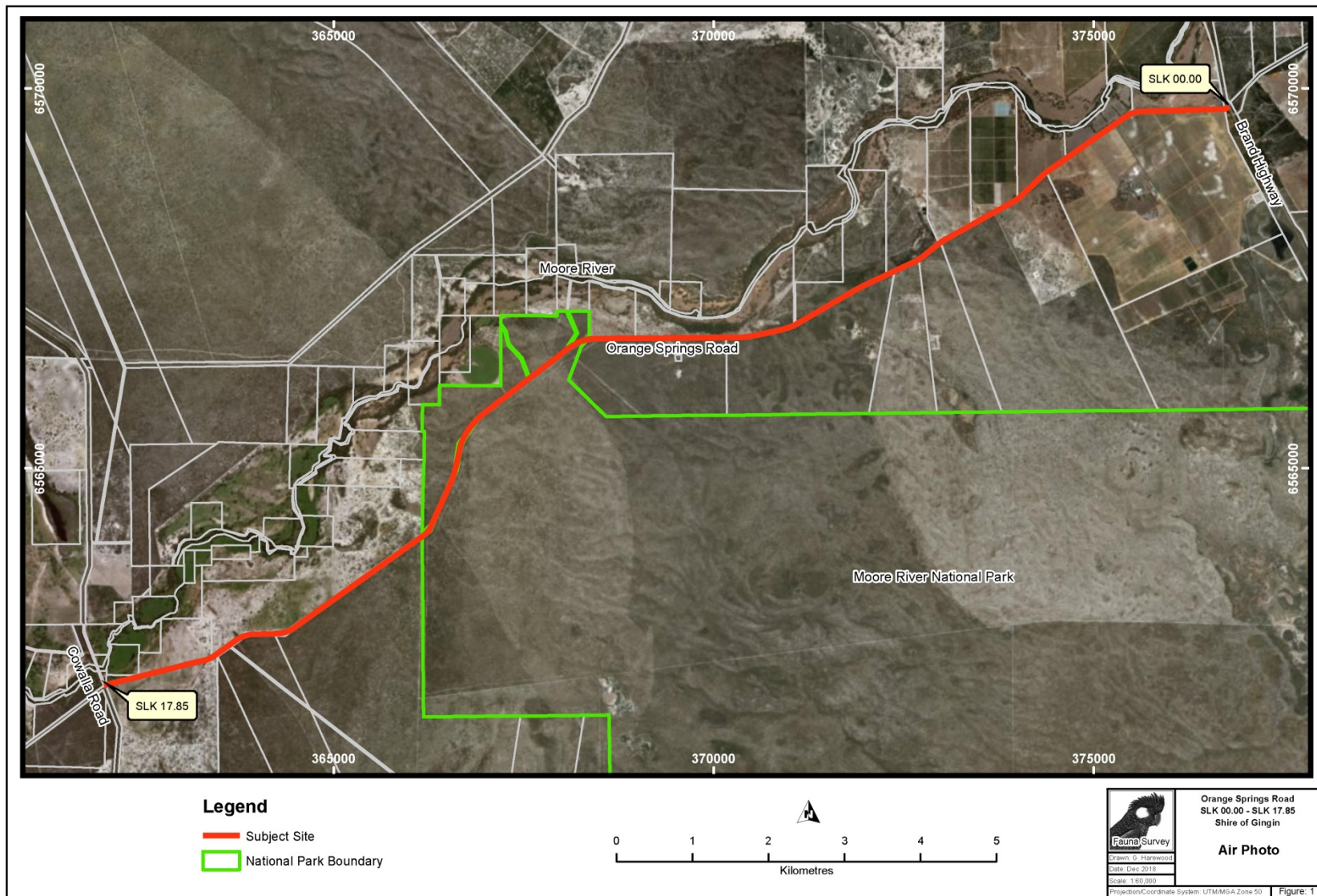


Figure 2. The Survey Area location.

2 Methods

2.1 Literature Review

A list of fauna recorded or likely to occur within the Survey Area has been compiled by a review of available databases and literature including, but not be limited to the following data sources:

- Department of Biodiversity, Conservation and Attractions (DBCA) Threatened Fauna Database (NatureMap) (DBCA 2018b);
- EPBC Act Protected Matters database for fauna of national environmental significance (Department of the Environment and Energy (DotEE 2018); and
- Literature search and review of any other fauna surveys in the vicinity.
- The conservation status of each species has been based on current lists produced under Federal and State Acts (*Environment Protection and Biodiversity Act 1999* and the *Wildlife Conservation Act 1950*), those species recognised under international bilateral migratory bird agreements and priority fauna (as listed by DBCA 2018a). Conservation codes definitions are included in **Appendix A**.

2.2 Field Surveys

The field component of the fauna assessment was carried out on the 18 September 2018 by Greg Harewood (Zoologist).

The specific areas that will be subject to clearing were undefined at the time of the field survey. For the purpose of the assessment the survey was therefore defined by the total width of the road reserve as defined by, where present, fence lines along the boundary of bordering farmland. Where fence lines were absent the boundary was taken as being about 10 metres from the existing road edge.

2.2.1 Fauna Habitat Assessment

Vegetation units observed during the flora Reconnaissance survey (Ecoedge, 2018) have been used to define broad fauna habitat types present along the length of the road.

The main aim of the habitat assessment was to determine if it was likely that any species of conservation significance would be utilising the areas that maybe impacted on as a consequence of development at the site. The habitat information obtained was also used to aid in finalising the overall potential fauna list.

As part of the desktop literature review, available information on the habitat requirements of the species of conservation significance listed as possibly occurring in the area was researched. During the field survey the habitats within the Survey Area

were assessed and specific elements identified, if present, to determine the likelihood of listed threatened species utilising the area and its significance to them.

2.2.2 Black Cockatoo Habitat Assessment

The following methods were employed during the black cockatoo habitat assessment to comply with the defined scope of works and are based on guidelines published by the DotEE (Commonwealth of Australia 2012) which states that surveys for Carnaby's, Baudin's and forest red-tailed black cockatoo habitat should:

- be done by a suitably qualified person with experience in vegetation or cockatoo surveys, depending on the type of survey being undertaken;
- maximise the chance of detecting the species' habitat and/or signs of use;
- determine the context of the site within the broader landscape—for example, the amount and quality of habitat nearby and in the local region (for example, within 10 km);
- account for uncertainty and error (false presence and absences); and
- include collation of existing data on known locations of breeding and feeding birds and night roost locations.

Habitat used by black cockatoos have been placed into three categories by the DotEE (Commonwealth of Australia 2012) these being:

- Breeding Habitat;
- Foraging Habitat; and
- Night Roosting Habitat.

So as to comply with the requested scope of works and in line with the published guidelines the following was carried out.

2.2.3 Black Cockatoo Breeding Habitat

The black cockatoo breeding habitat assessment involved the identification of all suitable breeding trees species (native, endemic species only) within the Survey Area that had a DBH of equal to or over 50cm. The DBH of each tree was estimated using a pre-made 50 cm "caliper".

Target tree species included wandoo, marri and jarrah or any other *Corymbia/Eucalyptus* species of a suitable size that may have been present. Peppermints, *banksia*, sheoak and *melaleuca* tree species (for example) were not assessed as they typically do not develop hollows that are used by black cockatoos.

The location of each tree identified as being over the threshold DBH was recorded with a GPS and details on tree species, number and size of hollows (if any) noted. Trees observed to contain hollows (of any size/type) were marked with “H” using spray paint for easy future reference.

Potential hollows were placed into one of four categories, based on the size of the apparent hollow entrance, these being:

- Small = $\sim < 5\text{cm}$ diameter (i.e. entrance too small for a black cockatoo);
- Medium = $\sim 5\text{cm}-10\text{cm}$ diameter (i.e. entrance too small for a black cockatoo);
- Large = $\sim > 10\text{cm}$ diameter (entrance large enough for a black cockatoo but possible hollow appears to be unsuitable for nesting i.e. wrong orientation, too small, too low or too shallow); or
- Large (cockatoo) = $\sim > 10\text{cm}$ diameter (entrance appears big enough to provide access to a possible hollow that may be suitable for a black cockatoo to use for nesting).

Based on this assessment, trees present within the Survey Area have then been placed into one of four categories:

- Tree $< 50\text{cm}$ DBH or an unsuitable species (not recorded);
- Tree $\geq 50\text{cm}$ DBH, no hollows seen;
- Tree $\geq 50\text{cm}$ DBH, one or more hollows seen, none of which were considered suitable for black cockatoos to use for nesting; or
- Tree $\geq 50\text{cm}$ DBH, one or more hollows seen, with at least one considered suitable for black cockatoos to use for nesting.

For the purposes of this assessment a tree containing a potential cockatoo nest hollow was defined as:

Generally, any tree which is alive or dead that contains one or more visible hollows (cavities within the trunk or branches) or possible hollows considered potentially suitable for occupation by a black cockatoo for the purpose of nesting/breeding. Hollows that had an entrance greater than about 10cm in diameter and would allow the entry of a black cockatoo into a suitably orientated and sized branch/trunk were recorded as a “potential black cockatoo nest hollow”.

A review of available literature was carried out to determine the location/extent of any known/likely black cockatoo breeding habitat areas in the vicinity of the Survey Area.

2.2.4 Black Cockatoo Foraging Habitat

The location and nature of black cockatoo foraging evidence (e.g. chewed fruits around base of trees) observed during the reconnaissance survey was recorded. The nature and extent of potential foraging habitat present was also documented irrespective of the presence of any actual foraging evidence.

A review of available literature was also carried out to determine the location/extent of any known/likely black cockatoo foraging habitat areas in the vicinity of the Survey Area.

2.2.5 Black Cockatoo Roosting Habitat

Direct and indirect evidence of black cockatoos roosting in trees was within the Survey Area was noted if observed (e.g. branch clippings, droppings or moulted feathers).

Data from the great cocky count (Peck *et al.* 2018) coordinated by Birdlife Australia has also been reviewed to determine the location/extent of any known/likely black cockatoo roosting habitat areas in the vicinity of the Survey Area.

2.2.6 Other Fauna Species of Conservation Significance

Based on the results of the literature review evidence of the presence or likely presence of other fauna species of conservation significance known to or likely to frequent the general area was also searched for and recorded during the field survey.

The aim of this part of the assessment was to obtain sufficient information to make a definitive comment on the likely significance of the proposed clearing area to fauna species of conservation significance in addition to black cockatoos.

Opportunistic observations of fauna species were also made during the field survey period.

3 Survey Limitations

No seasonal sampling has been carried out as part of this fauna assessment. The conclusions presented are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of the field assessments. It should be recognised that site conditions can change with time.

Lack of observational data on some species should also not necessarily be taken as an indication that a species is absent from the site or does not utilise it for some purpose at times.

During the survey habitat trees with hollows were searched for. It should be noted that identifying hollows suitable for fauna species from ground level has limitations. Generally, the full characteristics of any hollow seen are not fully evident (e.g. internal

dimensions). It is also difficult to locate all hollows within all trees as some are not observable from ground level.

The location of observations was recorded using a handheld GPS. The accuracy of the GPS cannot be guaranteed above a level of about 5 to 10 metres, though it should be noted that in some circumstance the accuracy can increase or decrease beyond this range.

4 Results

4.1 Literature Review

A list of vertebrate fauna species considered most likely to occur in the Survey Area has been compiled from information obtained during the literature review and is presented in **Appendix B**. This listing was refined after information gathered during the site reconnaissance survey was assessed. The raw database search results from NatureMap (DBCA 2018b) and the Protected Matters Search Tool (DotEE 2018) are contained within **Appendix C**.

The list of potential fauna takes into consideration that firstly, the species in question is not known to be locally/regionally extinct and secondly, that suitable habitat for each species, as identified during the habitat assessment, is present within the Survey Area, though compiling an accurate list has limitations and therefore the listing is very likely to be an overestimation of the fauna species actually present at any one time.

With respect to native vertebrate fauna, 19 mammal (including eight bat species), 114 bird, 59 reptile and 15 frog species have previously been recorded in the wider area in similar habitat, some of which have the potential to occur in or utilise sections of the Survey Area at times. Six species of introduced animals could also frequent the area.

Of the 207 native vertebrate animals that are listed as potentially occurring, four are considered to be endangered/vulnerable or in need of special protection under State and/or Federal law. In addition, one DBCA priority species is also listed as potentially occurring. A number of other fauna species of conservation significance have been omitted for the potential list. These particular species are discussed in further detail in the following sections of the report.

Table 1 lists all the fauna species of conservation significance which were identified during the literature review.

Table 1. Conservation significant fauna previously recorded or potentially occurring within in the general vicinity of Survey Area.

Species	Conservation Status	
	WC Act/ DBCA Priority	EPBC Act
Woolybush Bee <i>Hylaeus globuliferus</i>	P3	-
a short-tongued bee <i>Leioproctus contrarius</i>	P3	-
Carter's Freshwater Mussel <i>Westralunio carteri</i>	S3	-
Jewelled Southwest Ctenotus <i>Ctenotus gemmula</i>	P3	-
Black-striped Snake <i>Neelaps calonotos</i>	P3	-
Malleefowl <i>Leipoa ocellata</i>	S3	VU
Migratory Shorebirds/Wetland Species	Various	Various
Hooded Plover <i>Thinornis rubricollis</i>	P4	-
Blue-billed Duck <i>Oxyura australis</i>	P4	-
Australian Painted-snipe <i>Rostratula australis</i>	S2	EN
Osprey <i>Pandion haliaetus</i>	S5	Mig, Ma
Peregrine Falcon <i>Falco peregrinus</i>	S7	-
Carnaby's Black Cockatoo <i>Calyptorhynchus latirostris</i>	S2	EN
Fork-tailed Swift <i>Apus pacificus</i>	S5	Mig
Grey Wagtail <i>Motacilla cinerea</i>	S5	Mig
Chuditch <i>Dasyurus geoffroii</i>	S3	VU
Bilby <i>Macrotis lagotis</i>	S3	VU
Dibbler <i>Parantechinus apicalis</i>	S2	EN
Western Brush Wallaby <i>Notamacropus irma</i>	P4	-
Water Rat <i>Hydromys chrysogaster</i>	P4	-

See **Appendix A** for conservation status codes.

4.2 Field Survey

4.2.1 Fauna Habitat Assessment



Examples images of the fauna habitats/dominant vegetation types present and their extents within the Survey Area as mapped by Ecoedge (2018) are provided in **Table 2**. It should be noted that the areas quoted in the table refer to the extent of each identified unit with the area surveyed and not the extent of any proposed clearing, which is yet to be specifically defined.



The vast majority of remnant native vegetation bordering the Orange Springs Road is represented by banksia woodland on sand with variations occurring in the density and composition of associated tree and shrub species. Large eucalypts are generally absent or uncommon with the main species being coastal blackbutt (*Eucalyptus tottiana*).


A small area of wetland habitat is present on one site of the road reserve and is dominated by flooded gum (*E. rudis*) and paperbark over a dense shrubland.

The balance of the Survey Area (52%) has been totally or partly cleared and now contains a grassland of introduced species with some areas exhibiting particle regrowth of native shrub species.

Table 2. Example Images of the Fauna Habitats within the Survey Area.

Fauna Habitat Description	Example Image
Coastal Blackbutt - Banksia Woodland	
Woodland of Banksia with occasional coastal blackbutt over sparse tall shrubland over low shrubland and open sedgeland over sparse herbland in sandy flats.	
Area = 33.7 ha (39%)	

Fauna Habitat Description	Example Image
<p>Banksia Woodland</p> <p>Woodland of Banksia (with scattered Eucalyptus tottiana) over sparse tall shrubland over low shrubland of and open sedgeland over sparse herbland on sand hills and in swales.</p> <p>Area = 7.1 ha (8%).</p>	
<p>Flooded Gum – Paperbark Woodland</p> <p>Woodland of flooded gum over banksia (<i>B. littoralis</i>) and paperbark over tall shrubland over shrubland bordering seasonal wetland areas.</p> <p>Area = 0.4 ha (1%)</p>	

Fauna Habitat Description	Example Image
<p>Degraded Areas</p> <p>Grasslands with scattered banksia, eucalypts or open shrubland on sand.</p> <p>Area = 44.5 ha (52%)</p>	

About 3.5km of the Orange Springs Road passes directly through the Moore River National Park with a significant portion of other sections of the road also bordered by remnant native vegetation in vacant crown land or private property.

Overall the native fauna habitats present are in good condition and are likely to have the capacity to support or be utilised by a high percentage of the listed fauna species (**Appendix B**), and in particular those sections of vegetation directly adjoining larger expanses of similar habitat. The majority of the road reserve which has been cleared or partly cleared would in contrast have a depauperate fauna assemblage and low biodiversity.

4.2.2 Black Cockatoo Habitat Assessment

4.2.2.1 *Habitat Tree Assessment*

Trees considered potentially suitable for black cockatoos to use as nesting habitat (subject to a suitable hollow being present and other factors) which were found along the road reserve are comprised of the following species:

- Coastal Blackbutt – *Eucalyptus tottiana*;
- Marri – *Corymbia calophylla*;

- Flooded Gum – *Eucalyptus rudis*; and
- River Red Gum - *Eucalyptus camaldulensis* (planted non-endemic);

A summary of the potential black cockatoo breeding trees (using DotEE criteria i.e. any suitable tree species with a DBH \geq 50cm (Commonwealth of Australia 2012)) observed within the Survey Area is provided in **Table 3** below and their location shown in **Figure 3**. Additional information on each tree can be found within **Appendix D**.

Table 3. Summary of Habitat Trees (DBH >50cm) within the Survey Area.

Total Number of Habitat Trees	Number of Trees with <u>No Hollows Considered Suitable</u> for Nesting Black Cockatoos	Number of Trees with Hollows Considered <u>Possibly Suitable</u> for Nesting Black Cockatoos	Tree Species			
			Coastal Blackbutt	Marri	Flooded Gum	River Red Gum
15	15	0	9	2	1	3

As indicated in **Table 3**, 15 “habitat trees” were identified within the Survey Area. The majority of these (13) did not appear to contain hollows of any size. The hollows observed in the remaining trees (2) were all assessed as being unsuitable for black cockatoos to use for nesting due to being too small.

While there appears to be a paucity of recent breeding data for the general area this could simply be a consequence of a lack of survey work or a lack of publicly available data. DBCA data from 2010 (DoP 2011) shows several breeding sites within about 12 kilometres of the Survey Area in coastal plain areas (exact location not specified), but their current status is unknown.

Based on available vegetation mapping it is estimated that there is approximately 37,600 ha of native vegetation within 10 km the Survey Area (~57% of total area) much of which is likely to contain some potential breeding habitat. About 43% (~16,000 ha) of this vegetation occurs within national parks, nature reserves or state forests.

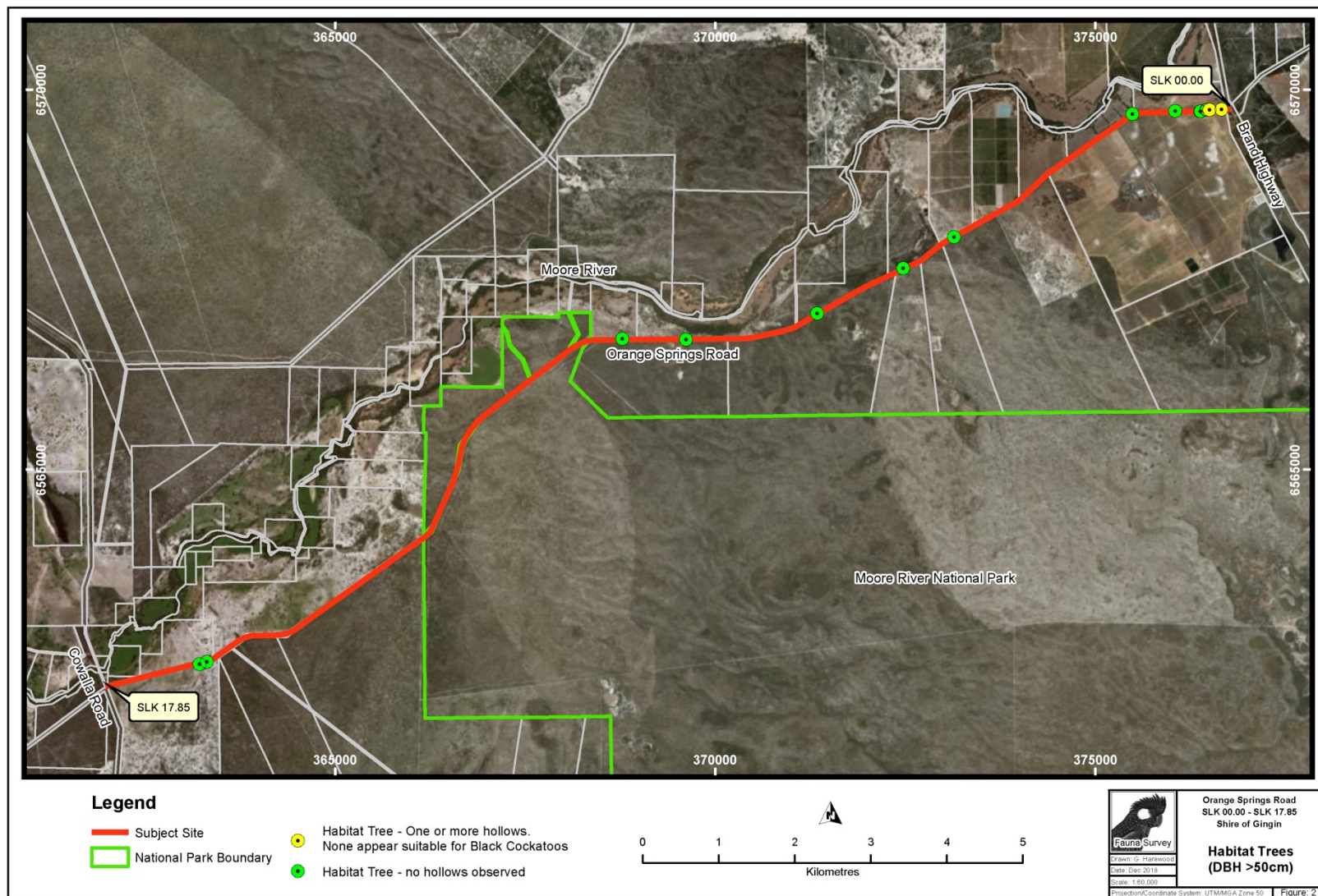


Figure 3. Habitat trees mapped within the Survey Area.

4.2.2.2 Black Cockatoo Foraging Habitat



Following is a list of the main flora species recorded within the Survey Area that are known to be used as a food source (i.e. seeds, flowers, bark and/or grubs) by one or more species of black cockatoo:

- Orange Wattle - *Acacia saligna*;
- Peppermint - *Agonis flexuosa*;
- Slender Banksia - *Banksia attenuata*;
- Bull Banksia - *Banksia grandis*;
- Holly Banksia - *Banksia ilicifolia*;
- Swamp Banksia - *Banksia littoralis*;
- Firewood Banksia - *Banksia menziesii*;
- Acorn Banksia - *Banksia prionotes*;
- Parrot bush - *Banksia sessilis*;
- Coastal Blackbutt - *Eucalyptus tottiana*;
- Marri – *Corymbia callophyla*;
- Needle Tree - *Hakea preissii*;
- Two-leaved Hakea - *Hakea trifurcata*;
- Sedge - *Mesomelaena pseudostygia*;
- Maritime Pine - *Pinus pinaster*;
- Guildford Grass - *Romulea rosea*; and
- Grass tree - *Xanthorrhoea preissii*.

It should be noted that many the above-mentioned species (e.g. Acacia, peppermint and balga bush) are only foraged upon to a small degree compared to more favoured plant species (e.g. banksia). The total number of some species within the road reserve is also small with marri, costal blackbutt and pine (for example) only represented by a few specimens. The banksia woodland areas represent the main quality foraging resource making up about 40% of the Survey Area.

Black cockatoo foraging evidence was observed at numerous locations along the road reserve and was mainly in the form of chewed *banksia* cones. This evidence was attributed to Carnaby's black cockatoo. Example images are provided in **Table 4** below.

Table 4. Black Cockatoo Foraging Evidence Examples.

Description	Example Image
<p>Chewed <i>banksia</i> cones – foraging activity attributed to Carnaby’s black cockatoo. Numerous examples observed.</p>	
<p>Chewed coastal black but fruits – foraging activity attributed to Carnaby’s black cockatoo. Observed at one location only.</p>	

Based on available vegetation mapping it is estimated that there is approximately 37,600 ha of native vegetation within 10 km the Survey Area (~57% of total area) much of which is likely to contain foraging habitat of some type. About 43% (~16,000 ha) of this vegetation occurs within national parks, nature reserves or state forests. There are also several hundred hectares of pine plantations within 10 km of the Survey Area which also represents potential foraging habitat for Carnaby’s black cockatoo.

4.2.2.3 Black Cockatoo Roosting Habitat Assessment

No evidence of roosting activity within the Survey Area was recorded during the survey period and given the general absence of large trees it is considered unlikely that the area is used for this purpose at any time.

A review of the 2018 Great Cocky Count database (Peck *et al.* 2018) shows one documented roost site near Regan’s Ford though it is not been monitored for several years so its current status is unknown.

Based on available vegetation mapping it is estimated that there is approximately 17,000 ha of native vegetation within 10 km the Survey Area (~28% of total area) much

of which is likely to contain some suitable roosting habitat. Twelve percent (~2,100 ha) of this vegetation occurs within nature reserves.

4.2.3 Other Fauna Species of Conservation Significance

Twenty five fauna species were observed during the field survey (**Appendix B**). With the exception of foraging debris (chewed banksia cones and coastal blackbutt fruits) attributed to the Carnaby's black cockatoo which was observed at several locations, no evidence of any of the conservation significant fauna species identified during the literature review was seen, though this does not eliminate the potential for various species to still be occur, if only infrequently.

5 Conservation Significant Fauna Species

Based on the information gathered during the site reconnaissance survey and the documented distribution and habitat preferences of the species of conservation significance identified as potentially being present in the area, their likelihood of occurrence has been determined and is presented in **Table 4**.

Table 5. Likelihood of Occurrence – Fauna Species of Conservation Significance (continues on following pages).

Species	Conservation Status		Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priority	EPBC Act		
Woolybush Bee <i>Hylaeus globuliferus</i>	P3	-	Yes	Possibly Occurs
a short-tongued bee <i>Leioproctus contrarius</i>	P3	-	Yes	Possibly Occurs
Carter's Freshwater Mussel <i>Westralunio carteri</i>	S3	-	No	Would Not Occur
Jewelled Southwest Ctenotus <i>Ctenotus gemmula</i>	P3	-	Yes	Possibly Occurs
Black-striped Snake <i>Neelaps calonotos</i>	P3	-	Yes	Possibly Occurs
Malleefowl <i>Leipoa ocellata</i>	S3	VU	No/Marginal – Locally extinct	Would Not Occur
Migratory Shorebirds/Wetland Species	Various	Various	No	Would Not Occur
Hooded Plover <i>Thinornis rubricollis</i>	P4	-	No	Would Not Occur
Blue-billed Duck <i>Oxyura australis</i>	P4	-	No	Would Not Occur

Species	Conservation Status		Habitat Present	Likelihood of Occurrence
	WC Act/ DBCA Priority	EPBC Act		
Australian Painted-snipe <i>Rostratula australis</i>	S2	EN	No	Would Not Occur
Osprey <i>Pandion haliaetus</i>	S5	Mig, Ma	No	Would Not Occur
Peregrine Falcon <i>Falco peregrinus</i>	S7	-	Yes	Possibly Occurs (on rare occasions only)
Carnaby's Black Cockatoo <i>Calyptorhynchus latirostris</i>	S2	EN	Yes	Known to Occur
Fork-tailed Swift <i>Apus pacificus</i>	S5	Mig	Yes	Possibly Occurs (on very rare occasions only)
Grey Wagtail <i>Motacilla cinerea</i>	S5	Mig	No	Would Not Occur
Chuditch <i>Dasyurus geoffroii</i>	S3	VU	No/Marginal – Locally extinct	Would Not Occur
Bilby <i>Macrotis lagotis</i>	S3	VU	No/Marginal – Regionally extinct	Would Not Occur
Dibbler <i>Parantechinus apicalis</i>	EN	EN	No/Marginal – Locally extinct	Would Not Occur
Western Brush Wallaby <i>Notamacropus irma</i>	P4	-	Yes	Possibly Occurs
Water Rat <i>Hydromys chrysogaster</i>	P4	-	No	Would Not Occur

*Those in darker shading possibly occur or are known to occur near to the Survey Area. See **Appendix A** for conservation status codes.

In summary, one vertebrate fauna species of conservation significance (listed as State or Federal threatened/migratory species or as DBCA priority species) was positively identified as utilising the Survey Area for some purpose during the survey period, this being:

- *Calyptorhynchus latirostris* Carnaby's Black Cockatoo – S2 (WC Act), Endangered (EPBC Act)

Foraging evidence attributed to this species recorded at numerous locations. Almost all the remnant native vegetation within the subject area presents potential foraging habitat for this species. Small number of larger trees ($\geq 50\text{cm}$ DBH) can be considered

potential breeding habitat though no existing nest hollows present. Unlikely to roost within the Survey Area.

Based on the habitats present and current distributions several additional species of conservation significance may possibly utilise the Survey Area for some purpose at times but their current status on-site and/or in the general area is, in some cases, difficult to determine because they were not sighted during the filed survey, or evidence of use was not found. These species are listed below:

- *Hylaeus globuliferus* Woolybush Bee – P3 (DBCA Priority Species)

There are only a few old documented records of this species nearby but the presence of suitable habitat (*banksia* woodland) including a favoured plant species (*Adenanthos cygnorum*) suggest it may possibly occur.

- *Leioproctus contrarius* a short-tongued bee – P3 (DBCA Priority Species)

There are only a few old documented records of this species nearby but the presence of suitable habitat (*banksia* woodland) including several species from a favoured plant family (Goodeniaceae) suggest it may possibly occur.

- *Ctenotus gemmula* Jewelled Southwest Ctenotus – P3 (DBCA Priority Species)

There are no documented records of this species nearby but the presence of suitable habitat (*banksia* woodland) suggest it may possibly occur.

- *Neelaps calonotos* Black-striped Snake – P3 (DBCA Priority Species)

There are no documented records of this species nearby but the presence of suitable habitat (*banksia* woodland) suggest it may possibly occur.

- *Apus pacificus* Fork-tailed Swift - S5 (WC Act), Migratory (EPBC Act)

Rarely recorded and entirely aerial but may occur very occasionally.

- *Falco peregrinus* Peregrine Falcon – S7 (WC Act)

Uncommon so unlikely to be resident in area but Survey Area may form part of larger home range. Only likely to occur occasionally for brief periods.

- *Notamacropus irma* Western Brush Wallaby – P4 (DBCA Priority Species)

There are only a few old documented records of this species nearby but the presence of suitable habitat (woodland) suggest it may occur albeit on a temporary basis only.

Note: Habitat for some of these species within the Survey Area, while considered possibly suitable, may be marginal in extent/quality and species listed below may only visit the area for short periods, or as rare/uncommon vagrants.

A number of other species of conservation significance, while possibly present in the wider area, are not listed as potential species due to known localised extinction (and no

subsequent recruitment from adjoining areas) and/or lack of suitable habitat and/or the presence of feral predators. .

6 Conclusion

The fauna assessment within the Survey Area was undertaken for the purposes of categorising the fauna assemblages and identifying fauna habitats present. A targeted assessment of black cockatoo habitat within the area was also carried out.

A list of potential conservation significant fauna species considered likely to occur in the general vicinity of the Survey Area has been compiled from information obtained during the literature review.

With respect to native vertebrate fauna, 19 mammal (including eight bat species), 114 bird, 59 reptile and 15 frog species have previously been recorded in the wider area in similar habitat, some of which have the potential to occur in or utilise sections of the Survey Area at times. Six species of introduced animals could also frequent the area.

One species of conservation significance was positively identified as utilising the Survey Area during the course of the field survey (Carnaby's black cockatoo). Based on habitats present and current documented distributions it has been determined that an additional seven species of conservation significance may possibly utilise the Survey Area for some purpose but their current status on-site and/or in the general area is, in some cases, difficult to determine because they were not sighted during the survey period, or evidence of use of the Survey Area was not found.

The location and extent of proposed clearing is yet to be defined and the impact on the significant species listed as potentially being present will vary depending on their current degree of utilisation/population densities and preferred habitat requirements (e.g. quantity and quality of potential foraging and breeding habitat that is affected when clearing of sections of the site is undertaken).

Impacts on Carnaby's black cockatoo will primarily relate to the potential loss of quality foraging habitat. The potential impacts on other fauna species of conservation significance and/or their habitat will also need to be taken into consideration during ongoing planning and construction phases of the proposed project.

The proposed application to clear vegetation (approximately 2.13ha) to be submitted by the Shire will be assessed against the ten clearing principles related to native vegetation in the *Environmental Protection Act* by DWER. These principles provide a guide for when native vegetation should or should not be cleared. DWER must consider these principles in making a decision on whether or not to issue a clearing permit. DWER has set out the minimum requirements and standards for addressing each of the ten principles in detail

in its assessment methodology. With respect to fauna, native vegetation should not be cleared if:

- (a) it comprises a high level of biological diversity;
- (b) it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia;

DWER will need to consider all available information relating to all 10 clearing principles including those relating to fauna. The use of the Survey Area by Carnaby's black cockatoo and the potential presence of several others will influence the DWER's decision making process, though it is difficult to predict specific outcomes as in this case no development plans have been finalised and some discretion is exercised by the DWER in many cases when approving applications. Any proposed offsets are also taken into consideration.

In this instance, taking into consideration that clearing is to be at relatively small, select locations along a relatively narrow linear corridor it is however considered unlikely that any significant impacts on fauna will occur. The presence of large expanses of reserve bushland of similar character in the immediate vicinity also lessens the significance of the potential impacts. DWER are also likely to take these facts into consideration when assessing the proposed clearing application.

7 References

- Commonwealth of Australia (2012). *EPBC Act Referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered) *Calyptorhynchus latirostris*, Baudin's cockatoo (vulnerable) *Calyptorhynchus baudinii*, Forest red-tailed black cockatoo (vulnerable) *Calyptorhynchus banksii naso*.*
- Department of Biodiversity, Conservation and Attractions (DBCA) (2018a). *Threatened and Priority Fauna Rankings*. 11 September 2018.
- Department of Biodiversity, Conservation and Attractions (DBCA) (2018b). *NatureMap Database search*. "By Line" - 30° 59' 59" S, 115° 42' 31" E 31° 03' 59" S, 115° 33' 12" E (plus 15km buffer), accessed 23/12/2018.
- Department of the Environment and Energy (DotEE) (2017). *EPBC Act Protected Matters Report: "By Line" - -31.06639 115.55334, -30.99961 115.70863 (plus 15km Buffer)*. Available from: <http://www.environment.gov.au>. Accessed 23/12/2018.
- Department of Parks and Wildlife (DPaW) (2015). *The Fauna of Boonanarring Nature Reserve*. Unpublished report for DPaW.
- Department of Planning (DoP) (2011). '*Metropolitan Region Scheme (MRS) - potential habitat for the Carnaby's Black Cockatoo which may require further assessment*', Department of Planning: Mapping and GeoSpatial Branch January 2011.
- Ecoedge (2018). *Reconnaissance and Targeted Flora and Vegetation Survey along Orange Springs Road, Orange Springs*. Unpublished report to the Shire of Gingin.
- EPA (2016). *Technical Guidance – Terrestrial Vertebrate Fauna Surveys* (replaces EPA (2004). *Guidance for the Assessment of Environmental Factors No 56: Terrestrial Surveys for Environmental Impact Assessment*, but not yet updated).
- Government of Western Australia (2018). *Wildlife Conservation Act 1950. Wildlife Conservation (Specially Protected Fauna) Notice 2018*. Government Gazette, WA. 11 September 2018.
- Metcalf, B. and Bamford, M. (2006). *Lancelin South Development Plan - Fauna Assessment*. Unpublished report for Ecoscape.
- Peck, A., Barrett, G. & Williams, M. (2018). The 2018 Great Cocky Count: a community-based survey for Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*), Baudin's Black-Cockatoo (*Calyptorhynchus baudinii*) and Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*). BirdLife Australia, Floreat, Western Australia.

Appendix A. Conservation Codes.

Appendix B. Potential fauna species possibly occurring in the area.

Appendix C. Naturemap & Protected Matters Search Results.

Appendix D. Habitat Tree Details.

EPBC Act (1999) Threatened Fauna Categories

Threatened fauna may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* in any one of the following categories:

Category	Code	Description
Extinct	E	There is no reasonable doubt that the last member of the species has died.
*Extinct in the wild	EW	A species (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) 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.
*Critically Endangered	CE	A species is facing an extremely high risk of extinction in the wild in the immediate future.
*Endangered	EN	A species: (a) is not critically endangered; and (b) is facing a very high risk of extinction in the wild in the near future.
*Vulnerable	VU	A species (a) is not critically endangered or endangered; and (b) is facing a high risk of extinction in the wild in the medium-term future.
Conservation Dependent	CD	A species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered
*Migratory	Migratory	(a) all migratory species that are: (i) native species; and (ii) from time to time included in the appendices to the Bonn Convention; and (b) all migratory species from time to time included in annexes established under JAMBA, CAMBA and ROKAMBA; and (c) all native species from time to time identified in a list established under, or an instrument made under, an international agreement approved by the Minister.
Marine	Ma	Species in the list established under s248 of the <i>EPBC Act</i>

Note: Only species in those categories marked with an asterix are matters of national environmental significance (NES) under the *EPBC Act*.

Wildlife Conservation (Specially Protected Fauna) Notice 2017 Categories

Published as Specially Protected under the *Wildlife Conservation Act 1950*, and listed under Schedules 1 to 7 of the Wildlife Conservation (Specially Protected Fauna) Notice.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

Category	Code	Description
Schedule 1 (S1) Critically Endangered species	CR	Threatened species considered to be facing an extremely high risk of extinction in the wild.
Schedule 2 (S2) Endangered species	EN	Threatened species considered to be facing a very high risk of extinction in the wild.
Schedule 3 (S3) Vulnerable species	VU	Threatened species considered to be facing a high risk of extinction in the wild.
Schedule 4 (S4) Presumed extinct species	EX	Species which have been adequately searched for and there is no reasonable doubt that the last individual has died.
Schedule 5 (S5) Migratory birds protected under an international agreement	IA	Birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and the Bonn Convention, relating to the protection of migratory birds.
Schedule 6 (S6) Fauna that is of special conservation need as conservation dependent fauna	CD	Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened.
Schedule 7 (S7) Other specially protected fauna.	OS	Fauna otherwise in need of special protection to ensure their conservation.

Western Australian DBCA Priority Fauna Categories

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

Category	Code	Description
Priority 1 (P1) Poorly Known Species.	P1	Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.
Priority 2 (P2) Poorly Known Species.	P2	Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
Priority 3 (P3) Poorly Known Species.	P3	Species that are known from several locations and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
Priority 4 (P4) Rare, Near Threatened and other species in need of monitoring.	P4	<p>(a) Rare: Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands.</p> <p>(b) Near Threatened: Species that are considered to have been adequately surveyed and that are close to qualifying for Vulnerable, but are not listed as Conservation Dependent.</p> <p>(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>

*Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

IUCN Red List Threatened Species Categories

The *IUCN Red List of Threatened Species™* is a checklist of taxa that have undergone an extinction risk assessment using the *IUCN Red List Categories and Criteria*.

Categories are summarized below.

Category	Code	Description
Extinct	EX	Taxa for which there is no reasonable doubt that the last individual has died.
Extinct in the Wild	EW	Taxa which is known only to survive in cultivation, in captivity or and as a naturalised population well outside its past range and it has not been recorded in known or expected habitat despite exhaustive survey over a time frame appropriate to its life cycle and form.
Critically Endangered	CR	Taxa facing an extremely high risk of extinction in the wild.
Endangered	EN	Taxa facing a very high risk of extinction in the wild.
Vulnerable	VU	Taxa facing a high risk of extinction in the wild.
Near Threatened	NT	Taxa which has been evaluated but does not qualify for CR, EN or VU now but is close to qualifying or likely to qualify in the near future.
Least Concern	LC	Taxa which has been evaluated but does not qualify for CR, EN, VU, or NT but is likely to qualify for NT in the near future.
Data Deficient	DD	Taxa for which there is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status.
Not Evaluated	NE	Taxa which has not been evaluated.

A full list of categories and their meanings are available at:

<http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria>

Fauna Recorded or Potentially in Subject Site

Orange Springs Road (SLK 00.00 - 17.85) - Shire of Gingin

Compiled by Greg Harewood - December 2018

Recorded (Trapped/Sighted/Heard/Signs) = X

Ecoedge (2018): Fauna Assessment - Orange Springs Road (SLK 00.00 - 17.85) . Unpublished report for Shire of Gingin.

Metcalf, B. and Bamford, M, (2006). Lancelin South Development Plan - Fauna Assessment. Unpublished report for Ecoscape.

DPaW (2015). The Fauna of Boonanarring Nature Reserve. Unpublished report for DPaW.

DBCA (2018). NatureMap Database search. Method='By Line';Vertices=31° 02' 17" S, 116° 02' 41" E 31° 09' 48" S, 116° 03' 25" E (plus 15km buffer). 21 December 2018.

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Amphibians						
Myobatrachidae						
Ground or Burrowing Frogs						
<i>Crinia georgiana</i>	Quacking Frog	LC				
<i>Crinia glauerti</i>	Glauert`s Froglet	LC			X	X
<i>Crinia insignifera</i>	Squelching Froglet	LC				X
<i>Geocrinia leai</i>	Lea`s Frog	LC				
<i>Heleioporus albopunctatus</i>	Western Spotted Frog	LC				
<i>Heleioporus barycragus</i>	Western Marsh Frog	LC				
<i>Heleioporus eyrei</i>	Moaning Frog	LC			X	X
<i>Heleioporus inornatus</i>	Whooping Frog	LC				
<i>Heleioporus psammophilus</i>	Sand Frog	LC				

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family Species	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
<i>Limnodynastes dorsalis</i>	Banjo Frog	LC		X	X	
<i>Myobatrachus gouldii</i>	Turtle Frog	LC			X	
<i>Neobatrachus pelobatoides</i>	Humming Frog	LC				X
<i>Pseudophryne guentheri</i>	Güenther's Toadlet	LC				X
Hylidae Tree or Water-Holding Frogs						
<i>Litoria adelaidensis</i>	Slender Tree Frog	LC			X	X
<i>Litoria moorei</i>	Motorbike Frog	LC		X		X
Reptiles						
Gekkonidae Geckoes						
<i>Christinus marmoratus</i>	Marbled Gecko					
<i>Crenadactylus ocellatus</i>	Southwestern Clawless Gecko				X	
<i>Diplodactylus alboguttatus</i>	White-spotted Ground Gecko					
<i>Diplodactylus granariensis</i>	Wheatbelt Stone Gecko					
<i>Gehyra variegata</i>	Variegated Dtella					
<i>Strophurus spinigerus</i>	South-western Spiny-tailed Gecko			X	X	X
<i>Underwoodisaurus milii</i>	Barking Gecko				X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Pygopodidae Legless Lizards						
<i>Aclys concinna concinna</i>	Javelin Legless Lizard					
<i>Aprasia repens</i>	Sand-plain Worm Lizard				X	X
<i>Delma fraseri</i>	Fraser's Delma				X	
<i>Delma grayii</i>	Side-barred Delma					
<i>Lialis burtonis</i>	Common Snake Lizard				X	X
<i>Pletholax gracilis gracilis</i>	West Coast Keeled Legless Lizard				X	
<i>Pygopus lepidopodus</i>	Southern Scalefoot				X	X
Agamidae Dragon Lizards						
<i>Ctenophorus adelaidensis</i>	Western Heath Dragon			X	X	X
<i>Pogona minor</i>	Western Bearded Dragon			X	X	
Varanidae Monitor's or Goanna's						
<i>Varanus gouldii</i>	Gould's Sand Monitor					X
<i>Varanus tristis</i>	Black-headed Monitor				X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Scincidae Skinks						
<i>Acritoscincus trilineatum</i>	South-western Cool Skink					
<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink	LC			X	X
<i>Ctenotus australis</i>	Western Limestone Ctenotus				X	
<i>Ctenotus fallens</i>	West Coast Ctenotus			X	X	X
<i>Ctenotus gemmula</i>	Jewelled Ctenotus (Swan CP)	P3				
<i>Ctenotus impar</i>	South-western Odd-striped Ctenotus					
<i>Ctenotus pantherinus</i>	Leopard Ctenotus					
<i>Cyclodomorphus celatus</i>	Western Slender Blue-tongue			X		
<i>Egernia kingii</i>	King's Skink					
<i>Egernia multiscutata</i>	Bull-headed Skink					
<i>Egernia napoleonis</i>	Salmon-bellied Skink					
<i>Hemiergis quadrilineata</i>	Two-toed Earless Skink					
<i>Lerista christinae</i>	Bold-striped Four-toed Lerista				X	
<i>Lerista distinguenda</i>	South-western Four-toed Lerista					
<i>Lerista elegans</i>	West Coast Four-toed Lerista			X	X	X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family Species	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
<i>Lerista lineopunctulata</i>	Line-spotted Robust Lerista			X		
<i>Lerista praepedita</i>	Worm Lerista			X	X	X
<i>Menetia greyii</i>	Dwarf Skink			X	X	X
<i>Morethia lineoocellata</i>	Western Pale-flecked Morethia				X	
<i>Morethia obscura</i>	Dusky Morethia			X	X	X
<i>Tiliqua occipitalis</i>	Western Blue Tongue Lizard			X		
<i>Tiliqua rugosa rugosa</i>	Western Bobtail			X	X	
Typhlopidae Blind Snakes						
<i>Aniliios australis</i>	Southern Blind Snake				X	
<i>Aniliios waitii</i>	Beaked Blind Snake					
<i>Ramphotyphlops bituberculatus</i>	Prong-snouted Blind Snake					
Boidae Pythons, Boas						
<i>Antaresia stimsoni</i>	Stimson`s Python					
<i>Morelia spilota imbricata</i>	Southern Carpet Python	NT				

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family Species	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Elapidae Elapid Snakes						
<i>Brachyuophis fasciolata</i>	Narrow-banded Shovel-nosed Snake					
<i>Brachyuophis semifasciata</i>	Southern Shovel-nosed Snake				X	
<i>Demansia psammophis reticulata</i>	Reticulated Whip Snake					
<i>Echiopsis curta</i>	Bardick					X
<i>Neelaps bimaculatus</i>	Black-naped Snake			X	X	
<i>Neelaps calonotos</i>	Black-striped Snake	P3			X	
<i>Notechis scutatus</i>	Tiger Snake				X	
<i>Parasuta gouldii</i>	Gould's Hooded Snake					X
<i>Parasuta nigriceps</i>	Black-backed Snake			X		X
<i>Pseudechis australis</i>	Mulga Snake				X	
<i>Pseudonaja affinis</i>	Dugite				X	
<i>Pseudonaja mengdeni</i>	Gwardar			X		
<i>Pseudonaja modesta</i>	Ringed Brown Snake					
<i>Simoselaps bertholdi</i>	Jan`s Banded Snake				X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Birds						
Casuariidae Emus, Cassowaries						
<i>Dromaius novaehollandiae</i>	Emu	Bp LC		X	X	X
Phasianidae Quails, Pheasants						
<i>Coturnix pectoralis</i>	Stubble Quail	LC		X		
<i>Coturnix ypsilophora</i>	Brown Quail	LC				
Accipitridae Kites, Goshawks, Eagles, Harriers						
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	Bp LC			X	X
<i>Accipiter fasciatus</i>	Brown Goshawk	Bp LC			X	X
<i>Aquila audax</i>	Wedge-tailed Eagle	Bp LC			X	X
<i>Aquila morphnoides</i>	Little Eagle	Bp			X	
<i>Circus approximans</i>	Swamp Harrier	LC				X
<i>Circus assimilis</i>	Spotted Harrier	LC		X		X
<i>Elanus caeruleus</i>	Black-shouldered Kite	LC	X	X	X	
<i>Haliastur sphenurus</i>	Whistling Kite	Bp LC			X	X
<i>Hamirostra isura</i>	Square-tailed Kite	Bp				X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family Species	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Falconidae Falcons						
<i>Falco berigora</i>	Brown Falcon	Bp LC			X	X
<i>Falco cenchroides</i>	Australian Kestrel	LC		X	X	X
<i>Falco longipennis</i>	Australian Hobby	LC		X	X	X
<i>Falco peregrinus</i>	Peregrine Falcon	S7 Bp LC			X	
Turnicidae Button-quails						
<i>Turnix varia</i>	Painted Button-quail	Bp			X	
Columbidae Pigeons, Doves						
<i>Ocyphaps lophotes</i>	Crested Pigeon	LC		X	X	X
<i>Phaps chalcoptera</i>	Common Bronzewing	Bh LC			X	X
<i>Phaps elegans</i>	Brush Bronzewing	Bh LC		X		

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Cacatuidae Cockatoos, Corellas						
<i>Cacatua pastinator butleri</i>	Western Long-billed Corella	LC				
<i>Cacatua sanguinea</i>	Little Corella		X			X
<i>Calyptorhynchus latirostris</i>	Carnaby's Cockatoo	S2 EN Bp EN A2bcde	X		X	X
<i>Eolophus roseicapilla</i>	Galah	LC		X	X	
<i>Nymphicus hollandicus</i>	Cockatiel	LC				
Psittacidae Parrots						
<i>Glossopsitta porphyrocephala</i>	Purple-crowned Lorikeet	LC			X	
<i>Neophema elegans</i>	Elegant Parrot	LC				
<i>Platycercus icterotis icterotis</i>	Western Rosella (Western ssp)	Bp LC				
<i>Platycercus spurius</i>	Red-capped Parrot	LC			X	
<i>Platycercus varius</i>	Mulga Parrot					
<i>Platycercus zonarius</i>	Australian Ringneck Parrot	LC	X		X	X
<i>Polytelis anthopeplus</i>	Regent Parrot	LC				X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Cuculidae Parasitic Cuckoos						
<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	LC			X	
<i>Chrysococcyx basalis</i>	Horsfield's Bronze Cuckoo	LC			X	
<i>Chrysococcyx lucidus</i>	Shining Bronze Cuckoo	LC			X	
<i>Cuculus pallidus</i>	Pallid Cuckoo	LC			X	
Strigidae Hawk Owls						
<i>Ninox novaeseelandiae</i>	Boobook Owl	LC			X	
Tytonidae Barn Owls						
<i>Tyto alba</i>	Barn Owl	LC			X	
Podargidae Frogmouths						
<i>Podargus strigoides</i>	Tawny Frogmouth	LC			X	
Caprimulgidae Nightjars						
<i>Eurostopodus argus</i>	Spotted Nightjar	LC				
Aegothelidae Owlet-nightjars						
<i>Aegotheles cristatus</i>	Australian Owlet-nightjar	LC			X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Halcyonidae Tree Kingfishers						
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Introduced			X	X
<i>Todiramphus sanctus</i>	Sacred Kingfisher	LC			X	X
Meropidae Bee-eaters						
<i>Merops ornatus</i>	Rainbow Bee-eater	JA LC			X	X
Maluridae Fairy Wrens, GrassWrens						
<i>Malurus lamberti</i>	Variegated Fairy-wren	Bh LC		X		X
<i>Malurus leucopterus</i>	White-winged Fairy-wren	Bh LC	X	X	X	X
<i>Malurus pulcherrimus</i>	Blue-breasted Fairy-wren	LC				
<i>Malurus splendens</i>	Splendid Fairy-wren	Bh LC	X		X	X
<i>Stipiturus malachurus</i>	Southern Emu-wren	Bh LC		X		X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Pardalotidae Pardalotes, Bristlebirds, Scrubwrens, Gerygones, Thornbills						
<i>Acanthiza apicalis</i>	Broad-tailed Thornbill	Bh LC			X	X
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	Bh LC	X		X	X
<i>Acanthiza inornata</i>	Western Thornbill	Bh LC			X	X
<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill	LC				
<i>Calamanthus campestris</i>	Rufous Fieldwren	LC		X		
<i>Gerygone fusca</i>	Western Gerygone	LC	X		X	X
<i>Pardalotus punctatus</i>	Spotted Pardalote	LC				
<i>Pardalotus striatus</i>	Striated Pardalote	LC			X	X
<i>Sericornis frontalis</i>	White-browed Scrubwren	Bh LC		X		X
<i>Smicrornis brevirostris</i>	Weebill	Bh LC			X	X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family Species	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Meliphagidae Honeyeaters, Chats						
<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater	LC				X
<i>Acanthorhynchus superciliosus</i>	Western Spinebill	LC	X		X	X
<i>Anthochaera carunculata</i>	Red Wattlebird	LC		X	X	X
<i>Anthochaera lunulata</i>	Western Little Wattlebird	Bp			X	X
<i>Epthianura albifrons</i>	White-fronted Chat	LC			X	X
<i>Epthianura tricolor</i>	Crimson Chat	LC				
<i>Lichenostomus leucotis</i>	White-eared Honeyeater	LC				
<i>Lichenostomus ornatus</i>	Yellow-plumed Honeyeater	Bh LC			X	
<i>Lichenostomus virescens</i>	Singing Honeyeater	LC		X	X	
<i>Lichmera indistincta</i>	Brown Honeyeater	LC	X	X	X	X
<i>Manorina flavigula</i>	Yellow-throated Miner	Bp LC			X	X
<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater	LC			X	X
<i>Melithreptus lunatus</i>	Gilbert's Honeyeater	Bp LC				
<i>Phylidonyris albifrons</i>	White-fronted Honeyeater	LC				
<i>Phylidonyris melanops</i>	Tawny-crowned Honeyeater	Bp LC		X	X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family Species	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	Bp		X	X	
<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	Bp LC	X		X	X
Petroicidae Australian Robins						
<i>Eopsaltria australis</i>	Western Yellow Robin	Bh LC				
<i>Eopsaltria georgiana</i>	White-breasted Robin	Bh LC				
<i>Microeca fascinans</i>	Jacky Winter	LC				X
<i>Petroica cucullata</i>	Hooded Robin	Bh			X	
<i>Petroica goodenovii</i>	Red-capped Robin	LC			X	X
<i>Petroica multicolor</i>	Scarlet Robin	Bh LC	X		X	
Pomatostomidae Babblers						
<i>Pomatostomus superciliosus</i>	White-browed Babbler	LC				
Neosittidae Sitellas						
<i>Daphoenositta chrysoptera</i>	Varied Sittella	Bh LC			X	X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Pachycephalidae Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers						
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	Bh LC	X		X	X
<i>Oreoica gutturalis</i>	Crested Bellbird	LC		X		X
<i>Pachycephala pectoralis</i>	Western Whistler	Bh LC			X	
<i>Pachycephala rufiventris</i>	Rufous Whistler	LC	X		X	X
Dicruridae Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo						
<i>Grallina cyanoleuca</i>	Magpie-lark	LC	X	X	X	X
<i>Myiagra inquieta</i>	Restless Flycatcher	Bh LC				X
<i>Rhipidura fuliginosa</i>	Grey Fantail	LC	X		X	
<i>Rhipidura leucophrys</i>	Willie Wagtail	LC	X	X	X	X
Campephagidae Cuckoo-shrikes, Trillers						
<i>Coracina maxima</i>	Ground Cuckoo-shrike	LC				
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	LC	X	X	X	X
<i>Lalage sueurii</i>	White-winged Triller	LC			X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Artamidae Woodswallows, Butcherbirds, Currawongs						
<i>Artamus cinereus</i>	Black-faced Woodswallow	Bp LC	X			X
<i>Artamus cyanopterus</i>	Dusky Woodswallow	Bp LC			X	X
<i>Artamus personatus</i>	Masked Woodswallow	LC				
<i>Cracticus nigrogularis</i>	Pied Butcherbird	LC	X	X		
<i>Cracticus tibicen</i>	Australian Magpie	LC	X	X	X	X
<i>Cracticus torquatus</i>	Grey Butcherbird	LC	X		X	X
<i>Strepera versicolor</i>	Grey Currawong	Bp LC				X
Corvidae Ravens, Crows						
<i>Corvus bennetti</i>	Little Crow	LC				X
<i>Corvus coronoides</i>	Australian Raven	LC	X	X	X	X
Motacillidae Old World Pipits, Wagtails						
<i>Anthus novaeseelandiae</i>	Australian Pipit	LC		X	X	
Passeridae Grass Finches, Mannikins, Sparrows						
<i>Taeniopygia guttata</i>	Zebra Finch	LC				

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Dicaeidae Flowerpeckers						
<i>Dicaeum hirundinaceum</i>	Mistletoebird	LC			X	X
Hirundinidae Swallows, Martins						
<i>Cheramoeca leucosternus</i>	White-backed Swallow	LC		X	X	
<i>Hirundo ariel</i>	Fairy Martin	LC				
<i>Hirundo neoxena</i>	Welcome Swallow	LC		X	X	X
<i>Hirundo nigricans</i>	Tree Martin	LC	X		X	
Sylviidae Old World Warblers						
<i>Cincloramphus cruralis</i>	Brown Songlark	LC				
<i>Cincloramphus mathewsi</i>	Rufous Songlark	LC			X	
<i>Megalurus gramineus</i>	Little Grassbird	LC				X
Zosteropidae White-eyes						
<i>Zosterops lateralis</i>	Silvereye	LC		X	X	X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Mammals						
Tachyglossidae Echidnas						
<i>Tachyglossus aculeatus</i>	Echidna	LC			X	X
Dasyuridae Carnivorous Marsupials						
<i>Sminthopsis crassicaudata</i>	Fat-tailed Dunnart	LC				
<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart	LC				
<i>Sminthopsis fuliginosus</i>	Grey-bellied Dunnart	LC			X	
Peramelidae Bandicoots						
<i>Isoodon fusciventer</i>	Quenda	P4				
Phalangeridae Brushtail Possums, Cuscuses						
<i>Trichosurus vulpecula</i>	Common Brushtail Possum	LC				
Tarsipedidae Honey Possum						
<i>Tarsipes rostratus</i>	Honey Possum	LC		X	X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Macropodidae Kangaroos, Wallabies						
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	LC	X	X	X	
<i>Notamacropus irma</i>	Western Brush Wallaby	P4 LC			X	X
Molossidae Freetail Bats						
<i>Austronomus australis</i>	White-striped Freetail-bat	LC		X		
<i>Ozimops kitcheneri</i>	Western Freetail Bat	LC				
Vespertilionidae Ordinary Bats						
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	LC				X
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	LC				
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	LC				X
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	LC				
<i>Nyctophilus major major</i>	Western Long-eared Bat	DD				
<i>Vespadelus regulus</i>	Southern Forest Bat	LC		X		X

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

Class Family <i>Species</i>	Common Name	Conservation Status	Ecoedge ('18) Orange Springs Rd	Medcalf ('06) Lancelin	DPaW ('15) Boonanarring	DBCA ('18) NatureMap
Muridae Rats, Mice						
<i>Mus musculus</i>	House Mouse	Introduced		X	X	
<i>Pseudomys albocinereus</i>	Ash-grey Mouse	LC		X	X	X
<i>Rattus fuscipes</i>	Western Bush Rat	LC				
<i>Rattus rattus</i>	Black Rat	Introduced			X	X
Canidae Dogs, Foxes						
<i>Vulpes vulpes</i>	Red Fox	Introduced		X	X	
Felidae Cats						
<i>Felis catus</i>	Cat	Introduced		X	X	
Leporidae Rabbits, Hares						
<i>Oryctolagus cuniculus</i>	Rabbit	Introduced		X	X	

WC Act Status - S1 to S7, EPBC Act Status - EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory, DBCA Priority Status - P1 to P4, Int. Agmts - CA = CAMBA, JA = JAMBA, RK = ROKAMBA, Bush Forever Decreaser Species - Bh = habitat specialists, Bp = wide ranging species, Be = extinct in Perth Coastal Plain Region. IUCN Red List Category Definitions see Appendix and <http://www.iucn-csg.org/index.php/red-list-categories/>

NatureMap- Orange Springs Road (15km Buffer)

Created By Greg Harewood on 23/12/2018

Kingdom Animalia
Current Names Only Yes
Core Datasets Only Yes
Method 'By Line'
Vertices 30° 59' 59" S, 115° 42' 31" E 31° 03' 59" S, 115° 33' 12" E
Group By Species Group

Species Group	Species	Records
Amphibian	7	111
Bird	131	1672
Fish	9	12
Invertebrate	38	93
Mammal	10	41
Reptile	20	45
TOTAL	215	1974

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Amphibian				
1.	25399 <i>Crinia glauerti</i> (Clicking Frog)			
2.	25400 <i>Crinia insignifera</i> (Squelching Froglet)			
3.	25410 <i>Heleioporus eyrei</i> (Moaning Frog)			
4.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
5.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
6.	25426 <i>Neobatrachus pelobatoides</i> (Humming Frog)			
7.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
Bird				
8.	24559 <i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
9.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
10.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
11.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
12.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
13.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
14.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
15.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
16.	24312 <i>Anas gracilis</i> (Grey Teal)			
17.	24315 <i>Anas rhynchotis</i> (Australasian Shoveler)			
18.	24316 <i>Anas superciliosa</i> (Pacific Black Duck)			
19.	47414 <i>Anhinga novaehollandiae</i> (Australasian Darter)			
20.	24561 <i>Anthochaera carunculata</i> (Red Wattlebird)			
21.	24562 <i>Anthochaera lunulata</i> (Western Little Wattlebird)			
22.	24285 <i>Aquila audax</i> (Wedge-tailed Eagle)			
23.	41324 <i>Ardea modesta</i> (great egret, white egret)			
24.	24340 <i>Ardea novaehollandiae</i> (White-faced Heron)			
25.	24341 <i>Ardea pacifica</i> (White-necked Heron)			
26.	24610 <i>Ardeotis australis</i> (Australian Bustard)			
27.	25566 <i>Artamus cinereus</i> (Black-faced Woodswallow)			
28.	24353 <i>Artamus cyanopterus</i> (Dusky Woodswallow)			
29.	24318 <i>Aythya australis</i> (Hardhead)			
30.	<i>Barnardius zonarius</i>			
31.	24319 <i>Biziura lobata</i> (Musk Duck)			
32.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
33.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
34.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
35.	25717 <i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
36.	24734 <i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)			

T

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
37.	48400	<i>Calyptorhynchus</i> sp. (white-tailed black cockatoo)		T	
38.	24564	<i>Certhionyx variegatus</i> (Pied Honeyeater)			
39.	24321	<i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
40.	47909	<i>Cheramoeca leucosterna</i> (White-backed Swallow)			
41.		<i>Chroicocephalus novaehollandiae</i>			
42.	24288	<i>Circus approximans</i> (Swamp Harrier)			
43.	24289	<i>Circus assimilis</i> (Spotted Harrier)			
44.	24774	<i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
45.	25675	<i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
46.	25568	<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
47.	24416	<i>Corvus bennetti</i> (Little Crow)			
48.	25592	<i>Corvus coronoides</i> (Australian Raven)			
49.	25595	<i>Cracticus tibicen</i> (Australian Magpie)			
50.	24422	<i>Cracticus tibicen</i> subsp. <i>dorsalis</i> (White-backed Magpie)			
51.	25596	<i>Cracticus torquatus</i> (Grey Butcherbird)			
52.	24322	<i>Cygnus atratus</i> (Black Swan)			
53.	30901	<i>Dacelo novaeguineae</i> (Laughing Kookaburra)	Y		
54.	25673	<i>Daphoenositta chrysoptera</i> (Varied Sittella)			
55.	25607	<i>Dicaeum hirundinaceum</i> (Mistletoebird)			
56.	24470	<i>Dromaius novaehollandiae</i> (Emu)			
57.		<i>Egretta novaehollandiae</i>			
58.		<i>Elanus axillaris</i>			
59.	47937	<i>Elseyornis melanops</i> (Black-fronted Dotterel)			
60.		<i>Eolophus roseicapillus</i>			
61.	24567	<i>Epthianura albifrons</i> (White-fronted Chat)			
62.	24379	<i>Erythronys cinctus</i> (Red-kneed Dotterel)			
63.	25621	<i>Falco berigora</i> (Brown Falcon)			
64.	25622	<i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
65.	25623	<i>Falco longipennis</i> (Australian Hobby)			
66.	25727	<i>Fulica atra</i> (Eurasian Coot)			
67.	24761	<i>Fulica atra</i> subsp. <i>australis</i> (Eurasian Coot)			
68.	25729	<i>Gallinula tenebrosa</i> (Dusky Moorhen)			
69.	24763	<i>Gallinula tenebrosa</i> subsp. <i>tenebrosa</i> (Dusky Moorhen)			
70.	25530	<i>Gerygone fusca</i> (Western Gerygone)			
71.	47962	<i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
72.	24443	<i>Grallina cyanoleuca</i> (Magpie-lark)			
73.	24295	<i>Haliastur spheurnus</i> (Whistling Kite)			
74.	24296	<i>Hamirostra isura</i> (Square-tailed Kite)			
75.	47965	<i>Hieraaetus morphnoides</i> (Little Eagle)			
76.	25734	<i>Himantopus himantopus</i> (Black-winged Stilt)			
77.	24491	<i>Hirundo neoxena</i> (Welcome Swallow)			
78.	24511	<i>Larus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Silver Gull)			
79.	25661	<i>Lichmera indistincta</i> (Brown Honeyeater)			
80.	24326	<i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
81.	25651	<i>Malurus lamberti</i> (Variegated Fairy-wren)			
82.	25652	<i>Malurus leucopterus</i> (White-winged Fairy-wren)			
83.	25654	<i>Malurus splendens</i> (Splendid Fairy-wren)			
84.	24583	<i>Manorina flavigula</i> (Yellow-throated Miner)			
85.	25758	<i>Megalurus gramineus</i> (Little Grassbird)			
86.	25663	<i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
87.	24598	<i>Merops ornatus</i> (Rainbow Bee-eater)			
88.		<i>Microcarbo melanoleucos</i>			
89.	25693	<i>Microeca fascians</i> (Jacky Winter)			
90.	25610	<i>Myiagra inquieta</i> (Restless Flycatcher)			
91.	25564	<i>Nycticorax caledonicus</i> (Rufous Night Heron)			
92.	24407	<i>Ocyphaps lophotes</i> (Crested Pigeon)			
93.	24618	<i>Oreoica gutturalis</i> (Crested Bellbird)			
94.	34011	<i>Oreoica gutturalis</i> subsp. <i>gutturalis</i> (Crested Bellbird (southern))			
95.	24328	<i>Oxyura australis</i> (Blue-billed Duck)		P4	
96.	25680	<i>Pachycephala rufiventris</i> (Rufous Whistler)			
97.	24624	<i>Pachycephala rufiventris</i> subsp. <i>rufiventris</i> (Rufous Whistler)			
98.	25682	<i>Pardalotus striatus</i> (Striated Pardalote)			
99.	24630	<i>Pardalotus striatus</i> subsp. <i>westraliensis</i> (Striated Pardalote)			
100.	24648	<i>Pelecanus conspicillatus</i> (Australian Pelican)			
101.	48061	<i>Petrochelidon nigricans</i> (Tree Martin)			
102.	48066	<i>Petroica boodang</i> (Scarlet Robin)			
103.	24659	<i>Petroica goodenovii</i> (Red-capped Robin)			
104.	25698	<i>Phalacrocorax melanoleucos</i> (Little Pied Cormorant)			
105.	24667	<i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
106.	24409	<i>Phaps chalcoptera</i> (Common Bronzewing)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
107.	24802 <i>Philomachus pugnax</i> (Ruff, reeve)		IA	
108.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
109.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
110.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
111.	25720 <i>Platycercus icterotis</i> (Western Rosella)			
112.	24751 <i>Platycercus zonarius</i> subsp. <i>zonarius</i> (Port Lincoln Parrot)			
113.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
114.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			
115.	24681 <i>Poliiocephalus poliocephalus</i> (Hoary-headed Grebe)			
116.	25722 <i>Polytelis anthopeplus</i> (Regent Parrot)			
117.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
118.	24767 <i>Porphyrio porphyrio</i> subsp. <i>bellus</i> (Purple Swamphen)			
119.	<i>Purpurecephalus spurius</i>			
120.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
121.	48096 <i>Rhipidura albiscapa</i> (Grey Fantail)			
122.	25614 <i>Rhipidura leucophrys</i> (Willie Wagtail)			
123.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
124.	30948 <i>Smicronis brevirostris</i> (Weebill)			
125.	25655 <i>Stipiturus malachurus</i> (Southern Emu-wren)			
126.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
127.	25589 <i>Streptopelia chinensis</i> (Spotted Turtle-Dove)	Y		
128.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
129.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
130.	24682 <i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
131.	24331 <i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
132.	48135 <i>Thinornis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	
133.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
134.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
135.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
136.	25723 <i>Trichoglossus haematodus</i> (Rainbow Lorikeet)			
137.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
138.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

Fish

139.	<i>Afurcagobius suppositus</i>			
140.	<i>Atherinosoma elongata</i>			
141.	<i>Bostockia porosa</i>			
142.	34028 <i>Galaxias occidentalis</i> (Western Minnow)			
143.	<i>Gnathophis longicaudatus</i>			
144.	<i>Pelates octolineatus</i>			
145.	<i>Plectorhynchus flavomaculatus</i>			
146.	<i>Pseudogobius olorum</i>			
147.	<i>Tandanus bostocki</i>			

Invertebrate

148.	<i>Acariformes</i> sp.			
149.	<i>Aname mainae</i>			
150.	<i>Austracantha minax</i>			
151.	<i>Caenidae</i> sp.			
152.	<i>Ceinidae</i> sp.			
153.	<i>Ceratopogonidae</i> sp.			
154.	<i>Chironominae</i> sp.			
155.	<i>Corduliidae</i> sp.			
156.	<i>Corixidae</i> sp.			
157.	<i>Dytiscidae</i> sp.			
158.	<i>Ecnomidae</i> sp.			
159.	<i>Gomphidae</i> sp.			
160.	<i>Hydraenidae</i> sp.			
161.	<i>Hydrodroma australis</i>			Y
162.	<i>Hydrophilidae</i> sp.			
163.	<i>Hydropsychidae</i> sp.			
164.	33977 <i>Hylaeus globuliferus</i> (woolybush bee)		P3	
165.	<i>Lampona cylindrata</i>			
166.	33982 <i>Leioproctus contrarius</i> (a short-tongued bee)		P3	
167.	<i>Leptoceridae</i> sp.			
168.	<i>Libellulidae</i> sp.			
169.	<i>Limbodessus shuckhardi</i>			
170.	<i>Oligochaeta</i> sp.			
171.	<i>Orthocladinae</i> sp.			
172.	<i>Palaemonidae</i> sp.			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
173.	<i>Parastacidae</i> sp.			
174.	<i>Platynectes aenescens</i>			
175.	<i>Raveniella cirrata</i>			
176.	<i>Richardsonianidae</i> sp.			
177.	<i>Simuliidae</i> sp.			
178.	<i>Tabanidae</i> sp.			
179.	<i>Tanypodinae</i> sp.			
180.	<i>Tipulidae</i> sp.			
181.	<i>Troglocheres dewae</i>			
182.	<i>Urodacus hartmeyerii</i>			
183.	<i>Veliidae</i> sp.			
184.	<i>Venator koyuga</i>			
185.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T	

Mammal

186.	24186	<i>Chalinolobus gouldii</i> (Gould's Wattled Bat)		
187.	24092	<i>Dasyurus geoffroyi</i> (Chuditch, Western Quoll)	T	
188.	24215	<i>Hydromys chrysogaster</i> (Water-rat, Rakali)	P4	
189.	24168	<i>Macrotis lagotis</i> (Bilby, Dalgyte, Ninu)	T	
190.	48022	<i>Notamacropus irma</i> (Western Brush Wallaby)	P4	
191.	24194	<i>Nyctophilus geoffroyi</i> (Lesser Long-eared Bat)		
192.	24230	<i>Pseudomys albocinereus</i> (Ash-grey Mouse)		
193.	24245	<i>Rattus rattus</i> (Black Rat)	Y	
194.	24207	<i>Tachyglossus aculeatus</i> (Short-beaked Echidna)		
195.	24206	<i>Vespadelus regulus</i> (Southern Forest Bat)		

Reptile

196.	24991	<i>Aprasia repens</i> (Sand-plain Worm-lizard)		
197.	42380	<i>Brachyurophis fasciolatus</i> subsp. <i>fasciolatus</i> (Narrow-banded Shovel-nosed Snake)		
198.	42381	<i>Brachyurophis semifasciatus</i> (Southern Shovel-nosed Snake)		
199.	30893	<i>Cryptoblepharus buchananii</i>		
200.	30899	<i>Ctenophorus adelaidensis</i> (Southern Heath Dragon, Western Heath Dragon)		
201.	25039	<i>Ctenotus fallens</i>		
202.	25296	<i>Demansia psammophis</i> subsp. <i>reticulata</i> (Yellow-faced Whipsnake)		
203.	25251	<i>Echiopsis curta</i> (Bardick)		
204.	25133	<i>Lerista elegans</i>		
205.	25165	<i>Lerista praepedita</i>		
206.	25005	<i>Lialis burtonis</i>		
207.	42414	<i>Lucasium alboguttatum</i>		
208.	25184	<i>Menetia greyii</i>		
209.	25192	<i>Morethia obscura</i>		
210.	25253	<i>Parasuta gouldii</i>		
211.	25255	<i>Parasuta nigriceps</i>		
212.	24907	<i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)		
213.	25008	<i>Pygopus lepidopodus</i> (Common Scaly Foot)		
214.	24942	<i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>		
215.	25218	<i>Varanus gouldii</i> (Bungarra or Sand Monitor)		

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.



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: 23/12/18 16:19:04

[Summary](#)

[Details](#)

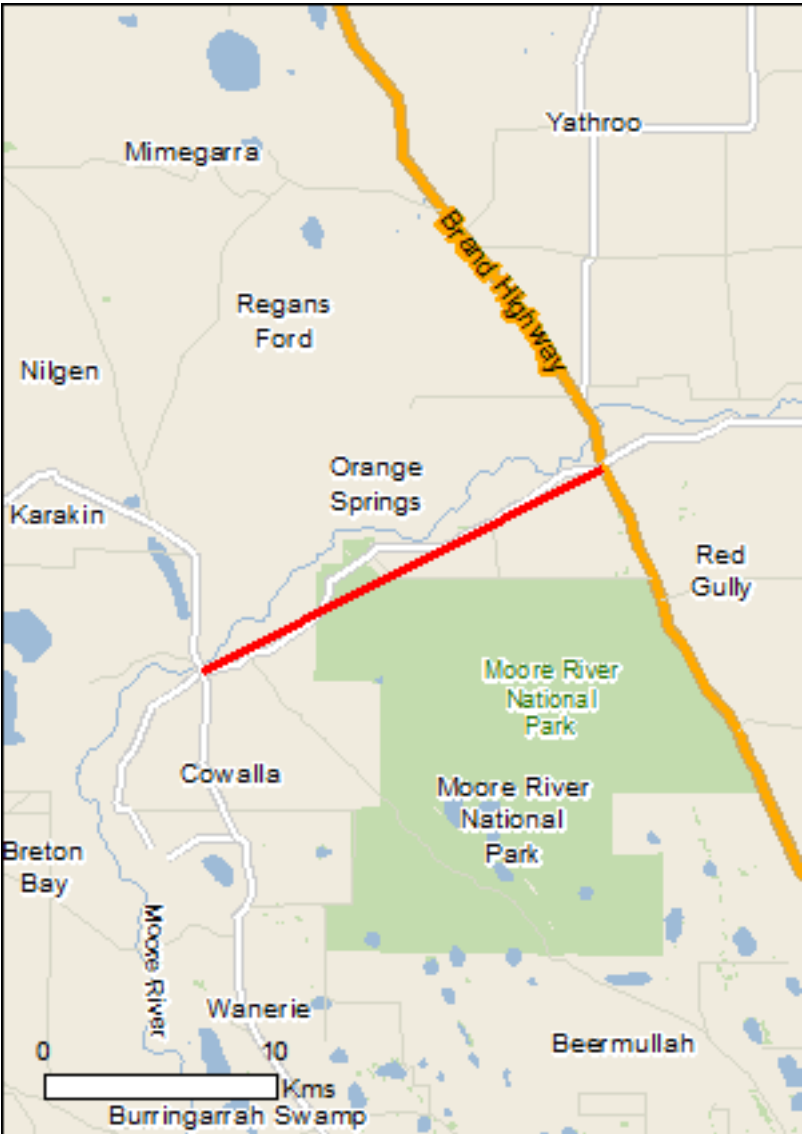
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

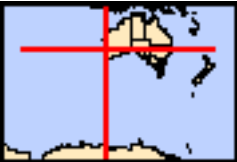
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 15.0Km](#)



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:	1
Listed Threatened Species:	29
Listed Migratory Species:	10

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:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	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:	13
Regional Forest Agreements:	None
Invasive Species:	21
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[Resource Information]

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.

Name	Status	Type of Presence
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area

Listed Threatened Species

[Resource Information]

Name	Status	Type of Presence
Birds		

Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
--	------------	--

Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
---	-----------------------	--

Calyptorhynchus latirostris Carnaby's Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat known to occur within area
--	------------	---

Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
---	------------	--

Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
---	-----------------------	--

Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
--	------------	--

Fish		
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat likely to occur within area

Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area

Parantechinus apicalis Dibbler [313]	Endangered	Species or species habitat may occur within area
---	------------	--

Plants		
Andersonia gracilis Slender Andersonia [14470]	Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Anigozanthos viridis subsp. terraspectans Dwarf Green Kangaroo Paw [3435]	Vulnerable	Species or species habitat known to occur within area
Asterolasia nivea Bindoon Starbush [8225]	Vulnerable	Species or species habitat likely to occur within area
Banksia fuscobractea Dark-bract Banksia [83059]	Critically Endangered	Species or species habitat may occur within area
Banksia mimica Summer Honeypot [82765]	Endangered	Species or species habitat likely to occur within area
Chamelaucium sp. Gingin (N.G.Marchant 6) Gingin Wax [88881]	Endangered	Species or species habitat likely to occur within area
Conospermum densiflorum subsp. unicephalum One-headed Smokebush [64871]	Endangered	Species or species habitat may occur within area
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area
Eleocharis keigheryi Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
Eucalyptus absita Badgingarra Box [24260]	Endangered	Species or species habitat may occur within area
Eucalyptus dolorosa Dandaragan Mallee, Mount Misery Mallee [56709]	Endangered	Species or species habitat likely to occur within area
Eucalyptus impensa Eneabba Mallee [56711]	Endangered	Species or species habitat may occur within area
Eucalyptus leprophloia Scaly Butt Mallee, Scaly-butt Mallee [56712]	Endangered	Species or species habitat may occur within area
Eucalyptus x balanites Cadda Road Mallee, Cadda Mallee [87816]	Endangered	Species or species habitat may occur within area
Grevillea curviloba subsp. incurva Narrow curved-leaf Grevillea [64909]	Endangered	Species or species habitat may occur within area
Hemiandra gardneri Red Snakebush [7945]	Endangered	Species or species habitat may occur within area
Paracaleana dixonii Sandplain Duck Orchid [86882]	Endangered	Species or species habitat known to occur within area
Ptychosema pusillum Dwarf Pea [11268]	Vulnerable	Species or species habitat may occur within area
Thelymitra dedmaniarum Cinnamon Sun Orchid [65105]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Thelymitra stellata Star Sun-orchid [7060]	Endangered	Species or species habitat may 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		
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land		[Resource Information]
The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.		
Name		
Commonwealth Land -		
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		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within

Name	Threatened	Type of Presence
Apus pacificus Fork-tailed Swift [678]		area Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to 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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Thinornis rubricollis Hooded Plover [59510]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves		[Resource Information]
Name		State
Bundarra		WA
Moochamulla		WA
Moore River		WA
Moore River		WA
NTWA Bushland covenant (0048)		WA
NTWA Bushland covenant (0057)		WA
Nabaroo		WA
Namming		WA
Quins Hill		WA
South Mimegarra		WA
Unnamed WA21164		WA
Unnamed WA25591		WA
Unnamed WA46899		WA

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
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		
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
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species

Name	Status	Type of Presence
Vulpes vulpes Red Fox, Fox [18]		habitat likely to occur within area Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Brachiaria mutica Para Grass [5879]		Species or species habitat may occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Olea europaea Olive, Common Olive [9160]		Species or species habitat may occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Nationally Important Wetlands		[Resource Information]
Name		State
Karakin Lakes		WA

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

-31.06639 115.55334,-30.99961 115.70863

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.

Habitat Trees

DBH >30cm

Datum - GDA94

Entrance Size Ranges - Small = >5cm, Medium = 5, 10cm, Large = >10cm

Waypoint Number	Zone	mE	mN	Tree Species	Side of Road	SLK	Tree Height (m)	DBH (cm)	Number of Possible Hollows	Estimated Hollow Entrance Size Range	Occupancy	Potential Cockatoo Nest Hollow
wpt003	50J	376658	6569736	Coastal Blackbutt	N	0.06	5-10	>50	1	Small	No Signs	No
wpt004	50J	376505	6569731	Coastal Blackbutt	N	0.28	10-15	>50	1	Small	No Signs	No
wpt005	50J	376468	6569730	Coastal Blackbutt	N	0.31	10-15	>50	0			
wpt006	50J	376464	6569729	Coastal Blackbutt	N	0.31	10-15	>50	0			
wpt007	50J	376387	6569710	Marri	S	0.39	15-20	>50	0			
wpt008	50J	376383	6569707	Marri	S	0.39	15-20	>50	0			
wpt010	50J	376051	6569715	Coastal Blackbutt	N	0.73	10-15	>50	0			
wpt011	50J	375488	6569673	Coastal Blackbutt	N	1.29	10-15	>50	0			
wpt012	50J	373143	6568053	River Red Gum	S	4.12	15-20	>50	0			
wpt013	50J	372475	6567642	Flooded Gum	N	4.91	15-20	>50	0			
wpt027	50J	371339	6567047	Coastal Blackbutt	N	6.18	10-15	>50	0			
wpt032	50J	369616	6566705	River Red Gum	S	8.01	15-20	>50	0			
wpt034	50J	368778	6566714	River Red Gum	N	8.87	10-15	>50	0			
wpt050	50J	363312	6562464	Coastal Blackbutt	S	16.45	10-15	>50	0			
wpt052	50J	363213	6562435	Coastal Blackbutt	S	16.65	0-5	>50	0			