

Fauna Assessment



Margaret River Vintners

Lot 1 Payne Road

Kaloorup

January 2023

V1

On behalf of:

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SUMMARY

This report details the results of a fauna assessment over a section of Margaret River Vintners property situated with Lot 1 Payne Road, Kaloorup (Figure 1).

The business owners are proposing to clear a small section of the lot to allow for the construction of some additional roads and other infrastructure (Figure 2). It is understood that the results of the assessment will be used along with other information to support a clearing permit application to be submitted to the Department of Water and Environmental Regulation pursuant to Section 51E of the *Environmental Protection Act 1986*.

The assessment has included a literature review, a daytime reconnaissance survey and a nocturnal spotlighting survey. Field work at the site was carried out on various days and one night during December 2022 and January 2023. All survey work and reporting has been carried out by Greg Harewood (Zoologist).

Key Findings

Vegetation within the survey is totally comprised of a dense tall shrubland comprised of the non-endemic and invasive Sydney golden wattles (*Acacia longifolia*) with occasional emergent marri (*Corymbia calophylla*) and jarrah (*Eucalyptus marginata*) trees over bare ground/sparse grassland. It is assumed that the wattle was planted to revegetate previously cleared land. Other sections of the lot outside of the survey area contain similar vegetation in addition to a range of planted non-endemic eucalypts.

The fauna habitats present are completely degraded given the almost complete absence of any native plant species. With respect to fauna in general the survey area does not represent habitat of any significance and given the degree of disturbance the original fauna assemblage within the survey area is likely to be depauperate in many aspects, in particular with respect to ground dwelling species which rely on dense native understory (midstorey and ground cover) vegetation, which is almost absent or very sparse in most areas.

Black cockatoo habitat within the survey area is limited to a very small number of habitat trees (DBH >50cm) none of which have any existing hollows. These same trees (and some smaller specimens) also represent black cockatoo foraging habitat. No evidence black cockatoos roosting within the survey area was noted.

No evidence of western ringtail possums utilising the survey area was found though given they occur in the wider area it has been concluded that individuals may occasionally pass through the survey area at times.

No evidence of any other fauna species of conservation significance identified during the literature review was observed. However, this does not eliminate the potential for some species to still occur, if only infrequently.

In summary one vertebrate fauna species of conservation significance were positively identified as utilising the survey area:

- Carnaby's Black Cockatoo – Endangered (WA/Federal)

Several additional species of conservation significance may also utilise the survey area, though, as no evidence of their presence was identified during the field survey, their actual status in the area remains uncertain:

- Peregrine Falcon – OS (WA);
- Masked Owl – Priority 3 (Priority Species);
- Forest Red-tailed Black Cockatoo – Vulnerable (WA/Federal);
- Baudin's Black Cockatoo – Endangered (WA/Federal);
- Western Ringtail Possum – Critically Endangered (WA/Federal);
- Quenda - Priority 3 (Priority Species);
- Western False Pipistrelle – Priority 4 (DBCA Priority Species).

In cases where available information indicates at least some probability of these species occurring, likely impacts are anticipated to be very low primarily due to likely low degree of usage, low population densities and the very small total area of native vegetation/habitat present.

No overall change in the conservation status of any fauna species currently utilising the survey area is therefore anticipated if clearing of some or all of the vegetation present. While some small, localised residual loss of fauna habitat may occur for some species, regional impacts on the status of any one species are anticipated to be negligible/non-existent.

1. INTRODUCTION

This report details the results of a fauna assessment over a section of Margaret River Vintners property situated with Lot 1 Payne Road, Kaloorup (Figure 1).

The business owners are proposing to clear a small section of the lot to allow for the construction of some additional roads and other infrastructure (Figure 2). It is understood that the results of the assessment will be used along with other information to support a clearing permit application to be submitted to the Department of Water and Environmental Regulation (DWER) pursuant to Section 51E of the *Environmental Protection Act 1986*.

2. SCOPE OF WORKS

The scope of works was to conduct a “basic” fauna assessment and carry out a targeted survey for black cockatoo habitat and western ringtail possums. The assessment has therefore involved:

1. A basic (Level 1) Fauna Assessment (EPA 2020);
2. Targeted searches for black cockatoo habitat/site use (habitat trees, existing and potential nest hollows, foraging and roosting habitat);
3. Targeted western ringtail possum (WRP) survey; and
4. Report for summarising methods and results.

Note: For the purposes of this proposal the term black cockatoo is in reference to Baudin's black cockatoo *Calyptorhynchus baudinii*, Carnaby's black cockatoo *Calyptorhynchus latirostris* and the forest red-tailed black cockatoo *Calyptorhynchus banksii naso*.

3. METHODS

3.1 LITERATURE REVIEW – FAUNA SPECIES OF CONSERVATION SIGNIFICANCE

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

- Department of Biodiversity, Conservation and Attractions (DBCA) Threatened Fauna Database (NatureMap) search (DBCA 2022). A 10 km buffer around the survey area was applied to capture previous fauna records within the immediate vicinity;
- *Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act)* Protected Matters database search for fauna of national environmental significance (DCCEEW 2022). The minimum buffer (0 km) was applied to this

search as the databases contains distribution data (areas) and not actual fauna records; and

- Literature search and review of other fauna surveys in the vicinity.

The conservation status of each species has been based on current lists produced under Federal and State Acts (*EPBC Act* and the *Biodiversity Conservation Act 2016 (BC Act)*).

3.2 FIELD SURVEYS

The field component of the fauna assessment was carried out on the 6 December 2022 (day survey) and the 10 January 2023 (night survey) by Greg Harewood (Zoologist).

3.2.1 FAUNA HABITAT ASSESSMENT

Vegetation units, landforms and soils observed during the site reconnaissance survey have been used to define broad fauna habitat types across the survey area.

The main objective of the assessment was to determine if it were likely that species of conservation significance would utilise the habitats identified as occurring within the survey area based on their documented habitat preference and current known distribution.

3.2.2 FAUNA OBSERVATIONS

Evidence of the presence or likely presence of fauna species of conservation significance (or suitable habitat) was searched for and recorded concurrent with other site surveys. Opportunistic observations of all fauna species were made during all field survey work and recorded where positive species identifications were made.

This aspect of the assessment included but was not limited to:

- Undertaking a series of transects across the survey area.
- Searching for evidence (i.e. individuals, tracks, scats, calls) of potential conservation significant species under logs, rocks and leaf litter.
- Observing bird species with binoculars.

3.2.3 BLACK COCKATOO HABITAT ASSESSMENT

The following methods were employed to comply with the defined scope of works and are based on Commonwealth of Australia (2012 and 2022) guidelines which state 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.

The Commonwealth of Australia (2012) places habitats used by black cockatoos into the following three categories:

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

3.2.3.1 Breeding Habitat Assessment

The black cockatoo breeding habitat assessment identified all suitable breeding tree species within the survey area that have a diameter at breast height (DBH) equal to or greater than 50cm. The DBH of each tree was estimated using a pre-made “caliper”.

Target tree species included marri, jarrah, tuart and flooded gum and any other *Corymbia/Eucalyptus* species of a suitable size that was present. Peppermints, *Banksia*, sheoak and *Melaleuca* tree species (for example) were not assessed as they typically do not develop hollows used by black cockatoos.

The location of each tree identified as being over the threshold DBH will be 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) will be marked with “H” using spray paint.

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

- Small = ~<5cm diameter (i.e. entrance too small for a black cockatoo);
- Medium = ~5cm-10cm diameter (i.e. entrance too small for a black cockatoo);
- Large = ~>10cm diameter (entrance large enough for a black cockatoo but hollow appears unsuitable for nesting i.e. wrong orientation, appears too small, too low or too shallow); or
- Large (cockatoo) = ~>10cm diameter (entrance and apparent hollow appears big enough and suitably sized/orientated for a black cockatoo to use for nesting).

Based on this assessment, trees present within the survey area were placed into one of four categories:

- Tree <50cm DBH or an unsuitable species (these were not assessed/recorded);
- Tree \geq 50cm DBH, no hollows seen;
- Tree \geq 50cm DBH, one or more hollows seen, none of which were considered suitable for black cockatoos to use for nesting; or

- Tree ≥ 50 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 black 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 potentially suitable for occupation by black cockatoo for the purpose of nesting/breeding. Hollows or possible 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 nest hollow”.

Identified hollows were examined using binoculars for evidence of actual use by black cockatoos (e.g. chewing around hollow entrance, scarring and scratch marks on trunks and branches). Details recorded included hollow size, height, type, orientation, comments on suitability and any evidence of use

Trees with possible nest hollows were also scratched and raked with a large stick in attempt to flush any sitting birds from hollows and calls of chicks were listened for. Where the assessment was inconclusive, and if possible, trees identified as having potential nest hollows were subsequently examined and photographed using a drone (DJI Mavic Air).

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.

3.2.3.2 Foraging Habitat Assessment

The location and nature of black cockatoo foraging evidence (e.g. chewed fruits around base of trees) observed during the field survey was recorded. The nature and extent of potential foraging habitat present was also documented irrespective of the presence of any actual foraging evidence. Foraging habitat is represented by plant species that are known to provide a food source for black cockatoos. This can be in the form of seeds, flowers and also boring grubs that are extracted from some plant species.

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

3.2.3.3 Night Roosting Habitat Assessment

Direct and indirect evidence of black cockatoos roosting within trees on site was noted where observed (e.g. branch clippings, droppings or moulted feathers).

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

3.2.4 WESTERN RINGTAIL POSSUM ASSESSMENT

3.2.4.1 Daytime Survey

A day time survey to locate and record dreys, obvious tree hollows, scats and individual WRPs was carried out during the day time field reconnaissance surveys and involved a series of traverses on foot across the survey area.

3.2.4.2 Night Time Survey

A single night time survey to locate and record individual WRPs was carried out. This involved a series of transect across the survey area, on foot using a LED head torch.

3.2.4.3 Habitat Assessment

Description and comments on the amount and quality of WRP habitat within the survey area are provided based on observations made during the site surveys.

4. SURVEY LIMITATIONS

No seasonal sampling was 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.

5. RESULTS

5.1 LITERATURE REVIEW – FAUNA SPECIES OF CONSERVATION SIGNIFICANCE

The literature review identified multiple fauna species of conservation significance as potentially occurring in the general area as listed in Table 1. The NatureMap (DBCA 2022) and Protected Matter Search Tool (DCCEE 2022) results, used as a primary source for compiling this listing, are held within Appendix B.

Table 1: Conservation significant fauna previously recorded or potentially occurring within the general vicinity of survey area.

Species	Conservation Status ¹	
	BC Act	EPBC Act
Carter's Freshwater Mussel <i>Westralunio carteri</i>	VU	VU
Balston's Pygmy Perch <i>Nannatherina balstoni</i>	VU	VU
Margaret River Burrowing Crayfish <i>Engaewa pseudoreducta</i>	CR	CE
Dunsborough Burrowing Crayfish <i>Engaewa reducta</i>	EN	CE
Australasian Bittern <i>Botaurus poiciloptilus</i>	EN	EN
Migratory Shorebirds/Wetland Species	Various	Various
Peregrine Falcon <i>Falco peregrinus</i>	OS	-
Grey Falcon <i>Falco hypoleucos</i>	VU	VU
Masked Owl <i>Tyto novaehollandiae novaehollandiae</i>	P3	-
Carnaby's Black Cockatoo <i>Zanda latirostris</i>	EN	EN
Baudin's Black Cockatoo <i>Zanda baudinii</i>	EN	EN
Forest Red-tailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>	VU	VU
Fork-tailed Swift <i>Apus pacificus</i>	MI	Mig
Grey Wagtail <i>Motacilla cinerea</i>	MI	Mig
Chuditch <i>Dasyurus geoffroii</i>	VU	VU
Quenda <i>Isodon fusciventer</i>	P4	-

¹ See Appendix A for conservation status codes

Species	Conservation Status ¹	
	BC Act	EPBC Act
South-western Brush-tailed Phascogale <i>Phascogale tapoatafa wambenger</i>	CD	-
Western Ringtail Possum <i>Pseudocheirus occidentalis</i>	CR	CE
Woylie <i>Bettongia penicillata. ogilbyi</i>	CR	EN
Western Brush Wallaby <i>Notamacropus irma</i>	P4	-
Water Rat <i>Hydromys chrysogaster</i>	P4	-
Western False Pipistrelle <i>Falsistrellus mackenziei</i>	P4	-

5.2 FIELD SURVEYS


5.2.1 FAUNA HABITAT ASSESSMENT

Vegetation within the survey is totally comprised of a dense tall shrubland comprised of the non-endemic and invasive Sydney golden wattles (*Acacia longifolia*) with occasional emergent marri (*Corymbia calophylla*) and jarrah (*Eucalyptus marginata*) trees over bare ground/sparse grassland. It is assumed that the wattle was planted to revegetate previously cleared land. Other sections of the lot outside of the survey area contain similar vegetation in addition to a range of planted non-endemic eucalypts.

Example images of the various fauna habitats present are provided in Table 2.

The fauna habitats present are completely degraded given the almost complete absence of any native plant species. With respect to fauna in general the survey area does not represent habitat of any significance and is only likely to have very depauperate fauna assemblage. Despite the history of disturbance, the vegetation is still likely to be utilised in some fashion by some species though most would be relatively common and widespread bird species. Exceptions to this generalised statement include black cockatoos, which appear to use the marri present as a foraging resource (see section 5.2.3). Some of the habitat present also appears, at least superficially, to be suitable for western ringtail possums though the evidence of the species presence was not found (see section 5.2.4).

Table 2: Example images of the fauna habitats within the survey area

Fauna Habitat Description	Example Image
<p>Tall shrubland of Sydney golden wattle. (<i>Acacia longifolia</i>) with occasional emergent marri (<i>Corymbia calophylla</i>) and jarrah (<i>Eucalyptus marginata</i>) trees over bare ground/sparse grassland.</p>	 <p>The top photograph shows a dense shrubland with tall green bushes and scattered trees. The bottom photograph shows a similar habitat with a different view, featuring more trees and a ground covered in dry leaves.</p>

5.2.2 FAUNA OBSERVATIONS

Only a small number of fauna species were observed or heard, these all being common bird species (e.g. grey fantail).

Besides a small amount of foraging evidence attributed to Carnaby’s black cockatoo (see Section 5.2.3.2) no evidence of any other fauna species of conservation significance was observed. However, this does not eliminate the potential for some species to still occur, if only infrequently.

5.2.3 BLACK COCKATOO HABITAT ASSESSMENT

5.2.3.1 Breeding Habitat Assessment

Trees considered potentially suitable for black cockatoos to use as nesting habitat (subject to a suitable hollow being present and other factors) found within the survey area comprised the following species:

- Marri – *Corymbia calophylla*; and
- Jarrah - *Eucalyptus marginata*.

A summary of the habitat trees observed is provided in Table 3. The locations of habitat trees are shown in Figure 4.

Table 3: Summary of potential habitat trees (DBH \geq 50cm) within the survey area

Total Number of Habitat Trees (DBH > 50cm)	Number of Habitat Trees with <u>No Hollows Observed</u>	Number of Habitat Trees with <u>Possible Hollows</u> considered <u>Unsuitable</u> for Black Cockatoos	Number of Habitat Trees with <u>Possible Hollows</u> considered <u>Potentially suitable</u> for Black Cockatoos	Tree Species	
				Marri	Jarrah
5	5	0	0	4	1

The assessment identified five trees within the survey area with a DBH of \geq 50cm. None of these trees appeared to not contain hollows of any size.

Additional details on each habitat tree observed can be found in Appendix C.

Based on available mapping, there is approximately 10,300 ha of remnant native vegetation within 12 km of the survey area (DPIRD 2023). Much of this is likely to contain “potential” breeding habitat as defined by DCCEEW (i.e. suitable tree species with a DBH \geq 50cm).

5.2.3.2 Foraging Habitat Assessment


The following flora species are known to be or are potentially used as a direct food source (e.g. seeds, flowers, nectar, bark or grubs) by one or more species of black cockatoo were recorded within the survey area:

- Marri – *Corymbia calophylla*;and
- Jarrah - *Eucalyptus marginata*.

Marri is the favoured dietary item of all three species of black cockatoo known to frequent the area however this trees species is represented by a relatively small number of specimens widely scattered over the survey area.

A small amount of foraging debris was located within the survey area. This activity was attributed to Carnaby’s Black Cockatoo (see Table 4).

Table 4: Foraging evidence examples

Foraging Evidence Description	Example Image
<p>Marri fruits – foraging activity attributed to the Carnaby’s Black Cockatoo.</p>	

Quality foraging habitat within the survey area can mainly be defined as the areas containing marri. It is not possible to define the area of this resource as the trees are generally scattered amongst other unsuitable vegetation, but the total area is likely to be very small (i.e. less than 0.1 ha based on canopy extent).

Based on available mapping there is about 10,300 ha of remnant native vegetation within 12 km of the survey area (DPIRD 2021). Much of this is likely to represent black cockatoo foraging habitat of some type.

5.2.3.3 Night Roosting Habitat Assessment

No evidence of Black Cockatoos roosting within trees located within the survey area was observed during the survey period. It is difficult to determine if trees or groves of trees within the survey area represent potential roosting habitat as a range of factors, not all of which can be observed, determine suitability. Some of the larger trees (including non-endemics) may be suitable for roosting but as indicated no actual evidence of use was seen.

A review of the 2019 Great Cocky Count database shows no documented roost sites within the survey area. The 2019 Great Cocky Count recorded the closest active roost, approximately five kilometres north east of the survey area (Site ID: BUSJINR001). This roost was being used by 30 “white-tailed black cockatoos” during the April 2019 survey (Peck *et al.* 2019). Another six documented roost sites (but not necessarily in current use) occur within 12 km of the survey area.

5.2.4 WESTERN RINGTAIL POSSUM ASSESSMENT

5.2.4.1 Daytime Survey

No evidence of western ringtail possum was observed during the day survey.

5.2.4.2 Night Time Survey

No WRPs were observed within the survey area during the nocturnal survey.

5.2.4.3 Habitat Assessment

Superficially the vegetation present within the survey area appears to represent potential WRP habitat given the presence of a dense midstorey/tall shrub layer. The fact that the species appears to be absent (or at best present in very low numbers) does however suggest that the majority of the vegetation present (Sydney golden wattle) maybe unpalatable to the species (at least when not flowering).

While it appears that WRP are not currently present within the survey area they may nonetheless occur occasional given they are known to occur in the wider area.

6. 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 general area, their likelihood of occurrence within the survey area itself has been assessed. A summary of this assessment is presented in Table 5.

Some comments on the possible impacts of any proposed development are also provided though as no development plan has been put forwards these are preliminary comments that should be reviewed as planning progresses.

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:

- Carnaby`s Black-Cockatoo *Zanda latirostris* –Endangered (*BC/EPBC Act*). Foraging evidence attributed to this species recorded. The survey area contains a small area of potential black cockatoo breeding habitat (trees with a DBH >50cm) but no actual hollows are present. The survey area contains a small area of foraging habitat i.e. marri and jarrah trees. No evidence of roosting observed.

Several additional species of conservation significance may utilise the survey area for some purpose at times, but their status on-site and/or in the general area is difficult to determine because they were not sighted during the field survey, or evidence of use was not observed:

- Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* – Vulnerable (*BC/EPBC Act*). No evidence of this species recorded. The survey area contains a small area of potential black cockatoo breeding habitat (trees with a DBH >50cm)

but no actual hollows are present. The survey area contains a small area of foraging habitat i.e. marri and jarrah trees. No evidence of roosting observed. Listed as a potential species based on available information

- Baudin's Black-Cockatoo *Zanda baudinii* – Endangered (BC/EPBC Act).
No evidence of this species recorded. The survey area contains a small area of potential black cockatoo breeding habitat (trees with a DBH >50cm) but no actual hollows are present. The survey area contains a small area of foraging habitat i.e. marri and jarrah trees. No evidence of roosting observed. Listed as a potential species based on available information.
- Peregrine Falcon *Falco peregrinus* – OS (BC Act)
This species potentially utilises some sections of the survey area as part of a much larger home range though it is only likely to occur infrequently. All areas represent potential foraging habitat for this species. No potential nest sites present. Listed as a potential species based on available information.
- Masked Owl *Tyto novaehollandiae* – P3 (BC Act Priority Species)
Status in the general area is difficult to determine. May utilise woodland areas within and near the survey area for roosting and may forage in more open areas. Probably only present occasionally and for short periods. No potential nest sites present. Listed as a potential species based on available information.
- Western Ringtail Possum *Pseudocheirus occidentalis* – Critically Endangered (BC/EPBC Act)
No evidence of this species was observed. May occur occasionally as transient individuals. Listed as a potential species based on available information.
- Quenda *Isodon fusciventer* – P4 (BC Act Priority Species)
Areas of dense groundcover in and near the survey area represent potential habitat for this species. May at least forage within the survey area on occasions. Listed as a potential species based on available information.
- Western False Pipistrelle *Falsistrellus mackenziei* – P4 (DBCA Priority Species)
Would not roost within the survey area but may forage overhead at night while moving around the wider area. Listed as a potential species based on available information.

A number of other species of conservation significance (as listed in Table 5), while possibly present in the larger bush remnants in the wider area (e.g. State forest /reserve areas) are not listed as potentially occurring within the survey area primarily due to a complete lack of suitable habitat (quality and extent) and/or known local/regional extinction.

In cases where available information indicates at least some probability of these species occurring, likely impacts are anticipated to be very low primarily due to likely low degree of usage, low population densities and the very small total area of native vegetation/habitat present.

No overall change in the conservation status of any fauna species currently utilising the survey area is therefore anticipated. While some small, localised residual loss of fauna

habitat may occur for some species, regional impacts on the status of any one species are anticipated to be negligible/non-existent.

Table 5: Likelihood of Occurrence – Fauna Species of Conservation Significance

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act	EPBC Act				
Carter's Freshwater Mussel <i>Westralunio carteri</i>	VU	VU	Occurs in greatest abundance in slower flowing streams with stable sediments that are soft enough for burrowing amongst woody debris and exposed tree roots.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Dunsborough Burrowing Crayfish <i>Engaewa reducta</i>	EN	CE	Vegetated surface seepages, swamp plains and shallow swampy headwater tributaries.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Margaret River Burrowing Crayfish <i>Engaewa pseudoreducta</i>	CR	CE	Narrow creek tributaries of the Margaret River which are densely vegetated on heavy grey/yellow clay soils.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Balston's Pygmy Perch <i>Nannatherina balstoni</i>	VU	VU	Acidic, tannin stained freshwater pools, streams and lakes within 30km of the coast, typically situated amongst peat flats. Prefers shallow water and is commonly found in association with tall sedge thickets.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Australasian Bittern <i>Botaurus poiciloptilus</i>	EN	EN	Freshwater wetlands, occasionally estuarine; prefers heavy vegetation such as beds of tall dense <i>Typha</i> , <i>Baumea</i> and sedges in freshwater swamps.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Migratory Shorebirds/Wetland Species/Marine Species (various reptiles, birds and mammals)	MI, Various	Ma, Mig, Various	Varies between species but includes open ocean, beaches and permanent/temporary wetlands varying from billabongs, swamps, lakes, floodplains, sewerage farms, saltwork ponds, estuaries, lagoons, mudflats sandbars, pastures, airfields, sports fields and lawns.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Peregrine Falcon <i>Falco peregrinus</i>	OS	-	Diverse from rainforest to arid shrublands, from coastal heath to alpine Mainly about cliffs along coasts, rivers and ranges and about wooded watercourses and lakes.	Yes	Possibly Occurs.	May forage in general area, no suitable nest hollows. Loss/modification of very small areas of habitat. No significant impact on this species will occur.
Grey Falcon <i>Falco hypoleucos</i>	VU	VU	Lightly treed plains, gibber deserts, sand ridges, pastoral lands, timbered water courses but seldom in driest deserts	No	Would Not Occur.	Rarely if ever recorded in the lower southwest. No impact on this species will occur.
Masked Owl (SW population) <i>Tyto n. novaehollandiae</i>	P3	-	Roosts and nests in heavy forest, hunts over open woodlands and farmlands.	Yes	Possibly Occurs.	May forage in general area, no suitable nest hollows. Loss/modification of very small areas of habitat. No significant impact on this species will occur.
Carnaby's Black Cockatoo <i>Zanda latirostris</i>	EN	EN	Forests, woodlands, heathlands, farms; feeds on <i>Banksia</i> , <i>Hakea</i> and Marri.	Yes	Known to Occur.	Loss/modification of very small areas of habitat. No suitable nest hollows. Negligible impact anticipated.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act	EPBC Act				
Baudin`s Black Cockatoo <i>Zanda baudinii</i>	EN	EN	Mainly eucalypt forests where it feeds primarily on the marri seeds.	Yes	Possibly Occurs.	Loss/modification of very small areas of habitat. No suitable nest hollows. Negligible impact anticipated.
Forest Red-tailed Black Cockatoo <i>Calyptorhynchus banksii naso</i>	VU	VU	Eucalypt forests, feeds on marri, jarrah, blackbutt, karri, sheoak and snottygobble.	Yes	Possibly Occurs.	Loss/modification of very small areas of habitat. No suitable nest hollows. Negligible impact anticipated.
Fork-tailed Swift <i>Apus pacificus</i>	MI	Ma, Mig	Low to very high airspace over varied habitat from rainforest to semi desert.	Yes	Unlikely to Occur, Flyover only on very rare occasions.	May occur very occasionally for brief periods. Entirely aerial. No impact on this species will occur.
Grey Wagtail <i>Motacilla cinerea</i>	MI	Mig, Ma	In Australia, near running water in disused quarries, sandy, rocky streams in escarpments and rainforest, sewerage ponds, ploughed fields and airfields.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Chuditch <i>Dasyurus geoffroii</i>	VU	VU	Forest, mallee shrublands, woodland and desert. The densest populations have been found in riparian jarrah forest.	No	Would Not Occur.	Fragmented and degraded state of habitat within and around the survey area suggests this species is unlikely to persist. No impact on this species will occur.
Quenda <i>Isodon fusciventer</i>	P4	-	Dense scrubby, often swampy, vegetation with dense cover.	Yes/Marginal	Possibly Occurs.	Loss/modification of very small areas of degraded habitat. Negligible impact anticipated.
South-west Brush-tailed Phascogale <i>Phascogale tapoatafa wambenger</i>	CD	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover.	No/Marginal	Unlikely to Occur,	Poor quality habitat for this species given the lack of tree hollows but the survey area may represent part of a larger home range used by individuals of this species for foraging. No suitable nest hollows observed. No significant impact on this species anticipated.
Western Ringtail Possum <i>Pseudocheirus occidentalis</i>	CR	CE	Coastal peppermint, coastal peppermint-tuart, jarrah-marri associations, sheoak woodland, and eucalypt woodland and mallee.	Yes/Marginal	Possibly Occurs.	Loss/modification of very small areas of degraded habitat. Negligible impact on species status anticipated.
Woylie <i>Bettongia penicillata ogiby</i>	CR	EN	Open sclerophyll forest and woodland with a low, dense, understorey of tussock grasses or woody scrub.	No	Would Not Occur.	This species is locally extinct. No impact on this species will occur.
Western Brush Wallaby <i>Macropus irma</i>	P4	-	Open forest or woodland, particularly favouring open, seasonally wet flats with low grasses and open scrubby thickets.	No	Would Not Occur.	Fragmented and degraded state of habitat within and around the survey area suggests this species is unlikely to persist. No impact on this species will occur.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act	EPBC Act				
Western False Pipistrelle <i>Falsistrellus mackenziei</i>	P4	-	Wet sclerophyll forest dominated by karri and in high rainfall zones of the jarrah and marri forest.	Yes	Possibly Occurs.	May forage in general area, no suitable roost hollows. No impact on this species will occur.
Water Rat <i>Hydromys chrysogaster</i>	P4	-	Permanent water, fresh, brackish or marine.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.

See Appendix A for conservation status codes

7. CONCLUSION

The fauna assessment within the survey area was primarily undertaken to document black cockatoo habitat and to determine the possible presence of western ringtail possums and other conservation significant fauna species and/or their habitat.

The fauna habitats present are completely degraded given the almost complete absence of any native plant species. With respect to fauna in general the survey area does not represent habitat of any significance and given the degree of disturbance the original fauna assemblage within the survey area is likely to be depauperate in many aspects, in particular with respect to ground dwelling species which rely on dense native understory (midstorey and ground cover) vegetation, which is almost absent or very sparse in most areas.

Black cockatoo habitat within the survey area is limited to a very small number of habitat trees (DBH >50cm) none of which have any existing hollows. These same trees (and some smaller specimens) also represent black cockatoo foraging habitat. No evidence of black cockatoos roosting within the survey area was noted.

No evidence of western ringtail possums utilising the survey area was found though given they occur in the wider area it has been concluded that individuals may occasionally pass through the survey area at times.

No evidence of any other fauna species of conservation significance identified during the literature review was observed. However, this does not eliminate the potential for some species to still occur, if only infrequently.

In summary one vertebrate fauna species of conservation significance were positively identified as utilising the survey area:

- Carnaby's Black Cockatoo – Endangered (WA/Federal)

Several additional species of conservation significance may also utilise the survey area, though, as no evidence of their presence was identified during the field survey, their actual status in the area remains uncertain:

- Peregrine Falcon – OS (WA);
- Masked Owl – Priority 3 (Priority Species);
- Forest Red-tailed Black Cockatoo – Vulnerable (WA/Federal);
- Baudin's Black Cockatoo – Endangered (WA/Federal);
- Western Ringtail Possum – Critically Endangered (WA/Federal);
- Quenda - Priority 3 (Priority Species);
- Western False Pipistrelle – Priority 4 (DBCA Priority Species).

In cases where available information indicates at least some probability of these species occurring, likely impacts are anticipated to be very low primarily due to likely low degree of usage, low population densities and the very small total area of native vegetation/habitat present.

No overall change in the conservation status of any fauna species currently utilising the survey area is therefore anticipated if clearing of some or all of the vegetation present. While some small, localised residual loss of fauna habitat may occur for some species, regional impacts on the status of any one species are anticipated to be negligible/non-existent.

8. REFERENCES

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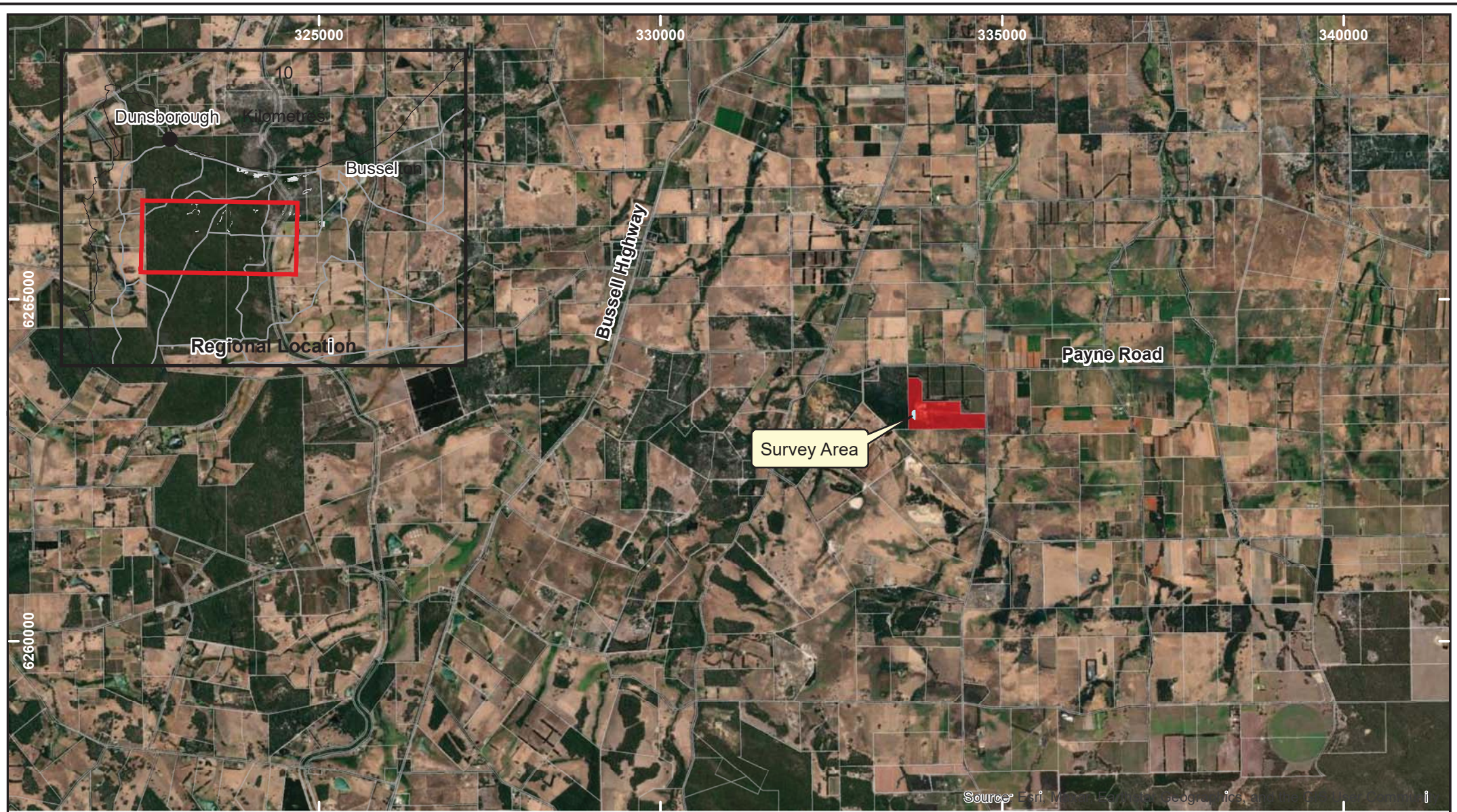
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FIGURES



Legend

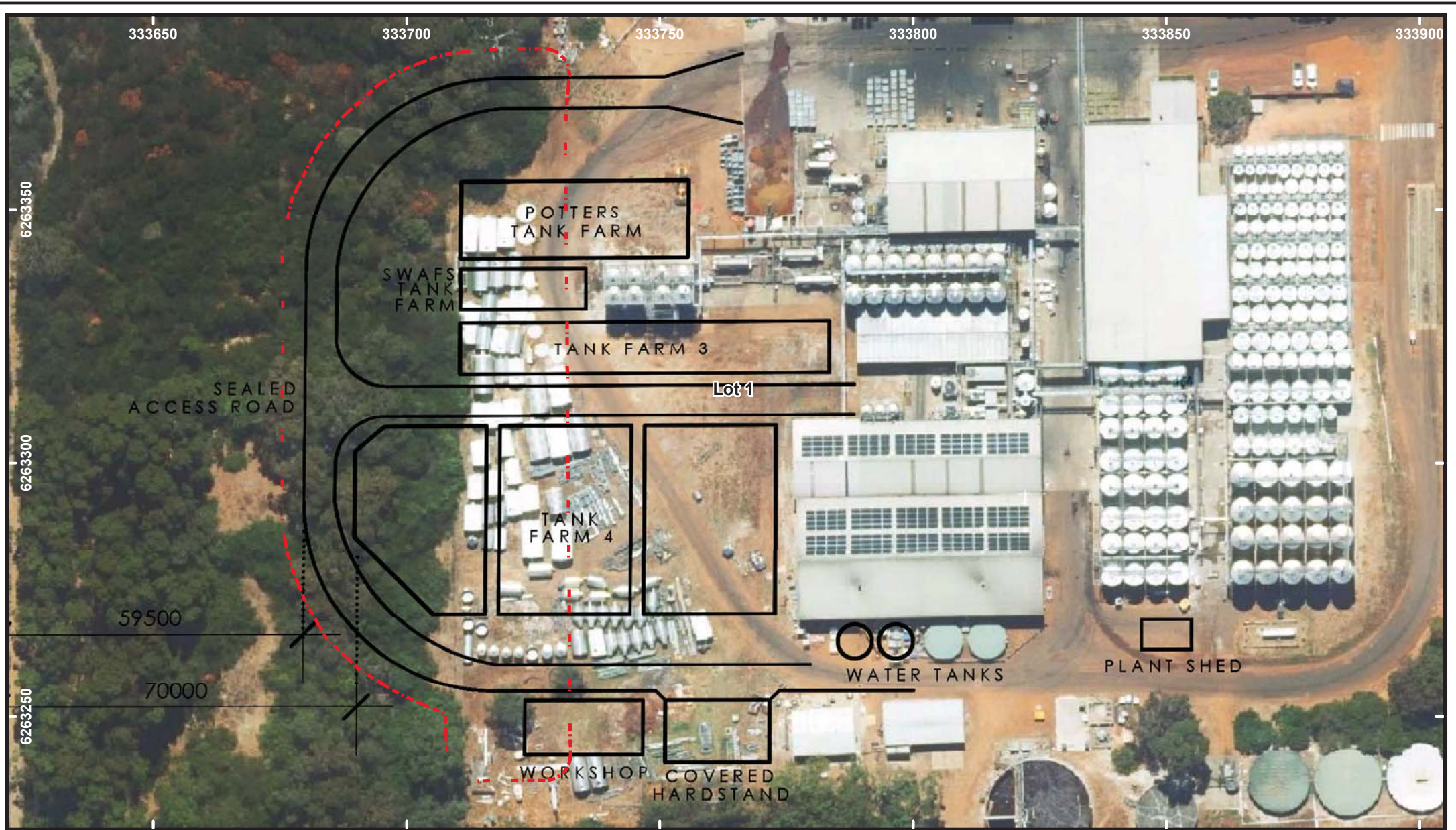
- Lot 1
- Survey Area




Drawn: G Harewood
 Date: 07-Jan-23
 Scale: 1:75,000

Margaret River Vintners
 Lot 1 - Payne Road
 Kaloorup

**Survey Area
 and
 Surrounds**



Legend

 Survey Area



0 10 20 30 40 50
Metres



Drawn: G Harewood
Date: 07-Jan-23
Scale: 1:1,000

Margaret River Vintners
Lot 1 - Payne Road
Kaloorup

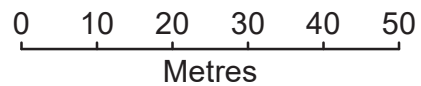
Proposed Expansion Works

Projection/Coordinate System: UTM/MGA Zone 50 Figure: 2



Legend

 Survey Area



Drawn: G Harewood
Date: 07-Jan-23
Scale: 1:1,000

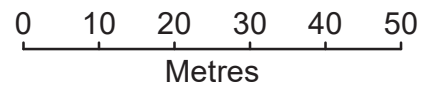
Margaret River Vintners
Lot 1 - Payne Road
Kalgoorup

Survey Area Aerial Photograph



Legend

- - - Survey Area
- Habitat Tree - No hollows observed



Drawn: G Harewood
 Date: 07-Jan-23
 Scale: 1:1,000

Margaret River Vintners
 Lot 1 - Payne Road
 Kaloorup

**Habitat Trees
 (DBH >50cm)**

APPENDIX A

CONSERVATION CATEGORIES

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
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 asterisk are matters of national environmental significance (NES) under the *EPBC Act*.

Biodiversity Conservation Act 2016 (BC Act)
Specially Protected Fauna Categories

Biodiversity Conservation (Listing of Native Species) (Fauna) Order 2022, made by the Minister under sections 13(1), 19(1) and 23(1) of the Act and regulation 174(1) of the Biodiversity Conservation Regulations 2018

Threatened Species		
Category	Code	Description
Critically Endangered species	CR	Species facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines
Endangered species	EN	Species facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines.
Vulnerable species	VU	Species facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines.
Presumed extinct species	EX	Species where there is no reasonable doubt that the last member of the species has died.
Extinct in the wild species	EW	Species that is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and from.
Specially Protected Species		
Category	Code	Description
Migratory Species	MI	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the <i>BC Act</i>)
Species of special conservation interest (conservation dependent)	CD	Species of special conservation need that are dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the <i>BC Act</i>).
Species otherwise in need of special protection (other specially protected).	OS	Species otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the <i>BC Act</i>).

Priority Species*		
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, for example, 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 for threatened listing and appear to be under immediate threat from known threatening processes. These 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, for example, 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 for threatened listing and appear to be under threat from known threatening processes. These 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. These species need 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>

*Priority is not a listing category under the BC Act.

All fauna and flora are protected in WA following the provisions in Part 10 of the *BC Act*. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land). Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened. Species that are adequately known, meet criteria for near threatened, or are rare but not threatened, or that have been recently removed from the threatened species list or conservation dependent or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Assessment of priority status 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.

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:

<https://www.iucnredlist.org/resources/categories-and-criteria>

APPENDIX B
NATUREMAP DATABASE SEARCH
AND
PROTECTED MATTERS SEARCH TOOL RESULTS

Nature Map - Conservation Significant Species - 10km Radius

Common	Taxon	Class	WA Status	EPBC Status
woylie, brush-tailed bettong	<i>Bettongia penicillata ogilbyi</i>	MAMMAL	CR	EN
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	BIRD	MI	MI
forest red-tailed black cockatoo	<i>Calyptorhynchus banksii naso</i>	BIRD	VU	VU
Baudin's cockatoo	<i>Calyptorhynchus baudinii</i>	BIRD	EN	EN
Carnaby's cockatoo	<i>Calyptorhynchus latirostris</i>	BIRD	EN	EN
chuditch, western quoll	<i>Dasyurus geoffroii</i>	MAMMAL	VU	VU
Margaret River burrowing crayfish	<i>Engaewa pseudoreducta</i>	INVERTEBRATE	CR	CR
Dunsborough burrowing crayfish	<i>Engaewa reducta</i>	INVERTEBRATE	EN	CR
peregrine falcon	<i>Falco peregrinus</i>	BIRD	OS	
water-rat, rakali	<i>Hydromys chrysogaster</i>	MAMMAL	P4	
quenda, southwestern brown bandicoot	<i>Isodon fusciventer</i>	MAMMAL	P4	
western brush wallaby	<i>Notamacropus irma</i>	MAMMAL	P4	
south-western brush-tailed phascogale, wambenger	<i>Phascogale tapoatafa wambenger</i>	MAMMAL	CD	
western ringtail possum, ngwayir	<i>Pseudocheirus occidentalis</i>	MAMMAL	CR	CR
Carter's freshwater mussel	<i>Westralunio carteri</i>	INVERTEBRATE	VU	VU

NatureMap Search - 10km Radius

Row Labels	COUNT
Animalia	1464
AMPHI	147
Crinia georgiana	4
Crinia insignifera	86
Crinia pseudinsignifera	11
Crinia sp.	7
Heleioporus eyrei	19
Heleioporus psammophilus	9
Limnodynastes dorsalis	1
Pseudophryne guentheri	10
BIRD	343
Acanthiza apicalis	9
Acanthiza chrysorrhoa	8
Acanthiza inornata	2
Acanthorhynchus superciliosus	4
Accipiter cirrocephalus	1
Accipiter fasciatus	3
Aegotheles cristatus	1
Anas gracilis	2
Anas superciliosa	6
Anthochaera carunculata	11
Aquila audax	3
Ardea ibis	2
Artamus cyanopterus	3
Barnardius zonarius	7
Cacatua sanguinea	2
Cacomantis flabelliformis	1
Calyptorhynchus banksii	4
Calyptorhynchus banksii subsp. naso	7
Calyptorhynchus baudinii	9
Calyptorhynchus latirostris	6
Calyptorhynchus sp.	3
Calyptorhynchus sp. 'white-tailed black cockatoo'	7
Chenonetta jubata	3
Cincloramphus mathewsi	1
Climacteris rufa	1
Colluricincla harmonica	6
Coracina novaehollandiae	7
Corvus coronoides	10
Coturnix pectoralis	1
Cracticus tibicen	10
Cracticus torquatus	9
Dacelo novaeguineae	7
Daphoenositta chrysoptera	2
Egretta novaehollandiae	3
Elseya melanops	3
Eopsaltria georgiana	5
Eopsaltria griseogularis	8
Falco cenchroides	4

<i>Falco longipennis</i>	1
<i>Gavialis virescens</i>	1
<i>Gerygone fusca</i>	8
<i>Glossopsitta porphyrocephala</i>	2
<i>Grallina cyanoleuca</i>	5
<i>Haliaeetus leucogaster</i>	1
<i>Haliastur sphenurus</i>	1
<i>Hamirostra isura</i>	1
<i>Hieraaetus morphnoides</i>	1
<i>Hirundo neoxena</i>	6
<i>Lichmera indistincta</i>	5
<i>Lophoictinia isura</i>	1
<i>Malurus elegans</i>	1
<i>Malurus splendens</i>	6
<i>Melithreptus chloropsis</i>	1
<i>Melithreptus lunatus</i>	1
<i>Merops ornatus</i>	1
<i>Microcarbo melanoleucos</i>	1
<i>Neophema elegans</i>	3
<i>Ocyphaps lophotes</i>	1
<i>Pachycephala pectoralis</i>	5
<i>Pachycephala rufiventris</i>	7
<i>Pachyptila desolata</i>	1
<i>Pardalotus striatus</i>	7
<i>Pelecanus conspicillatus</i>	1
<i>Petrochelidon nigricans</i>	3
<i>Petroica boodang</i>	3
<i>Phalacrocorax sulcirostris</i>	1
<i>Phalacrocorax varius</i>	1
<i>Phaps chalcoptera</i>	11
<i>Phaps elegans</i>	1
<i>Phylidonyris novaehollandiae</i>	7
<i>Platycercus icterotis</i>	8
<i>Polytelis anthopeplus</i>	1
<i>Purpureicephalus spurius</i>	4
<i>Rhipidura albiscapa</i>	13
<i>Rhipidura fuliginosa</i> subsp. <i>preissi</i>	1
<i>Rhipidura leucophrys</i>	7
<i>Sericornis frontalis</i>	4
<i>Smicronis brevirostris</i>	1
<i>Stagonopleura oculata</i>	3
<i>Sterna vittata</i>	1
<i>Stipiturus malachurus</i> subsp. <i>westernensis</i>	1
<i>Strepera versicolor</i>	1
<i>Tachybaptus novaehollandiae</i>	2
<i>Tadorna tadornoides</i>	1
<i>Threskiornis molucca</i>	3
<i>Threskiornis spinicollis</i>	3
<i>Todiramphus sanctus</i>	2
<i>Trichoglossus haematodus</i>	2
<i>Zosterops lateralis</i>	7

Zosterops lateralis subsp. gouldi	1
FISH	8
Galaxias occidentalis	5
Nannoperca vittata	3
INVERT	370
Acariformes sp.	19
Aeshnidae sp.	4
Amphisopodidae sp.	1
Ancylidae sp.	4
Baetidae sp.	1
Caenidae sp.	6
Ceratopogonidae sp.	5
Cercophonius sulcatus	1
Cherax cainii	2
Cherax quinquecarinatus	3
Chironominae sp.	24
Coenagrionidae sp.	1
Corduliidae sp.	6
Corixidae sp.	8
Culicidae sp.	6
Dytiscidae sp.	16
Empididae sp.	1
Engaewa pseudoreducta	2
Engaewa reducta	36
Engaewa similis	3
Gripopterygidae sp.	14
Gyrinidae sp.	4
Hemicorduliidae sp.	3
Hydraenidae sp.	2
Hydrometridae sp.	1
Hydrophilidae sp.	10
Hydroptilidae sp.	7
Hyriidae sp.	2
Leptoceridae sp.	15
Leptophlebiidae sp.	17
Lestidae sp.	1
Libellulidae sp.	1
Megapodagrionidae sp.	2
Neoniphargidae sp.	6
Notonectidae sp.	3
Oligochaeta sp.	13
Orthoclaadiinae sp.	16
Palaemonidae sp.	9
Parastacidae sp.	18
Perthiidae sp.	16
Physidae sp.	1
Pyralidae sp.	1
Richardsonianidae sp.	1
Scirtidae sp.	4
Simuliidae sp.	14
springtail sp.	3

Staphylinidae sp.	1
Styloniscidae sp.	1
Synthemistidae sp.	1
Tanypodinae sp.	11
Telephlebiidae sp.	3
Temnocephalidea sp.	2
Tipulidae sp.	3
Urodacus novaehollandiae	1
Veliidae sp.	11
Westralunio carteri	3
MAMMAL	377
Austronomus australis	1
Cercartetus concinnus	1
Chalinolobus gouldii	2
Chalinolobus morio	2
Dasyurus geoffroyi	2
Hydromys chrysogaster	5
Isoodon fusciventer	12
Macropus fuliginosus	41
Mus musculus	12
Notamacropus irma	1
Nyctophilus geoffroyi	2
Nyctophilus gouldi	1
Nyctophilus major major	1
Ozimops kitcheneri	1
Phascogale tapoatafa subsp. tapoatafa	1
Phascogale tapoatafa subsp. wambenger	11
Phascogale tapoatafa wambenger	15
Pseudocheirus occidentalis	106
Pseudorca crassidens	1
Rattus rattus	57
Tarsipes rostratus	1
Trichosurus vulpecula	64
Trichosurus vulpecula subsp. vulpecula	2
Vespadelus regulus	2
Vulpes vulpes	33
REPTILE	219
Acritoscincus trilineatus	8
Anilios ammodytes	2
Aprasia pulchella	3
Christinus marmoratus	1
Egernia kingii	25
Egernia napoleonis	6
Hemiergis peronii subsp. tridactyla	2
Hemiergis peronii tridactyla	7
Lerista elegans	42
Menetia greyii	26
Morethia lineocellata	82
Pogona minor minor	1
Pseudonaja affinis subsp. affinis	2
Ramphotyphlops australis	1

Tiliqua rugosa	11
Grand Total	1464



Australian Government

Department of Climate Change, Energy,
the Environment and Water

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. Please see the caveat for interpretation of information provided here.

Report created: 28-Dec-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment 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 (Ramsar)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	29
Listed Migratory Species:	8

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 <https://www.dcceew.gov.au/parks-heritage/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 Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	11
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	3
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	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.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area
Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community may occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	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

Scientific Name	Threatened Category	Presence Text
<u>Zanda baudinii listed as Calyptorhynchus baudinii</u>		
Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding likely to occur within area
<u>Zanda latirostris listed as Calyptorhynchus latirostris</u>		
Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat likely to occur within area
CRUSTACEAN		
<u>Engaewa pseudoreducta</u>		
Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat likely to occur within area
<u>Engaewa reducta</u>		
Dunsborough Burrowing Crayfish [82675]	Critically Endangered	Species or species habitat known to occur within area
FISH		
<u>Nannatherina balstoni</u>		
Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat may occur within area
MAMMAL		
<u>Dasyurus geoffroii</u>		
Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
<u>Pseudocheirus occidentalis</u>		
Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat may occur within area
PLANT		
<u>Banksia mimica</u>		
Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area
<u>Banksia nivea subsp. uliginosa</u>		
Swamp Honeypot [82766]	Endangered	Species or species habitat likely to occur within area
<u>Banksia squarrosa subsp. argillacea</u>		
Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat likely to occur within area
<u>Brachyscias verecundus</u>		
Ironstone Brachyscias [81321]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Caladenia busselliana Bussell's Spider-orchid [24369]	Endangered	Species or species habitat likely to occur within area
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat may occur within area
Chamelaucium sp. S coastal plain (R.D.Royce 4872) Royce's Waxflower [87814]	Vulnerable	Species or species habitat may occur within area
Daviesia elongata subsp. elongata Long-leaved Daviesia [64883]	Vulnerable	Species or species habitat may occur within area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat may occur within area
Drakaea elastica Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat may occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
Gastrolobium papilio Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area
Grevillea brachystylis subsp. grandis Large-flowered Short-styled Grevillea [85001]	Critically Endangered	Species or species habitat known to occur within area
Lambertia echinata subsp. occidentalis Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat may occur within area
Petrophile latericola Laterite Petrophile [64532]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Verticordia plumosa var. ananeotes Tufted Plumed Featherflower [23871]	Endangered	Species or species habitat likely to occur within area
Verticordia plumosa var. vassensis Vasse Featherflower [55804]	Endangered	Species or species habitat may occur within area

Listed Migratory Species [[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text
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
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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 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
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine 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 overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Protected Area Name	Reserve Type	State
Sussex Location 2561	NRS Addition - Gazettal in Progress	WA

Regional Forest Agreements [\[Resource Information \]](#)

Note that all areas with completed RFAs have been included.

RFA Name	State
South West WA RFA	Western Australia

EPBC Act Referrals [\[Resource Information \]](#)

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed
Not controlled action (particular manner)			
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and 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

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

Where little information is available for a 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 detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

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.

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APPENDIX C

HABITAT TREE DETAILS

Habitat Trees (DBH >50cm)

Datum - GDA94

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

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	DBH (cm)	Number of Hollows	Estimated Hollow Entrance Size	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow
wpt029	50H	333707	6263245	Jarrah	20+	>50	0				No
wpt030	50H	333684	6263295	Marri	20+	>50	0				No
wpt031	50H	333681	6263292	Dead Marri	20+	>50	0				No
wpt032	50H	333677	6263297	Marri	15-20	>50	0				No
wpt033	50H	333681	6263309	Marri	15-20	>50	0				No

DISCLAIMER

This fauna assessment report (“the report”) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Greg Harewood (“the Author”). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. In accordance with the scope of services, the Author has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

The conclusions 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 preparing the report. Also it should be recognised that site conditions, can change with time.

Within the limitations imposed by the scope of services, the field assessment and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

In preparing the report, the Author has relied upon 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 (“the data”). Except as otherwise stated in the report, the Author has not verified the accuracy of completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (“conclusions”) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. The Author will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to the Author.

The report has been prepared for the benefit of the Client and no other party. The Author 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 the Author or for any loss or damage suffered by any other party relying upon 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.

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