Fauna Assessment

Lot 751
Donnybrook-Boyup Brook Road

Beelerup

August 2025
V1

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TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

SUMMARY

This report details the results of a fauna assessment over Lot 751 Beelerup (the survey area). Lot 751 has a total area of 37.33 hectares (ha) and contains areas of totally cleared land and remnant native bushland most of which is regrowth from historical clearing.

The landowners (Smith Sands Pty Ltd) have applied for a clearing permit (CPS 10758/1) to clear up to 3.55 ha of native vegetation from within Lot 751 for the purpose of sand extraction. Upon review of the clearing permit application DWER has issued a request for further information relating fauna.

The scope of works has been formulated to fulfil DWER anticipated requirements and has included a “basic” fauna assessment, a targeted survey for black cockatoo habitat and surveys for the western ringtail possum (*Pseudocheirus occidentalis*).

The field component of the fauna assessment was carried out on the 5 November 2013, the 22 June 2025, the 9, 16 and 17 August 2025. Nocturnal surveys were carried out on the 5 November 2013 and the 20 August 2025. All survey work was completed by Greg Harewood (Zoologist).

Key Findings

- The survey area has been subject to considerable historical disturbances and now consists of a mosaic of cleared, partly cleared and vegetated areas. Disturbances apparent included previous sand extraction activities (existing pits and cleared areas), livestock grazing, horse riding activities, logging and common evidence of the effects of dieback (dead jarrah and banksia trees). Much of the vegetation now present is regrowth that has occurred subsequent to previous clearing, partial clearing and plant death from disease. MBS (2025) have estimated that the amount of vegetation present within the survey area covers about 22.66 ha of the 37.33 survey area (~60.7%). To put this area of vegetation in perspective there is about 21,000 ha of remnant native vegetation within 12 kilometres (km) of the survey area (DPIRD 2025).

- The better quality vegetation, where present, consists primarily of an open forest of jarrah (*Eucalyptus marginata*) over a low open woodland of *Banksia attenuata*, *Nuytsia floribunda* and *Xylomelum occidentale* over an open heath/open low heath containing *Xanthorrhoea preissii* and *Macrozamia riedlei*. In some areas a low open woodland of *banksia* predominates and jarrah is present as scattered emergent trees. Areas of the above-mentioned units in poorer condition lack native groundcover and weeds or bare sand dominate.

- Paperbark *(Melaleuca preissiana)* in association with *Nuytsia floribunda* forms a low very open woodland with some emergent jarrah in the north - east corner of the southern section of the survey area.

- Marri (*Corymbia calophylla*) is relatively uncommon and is only represented by a small number of specimens in the north of the survey area and as a few scattered individuals in the better quality vegetation in the southern section of Lot 751.

- The vegetation within the degraded/highly degraded areas varies from tall shrubland (*Kunzea glabrescens*) to a very open low shrubland or very open woodland over bare sand.

- A small manmade dam is present in the far north-east section of the survey area. This is surrounded by areas of a flooded gum (*Eucalyptus rudis*) low open woodland over tall shrubland and bracken fern. A small number of non-endemic eucalypts, that appear to have self-propagated from specimens in the neighbouring property, are also present.

- As a consequence of its history of disturbance the survey area as a whole is only likely to support a depleted range of its original fauna assemblage, with most fauna present being common, widespread bird species. The absence of groundcover in many areas has lowered the sites value to ground dwelling fauna species considerably. The is also a paucity of hollow bearing trees and fallen hollow logs. The better quality vegetation in the extreme southern section of the site is continuous with vegetation of a similar type that extends into vacant crown land, which in turn adjoins further south to an unnamed DBCA managed reserve (R 26238 - Ryall Block). This area has a better capacity to support a wider range of fauna species including those that require larger remnants to persist.

- Despite its history of disturbance, the vegetation present still represents habitat suitable for some species of conservation significance such as black cockatoos which are using the area as a foraging resource to some degree. Some of the habitat present also appears, at least superficially, to be suitable for other species of conservation significance though no evidence of any other species presence was not found during the survey period.

- The black cockatoo breeding habitat assessment identified 332 trees within the survey area with a DBH of >30cm. Most of these trees (306) appeared to not contain hollows of any size. Twenty five (25) trees contained apparent or obvious hollows, all of which were assessed as being unlikely to be suitable for black cockatoos to currently use for nesting purposes.

- One tree was assessed as having one large hollow possibly suitable for black cockatoos to use for nesting purposes (Tee ID : 14). This hollow (a large side entry/knot hole 5 m from ground level) did however appear to have been used recently by Australian wood ducks. The hollow entrance also showed no evidence of chipping/chew marks often associated with black cockatoo nesting activity. This suggests that while the hollow may be suitable, it appears not to have been used by black cockatoos.

- Evidence of black cockatoos foraging within the survey area was found in the form of chewed marri fruits, jarrah fruits and banksia cones at a number of locations. Where possible this evidence was attributed one of the three species of black cockatoo based on the nature of the foraging activity.

- Bamford Consulting Ecologist's (BCE 2020) foraging score method returned an overall value of "moderate" (4, 5 or 6 out of 10) for the areas of vegetation which contain jarrah, marri and/or banksia for all species of black cockatoo. This was mainly because of the

presence of plant species with at least moderate foraging value but with additional points not acquired due to the area's small contribution to the estimated local resource (15km radius). The small area of marri woodland attained the higher score of 6 given it is relatively dense and is a foraging resource favoured by all three species.

- Areas lacking favoured foraging species returned a score of 0 for black cockatoo species given they have little or no foraging value.
- Application of the Department of Climate Change, Energy, the Environment and Water's (DCCEEW)(Commonwealth of Australia 2022) Foraging Quality Scoring Tool to the entire survey area as one results in a high quality foraging score for all three species of black cockatoo (10 out of 10).
- No existing roosting trees (trees used at night by black cockatoos to rest) or roosting activity was positively identified during the survey. The closest documented and recently active cockatoo roost site is located about five kilometres north west of the survey area.
- Forty six fauna species (mainly common bird species) have been observed or secondary evidence of their presence recorded during the various field surveys. During this time three vertebrate fauna species of conservation significance were positively identified as utilising the survey area:
    - Carnaby`s Cockatoo – Endangered (WA/Federal).
    - Baudin's Cockatoo – Endangered (WA/Federal)
    - Forest Red-tailed Black Cockatoo – Vulnerable (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 status in the area remains uncertain:
    - Peregrine Falcon – OS (WA).
    - Masked Owl– P3 (WA).
    - Chuditch - Vulnerable (WA/Federal).
    - Quenda – P4 (WA).
    - South-west Brush-tailed Phascogale – CD (WA).
    - Western Ringtail Possum – Critically Endangered (WA/Federal).
    - Western False Pipistrelle - P4 (WA)

In cases where some habitat is present and available information indicates at least some probability of the species occurrence, likely impacts are anticipated to most likely to be related to the loss of a small area of habitat and the potential for some species to be killed

or injured during clearing. This in particular relates to those species that utilise hollow bearing trees for daytime refuge and some ground-based species that seek daytime refuge in burrows, fallen hollow logs/log piles or dense undergrowth.

- The potential presence of some fauna species will need to be taken into consideration during ongoing planning and during the approval process. If approval for the proposal is granted, consideration should be given to the implementation of a fauna management plan, in particular during clearing.

1. INTRODUCTION

This report details the results of a fauna assessment over Lot 751 Beelerup (Certificate of Title Volume 2648 as Lot 751 on Diagram 49008) (the survey area). Lot 751 has a total area of 37.33 hectares (ha) and contains areas of totally cleared land and remnant native bushland most of which is regrowth from historical clearing (Figures 1 & 2).

The landowners (Smith Sands Pty Ltd) have applied for a clearing permit (CPS 10758/1) under section 51E(1) of the *Environmental Protection Act 1986* (the EP Act), to clear up to 3.55 ha of native vegetation from within Lot 751 for the purpose of sand extraction. The sand extraction project is being managed by Donnybrook Civil Earthmoving Contractors (DBCEC) on the landowner's behalf.

Upon review of the clearing permit application DWER has issued a request for further information (RFI) relating to flora and fauna. The assessment reported on here has been caried out to fulfil DWER's request for updated information in relation to fauna.

This report represents an update of a previous fauna assessment completed in 2013 (Harewood 2013). A targeted flora and vegetation survey was also recently completed by MBS Environmental (2025) and provides an update to a flora survey also carried out in 2013 (Daniel Marsh Botanical Consulting 2013).

Information obtained as part of this fauna assessment report will be used in conjunction with other environmental investigations to guide project planning which will aim to minimise potential environmental impacts. As indicated, the outcomes of the survey and information supplied in the fauna survey report will also be used to inform the environmental assessment and approvals process.

2. SCOPE OF WORKS

The scope of works has been formulated to fulfil DWER anticipated requirements and has included a "basic" fauna assessment, a targeted survey for black cockatoo habitat and surveys for the western ringtail possum (WRP) (*Pseudocheirus occidentalis*). The assessment has therefore involved:

- A basic (Level 1) Fauna Assessment (EPA 2020).
- Targeted searches for black cockatoo habitat/site use (habitat trees, existing and potential nest hollows, foraging and roosting habitat) with the aim of:
    - Determining the presence of black cockatoos.
    - Evaluate the habitat quality, including the presence of key foraging and breeding tree species.
    - Assess the availability of food sources, nesting hollows, potential habitat trees and overall suitability for black cockatoos.

- Targeted day and night searches for western ringtail possum habitat/site use (foraging, refuge and dispersal habitat and individuals).
- Opportunistic recording of other fauna encountered, with comments on the likelihood of other fauna of conversation significance occurring provided.
- Report for summarising methods and results.

Note: For the purposes of this report the term black cockatoo is in reference to Baudin's black cockatoo *Zanda baudinii*, Carnaby's black cockatoo *Zanda 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 (Dandjoo) search (DBCA 2025a). 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 2025). The minimum buffer (0 km) was applied to this search as the databases contains distribution data (areas) and not actual fauna records.

The conservation status of the listed fauna species has been assessed using data from the following sources:

- *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*). Administered by the DCCEEW.
- *Biodiversity Conservation Act 2016 (BC Act)*. Administered by the Western Australian DBCA (Govt. of WA 2025).
- Red List produced by the Species Survival Commission (SSC) of the World Conservation Union (also known as the IUCN Red List - the acronym derived from its former name of the International Union for Conservation of Nature and Natural Resources). The Red List has no legislative power in Australia but is used as a framework for State and Commonwealth categories and criteria, and the
- DBCA Priority Fauna list. A non-statutory list maintained by the DBCA for management purposes (DBCA 2025b).

The *EPBC Act* and *BC Act* also requires the compilation of a list of migratory species that are recognised under international treaties including the:

- Japan Australia Migratory Bird Agreement 1981 (JAMBA).
- China Australia Migratory Bird Agreement 1998 (CAMBA).
- Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA), and
- Bonn Convention 1979 (The Convention on the Conservation of Migratory Species of Wild Animals).

Most, but not all migratory bird species listed in the annexes to these bilateral agreements are also protected in Australia as matters of national environmental significance (MNES) under the EPBC Act. However, species only classified as 'marine" under the *EPBC Act* are not discussed as they are not considered as specially protected under the MNES classification.

The conservation status of the fauna species listed as occurring or possibly occurring in the vicinity of the survey area has been assessed using the most recent lists published in accordance with the above-mentioned instruments and is indicated as such in the fauna listings of this report. A full listing of conservation codes is provided in Appendix A.

3.2 FIELD SURVEYS

The field component of the fauna assessment was carried out on the 5 November 2013, the 22 June 2025, the 9, 16 and 17 August 2025. Nocturnal surveys were carried out on the 5 November 2013 and the 20 August 2025. GPS track logs from all surveys are shown in Figure 3. All survey work was completed by Greg Harewood (Zoologist).

3.2.1 FAUNA HABITAT ASSESSMENT

Vegetation units identified during the daytime reconnaissance survey have been used to define broad scale fauna habitats across the survey area. Information made available in the flora and vegetation reports (MBS 2025, DMBC 2013) has also been used.

The main aim of the habitat assessment was to determine which fauna species of conservation significance would be most likely to be utilising the survey area. 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.

3.2.2 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 12 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.

3.2.2.1 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 30 centimetres. The DBH of each tree was estimated using pre-made "calipers".

Target tree species included marri (*Corymbia calophylla*), jarrah (*Eucalyptus marginata*), flooded gum (*E. rudis*), tuart (*E. gomphocephala*) and any other *Corymbia/Eucalyptus* species of a suitable size that were 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 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.

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 five categories as defined by Commonwealth of Australia (2022):

- **Not a potential or suitable nesting tree** - Tree <30cm DBH or an unsuitable species (these were not recorded).
- **Potential nesting tree (no hollows)** - Tree ≥30cm DBH, no hollows seen.
- **Potential nesting tree (hollows or possible hollows)** - Tree ≥30cm DBH, one or more hollows seen, none of which were considered suitable for black cockatoos to use for nesting.
- **Suitable nesting tree** - Tree ≥30cm DBH, one or more hollows seen, with at least one considered suitable for black cockatoos to use for nesting, but with no evidence of use, or
- **Known nesting tree** - Tree ≥30cm DBH, one or more hollows seen, where black cockatoo breeding has been recorded or which demonstrates evidence of breeding (i.e. showing evidence of use through scratches, chew marks or feathers).

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. Where considered warranted, suspect hollows were also examined and photographed using a drone and/or pole mounted camera.

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.

3.2.2.2 Foraging Habitat Assessment

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.

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 documented irrespective of the presence of any actual foraging evidence.

Based on these observations (and other relevant information) the black cockatoo foraging value of each of the identified vegetation units present has been assessed for each of the three black cockatoo species using two methods, these being:

1. Bamford's scoring methodology - Bamford Consulting Ecologists (BCE 2020). Scoring system for the Assessment of Foraging Value of Vegetation for Black-Cockatoos.

2. DCCEEW's scoring methodology - Commonwealth of Australia (2022). Referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo. Commonwealth of Australia, Canberra, Australian Capital Territory.

The system developed by Bamford Consulting Ecologists (BCE) aims to provide an objective scoring system that is practical and can be used by trained field zoologists with experience in the environments frequented by the species.

The foraging value score used provides a numerical value out of 10 that reflects the significance of vegetation as foraging habitat for black cockatoos. This numerical value is designed to provide information to assist in the assessment of impact significance and offset requirements by the relevant regulatory authorities. The foraging value of the vegetation depends upon the type, density and condition of trees and shrubs in an area and can be influenced by the context such as the availability of foraging habitat nearby. The BCE scoring system for value of foraging habitat has three components as detailed below. These three components are drawn from the DCCEEW offsets guide (Commonwealth of Australia 2012) but the scoring approach was developed by BCE (2020) and includes a fourth (moderation) component.

Calculating the total score (out of 10) requires the following steps:

- Site Condition: Determining a score out of six for the vegetation composition, condition and structure.

- Site Context: Determining a score out of three for the context of the site.

- Species Stocking Rate: Determining a score out of one for species density, and.

- Moderation: Determining the total score out of 10, which may require moderation for context and species density with respect to the site condition (vegetation) score.

Foraging value can thus be assigned a score out of six, based upon site vegetation characteristics, or a score out of 10 if context and species density are also considered. The score out of 10 is calculated only for vegetation of at least Low to Moderate foraging value (vegetation characteristics score of ≥3). Vegetation with No, Negligible or Low foraging value is effectively assigned context and species density scores of '0' because the context and species density are of little relevance if the vegetation does not support regular foraging by the birds. Foraging value scores are calculated differently for the three black-cockatoo species depending upon the vegetation present (BCE 2020).

A full description of the process involved in calculating of scores and the moderation process are described in more detail in Appendix B.

The Commonwealth of Australia's (2022) referral guidelines for black cockatoos provide a method for determining foraging quality within the defined "impact area" of a development (Table A1 – Foraging quality scoring tool template – Appendix C). The foraging quality scoring tool has been developed to guide developers on what the DCCEEW views as important determinants of high-quality foraging habitat.

Habitat assessments and associated field observations of the impact area and in proximity to the impact area must be sufficient to complete the scoring tool, provide a solid justification for the score given to each attribute in the scoring tool and for supporting an overall appraisal of the foraging habitat quality on site.

The attributes the DCCEEW views as being important determinants of foraging habitat quality are:

- Foraging potential.
- Connectivity.
- Proximity to breeding.
- Proximity to night roosting, and
- Impact from significant plant disease.

If an impact site contains native vegetation used for foraging at any time by one or more of the black cockatoo species as described in the table (Appendix B), and is larger than 1 hectare in size, it is considered at face value to be of very high quality, important for recovery and therefore as having a score of 10. This is because black cockatoos rely on foraging resources to provide sufficient energy for breeding and to rebuild condition in the post-breeding period. The availability of foraging habitat, in close proximity to breeding and night roosting habitat, as well as watering sites, is also critical in ensuring that birds can successfully raise chicks.

The scoring tool includes consideration of the three components used in the *EPBC Act* Offsets Assessment Guide in the calculation of habitat quality (site condition, site context

and species stocking rate) by taking into account contextual factors that may lessen the quality of that habitat, to give you a final habitat quality score, i.e., you use the context adjustors to subtract from the starting score.

The DCCEEW scoring tool is to be applied once to the entire impact area of the proposed action, even if there is more than one type of foraging habitat, for example, *Banksia* woodland and heath, introduced eucalyptus trees and planted pines (*Pinus pinaster*). You will always start with a score of 10.

The scoring tool should be completed once for each black cockatoo species occurring within an impact area.

It is the developer's responsibility to define the impact area and consider indirect, offsite or facilitated impacts on black cockatoos, and include these areas in the definition of the impact area used in the calculations.

If there is insufficient evidence to determine what score a particular habitat attribute meets, one of two options can be considered:

- carry out additional targeted surveys, or
- apply the precautionary principle (i.e. assume the habitat is of sufficient quality to warrant referral).

A full description of the process involved in calculating scores using this method are described in more detail in Appendix C.

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.

3.2.2.3 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.

3.2.3 WESTERN RINGTAIL POSSUM ASSESSMENT

3.2.3.1 Daytime Surveys

Evidence of the presence of WRPs (i.e. dreys, obvious tree hollows, scats and individuals) was searched for and recorded during all the daytime field reconnaissance surveys. All areas of suitable vegetation were examined at least once.

3.2.3.2 Night Time Survey

Two night-time surveys to locate and record individual WRPs were carried out (one in November 2013 and one in August 2025). The surveys involved a series of transects around areas of suitable habitat, on foot using a LED head torch.

3.2.4 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.

This aspect of the fauna assessment included the deployment of five motion sensing cameras which were placed at various locations around the survey area on the 22 June 2025 and retrieved on the 9 August 2025 (48 Days). The location of the camera traps is shown in Figure 3.

3.3 LIKELIHOOD OF OCCURRENCE – FAUNA SPECIES OF CONSERVATION SIGNIFICANCE

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. The rankings and criteria used were:

- Would Not Occur: There is no suitable habitat for the species in the survey area and/or there is no documented record of the species in the general area since records have been kept and/or the species is generally accepted as being locally/regionally extinct (supported by a lack of recent records).
    - Locally Extinct: Populations no longer occur within a small part of the species natural range, in this case within 10 or 20km of the survey area. Populations do however persist outside of this area.
    - Regionally Extinct: Populations no longer occur in a large part of the species natural range, in this case within the central jarrah forest region. Populations do however persist outside of this area.
- Unlikely to Occur: The survey area is outside of the currently documented distribution for the species in question, or no suitable habitat (type, quality and

extent) was identified as being present during the field assessment. Individuals of some species may occur occasionally as vagrants/transients especially if suitable habitat is located nearby, but the survey area itself would not support a population or part population of the species.

- Possibly Occurs: The survey area is within the known distribution of the species in question and habitat of at least marginal quality was identified as being present during the field assessment, supported in some cases by recent records being documented in literature from within or near the survey area. In some cases, while a species may be classified as possibly being present at times, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

- Known to Occur: The species in question was positively identified as being present (for sedentary species) or as using the survey area as habitat for some other purpose (for non-sedentary/mobile species) during the field survey. This information may have been obtained by direct observation of individuals or by way of secondary evidence (e.g. foraging debris, tracks and scats). In some cases, while a species may be classified as known to occur, habitat may be marginal (e.g. poor quality, fragmented, limited in extent) and therefore the frequency of occurrence and/or population levels may be low.

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. Where considered warranted and if feasible a drone and/or pole camera was deployed to assist in assessing the characteristics of tree hollows.

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 Dandjoo database (DBCA 2025) and Protected Matter Search Tool (DCCEEW 2025) results, used as a primary source for compiling this listing, are held within Appendix D.

Several migratory shorebirds along with various wetland fauna species appeared in the database searches. These species are in most cases not specifically listed or discussed in this report given there is no suitable habitat for any within the survey area. None of these species would, under normal circumstances, occur within the survey area or be impacted on by the proposed development.

The likelihood of the below listed species occurring within the survey area is provided in Section 5.3 of the report.

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

Species	Conservation Status[1]	
	BC Act	*EPBC Act*
Carter's Freshwater Mussel *Westralunio carteri*	VU	VU
Pouched Lamprey *Geotria australis*	P3	-
Swan Coastal Plain Shield-backed Trapdoor Spider *Idiosoma sigillatum*	P3	-
Western Pygmy Trapdoor Spider *Bertmainius opimus*	P3	-
Vasse Pachysaga *Pachysaga strobila*	P1	-
Hairy Marron *Cherax tenuimanus*	CR	CR
Australasian Bittern *Botaurus poiciloptilus*	EN	EN
Migratory Shorebirds/Wetland Species	Various	Various
Peregrine Falcon *Falco peregrinus*	OS	-
Carnaby`s Cockatoo *Zanda latirostris*	EN	EN
Baudin`s Cockatoo *Zanda baudinii*	EN	EN
Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*	VU	VU
Masked Owl *Tyto novaehollandiae novaehollandiae*	P3	-
Fork-tailed Swift *Apus pacificus*	MI	Mig
Grey Wagtail *Motacilla cinerea*	MI	Mig
Chuditch *Dasyurus geoffroii*	VU	VU
Quenda *Isoodon fusciventer*	P4	-
South-western Brush-tailed Phascogale *Phascogale tapoatafa wambenger*	CD	-
Numbat *Myrmecobius fasciatus*	EN	EN

[1] See Appendix A for conservation status codes

Species	Conservation Status[1]	
	BC Act	*EPBC Act*
Western Ringtail Possum *Pseudocheirus occidentalis*	CR	CR
Quokka Setonix brachyurus	VU	VU
Woylie *Bettongia penicillata ogilbyi*	CR	EN
Western Brush Wallaby *Notamacropus irma*	P4	-
Water Rat *Hydromys chrysogaster*	P4	-
Western False Pipestrelle *Falsistrellus mackenziei*	P4	-

5.2 FIELD SURVEYS

5.2.1 FAUNA HABITAT ASSESSMENT

The survey area has been subject to considerable historical disturbances and now consists of a mosaic of cleared, partly cleared and vegetated areas. Disturbances apparent included previous sand extraction activities (existing pits and cleared areas), livestock grazing, horse riding activities, logging and common evidence of the effects of dieback (dead jarrah and banksia trees). Much of the vegetation now present is regrowth that has occurred subsequent to previous clearing, partial clearing and plant death from disease. MBS (2025) have estimated that the amount of vegetation present within the survey area covers about 22.66 ha of the 37.33 survey area (~60.7%). To put this area of vegetation in perspective there is about 21,000 ha of remnant native vegetation within 12 kilometres (km) of the survey area (DPIRD 2025).

The better quality vegetation, where present, consists primarily of an open forest of jarrah (*Eucalyptus marginata*) over a low open woodland of *Banksia attenuata, Nuytsia floribunda* and *Xylomelum occidentale* over an open heath/open low heath containing *Xanthorrhoea preissii* and *Macrozamia riedlei*. In some areas a low open woodland of banksia predominates and jarrah is present as scattered emergent trees. Areas of the above-mentioned units in poorer condition lack native groundcover and weeds or bare sand dominate.

Paperbark (*Melaleuca preissiana*) in association with *Nuytsia floribunda* forms a low very open woodland with some emergent jarrah in the north - east corner of the southern section of the survey area.

Marri (*Corymbia calophylla*) is relatively uncommon and is only represented by a small number of specimens in the north of the survey area and as a few scattered individuals in the better quality vegetation in the southern section of Lot 751.

The vegetation within the degraded/highly degraded areas varies from tall shrubland (*Kunzea glabrescens*) to a very open low shrubland or very open woodland over bare sand.

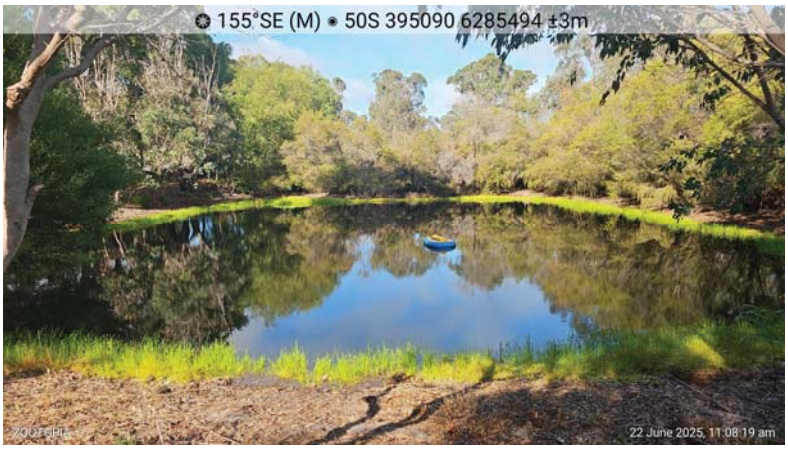
A small manmade dam is present in the far north-east section of the survey area. This is surrounded by areas of a flooded gum (*Eucalyptus rudis*) low open woodland over tall shrubland and bracken fern. A small number of non-endemic eucalypts, that appear to have self-propagated from specimens in the neighbouring property, are also present.

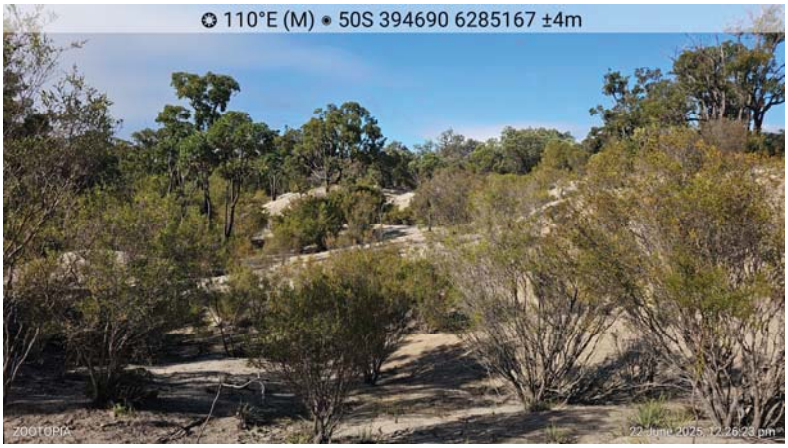
Soil across the site is comprised of a very course/gravelly grey sand.

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

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

Fauna Habitat Description	Example Image
Open woodland of jarrah over low woodland of *Nuytsia floribunda* and *Xylomelum occidentale* over an open heath/open low heath containing *Xanthorrhoea preissii* and *Macrozamia riedlei*.	
Low very open woodland of paperbark and *Nuytsia floribunda* with emergent jarrah over open shrubland of *Xanthorrhoea preissii* and weeds.	
Open forest of jarrah over a low open woodland of *Banksia attenuata*, *Nuytsia floribunda* and *Xylomelum occidentale* over tall shrubs (*Kunzea glabrescens*), scattered low shrubs, bracken fern and/or weeds	

Fauna Habitat Description	Example Image
Marri Open Woodland over grassland of exotic species.	
Flooded gum low open woodland over tall shrubland/shrubland surrounding manmade dam.	
Regrowth in previously cleared areas - tall shrubland (*Kunzea glabrescens*) to a very open low shrubland or very open woodland over bare sand.	

Fauna Habitat Description	Example Image
Regrowth within previous sand extraction area - tall shrubland (*Kunzea glabrescens*) to a very open low shrubland or very open woodland over bare sand.	
Completely cleared paddock area – grassland of exotic species and bare ground.	

As a consequence of its history of disturbance the survey area as a whole is only likely to support a depleted range of its original fauna assemblage, with most fauna present being common, widespread bird species. The absence of groundcover in many areas has lowered the sites value to ground dwelling fauna species considerably. The is also a paucity of hollow bearing trees and fallen hollow logs. The better quality vegetation in the extreme southern section of the site is continuous with vegetation of a similar type that extends into vacant crown land, which in turn adjoins further south to an unnamed DBCA managed reserve (R 26238 - Ryall Block). This area has a better capacity to support a wider range of fauna species including those that require larger remnants to persist.

Despite its history of disturbance, the vegetation present still represents habitat suitable for some species of conservation significance such as black cockatoos which are using the area as a foraging resource to some degree (see section 5.2.3). Some of the habitat present also appears, at least superficially, to be suitable for other species of conservation significance though no evidence of any other species presence was not found during the survey period.

5.2.2 BLACK COCKATOO HABITAT ASSESSMENT

5.2.2.1 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:

- Jarrah – *Eucalyptus marginata.*
- Marri – *Corymbia calophylla*.
- Flooded Gum – *Eucalyptus rudis*.
- Non-endemic Eucalypt – *Eucalyptus* spp*.,* and
- Dead – unknown – *Eucalyptus/Corymbia* spp.

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 ≥30cm) within the survey area

Total Number of Habitat Trees DBH >30cm	Number of Habitat Trees DBH >50cm	Number of Habitat Trees DBH 30 to 50cm	Number of Habitat Trees with Possible Hollows considered Unsuitable for Black Cockatoos	Number of Habitat Trees with Possible Hollows considered Potentially suitable for Black Cockatoos	Tree Species				
					Jarrah	Marri	Flooded Gum	Non-Endemic	Dead Unknown
332	108	224	25	1	277	30	20	1	4

The black cockatoo breeding habitat assessment identified 332 trees within the survey area with a DBH of ≥30cm. Most of these trees (306) appeared to not contain hollows of any size. Twenty five (25) trees contained apparent or obvious hollows, all of which were assessed as being unlikely to be suitable for black cockatoos to currently use for nesting purposes, due to the hollows apparent small size, unfavourable internal characteristics, unsuitable orientation and/or low height above ground level.

One tree was assessed as having one large hollow possibly suitable for black cockatoos to use for nesting purposes (Tee ID : 14). This hollow (a large side entry/knot hole 5 m from ground level) did however appear to have been used recently by Australian wood ducks given the presence of egg shells attributed to this species being found at the base of the tree. The hollow entrance also showed no evidence of chipping/chew marks often associated with black cockatoo nesting activity. This suggests that while the hollow may be suitable, it appears not to have been used by black cockatoos.

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

Based on available mapping, there is approximately 21,000 ha of remnant native vegetation within 12 km of the survey area (DPIRD 2025). Much of this is likely to contain "potential" breeding habitat as defined by DCCEEW (i.e. suitable tree species with a DBH ≥30).

5.2.2.2 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:

- Jarrah - *Eucalyptus marginata.*
- Marri – *Corymbia calophylla.*
- Flooded Gum - *Eucalyptus rudis.*
- Candlestick Banksia - *Banksia attenuata.*
- Non-endemic Eucalypts – *Eucalyptus* spp.
- Woody Pear - *Xylomelum occidentale.*
- Grass tree - *Xanthorrhoea preissii.*

It should be noted that some of the above-mentioned species (e.g. flooded gum, non-endemics, woody pear and grass trees) while foraged upon on occasions would make up only a small proportion of any one bird's diet relative to more favoured plant species such as marri, jarrah and banksia. Some of the listed plant species are also only represented by a relatively small number of specimens and therefore do not contribute to the overall foraging resource to a significant degree.

Evidence of black cockatoos foraging within the survey area was found in the form of chewed marri fruits, jarrah fruits and banksia cones at a number of locations. Where possible this evidence was attributed one of the three species of black cockatoo based on the nature of the foraging activity. Evidence of the forest red-tailed black cockatoo and Baudin's feeding on marri was conclusive however the banksia and jarrah evidence was difficult to attribute to any one species with Carnaby's cockatoo possibly being responsible in both instances.

Jarrah and banksia trees form the main component of almost all of the remnant vegetation onsite and therefore most of the remnant vegetation represents foraging habitat for black cockatoos. It is difficult to accurately measure the extent of this habitat given the highly fragmented nature of most of the remaining vegetation which is interspersed with areas of cleared ground and scattered plants of various types in different stages of regrowth.

Example images are provided in Table 4.

Table 4: Black cockatoo foraging evidence examples

Foraging Evidence Description	Example Image
Marri fruits – foraging activity attributed to the Forest Red-tailed Black Cockatoo.	
Marri fruits - foraging activity attributed to Baudin's Cockatoo.	
Banksia cones - foraging activity attributed to Baudin's Cockatoo or Carnaby's Cockatoo.	
Jarrah fruits - foraging activity attributed to Carnaby's or the Forest Red-tailed Black Cockatoo.	

Foraging value scores have been calculated for the survey area using both BCE's method (BCE 2020) and DCCEEW's Foraging Quality Scoring Tool (Commonwealth of Australia 2022).

BCE's foraging score method returned an overall value of "moderate" (4, 5 or 6 out of 10) for the areas of vegetation which contain jarrah, marri and/or banksia for all species of black

cockatoo. This was mainly because of the presence of plant species with at least moderate foraging value but with additional points not acquired due to the area's small contribution to the estimated local resource (15km radius). The small area of marri woodland attained the higher score of 6 given it is relatively dense and is a foraging resource favoured by all three species.

Areas lacking favoured foraging species returned a score of 0 for black cockatoo species given they have little or no foraging value.

Application of the DCCEEW's Foraging Quality Scoring Tool to the entire survey area as one results in a high quality foraging score for all three species of black cockatoo (10 out of 10). This is a consequence of the score having to start at a maximum of 10 (given the foraging habitat present is mainly "eucalypt woodland") and there being no attributes that could be used, without doubt, to reduce this total score for any species to a lower level.

Details of the methods used and the justification of the conclusions drawn can be found in Appendix B (BCE's method) and Appendix C (DCCEEW's method).

Based on available mapping there is about 21,000 ha of remnant native vegetation within 12 km of the survey area (DPIRD 2025). Much of this is likely to represent black cockatoo foraging habitat of some type.

5.2.2.3 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 may be suitable for roosting but as indicated no actual evidence of use was seen.

A review of the 2022 Great Cocky Count database (the most recent available) shows no documented roost sites within the survey area. The 2022 Great Cocky Count report documents the closest active roost as being approximately five kilometres northwest of the survey area (Site ID: DONDONR001). This roost was being used by four forest red-tailed black cockatoos during the April 2022 survey. White-tailed black cockatoos have also been record using this site in the past (Pryor *et al.* 2023). There are four other black cockatoo roost sites within 12 km of the survey area documented by Pryor *et al.* (2023), though not all are necessarily in use at any one time.

5.2.3 FAUNA OBSERVATIONS

Forty six (46) fauna species have been recorded within the survey area during the various site reconnaissance surveys (Appendix F). Most of the fauna recorded are relatively common, widespread bird species.

Evidence of three fauna species of conservation significance has been observed within the survey area, this being all three species of black cockatoo (i.e. Carnaby's, Baudins and the forest red-tailed black cockatoo). The lack of evidence other species of conservation

significance being observed does not eliminate the potential for them still occur, if only infrequently.

The likelihood of conservation significant species occurring within the survey area is provided in Section 5.3 of the report.

5.3 LIKELIHOOD OF OCCURRENCE – FAUNA SPECIES OF CONSERVATION SIGNIFICANCE

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 in the table. These are preliminary comments that should be reviewed as planning progresses.

Three vertebrate fauna species of conservation significance (listed as State or Federal threatened/migratory species or as DBCA priority species) were positively identified as utilising the survey area for some purpose during the survey period:

- Carnaby`s Cockatoo *Zanda latirostris* – Endangered (*BC Act & EPBC Act*).
  Foraging evidence (chewed jarrah fruits and banksia cones) attributed to this species were observed during the survey period. The survey area contains areas of potential black cockatoo breeding habitat (trees with a DBH >30cm). The majority of the native vegetation within the survey area represents potential foraging habitat for this species. No evidence of roosting observed.

- Baudin's Cockatoo *Zanda baudinii* – Endangered (*BC Act* & *EPBC Act*).
  Foraging evidence (chewed marri fruits and banksia cones) attributed to this species were observed during the survey period. The survey area contains areas of potential black cockatoo breeding habitat (trees with a DBH >30cm). The majority of the native vegetation within the survey area represents potential foraging habitat for this species. No evidence of roosting observed.

- Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso* –Vulnerable (*BC Act* & *EPBC Act*). Foraging evidence (chewed jarrah and marri fruits) attributed to this species were observed during the survey period. The survey area contains areas of potential black cockatoo breeding habitat (trees with a DBH ≥30cm). The majority of the native vegetation within the survey area represents potential foraging habitat for this species. 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:

- 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. Listed as a potential species but would most probably only ever occur rarely.

- Masked Owl *Tyto novaehollandae* – P3 (*BC Act* Priority Species)
  May occasionally reside in general area though status uncertain. It is unlikely to be specifically attracted to the site. Listed as a potential species but would most probably only ever occur rarely.

- Chuditch *Dasyurus geoffroii* - Vulnerable (*BC Act & EPBC Act*)
  Possibly present in general area and therefore it is possible that individuals of this species may utilise the better quality sections of the survey area as part of a larger home range. Listed as a potential species but would most probably only ever occur rarely.

- Quenda *Isoodon fusciventer* – P4 (*BC Act* Priority Species)
  No evidence of this species was found during the survey period but recorded in surrounding areas. Possibly present in areas containing dense groundcover. Listed as a potential species based on available information.

- South-west Brush-tailed Phascogale *Phascogale tapoatafa wambenger* – CD (*BC Act*)
  Known to occur in general area but paucity of hollow bearing trees reduces likelihood. Listed as a potential species based on available information.

- Western Ringtail Possum *Pseudocheirus occidentalis* – Critically Endangered (*BC Act* & *EPBC Act*)
  No evidence of this species using the site found but it may on occasions be present in small numbers and or as transient individuals. Listed as a potential species based on available information.

- Western False Pipistrelle *Falsistrellus mackenziei* - P4 (*BC Act* Priority Species)
  Possibility exists that this species may forage and roost (in tree hollows) within the survey area if only occasionally. 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. Wellington Nation Park, Boyanup State Forest), 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.

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 *Westralunio carteri*	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.
Pouched Lamprey *Geotria australis*	P3	-	This species lives in mud burrows in the upper reaches of coastal freshwater streams for the first 4 years of life until migrating to the sea. Adults migrate up to 60km upstream during spawning.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Swan Coastal Plain Shield-backed Trapdoor Spider *Idiosoma sigillatum*	P3	-	Burrows of this species usually found in *Banksia* woodland and heathland on sandy soils.	No/Marginal	Unlikely to Occur	Just outside of documented range combined with the degraded nature of habitat within and around the survey area suggest this species is unlikely to persist. No impact on this species anticipated.
Western Pygmy Trapdoor Spider *Bertmainius opimus*	P3	-	Poorly documented. Found in mesic habitats. The species makes shallow burrows in the bark of trees and in the mossy banks of creeks.	No	Unlikely to Occur	The apparent lack of preferred habitat combined with the degraded nature of habitat within and around the survey area suggest this species is unlikely to persist. No impact on this species anticipated.
Vasse Pachysaga *Pachysaga strobila*	P1	-	Poorly documented. Heath or mixed woodland.	No/Marginal	Unlikely to Occur	Just outside of documented range and the degraded nature of habitat within and around the survey area suggest this species is unlikely to persist. No impact on this species anticipated.
Hairy Marron *Cherax tenuimanus*	CR	CR	Upper reaches of Margaret River.	No	Would Not Occur.	Outside of documented range and no suitable habitat. No impact on this species will occur.
Australasian Bittern *Botaurus poiciloptilus*	EN	EN	Freshwater wetlands, occasionally estuarine; prefers heavy vegetation such as beds of tall dense *Typha, Baumea* and sedges in freshwater swamps.	No/Marginal	Would Not Occur.	The small dam present is unsuitable for this species. No impact on this species will occur.
Migratory Shorebirds/Wetland Species	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/Very Marginal	Would Not Occur.	The small dam present and paddocks are unsuitable for these species. No impact on this range of species will occur.
Peregrine Falcon *Falco peregrinus*	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. Modification of areas of foraging habitat. No significant impact on this species will occur.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act	*EPBC Act*				
Carnaby`s Cockatoo *Zanda latirostris*	EN	EN	Forests, woodlands, heathlands, farms; feeds on *Banksia*, *Hakea* and Marri.	Yes	Known to Occur.	Foraging evidence found during survey period. Modification/loss of areas of habitat, however, no significant impact on this species overall conservation status is anticipated given limited area of likely impact.
Baudin`s Cockatoo *Zanda baudinii*	EN	EN	Mainly eucalypt forests where it feeds primarily on the marri seeds.	Yes	Known to Occur.	Observed within survey area foraging. Modification/loss of areas of habitat, however, no significant impact on this species overall conservation status is anticipated given limited area of likely impact.
Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*	VU	VU	Eucalypt forests, feeds on marri, jarrah, blackbutt, karri, sheoak and snottygobble.	Yes	Known to Occur.	Foraging evidence found during survey. Modification/loss of areas of habitat, however, no significant impact on this species overall conservation status is anticipated given limited area of likely impact.
Masked Owl *Tyto novaehollandiae novaehollandiae*	P3	-	Roosts and nests in heavy forest, hunts over open woodlands and farmlands.	Yes	Possibly Occurs.	Known to occur in general area though species is uncommon. Loss/modification of a small area of habitat. No significant impact on this species overall conservation status is anticipated given limited area of likely impact.
Fork-tailed Swift *Apus pacificus*	MI	Ma, Mig	Low to very high airspace over varied habitat from rainforest to semi desert.	Yes	Unlikely to Occur	May occur very occasionally for brief periods. Entirely aerial. No impact on this species will occur.
Grey Wagtail *Motacilla cinerea*	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 *Dasyurus geoffroii*	VU	VU	Forest, mallee shrublands, woodland and desert. The densest populations have been found in riparian jarrah forest.	Yes	Possibly Occurs.	Known to occur in general area though species is uncommon. Loss/modification of a small area of habitat. No significant impact on this species overall conservation status is anticipated given limited area of likely impact.
Quenda *Isoodon fusciventer*	P4	-	Dense scrubby, often swampy, vegetation with dense cover.	Yes	Possibly Occurs	Known to occur in general area. Loss/modification of a small area of habitat. No significant impact on this species overall conservation status is anticipated given limited area of likely impact.

Species	Conservation Status		Habitat Preferences	Habitat Present	Likelihood of Occurrence	Comments/Possible Impacts
	BC Act	*EPBC Act*				
South-west Brush-tailed Phascogale *Phascogale tapoatafa wambenger*	CD	-	Dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover.	Yes/Marginal	Possibly Occurs	Known to occur in general area but lack of hollow bearing trees reduces likelihood. Loss/modification of a small area of habitat. No significant impact on this species overall conservation status is anticipated given limited area of likely impact.
Numbat *Myrmecobius fasciatus*	EN	EN	Open Woodlands generally dominated by eucalypts that provide hollow logs and branches for shelter and termites for food.	No/Marginal	Would Not Occur.	Locally extinct. This species could not persist in the fragmented habitat within and around the survey area. No impact on this species will occur.
Western Ringtail Possum *Pseudocheirus occidentalis*	CR	CE	Coastal peppermint, coastal peppermint-tuart, jarrah-marri associations, sheoak woodland, and eucalypt woodland and mallee.	Yes/Marginal	Possibly Occurs	Possibly occurs in the general area though not recorded despite targeted surveys. Loss/modification of a small area of habitat. No significant impact on this species overall conservation status is anticipated given limited area of likely impact.
Quokka *Setonix brachyurus*	VU	VU	Currently restricted to densely vegetated coastal heaths, swamps, riverine habitats including tea-tree thickets on sandy soils along creek systems.	No	Would Not Occur.	There is no suitable habitat for this species in the survey area. No impact on this species will occur.
Woylie *Bettongia penicillata ogilbyi*	CR	EN	Open sclerophyll forest and woodland with a low, dense, understorey of tussock grasses or woody scrub.	No/Marginal	Would Not Occur.	Locally extinct. This species could not persist in the fragmented habitat within and around the survey area. No impact on this species will occur.
Western Brush Wallaby *Notamacropus irma*	P4	-	Prefers areas of forest and woodland supporting a dense shrub layer adjacent to small open areas.	Yes	Would Not Occur.	This species could not persist in the fragmented habitat within and around the survey area. No impact on this species is anticipated.
Water Rat *Hydromys chrysogaster*	P4	-	Permanent water, fresh, brackish or marine.	No	Would Not Occur.	No suitable habitat. No impact on this species will occur.
Western False Pipestrelle *Falsistrellus mackenziei*	P4	-	Wet sclerophyll forest dominated by karri and in high rainfall zones of the jarrah and marri forest.	Yes	Possibly Occurs	Possibly occurs in the general area. Loss/modification of a small area of habitat. No significant impact on this species overall conservation status is anticipated given limited area of likely impact.

See Appendix A for conservation status codes

6. CONCLUSION

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

As a consequence of its history of disturbance the survey area as a whole is only likely to support a depleted range of its original fauna assemblage, with most fauna present being common, widespread bird species. The absence of groundcover in many areas has lowered the sites value to ground dwelling fauna species considerably. The is also a paucity of hollow bearing trees and fallen hollow logs. The better quality vegetation in the extreme southern section of the site is continuous with vegetation of a similar type that extends into vacant crown land, which in turn adjoins further south to an unnamed DBCA managed reserve (R 26238 - Ryall Block). This area has a better capacity to support a wider range of fauna species including those that require larger remnants to persist.

The black cockatoo breeding habitat assessment identified 332 trees within the survey area with a DBH of >30cm. Most of these trees (306) appeared to not contain hollows of any size. Twenty five (25) trees contained apparent or obvious hollows, all of which were assessed as being unlikely to be suitable for black cockatoos to currently use for nesting purposes.

One tree was assessed as having one large hollow possibly suitable for black cockatoos to use for nesting purposes (Tee ID : 14). This hollow (a large side entry/knot hole 5 m from ground level) did however appear to have been used recently by Australian wood ducks. The hollow entrance also showed no evidence of chipping/chew marks often associated with black cockatoo nesting activity. This suggests that while the hollow may be suitable, it appears not to have been used by black cockatoos.

Evidence of black cockatoos foraging within the survey area was found in the form of chewed marri fruits, jarrah fruits and banksia cones at a number of locations. Where possible this evidence was attributed one of the three species of black cockatoo based on the nature of the foraging activity.

BCE’s foraging score method returned an overall value of “moderate” (4, 5 or 6 out of 10) for the areas of vegetation which contain jarrah, marri and/or banksia for all species of black cockatoo. This was mainly because of the presence of plant species with at least moderate foraging value but with additional points not acquired due to the area’s small contribution to the estimated local resource (15km radius). The small area of marri woodland attained the higher score of 6 given it is relatively dense and is a foraging resource favoured by all three species.

Areas lacking favoured foraging species returned a score of 0 for black cockatoo species given they have little or no foraging value.

Application of the DCCEEW's Foraging Quality Scoring Tool to the entire survey area as one results in a high quality foraging score for all three species of black cockatoo (10 out of 10).

No existing roosting trees (trees used at night by black cockatoos to rest) or roosting activity was positively identified during the survey. The closest documented and recently active cockatoo roost site is located about five kilometres north west of the survey area.

Forty six fauna species (mainly common bird species) have been observed or secondary evidence of their presence recorded during the various field surveys. During this time three vertebrate fauna species of conservation significance were positively identified as utilising the survey area:

- Carnaby`s Cockatoo – Endangered (WA/Federal).
- Baudin's Cockatoo – Endangered (WA/Federal)
- Forest Red-tailed Black Cockatoo – Vulnerable (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 status in the area remains uncertain:

- Peregrine Falcon – OS (WA).
- Masked Owl– P3 (WA).
- Chuditch - Vulnerable (WA/Federal).
- Quenda – P4 (WA).
- South-west Brush-tailed Phascogale – CD (WA).
- Western Ringtail Possum – Critically Endangered (WA/Federal).
- Western False Pipistrelle - P4 (WA)

In cases where some habitat is present and available information indicates at least some probability of the species occurrence, likely impacts are anticipated to most likely to be related to the loss of a small area of habitat and the potential for some species to be killed or injured during clearing. This in particular relates to those species that utilise hollow bearing trees for daytime refuge and some ground-based species that seek daytime refuge in burrows, fallen hollow logs/log piles or dense undergrowth.

The potential presence of some fauna species will need to be taken into consideration during ongoing planning and during the approval process. If approval for the proposal is granted, consideration should be given to the implementation of a fauna management plan, in particular during clearing.

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FIGURES

Legend

Survey Area

DBCA Managed Lands and Waters

0 5 10

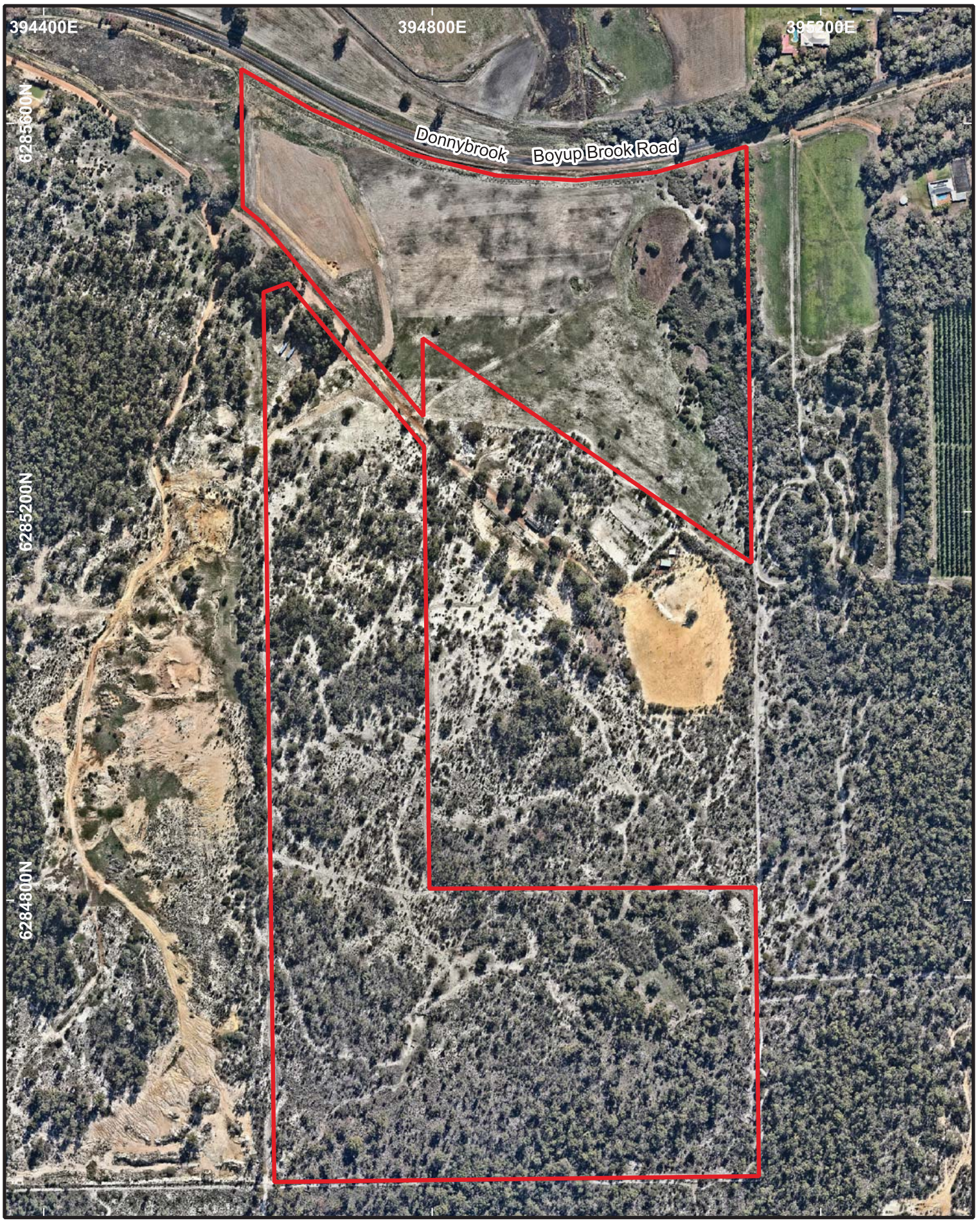
Kilometres

Fauna Survey

Lot 751
Donnybrook-Boyup Brook Road
Beelerup

Survey Area and Surrounds

Drawn: G Harewood	
Date: August 2025	
Scale: 1:100,000	
Coordinate System: GDA 2020/MGA Z50	**Figure 1**



Legend

Survey Area

0 10 20 30 40 50

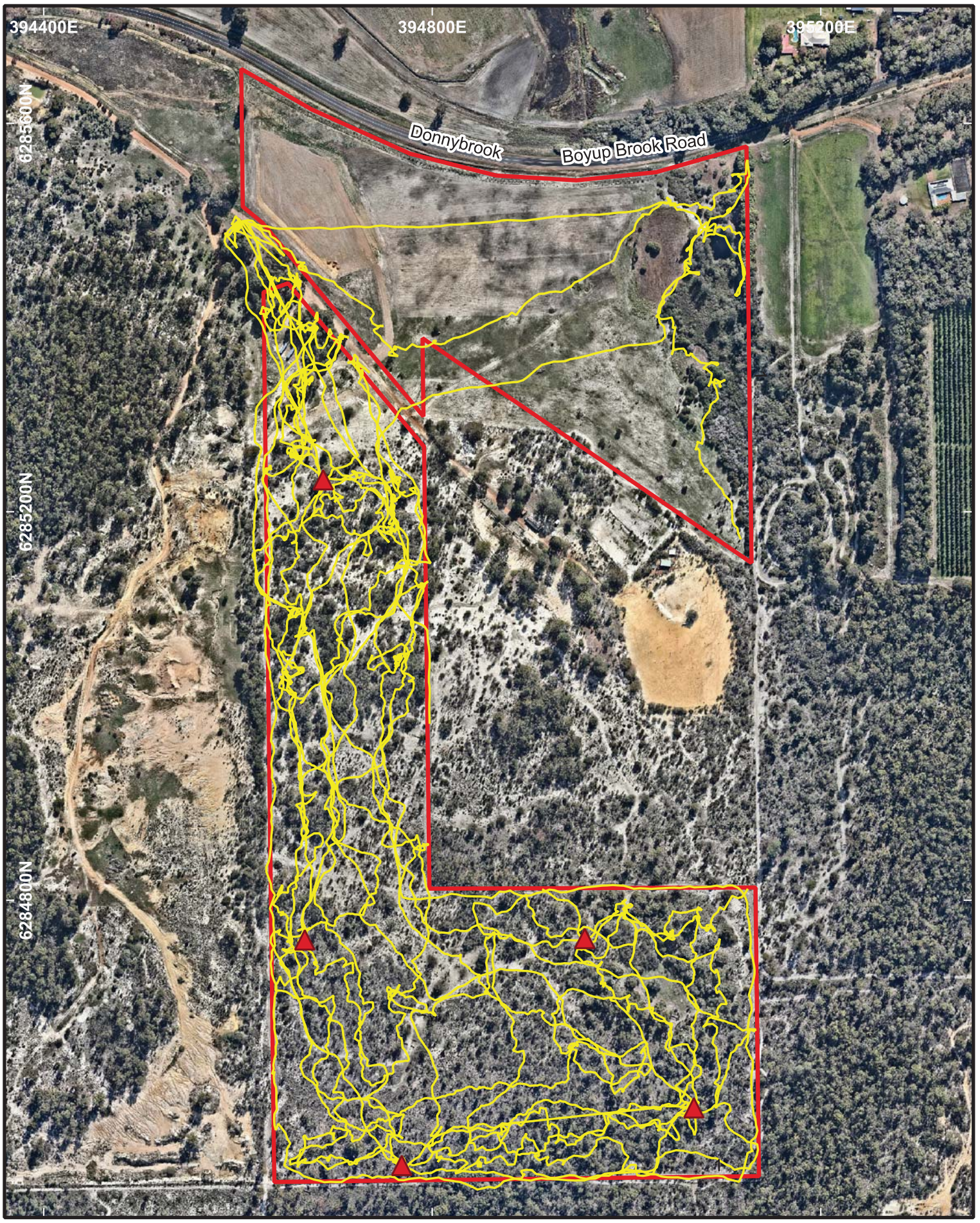
Metres

Fauna Survey

Lot 751
Donnybrook-Boyup Brook Rd
Beelerup

Survey Area Aerial Photograph

Drawn: G Harewood	
Date: Aug 2025	
Scale: 1:5,000	
Coordinate System: UTM Z50/GDA 2020	**Figure 2**



Legend

- Survey Area
- Combined Track Logs
- Camera Trap

0 10 20 30 40 50

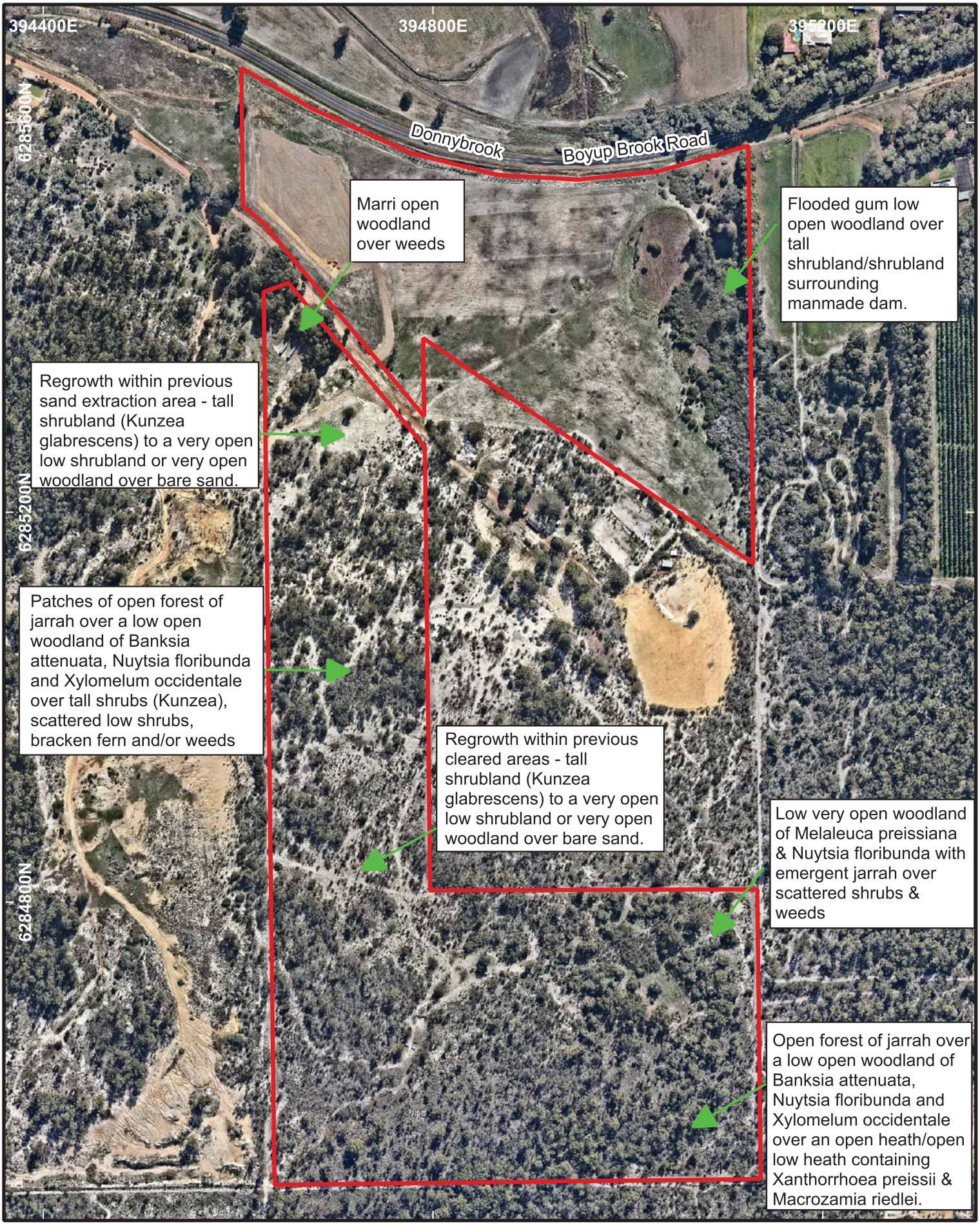
Metres

Fauna Survey

Lot 751
Donnybrook-Boyup Brook Rd
Beelerup

Survey Area Track logs & Camera Trap Locations

Drawn: G Harewood	
Date: Aug 2025	
Scale: 1:5,000	
Coordinate System: UTM Z50/GDA 2020	**Figure 3**



Legend

Survey Area

0 10 20 30 40 50

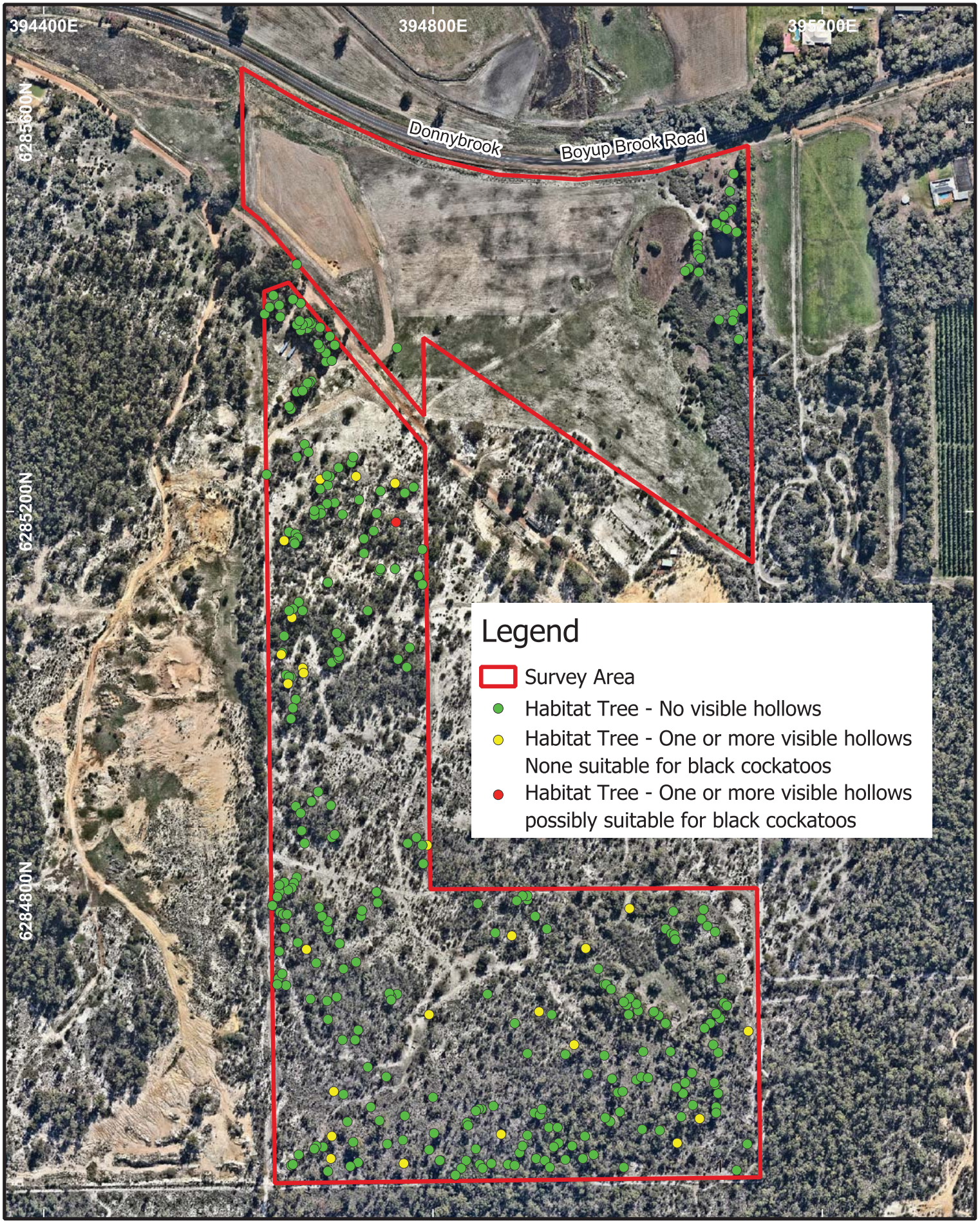
Metres

Fauna Survey

Lot 751
Donnybrook-Boyup Brook Rd
Beelerup

Survey Area Fauna Habitat

Drawn: G Harewood	
Date: Aug 2025	
Scale: 1:5,000	
Coordinate System: UTM Z50/GDA 2020	**Figure 4**



0 10 20 30 40 50

Metres

Fauna Survey

Lot 751
Donnybrook-Boyup Brook Rd
Beelerup

Survey Area
Black Cockatoo
Habitat Trees
(DBH >30cm)

Drawn: G Harewood	
Date: Aug 2025	
Scale: 1:5,000	
Coordinate System: UTM Z50/GDA 2020	**Figure 5**

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	CR	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	Mig	(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 *EPBC Act*

Note: Only species in those categories marked with an asterix 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 *BC Act*)
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 *BC Act*).
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 *BC Act*).

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	(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. (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. (c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

*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

BAMFORD'S SCORING SYSTEM FOR THE ASSESSMENT OF FORAGING VALUE OF VEGETATION FOR BLACK COCKATOOS (BCE 2020) AND CALCULATIONS

Scoring system for the assessment of foraging value of vegetation for Black-Cockatoos. Revised 5th June 2020

Bamford Consulting Ecologists

Introduction

Application of the Offset Assessment Guide (offsets guide) developed by the federal environment department for assessing Black-Cockatoo foraging habitat requires the calculation of a score out of 10. The following system has been developed by Bamford Consulting Ecologists (BCE) with assistance from Quessentia Consulting to provide an objective scoring system that is practical and can be used by trained field zoologists with experience in the environments frequented by the species.

The foraging value score provides a numerical value that reflects the significance of vegetation as foraging habitat for Black-Cockatoos, and this numerical value is designed to provide the information needed by the Federal Department of Agriculture, Water and the Environment (DAWE) to assess impact significance and offset requirements. The foraging value of the vegetation depends upon the type, density and condition of trees and shrubs in an area and can be influenced by the context such as the availability of foraging habitat nearby. The BCE scoring system for value of foraging habitat has three components as detailed above. These three components are drawn from the DAWE offsets guide but the scoring approach was developed by BCE and includes a fourth (moderation) component.

Calculating the total score (out of 10) requires the following steps:

A Site condition. Determining a score out of six for the vegetation composition, condition and structure; plus

B Site context. Determining a score out of three for the context of the site; plus

C Species stocking rate. Determining a score out of one for species density.

D Determining the total score out of 10, which may require moderation for context and species density with respect to the site condition (vegetation) score. Moderation also includes consideration of pine plantations as a special case for foraging value.

Calculation of scores and the moderation process are described in detail below.

A. Site condition. Vegetation composition, condition and structure scoring

Site Score	Description of Vegetation Values		
	Carnaby's Black-Cockatoo	**Baudin's Black-Cockatoo**	**Forest Red-tailed Black-Cockatoo**
0	No foraging value. No Proteaceae, eucalypts or other potential sources of food. Examples: • Water bodies (e.g. salt lakes, dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits) or with vegetation of no food value, such as some suburban landscapes. • Mown grass	No foraging value. No eucalypts or other potential sources of food. Examples: • Water bodies (e.g. dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).	No foraging value. No eucalypts or other potential sources of food. Examples: • Water bodies (e.g. dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).
1	Negligible to low foraging value. Examples: • Scattered specimens of known food plants but projected foliage cover of these is < 2%. This could include urban areas with scattered foraging trees; • Paddocks that are lightly vegetated with melons or other known food-source weeds (e.g. *Erodium* spp.) that represent a short-term and/or seasonal food source; • Blue Gum plantations (foraging by Carnaby's Black-Cockatoos has been reported but appears to be unusual).	Negligible to low foraging value. Scattered specimens of known food plants but projected foliage cover of these < 1%. This could include urban areas with scattered foraging trees.	Negligible to low foraging value. Scattered specimens of known food plants but projected foliage cover of these < 1%. Could include urban areas with scattered foraging trees.

Site Score	Description of Vegetation Values		
	Carnaby's Black-Cockatoo	**Baudin's Black-Cockatoo**	**Forest Red-tailed Black-Cockatoo**
2	Low foraging value. Examples: • Shrubland in which species of foraging value, such as shrubby banksias, have < 10% projected foliage cover; • Woodland with tree banksias 2-5% projected foliage cover; • Open eucalypt woodland/mallee of small-fruited species; • Paddocks that are densely vegetated with melons or other known food-source weeds (e.g. *Erodium* spp.) that represent a short-term and/or seasonal food source.	Low foraging value. Examples: • Woodland with scattered specimens of known food plants (e.g. Marri and Jarrah) 1-5% projected foliage cover; • Urban areas with scattered foraging trees.	Low foraging value. Examples: • Woodland with scattered specimens of known food plants (e.g. Marri, Jarrah or Sheoak) 1-5% projected foliage cover; • Urban areas with scattered food plants such as Cape Lilac, *Eucalyptus caesia* and *E. erythrocorys*.
3	Low to Moderate foraging value. Examples: • Shrubland in which species of foraging value, such as shrubby banksias, have 10-20% projected foliage cover; • Woodland with tree banksias 5-20% projected foliage cover; • Eucalypt Woodland/Mallee of small-fruited species; • Eucalypt Woodland with Marri < 10% projected foliage cover.	Low to Moderate foraging value. Examples: • Eucalypt Woodland with known food plants (especially Marri) 5-20% projected foliage cover; • Parkland-cleared Eucalypt Woodland/Forest with known food plants 10-40% projected foliage cover (poor long-term viability without management); • Younger areas of (managed) revegetation with known food plants 10-40% projected foliage cover (establishing food sources with good long-term viability).	Low to Moderate foraging value. Examples: • Eucalypt Woodland with known food plants (especially Marri and Jarrah) 5-20% projected foliage cover; • Parkland-cleared Eucalypt Woodland/Forest with known food plants 10-40% projected foliage cover (poor long-term viability without management); • Younger areas of (managed) revegetation with known food plants 10-40% projected foliage cover (establishing food sources with good long-term viability).

Site Score	Description of Vegetation Values		
	Carnaby's Black-Cockatoo	**Baudin's Black-Cockatoo**	**Forest Red-tailed Black-Cockatoo**
4	Moderate foraging value. Examples: • Woodland/low forest with tree banksias (of key species *B. attenuata* and *B. menziesii*) 20-40% projected foliage cover; • Kwongan/ Shrubland in which species of foraging value, such as shrubby banksias, have 20-40% projected foliage cover; • Eucalypt Woodland/Forest with Marri 20-40% projected foliage cover.	Moderate foraging value. Examples: • Marri-Jarrah Woodland/Forest with 20-40% projected foliage cover; • Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. • Eucalypt Woodland/Forest with diverse, healthy understorey and known food trees (especially Marri) 10-20% projected foliage cover. • Orchards with highly desirable food sources (e.g. apples, pears, some stone fruits).	Moderate foraging value. Examples: • Marri-Jarrah Woodland/Forest with 20-40% projected foliage cover; • Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths; • Sheoak Forest with 40-60% projected foliage cover.
5	Moderate to High foraging value. Examples: • Banksia Low Forest (of key species *B. attenuata* and *B. menziesii*) with 40-60% projected foliage cover; • Banksia Low Forest (of key species *B. attenuata* and *B. menziesii*) with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths; • Pine plantations with trees more than 10 years old (but see pine note below in moderation section).	Moderate to High foraging value. Examples: • Marri-Jarrah Forest with 40-60% projected foliage cover; • Marri-Jarrah Forest with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths.	Moderate to High foraging value. Examples: • Marri-Jarrah Forest with 40-60% projected foliage cover; • Marri-Jarrah Forest with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. • Sheoak Forest with > 60% projected foliage cover.

Site Score	Description of Vegetation Values		
	Carnaby's Black-Cockatoo	**Baudin's Black-Cockatoo**	**Forest Red-tailed Black-Cockatoo**
6	High foraging value. Example: • Banksia Low Forest (of key species *B. attenuata* and *B. menziesii*) with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).	High foraging value. Example: • Marri-Jarrah Forest with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).	High foraging value. Example: • Marri-Jarrah Forest with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).

Vegetation structural class terminology follows Keighery (1994).

B. Site context.

Site Context is a function of site size, availability of nearby habitat and the availability of nearby breeding areas. Site context includes consideration of connectivity, although Black-Cockatoos are very mobile and will fly across paddocks to access foraging sites. Based on BCE observations, Carnaby's are unlikely to regularly go over open ground for a distance of more than a few kilometres and prefer to follow tree-lines.

The maximum score for site context is 3, and because it is effectively a function of presence/absence of nearby breeding and the distribution of foraging habitat across the landscape, the following table, developed by Bamford Consulting in conjunction with DEE, provides a *guide* to the assignation of site context scores. Note that 'local area' is defined as within a 15 km radius of the centre point of the study site. This is greater than the maximum distance of 12km known to be flown by Carnaby's Black-Cockatoo when feeding chicks in the nest.

Site Context Score	**Percentage of the existing native vegetation within the 'local' area that the study site represents.**	
	'Local' breeding known/likely	**'Local' breeding unlikely**
3	> 5%	> 10%
2	1 - 5%	5 - 10%
1	0.1 - 1%	1 - 5%
0	< 0.1%	< 1%

The table above provides weighting for where nearby breeding is known (or suspected) and for the proportion of foraging habitat within 15km represented by the site being assessed. Some adjustments may be needed based on the judgement of the assessor and in relation to the likely function of the site. For example, a small area of foraging habitat (eg 0.5% of such habitat within 15km) could be upgraded to a context of 2 if it formed part of a critical movement corridor. In contrast, the same sized area of habitat, of the same local proportion, could be downgraded if it were so isolated that birds could never access it.

C. Species density (stocking rate).

Species stocking rate is described as "the usage and/or density of a species at a particular site" in the offsets guide. The description also implies that a site supports a discrete population, which is unlikely in the case of very mobile black-cockatoos. Assignation of the species density score (0 or 1) is based upon the black-cockatoo species being either abundant or not abundant. A score of 1 is used where the species is seen or reported regularly and/or there is abundant foraging evidence. Regularly is when the species is seen at intervals of every few days or weeks for at least several months of the year. A score of 0 is used when the species is recorded or reported very infrequently and there is little or no foraging evidence. Where information on actual presence of birds is lacking, a species density score can be assigned by interpreting the landscape and the site context. For example, a site with a moderate condition score that is part of a network of such habitat where a black-cockatoo species is

known would get a species density score of 1 even without clear presence data, while a species density score of 0 can be assigned to a site where the level of usage can confidently be predicted to be low.

D. Moderation of scores for the calculation of a value out of 10.

The calculation out of 10 requires the vegetation characteristics (out of 6) to be combined with the scores given for context and species density. It is considered that the context and density scores are not independent of vegetation characteristics; otherwise habitat of absolutely no value for black-cockatoo foraging (such as concrete or a wetland) could get a foraging score out of 10 as high as 4 if it occurred in an area where the species breed (context score of 3) and are abundant (species density score of 1). Similarly, vegetation of negligible or low characteristics which could not support black-cockatoos could be assigned a score as high as 6 out of 10. In that case, the score of 6 would be more a reflection of nearby vegetation of high characteristics than of the foraging value of the negligible to low scoring vegetation. The Black-Cockatoos would only be present because of vegetation of high characteristics, so applying the context and species density scores to vegetation of low characteristics would not give a true reflection of their foraging value.

For this reason, the context and species density scores need to be moderated for the vegetation characteristic score to prevent vegetation of little or no foraging value receiving an excessive score out of 10. A simple approach is to assign a context and species density score of zero to sites with a Condition score of low (2), negligible (1) or none (0), on the basis that birds will not use such areas unless they are adjacent to at least low-moderate quality foraging habitat ($\geq$3). The approach to calculating a score out of 10 can be summarised as follows:

vegetation composition, condition and structure score (out of 6)	context score	Species density score
3-6 (low/moderate to high value)	Assessed as per B above	Assessed as per C above
0-2 (no to low value)	0	0

Note that this moderation approach may require interpretation depending on the context. For example, vegetation with a condition score of 2 could be given a context score of 1 under special circumstances. Such as when very close to a major breeding area or if strategically located along a movement corridor.

Pine plantations

Pine plantations are an important foraging resource for Carnaby's Black-Cockatoo (only) but are not directly comparable with native vegetation. In comparing native vegetation with pine plantations for the purpose of calculating offsets, the following should be noted:

- Pine plantations are a commercial crop established with the intention of being harvested and thus have short-term availability (30-50 years), whereas native vegetation is available indefinitely if protected. Due to the temporary nature of pines as a food source, site condition and context differs between pines and native vegetation.
- Although pines provide a high abundance of food in the form of seeds, they are a limited food resource compared with native vegetation which provides seeds, insect larvae, flowers and nectar. The value of insect larvae in the diet of Carnaby's Black-Cockatoo has not been quantified, but in the vicinity of Perth, the birds forage very heavily on insect larvae in young cones of *Banksia attenuata* in winter, ignoring the seeds in these cones and seeds in older cones on the same trees (Scott and Black 1981; M. Bamford pers. obs.). This suggests that insect larvae are of high nutritional importance immediately prior to the breeding season.
- Pine plantations have very little biodiversity value other than their importance as a food source for Carnaby's Black-Cockatoos. They inhibit growth of other flora. While this is not a factor for direct consideration with respect to Carnaby's Black-Cockatoo, it is a factor in regional conservation planning of which offsets for the cockatoos are a part.

Taking the above points into consideration, it is possible to assign pine plantations a foraging value as follows:

- Site condition. The actual foraging value of pines is high. Stock *et al.* (2013) report that it takes nearly twice as many seeds of *Pinus pinaster* to meet the daily energy requirements for Carnaby's Black-Cockatoo compared with Marri, and three times as many *P. pinaster* seeds compared with Slender Banksia. However, pines are planted at a high density so the food supply per hectare can be high. Taking account of the lack of variety of food from pines, this suggests a site condition score of 4 or 5 out of 6 (5 is used in Section A above). As a source of food, pines are thus comparable to the best banksia woodland. This site condition score then needs to be adjusted to take account of the short-term nature of the food supply (for pine plantations to be harvested. Where pines are 'ornamental, such as in some urban contexts, they can be treated as with other trees in urban landscapes). The foraging value of a site after pines are harvested will effectively be 0, or possibly 1 if there is some retention. It is proposed that this should approximately halve the site condition score; young pine plantations could be redacted slightly less than old plantations on the basis that a young plantation provides a slightly longer term food supply. If a maximum site condition score of 5 is given, then a young plantation (>10 but <30 years old) could be assigned a score of 3, and an old plantation (>30 years old) could be assigned a score of 2. Plantations <10 years old and thus not producing large quantities of cones could also get a score of 2, but recognising they may increase in value.
- Site context. Although a temporary food source, pines can be very important for Carnaby's Black-Cockatoo in some contexts; they could be said to carry populations in areas where there

is little native vegetation. The system for assigning a context score as outlined above (Section B) also applies to pines. Thus, a context score of 3 can be given where pines are a significant proportion of foraging habitat (>5% if breeding occurs; >10% if no breeding), but where pines are a small part of the foraging landscape they will receive a context score of less than this.

- Species density. As outlined above (Section C), pines will receive a species density score of 1 where Carnaby's Black-Cockatoo are regular visitors. This is irrespective of an old plantation having a moderated condition score of 2.

Based on the above, pine plantations that represent a substantial part of the foraging landscape, such as in the region immediately north of Perth, would receive a total score (out of 10) of 6; young plantations in this area would receive a score of 7. In contrast, isolated and small plantations in rural landscapes could receive a score of just 2 if they are only a small proportion of foraging habitat and Carnaby's Black-Cockatoos are not regularly present.

Keighery (1994).

Scott, J. K. and Black, R. (1981). Selective Predation by White-Tailed Black Cockatoos on Fruit of *Banksia attenuata* Containing the Seed-Eating Weevil *Alphitopis nivea*. *Australian Wildlife Research* **8(2)**, 421-430.

Stock, W.D., Finn, H., Parker, J. and Dods, K. (2013). Pine as Fast Food. Foraging Ecology of an Endangered Cockatoo in a Forestry Landscape. PlosOne 8: issue 4.

Lot 751 Beelerup – August 2025

Foraging values of vegetation recorded for black cockatoos (BCE 2020)

Habitat Description	Vegetation Characteristics			Site Context			Species Density			Total Score		
	CC	BC	FRTBC	CC	BC	FRTBC	CC	BC	FRTBC	CC	BC	FRTBC
Open woodland of jarrah over low woodland of *Nuytsia floribunda* and *Xylomelum occidentale* over an open heath/open low heath containing *Xanthorrhoea preissii* and *Macrozamia riedlei.*	4	4	4	0	0	0	1	1	1	**5**	**5**	**5**
Low very open woodland of paperbark and *Nuytsia floribunda* with emergent jarrah over open shrubland of *Xanthorrhoea preissii* and weeds.	3	3	3	0	0	0	1	1	1	**4**	**4**	**4**
Open forest of jarrah over a low open woodland of *Banksia attenuata, Nuytsia floribunda* and *Xylomelum occidentale* over tall shrubs (*Kunzea*), scattered low shrubs, bracken fern and/or weeds	4	4	4	0	0	0	1	1	1	**5**	**5**	**5**
Marri Open Woodland over grassland of exotic species.	5	5	5	0	0	0	1	1	1	**6**	**6**	**6**
Flooded gum low open woodland over tall shrubland/shrubland surrounding manmade dam.	1	1	1	0	0	0	0	0	0	**0**	**0**	**0**
Regrowth in previously cleared areas - tall shrubland (*Kunzea glabrescens*) to a very open low shrubland or very open woodland over bare sand.	1	1	1	0	0	0	0	0	0	**0**	**0**	**0**
Regrowth within previous sand extraction area - tall shrubland (*Kunzea glabrescens*) to a very open low shrubland or very open woodland over bare sand.	1	1	1	0	0	0	0	0	0	**0**	**0**	**0**
Completely cleared paddock area – grassland of exotic species and bare ground.	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**

CC = Carnaby's Cockatoo, BB = Baudin's Cockatoo, FRTBC = Forest Red-tailed Black Cockatoo

Appraisal/Justification

The following flora species, known to be or 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:

Black cockatoo foraging species recorded within survey area

Plant Species
Jarrah - *Eucalyptus marginata.*
Marri – *Corymbia calophylla.*
Flooded Gum - *Eucalyptus rudis.*
Candlestick Banksia - *Banksia attenuata.*
Non-endemic Eucalypts – *Eucalyptus* spp.
Woody Pear - *Xylomelum occidentale.*
Grass tree - *Xanthorrhoea preissii.*

It should be noted that some of the above-mentioned species are only rarely foraged upon and in some cases are also poorly represented onsite and so would only make up a very small proportion of any single bird's food intake.

Based on available vegetation mapping it is estimated that there is approximately 36,000 ha of native vegetation within 15 km the survey area, much of which is very likely to represent potential black cockatoo foraging habitat of some type, though it is difficult to specifically calculate.

Site condition.

Most areas of the remnant native vegetation including some areas of regrowth have been assigned a score of 3 to 5 for all black cockatoo species because of the presence of jarrah, marri, and/or banksia having at least 20% projected foliage cover but with vegetation condition reduced due to weed invasion and/or some tree deaths.

The area of flooded gum and the main regrowth areas have been assigned a score of 1 due to having negligible to low foraging value, with only a few low quality foraging opportunities.

The existing cleared areas have been assigned a score of 0 due to having no foraging value.

Site context.

It has been assumed that local breeding (within 15km) is "likely" for all black cockatoo species.

All units have been assigned a score of 0 as in each case they represent <0.1% of the 36,000 ha of native vegetation within 15 km.

Species Density.

Most areas of the remnant native vegetation including some areas of regrowth have been assigned a score of 1 for all species of black cockatoo as they are known to regularly frequent the Donnybrook area and are likely to visit the survey area to forage on a fairly regular basis. This is supported by the presence of foraging evidence attributed to all three species of black cockatoo (with some uncertainty in relation to Carnaby's Cockatoo).

The area of flooded gum, the main regrowth areas and paddock areas have been assigned a score of 0 due to low levels of visitation by black cockatoos.

Moderation/Total Score

The total score for most areas of the remnant native vegetation including some areas of regrowth has been arrived at by adding the scores for other criteria giving a value of between 4 and 6 all species of black cockatoo (i.e. no moderation).

The area of flooded gum, the main regrowth areas and paddock areas have been assigned a total score of 0 due to have no to low vegetation condition scores.

APPENDIX C

DCCEEW'S SCORING SYSTEM FOR THE ASSESSMENT OF FORAGING VALUE OF VEGETATION FOR BLACK COCKATOOS (COMMONWEALTH OF AUSTRALIA 2022) AND CALCULATIONS

Appendix C: Foraging quality scoring tool

A foraging habitat quality scoring tool has been developed to guide you on what the department views as important for assessing quality of foraging habitat and which should influence your decision to refer your proposal to the Minister for the Environment for likely significant impacts on foraging habitat.

The scoring tool is designed to be simple, with a structure that allows for more detailed information to be taken into account, if needed. For actions that will clearly require a referral, more detailed information relating to the key attributes in the scoring tool may be required, including on proposed avoidance and mitigation measures (see Appendix B).

How the scoring tool works

If your impact site contains native vegetation used for foraging at any time by one or more of the black cockatoo species as described in the table below, and is larger than 1 hectare in size, it is considered at face value to be of very high quality, important for recovery and therefore as having a score of 10. This is because black cockatoos rely on foraging resources to provide sufficient energy for breeding and to rebuild condition in the post-breeding period. The availability of foraging habitat, in close proximity to breeding and night roosting habitat, as well as watering sites, is also critical in ensuring that birds can successfully raise chicks.

The scoring tool includes consideration of the three components used in the EPBC Act Offsets Assessment Guide in the calculation of habitat quality (site condition, site context and species stocking rate) by taking into account contextual factors that may lessen the quality of that habitat, to give you a final habitat quality score, i.e., you use the context adjustors to subtract from your starting score.

To support your habitat score, you should provide an overall appraisal of the habitat to clearly explain and justify the score, and include it in your referral to the minister if you decide to refer.

Using the scoring tool

The scoring tool below is to be applied once to the entire impact area of your proposed action, even if there is more than one type of foraging habitat, for example, *Banksia* woodland and heath, introduced eucalyptus trees and planted pines (*Pinus pinaster*). You will always start with a score of 10.

You should complete the scoring tool for each black cockatoo species occurring within your impact area.

It is your responsibility to define the impact area and consider indirect, offsite or facilitated impacts on black cockatoos, and include these areas in the definition of your impact area (see Glossary).

If you have insufficient evidence to determine what score a particular habitat attribute meets, you should either:

- carry out additional targeted surveys (see Appendix B)
- apply the precautionary principle (i.e. assume the habitat is of sufficient quality to warrant referral).

The scoring tool should not be used to calculate the value of an offset site.

Table A1 Foraging quality scoring tool template

Starting score		Baudin's Cockatoo	Carnaby's Cockatoo	Forest Red-tailed Black-Cockatoo
10		**Start at a score of 10** if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation. **This tool only applies to sites equal to or larger than 1 hectare in size.**	**Start at a score of 10** if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as *Banksia* spp. (including *Dryandra* spp.), *Hakea* spp. and *Grevillea* spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. **This tool only applies to sites equal to or larger than 1 hectare in size.**	**Start at a score of 10** if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. **This tool only applies to sites equal to or larger than 1 hectare in size.**
Attribute	Sub-tractions	Context adjustor (attributes reducing functionality of foraging habitat)		
Foraging potential	**-2**	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	**Subtract 2** from your score if there is no evidence of feeding debris on your site.
Connectivity	**-2**	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.
Proximity to breeding	**-2**	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.
Proximity to roosting	**-1**	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.
Impact from significant plant disease	**-1**	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.
Total score		*Enter score*	*Enter score*	*Enter score*
Appraisal		To support your habitat score, you should provide an overall appraisal of the habitat on the impact site and within 20km of the impact area to clearly explain and justify the score. It should include discussion on the foraging habitat's proximity to other resources (e.g. exact distance to proximate resources), frequency of use of proximate sites, the degree of evidence and description of vegetation type and condition.		

Lot 751 Beelerup – August 2025

Foraging Quality Scoring Tool (Commonwealth of Australia 2022)

Starting Score		Baudin's Cockatoo	Carnaby's Cockatoo	Forest Red-tailed Black Cockatoo
10		10	10	10
Attribute	**Subtractions**	**Context Adjustor (attributes reducing functionality of foraging habitat)**		
Foraging potential	**-2**	10	10	10
Connectivity	**-2**	10	10	10
Proximity to breeding	**-2**	10	10	10
Proximity to roosting	**-1**	10	10	10
Impact from significant Plant disease	**-1**	10	10	10
Total Score		10	10	10

For the purpose of this assessment the **impact area** has been defined as being restricted to the survey area.

Appraisal/Justification

The following flora species, known to be or 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:

Black cockatoo foraging species recorded within the survey area

Plant Species
Jarrah - *Eucalyptus marginata.*
Marri – *Corymbia calophylla.*
Flooded Gum - *Eucalyptus rudis.*
Candlestick Banksia - *Banksia attenuata.*
Non-endemic Eucalypts – *Eucalyptus* spp.
Woody Pear - *Xylomelum occidentale.*
Grass tree - *Xanthorrhoea preissii.*

It should be noted that some of the above-mentioned species are only rarely foraged upon and in some cases are also poorly represented onsite and so would only make up a very small proportion of any single bird's food intake.

Based on available vegetation mapping (DPIRD 2025) it is estimated that there is approximately 67,000 ha of native vegetation within 20 km the survey area, much of which is very likely to represent potential black cockatoo foraging habitat of some type, though it is difficult to specifically calculate.

Foraging Potential

Conclusive evidence of foraging attributed to the forest red-tailed black cockatoo and Baudin's cockatoo was found at several locations (chewed marri fruits). Other evidence observed (chewed jarrah fruits and banksia cones) could not be attributed to any one species but in both cases potentially caused by Carnaby's so this species cannot be discounted as foraging in the area.

No subtractions justified for any species.

Connectivity

Based on available vegetation mapping (DPIRD 2025) it is estimated that there is approximately 21,000 ha of native vegetation within 12 km the survey area and there is therefore significant potential for foraging habitat for all three species to be present in the wider area (assuming the presence of suitable plant species).

No subtractions justified for any species.

Proximity to breeding

There is a paucity of documented breeding events available but it is not possible to discount the probability that all three species breed within 12 km of the survey area despite the apparent lack of records.

Based on available vegetation mapping (DPIRD 2025) it is estimated that there is approximately 21,000 ha of native vegetation within 12 km the survey area and there is therefore potential for breeding to take place in the wider area (assuming the presence of suitable trees).

No subtractions justified for any species.

Proximity to roosting

No existing roosting trees (trees used at night by black cockatoos to rest) or roosting activity was positively identified during the survey.

A review of the 2022 Great Cocky Count database (the most recent available) shows no documented roost sites within the survey area. The 2022 Great Cocky Count report documents the closest active roost as being approximately 5 kilometres northwest of the survey area (Site ID: DONDONR001). This roost was being used by 4 forest red-tailed black cockatoos during the April 2022 survey. White-tailed black cockatoos have also been record using this site in the past (Pryor *et al.* 2023). There are four other black cockatoo roost sites within 12 km of the survey area documented by Pryor *et al*. (2023), though not all are necessarily in use at any one time.

Based on available vegetation mapping (DPIRD 2025) it is estimated that there is approximately 67,000 ha of native vegetation within 20 km the survey area and

therefore there is significant potential for roosting habitat to be present in the wider area (assuming the presence of suitable trees).

No subtractions justified for any species.

Impact from significant Plant disease

There is a significant number of dead trees (jarrah and banksia) present within the survey area but the deaths do not account for more than 50% of the preferred food plants present.

No subtractions justified for any species.

APPENDIX D

DANDJOO DATABASE SEARCH AND PROTECTED MATTERS SEARCH TOOL RESULTS

GOVERNMENT OF WESTERN AUSTRALIA

Dandjoo Species List Export

Created by Guest User on 21 Jun 2025

Source	Dandjoo – Department of Biodiversity, Conservation and Attractions
Method	User defined circle: [[115.86707, -33.57049]] 10.0 km.
Date time	2025-06-21T17:11:45.365137+08:00

Conservation status summary	Count
CD	1
CR	3
Cons code inherited from parent	1
EN	2
None	122
P1	1
P3	4
P4	4
Parent of conservation listed taxa	3
VU	4
Total	**145**

Kingdoms	Count
Animalia	145
Total unique species	**145**

Animalia

	Class	Family	Name	Establishment	Conservation
1	None	None	Platylister strangulatus (Marseul, 1870)		
2	None	Geotriidae	Geotria australis Gray, 1851 *(Pouched Lamprey)*	native	P3
3	Amphibia	Limnodynastidae	Heleioporus eyrei (Gray, 1845)	native	
4	Amphibia	Limnodynastidae	Limnodynastes dorsalis (Gray, 1841)	native	
5	Amphibia	Myobatrachidae	Crinia georgiana Tschudi, 1838	native	
6	Amphibia	Myobatrachidae	Crinia glauerti (Loveridge, 1933)	native	
7	Amphibia	Myobatrachidae	Crinia insignifera (Moore, 1954)	native	
8	Amphibia	Myobatrachidae	Crinia pseudinsignifera (Main, 1957)	native	
9	Amphibia	Myobatrachidae	Geocrinia leai (Fletcher, 1898)	native	
10	Amphibia	Pelodryadidae GÃ¼nther, 1858	Litoria adelaidensis (Gray, 1841)	native	
11	Amphibia	Pelodryadidae GÃ¼nther, 1858	Litoria moorei (Copland, 1957)	native	
12	Arachnida	None	Acariformes		
13	Arachnida	None	Araneae Clerck, 1757		
14	Arachnida	Actinopodidae Simon, 1892	Missulena granulosa (O. P.-Cambridge, 1869)		
15	Arachnida	Actinopodidae Simon, 1892	Missulena hoggi Womersley, 1943		
16	Arachnida	Anamidae Simon, 1889	Aname L. Koch, 1873		
17	Arachnida	Bothriuridae	Cercophonius sulcatus Kraepelin, 1908		

18	Arachnida	Buthidae C.L. Koch, 1837	Lychas C.L. Koch, 1845		
19	Arachnida	Desidae Pocock, 1895	Corasoides occidentalis Humphrey, 2017		
20	Arachnida	Hersiliidae Thorell, 1869	Tamopsis B. Baehr & M. Baehr, 1987		
21	Arachnida	Idiopidae Simon, 1889	Idiosoma Ausserer, 1871		Parent of conservation listed taxa
22	Arachnida	Idiopidae Simon, 1889	Idiosoma sigillatum O. P.-Cambridge, 1870 *(Swan Coastal Plain shield-backed trapdoor spider)*	native	P3
23	Arachnida	Ixodidae	Amblyomma triguttatum Koch, 1844	uncertain	
24	Arachnida	Lycosidae	Artoria flavimana Simon, 1909		
25	Arachnida	Migidae	Bertmainius opimus Harvey, Main, Rix & Cooper, 2015 *(western pygmy trapdoor spider)*	native	P3
26	Arachnida	Salticidae Blackwall, 1841	Salticidae Blackwall, 1841		
27	Arachnida	Sparassidae Bertkau, 1872	Isopedella castanea Hirst, 1993		
28	Arachnida	Theridiidae Sundevall, 1833	Hadrotarsinae		
29	Arachnida	Theridiidae Sundevall, 1833	Latrodectus hasselti Thorell, 1870		
30	Arachnida	Urodacidae	Urodacus novaehollandiae Peters, 1861		
31	Aves	Anatidae	Dendrocygna arcuata (Horsfield, 1824)	native	
32	Aves	Anatidae	Nettapus pulchellus Gould, 1842	native	
33	Aves	Ardeidae	Ardea alba modesta JE Gray, 1831	native	
34	Aves	Cacatuidae	Calyptorhynchus Desmarest, 1826		Parent of conservation listed taxa
35	Aves	Cacatuidae	Calyptorhynchus banksii naso Gould, 1837 *(Forest Red-tailed Black Cockatoo)*	native	VU
36	Aves	Cacatuidae	Zanda Mathews, 1913		Parent of conservation listed taxa
37	Aves	Cacatuidae	Zanda baudinii Lear, 1832 *(Baudin's Cockatoo)*	native	EN
38	Aves	Cacatuidae	Zanda latirostris Carnaby, 1948	native	EN
39	Aves	Columbidae	Phaps chalcoptera (Latham, 1790)	native	
40	Aves	Podargidae	Podargus strigoides brachypterus Gould, 1841	native	
41	Aves	Podicipedidae	Tachybaptus novaehollandiae novaehollandiae (Stephens, 1826)	native	
42	Aves	Procellariidae	Pachyptila desolata (Gmelin, 1789)	native	
43	Aves	Psittaculidae	Platycercus icterotis icterotis (Temminck & Kuhl, 1820)	native	
44	Aves	Psittaculidae	Purpureicephalus spurius (Kuhl, 1820)		
45	Aves	Turdidae Rafinesque, 1815	Turdus merula Linnaeus, 1758 *(Eurasian Blackbird)*	alien	
46	Aves	Tytonidae	Tyto novaehollandiae novaehollandiae (Stephens, 1826)	native	P3
47	Bivalvia	Hyriidae	Hyriidae		
48	Bivalvia	Hyriidae	Westralunio carteri Iredale, 1934 *(Carter's Freshwater Mussel)*	native	VU
49	Clitellata	None	Oligochaeta Grube, 1850		
50	Diplopoda de Blainville, 1844	Paradoxosomatidae	Akamptogonus novarae (Humbert & de Saussure, 1869)		
51	Diplopoda de Blainville, 1844	Paradoxosomatidae	Antichiropus Attems, 1911		
52	Gastropoda	Geomitridae	Cernuella neglecta (Draparnaud, 1805)		
53	Gastropoda	Lymnaeidae	Bullastra lessoni (Deshayes, 1831)		
54	Gastropoda	Physidae	Physella Haldeman, 1842		
55	Insecta	None	Coleoptera		
56	Insecta	Apidae	Exoneura (Exoneura) pictifrons Alfken, 1907		
57	Insecta	Apidae	Exoneura (Exoneura) robusta Cockerell, 1922		
58	Insecta	Apidae	Exoneura nigrescens Friese, 1899		
59	Insecta	Baetidae	Baetidae		

60	Insecta	Buprestidae Leach, 1815	Merimna atrata (Gory & Laporte, 1837)		
61	Insecta	Carabidae Latreille, 1802	Trigonothops longiplaga Chaudoir, 1877		
62	Insecta	Cerambycidae	Coptocercus rubripes (Boisduval, 1835)		
63	Insecta	Ceratopogonidae Newman, 1834	Ceratopogonidae Newman, 1834		
64	Insecta	Chironomidae Newman, 1834	Chironominae		
65	Insecta	Chironomidae Newman, 1834	Orthocladiinae		
66	Insecta	Colletidae	Callomelitta antipodes (Smith, 1853)		
67	Insecta	Colletidae	Euryglossa rubricata Smith, 1879		
68	Insecta	Colletidae	Euryglossina (Euryglossina) hypochroma Cockerell, 1916		
69	Insecta	Colletidae	Hylaeus (Euprosopis) elegans (Smith, 1853)		
70	Insecta	Colletidae	Hylaeus (Euprosopis) violaceus (Smith, 1853)		
71	Insecta	Colletidae	Hylaeus (Euprosopoides) obtusatus (Smith, 1879)		
72	Insecta	Colletidae	Hylaeus (Euprosopoides) ruficeps (Smith, 1853)		
73	Insecta	Colletidae	Hyleoides zonalis Smith, 1853		
74	Insecta	Colletidae	Leioproctus (Leioproctus) Smith, 1853		
75	Insecta	Colletidae	Pachyprosopis (Pachyprosopula) xanthodonta (Cockerell, 1913)		
76	Insecta	Colletidae	Pachyprosopis (Parapachyprosopis) eucyrta Exley, 1972		
77	Insecta	Colletidae	Paracolletes (Paracolletes) crassipes Smith, 1853		
78	Insecta	Coreidae	Mictis profana (Fabricius, 1803)		
79	Insecta	Corixidae	Corixidae		
80	Insecta	Curculionidae	Acantholophus suturalis (Boheman, 1842)		
81	Insecta	Dermestidae	Anthrenus (Nathrenus) verbasci (Linnaeus, 1767)		
82	Insecta	Dytiscidae	Cybister godeffroyi (Wehncke, 1876)		
83	Insecta	Dytiscidae	Hyphydrus lyratus Swartz, 1808		
84	Insecta	Dytiscidae	Neobidessodes mjobergi (Zimmermann, 1922)		
85	Insecta	Dytiscidae	Sternopriscus minimus Lea, 1899		
86	Insecta	Dytiscidae	Tiporus giuliani (Watts, 1978)		
87	Insecta	Dytiscidae	Tiporus undecimmaculatus (Clark, 1862)		
88	Insecta	Formicidae Latreille, 1809	Brachyponera lutea Mayr, 1862		
89	Insecta	Gomphidae	Armagomphus armiger (Tillyard, 1913)		
90	Insecta	Gripopterygidae	Gripopterygidae		
91	Insecta	Gripopterygidae	Leptoperla australica (Enderlein, 1909)		
92	Insecta	Gyrinidae	Gyrinidae		
93	Insecta	Halictidae	Lasioglossum (Chilalictus) chapmani (Cockerell, 1910)		
94	Insecta	Halictidae	Lasioglossum (Chilalictus) clelandi (Cockerell, 1910)		
95	Insecta	Halictidae	Lasioglossum (Chilalictus) mirandum (Cockerell, 1914)		
96	Insecta	Halictidae	Lasioglossum (Homalictus) urbanum (Smith, 1879)		
97	Insecta	Halictidae	Lipotriches (Austronomia) australica (Smith, 1875)		
98	Insecta	Halictidae	Lipotriches (Austronomia) regis (Cockerell, 1910)		
99	Insecta	Histeridae	Eulomalus miliaris (Marseul, 1870)		
100	Insecta	Hydrophilidae Latreille, 1802	Berosus (Berosus) pulchellus W. S. Macleay, 1825		
101	Insecta	Lauxaniidae Macquart, 1835	Sapromyza hieroglyphica Malloch, 1927		
102	Insecta	Leptoceridae	Leptoceridae		
103	Insecta	Megachilidae	Megachile (Chalicodomoides) aethiops (Smith, 1853)		
104	Insecta	Megachilidae	Megachile (Eutricharaea) chrysopyga Smith, 1853		
105	Insecta	Megachilidae	Megachile (Hackeriapis) oblonga Smith, 1879		
106	Insecta	Megachilidae	Megachile (Hackeriapis) tosticauda Cockerell, 1912		
107	Insecta	Megachilidae	Megachile aurifrons Smith, 1853		
108	Insecta	Megachilidae	Megachile erythropyga Smith, 1853		

109	Insecta	Noctuidae Latreille, 1809	Helicoverpa punctigera (Wallengren, 1860)		
110	Insecta	Noctuidae Latreille, 1809	Heliothis punctifera Walker, 1857		
111	Insecta	Nolidae	Uraba lugens Walker, 1863		
112	Insecta	Reduviidae	Ptilocnemus Westwood, 1840		
113	Insecta	Rhinotermitidae	Heterotermes platycephalus Froggatt, 1897		
114	Insecta	Simuliidae Newman, 1834	Simuliidae Newman, 1834		
115	Insecta	Synthemistidae	Austrosynthemis cyanitincta (Tillyard, 1908)		
116	Insecta	Telephlebiidae	Telephlebiidae		
117	Insecta	Termitidae	Amitermes obeuntis (Silvestri, 1909)		
118	Insecta	Termitidae	Xylochomitermes occidualis (Gay, 1971)		
119	Insecta	Tettigoniidae	Pachysaga strobila Rentz, 1993 *(cricket, Vasse Pachysaga (Busselton-Donnybrook))*	native	P1
120	Malacostraca	Palaemonidae Rafinesque, 1815	Palaemonidae Rafinesque, 1815		
121	Malacostraca	Parastacidae	Cherax tenuimanus Smith, 2002	native	CR
122	Mammalia	Burramyidae	Cercartetus concinnus (Gould, 1845) *(Western Pygmy-possum)*	native	
123	Mammalia	Dasyuridae	Dasyurus geoffroii Gould, 1841	native	VU
124	Mammalia	Dasyuridae	Dasyurus geoffroii fortis Thomas, 1906 *(Chuditch)*	native	Cons code inherited from parent
125	Mammalia	Dasyuridae	Phascogale tapoatafa wambenger Aplin, Rhind, Ten Have & Chesser, 2015 *(South-western Brush-tailed Phascogale)*	native	CD
126	Mammalia	Macropodidae	Notamacropus irma (Jourdan, 1837) *(Western Brush Wallaby)*	native	P4
127	Mammalia	Macropodidae	Setonix brachyurus (Quoy & Gaimard, 1830) *(Quokka)*	native	VU
128	Mammalia	Muridae	Hydromys chrysogaster Geoffroy, 1804 *(Water-rat)*	native	P4
129	Mammalia	Peramelidae	Isoodon fusciventer (Gray, 1841)	native	P4
130	Mammalia	Peramelidae	Isoodon obesulus (Shaw, 1797) *(Southern Brown Bandicoot)*	native	
131	Mammalia	Phalangeridae	Trichosurus vulpecula hypoleucus (Wagner, 1855)	native	
132	Mammalia	Potoroidae	Bettongia penicillata ogilbyi (Waterhouse, 1841)	native	CR
133	Mammalia	Pseudocheiridae	Pseudocheirus occidentalis (Thomas, 1888)	native	CR
134	Mammalia	Pteropodidae	Pteropus scapulatus Peters, 1862 *(Little Red Flying-fox)*	native	
135	Mammalia	Vespertilionidae	Falsistrellus mackenziei Kitchener, Caputi & Jones, 1986 *(Western False Pipistrelle)*	native	P4
136	Mammalia	Vespertilionidae	Nyctophilus geoffroyi Leach, 1821 *(Lesser Long-eared Bat)*	native	
137	Reptilia	Elapidae	Pseudonaja affinis affinis GÃ¼nther, 1872 *(Dugite)*	native	
138	Reptilia	Elapidae	Simoselaps bertholdi (Jan, 1859) *(Jan's Banded Snake)*	native	
139	Reptilia	Pygopodidae	Aprasia pulchella Gray, 1839 *(Granite Worm-lizard)*	native	
140	Reptilia	Scincidae	Ctenotus impar Storr, 1969	native	
141	Reptilia	Scincidae	Hemiergis peronii tridactyla (Boulenger, 1915) *(Four-toed Earless Skink)*	native	
142	Reptilia	Scincidae	Lerista distinguenda (Werner, 1910) *(Dwarf Four-toed Slider)*	native	
143	Reptilia	Scincidae	Morethia obscura (Storr, 1973) *(Shrubland Pale-flecked Morethia)*	native	
144	Reptilia	Scincidae	Tiliqua rugosa rugosa (Gray, 1825)	native	
145	Reptilia	Typhlopidae Merrem, 1820	Anilios australis Gray, 1845 *(Southern Blind Snake)*	native	

Conservation status definitions

Threatened species

- CR – Critically Endangered
- EN – Endangered
- VU – Vulnerable
- EX – Extinct
- EW – Extinct in the Wild
- CD – Species of special conservation interest (conservation dependent)
- OS – Species otherwise in need of special protection (other specially protected)
- MI – Migratory
- SP – Specially protected species

Priority species

- P1 – Priority 1: Poorly-known species – known from few locations, none on conservation lands
- P2 – Priority 2: Poorly-known species – known from few locations, some on conservation lands
- P3 – Priority 3: Poorly-known species – known from several locations
- P4 – Priority 4: Rare, Near Threatened and other species in need of monitoring

Dandjoo specific codes

- Parent of conservation listed taxa
- Cons code inherited from parent, X

Read full definitions at https://bio.wa.gov.au/guide/conservation-status-definitions

Disclaimer

Further note, precise locations of conservation listed species are considered sensitive. To protect this information, obfuscation has been applied to conservation-listed species records. For these species, the true location is ±10km from the search area used to generate this species list.

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: 21-Jun-2025

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:	1
Listed Threatened Species:	13
Listed Migratory Species:	6

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at 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:	9
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
Empodisma peatlands of southwestern Australia	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 may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may 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
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding likely to occur within area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Breeding likely to occur within area
MAMMAL		

Scientific Name	Threatened Category	Presence Text
Dasyurus geoffroii		
Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Myrmecobius fasciatus		
Numbat [294]	Endangered	Species or species habitat may occur within area
Pseudocheirus occidentalis		
Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area
OTHER		
Westralunio carteri		
Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area
PLANT		
Caladenia hoffmanii		
Hoffman's Spider-orchid [56719]	Endangered	Species or species habitat may occur within area
Eleocharis keigheryi		
Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area
Synaphea sp. Fairbridge Farm (D.Papenfus 696)		
Selena's Synaphea [82881]	Critically 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
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	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

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]	Vulnerable	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

Scientific Name	Threatened Category	Presence Text
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

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State
Unnamed WA26238	Nature Reserve	WA

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

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 is 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 on the contents of this report.

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 point locations and environmental data layers.

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 when time permits.

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 breeding sites; and
- 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 E

DETAILS - POTENTIAL BLACK COCKATOO BREEDING HABITAT TREES

Black Cockatoo Habitat Trees
DBH >30 cm
Datum - GDA2020
Entrance Size Ranges - Small = >5cm, Medium = 5 to 10cm, Large = >10cm

Waypoint Number	Zone	mE	mN	Tree Species	DBH (cm)	Tree Height (m)	Number of Hollows	Estimated Hollow Entrance Size	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
1	50H	394627	6285403	Marri	>50	20+	0					
1a	50H	394632	6285410	Marri	>50	20+	0					
2	50H	394671	6285388	Marri	>50	20+	0					
3	50H	394675	6285334	Jarrah	>50	15-20	0					
4	50H	394673	6285332	Jarrah	>50	15-20	0					
5	50H	394660	6285323	Jarrah	>50	15-20	0					
7	50H	394660	6285256	Dead Jarrah	>50	15-20	0					
9	50H	394684	6285233	Jarrah	>50	15-20	2+	Small	No Signs	No Signs	No	
10	50H	394692	6285227	Jarrah	>50	15-20	0					
11	50H	394699	6285209	Jarrah	>50	15-20	0					
12	50H	394721	6285236	Jarrah	>50	20+	2+	Small, Medium & Large	No Signs	No Signs	No	Checked with drone
13	50H	394761	6285229	Dead Jarrah	>50	5-10	2+	Small, Medium & Large	No Signs	No Signs	No	Checked with drone
14	50H	394762	6285189	Jarrah	>50	15-20	2+	Small, Medium & Large (Cockatoo)	Ducks	No Signs	Yes	Checked with drone - Evidence of Australian Wood Ducks nesting in large hollow
15	50H	394652	6285179	Jarrah	>50	15-20	0					
16	50H	394647	6285170	Dead Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
17	50H	394655	6285091	Dead Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	Surrounded by suckers
18	50H	394645	6285055	Jarrah	>50	5-10	0					
19	50H	394644	6285053	Dead Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
20	50H	394666	6285039	Dead Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
21	50H	394667	6285034	Dead Jarrah	>50	20+	2+	Small & Medium	No Signs	No Signs	No	
22	50H	394789	6285125	Jarrah	>50	15-20	0					
23	50H	394742	6284809	Dead Jarrah	>50	15-20	0					
24	50H	394726	6284784	Jarrah	>50	15-20	0					
25	50H	394661	6284757	Jarrah	>50	15-20	0					
26	50H	394670	6284750	Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
27	50H	394680	6284736	Jarrah	>50	5-10	0					
28	50H	394708	6284730	Dead Jarrah	>50	15-20	0					
29	50H	394723	6284667	Jarrah	>50	15-20	0					
30	50H	394752	6284619	Dead Jarrah	>50	15-20	0					
31	50H	394763	6284704	Jarrah	>50	15-20	0					
32	50H	394757	6284701	Jarrah	>50	15-20	0					
33	50H	394796	6284683	Dead Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	Spout trunk but not hollow
34	50H	394856	6284704	Dead Unknown	>50	15-20	0					
35	50H	394864	6284767	Jarrah	>50	15-20	0					
36	50H	394881	6284764	Jarrah	>50	20+	1	Medium	No Signs	No Signs	No	
37	50H	394957	6284751	Jarrah	>50	15-20	1	Medium	No Signs	No Signs	No	
38	50H	395002	6284792	Jarrah	>50	15-20	2+	Small, Medium & Large	No Signs	No Signs	No	Checked with drone
39	50H	395076	6284781	Jarrah	>50	20+	0					
40	50H	395124	6284666	Dead Jarrah	>50	20+	2+	Small & Medium	No Signs	No Signs	No	
41	50H	395091	6284588	Dead Jarrah	>50	15-20	0					
42	50H	395074	6284576	Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
43	50H	395067	6284590	Jarrah	>50	15-20	0					
44	50H	395051	6284551	Jarrah	>50	15-20	1	Medium	No Signs	No Signs	No	
45	50H	395033	6284564	Jarrah	>50	15-20	0					
46	50H	394870	6284560	Dead Jarrah	>50	20+	2+	Small & Medium	No Signs	No Signs	No	
47	50H	394770	6284530	Jarrah	>50	20+	2+	Small & Medium	No Signs	No Signs	No	
48	50H	394723	6284531	Jarrah	>50	15-20	0					

49	50H	394695	6284535	Jarrah	>50	20+	2+	Small & Medium	No Signs	No Signs	No	
51	50H	394696	6284558	Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
52	50H	394718	6284552	Jarrah	>50	15-20	0					
53	50H	394745	6284574	Jarrah	>50	15-20	0					
54	50H	394945	6284652	Dead Jarrah	>50	15-20	2+	Small & Medium	Bees	No Signs	No	
55	50H	394976	6284641	Jarrah	>50	15-20	0					
56	50H	394984	6284617	Jarrah	>50	15-20	0					
57	50H	394990	6284603	Jarrah	>50	15-20	0					
58	50H	394995	6284604	Jarrah	>50	15-20	0					
59	50H	395009	6284616	Jarrah	>50	20+	0					
60	50H	395016	6284645	Jarrah	>50	15-20	0					
61	50H	394909	6284686	Dead Unknown	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
62	50H	394794	6284857	Dead Jarrah	>50	20+	2+	Small & Medium	No Signs	No Signs	No	
wpt001	50H	394660	6285454	Marri	30-50	10-15	0					
wpt002	50H	394763	6285368	Jarrah	>50	15-20	0					
wpt003	50H	395105	6285529	Flooded Gum	>50	20+	0					
wpt004	50H	395109	6285547	Unknown Euc	30-50	10-15	0					
wpt005	50H	395107	6285511	Flooded Gum	30-50	5-10	0					
wpt006	50H	395104	6285508	Flooded Gum	>50	15-20	0					
wpt007	50H	395099	6285504	Flooded Gum	30-50	5-10	0					
wpt008	50H	395097	6285493	Flooded Gum	>50	15-20	0					
wpt009	50H	395102	6285490	Flooded Gum	30-50	5-10	0					
wpt010	50H	395112	6285487	Flooded Gum	30-50	10-15	0					
wpt011	50H	395091	6285496	Dead Unknown	30-50	5-10	0					
wpt012	50H	395072	6285483	Flooded Gum	30-50	10-15	0					
wpt013	50H	395063	6285450	Flooded Gum	30-50	10-15	0					
wpt014	50H	395059	6285447	Flooded Gum	>50	5-10	0					
wpt015	50H	395073	6285446	Flooded Gum	30-50	5-10	0					
wpt016	50H	395094	6285397	Flooded Gum	>50	15-20	0					
wpt017	50H	395082	6284774	Jarrah	30-50	10-15	0					
wpt018	50H	395090	6284768	Jarrah	30-50	10-15	0					
wpt019	50H	395078	6284791	Jarrah	30-50	10-15	0					
wpt020	50H	395047	6284789	Jarrah	30-50	10-15	0					
wpt021	50H	395039	6284771	Jarrah	30-50	10-15	0					
wpt022	50H	395045	6284766	Jarrah	30-50	10-15	0					
wpt023	50H	395048	6284765	Jarrah	30-50	10-15	0					
wpt024	50H	395049	6284760	Jarrah	>50	10-15	0					
wpt026	50H	394970	6284730	Jarrah	30-50	10-15	0					
wpt027	50H	394976	6284714	Jarrah	30-50	10-15	0					
wpt028	50H	394978	6284714	Jarrah	30-50	10-15	0					
wpt029	50H	394983	6284709	Jarrah	30-50	10-15	0					
wpt034	50H	395072	6285474	Flooded Gum	30-50	5-10	0					
wpt035	50H	395072	6285470	Flooded Gum	30-50	5-10	0					
wpt036	50H	395072	6285464	Flooded Gum	30-50	5-10	0					
wpt037	50H	395075	6285460	Flooded Gum	30-50	5-10	0					
wpt038	50H	395117	6285408	Flooded Gum	30-50	5-10	0					
wpt039	50H	395109	6285403	Flooded Gum	30-50	5-10	0					
wpt040	50H	395114	6285377	Flooded Gum	30-50	5-10	0					
wpt041	50H	395108	6285396	Flooded Gum	30-50	5-10	0					
wpt025	50H	394771	6285219	Jarrah	30-50	5-10	0					
wpt030	50H	394780	6285225	Jarrah	30-50	5-10	0					
wpt031	50H	394789	6285161	Jarrah	30-50	5-10	0					
wpt032	50H	394761	6285141	Jarrah	30-50	5-10	0					
wpt033	50H	394785	6285134	Jarrah	30-50	5-10	0					

wpt042	50H	394776	6285060	Jarrah	30-50	5-10	0					
wpt043	50H	394764	6285049	Jarrah	30-50	10-15	0					
wpt044	50H	394764	6285048	Jarrah	30-50	10-15	0					
wpt045	50H	394773	6285040	Jarrah	30-50	10-15	0					
wpt046	50H	394774	6284859	Dead Jarrah	30-50	10-15	0					
wpt047	50H	394783	6284865	Dead Jarrah	30-50	10-15	0					
wpt048	50H	394789	6284857	Dead Jarrah	30-50	10-15	0					
wpt049	50H	394790	6284838	Jarrah	30-50	10-15	0					
wpt050	50H	394755	6284705	Dead Jarrah	30-50	10-15	0					
wpt051	50H	394757	6284698	Jarrah	30-50	10-15	0					
wpt052	50H	394800	6284598	Dead Jarrah	30-50	10-15	0					
wpt053	50H	394801	6284561	Jarrah	>50	10-15	0					
wpt054	50H	394796	6284544	Jarrah	30-50	10-15	0					
wpt055	50H	394808	6284533	Marri	30-50	10-15	0					
wpt056	50H	394807	6284533	Jarrah	30-50	10-15	0					
wpt057	50H	394834	6284533	Jarrah	30-50	10-15	0					
wpt058	50H	394829	6284525	Jarrah	30-50	10-15	0					
wpt059	50H	394823	6284518	Marri	30-50	10-15	0					
wpt060	50H	394848	6284529	Jarrah	30-50	10-15	0					
wpt061	50H	394851	6284525	Jarrah	30-50	10-15	0					
wpt062	50H	394860	6284530	Marri	>50	10-15	0					
wpt063	50H	394877	6284529	Jarrah	30-50	10-15	0					
wpt064	50H	394884	6284528	Jarrah	30-50	10-15	0					
wpt065	50H	394889	6284541	Jarrah	30-50	10-15	0					
wpt066	50H	394892	6284548	Jarrah	>50	10-15	0					
wpt067	50H	394897	6284559	Jarrah	30-50	10-15	0					
wpt068	50H	394906	6284535	Marri	>50	15-20	0					
wpt069	50H	394915	6284533	Jarrah	30-50	10-15	0					
wpt070	50H	394920	6284526	Jarrah	>50	15-20	0					
wpt071	50H	394936	6284534	Marri	>50	10-15	0					
wpt072	50H	394954	6284535	Jarrah	30-50	10-15	0					
wpt073	50H	394965	6284539	Jarrah	30-50	10-15	0					
wpt074	50H	394996	6284526	Jarrah	30-50	10-15	0					
wpt075	50H	395112	6284523	Jarrah	30-50	10-15	0					
wpt076	50H	395123	6284550	Jarrah	30-50	10-15	0					
wpt077	50H	395091	6284582	Jarrah	30-50	10-15	0					
wpt078	50H	395093	6284602	Jarrah	30-50	10-15	0					
wpt079	50H	395090	6284611	Jarrah	30-50	10-15	0					
wpt080	50H	395089	6284613	Jarrah	30-50	10-15	0					
wpt081	50H	395093	6284644	Jarrah	30-50	10-15	0					
wpt082	50H	395088	6284652	Jarrah	30-50	10-15	0					
wpt083	50H	395085	6284674	Jarrah	30-50	10-15	0					
wpt084	50H	395079	6284669	Jarrah	30-50	10-15	0					
wpt085	50H	395095	6284679	Jarrah	30-50	10-15	0					
wpt086	50H	395091	6284684	Jarrah	30-50	10-15	0					
wpt087	50H	395099	6284695	Jarrah	30-50	10-15	0					
wpt088	50H	395102	6284692	Jarrah	30-50	10-15	0					
wpt089	50H	395096	6284720	Jarrah	>50	15-20	0					
wpt090	50H	394917	6284771	Jarrah	30-50	10-15	0					
wpt091	50H	394905	6284784	Dead Jarrah	>50	15-20	0					
wpt092	50H	394897	6284801	Jarrah	30-50	5-10	0					
wpt093	50H	394897	6284805	Jarrah	30-50	10-15	0					
wpt094	50H	394892	6284805	Jarrah	30-50	10-15	0					
wpt095	50H	394886	6284800	Jarrah	30-50	10-15	0					

wpt096	50H	394846	6284797	Jarrah	30-50	10-15	0					
wpt097	50H	394884	6284674	Jarrah	30-50	10-15	0					
wpt098	50H	394897	6284643	Dead Jarrah	>50	15-20	0					
wpt099	50H	394862	6284589	Dead Jarrah	>50	15-20	0					
wpt100	50H	394850	6284586	Jarrah	>50	15-20	0					
wpt101	50H	394847	6284586	Jarrah	30-50	10-15	0					
wpt102	50H	394844	6284584	Dead Jarrah	>50	15-20	0					
wpt103	50H	394835	6284572	Jarrah	30-50	10-15	0					
wpt104	50H	394836	6284569	Jarrah	30-50	10-15	0					
wpt105	50H	394844	6284545	Jarrah	30-50	10-15	0					
wpt106	50H	394904	6284582	Jarrah	30-50	10-15	0					
wpt107	50H	394910	6284580	Jarrah	30-50	10-15	0					
wpt108	50H	394912	6284586	Jarrah	30-50	10-15	0					
wpt109	50H	394919	6284567	Jarrah	30-50	10-15	0					
wpt110	50H	394928	6284567	Jarrah	30-50	10-15	0					
wpt111	50H	394929	6284551	Jarrah	30-50	10-15	0					
wpt112	50H	394924	6284547	Jarrah	30-50	10-15	0					
wpt113	50H	394943	6284548	Jarrah	30-50	10-15	0					
wpt114	50H	394956	6284558	Jarrah	30-50	10-15	0					
wpt115	50H	394982	6284573	Jarrah	30-50	10-15	0					
wpt116	50H	394977	6284577	Jarrah	>50	15-20	0					
wpt117	50H	394992	6284583	Jarrah	30-50	10-15	0					
wpt118	50H	395015	6284565	Jarrah	30-50	10-15	0					
wpt119	50H	395055	6284578	Jarrah	30-50	10-15	0					
wpt120	50H	395057	6284602	Jarrah	30-50	10-15	0					
wpt121	50H	395050	6284608	Jarrah	30-50	10-15	0					
wpt122	50H	395059	6284613	Jarrah	30-50	10-15	0					
wpt123	50H	395066	6284623	Jarrah	>50	15-20	0					
wpt124	50H	395044	6284645	Dead Unknown	>50	15-20	0					
wpt125	50H	395040	6284673	Jarrah	30-50	10-15	0					
wpt126	50H	395039	6284674	Jarrah	>50	15-20	0					
wpt127	50H	395032	6284682	Jarrah	30-50	10-15	0					
wpt128	50H	395026	6284685	Jarrah	30-50	10-15	0					
wpt129	50H	395027	6284686	Jarrah	30-50	10-15	0					
wpt130	50H	395011	6284687	Jarrah	30-50	10-15	0					
wpt131	50H	395009	6284694	Jarrah	30-50	10-15	0					
wpt132	50H	394999	6284693	Jarrah	>50	15-20	0					
wpt133	50H	395001	6284683	Jarrah	30-50	10-15	0					
wpt134	50H	395002	6284700	Jarrah	30-50	10-15	0					
wpt135	50H	394996	6284696	Jarrah	30-50	10-15	0					
wpt136	50H	394922	6284683	Jarrah	30-50	10-15	0					
wpt137	50H	394936	6284642	Jarrah	30-50	10-15	0					
wpt138	50H	394959	6284622	Jarrah	30-50	10-15	0					
wpt139	50H	395014	6284619	Jarrah	>50	15-20	0					
wpt140	50H	395021	6284618	Jarrah	>50	15-20	0					
wpt141	50H	394727	6284790	Jarrah	30-50	10-15	0					
wpt142	50H	394743	6284798	Dead Jarrah	30-50	10-15	0					
wpt143	50H	394696	6284865	Jarrah	>50	15-20	0					
wpt144	50H	394699	6284868	Jarrah	30-50	10-15	0					
wpt145	50H	394695	6284898	Jarrah	30-50	15-20	0					
wpt146	50H	394696	6285045	Jarrah	30-50	10-15	0					
wpt147	50H	394703	6285049	Jarrah	30-50	10-15	0					
wpt148	50H	394704	6285051	Jarrah	30-50	10-15	0					
wpt149	50H	394702	6285056	Jarrah	30-50	10-15	0					

wpt150	50H	394705	6285071	Jarrah	30-50	10-15	0					
wpt151	50H	394701	6285075	Jarrah	30-50	10-15	0					
wpt152	50H	394733	6285098	Jarrah	30-50	10-15	0					
wpt153	50H	394745	6285139	Jarrah	30-50	10-15	0					
wpt154	50H	394746	6285141	Jarrah	30-50	10-15	0					
wpt155	50H	394669	6285329	Jarrah	30-50	15-20	0					
wpt156	50H	394671	6285332	Jarrah	>50	15-20	0					
wpt157	50H	394666	6285324	Jarrah	30-50	15-20	0					
wpt158	50H	394654	6285305	Jarrah	30-50	15-20	0					
wpt159	50H	394652	6285308	Jarrah	30-50	15-20	0					
wpt160	50H	394668	6285269	Jarrah	30-50	15-20	0					
wpt161	50H	394672	6285261	Jarrah	30-50	15-20	0					
wpt162	50H	394629	6285238	Dead Marri	>50	15-20	0					
wpt163	50H	394659	6285177	Jarrah	30-50	15-20	0					
wpt164	50H	394661	6285173	Jarrah	>50	15-20	0					
wpt165	50H	394657	6285169	Jarrah	>50	15-20	0					
wpt166	50H	394658	6285167	Jarrah	30-50	15-20	0					
wpt167	50H	394662	6285107	Jarrah	30-50	15-20	0					
wpt168	50H	394666	6285098	Jarrah	30-50	10-15	0					
wpt169	50H	394656	6285100	Jarrah	30-50	15-20	0					
wpt170	50H	394652	6285098	Jarrah	30-50	10-15	0					
wpt171	50H	394647	6285072	Dead Jarrah	30-50	10-15	0					
wpt172	50H	394654	6285030	Jarrah	>50	15-20	0					
wpt173	50H	394649	6285032	Jarrah	30-50	10-15	0					
wpt174	50H	394652	6285030	Jarrah	30-50	10-15	0					
wpt175	50H	394651	6285023	Dead Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
wpt176	50H	394659	6285007	Jarrah	30-50	10-15	0					
wpt177	50H	394656	6284998	Jarrah	>50	15-20	0					
wpt178	50H	394654	6284987	Jarrah	30-50	10-15	0					
wpt179	50H	394682	6284912	Jarrah	30-50	10-15	0					
wpt180	50H	394675	6284902	Jarrah	30-50	10-15	0					
wpt181	50H	394659	6284897	Jarrah	30-50	10-15	0					
wpt182	50H	394664	6284890	Jarrah	>50	15-20	0					
wpt183	50H	394665	6284872	Jarrah	30-50	15-20	0					
wpt184	50H	394668	6284859	Jarrah	30-50	10-15	0					
wpt185	50H	394660	6284824	Jarrah	30-50	10-15	0					
wpt186	50H	394657	6284818	Jarrah	>50	10-15	0					
wpt187	50H	394655	6284813	Jarrah	>50	10-15	0					
wpt188	50H	394651	6284811	Jarrah	30-50	15-20	0					
wpt189	50H	394642	6284809	Jarrah	30-50	10-15	0					
wpt190	50H	394640	6284804	Jarrah	30-50	10-15	0					
wpt191	50H	394647	6284819	Jarrah	30-50	10-15	0					
wpt192	50H	394642	6284816	Jarrah	30-50	10-15	0					
wpt193	50H	394635	6284795	Jarrah	30-50	10-15	0					
wpt194	50H	394643	6284788	Jarrah	30-50	10-15	0					
wpt195	50H	394646	6284786	Jarrah	30-50	10-15	0					
wpt196	50H	394650	6284786	Jarrah	30-50	10-15	0					
wpt197	50H	394648	6284772	Jarrah	30-50	10-15	0					
wpt198	50H	394642	6284748	Jarrah	30-50	10-15	0					
wpt199	50H	394649	6284713	Jarrah	30-50	15-20	0					
wpt200	50H	394641	6284720	Jarrah	30-50	15-20	0					
wpt201	50H	394645	6284725	Jarrah	30-50	10-15	0					
wpt202	50H	394640	6284714	Dead Jarrah	30-50	10-15	0					
wpt203	50H	394674	6284699	Jarrah	30-50	10-15	0					

wpt204	50H	394691	6284697	Jarrah	>50	15-20	0					
wpt205	50H	394701	6284701	Dead Jarrah	30-50	10-15	0					
wpt206	50H	394692	6284678	Dead Jarrah	30-50	10-15	0					
wpt207	50H	394707	6284657	Jarrah	30-50	10-15	0					
wpt208	50H	394698	6284604	Dead Jarrah	>50	15-20	2+	Small & Medium	No Signs	No Signs	No	
wpt209	50H	394708	6284601	Dead Jarrah	30-50	15-20	0					
wpt210	50H	394712	6284573	Dead Jarrah	30-50	10-15	0					
wpt211	50H	394687	6284547	Jarrah	30-50	10-15	0					
wpt212	50H	394680	6284548	Jarrah	30-50	10-15	0					
wpt213	50H	394678	6284545	Jarrah	30-50	10-15	0					
wpt214	50H	394662	6284539	Jarrah	30-50	10-15	0					
wpt215	50H	394654	6284528	Jarrah	30-50	10-15	0					
wpt216	50H	394656	6284529	Jarrah	30-50	10-15	0					
wpt217	50H	394692	6284522	Jarrah	>50	15-20	0					
wpt218	50H	394715	6284527	Dead Jarrah	30-50	10-15	0					
wpt219	50H	394753	6284550	Dead Jarrah	30-50	10-15	0					
wpt220	50H	394769	6284554	Jarrah	30-50	15-20	0					
wpt221	50H	394771	6284579	Jarrah	30-50	10-15	0					
wpt222	50H	394736	6284588	Jarrah	30-50	10-15	0					
wpt223	50H	394733	6284629	Dead Jarrah	30-50	10-15	0					
wpt224	50H	394720	6284657	Dead Jarrah	30-50	10-15	0					
wpt225	50H	394721	6284737	Jarrah	>50	15-20	0					
wpt226	50H	394704	6284756	Jarrah	30-50	10-15	0					
wpt227	50H	394693	6284770	Dead Jarrah	30-50	10-15	0					
wpt228	50H	394691	6284772	Dead Jarrah	30-50	10-15	0					
wpt229	50H	394692	6284779	Dead Jarrah	30-50	10-15	0					
wpt230	50H	394686	6284784	Jarrah	30-50	10-15	0					
wpt231	50H	394683	6284793	Jarrah	30-50	10-15	0					
wpt232	50H	394692	6285127	Jarrah	30-50	10-15	0					
wpt233	50H	394729	6285172	Jarrah	30-50	10-15	0					
wpt234	50H	394729	6285157	Jarrah	30-50	10-15	0					
wpt235	50H	394739	6285180	Jarrah	30-50	10-15	0					
wpt236	50H	394742	6285198	Jarrah	30-50	10-15	0					
wpt237	50H	394746	6285221	Jarrah	30-50	10-15	0					
wpt238	50H	394724	6285212	Jarrah	>50	10-15	0					
wpt239	50H	394707	6285197	Jarrah	>50	10-15	0					
wpt240	50H	394691	6285208	Jarrah	30-50	10-15	0					
wpt241	50H	394684	6285197	Jarrah	30-50	10-15	0					
wpt242	50H	394684	6285202	Jarrah	30-50	10-15	0					
wpt243	50H	394685	6285198	Jarrah	>50	10-15	0					
wpt244	50H	394678	6285198	Jarrah	30-50	10-15	0					
wpt245	50H	394678	6285196	Jarrah	30-50	10-15	0					
wpt246	50H	394678	6285201	Jarrah	30-50	10-15	0					
wpt247	50H	394684	6285223	Jarrah	30-50	10-15	0					
wpt248	50H	394694	6285236	Jarrah	30-50	10-15	0					
wpt249	50H	394691	6285237	Jarrah	>50	10-15	0					
wpt250	50H	394703	6285245	Jarrah	>50	10-15	0					
wpt251	50H	394716	6285250	Jarrah	30-50	10-15	0					
wpt252	50H	394718	6285256	Jarrah	30-50	15-20	0					
wpt253	50H	394690	6285354	Marri	30-50	10-15	0					
wpt254	50H	394696	6285355	Marri	30-50	10-15	0					
wpt255	50H	394690	6285363	Marri	30-50	10-15	0					
wpt256	50H	394699	6285371	Marri	30-50	10-15	0					
wpt258	50H	394694	6285380	Marri	30-50	10-15	0					

wpt262	50H	394684	6285368	Marri	30-50	10-15	0					
wpt263	50H	394682	6285372	Marri	>50	15-20	0					
wpt264	50H	394684	6285389	Marri	>50	15-20	0					
wpt265	50H	394675	6285393	Marri	30-50	10-15	0					
wpt266	50H	394673	6285395	Marri	30-50	10-15	0					
wpt267	50H	394671	6285394	Marri	30-50	10-15	0					
wpt268	50H	394664	6285386	Marri	30-50	10-15	0					
wpt269	50H	394666	6285392	Marri	30-50	10-15	0					
wpt270	50H	394660	6285392	Marri	30-50	10-15	0					
wpt271	50H	394663	6285396	Marri	30-50	10-15	0					
wpt272	50H	394664	6285414	Marri	30-50	10-15	0					
wpt273	50H	394656	6285418	Marri	30-50	10-15	0					
wpt274	50H	394643	6285400	Marri	30-50	10-15	0					
wpt275	50H	394642	6285412	Marri	30-50	10-15	0					
wpt276	50H	394636	6285422	Marri	30-50	10-15	0					

APPENDIX F

FAUNA OBSERVED DURING SURVEY PERIOD

Fauna Observed During Survey Period

Lot 751 Donnybrook-Boyup Brook Road - Beelerup

Compiled by Greg Harewood - Aug 2025

Class **Family** *Species*	Common Name	Conservation Status
Amphibia		
Myobatrachidae Ground or Burrowing Frogs		
Crinia georgiana	Quacking Frog	
Crinia glauerti	Clicking Frog	
Geocrinia leai	Ticking Frog	
Hylidae Tree or Water-Holding Frogs		
Litoria adelaidensis	Slender Tree Frog	
Aves		
Anatidae Geese, Swans, Ducks		
Chenonetta jubata	Australian Wood Duck	
Accipitridae Kites, Goshawks, Eagles, Harriers		
Aquila morphnoides	Little Eagle	
Columbidae Pigeons, Doves		
Ocyphaps lophotes	Crested Pigeon	
Phaps chalcoptera	Common Bronzewing	

BC Act Status/EPBC Act Status - CR = Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, Mig = Migratory

Class **Family** *Species*	Common Name	Conservation Status
Psittacidae Parrots		
Cacatua roseicapilla	Galah	
Calyptorhynchus banksii naso	Forest Red-tailed Black-Cockatoo	VU
Platycercus spurius	Red-capped Parrot	
Platycercus zonarius	Australian Ringneck	
Zanda baudinii	Baudin's Black Cockatoo	EN
Zanda latirostris	Carnaby's Black Cockatoo	EN
Cuculidae Parasitic Cuckoos		
Cacomantis flabelliformis	Fan-tailed Cuckoo	
Chrysococcyx lucidus	Shining Bronze Cuckoo	
Strigidae Hawk Owls		
Ninox novaeseelandiae	Boobook Owl	
Halcyonidae Tree Kingfishers		
Dacelo novaeguinea	Laughing Kookaburra	Introduced
Meropidae Bee-eaters		
Merops ornatus	Rainbow Bee-eater	
Maluridae Fairy Wrens, GrassWrens		
Malurus splendens	Splendid Fairy-wren	

Class **Family** *Species*	Common Name	Conservation Status
Acanthizidae Thornbills, Geryones, Fieldwrens & Whitefaces		
Acanthiza apicalis	Broad-tailed Thornbill	
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	
Gerygone fusca	Western Gerygone	
Smicrornis brevirostris	Weebill	
Pardalotidae Pardalotes		
Pardalotus striatus	Striated Pardalote	
Meliphagidae Honeyeaters, Chats		
Acanthorhynchus superciliosus	Western Spinebill	
Anthochaera carunculata	Red Wattlebird	
Lichmera indistincta	Brown Honeyeater	
Phylidonyris novaehollandiae	New Holland Honeyeater	
Petroicidae Australian Robins		
Petroica multicolor	Scarlet Robin	
Pachycephalidae Crested Shrike-tit, Crested Bellbird, Shrike Thrushes, Whistlers		
Colluricincla harmonica	Grey Shrike-thrush	
Pachycephala occidentalis	Golden Whistler	
Dicruridae Monarchs, Magpie Lark, Flycatchers, Fantails, Drongo		
Grallina cyanoleuca	Magpie-lark	
Rhipidura fuliginosa	Grey Fantail	
Rhipidura leucophrys	Willie Wagtail	

Class **Family** *Species*	Common Name	Conservation Status
Artamidae Woodswallows, Butcherbirds, Currawongs		
Artamus cyanopterus	Dusky Woodswallow	
Cracticidae Currawongs, Magpies & Butcherbirds		
Cracticus tibicen	Australian Magpie	
Cracticus torquatus	Grey Butcherbird	
Corvidae Ravens, Crows		
Corvus coronoides	Australian Raven	
Zosteropidae White-eyes		
Zosterops lateralis	Silvereye	
Mammalia		
Phalangeridae Brushtail Possums, Cuscuses		
Trichosurus vulpecula	Common Brushtail Possum	
Macropodidae Kangaroos, Wallabies		
Macropus fuliginosus	Western Grey Kangaroo	
Muridae Rats, Mice		
Mus musculus	House Mouse	Introduced
Rattus rattus	Black Rat	Introduced
Canidae Dogs, Foxes		
Vulpes vulpes	Red Fox	Introduced
Leporidae Rabbits, Hares		
Oryctolagus cuniculus	Rabbit	Introduced

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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.

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