Biodiversity (Flora and Fauna) Surveys

Gifford Road (0.51 – 0.56, 1.69 – 1.70 SLK), Dunsborough

DECEMBER 2025

SW Environmental

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Statement of limitations

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Abbreviations and acronyms

Organisations	
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Federal Department of Climate Change, Energy, the Environment and Water
DWER	WA Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
Common Terms	
DRF	Declared Rare Flora
DSA	Desktop Survey Area – Survey Area plus a 10 km buffer
FRTBC	Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii* subsp. *naso*)
WTBC	White Tailed Black Cockatoo (Baudins cockatoo or Carnaby's cockatoo)
WRP	Western Ringtail Possum (*Pseudocheirus occidentalis)*
MNES	Matters of National Environmental Significance
Project	The proposed action
SW	Southwest
Survey Area	Armstrong Reserve (total impact 0.029 ha) and Gifford Road–Keenan Street intersection (impact ≤0.002 ha
WA	Western Australia
Legislation	
BC Act	*Biodiversity Conservation Act 2016* (WA)
BC Regs	*Biodiversity Conservation Regulations 2018* (WA)
EP Act	*Environmental Protection Act 1986* (WA)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Federal)
Measurements	
ha	Hectare
km	Kilometre
m	Metre

Executive Summary

The City of Busselton proposes two small public-safety infrastructure works along Gifford Road, Dunsborough: replacement of two failed stormwater drain sections within Armstrong Reserve (total impact 0.029 ha) and a minor upgrade at the Gifford Road–Keenan Street intersection to reinstate a footpath and accommodate school bus turning movements (impact ≤0.002 ha). Both works require selective minor clearing within the City road reserves and the adjacent Armstrong Reserve.

SW Environmental undertook Reconnaissance and Targeted Flora and Vegetation, and Basic Fauna with targeted Black Cockatoo and Western Ringtail Possum (WRP) biodiversity surveys, comprising desktop review and field investigations in line with EPA Technical Guidance (2016, 2020). The survey areas include dense remnant bushland at Armstrong Reserve and degraded remnant road-verge vegetation at Keenan Street, spanning the Southern Jarrah Forest (JAF02) and Perth (SWA02) IBRA subregions. Two broad structural vegetation units were mapped within the Survey Area:

- Armstrong Reserve: *Corymbia calophylla, Eucalyptus rudis* subsp*. cratyantha, Agonis flexuosa* and *Melaleuca rhaphiophylla* open forest over *Exocarpos odoratus* shrubland over mixed herbs and sedges.
- Gifford Road–Keenan Street: *Corymbia calophylla* and *Agonis flexuosa* open forest over *Xanthorrhoea preissii, Jacksonia furcellata* and *Acacia pulchella* shrubland over mixed introduced grasses and herbs.

One flora species of conservation significance was recorded during the survey, *Eucalyptus rudis* subsp. *cratyantha* (Priority Four, BC Act) – three plants). No other Priority, Threatened, or otherwise considered significant flora taxa were recorded during the survey.

One Priority Ecological Community (PEC) was recorded within the Survey Area, Dunsborough Forest Swamp (Priority 1, BC Act). This is an existing occurrence (DBCA, 2025b), with the entirety of Armstrong Reserve mapped as this community. During the current survey, this was ground-truthed, with the vegetation confirmed to be representative of this PEC.

Desktop fauna searches identified 255 terrestrial vertebrate species, with 48 target species potentially occurring locally. Habitat quality was assessed as moderate to high in Armstrong Reserve and poor at Keenan Street. No trees with a diameter at breast height greater than 50 cm occur within the proposed impact areas. Western Ringtail Possum was the only species recorded on site, with scats found at all locations and active dreys recorded within each Armstrong Reserve impact area, although no individuals were observed. Other conservation-significant fauna (Brush-tailed Phascogale and Quenda) may occur in Armstrong Reserve, but the proposed clearing represents a negligible proportion of their potential home ranges.

Ctenotus ora (Priority 3) has been previously recorded in Armstrong Reserve, and the impact areas align with known suitable habitat. While the proposed clearing could marginally affect suitable habitat for this species, it would not disrupt habitat linkages, and the dense microhabitat within the footprints is less optimal than preferred open areas.

No hollow-bearing trees, black cockatoo feed residue, roosting, or cockatoo activity were recorded during surveys. Armstrong Reserve pipeline sections may provide high-quality foraging habitat for all three black cockatoo species, whereas Keenan Street provides lower-quality foraging habitat. Overall, the proposed works involve very small disturbance footprints within a broader habitat context and are unlikely to result in significant impacts on local biodiversity values.

1 Introduction

1.1 Project Overview

The City of Busselton ('the City') proposes to undertake urgent works at two locations along Gifford Road, Dunsborough. The projects are located at approximately 500 m and 1.6 km north of the Dunsborough town centre. The site location and study area are shown in Figures 1 and 2 (Appendix A). Both projects are essential for public safety and involve

- replacing two failed 5 - 10 m sections of stormwater drain within Armstrong Reserve, accessed from the western verge of Gifford Road between 0.51 and 0.56 SLK. The combined proposed impact footprint is 0.029 ha (0.017 and 0.019 ha for each section respectively), and
- upgrading the intersection of Gifford Road (1.69 – 1.70 SLK) with Keenan Street, to reinstate the existing foot path to allow a slightly wider turn arc for school buses (approximately 0.5 m) currently driving over the existing foot path. The proposed impact footprint is 0.002 ha or less.

To accommodate the works, selective minor clearing will be required within the Gifford and Keenan Street Reserves and adjacent Armstrong Reserve. Biodiversity surveys were required to inform the environmental assessment process.

1.2 Scope of Work

SW Environmental was commissioned to carry out a Reconnaissance and Targeted Flora and Vegetation and Basic Fauna and Targeted Black Cockatoo[1] and Western Ringtail Possum (WRP) (*Pseudocheirus occidentalis*) (Critically Endangered) (Biodiversity) Surveys. The surveys 3+were to include a desktop review and fieldwork components, generally in line with a the EPA Technical Guidance (EPA, 2016 & 2020).

The flora and vegetation survey included a reconnaissance and targeted flora survey, with targeted surveys carried out in spring. The fauna survey component included a basic terrestrial fauna species inventory, habitat assessment, likelihood of occurrence assessment for conservation significant fauna, along with Targeted Black Cockatoo and WRP surveys. The Targeted Black Cockatoo Survey component was required to identify black cockatoo habitat values, including potential and actual breeding habitat, foraging habitat and roost sites. The fauna survey is restricted to terrestrial vertebrate fauna. Threatened aquatic fauna and invertebrates were considered through desktop assessment only.

1.3 Regulatory Context

1.3.1 Key Legislation

Key environmental legislation relevant to the survey is outlined in Table 1-1.

Table 1-1 Environmental legislation that may be relevant to the Project

Legislation	Responsible Government Department	Aspect
Federal Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Federal Department of Climate Change, Energy, the Environment and Water (DCCEEW)	Matters of National Environmental Significance including threatened flora, vegetation and environmental offsets.
Biodiversity Conservation Act 2016 (BC Act)	WA Department of Biodiversity, Conservation and Attractions (DBCA)	Threatened species habitats, threatening processes, environmental pests and weeds.
Environmental Protection Act 1986 (EP Act)	Environmental Protection Authority or Department of Water and Environmental Regulation (DWER)	Environmental impact assessment and management and offsets.

1.3.2 Flora, fauna and ecological communities

Flora, fauna and ecological communities in WA may be afforded protection under the WA BC Act and or federal EPBC Act. Species listed as threatened or migratory under the above legislation are referred to collectively in this document as being 'conservation significant' or 'target' species. These terms include species and communities listed under the DBCA Priority lists. All three black cockatoo species and WRP targeted in this survey are listed under the BC and EPBC Acts as:

- CE: Critically Endangered species (WRP)
- EN: Endangered species (Baudin's cockatoo and Carnaby's cockatoo)
- VU: Vulnerable species (FRTBC)

Conservation codes are described in Appendix B.

1.3.3 Guidelines

The survey considers the guidelines below.

- *Technical Guidance - Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)
- *Environmental Factor Guideline – Flora and Vegetation* (EPA, 2016a).
- *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016b); and
- Commonwealth Matters of National Environmental Significance – *Significant impact guidelines 1.1 Environmental Protection and Biodiversity Conservation Act 1999* (DoE, 2013).

The following were also considered:

- Commonwealth Matters of National Environmental Significance – Significant impact guidelines 1.1 Environmental Protection and Biodiversity Conservation Act 1999, Department of the Environment, Water, Heritage and the Arts (2013).
- Commonwealth Referral guideline for 3 WA threatened black cockatoo species Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) Department of Agriculture, Water and the Environment (2022).
- Commonwealth EPBC Act referral guidelines for three threatened black cockatoo species: Carnaby's cockatoo (endangered), *Zanda latirostris*, Baudin's cockatoo (vulnerable), *Zanda baudinii*, and Forest red-tailed black cockatoo (vulnerable), *Calyptorhynchus banksii naso* (SEWPaC, 2012).
- Department of Parks and Wildlife (2013). Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan. Department of Parks and Wildlife, Perth, Western Australia.
- Department of Environment and Conservation (2008) Forest Black Cockatoo (Baudin's Cockatoo *Calyptorhynchus baudinii* and Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*) Recovery Plan.
- Department of Parks and Wildlife (2017). Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth, WA.
- Environmental Protection Authority (2002). Terrestrial Biological Surveys as an Element of Biodiversity Protection. Position Statement No. 3.
- Main Roads Black Cockatoo Impact Assessment Factsheet (D19#1011841).

1.3.4 EPBC Act Considerations

The Commonwealth of Australia (DAWE, 2022) guideline apply to the three black cockatoo species listed as threatened under the EPBC Act. Table 1-2 outlines referral thresholds based on guidance regarding actions that are likely or unlikely to require referral to the Minister for the Environment, regarding potential significant impacts on black cockatoos.

A preliminary assessment against black cockatoo impacts is made in Section 4 of this report. Proposed impacts to WRP should be assessed against the Commonwealth Matters of National Environmental Significance – *Significant impact guidelines 1.1* (DEWHA, 2013), if relevant.

Table 1-2 Referral thresholds for black cockatoos (DAWE, 2022)

Attribute	Referral threshold	Reasons
Breeding	Any loss of / impact upon known, suitable or potential nesting trees, and the habitat around these trees, is highly likely to require a referral to the minister. Loss of any potential nesting habitat is likely to require a referral to the minister.	As identified in the conservation planning documents, clearing of breeding habitat is a known threat to the 3 species as a lack of tree hollows is a limiting factor. Habitat loss, habitat degradation, lack of recruitment, fire and competition are causing the scarcity of nesting resource.

Attribute	Referral threshold	Reasons
High-quality native foraging habitat	Loss of greater than or equal to 1 ha of foraging habitat scoring 5-10 using the foraging quality scoring tool is likely to require referral to the minister.	As identified in the conservation planning documents, clearing of foraging habitat is a known threat to the 3 species. Habitat loss, habitat modification, climate change and fire are increasingly causing the scarcity of foraging resources. These resources are critical at all stages of life for the species.
Lower-quality native foraging habitat	Loss of greater than or equal to 10 ha of foraging habitat scoring 0-4 using the foraging quality scoring tool is likely to require referral to the minister.	As identified in the conservation planning documents, clearing of foraging habitat is a known threat to the 3 species. Habitat loss, habitat modification, climate change and fire are increasingly causing the scarcity of foraging resources. These resources are critical at all stages of life for the species.
Exotic foraging habitat	Loss of greater than or equal to 1 ha of predominantly exotic habitat (e.g. Cape Lilac trees and pine trees) known to be utilised by black cockatoos is likely to require a referral to the minister.	As identified in the conservation planning documents, clearing of exotic foraging habitat is a known threat to the 3 species, noting that its value in comparison to native habitat depends upon the context.
Night roosting habitat	Removal of any part of a known night roosting site is likely to require referral to the minister.	As identified in the conservation planning documents, clearing of night roosting habitat is a known threat to the 3 species.

2 Methods

2.1 Desktop Review

A desktop review was completed prior to the field survey, including a review of publicly available information and datasets relevant to the project (outlined in Table 2-1). The Desktop Study Area (DSA) is comprised of the Survey Area with a 10 km buffer (Figure 2, Appendix A). The desktop review of the DSA was undertaken to determine the likelihood of any species or communities of conservation significance (target species or communities) occurring within the Survey Area. Aerial imagery of the Survey Area was also analysed using 4 cm resolution orthophoto captured in December 2025.

The fauna component included consideration of breeding, foraging habitat and roosting requirements for all three black cockatoo species and WRP habitat requirements. The flora desktop assessment included a review of conservation significant vascular flora taxa and/or ecological communities that are known or have the potential to occur within the Survey Area.

Lists of local species returned in desktop database searches for flora and fauna are presented in Appendix C, including conservation significant records for flora, and both common (non-target) and conservation significant taxa for fauna. Listed species have records within the DSA (approximately 10 km buffered Survey Area). A list of conservation significant ecological communities returned from the DSA is presented in Appendix D.

A brief review of species ecology, habitat and range were used in an evaluation matrix to determine the likelihood of occurrence for target flora (Appendix E) and fauna taxa (Appendix F). For flora, a post-survey likelihood of occurrence assessment was undertaken, additionally considering whether the taxon would have been identifiable within the survey period. It is noted that the assumed habitat suitability for each taxon may not be definitive, and taxa may occur within a broader range of habitat outside what is currently known.

Table 2-1 Desktop sources interrogated for the Desktop Assessment

Source	Search Buffer	Purpose
Atlas of Living Australia (ALA, 2025)	Approximately 10 km around Survey Area	Obtain lists of fauna taxa within the DSA
Birdata (BirdLife Australia, 2025)	Approximately 10 km around Survey Area	Obtain lists of bird taxa within the DSA
DBCA Significant Flora Database (WA Herbarium specimen and Threatened and Priority Flora (TPFL) databases) (DBCA, 2025d)	Approximately 10 km around Survey Area	Obtain locations and records of conservation significant flora taxa within the DSA
DBCA Threatened and Priority Fauna Database and black cockatoo breeding and roosting records (DBCA, 2025d)	Approximately 10 km around Survey Area	Obtain locations and records of conservation significant fauna taxa and black cockatoo breeding and roosting records within the DSA
DBCA Threatened and Priority Ecological Communities Database (DBCA, 2025b)	Approximately 10 km around Survey Area	Obtain locations and records of both Threatened and Priority Ecological Communities within the DSA
DBCA NatureMap Database Search (DBCA, 2025a)	Approximately 10 km around Survey Area	Obtain records of conservation significant fauna taxa within the DSA (ensuring that no additional records to the DBCA database searches have been missed)
DBCA Dandjoo Biodiversity Data Repository (DBCA, 2025a)	Approximately 10 km around Survey Area	Obtain records of conservation significant flora taxa within the DSA (ensuring that no additional records to the DBCA database searches have been missed)
Department of Climate Change, Energy, the Environment and Water (DCCEEW) Species Profile and Threats (SPRAT) Database (interrogated using the Protected Matters Search Tool) (DCCEEW, 2025)	Approximately 10 km around Survey Area	Identify Matters of Environmental Significance (MNES) that occur or have the potential to occur within the DSA
2018 South West Vegetation Complex Statistics Report incorporating the CAR Reserve Analysis and DBCA-047 spatial dataset (DBCA, 2019, 2018a)	Survey Area	Identify the extent of Vegetation Complexes within the Survey Area
Bureau of Meteorology Climate Data Online (BoM, 2025)	The most relevant meteorological station to the study area	Review long term and current climate data
Soil Landscape Mapping (Best Available DPIRD-027) spatial dataset (DPIRD, 2025c)	Survey Area	Identify Soil Landscape Mapping within the Survey Area

2.2 Survey Personnel

Personnel involved in the survey and reporting are listed in Table 2-2. Where relevant, plant material was collected under a Flora Taking (Biological Assessment) Licence (under Regulation 62 of the WA

Biodiversity Conservation Regulations 2018) or Authorisation to Take or Disturb Threatened Species (pursuant to Section 40 of the BC Act).

Table 2-2 Survey Personnel and Licensing Information

[redacted]

2.3 Field Survey

2.3.1 Survey Area

The Survey Areas consists of remnant native vegetation at the proposed pipeline locations associated with Armstrong Reserve and remnant road verge vegetation at the intersection of Gifford Road and Keenan Street.

2.3.2 Flora and Vegetation

The site assessment was carried out on the 24th of October 2025 [redacted]. A follow up survey was completed on 16th of December 2025. The Survey Area and an appropriate buffer were traversed on foot to provide complete coverage and to document the structure and condition of the vegetation. The presence of, or potential for, significant flora or vegetation was assessed to determine whether further surveys would likely be required.

For the Armstrong Reserve survey, a targeted survey for flora of conservation significance was extended across a 50 metre buffer surrounding the Survey Area, with particular focus on the potential presence of declared rare flora (DRF) previously been recorded within the reserve.

The Gifford Road–Keenan Street site has a smaller proposed impact footprint and comprises a more limited extent of vegetation, subject to higher levels of disturbance. Accordingly, a reduced buffer was

considered appropriate, with the land between the Survey Area and the intersecting footpath surveyed to a width of approximately 10 metres.

Vegetation Units and Condition

The general characteristics and condition of the vegetation across the Survey Area were mapped and described. Vegetation mapping notes providing observations used to define vegetation units and condition. Vegetation within the Survey Area was not classified using numerical analysis, as quadrats are not required for a reconnaissance level survey.

Aerial photography and vegetation mapping note data were interpreted using Geographic Information Systems (GIS) to delineate vegetation units and condition. Soil mapping was also reviewed during this process. The site's potential to support significant flora or vegetation was assessed to determine whether further surveys would be required, based on the final disturbance footprint.

Vegetation condition was described using the scale presented in Section 5.6 of the EPA Technical Guidance (EPA, 2016b; B. Keighery, 1994), which is applicable to the South West and Interzone Botanical Provinces. Descriptions of the vegetation condition scale are presented in Table 2-3.

Table 2-3 Vegetation condition scale (B. Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact, and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

Significant Flora

If conservation significant flora taxa were observed within the Survey Area, a count of plant abundance and/or extent was recorded, along with a point location using a handheld Garmin Global Positioning System (GPS) unit (± 3m accuracy). A representative collection of plant material was obtained for any significant flora taxa.

Significant Vegetation

If conservation significant vegetation was encountered, notes were taken and the boundaries mapped using a GPS. The DBCA (2023a) *Methods for Survey and Identification of Western Australian Threatened Ecological Communities* was referenced to compare observed vegetation against known significant community descriptions.

Table 2-4 Vegetation structure (B. J. Keighery, 1994).

Life Form/Height Class	Canopy cover			
	100% to 70%	70%to 30%	30%to 10%	10% to 2%
Trees over 30 m	Tall Closed Forest	Tall Open Forest	Tall Woodland Woodland	Tall Open Woodland
Trees 10-30 m	Closed Forest	Open Forest		Open Woodland
Trees under 10 m	Low erased Forest	Low Open Forest	Low Woodland·	Low Open Woodland
Mallee over 8 m (Tree Mallee)	Closed Tree Mallee	Tree Mallee	Open Tree Mallee	Very Open Tree. Mallee
Mallee under 8 m (Shrub Mallee)	Closed Shrub Mallee	Shrub Mallee	Open Shrub Mallee	Very Open Shrub
Shrubs over 2 m	Closed Tall Scrub	Tall Open Scrub	Tall Shrubland Shrubland	Tall Open Shrubland
Shrubs 1-2 m	Closed Heath	Open Heath	Low Shrubland	Open Shrubland
Shrubs under 1 m	Closed Low Heath	Open Low Heath		Very Open Shrubland
Grasses	Closed Grassland	Grassland	Open Grassland	Very Open Grassland
Herbs	Closed Herbland	Herbland	Open Herbland	Very Open Herbland
Sedges	Closed Sedgeland	Sedgeland·	Open Sedgeland.	Very Open Sedgeland

Table 2-5 Vegetation condition scale (EPA, 2016c).

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact, and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

2.3.3 Fauna

Fauna fieldwork consisted of a diurnal surveys on the 24th of October and 13th of November 2025, and nocturnal (spotlighting) on the 20th of November and 4th of December 2025. Field personnel undertaking surveys included [redacted]

Surveys validated the desktop review and ground-truthed fauna habitat types. Fauna habitat types were documented based on structural vegetation and soil mapping where significant changes occurred. Fauna habitat quality was based on the criteria in Table 2-4 to Table 2-6. Evidence of target fauna, e.g.

feed residue, scat, breeding evidence, and sightings were noted. Survey methodology for the black cockatoos and WRP components are described below.

Table 2-6 Fauna habitat quality categories and descriptions (SW Environmental, n.d.).

Quality	Description
Good	• Native vegetation with intact and diverse habitat structure. Different vegetation age classes present at most stratum levels (ground, understorey, midstory, canopy). • Forest/woodland: abundant hollow-bearing trees, including those with or likely to develop large hollows. Mature trees offer more foraging resources (nectar/seed). • Presence of shelter/refuges at ground level (dense understorey plants, tussock, rocky outcrop, hollow logs). • High habitat complexity (ecotones between vegetation types or habitat mosaic). This increases the range of foraging and shelter opportunities within a habitat. • Presence of key foraging and microhabitat components for target species. • Little to no obvious weed invasion or evidence of grazing. • May be large patch and/or connected to other areas of native vegetation.
Moderate	• Native flora species dominant with moderate habitat structure complexity appropriate to vegetation type. Ground litter intact or slightly disturbed. More than one age class present. • Forest/woodland: low to moderate abundance of hollow-bearing trees or trees likely to develop hollows. • Some shelter and refuge present for ground dwelling fauna. • Some habitat complexity (ecotones between vegetation types or areas forming a habitat mosaic). • Marginal presence of key microhabitat components for target species. • May be small or large in scale, and isolated or well connected.
Poor	• Habitat highly disturbed and simplified with low structural complexity. Ground litter layer absent or highly modified. Complexity reduced by only one age class present. • Little or no shelter and refuge for ground dwelling fauna. • Forest/woodland: not likely to support hollow-bearing trees. • Lack of key foraging and microhabitat components for target species. • May have evidence of weed invasion or grazing. • May be narrow or small area and substantially influenced by edge effects, isolated from other areas of native vegetation.

Black Cockatoo Survey Methodology

Black cockatoo surveys (habitat, roost, foraging assessment and tree surveys) were conducted during the diurnal surveys. The field survey methodology was based on the Main Roads factsheet (D19#1011841) which broadly nests under the Commonwealth referral guidelines for black cockatoos (DAWE, 2022) and black cockatoo species profiles in the desktop review (Section 3.2). The profiles are based on literature review and previous work and consultation with [redacted], a recognised black cockatoo expert. Twelve km is the maximum range that black cockatoos travel from a nesting site to forage (DAWE, 2022) - the closer the distance generally the more important the foraging habitat. This assessment is based on 10 km for site context and local vegetation and habitat values.

Suitable DBH tree and hollow survey

Black cockatoos' nest in hollows formed in large, native eucalypt trees, assessed as potential habitat or "Suitable DBH trees". Suitable DBH tree refers to a suitable Diameter at Breast Height measurement. In the SW, black cockatoos normally breed in Marri (*Corymbia calophylla*), Tuart *(Eucalyptus gomphocephala)* or Karri (*Eucalyptus diversicolor*). Sometimes Jarrah *(Eucalyptus marginata)*, Flooded gum (*Eucalyptus rudis*) or other native trees are used, such Blackbutt (*Eucalyptus patens*).

Trees were mapped by a handheld GPS. Notes were made on tree species and DBH. Each tree was assessed using binoculars. The number of hollows limited to the most suitable hollows and breeding

suitability (aperture size estimate (mm), angle, height estimate (m), estimated chamber size, evidence of use) was recorded along with any use by other animals. European honeybee (*Apis mellifera*) hives may render a hollow unsuitable for the short term, so bees were also noted. Hollows that were potentially suitable or likely to provide breeding habitat were further assessed by drone or pole camera, where possible, in line with animal ethics and license requirements. Records *confirmed* or *not confirmed* indicate whether pole cam or drone inspection was conducted. Assessment criteria are provided in Table 2-1.

Table 2-7 Suitable DBH tree and hollow classes and descriptions

Cat No.	Tree Category	Description
1	**Suitable DBH Tree with Known Nesting Hollows.**	**Hollow where breeding has been recorded (i.e. bird/s observed in hollow) or there is evidence of previous use (i.e. hollow contains Black Cockatoo feathers or eggs).**
2	**Suitable DBH Tree with a potential suitably hollow with signs of use (not confirmed).**	**Hollows that appear to have a suitably sized entry and display signs of use, however internal dimensions have not been assessed.** Although signs of use may be present, the signs, such as chew marks, could be from prospecting Black Cockatoos or other birds such as Galahs, which leave very distinctive marks on hollow and trees (impacted potentially suitably sized hollows should be confirmed by competent observer). Where hollows cannot be avoided, the status of Category 2 hollows must be reassessed during the assessment process to determine whether it is a Category 1, 3, 4 or 6 hollow.
3	**Suitable DBH Tree with a suitable hollow with no signs of use (confirmed).**	**Hollows that appear to have a suitably sized entry, with internal dimensions assessed.** Category usually based on follow up hollow assessment with pole camera or drone. Although hollow appears to be suitable, there is no evidence of Black Cockatoo use. Where hollows cannot be avoided, status of Category 3 hollows should be reassessed within 48 hours of clearing.
4	**Suitable DBH Tree with a marginally unsuitable hollow with no signs of use (confirmed)**	**Hollows that are not currently suitable but have the potential to become suitable within five years.** Where hollows cannot be avoided and have not been checked within 5 years, the hollow status must be reassessed to determine whether it has become suitable (Category 3 hollows) or a Known Nesting Hollow (Category 1 hollows).
5	**Suitable DBH Tree with a potential suitable hollow with no signs of use (not confirmed).**	**Hollows that appear to have a suitably sized entry, however internal dimensions have not been assessed.** Category usually based on ground observation only. Where hollows cannot be avoided, status of Category 5 hollows must be reassessed during the assessment process to determine whether it is a Category 1, 3, 4 or 6 hollow.
6	**Suitable DBH Tree with unsuitable hollows (confirmed).**	**Hollows that have a hollow entry greater than 50 mm that is not suitable due to the size of its entry, internal dimensions, angle and/or height off ground**.
7	**Suitable DBH Tree without hollows.**	**Trees with a 500 mm DBH (or 300 mm for Wandoo or Salmon Gum) that do not have visible hollows (hollows with an entry opening below 50 mm not considered a hollow).** Note – multiple stemmed trees that branch above DBH may not be suitable.

Foraging habitat assessment

Black cockatoo foraging habitat quality potential was calculated to provide a score out of 10 aligning with the federal Offset Assessment Guide (offsets guide). The offset guide accompanies the EPBC Act environmental offsets policy and has been developed to align with the policy's requirements to enable DCCEEW to assess impact significance and offset requirements. The Black Cockatoo Foraging Quality Scoring Tool methodology is provided in Appendix G.

The foraging value score reflects the significance of vegetation as foraging habitat for black cockatoos. The foraging value of the vegetation depends upon the type, density and condition of vegetation in an area and can be influenced by the context such as the availability of foraging habitat nearby. Black Cockatoo Foraging Assessment results are provided in Appendix H.

Western Ringtail Possum Survey Methodology

WRP targeted surveys occurred as a component of the diurnal survey, along with undertaking the two, non-consecutive nocturnal surveys. The diurnal surveys included a general habitat assessment and WRP scat searches, occurring broadly across the survey area, including at the base of trees, on fallen timber and bare ground. Weather conditions were conducive for spotlighting. The presence or absence of dreys and hollows was noted. Photos were taken within all habitat types.

The nocturnal spotlighting surveys on 20th November and 4th of December 2025 assessed the distribution and abundance of WRP within the Survey Area (survey effort shown in Figure 3, Appendix A). Animals observed just outside of the Survey Area were also recorded. Surveys were conducted by two experienced surveyors each night on foot using 1000 lumen LED head torches. If observed, Common brushtail possum (CBP) (*Trichosurus vulpecula*) and South-western Brush-tailed Phascogale (*Phascogale tapoatafa* subsp. *wambenger*) (Conservation Dependent) were also recorded.

2.3.4 Animal Ethics

The survey conformed to Section 4 of the *Australian code of practice for the care and use of animals for scientific purposes* (National Health and Medical Research Council, 2004). No animals were captured or collected during the survey. Surveys were also carried out under Scientific Use License *Animal Welfare Act 2002* Licence to use animals for scientific purposes: Licence No: U285 / 2025 – 2027 and Wildlife Animal Ethics Committee (WAEC) Permit: WAEC 22-08-88.

2.4 Limitations

The following survey limitations are shown below.

Table 2-8 Assessment of survey limitations

Aspect	Constraint	Comment
Competency / experience	No	Shane Priddle (Principal; Certified Environmental Practitioner No.310) led the fauna surveys and has nearly 25 years' experience surveying for fauna. Kelly Paterson (Senior Botanist) led the flora survey component and has over 10 years experience in botanical survey in the South West Botanical Province.
Scope	No	The survey scope is adequate to inform environmental assessment.

Aspect	Constraint	Comment
Adequacy of the survey intensity and proportion of survey achieved	No	The survey effort applied was adequate to identify biodiversity values. A precautionary approach has been adopted.
The proportion of the task achieved and further work	No	The surveys were completed adequately, to a sufficient level with respect to the scope.
Timing/weather/season	No	The surveys were completed in suitable weather conditions in spring and early summer 2025.
Disturbances	No	There were no disturbances that affected the survey.
Intensity	No	The survey effort was adequate to meet the project scope.
Completeness	No	The entire Survey Area was assessed.
Resources	No	The surveys were completed adequately.
Access problems	No	The site was within public land and accessible.

3 Desktop Review

3.1 Site Context

3.1.1 Current Land Use

The Survey Area currently consists of dense native remnant bushland at the pipeline locations associated with Armstrong Reserve and remnant road verge vegetation at Keenan Street. The sites are located within the broader Dunsborough town residential area.

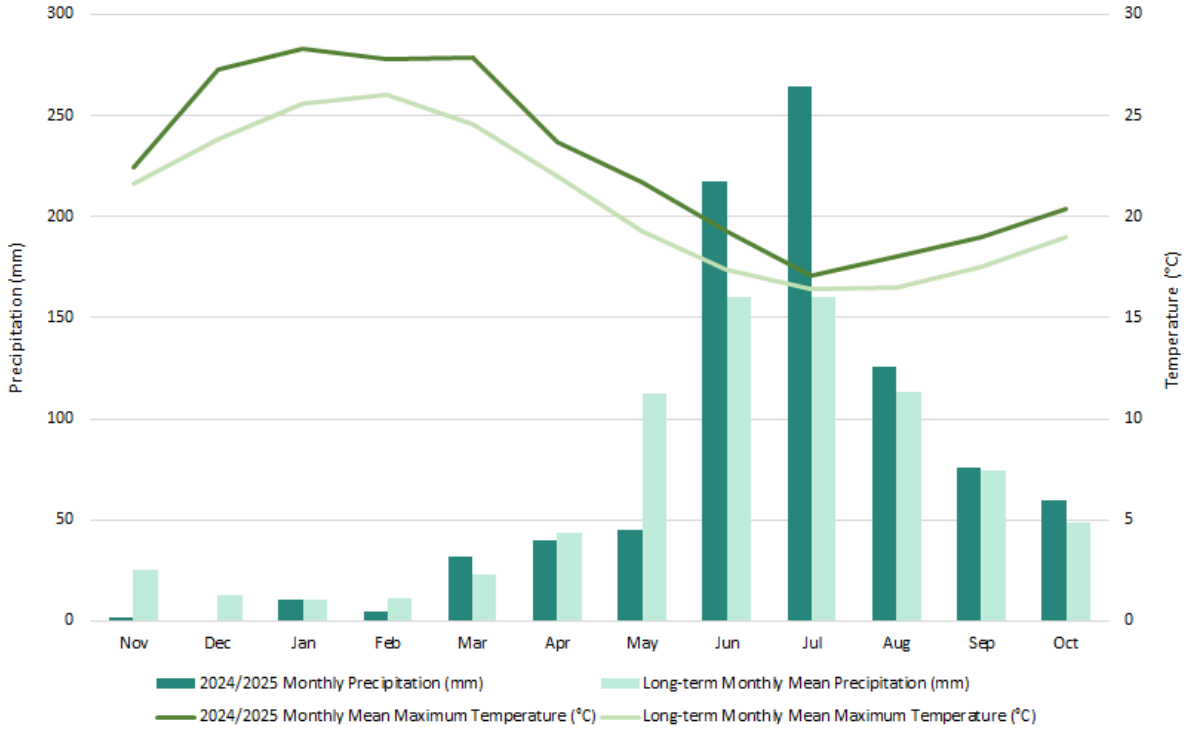
3.1.2 IBRA Region and Climate

The Survey Areas intersect both the Jarrah Forest and Swan Coastal Plain Interim Biogeographic Regionalisation for Australia (IBRA) bioregions, specifically within the Southern Jarrah Forest (JAF02) and Perth (SWA02) IBRA subregions (DCCEEW, 2022, 2023b). The Keenan Street and northern patch of the Armstrong Reserve site occur within JAF02, with the southern pipe section occurring in SWA02. The JAF02 subregion, located within the Menzies Botanical District, is an area typically experiencing a warm, mediterranean climate, with average winter precipitation of 600 – 1200 millimetres (mm) and 5-6 dry months per year (Beard, 2015). The SWA02 subregion is of a warm, Mediterranean climate, experiencing an average annual rainfall of 600 to 1,000 mm (Mitchell et al., 2002a).

Graph 3-1 presents climatic information for the 12 months preceding the survey (November 2024 to October 2025), along with long-term climate data at the most relevant Bureau of Meteorology climate station, Cape Naturaliste (number 9519) (BoM, 2025). The Cape Naturaliste weather station is located approximately 11 km from Dunsborough town (BoM, 2025).

Long-term mean maximum temperatures range from 25.6°C in the hottest month of January, to 16.4°C in the coolest month of July. Temperatures exceeded long-term averages over all 12 months preceding the survey (Graph 3-1) (BoM, 2025).

The long-term average annual rainfall at Cape Naturaliste station is 796.3 mm. Annual precipitation between November 2024 and October 2025 was recorded to be 78.9 mm above average (BoM, 2025). Contrarily, monthly rainfall fell under long-term averages across six of the 12 months preceding the survey (Graph 3-1). The greatest variation from the long-term mean was experienced in July 2025, with a record >100 mm above average. Recent winter precipitation was ~ 170 mm above average (BoM, 2025).



Graph 3-1 Rainfall and mean maximum temperature data from the Cape Naturaliste (number 9519) weather station (BoM, 2025)

3.1.3 Habitat Connectivity

The South West Regional Ecological Linkages (SWREL) project (Molloy et al., 2009) identifies regional scale ecological linkages and aims to respond to the issues of fragmentation and climate change through land use planning policy and procedures. It also seeks to retain native vegetation and fauna habitat and reduce the loss of biodiversity and ecological function in the southwest. The SWREL axis lines can be summarised as a series of vegetation patches which, due to their proximity, act as habitat stepping stones, thereby facilitating ecological processes and movement of organisms within and across the landscape (i.e. at the landscape scale).

The Survey Areas are located within vegetation mapped as *1b: with an edge touching or <100 m from a natural area selected in 1a* (Keenan St) and *1c: with an edge touching or <100 m from a natural area selected in 1b* (Armstrong Reserve) (WALGA, 2022). The small impact areas however will have negligible to impact on connectivity at a local or regional scale.

3.1.4 Geology, Landform and Soils

The Jarrah Forest IBRA region is situated on the duricrusted plateau of Yilgarn Craton, characterised by Jarrah-Marri forest on lateritic gravels and Wandoo-Marri woodlands on clayey soils in the east (Hearn et al., 2002). Peppermint shrublands occur on eluvial and alluvial deposits, with a mosaic of species-rich shrublands and Jarrah forest across areas of Mesozoic sediments (Hearn et al., 2002).

The Swan Coastal Plain IBRA region is a low-lying coastal plain, bounded by the Indian Ocean to the west and a series of scarps to the east. This IBRA region is further divided into two subregions: a high plateau in the northeast and a low-lying coastal plain in the west (the Perth subregion), where the Survey Area is located (DBCA, 2017; Mitchell et al., 2002b). The Perth subregion consists of colluvial and aeolian sands, alluvial river flats and coastal limestone.

Soil landscape mapping, prepared by the Department of Agriculture (now the Department of Primary Industries and Regional Development (DPIRD)), has been prepared across the southwest of WA as a compilation of a variety of soil and soil-landscape survey results (DPIRD, 2025c). The Survey Area intersects both the Leeuwin and Donnybrook Sunkland soil landscape mapping Zones (DPIRD, 2025c). The Leeuwin Zone is comprised of moderately dissected lateritic plateau on granite, colluvial soils in valleys, with western margin granite overlain by Tamala Limestone and some coastal dunes (DPIRD, 2025c). The Donnybrook Sunkland Zone consists of moderately dissected lateritic plateau on Perth Basin sedimentary rocks. Soils are formed in lateritic colluvium, weathered in-situ sedimentary rocks and alluvium (poorly drained sandy alluvial plain in the south) (DPIRD, 2025c). Soils within the Survey Area occur across two landscape subsystems (DPIRD, 2025b):

- **Keenan St: 213AbAB1 – Abba Flats Phase** Flats and low rises with sandy grey brown duplex (Abba) and gradational (Busselton) soils.
- **Armstrong Reserve: 216WvWLr3 – Wilyabrup rocky slope Phase** Low slopes (gradients generally 5-10%) with shallow rocky soils and some granitic outcrop.

3.2 Flora

3.2.1 Local Flora of Conservation Significance

Interrogations of the DBCA (2025d) WA Herbarium (WAHerb) Specimen Database and TPFL Database returned a total of 20 vascular flora of conservation significance with records less than 5 km from the Survey Area. Of this count, nine taxa were listed as Threatened, inclusive of seven Orchidaceae spp. (five Endangered and one Vulnerable – EPBC Act), *Eucalyptus* x *phylacis* (Endangered – EPBC Act) (Myrtaceae) and *Gastrolobium argyrotrichum* (Critically Endangered – EPBC Act) (Fabaceae).

Across all desktop database searches (outlined in Section 2.1), 67 conservation significant flora taxa were returned with records occurring within the DSA (10 km radius around Survey Area), of which twenty-three were Threatened (DBCA, 2025d, 2025a; DCCEEW, 2025). This total count includes records from DCCEEW's (2025) SPRAT Database, which includes MNES listed under the EPBC Act (Appendix I). It is important to note that the SPRAT database search is on the presumed range and habitat of Threatened flora species, rather than on confirmed records (as per the DBCA databases searches). This includes species assessed as 'likely to occur', 'may occur' or 'known to occur' within the DSA. The database classed eight flora taxa as 'known' from the DSA. Of these, five taxa were Threatened orchids.

The Dandjoo (2025a) database returned 18 relevant taxa that were not known from DBCA (2025d) or DCCEEW's (2025) SPRAT database records. Dandjoo records are drawn from DBCA's database, along with records from the private sector, inclusive of industry, researchers and regulatory agencies. Some records deemed erroneous or highly unlikely to occur were discarded from these lists and their associated counts.

A list of all returned flora taxa from desktop searches is presented in Appendix C.1, with records known from less than 5 km of the Survey Area shaded in blue. A post-survey assessment detailing flora likelihood of occurrence is presented in Appendix E.

3.3 Vegetation

3.3.1 Regional Vegetation Mapping

Vegetation complexes of the Southwest Forest Region and Swan Coastal Plain (south of Lancelin) have been mapped at a scale of 1:50,000 and 1:250,000, respectively (DBCA, 2018a, 2018b; Heddle et al., 1980; Mattiske & Havel, 1998; Webb et al., 2016). These complexes are characteristic of various combinations in landform, soil and rainfall. Two vegetation complexes intersect the Survey Area, with one each in the SW Forest Region and the Swan Coastal Plain:

- **SW Forest Region (Keenan St)**
    - Wilyabrup (Wr): Margaret River Plateau - Woodland of *Corymbia calophylla-Eucalyptus marginata* subsp. *marginata* with closed heath of Myrtaceae-Proteaceae-Papilionaceae spp. on steep rocky slopes in the hyperhumid zone.
- **Swan Coastal Plain (Armstrong Reserve)**
    - Abba Complex: A mixture of open forest of *Corymbia calophylla* (Marri) - *Eucalyptus marginata* (Jarrah) - Banksia species and woodland of *Corymbia calophylla* (Marri) with minor occurrences of *Corymbia haematoxylon* (Mountain Marri). Woodland of *Eucalyptus rudis* (Flooded Gum) - Melaleuca species along creeks and on flood plains.

Table 3-1 presents vegetation statistics regarding the current and pre-European extent of the vegetation complex represented within the Survey Area. As stated in the EPA's *Position Statement on the Environmental protection of native vegetation in Western Australia* (EPA, 2000), the national objective and target for biodiversity conservation in Australia aims to prevent ecological communities from being cleared to levels below 30 % of their pre-European extent (DCCEEW, 2024). The Abba Complex falls below the statewide retention target, with under 7 % remaining (Table 3-1).

Table 3-1 Vegetation complex statistics from the CAR and LGA vegetation complex reports (DBCA, 2019)

Vegetation Complex	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	City of Busselton, % Remaining
Wilyabrup, Wr	1,110.07	777.47	70.04	71.60
Abba Complex	50,892.78	3,326.20	6.54	6.64

The South West Biodiversity Project (Molloy et al., 2007) provides criteria to identify and prioritise Locally Significant Natural Areas (LSNA). The Abba Complex meets criteria qualifying as being an LSNA, having less than 30% remaining within the City of Busselton ((Criteria 1a) ii)) (DBCA, 2019).

3.3.2 Local Significant Vegetation Records

Appendix D presents a comprehensive table of Threatened or Priority vegetation records (and descriptions) that were returned from desktop database searches (DBCA, 2025b; DCCEEW, 2025). DBCA's TEC and PEC Database (DBCA, 2025b) returned 13 conservation significant community records occurring within the DSA. Of these, six were TECs, four were PECS, and two were ranked under both TEC and PEC listing, as outlined below:

- Banksia Woodlands of the Swan Coastal Plain ecological community (TEC/PEC)
- *Calothamnus graniticus* subsp. *graniticus* heaths on south-west coastal granites (TEC)
- Coastal granitic shrublands and herblands of the exposed western and southern sides of the Leeuwin Block major landform (PEC)
- *Corymbia calophylla — Eucalyptus marginata* woodlands on sandy clay soils of the southern Swan Coastal Plain (floristic community type 3b as originally described in Gibson et al. 1994) (TEC)
- *Corymbia calophylla* woodlands on heavy soils of the southern Swan Coastal Plain (floristic community type 1b as originally described in Gibson et al. 1994) (TEC)
- *Corymbia calophylla*, *Melaleuca rhaphiophylla*, *Banksia littoralis*, *Eucalyptus rudis*, *Agonis flexuosa* low open forest with seasonal subsoil moisture (Dunsborough area) (PEC)
- Claypans of the Swan Coastal Plain
    - Dense shrublands on clay flats (floristic community type 9 as originally described in Gibson et al. 1994) (TEC)
    - Seasonal rainfall filled wetlands with impeding substrate of the Swan Coastal Plain and Jarrah Forest in transitional rainfall zones (TEC)
- *Melaleuca lanceolata* forests, Leeuwin Naturaliste Ridge (PEC)
- Rimstone pools and cave structures formed by microbial activity on marine shorelines (Augusta microbialites) (TEC)
- Shrublands on southern Swan Coastal Plain Ironstones (Busselton area) (floristic community type 10b as originally described in Gibson et al. 1994) (TEC)
- Subtropical and Temperate Coastal Saltmarsh (TEC/PEC)
- Swan Coastal Plain Paluslope Wetlands (PEC)

An additional three Commonwealth-listed TECs were identified by the Department of Climate Change, Energy and Environment's (DCCEEW) Species Profile and Threats (SPRAT) database search. These communities, as listed below, were not returned by DBCA database interrogations, and therefore have not been recorded within 10 km of the Survey Area before (DBCA, 2025b).

- Clay Pans of the Swan Coastal Plain
- Empodisma peatlands of southwestern Australia
- Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community

The SPRAT database search is based on the presumed range and habitat of Threatened ecological communities, rather than on confirmed records (as per the DBCA databases searches).

A total of 16 significant vegetation communities have known records, or have the expected habitat/distribution to occur within the DSA (DBCA, 2025b; DCCEEW, 2025). Vegetation at Armstrong

Reserve is mapped as the PEC Dunsborough Forest Swamp (listed as Priority 1 under the BC Act). This PEC subsequently intersects both pipeline sections of the Survey Area at Armstrong Reserve (ARM01).

Four additional significant ecological communities occur within 1 km of the Survey Area:

- Banksia Woodlands of the Swan Coastal Plain ecological community (TEC/PEC)
- *Calothamnus graniticus* subsp. *graniticus* heaths on south-west coastal granites (TEC)
- *Corymbia calophylla* — *Eucalyptus marginata* woodlands on sandy clay soils of the southern Swan Coastal Plain (floristic community type 3b as originally described in Gibson et al. 1994) (TEC)
- Swan Coastal Plain Paluslope Wetlands (PEC)

3.4 Fauna

3.4.1 Local Fauna Records

Desktop searches for fauna that may occur or have been recorded within DSA yielded 255 vertebrate terrestrial fauna species (Appendix C.2):

- 13 Amphibian
- 187 Birds
- 26 Mammals
- 289 Reptiles

Invertebrates, marine or aquatic species (fish) are not included in this list. Marine species have been excluded as the Survey Area is in a terrestrial setting. No Important Bird Areas (IBAs), defined as conservation priority by BirdLife International occur within the DSA (Birds Australia, 2023). The closest IBA occurs 18 km southeast of the Survey Area, being the Busselton Wetlands IBA (BirdLife International, 2025).

3.4.2 Local Fauna of Conservation Significance

Based on the searches and taxa listed under the BC Act, there are 48 target species that may occur locally (not necessarily within the Survey Area).

- 34 Aves (10 Threatened, 19 Migratory, 4 Priority, 1 Specially Protected)
- 8 Mammals (3 Threatened, 4 Priority, 1 Conservation Dependant)
- 1 Reptiles (Priority species)
- Two threatened Malacostraca (burrowing crayfish), one threatened mussel, fish, and gastropod.

Appendix F assesses species likelihoods, including others not found in the initial searches.

3.5 Black Cockatoos

3.5.1 Profiles

The DAWE (2022) Referral Guideline identifies four key SW habitat regions, each utilised differently by the three WA black cockatoo species. The regions include Swan Coastal Plain, Wheatbelt, Jarrah Forest and the South Coast. The majority of the Survey Area for this project occurs within the Jarrah Forest region, 'Region 3', with a small section intersecting the Swan Coastal Plain 'Region 1' (DAWE, 2022).

The Jarrah Forest Region is characterised by the dominant presence of Jarrah and Marri forests with Marri-Wandoo woodlands occurring towards the eastern edge. All three black cockatoo species breed within Region 3, which exists as the main breeding area for Baudin's cockatoo and FRTBC. The region provides key foraging and wintering areas for Baudin's cockatoo, and primary foraging species for all three black cockatoo species (foraging assessment results presented in Appendix H).

The Swan Coastal Plain region is used by black cockatoos for foraging resources primarily, with some small patches of breeding habitat evident (DAWE, 2022). Vegetation used by black cockatoos in this region is dominated by *Banksia* spp. and Tuart (*Eucalyptus gomphocephala*) woodlands, as well as Marri (*Corymbia calophylla*), with Jarrah (*E. marginata*) in the east. A key focus for this region is the ongoing viability of foraging resources for black cockatoos, particularly Carnaby's cockatoo. Some parts of this region meet the definition for ecological communities in the EPBC Act list of threatened ecological communities, including Banksia Woodlands of the Swan Coastal Plain ecological community, which is listed as Endangered, and the Tuart Woodlands and Forests of the Swan Coastal Plain ecological community, which is listed as Critically Endangered. Vegetation in this region is fragmented and represented poorly in conservation reserves (DAWE, 2022).

There are records of all three black cockatoo species occurring broadly within 10 km of the Survey Area. Species profiles are provided below.

Baudin's cockatoo (*Zanda baudinii*)
EN (EPBC Act), EN (BC Act)

Baudin's cockatoo is a large forest cockatoo endemic to the southwest of WA. Depending on the region of origin, Baudin's cockatoo is a resident, a post nuptial nomad or migrant, with the bulk of the population vacating the coldest parts of their range (the Karri Forest) in the autumn and migrating northwards during the non-breeding season. Small numbers also appear resident in a few places including Leeuwin – Naturaliste Ridge and Manjimup (Johnstone & Kirkby, 2008). Flock sizes vary from small family groups to large aggregations at roosting sites.

Breeding mainly takes place in forested areas from August to November (egg laying dates) (Tony Kirkby, pers comm.) (DAWE, 2022). Baudin's cockatoo breeds in remnant woodland or forest, but may also breed in partially cleared areas, including isolated trees. Nests are in hollows in live or dead trees particularly Karri, Marri, Jarrah, Wandoo, Bullich and Tuart (DAWE, 2022).

In the non-breeding season, Baudin's cockatoo is mainly an inhabitant of Jarrah Marri Forest but also farmland and orchards. Its main food is Marri from which it takes seeds, flowers, grubs, and nectar. Its long bill is adapted to removing seeds from Marri nuts. It feeds on a variety of other foods, including nectar and seeds from *Hakea* and *Banksia* spp., rarely Jarrah, the pith of Kangaroo Paw (*Anigozanthos flavidus*), tips of *Pinus* spp., *Macadamia* spp., almonds and pecans, seeds and fruit of apples and pears (DAWE, 2022).

Roost sites are usually in or near riparian environments or other permanent water sources in tall trees; any tree may provide roosting habitat, but particularly Jarrah, Flooded Gum, Blackbutt, Tuart and introduced *Eucalyptus* spp. (Blue Gum, Lemon Scented Gum) (DAWE, 2022; Johnstone & Kirkby, 2008).

Carnaby's cockatoo (*Zanda latirostris*)
EN (EPBC Act), EN (BC Act)

Carnaby's cockatoo mainly occurs in or near eucalypt woodlands, especially those dominated by Wandoo or Salmon Gum, and sometimes in forests of Marri, Jarrah, Karri and Tuart. It is a postnuptial nomad, moving west after breeding. Nesting occurs mainly in the Wheatbelt but is increasingly occurring on the west and south coast. This species is currently expanding its breeding range westward and south into the Jarrah Marri Forests of the Darling Scarp and into the Tuart forests of the Swan Coastal Plain along with the Capes Region (S. Priddle pers obs.). This may be due to climate change (Cale, 2003; SPRAT, n.d.; WA Museum, 2010).

Breeding occurs mainly from early July to mid-December normally in remnant woodland or forest, but also in partially cleared areas, including isolated trees. Nests are in hollows in live or dead trees, particularly Salmon Gum, Wandoo, Tuart, Jarrah, Flooded Gum, York Gum, Powderbark, Karri and Marri (DAWE, 2022). Breeding success is largely dependent on suitable feeding habitat near the nest site to provide food necessary for the survival of the chick (Johnstone et al., 2011).

The species forages in native shrubland, kwongan heathland and woodland dominated by proteaceous plant species, on seeds, flowers and nectar of *Banksia* spp., *Hakea* spp. and *Grevillea* spp., as well as *Callistemon* spp. and Marri, and in eucalypt woodland and forest that contains foraging species, individual trees and small stands of these species. It also feeds on seeds of introduced species including *Pinus* spp., *Erodium* spp., wild radish, canola, almonds, macadamia and pecans; insects and insect larvae; occasionally apples and persimmons; and liquidambar (DAWE, 2022).

Carnaby's cockatoos roost near riparian environments or other natural or artificial permanent water sources. Any tall trees may provide roosting habitat, but particularly Flat-topped Yate, Salmon Gum, Wandoo, Marri, Karri, Blackbutt, Tuart, introduced *Eucalyptus* spp. and introduced *Pinus* spp. (DAWE, 2022).

Forest Red-tailed Black Cockatoo (FRTBC) (*Calyptorhynchus banksii naso*)
VU (EPBC Act), VU (BC Act)

The FRTBC is a large forest cockatoo, endemic to the Southwest. FRTBC occurs throughout the Jarrah Marri Karri forested areas and more recently on the Swan Coastal Plain. Group sizes vary from small family groups and pairs to larger gatherings at roost sites.

FRTBC generally breed in remnant woodland or forest but may also breed in partially cleared areas, including isolated trees. They nest in hollows in live or dead trees particularly Marri, Karri, Wandoo, Bullich, Blackbutt, Tuart and Jarrah (DAWE, 2022; Johnstone et al., 2013). FRTBC have been recorded breeding in all months, but with peaks in Spring and Autumn following Marri (or Jarrah) fruit flushes. There are also years when very little breeding takes place (Johnstone and Kirkby, unpublished data).

FRTBC diet is mostly (90%) seeds of Jarrah and Marri in woodlands and forest, and in the edges of Karri forests, with the remainder made up of Blackbutt, *E. staeri* (Albany Blackbutt), Bullich, *Hakea* spp, Tuart, Western Sheoak *(Allocasuarina fraseriana)*, Snottygobble (*Persoonia longifolia*) and the non-indigenous Australian native *Melia azederach* (Cape Lilac) (Johnstone & Kirkby, 1999). The species forage on cones, the fruits of Snottygobble and Mountain Marri. On the Swan Coastal Plain, the species often feed on introduced *Corymbia maculata* (Spotted Gum), Cape Lilac, *Eucalyptus caesia*, *E. erythrocorys*, Lemon-scented Gum and Kaffir Plum (DAWE, 2022).

FRTBC are known to roost within any tall trees that may provide roosting habitat, particularly tall Jarrah, Marri, Blackbutt, Tuart and introduced *Eucalyptus* spp. trees or large trees on the edges of forests (DAWE, 2022).

3.5.2 Breeding Requirements and Records

All three black cockatoos rely on large hollows for breeding, which take many years to form. The onset of hollow formation is dependent on damage to the tree, from animals (normally termites) or dropped branches, then further rotting. Fire does not appear to be a hollow-forming process; it may reduce the quality and number of hollows over time (S. Priddle pers obs.). Young and healthy trees can quickly

heal after damage and trees less than 100 years old are unlikely to contain large hollows. For nesting, black cockatoos show a preference for:

- Large senescing trees,
- hollows not angled more than 45 degrees from vertical,
- entrances of at least 12 cm but usually much larger (20-40 cm), and
- deep or well-sheltered hollows in main trunks, or large branches which can provide a floor space of at least 30 cm diameter or more.

All three species of black cockatoo are of similar size and utilise similar hollows when breeding. Suitable hollows may also be used interchangeably with other medium sized birds such as corellas, Galah, ducks and owls. Marri and Jarrah trees are considered by Commonwealth of Australia (DAWE, 2022; SEWPaC, 2012) to be large enough to develop hollows once they are >50 cm DBH. Wheatbelt species such as Wandoo and Salmon Gum may develop hollows at 30 cm DBH (DAWE, 2022). Karri and planted introduced *Eucalyptus* spp. such as blue gums are generally unlikely to develop hollows unless they are at an advanced age (at least 75cm DBH but usually much larger).

While breeding, black cockatoos will generally forage within a 6 – 12 km radius of their nesting site. Following breeding, birds assemble into flocks and move through the landscape searching for food, usually within 6 kms of a night roost (SEWPaC, 2012). Black cockatoos rely on access to watering points in selecting night roost sites, with roost sites usually within two kms of a watering point where they often drink in the afternoon following daytime feeding (DAWE, 2022).

One natural, confirmed FRTBC breeding hollow occurs just under 4 km SE of the Survey Area (DBCA, 2025c). No other breeding records within the DSA were returned in desktop database searches.

3.5.3 Foraging Context and Records

The regional context of black cockatoo foraging habitat within the Survey Area was assessed through estimating the likely extent of suitable foraging habitat within land from approximately 10 km radius (total 17,460 ha) (DPIRD, 2019, 2023; Landgate, 2025). Native vegetation remaining (DPIRD, 2024), along with DBCA-managed reserve areas (DPIRD, 2025a) within 10 km of the Survey Area, are presented in Appendix H.2.

Broadly, both the Jarrah Forest and Swan Coastal Plain Region have been subject to heavy, historical clearing pressure. The area of native vegetation remaining within 10 km of the Survey Area accounts for 43 % of the total area, with approximately 13 % of the DSA reserved and managed by DBCA. The majority of DBCA-reserved land within the DSA is associated with the Leeuwin-Naturaliste National Park, with smaller areas followed by recreation and camping area and Sugar Loaf Rock Nature Reserve (DPIRD, 2025a).

The presence of potential black cockatoo foraging habitat was then assessed within each Vegetation Association, particularly regarding the occurrence of foraging structural flora occurring within the known distribution for each species. This calculation is a maximum extent, as some areas may not provide suitable feed species or be in poor condition (DPIRD, 2019, 2023; Landgate, 2025). The available areas of potential foraging habitat (primary and secondary) within the DSA are as follows:

- Baudin's cockatoo 7,140 ha,
- Carnaby's cockatoo 6,640 ha, and
- FRTBC 4,870 ha.

3.5.4 Roosting Behaviour and Records

Most roosts are in a large stand of tall trees, with a dense canopy and close to permanent water. DBCA database records returned seven white-tailed black cockatoo roosts within 5 km of the Survey Area, observed over 28 surveys (DBCA, 2025c). No FRTBC roosts are known from 5 km of the Survey Area, although two have been recorded within 10 km (with an additional 5 WTBC roosts). The closest roost site is a WTBC record, occurring ~1.3 km northwest of the Survey Area; BUSDUNR001 (DBCA, 2025c).

Table 3-2 DBCA roosts within 5 km of the Survey Area

Site code	WTBC total count	WTBC max count	FRTBC total count	FRTBC max count	No. of surveys
BUSQUIR001	691	251	0	0	7
BUSQUIR002	0	0	0	0	2
BUSYALR004	38	30	0	0	4
BUSYALR001	57	57	0	0	3
BUSYALR005	30	30	0	0	3
BUSDUNR001	223	99	0	0	7
BUSMEER002	81	67	0	0	2

3.6 Western Ringtail Possum

3.6.1 Profile

Western ringtail possum (WRP) (*Pseudocheirus occidentalis*)

CE (EPBC Act), CE (BC Act)

WRP mostly inhabit Peppermint and Peppermint-Tuart associations from Bunbury to Albany but also occur in Jarrah Marri forest in lower densities. The highest densities of WRP occur in the Swan Coastal Plain and South Coast (Biota, 2020; Shedley & Williams, 2014). Peppermint leaves form the basis of the WRP diet in coastal areas, but when unavailable, the dominant myrtaceous species are preferred. In the inland forest, Jarrah and Marri are the main food source. Garden plant varieties are also exploited in urban areas. WRP also feed on new shoots, flowers, leaves and/or fruiting bodies from a range of flora including *Nuytsia floribunda, Acacia saligna, Hardenbergia comptoniana, Allocasuarina fraseriana, E. gomphocephala, E. rudis, Melaleuca viminea, M. cuticularis, M. rhaphiophylla, Kunzea glabrescens* and *Xylomelum occidentale* (Shedley & Williams, 2014).

WRP use a range of nest and shelter sites to avoid predators and exposure to the weather. Dreys are constructed in the canopy if hollows are not available. Adequate nest and shelter sites are necessary components of good quality habitat (Jones et al., 1994; Shedley & Williams, 2014).

Fox predation is one of the main threats and causes of mortality to WRP (Wayne, 2005) along with the loss and fragmentation of native vegetation. This is due to their high dependence on midstorey and overstorey vegetation for food, shelter and protection from predators. In the Jarrah Marri forests, for example around Margaret River, the highest relative abundance occurs in areas with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history), that are intensively fox-baited and have low indices of fragmentation(DSEWPaC, 2010).

Critical habitat for the species as outlined in the Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan (DPaW, 2017) is as follows:

Habitat critical to survival for WRP is not well understood and is therefore based on the habitat variables observed where WRP possums are most recorded. These appear to vary between key management zones. The common themes however are high nutrient foliage availability for food, suitable structures for protection/nesting, and canopy continuity to avoid/escape predation and other threats. Long-term survival of the species requires linkages between suitable habitat patches and as such habitat critical to survival incorporates this. Vegetation communities critical to the species include long unburnt mature remnants of peppermint (*Agonis flexuosa*) woodlands with high canopy continuity and high foliage nutrients (high in nitrogen and low toxin levels); Jarrah / Marri forests and woodlands with limited anthropogenic disturbance (unlogged or lightly logged, and a low intensity and low frequency fire history), that are intensively fox-baited and have low indices of fragmentation; coastal heath, Jarrah/Marri woodland and forest, peppermint woodlands, myrtaceous heaths and shrublands, Bullich (*Eucalyptus megacarpa*) dominated riparian zones and karri forest. Any habitat where WRP occur naturally are considered critical and worthy of protection.

The Survey Area is located within the Swan Coastal Plain Management Zone in the Recovery Plan (DPaW, 2017).

3.6.2 Local Context and Records

Three key management zones have been established in DPaW (2017), comprising areas known to currently, or previously support large numbers of WRP. These management zones include the Swan Coastal Plain zone, Southern Forest zone and South Coast zone. The Survey Area falls within the Swan Coastal Plain management zone, as part of the Cape to Cape subpopulation detailed in Biota (2020). Biota (2020) undertook a regional survey of WRP which estimated a combined number of over 20,000 WRP within the areas surveyed from the three regional populations. Population estimates within the survey areas included the Swan Coastal Plain zone at 9,270 individuals, the Southern Forest zone at 7,500 individuals and the South Coast zone at 3,340 WRP. These results were based on density sampling and provide an estimate of population size for subpopulations within the Swan Coastal Plain management zone. The closest area surveyed by Biota (2020) as a part of their WRP Regional Assessment was at Big Rock Reserve, Quedjinup, located just over 1 km southwest of the Survey Area. The Big Rock site returned a WRP encounter rate of 10.81 ± 1.15 per km, with a total number of 97 individuals across 8.98 km of transects (Biota, 2020).

The DBCA (2025c) database search returned 1,927 records of WRP within the DSA, with numerous records in the immediate proximity of all sites. WRP are locally prevalent.

4 Results and Discussion

4.1 Flora

4.1.1 Flora Census

A total of 50 vascular flora taxa were recorded across both the Armstrong Reserve and Keenan Street sites, which included the Survey Areas plus associated buffers. Of these, 38 were naturally occurring, representing 18 families. Twenty-four of the 37 taxa were recorded at Armstrong Reserve, and 19 were

recorded at Keenan Street, as listed in Appendix J. A comprehensive census of vascular flora taxa within the Survey Area was not undertaken, as this was a reconnaissance-level survey. Flora taxa were recorded opportunistically whilst traversing the site.

4.1.2 Significant Weeds

One Declared Pest (as defined by the *Biosecurity and Agriculture Management Act 2007*) was recorded within the Survey Area, with approximately five *Zantedeschia aethiopica* plants observed at the Keenan Street – Gifford Road site. Additional plants of this species were noted within adjacent areas.

Additional weeds were recorded within the southern section of Armstrong Reserve, including *Dichopogon lignosus, Vinca major* and *Gladiolus undulatus*. While these species are not listed as Declared Pests under the BAM Act 2007, nor as Weeds of National Significance (WoNS), they are recognised as significant environmental weeds due to their ability to invade remnant vegetation, outcompete native species for light, water and nutrients, and persist and spread without management. Active control is often required to prevent further bushland degradation.

Photo 1 *Zantedeschia aethiopica* (Arum Lily) within the Survey Area

4.1.3 Conservation Significant Flora

No Priority, Threatened, or otherwise considered significant flora taxa were recorded within the Gifford Road - Keenan Street verge. One species of conservation significance was recorded within Armstrong Reserve, *Eucalyptus rudis* subsp. *cratyantha.* No other flora taxa were recorded during the surveys.

***Eucalyptus rudis* subsp. *cratyantha* - Priority Four (BC Act)**

Eucalyptus rudis subsp. *cratyantha* (Priority Four, BC Act) was recorded within the Survey Area, with an estimate of three plants located near the proposed clearing (Figure 4, Appendix A). This species was readily identified at the time of the survey, and it is unlikely that additional, unmapped individuals occur within or immediately adjacent to the proposed clearing footprint.

Eucalytpus rudis subsp*. cratyantha* is geographically restricted, occurring from Cape Naturaliste and extending southward along the coast to near Moses Rock, north west of Margaret River, over a range of approximately 20 – 25 km (French & Nicolle, 2024). This area represents the only location where the defining characteristics of this subspecies – specifically, larger buds and larger campanulate fruit (11-14mm wide) with a flared rim – are consistently expressed.

Photo 5 *Eucalyptus rudis* subsp. *cratyantha* (Priority Four) within the Survey Area

4.1.4 Likelihood of Occurrence – Conservation Significant Flora

An assessment of the likelihood of occurrence of significant flora taxa returned within the Desktop Assessment is presented in Appendix E . This assessment considers whether suitable habitat is present within the Survey Area (as per habitat data according to WA Herbarium (1998-) records), the known range of the taxon, the proximity of records to the Survey Area, and whether the taxon would have been

identifiable within the survey period. It is noted that the assumed habitat suitability for each taxon may not be definitive, and taxa may occur within a broader range of habitat outside what is currently known.

Of the 67 significant flora taxa identified in the desktop assessment, it is unlikely that any remain undetected within the Survey Area and associated buffer. For taxa with suitable habitat preferences, sufficient material, either fruiting/flowering or sterile, would have been identifiable during the survey period. The species most likely to remain undetected is *Caladenia viridescens,* due to its known variable flowering periods and potential for non-emergent or non-flowering individuals resulting from seasonal conditions or other disturbances. Previous surveys for this species across the reserve have been conducted, which identified some individuals, but they are over 50 metres away from the proposed clearing. Consequently, the presence of *Caladenia viridescens* within the current Survey Area is considered unlikely.

4.2 Vegetation

4.2.1 Vegetation Structure and Condition

Two vegetation units were recognised and mapped within the Survey Area, one within the Armstrong Survey Area, and another from the Keenan Street – Gifford Road section. They are described below based on the structural composition:

- Armstrong Reserve (0.029 ha): *Corymbia calophylla, Eucalyptus rudis* subsp. *cratyantha, Melaleuca rhaphiophylla* and *Agonis flexuosa* open forest over *Exocarpos odoratus, Xanthorrhoea preissii, Jacksonia furcellata* and *Hibbertia diamesogenos* shrubland over *Patersonia occidentalis* var. *occidentalis, Dampiera alata* and *Chamaescilla corymbosa* herbland, with mixed sedges and grasses.
- Gifford Road–Keenan Street (<0.002 ha): *Corymbia calophylla* and *Agonis flexuosa* open forest over *Xanthorrhoea preissii, Jacksonia furcellata* and *Acacia pulchella* shrubland over mixed introduced grasses and herbs.

Table 4-1 Vegetation Unit attributes

Site	Vegetation Unit	Description	Representative Photos
Armstrong Reserve	Marri, Swamp Paperbark and Flooded Gum open forest	*Corymbia calophylla, Eucalyptus rudis subsp. cratyantha, Agonis flexuosa* and *Melaleuca rhaphiophylla open forest* over *Exocarpos odoratus* shrubland over mixed herbs and sedges.	

Site	Vegetation Unit	Description	Representative Photos
Gifford Road – Keenan Street	Marri and Peppermint open forest	*Corymbia calophylla* and *Agonis flexuosa* open forest over *Xanthorrhoea preissii, Jacksonia furcellata* and *Acacia pulchella* shrubland over mixed introduced grasses and herbs	

Vegetation within the Survey Area is mapped as being in Good to Very Good condition (EPA, 2016c). The proposed impact areas at both sites are considered to be in Good condition, reflecting historical clearing, edge effects and weed ingress. The buffer of the Keenan Street – Gifford Road Survey Area was also assessed as being in Good condition, with similar levels of disturbance observed throughout. The buffer area within Armstrong Reserve was generally more intact, with areas away from reserve edges supporting lower weed abundance and a greater diversity of understorey species. However, some localised infestations of aggressive weed species were recorded within internal areas of the reserve, which could be strategically targeted for management to prevent further spread.

4.2.2 Conservation Significant Vegetation

One PEC was recorded within the Survey Area, Dunsborough Forest Swamp (BCA Priority 1). This is an existing occurrence (DBCA, 2025b), with the entirety of Armstrong Reserve mapped as this community. During the current survey, this was ground-truthed, with the vegetation confirmed to be representative of this PEC.

The vegetation within the Keenan Street – Gifford Road area comprises Marri woodland. Consideration was given as to whether it could represent the SCP3b - *Corymbia calophylla - Eucalyptus marginata* woodlands on sandy clay soils of the southern Swan Coastal Plain ecological community (BCA Endangered), noting that an occurrence of this community has been mapped approximately 220 metres to the south.

In the absence of robust floristic analysis for the mapped occurrence, there is uncertainty as to whether it is a true occurrence of the SCP3b TEC. All other confirmed occurrences of SCP3b are restricted to the eastern Swan Coastal Plain, with the closest verified occurrence located nearly 100 km to the north east of the survey area. The mapped occurrence is therefore highly disjunct and is not situated on the Swan Coastal Plain, with the Survey Area occurring further into the Leeuwin Block landform.

The Survey Area is characterised by gravelly soils, in contrast to the deep sand over gravel associated with the mapped occurrence to the south, which occupies a lower landscape position at the junction of several soil landscape subsystems. These differences in landform and soil profile further reduce the likelihood that the vegetation within the Survey Area represents SCP3b.

In the absence of key diagnostic criteria for SCP3b, it is difficult to reliably assess whether the vegetation within the Survey Area corresponds to this ecological community. This uncertainty is compounded by the disturbed condition of the vegetation, which limits floristic diversity and precludes robust floristic analysis Based on the lack of an intact understorey characteristic of SCP3b, the highly disjunct nature of the site relative to confirmed occurrences, and differences in soil type and landscape position, it is considered unlikely that the vegetation within the Survey Area is representative of, or ever formed part of, the SCP3b TEC.

No other listed Priority or Threatened Ecological Communities were recorded during the survey, or vegetation considered as significant for other reasoning.

4.3 Fauna

4.3.1 Suitable DBH Trees

No suitable DBH trees (DBH > 50 cm) occur within any of the impact footprints.

4.3.2 Fauna Recorded

Fauna habitat quality was moderate to high within the Armstrong Reserve being part of a larger intact habitat patch and poor at Keenan Street (Table 2-3) due to being at the edge of the road, low habitat complexity and lack of hollows.

Only two animals were observed inside the Survey Area, *Podargus strigoides* (Tawny Frogmouth) and WRP (both pipeline locations had active dreys). Numerous animals would utilise the Survey Areas as part of the broader habitat patches that they occur in. These may include woodland birds that were not recorded but are in adjacent areas. Other animals are likely to occur but are more cryptic, nocturnal or would not have been detected during the brief diurnal reconnaissance visit (including bats, reptiles or frogs which may not have been calling).

4.3.3 Conservation Significant Fauna

One conservation significant fauna taxon was detected within the Survey Area: Western Ringtail Possum (*Pseudocheirus occidentalis*) (Critically Endangered). Scats were found at all locations and active WRP dreys were observed within each clearing location within Armstrong Reserve.

4.3.4 Likelihood of Occurrence – Conservation Significant Fauna

A threatened fauna evaluation table was prepared for conservation significant fauna, based on the desktop assessment and site survey (Appendix C). Aquatic, marine, marine migratory, and regionally extinct species are excluded. Of the remaining 24 terrestrial vertebrate fauna of conservation significance that may occur within the Survey Area, only WRP was recorded at the site. Several other taxa may occur within the Survey Area at times (shaded yellow, Table 4-2).

Table 4-2 Conservation significant fauna that may occur within the Survey Area, based on habitat suitability.

FAMILY	*Genus species*	Vernacular	Status WA	Status Federal	Presence of habitat	Likelihood of occurrence
CACATUIDAE	*Calyptorhynchus banksii* subsp. *naso*	Forest Red-tailed Black Cockatoo	VU	VU	Present - supporting	Possible
	Zanda baudinii	Baudin's Cockatoo	EN	EN	Present - supporting	Possible
	Zanda latirostris	Carnaby's Cockatoo	EN	EN	Present - supporting	Possible
	Phascogale tapoatafa wambenger	Brush-tailed Phascogale	CD		Present - supporting	Possible
PERAMELIDAE	*Isoodon fusciventer*	Quenda	P4		Present – supporting (Armstrong)	Possible
PSEUDOCHEIRIDAE	*Pseudocheirus occidentalis*	Western Ringtail Possum	CR	CR	Present – supporting	Present
SCINCIDAE	*Ctenotus ora*	Coastal Plains Skink	P3		Present – supporting (Armstrong)	Possible

4.3.5 Species Profiles and Site Values

The following sections consider the value of the Survey Area to fauna of conservation significance that possibly occur or were identified within the Survey Area. Black cockatoos are discussed in Section 4.5 onwards and WRP in Section 4.8.

Brush-tailed Phascogale

The Survey Area may be utilised by Phascogales however would only represent a negligible portion of any resident animals' home range (at least 20 hectares but normally much larger). They are unlikely to be nesting within the impact footprints (no hollows).

Quenda

Quenda may occur within Survey Areas but only as a part of the larger habitat patch. Impacts to this species would be negligible.

Coastal Plains Skink

Ctenotus ora has previously been recorded within Armstrong Reserve in areas with sandy substrates and low vegetation (including heath) in open Eucalyptus/Corymbia woodland over Banksia in the sandy coastal plain and coastal dunes (Kay & Keogh, 2012). The Armstrong Reserve impact areas align with suitable habitat modelling by Ecoscape (2012).

Ctenotus species are diurnal, terrestrial lizards that rely on solar radiation to maintain activity and therefore favour habitats that provide regular opportunities for basking and rapid movement between sun-exposed areas and shelter (Greer, 1989). As a result, their distribution is closely linked to environments that allow sufficient ground-level sunlight. Suitable habitat is typically characterised by relatively open vegetation structure, often with areas of bare soil or rock (Greer 1989). Distribution is likely to within densely vegetated landscapes is patchy and largely confined to edges, tracks, rocky outcrops or other naturally open microhabitats (Ecoscape, 2012).

From Ecoscape (2012), any clearing of suitable habitat within the range of this species could have at least temporary and potentially significant impacts on local populations, because of the low population density and prior fragmentation of habitat by urban and agricultural development. The proposed clearing would not break any existing linkages that might be important to *C. ora*. Though the micro habitat within the actual proposed footprints is dense compared to the open areas where it is most likely to occur, the species may still occur.

4.4 Black Cockatoos

4.4.1 Breeding

No hollow bearing trees were recorded within the Survey Area.

4.4.2 Foraging

No feed residue was observed, nor were any black cockatoos seen utilising the site or flying over during the survey. Based on Black Cockatoo Foraging Assessment Results (Appendix H), the

- Armstrong Reserve pipeline sections (0.029 ha) may provide high-quality native foraging habitat for all three black cockatoo species (scores of 5), and
- Keenan Street (<0.002 ha) may provide lower quality native foraging habitat for all three black cockatoo species (scores of 4).

4.4.3 Roosts

There was no evidence of black cockatoo roosting within or immediately adjacent to the Survey Area.

4.5 Western Ringtail Possum

No WRP were observed during either of the night surveys. Scats were found at all locations and a \WRP drey was found within each clearing location within Armstrong Reserve.

5 Conclusions and Recommendations

- Two vegetation units were mapped: Two broad structural vegetation units were mapped within the Survey Area:
  1. Armstrong Reserve (0.029 ha): *Corymbia calophylla, Eucalyptus rudis* subsp. *cratyantha, Agonis flexuosa* and *Melaleuca rhaphiophylla* open forest over *Exocarpos odoratus* shrubland over mixed herbs, grasses and sedges.
  2. Gifford Road–Keenan Street (<0.002 ha): *Corymbia calophylla* and *Agonis flexuosa* open forest over *Xanthorrhoea preissii, Jacksonia furcellata* and *Acacia pulchella* shrubland over mixed introduced grasses and herbs

- Three plants of *Eucalyptus rudis* subsp. *cratyantha* (Priority Four, BC Act) were recorded from the Armstrong Reserve Survey Area.
- One Priority Ecological Community was recorded within the Survey Area, Dunsborough Forest Swamp (BCA Priority 1). This is a known occurrence, with the current survey confirming that the vegetation within the Armstrong Reserve Survey Area is representative of this PEC.
- No other listed Priority or Threatened Ecological Communities were recorded during the survey, or vegetation considered as significant for other reasoning.
- Fauna habitat quality was assessed as moderate to high in Armstrong Reserve and poor at Keenan Street.
- Western Ringtail Possum was the only species recorded on site, with scats found at all locations and active dreys recorded within each Armstrong Reserve impact area, although no individuals were observed.
- Other conservation-significant fauna (Brush-tailed Phascogale and Quenda) may occur in Armstrong Reserve, but the proposed clearing represents a negligible proportion of their potential home ranges.
- *Ctenotus ora* (Priority 3) has been previously recorded in Armstrong Reserve, and the impact areas align with known suitable habitat. While the proposed clearing could marginally affect suitable habitat for this species, it would not disrupt habitat linkages, and the dense microhabitat within the footprints is less optimal than preferred open areas.
- No trees with a diameter at breast height greater than 50 cm occur within the proposed impact areas. No hollow-bearing trees, black cockatoo feed residue, roosting, or cockatoo activity were recorded.
- Armstrong Reserve pipeline sections may provide high-quality foraging habitat for all three black cockatoo species, whereas Keenan Street provides lower-quality foraging habitat.

The following recommendations are made

- Clearing should be minimised, where possible.
- Clearing schedules should be planned to avoid spring breeding peaks, if possible.
- An authorised fauna spotter should be present during clearing to manage WRP and potentially *C. ora*.
- Weed management and infill planting could be considered following clearing to reinstate the native vegetation within Armstrong Reserve.
- Once the final footprint is known, impacts should be assessed against the relevant DCCEEW Significant Impact Guidelines. Based on current information, however, referral of the project under the EPBC Act is unlikely to be triggered.
- Overall, the proposed works involve very small disturbance footprints within a broader habitat context and are unlikely to result in significant impacts on local biodiversity values.

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Appendix A Figures

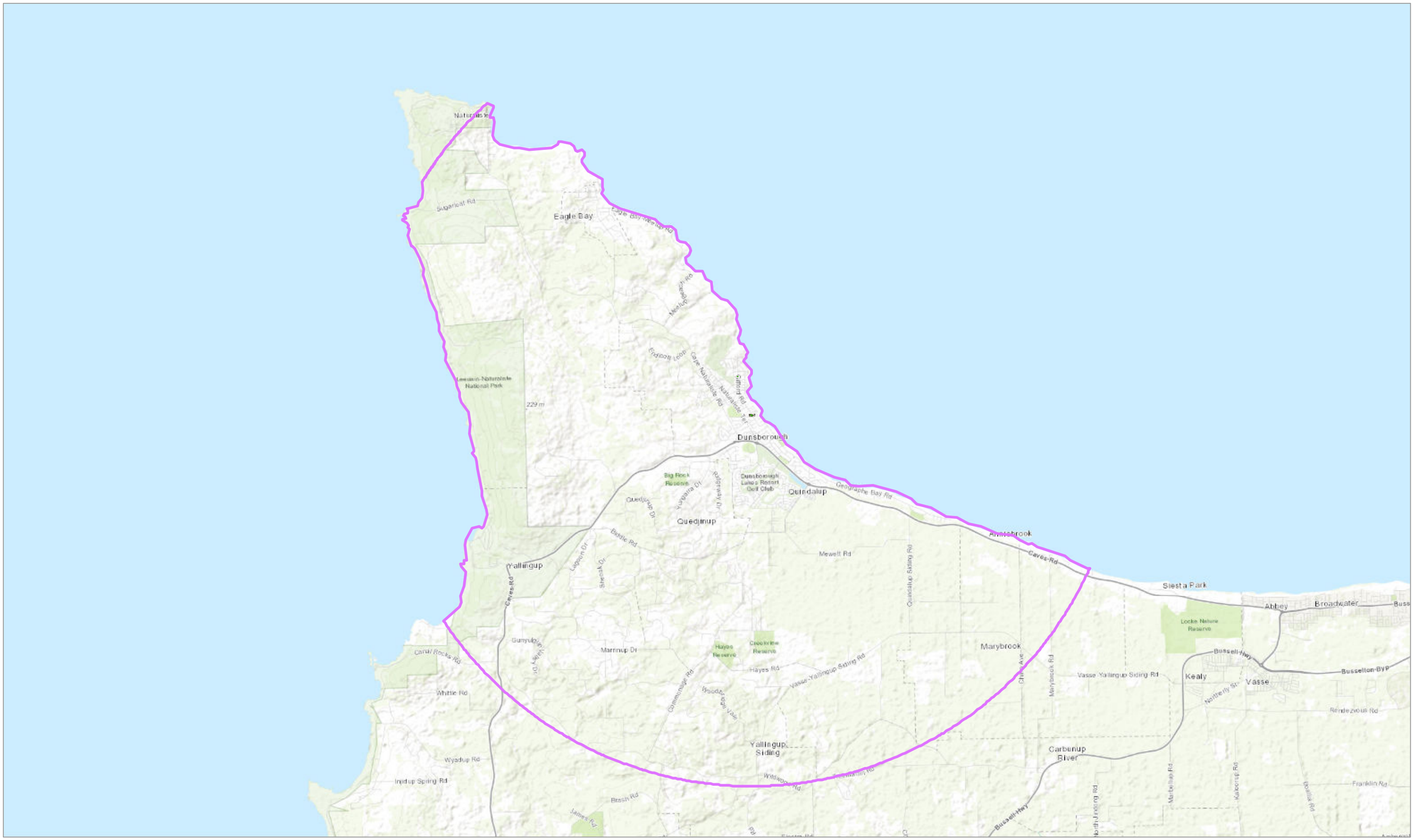


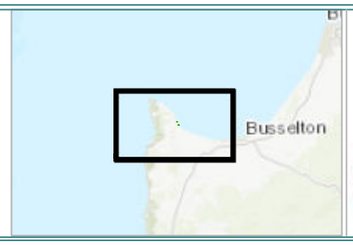
Figure 1 Desktop Study Area

BIODIVERSITY (FLORA AND FAUNA) SURVEYS

GIFFORD ROAD (0.51 – 0.56, 1.69 – 1.70 SLK), DUNSBOROUGH

Survey Area

Desktop Study Area (10 km)



A3 @ 1:95000

0 0.5 1 2 km

N

SW Environmental

www.swenvironmental.com.au

Ref: SW767

Date: 15/12/2025 [redacted]

Source: Base map © Esri and its data suppliers. SUP Landgate (2025)

Figure 2.1 Overview Survey Area

Survey Area

BIODIVERSITY (FLORA AND FAUNA) SURVEYS

GIFFORD ROAD (0.51 – 0.56, 1.69 – 1.70 SLK), DUNSBOROUGH

Ref: SW767
Date: 15/12/2025 [redacted]

Source: Base map © Esri and its data suppliers. SLIP Landgate (2025)

A3 @ 1:5000

0 40 80 160 m

N

SW Environmental
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Figure 2.2 Armstrong Reserve Survey Area

Survey Area
Road

BIODIVERSITY (FLORA AND FAUNA) SURVEYS

GIFFORD ROAD (0.51 – 0.56, 1.69 – 1.70 SLK), DUNSBOROUGH

Ref: SW767
Date: 15/12/2025 [redacted]

Source: Base map © Esri and its data suppliers. SUP Landgate (2025)

A3 @ 1:250

0 1 2 4 m

N

SW Environmental
www.swenvironmental.com.au

Figure 2.3 Gifford Road Keenan Street Intersection Survey Area

Survey Area

Road

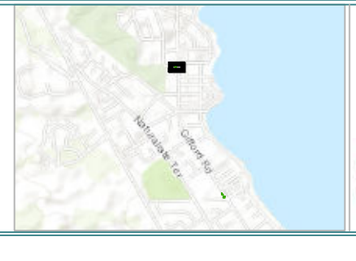
BIODIVERSITY (FLORA AND FAUNA) SURVEYS

GIFFORD ROAD (0.51 – 0.56, 1.69 – 1.70 SLK), DUNSBOROUGH

Ref: SW767

Date: 15/12/2025 [redacted]

Source: Base map © Esri and its data suppliers. SUP Landgate (2025)



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0 1 2 4 m

N

SW Environmental

www.swenvironmental.com.au

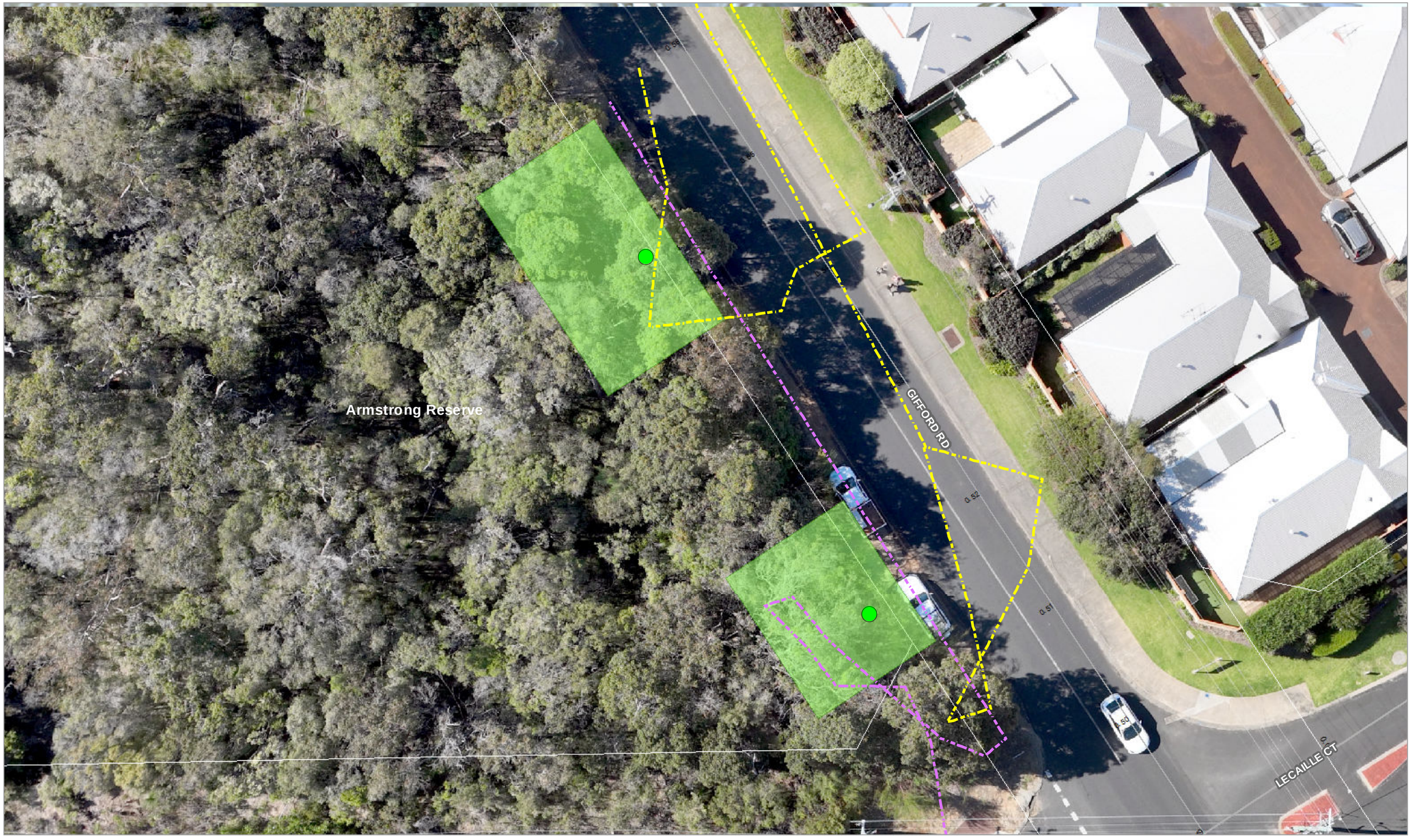

Figure 3.1 Armstrong Reserve WRP Survey Effort and Results

GIFFORD ROAD (0.51 – 0.56, 1.69 – 1.70 SLK), DUNSBOROUGH

Ref: SW767
Date: 15/12/2025 [redacted]

Source: Base map © Esri and its data suppliers. SUP Landgate (2025)

Figure 3.2 Gifford Road Keenan Street Intersection Survey Area

GIFFORD ROAD (0.51 – 0.56, 1.69 – 1.70 SLK), DUNSBOROUGH

Ref: SW767
Date: 15/12/2025 [redacted]

2025/11/20 nocturnal survey effort
2025/12/04 nocturnal survey effort
Survey Area
Road

Source: Base map © Esri and its data suppliers. SUP Landgate (2025)

A3 @ 1:250

0 1 2 4 m

N

SW Environmental
www.swenvironmental.com.au

Figure 4 *Eucalyptus rudis subsp. cratyantha* **within the Survey Area**

Eucalyptus rudis subsp. cratyantha
Survey Area
Road

[redacted]

Ref: SW767
Date: 22/12/2025 [redacted]

Source: Base map © Esri and its data suppliers. SLIP Landgate (2025)

A3 @ 1:250
0 1 2 4 m
N

SW Environmental
[redacted]

Appendix B Conservation Codes

Flora, fauna and ecological communities in WA may be afforded protection under the WA BC Act and or federal EPBC Act. Species listed as threatened or migratory under the above legislation are referred to collectively in this document as being 'conservation significant' or 'target' species. These terms include species and communities listed under the DBCA Priority lists.

BC Act

The WA BC Act and associated Regulations provide for the licensing and management of activities that affect biodiversity. The BC Act provides for the listing of threatened native animals (fauna) that need protection as critically endangered, endangered or vulnerable species because they are under identifiable threat of extinction (species).

The *Biodiversity Conservation (Listing of Native Species) (Fauna) Order 2023)* under the *Biodiversity Conservation Regulations 2018* contain the lists of Threatened, Extinct and Specially Protected species under Part 2 of the BC Act. These are described below.

Threatened species and communities

- PD: Presumed totally destroyed (TECs only)
- CR: Critically endangered species
- EN: Endangered species
- VU: Vulnerable species

Extinct species

- EX: Extinct species
- EW: Extinct in the wild species

Specially protected species

- MI: Migratory species
- CD: Species of special conservation interest (conservation dependent fauna)
- OS: Other specially protected species

EPBC Act

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

- Extinct,
- *Extinct in the wild,
- *Critically endangered,
- *Endangered,
- *Vulnerable,
- Conservation dependent.

*Only these categories are matters of NES under the Act.

The EPBC Act also lists migratory species that are recognized under international treaties including the Japan Australia Migratory Bird Agreement (JAMBA), the China Australia Migratory Bird Agreement (CAMBA) and the Bonn Convention (The Convention on the conservation of Migratory Species of Wild Animals). The EPBC Act is regulated by the DCCEEW.

IUCN Red List

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

Appendix C Local Flora and Fauna Lists

Appendix C.1 Conservation significant flora taxa recorded within the DSA (10 km)

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source			
					Dandjoo (DBCA, 2025a)	PMST (DCCEEW, 2025)	DBCA TPFL (DBCA, 2025d)	DBCA WAHerb (DBCA, 2025d)
Acacia flagelliformis	P4		May – Sep	Sandy soils. Winter-wet areas.	X		X	X
Acacia inops	P3		Sep – Nov	Black peaty sand, clay. Swamps, creeks.	X			X
Acacia lateriticola var. *Glabrous variant* (B.R. Maslin 6765)	P3		Aug or Oct	Lateritic soils.	X		X	X
Acacia semitrullata	P4		May – Oct	White/grey sand, sometimes over laterite. Open heath frequently fringing seasonally dry swamps, and in sand over laterite in shallow depressions in open Eucalyptus marginata forest.	X		X	X
Andersonia sp. Echidna (A.R. Annels ARA 5500)	P2		Nov - Dec	Lateritic brown sandy loam, gravelly sand.	X			
Austrostipa mundula	P3		Sep – Nov	Slopes, dunes, plains and drainage lines. Grey sand with limestone	X			X
Banksia mimica	T	EN	Dec or Jan - Feb	White or grey sand over laterite, sandy loam.		X		
Banksia sessilis var. *cordata*	P4		Jul – Oct	Coastal limestone	X		X	X
Banksia squarrosa subsp. *argillacea*	T	VU	Jun – Nov	White/grey sand, gravelly clay or loam. Winter-wet flats, clay flats.	X	X		
Boronia capitata subsp. *gracilis*	P3		Jun – Nov	White/grey or black sand. Winter-wet swamps, hillslopes.	X			
Boronia sp. Leeuwin (J. Scott 235)	P2		Aug – Dec	Seasonally wet areas, brown/grey/black loam, sand, peat, clay, with granite.	X			X

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source			
					Dandjoo (DBCA, 2025a)	PMST (DCCEEW, 2025)	DBCA TPFL (DBCA, 2025d)	DBCA WAHerb (DBCA, 2025d)
Brachyscias verecundus	T	CR	Oct – Dec	Near outcrops. Sand over laterite/Ironstone/granite		X		
Caladenia abbreviata	P3		Nov – Dec	Sand. Sand dunes.	X		X	
Caladenia busselliana	T	EN	Sep – Oct.	Winter wet swamps. Sandy loam over clay.	X	X	X	X
Caladenia caesarea subsp. *maritima*	T	EN	Aug – Sep	Soil pockets on coastal granite outcrops. Loam, granite. Rock outcrops.	X	X	X	X
Caladenia excelsa	T	EN	Sep – Nov	Sandy soils in Banksia, Jarrah (Eucalyptus marginata) and marri (Corymbia calophylla) woodlands.	X	X	X	X
Caladenia huegelii	T	EN	Sep – Oct.	Grey or brown sand, clay loam. Sandy soils in near coastal woodlands and shrublands.	X	X	X	X
Caladenia nivalis	P2		Aug – Oct	Sand, loam, granite. Coastal granite outcrops.	X		X	X
Caladenia procera	T	CR	Sep – Oct	Rich clay loam, alluvial loamy flats, jarrah/marri/peppermint woodland, dense heath, sedges.	X	X		
Caladenia viridescens	T	EN	Sep – Oct	Yallingup to Nannup, growing in sandy and lateritic soils in woodlands and shrublands.	X	X	X	X
Calothamnus graniticus subsp. *graniticus*	P4		May – Jun	Skeletal sandy soils. Granite outcrops.	X		X	X
Calothamnus graniticus subsp. *leptophyllus*	P4		Jun – Aug	Clay over granite, lateritic soils. Hillsides.	X			

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source			
					Dandjoo (DBCA, 2025a)	PMST (DCCEEW, 2025)	DBCA TPFL (DBCA, 2025d)	DBCA WAHerb (DBCA, 2025d)
Chamelaucium roycei	T		Aug – Nov	Winter wet depressions or flats. Sandy clay over ironstone		X		
Chordifex gracilior	P3		Sep - Dec	Peaty sand. Swamps	X			
Cyanothamnus tenuis	P4		Aug – Dec	Granite outcrops, brown clay loam	X		X	X
Cyathochaeta teretifolia	P3		Jul – Nov	Grey sand, sandy clay. Swamps, creek edges.	X		X	X
Daviesia elongata	T	VU	Sep, Dec or Jan – Feb	Sand, laterite. Grey sandy loam soils.	X	X		
Dillwynia sp. Capel (P.A. Jurjevich 1771)	P3		Sep – Oct.	Littered grey loamy sand, rocky soils. Valleys, rangelands.	X			X
Diuris micrantha	T	VU	Sept – Oct	Winter-wet depressions. Brown loamy clay. Winter wet swamps, in shallow water.		X		
Drakaea elastica	T	EN	Oct – Nov.	White or grey sand. Low-lying situations adjoining winter-wet swamps.		X		
Drakaea micrantha	T	VU	Sep – Oct.	Edge of swamps, often found in clearings and tracks. White-grey sand.	X	X	X	X
Eucalyptus marginata x megacarpa	P4		Unknown	Sandy loam. Interdunal areas.	X		X	X
Eucalyptus rudis subsp. *cratyantha*	P4		Jul – Sep	Loam. Flats, hillsides.	X		X	X
Eucalyptus virginea	P4		Dec or Jan or Jul	Clay or sandy loam, shallow soil over granite, laterite loam over clay. Lower slopes near	X		X	X

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source			
					Dandjoo (DBCA, 2025a)	PMST (DCCEEW, 2025)	DBCA TPFL (DBCA, 2025d)	DBCA WAHerb (DBCA, 2025d)
				watercourses, edge of rock outcrops, gently sloping sites.				
Eucalyptus x phylacis	T	EN	May and Oct	Laterite, loam over granite. Coastal areas.	X	X	X	X
Gahnia sclerioides	P4		Feb, Apr, Jun, Aug – Sep, Nov	Loam, sandy soils. Moist shaded situations	X			X
Gastrolobium argyrotrichum	T	CR	Oct	Dry orange/brown lateritic loam over granite, upper slopes and hillsides.	X	X	X	X
Gastrolobium papilio	T	EN	Oct – Dec.	Flat plains or gentle slopes, sandy clay over ironstone and laterite.		X		
Gonocarpus pusillus	P4		Oct – Dec, Feb	Grey sandy loam, sandy clay loam, wetlands or seasonally inundated areas.	X			
Grevillea brachystylis subsp. *brachystylis*	P3		Jun – Nov	Black sand, sandy clay. Swampy situations.	X			
Grevillea brachystylis subsp. *grandis*	T	CR	Jul – Oct or Dec – Jan	Plains or flats, brown sandy loam, lateritic clay.	X			
Grevillea brachystylis subsp. Yelverton (A. Webb AW09122)	P2		Sep, Oct	Midslope, loamy soils, amongst granite outcropping.	X			
Johnsonia inconspicua	P3		Oct – Nov	White-grey or black sand. Low dunes, winter-wet flats.	X		X	X
Lambertia echinata subsp. *occidentalis*	T	EN	Feb – Apr or Dec	White sandy soils over laterite, orange/brown-red clay over ironstone. Flats to foothills, winter-wet sites.		X		

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source			
					Dandjoo (DBCA, 2025a)	PMST (DCCEEW, 2025)	DBCA TPFL (DBCA, 2025d)	DBCA WAHerb (DBCA, 2025d)
Lepyrodia heleocharoides	P3		Dec	Moist peaty sand. Dry or seasonally inundated heath or woodland, swamps.	X			
Loricobbia pinifolia	P3		Sep - Nov, Feb	Seasonally inundated areas, sand over laterite, sandy clay, riparian vegetation.	X			X
Loxocarya magna	P3		Sep or Nov.	Sand, loam, clay, ironstone. Seasonally inundated or damp habitats.	X			
Meionectes tenuifolia	P3		Oct – Dec	Seasonally inundated areas, Edge of wetlands. Clay or clayey loam over laterite.	X			X
Micromyrtus navicularis	P3		Apr – June, Sep – Jan	Sand with gravel, laterite, granite. Hill slopes.				X
Millotia tenuifolia var. *laevis*	P2		Sep – Oct	Granite or laterite soils.	X			X
Netrostylis sp. Blackwood River (A.R. Annels 3043)	P3		April/May	Swampy areas, dark peaty clay loam.	X			X
Olearia strigosa	P3		Dec or Jan – May	Sandy loam. Open forest.	X			X
Ornduffia submersa	P4		Aug – Nov	Aquatic herb, floating in water. In freshwater 0.05-0.6 m deep. Pools, lakes, swamps, winter-wet depressions, claypans.	X			
Petrophile latericola	T	EN	Nov	Red lateritic clay. Winter-wet flats		X		
Pimelea ciliata subsp. *longituba*	P3		Oct – Dec	Grey sand over clay, loam.	X			
Senecio serratiformis subsp. *serratiformis*	P1		Aug	Sand, limestone. Coastal dunes.	X			X

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Source			
					Dandjoo (DBCA, 2025a)	PMST (DCCEEW, 2025)	DBCA TPFL (DBCA, 2025d)	DBCA WAHerb (DBCA, 2025d)
Stylidium leeuwinense	P4		Feb – May	Grey to black peaty sand. Winter-wet habitats and depressions. Shrubland, heath, sedgeland or low woodland.	X			
Stylidium lowrieanum	P3		Oct – Nov	Sand or sandy loam over limestone. Eucalypt or Agonis woodland, forest, scrub.	X			X
Stylidium striatum	P4		Sep – Dec	Brown or yellow sandy clay with laterite. Slopes and flats	X			
Synaphea decumbens	P3		Sept – Oct	Sand over laterite.	X			
Tetratheca parvifolia	P3		Oct	Red gravelly soil with laterite or granite. Corymbia calophylla - Eucalyptus marginata forest	X			X
Thelymitra variegata	T		Aug – Oct	Brown clay loam or sand, in clearings amongst low shrubs, rushes and grass tussocks in freely draining deep sandy soil	X			X
Thysanotus glaucus	P4		Oct – Dec, Jan – Mar	White, grey or yellow sand, sandy gravel.	X			
Tripterococcus sp. Brachylobus (A.S. George 14234)	P4		Nov – Dec	Plains, winter damp flats with grey sand or clay	X			
Verticordia lehmannii	P4		Jan, Apr – Jun or Aug, Dec	Sandy clay. Winter-wet flats.	X			X
Verticordia plumosa var. *ananeotes*	T	EN	Nov – Dec	Sandy loam. Seasonally inundated plains.	X			
Wurmbea calcicola	T	EN	Jun	Loam. Coastal limestone cliffs.	X	X		

Appendix C.2 Fauna that has been recorded or may occur within the DSA (10 km)

Class	Family	Taxon	Vernacular Name	Status (WA)	Status (EPBC)	Present	Source				
							ALA (ALA, 2025)	Birdata (BirdLife Australia, 2025)	DBCA (DBCA, 2025c)	NatureMap (DBCA, 2025e)	PMST (DCCEEW, 2025)
Amphibia	Limnodynastidae	*Heleioporus eyrei*	Moaning Frog				X			X	
Amphibia	Limnodynastidae	*Heleioporus inornatus*	Whooping Frog				X			X	
Amphibia	Limnodynastidae	*Limnodynastes dorsalis*	Western Banjo Frog				X			X	
Amphibia	Myobatrachidae	*Crinia georgiana*	Quacking Frog				X			X	
Amphibia	Myobatrachidae	*Crinia glauerti*	Clicking Frog				X			X	
Amphibia	Myobatrachidae	*Crinia insignifera*	Squelching Froglet				X			X	
Amphibia	Myobatrachidae	*Crinia pseudinsignifera*	Bleating Froglet				X			X	
Amphibia	Myobatrachidae	*Geocrinia leai*	Ticking Frog				X			X	
Amphibia	Myobatrachidae	*Metacrinia nichollsi*	Forest Toadlet				X			X	
Amphibia	Myobatrachidae	*Myobatrachus gouldii*	Turtle Frog							X	
Amphibia	Myobatrachidae	*Pseudophryne guentheri*	Crawling Toadlet				X			X	
Amphibia	Pelodryadidae	*Litoria adelaidensis*	Slender Tree Frog				X			X	
Amphibia	Pelodryadidae	*Litoria moorei*	Motorbike Frog				X				
Aves	Acanthizidae	*Acanthiza apicalis*	Inland Thornbill				X	X		X	
Aves	Acanthizidae	*Acanthiza chrysorrhoa*	Yellow-rumped Thornbill				X	X		X	
Aves	Acanthizidae	*Acanthiza inornata*	Western Thornbill				X	X		X	
Aves	Acanthizidae	*Gerygone fusca*	Western Gerygone				X	X		X	
Aves	Acanthizidae	*Sericornis frontalis*	Spotted Scrubwren				X	X		X	
Aves	Acanthizidae	*Smicrornis brevirostris*	Weebill				X	X		X	
Aves	Accipitridae	*Accipiter cirrocephalus*	Collared Sparrowhawk				X	X		X	
Aves	Accipitridae	*Accipiter fasciatus*	Brown Goshawk				X	X		X	
Aves	Accipitridae	*Aquila audax*	Wedge-tailed Eagle				X	X		X	
Aves	Accipitridae	*Circus approximans*	Swamp Harrier				X	X		X	
Aves	Accipitridae	*Elanus axillaris*	Black-shouldered Kite				X	X		X	

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Aves	Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle				X	X		X	
Aves	Accipitridae	*Haliastur sphenurus*	Whistling Kite				X	X		X	
Aves	Accipitridae	*Hamirostra melanosternon*	Black-breasted Buzzard				X			X	
Aves	Accipitridae	*Hieraaetus morphnoides*	Little Eagle				X	X		X	
Aves	Accipitridae	*Lophoictinia isura*	Square-tailed Kite				X	X		X	
Aves	Acrocephalidae	*Acrocephalus australis*	Australian Reed Warbler				X	X		X	
Aves	Aegothelidae	*Aegotheles cristatus*	Australian Owlet-nightjar				X			X	
Aves	Alcedinidae	*Dacelo novaeguineae*	Laughing Kookaburra				X	X		X	
Aves	Alcedinidae	*Todiramphus sanctus*	Sacred Kingfisher				X	X		X	
Aves	Anatidae	*Anas castanea*	Chestnut Teal				X				
Aves	Anatidae	*Anas gracilis*	Grey Teal				X	X		X	
Aves	Anatidae	*Anas platyrhynchos*	Mallard				X	X		X	
Aves	Anatidae	*Anas superciliosa*	Pacific Black Duck				X	X		X	
Aves	Anatidae	*Aythya australis*	Hardhead				X	X		X	
Aves	Anatidae	*Biziura lobata*	Musk Duck				X	X		X	
Aves	Anatidae	*Chenonetta jubata*	Australian Wood Duck				X	X		X	
Aves	Anatidae	*Cygnus atratus*	Black Swan				X	X		X	
Aves	Anatidae	*Malacorhynchus membranaceus*	Pink-eared Duck				X	X			
Aves	Anatidae	*Oxyura australis*	Blue-billed Duck	P4			X	X	X	X	
Aves	Anatidae	*Spatula rhynchotis*	Australasian Shoveler				X	X		X	
Aves	Anatidae	*Tadorna tadornoides*	Australian Shelduck				X	X		X	
Aves	Anhingidae	*Anhinga novaehollandiae*	Australasian Darter				X	X		X	
Aves	Apodidae	*Apus pacificus*	Fork-tailed Swift	MI	MI		X		X		X
Aves	Ardeidae	*Ardea alba*	Great Egret				X	X			

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Aves	Ardeidae	*Ardea ibis*	Western cattle egret							X	
Aves	Ardeidae	*Ardea modesta*	Eastern Great Egret							X	
Aves	Ardeidae	*Ardea pacifica*	White-necked Heron				X	X		X	
Aves	Ardeidae	*Botaurus poiciloptilus*	Australasian Bittern	EN	EN		X				X
Aves	Ardeidae	*Egretta garzetta*	Little Egret				X	X		X	
Aves	Ardeidae	*Egretta novaehollandiae*	White-faced Heron				X	X		X	
Aves	Ardeidae	*Egretta sacra*	Eastern Reef Heron				X	X		X	
Aves	Ardeidae	*Nycticorax caledonicus*	Nankeen Night Heron				X			X	
Aves	Artamidae	*Artamus cinereus*	Black-faced Woodswallow				X	X		X	
Aves	Artamidae	*Artamus cyanopterus*	Dusky Woodswallow				X	X		X	
Aves	Artamidae	*Cracticus nigrogularis*	Pied Butcherbird				X	X		X	
Aves	Artamidae	*Cracticus torquatus*	Grey Butcherbird				X	X		X	
Aves	Artamidae	*Gymnorhina tibicen*	Australian Magpie				X	X		X	
Aves	Artamidae	*Strepera versicolor*	Grey Currawong				X	X		X	
Aves	Cacatuidae	*Cacatua pastinator*	Western Long-billed Corella				X	X		X	
Aves	Cacatuidae	*Cacatua sanguinea*	Little Corella				X	X		X	
Aves	Cacatuidae	*Calyptorhynchus banksii subsp. naso*	Forest Red-tailed Black Cockatoo	VU	VU		X	X	X	X	X
Aves	Cacatuidae	*Eolophus roseicapilla*	Galah				X	X		X	
Aves	Cacatuidae	*Zanda baudinii*	Baudin's Cockatoo	EN	EN		X	X	X	X	X
Aves	Cacatuidae	*Zanda latirostris*	Carnaby's Cockatoo	EN	EN		X	X	X	X	X
Aves	Campephagidae	*Coracina novaehollandiae*	Black-faced Cuckooshrike				X	X		X	
Aves	Campephagidae	*Lalage tricolor*	White-winged Triller				X	X			
Aves	Casuariidae	*Dromaius novaehollandiae*	Emu				X	X			
Aves	Charadriidae	*Elseyornis melanops*	Black-fronted Dotterel				X	X		X	

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Aves	Charadriidae	*Erythrogonys cinctus*	Red-kneed Dotterel				X	X		X	
Aves	Charadriidae	*Vanellus miles*	Masked Lapwing				X	X		X	
Aves	Charadriidae	*Vanellus tricolor*	Banded Lapwing				X	X		X	
Aves	Climacteridae	*Climacteris rufus*	Rufous Treecreeper				X	X		X	
Aves	Columbidae	*Columba livia*	Domestic Pigeon				X	X		X	
Aves	Columbidae	*Ocyphaps lophotes*	Crested Pigeon				X	X		X	
Aves	Columbidae	*Phaps chalcoptera*	Common Bronzewing				X	X		X	
Aves	Columbidae	*Phaps elegans*	Brush Bronzewing				X	X		X	
Aves	Columbidae	*Spilopelia senegalensis*	Laughing Turtle Dove				X	X			
Aves	Columbidae	*Streptopelia chinensis*	Spotted dove							X	
Aves	Columbidae	*Streptopelia senegalensis*	Laughing dove							X	
Aves	Corvidae	*Corvus bennetti*	Little Crow				X				
Aves	Corvidae	*Corvus coronoides*	Australian Raven				X	X		X	
Aves	Cuculidae	*Cacomantis flabelliformis*	Fan-tailed Cuckoo				X	X		X	
Aves	Cuculidae	*Chalcites basalis*	Horsfield's Bronze Cuckoo				X	X			
Aves	Cuculidae	*Chalcites lucidus*	Shining Bronze Cuckoo				X	X		X	
Aves	Cuculidae	*Heteroscenes pallidus*	Pallid Cuckoo				X	X		X	
Aves	Dicaeidae	*Dicaeum hirundinaceum*	Mistletoebird				X	X		X	
Aves	Estrildidae	*Stagonopleura oculata*	Red-eared Firetail				X	X		X	
Aves	Falconidae	*Falco berigora*	Brown Falcon				X	X		X	
Aves	Falconidae	*Falco cenchroides*	Australian Kestrel				X	X		X	
Aves	Falconidae	*Falco hypoleucos*	Grey Falcon	VU	VU						X
Aves	Falconidae	*Falco longipennis*	Australian Hobby				X	X		X	
Aves	Falconidae	*Falco peregrinus*	Peregrine Falcon	OS			X	X	X	X	

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Aves	Falcunculidae	*Falcunculus frontatus leucogaster*	Western Shrike-tit				X				
Aves	Glareolidae	*Glareola maldivarum*	Oriental Pratincole	MI	MI		X				
Aves	Haematopodidae	*Haematopus fuliginosus*	Sooty Oystercatcher				X	X		X	
Aves	Hirundinidae	*Hirundo neoxena*	Welcome Swallow				X	X		X	
Aves	Hirundinidae	*Petrochelidon ariel*	Fairy Martin				X	X		X	
Aves	Hirundinidae	*Petrochelidon nigricans*	Tree Martin				X	X		X	
Aves	Laridae	*Anous tenuirostris*	Lesser Noddy				X				
Aves	Laridae	*Chroicocephalus novaehollandiae*	Silver Gull				X	X		X	
Aves	Laridae	*Onychoprion anaethetus*	Bridled Tern	MI	MI		X	X	X	X	X
Aves	Laridae	*Sterna hirundo*	Common Tern	MI	MI			X			
Aves	Locustellidae	*Cincloramphus cruralis*	Brown Songlark				X	X		X	
Aves	Maluridae	*Malurus elegans*	Red-winged Fairywren				X	X		X	
Aves	Maluridae	*Malurus splendens*	Splendid Fairywren				X	X		X	
Aves	Maluridae	*Stipiturus malachurus*	Southern Emu-wren				X	X		X	
Aves	Megapodiidae	*Leipoa ocellata*	Malleefowl	VU	VU		X		X	X	
Aves	Meliphagidae	*Acanthorhynchus superciliosus*	Western Spinebill				X	X		X	
Aves	Meliphagidae	*Anthochaera carunculata*	Red Wattlebird				X	X		X	
Aves	Meliphagidae	*Anthochaera lunulata*	Western Little Wattlebird				X	X		X	
Aves	Meliphagidae	*Epthianura albifrons*	White-fronted Chat				X	X		X	
Aves	Meliphagidae	*Gavicalis virescens*	Singing Honeyeater				X	X		X	
Aves	Meliphagidae	*Gliciphila melanops*	Tawny-crowned Honeyeater				X	X			
Aves	Meliphagidae	*Lichmera indistincta*	Brown Honeyeater				X	X		X	
Aves	Meliphagidae	*Manorina flavigula*	Yellow-throated Miner				X				

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Aves	Meliphagidae	*Melithreptus brevirostris*	Brown-headed Honeyeater				X	X			
Aves	Meliphagidae	*Melithreptus lunatus*	White-naped Honeyeater				X	X		X	
Aves	Meliphagidae	*Phylidonyris niger*	White-cheeked Honeyeater				X	X		X	
Aves	Meliphagidae	*Phylidonyris novaehollandiae*	New Holland Honeyeater				X	X		X	
Aves	Meropidae	*Merops ornatus*	Rainbow Bee-eater				X	X		X	
Aves	Monarchidae	*Grallina cyanoleuca*	Magpie-lark				X	X		X	
Aves	Monarchidae	*Myiagra inquieta*	Restless Flycatcher				X	X			
Aves	Motacillidae	*Anthus novaeseelandiae*	Australasian Pipit				X	X			
Aves	Motacillidae	*Motacilla cinerea*	Grey Wagtail	MI	MI						X
Aves	Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella				X	X		X	
Aves	Numididae	*Numida meleagris*	Helmeted Guineafowl				X	X			
Aves	Pachycephalidae	*Colluricincla harmonica*	Grey Shrikethrush				X	X		X	
Aves	Pachycephalidae	*Pachycephala pectoralis*	Golden Whistler				X	X		X	
Aves	Pachycephalidae	*Pachycephala rufiventris*	Rufous Whistler				X	X		X	
Aves	Pandionidae	*Pandion haliaetus*	Osprey	MI	MI		X	X	X	X	X
Aves	Pardalotidae	*Pardalotus punctatus*	Spotted Pardalote				X	X		X	
Aves	Pardalotidae	*Pardalotus striatus*	Striated Pardalote				X	X		X	
Aves	Pelecanidae	*Pelecanus conspicillatus*	Australian Pelican				X	X		X	
Aves	Petroicidae	*Eopsaltria griseogularis*	Western Yellow Robin				X	X		X	
Aves	Petroicidae	*Petroica boodang*	Scarlet Robin				X	X		X	
Aves	Phalacrocoracidae	*Microcarbo melanoleucos*	Little Pied Cormorant				X	X		X	
Aves	Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant				X	X		X	
Aves	Phalacrocoracidae	*Phalacrocorax sulcirostris*	Little Black Cormorant				X	X		X	

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Aves	Phalacrocoracidae	*Phalacrocorax varius*	Pied Cormorant (Australian Pied Cormorant)				X	X		X	
Aves	Phasianidae	*Coturnix pectoralis*	Stubble Quail				X			X	
Aves	Phasianidae	*Phasianus colchicus*	Common Pheasant				X				
Aves	Phasianidae	*Synoicus ypsilophorus*	Brown Quail				X	X			
Aves	Podargidae	*Podargus strigoides*	Tawny Frogmouth			X	X	X		X	
Aves	Podicipedidae	*Podiceps cristatus*	Great Crested Grebe				X	X			
Aves	Podicipedidae	*Poliocephalus poliocephalus*	Hoary-headed Grebe				X	X		X	
Aves	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian Grebe				X	X		X	
Aves	Psittaculidae	*Barnardius zonarius*	Australian Ringneck				X	X		X	
Aves	Psittaculidae	*Neophema elegans*	Elegant Parrot				X	X		X	
Aves	Psittaculidae	*Neophema petrophila*	Rock Parrot	P4			X	X		X	
Aves	Psittaculidae	*Parvipsitta porphyrocephala*	Purple-crowned Lorikeet				X	X		X	
Aves	Psittaculidae	*Platycercus icterotis*	Western Rosella				X	X		X	
Aves	Psittaculidae	*Polytelis anthopeplus*	Regent Parrot				X	X		X	
Aves	Psittaculidae	*Purpureicephalus spurius*	Red-capped Parrot				X	X		X	
Aves	Rallidae	*Fulica atra*	Eurasian Coot				X	X		X	
Aves	Rallidae	*Gallinula tenebrosa*	Dusky Moorhen				X	X		X	
Aves	Rallidae	*Hypotaenidia philippensis*	Buff-banded Rail				X	X		X	
Aves	Rallidae	*Porphyrio porphyrio*	Purple Swamphen				X	X		X	
Aves	Rallidae	*Porzana fluminea*	Australian Spotted Crake				X	X		X	
Aves	Rallidae	*Porzana pusilla palustris*	Baillon's crake							X	
Aves	Rallidae	*Tribonyx ventralis*	Black-tailed Nativehen				X	X			
Aves	Rallidae	*Zapornia tabuensis*	Spotless Crake				X	X		X	

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Aves	Recurvirostridae	*Cladorhynchus leucocephalus*	Banded Stilt				X	X			
Aves	Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt				X			X	
Aves	Recurvirostridae	*Himantopus leucocephalus*	Pied Stilt				X	X			
Aves	Recurvirostridae	*Recurvirostra novaehollandiae*	Red-necked Avocet				X	X		X	
Aves	Rhipiduridae	*Rhipidura albiscapa*	Grey Fantail				X	X		X	
Aves	Rhipiduridae	*Rhipidura leucophrys*	Willie Wagtail				X	X		X	
Aves	Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	MI	MI		X	X	X	X	X
Aves	Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	MI	VU & MI		X		X	X	X
Aves	Scolopacidae	*Calidris alba*	Sanderling	MI	MI		X	X	X	X	
Aves	Scolopacidae	*Calidris canutus*	Red Knot	EN	VU & MI		X	X			X
Aves	Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CR	CR & MI		X	X	X	X	X
Aves	Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	MI	MI		X	X	X	X	X
Aves	Scolopacidae	*Calidris ruficollis*	Red-necked Stint	MI	MI		X	X	X	X	
Aves	Scolopacidae	*Calidris tenuirostris*	Great Knot	CR	VU & MI		X				
Aves	Scolopacidae	*Limosa lapponica*	Bar-tailed Godwit	MI	MI		X	X	X	X	X
Aves	Scolopacidae	*Limosa limosa*	Black-tailed Godwit	MI	EN & MI		X		X		
Aves	Scolopacidae	*Numenius madagascariensis*	Far Eastern Curlew (Eastern Curlew)	CR	CR & MI		X	X	X	X	X
Aves	Scolopacidae	*Numenius phaeopus*	Whimbrel	MI	MI		X	X			
Aves	Scolopacidae	*Tringa brevipes*	Grey-tailed Tattler	MI & P4	MI		X				
Aves	Scolopacidae	*Tringa glareola*	Wood Sandpiper	MI	MI		X		X		
Aves	Scolopacidae	*Tringa nebularia*	Common Greenshank	MI	EN & MI		X	X	X	X	X

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Aves	Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	MI	MI		X	X	X	X	
Aves	Strigidae	*Ninox connivens connivens*	Barking owl (southwest subpopulation)	P3			X		X	X	
Aves	Strigidae	*Ninox novaeseelandiae*	Southern Boobook				X			X	
Aves	Sulidae	*Morus serrator*	Australasian Gannet				X	X		X	
Aves	Sylviidae	*Megalurus gramineus*	Little Grassbird				X	X		X	
Aves	Threskiornithidae	*Platalea flavipes*	Yellow-billed Spoonbill				X	X		X	
Aves	Threskiornithidae	*Platalea regia*	Royal Spoonbill				X	X		X	
Aves	Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis	MI	MI		X				
Aves	Threskiornithidae	*Threskiornis molucca*	Australian White Ibis				X	X		X	
Aves	Threskiornithidae	*Threskiornis spinicollis*	Straw-necked Ibis				X	X		X	
Aves	Turnicidae	*Turnix varius*	Painted Buttonquail				X	X		X	
Aves	Tytonidae	*Tyto alba*	Barn Owl					X			
Aves	Tytonidae	*Tyto novaehollandiae novaehollandiae*	Masked Owl (southwest)	P3					X		
Aves	Zosteropidae	*Zosterops lateralis*	Silvereye				X	X		X	
Bivalvia	Hyriidae	*Westralunio carteri*	Carter's freshwater mussel	VU	VU				X	X	X
Fish	Actinopterygii	*Nannatherina balstoni*	Balston's pygmy perch	VU	VU						X
Gastropoda	Assimineidae	*Austroassiminea letha*	Cape Leeuwin freshwater snail	VU					X	X	
Malacostraca	Parastacidae	*Engaewa pseudoreducta*	Margaret River burrowing crayfish	CR	CR						X
Malacostraca	Parastacidae	*Engaewa reducta*	Dunsborough burrowing crayfish	EN	CR		X		X	X	X
Mammalia	Burramyidae	*Cercartetus concinnus*	Western Pygmy-possum				X			X	
Mammalia	Canidae	*Vulpes vulpes*	Red Fox				X			X	
Mammalia	Dasyuridae	*Dasyurus geoffroii*	Chuditch	VU	VU				X	X	X

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Mammalia	Dasyuridae	*Phascogale tapoatafa wambenger*	Brush-tailed Phascogale	CD			X		X	X	
Mammalia	Dasyuridae	*Sminthopsis fuliginosa fuliginosa*	Grey-bellied Dunnart				X			X	
Mammalia	Felidae	*Felis catus*	Cat				X				
Mammalia	Leporidae	*Oryctolagus cuniculus*	Rabbit				X			X	
Mammalia	Macropodidae	*Macropus fuliginosus*	Western Grey Kangaroo				X			X	
Mammalia	Macropodidae	*Notamacropus irma*	Western Brush Wallaby	P4			X		X	X	
Mammalia	Macropodidae	*Setonix brachyurus*	Quokka	VU	VU		X		X	X	
Mammalia	Molossidae	*Mormopterus planiceps*	Southern free-tailed bat							X	
Mammalia	Molossidae	*Tadarida australis*	White-striped free-tailed bat							X	
Mammalia	Muridae	*Hydromys chrysogaster*	Water Rat	P4					X	X	
Mammalia	Muridae	*Mus musculus*	House Mouse				X			X	
Mammalia	Muridae	*Rattus rattus*	Black Rat				X			X	
Mammalia	Peramelidae	*Isoodon fusciventer*	Quenda	P4			X		X	X	
Mammalia	Phalangeridae	*Trichosurus vulpecula*	Common Brushtail Possum				X			X	
Mammalia	Pseudocheiridae	*Pseudocheirus occidentalis*	Western Ringtail Possum	CR	CR		X		X	X	X
Mammalia	Tachyglossidae	*Tachyglossus aculeatus*	Short-beaked Echidna				X			X	
Mammalia	Tarsipedidae	*Tarsipes rostratus*	Honey Possum				X			X	
Mammalia	Vespertilionidae	*Chalinolobus gouldii*	Gould's Wattled Bat				X			X	
Mammalia	Vespertilionidae	*Chalinolobus morio*	Chocolate Wattled Bat							X	
Mammalia	Vespertilionidae	*Falsistrellus mackenziei*	Western Falsistrelle	P4					X	X	
Mammalia	Vespertilionidae	*Nyctophilus geoffroyi*	Lesser Long-eared Bat							X	
Mammalia	Vespertilionidae	*Nyctophilus gouldi*	Gould's Long-eared Bat							X	
Mammalia	Vespertilionidae	*Vespadelus regulus*	Southern Forest Bat				X			X	
Reptilia	Agamidae	*Pogona minor*	Dwarf Bearded Dragon				X			X	

Class	Family	Taxon	Vernacular Name	Status (WA)	Status (EPBC)	Present	Source				
							ALA (ALA, 2025)	Birdata (BirdLife Australia, 2025)	DBCA (DBCA, 2025c)	NatureMap (DBCA, 2025e)	PMST (DCCEEW, 2025)
Reptilia	Chelidae	*Chelodina oblonga*	Oblong Turtle				X				
Reptilia	Elapidae	*Echiopsis curta*	Bardick				X			X	
Reptilia	Elapidae	*Elapognathus coronatus*	Crowned Snake				X			X	
Reptilia	Elapidae	*Notechis scutatus*	Tiger Snake								
Reptilia	Elapidae	*Pseudonaja affinis*	Dugite				X			X	
Reptilia	Elapidae	*Suta gouldii*	Gould's Hooded Snake				X			X	
Reptilia	Elapidae	*Suta nigriceps*	Mitchell's Short-tailed Snake				X				
Reptilia	Gekkonidae	*Christinus marmoratus*	Marbled Gecko				X			X	
Reptilia	Pygopodidae	*Aprasia pulchella*	Western Granite Worm-lizard				X			X	
Reptilia	Pygopodidae	*Delma australis*	Southern legless lizard							X	
Reptilia	Pygopodidae	*Lialis burtonis*	Burton's Snake-lizard				X			X	
Reptilia	Pygopodidae	*Pygopus lepidopodus*	Common Scaly Foot				X			X	
Reptilia	Pythonidae	*Morelia spilota*	Carpet Python							X	
Reptilia	Scincidae	*Acritoscincus trilineatus*	Western Three-lined Skink				X			X	
Reptilia	Scincidae	*Cryptoblepharus buchananii*	Buchanan's Snake-eyed Skink				X			X	
Reptilia	Scincidae	*Ctenotus catenifer*	Chain-striped South-west Ctenotus				X			X	
Reptilia	Scincidae	*Ctenotus impar*	Odd-striped Ctenotus				X			X	
Reptilia	Scincidae	*Ctenotus labillardieri*	Common South-west Ctenotus							X	
Reptilia	Scincidae	*Ctenotus ora*	Coastal Plains Skink	P3			X		X	X	
Reptilia	Scincidae	*Egernia kingii*	King's Skink				X			X	
Reptilia	Scincidae	*Egernia napoleonis*	South-western Crevice-skink				X			X	
Reptilia	Scincidae	*Hemiergis peronii*	Lowlands Earless Skink				X			X	
Reptilia	Scincidae	*Lerista distinguenda*	South-western Orange-tailed Slider				X			X	
Reptilia	Scincidae	*Lerista elegans*	Elegant Slider				X			X	

Class	Family	Taxon	Vernacular Name	Status (WA)	Status (EPBC)	Present	Source				
							ALA (ALA, 2025)	Birdata (BirdLife Australia, 2025)	DBCA (DBCA, 2025c)	NatureMap (DBCA, 2025e)	PMST (DCCEEW, 2025)
Reptilia	Scincidae	*Menetia greyii*	Grey's Menetia				X			X	
Reptilia	Scincidae	*Morethia lineoocellata*	West Coast Morethia Skink				X			X	
Reptilia	Scincidae	*Tiliqua rugosa*	Bobtail				X			X	
Reptilia	Typhlopidae	*Anilios australis*	Southern Blind Snake				X			X	
Reptilia	Varanidae	*Varanus rosenbergi*	Heath Goanna				X			X	

Appendix D Local Significant Vegetation Records

Community	Description	Status (WA)	Status (EPBC)	Source
Banksia Woodlands of the Swan Coastal Plain	The assemblage of plants, animals and other organisms associated with a type of freshwater, peat-based wetland (including within damplands, troughs, paluslopes, palusplains and palusmonts floodplains as per Semeniuk (1987)) that is found in the High Rainfall Province of the south-west of Western Australia (BoM, 2022; Hopper & Gioia, 2004). It is typically a sedgeland to shrubland vegetation complex on peaty substrates that almost always includes the perennial grass-like twig rush *Empodisma gracillimum* (tanglefoot).	Priority 3	Endangered	(DBCA, 2025b, 2025f; DCCEEW, 2025)
***Calothamnus graniticus* subsp. *graniticus* heaths on south-west coastal granites**	The community is known from a narrow band parallel to the western shores of Geographe Bay near Meelup. It occurs in areas of exposed granite outcrops and isolated pockets of shallow gravelly-loam soils predominantly found lower in the landscape, but also in isolated pockets upslope where granite boulders dominate. The distinctive *Calothamnus graniticus* subsp. *graniticus* (one-sided bottle brush; priority 4) forms a dense shrub layer with *Gastrolobium spinosum* (prickly poison), *Allocasuarina humilis* (dwarf sheoak) and *Dodonaea ceratocarpa*. Downslope, smaller shrubs include *Boronia tenuis* (blue boronia; priority 4), *Chorizema aciculare* (needle-leaved chorizema), *Hibbertia hypericoides* (yellow buttercups), *Hibbertia spicata*, *Lysiandra calycina* (false boronia), *Thryptomene saxicola* (rock thryptomene) and *Xanthorrhoea preissii* (balga). *Burchardia congesta* (milkmaids), *Caladenia caesarea* subsp. *maritima* (cape mustard orchid; critically endangered), a fern *Cheilanthes austrotenuifolia*, *Conostylis setigera* (bristly cottonhead), *Laxmannia sessiliflora* (nodding lily), *Lomandra micrantha* (small-flower mat-rush), triggerplants including *Stylidium affine* (queen triggerplant), *Stylidium megacarpum*, *Stylidium repens* (matted triggerplant) and sedges and grasses *Lepidosperma squamatum*, *Morelotia octandra* and *Neurachne alopecuroidea* (foxtail mulga grass) can also be found in the understorey.	Vulnerable	Not listed	(DBCA, 2025f, 2025b)
Coastal granitic shrublands and herblands of the exposed western and southern sides of the Leeuwin Block major landform **(Previously known as Low shrublands on acidic grey-brown sands of the Gracetown soil-landscape system / Coastal granitic shrublands and herblands PEC)**	Known from 36 occurrences between Cape Naturalist and Cape Leeuwin, with an area of occupancy of approximately 221.4 hectares. The Coastal granitic shrublands and herblands PEC is associated with outcropping granite (exposed or shallow sub-surface) and is characterised by a series of flora within the landform that only occur on outcropping granite, including the shrubs *Dodonaea ceratocarpa*, *Hakea trifurcata*, *Darwinia citriodora*, *Dillwynia laxiflora*, *Cryptandra arbutiflora*, *Kunzea ciliata*, *Verticordia plumosa* var. *plumosa* and *Daviesia horrida*, and the herbs *Stylidium megacarpum*, *Neurachne alopecuroidea*, *Stypandra glauca*, *Cheilanthes austrotenuifolia*, and a large robust form of *Lepidosperma squamatum* (sensu lato).	Priority 2	Not listed	(DBCA, 2023b, 2024b, 2025f, 2025b)

Community	Description	Status (WA)	Status (EPBC)	Source
***Corymbia calophylla* — *Eucalyptus marginata* woodlands on sandy clay soils of the southern Swan Coastal Plain (floristic community type 3b as originally described in Gibson et al. 1994)**	The community is known from the eastern side of the Swan Coastal Plain largely between Wannamal and Dunsborough. Most occurrences of the community are dominated by both *Corymbia calophylla* (marri) and *Eucalyptus marginata* (jarrah) with additional common taxa comprising low shrubs, sedges, grasses and herbs. These include *Bossiaea eriocarpa* (common brown pea), *Conostylis juncea*, *Hibbertia hypericoides* (yellow buttercups), *Morelotia octandra*, *Chamaescilla corymbosa* (blue squill), *Desmocladus fasciculatus*, *Banksia dallanneyi* (couch honeypot), Mesomelaena tetragona (semaphore sedge), *Babingtonia camphorosmae* (camphor myrtle), *Lepidosperma squamatum*, *Neurachne alopecuroidea* (foxtail mulga grass), *Philotheca spicata* (pepper and salt), *Burchardia congesta* (milkmaids), *Caesia micrantha* (pale grass-lily), *Kingia australis* (kingia), *Drosera erythrorhiza* (red ink sundew), *Lomandra hermaphrodita* and *Caladenia flava* (cowslip orchid). The community is also known as 'floristic community type 3b' as originally described in Gibson et al. (1994).	Endangered	-	(DBCA, 2025f, 2025b)
***Corymbia calophylla* woodlands on heavy soils of the southern Swan Coastal Plain (floristic community type 1b as originally described in Gibson et al. 1994)**	The community has been recorded from heavy fertile soils of the southern Swan Coastal Plain south of Dardanup. It consists largely of *Corymbia calophylla* (marri) forests and woodlands. *Eucalyptus marginata* (jarrah) is also common in the tree layer. Common understorey species include *Acacia extensa* (wiry wattle), *Gompholobium polymorphum*, *Billardiera variifolia*, *Hibbertia hypericoides* (yellow buttercups), *Hypocalymma angustifolium* (white myrtle) and *Xanthorrhoea preissii* (balga) over a rich herb layer including *Scaevola calliptera, Agrostocrinum scabrum* (blue grass lily), *Austrostipa semibarbata*, *Dampiera linearis* (common dampiera), *Mesomelaena tetragona* (semaphore sedge), *Morelotia octandra* and *Lomandra purpurea* (purple mat rush). The community is also known as 'floristic community type 1b' as originally described in Gibson N., Keighery B.J., Keighery G.J., Burbidge A.H. and Lyons M.N. (1994) A floristic survey of the southern Swan Coastal Plain (unpublished report for the Australian Heritage Commission prepared by the Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc.)).	Critically Endangered	-	(DBCA, 2025f, 2025b)
***Corymbia calophylla, Melaleuca rhaphiophylla, Banksia littoralis, Eucalyptus rudis, Agonis flexuosa* low open forest with seasonal subsoil moisture (Dunsborough area)**	*Corymbia calophylla*, *Agonis flexuosa*, *Banksia littoralis*, *Melaleuca rhaphiophylla* low open forest over *Viminea juncea*, *Jacksonia furcellata* tall open shrubland over *Xanthorrhoea preissii*, *Pericalymma elliptica* shrubland over *Hibbertia* spp., *Astroloma pallidum*, *Leucopogon australia* open low heath over *Hypolaena pubescens*, *Mesomelaena tetragona*, *Lepidosperma* spp. dense sedges over *Amphipogon* and *Thysanotus* spp. open herbs. The community occurs on sandy loam soils at the southern tip of the Swan Coastal Plain.	Priority 1	-	(DBCA, 2025f, 2025b)

Community		Description	Status (WA)	Status (EPBC)	Source
Claypans of the Swan Coastal Plain (EPBC-listed TEC)	Dense shrublands on clay flats (floristic community type 9 as originally described in Gibson et al. 1994) (synonymous with subtypes of Claypans of the Swan Coastal Plain EPBC-listed TEC)	The community occurs as shrublands or open woodlands on clay flats that are inundated for long periods. It has been recorded between Moore River National Park and Dunsborough. Sedges are more apparent in the community than in other claypans, generally with moderate frequencies of *Chorizandra enodis* (black bristlerush), *Cyathochaeta avenacea*, *Lepidosperma longitudinale* (pithy sword-sedge) and *Leptocarpus coangustatus*. The community has a lower species richness and weed frequency than other claypan threatened ecological communities. The community is also known as 'floristic community type 9' as originally described in Gibson N., Keighery B.J., Keighery G.J., Burbidge A.H. and Lyons M.N. (1994) A floristic survey of the southern Swan Coastal Plain (unpublished report for the Australian Heritage Commission prepared by the Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc.)).	Endangered	Critically Endangered	(DBCA, 2025f, 2025b; DCCEEW, 2025)
	Seasonal rainfall filled wetlands with impeding substrate of the Swan Coastal Plain and Jarrah Forest in transitional rainfall zones (synonymous with subtypes of Claypans of the Swan Coastal Plain EPBC-listed TEC)	This listing encompasses Claypan Group 1, 2 and 3 (as defined by Gibson *et.al.* 2005: Threatened plant communities of Western Australia. 2 The seasonal clay-based wetland communities of the South West. Pacific Conservation Biology 11:287-301) that are included under the EPBC-listed TEC and are not listed as a TEC at the state level ie while floristic community types 7, 8, 9, and 10a (as defined in Gibson *et al.* 1994; A floristic survey of the southern Swan Coastal Plain) are also part of the synonymous EPBC-listed claypan TEC, those claypans have existing state TEC status: Group 1: Claypans of the Swan Coastal Plain and plateau with a damp terrestrial phase of the pool cycle. Common overstorey taxa include *Casuarina obesa, Melaleuca viminea* and *Melaleuca cuticularis*. Taxa of this group often reflect a higher salinity of the claypan substrate. Group 2: Seasonally inundated flats largely confined to the Swan Coastal Plain in high rainfall areas. Generally characterised by *Hypocalymma angustifolium, Kunzea micrantha, Kunzea recurva* and *Viminaria juncea.* Group 3*:* Predominantly claypans of deeper basins of the Swan Coastal Plain and Jarrah Forest Bioregion (plateau). Generally dominated by *Melaleuca lateritia* and characterised by aquatic and amphibious taxa (eg: *Hydrocotyle lemnoides* P4, *Glossostigma diandrum*, *Liparophyllum capitatum,* and *Eleocharis keigheryi* VU).	Priority 1	Critically Endangered	(DBCA, 2025b, 2025f)
Empodisma peatlands of southwestern Australia		The assemblage of plants, animals and other organisms associated with a type of freshwater, peat-based wetland (including within damplands, troughs, paluslopes, palusplains and palusmonts floodplains as per (Semeniuk, 1987)) that is found in the High Rainfall Province of the south-west of Western Australia (BoM, 2022;	Priority 1	Endangered	(DBCA, 2025f; DCCEEW, 2025)

Community	Description	Status (WA)	Status (EPBC)	Source
	Hopper & Gioia, 2004). It is typically a sedgeland to shrubland vegetation complex on peaty substrates that almost always includes the perennial grass-like twig rush *Empodisma gracillimum* (tanglefoot). Empodisma peatlands provide habitat for a diverse range of hydrophilic species, including threatened, regionally endemic, and relictual flora and fauna species (DCCEEW, 2023a).			
***Melaleuca lanceolata* forests, Leeuwin Naturaliste Ridge**	Low Closed Forest to Closed Forest of *Melaleuca lanceolata* ("moonah") occurring near the coastline of the Leeuwin-Naturaliste Ridge adjacent to limestone cliffs and down steeply sloping rock slopes on dark-grey, brown or, less commonly, pale-grey sands, often with outcropping limestone. The Moonah varies from 2 to 15 metres, reflecting depth of soil and wind pruning. Typical understorey shrubs are *Tetragonia implexicoma, Rhagodia baccata, Leucopogon propinquus,* and *Suaeda australis.*	Priority 2	-	(DBCA, 2025f, 2025b)
Rimstone pools and cave structures formed by microbial activity on marine shorelines (Augusta microbialites)	The community occurs along the south-west coast near Augusta and comprises microbialites, which are structures produced through the growth and metabolic activity of benthic microbial communities. The tufa that comprise the community are microbialite structures that have a less defined internal framework that are precipitated from freshwater springs and seeps, formed through the growth and metabolic activity of a diverse variety of microbial organisms, including cyanobacteria, diatoms and other algal components. They form chemical sedimentary rock composed of calcium carbonate. These tufa have many forms including drapes, curtains, small cylindrical stalactites and larger campanulate (bell-shaped) masses on the sea cliffs, as well as fans or terraces consisting of a series of rimstone pools and nodular masses in small brackish pools.	Endangered	-	(DBCA, 2025f, 2025b)
Shrublands on southern Swan Coastal Plain Ironstones (Busselton area) (floristic community type 10b as originally described in Gibson et al. 1994)	This species-rich plant community is a seasonal wetland on ironstone sheet rock overlain by shallow loam soils on the Swan Coastal Plain and Whicher Scarp near Busselton. Much of the species diversity comes from annuals and geophytes (plants with an underground storage organ). Typical and common shrubs include *Kunzea rostrata*, *Pericalymma ellipticum* (swamp teatree), *Hakea oldfieldii*, *Hemiandra pungens* (snakebush) and *Viminaria juncea* (swishbush). Aphelia cyperoides (hairy aphelia) and *Centrolepis aristata* (pointed centrolepis) also commonly occur. Many taxa in the community are endemic to this unusual geology including a suite of threatened flora. The community is also known as 'floristic community type 10b' as originally described in Gibson et al. (1994).	Critically endangered	Endangered	(DBCA, 2025f, 2025b)

Community	Description	Status (WA)	Status (EPBC)	Source
Subtropical and Temperate Coastal Saltmarsh	Consists of the assemblage of plants, animals and micro-organisms associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (south of 23oS latitude). It occurs on the coastal margin, along estuaries and coastal embayments and on low wave energy coast in places with at least some tidal connection, including rarely inundated supratidal areas, intermittently opened or closed lagoons, and groundwater tidal influences. The community occurs on sandy or muddy substrate and may include coastal clay pans and similar habitats. It consists of dense to patchy areas of characteristic coastal saltmarsh plant species that include salt- tolerant herbs, succulent shrubs or grasses, and may also include bare sediment as part of the mosaic. It can occur where the proportional cover by tree canopy such as mangroves, Melaleucas or Casuarinas or seagrass is not greater than 50%. The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this Priority ecological community.	Priority 3(iii)	Vulnerable	(DBCA, 2025f, 2025b; DCCEEW, 2025)
Swan Coastal Plain Paluslope Wetlands	These wetlands are very wet all year round and are associated with areas of groundwater seepage from the sandy low hills at the base of the Whicher Scarp. At times these wetlands are contiguous with areas of Pinjarra Plain wetlands, and the wetlands of the two landforms merge. Combinations of the following species are typically found in the type: *Melaleuca preissiana*, *Taxandria linearifolia*, *Taxandria fragrans*, *Melaleuca incana*, and *Cyathochaeta teretifolia*. Other species include: *Eucalyptus patens*, *Homalospermum firmum*, *Gahnia decomposita*, *Callistachys lanceolata*, *Hakea linearis*, *Melanostachya ustulata*, *Evandra aristata*, *Beaufortia sparsa*, *Calistemon glaucus* and *Pultenaea pinifolia*.	Priority 1	-	(DBCA, 2025f, 2025b)
Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	Mostly confined to Quindalup Dunes and Spearwood Dunes but can also occur on the Bassendean dunes and Pinjarra Plain. It can occur on the banks of rivers and wetlands. Tuart is the key upper canopy species although it may co-occur with trees of other species. Trees commonly co-occurring with Tuart include *Agonis flexuosa* (peppermint), *Banksia grandis*, *Banksia attenuata*, *Eucalyptus marginata*; and less commonly, *Corymbia calophylla*, *Banksia menziesii* and *Banksia prionotes*. An understorey of native plants is typically present, which may include grasses, herbs and shrubs. The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this Priority ecological community.	Priority 3 (iii)	Critically Endangered	(DBCA, 2025f; DCCEEW, 2025)

Appendix E Likelihood of Occurrence – Conservation Significant Flora

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
Acacia flagelliformis	P4		May – Sep	Sandy soils. Winter-wet areas.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Acacia inops	P3		Sep – Nov	Black peaty sand, clay. Swamps, creeks.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Acacia lateriticola var. *Glabrous variant* (B.R. Maslin 6765)	P3		Aug or Oct	Lateritic soils.		Y	Possible, suitable habitat present within the Survey Area.	Possible, suitable habitat present within the Survey Area.	No
Acacia semitrullata	P4		May – Oct	White/grey sand, sometimes over laterite. Open heath frequently fringing seasonally dry swamps, and in sand over laterite in shallow depressions in open Eucalyptus marginata forest.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Andersonia sp. Echidna (A.R. Annels ARA 5500)	P2		Nov - Dec	Lateritic brown sandy loam, gravelly sand.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Austrostipa mundula	P3		Sep – Nov	Slopes, dunes, plains and drainage lines. Grey sand with limestone		Y	Unlikely, suitable habitat not present within the Survey Area.	Possible, marginal habitat present within the Survey Area.	No
Banksia mimica	T	EN	Dec or Jan - Feb	White or grey sand over laterite, sandy loam.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Banksia sessilis var. *cordata*	P4		Jul – Oct	Coastal limestone		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
Banksia squarrosa subsp. *argillacea*	T	VU	Jun – Nov	White/grey sand, gravelly clay or loam. Winter-wet flats, clay flats.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Boronia capitata subsp. *gracilis*	P3		Jun – Nov	White/grey or black sand. Winter-wet swamps, hillslopes.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Boronia sp. Leeuwin (J. Scott 235)	P2		Aug – Dec	Seasonally wet areas, brown/grey/black loam, sand, peat, clay, with granite.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Brachyscias verecundus	T	CR	Oct – Dec	Near outcrops. Sand over laterite/Ironstone/granite		P – disturbance opportunist - may require fire to initiate seed germination (DCCEEW, 2021)	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Caladenia abbreviata	P3		Nov – Dec	Sand. Sand dunes.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Caladenia busselliana	T	EN	Sep – Oct.	Winter wet swamps. Sandy loam over clay.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Caladenia caesarea subsp. *maritima*	T	EN	Aug – Sep	Soil pockets on coastal granite outcrops. Loam, granite. Rock outcrops.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
Caladenia excelsa	T	EN	Sep – Nov	Sandy soils in Banksia, Jarrah (Eucalyptus marginata) and marri (Corymbia calophylla) woodlands.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Caladenia huegelii	T	EN	Sep – Oct.	Grey or brown sand, clay loam. Sandy soils in near coastal woodlands and shrublands.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Caladenia nivalis	P2		Aug – Oct	Sand, loam, granite. Coastal granite outcrops.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Caladenia procera	T	CR	Sep – Oct	Rich clay loam, alluvial loamy flats, jarrah/marri/peppermint woodland, dense heath, sedges.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Caladenia viridescens	T	EN	Sep – Oct	Yallingup to Nannup, growing in sandy and lateritic soils in woodlands and shrublands.		P	Some possibility, marginal habitat present within the Survey Area, unlikely to persist due to small area and degraded state.	May occur. This species has previously been recorded in close proximity to the Survey Area, within similar habitat.	Unlikely. Targeted survey was completed during flowering period.
Calothamnus graniticus subsp. *graniticus*	P4		May – Jun	Skeletal sandy soils. Granite outcrops.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Calothamnus graniticus subsp. *leptophyllus*	P4		Jun – Aug	Clay over granite, lateritic soils. Hillsides.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Chamelaucium roycei	T		Aug – Nov	Winter wet depressions or flats. Sandy clay over ironstone		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
Chordifex gracilior	P3		Sep - Dec	Peaty sand. Swamps		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Cyanothamnus tenuis	P4		Aug – Dec	Granite outcrops, brown clay loam		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Cyathochaeta teretifolia	P3		Jul – Nov	Grey sand, sandy clay. Swamps, creek edges.		Y	Unlikely, suitable habitat not present within the Survey Area.	Possible, marginal habitat present within the Survey Area.	No
Daviesia elongata	T	VU	Sep, Dec or Jan – Feb	Sand, laterite. Grey sandy loam soils.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Dillwynia sp. Capel (P.A. Jurjevich 1771)	P3		Sep – Oct.	Littered grey loamy sand, rocky soils. Valleys, rangelands.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Diuris micrantha	T	VU	Sept – Oct	Winter-wet depressions. Brown loamy clay. Winter wet swamps, in shallow water.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Drakaea elastica	T	EN	Oct – Nov.	White or grey sand. Low-lying situations adjoining winter-wet swamps.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Drakaea micrantha	T	VU	Sep – Oct.	Edge of swamps, often found in clearings and tracks. White-grey sand.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Eucalyptus marginata x megacarpa	P4		Unknown	Sandy loam. Interdunal areas.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area. No	No

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
								Eucalyptus megacarpa in proximity.	
Eucalyptus rudis subsp. *cratyantha*	P4		Jul – Sep	Loam. Flats, hillsides.		Y	Unlikely, suitable habitat not present within the Survey Area.	Known to occur.	Known to occur / recorded during current survey.
Eucalyptus virginea	P4		Dec or Jan or Jul	Clay or sandy loam, shallow soil over granite, laterite loam over clay. Lower slopes near watercourses, edge of rock outcrops, gently sloping sites.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Eucalyptus x phylacis	T	EN	May and Oct	Laterite, loam over granite. Coastal areas.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Gahnia sclerioides	P4		Feb, Apr, Jun, Aug – Sep, Nov	Loam, sandy soils. Moist shaded situations		Y	Unlikely, suitable habitat not present within the Survey Area.	Possible, marginal habitat present within the Survey Area.	No
Gastrolobium argyrotrichum	T	CR	Oct	Dry orange/brown lateritic loam over granite, upper slopes and hillsides.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Gastrolobium papilio	T	EN	Oct – Dec.	Flat plains or gentle slopes, sandy clay over ironstone and laterite.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Gonocarpus pusillus	P4		Oct – Dec, Feb	Grey sandy loam, sandy clay loam, wetlands or seasonally inundated areas.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
Grevillea brachystylis subsp. *brachystylis*	P3		Jun – Nov	Black sand, sandy clay. Swampy situations.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Grevillea brachystylis subsp. *grandis*	T	CR	Jul – Oct or Dec – Jan	Plains or flats, brown sandy loam, lateritic clay.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Grevillea brachystylis subsp. Yelverton (A. Webb AW09122)	P2		Sep, Oct	Midslope, loamy soils, amongst granite outcropping.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Johnsonia inconspicua	P3		Oct – Nov	White-grey or black sand. Low dunes, winter-wet flats.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Lambertia echinata subsp. *occidentalis*	T	EN	Feb – Apr or Dec	White sandy soils over laterite, orange/brown-red clay over ironstone. Flats to foothills, winter-wet sites.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Lepyrodia heleocharoides	P3		Dec	Moist peaty sand. Dry or seasonally inundated heath or woodland, swamps.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Loricobbia pinifolia	P3		Sep - Nov, Feb	Seasonally inundated areas, sand over laterite, sandy clay, riparian vegetation.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Loxocarya magna	P3		Sep or Nov.	Sand, loam, clay, ironstone. Seasonally inundated or damp habitats.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
Meionectes tenuifolia	P3		Oct – Dec	Seasonally inundated areas, Edge of wetlands. Clay or clayey loam over laterite.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Micromyrtus navicularis	P3		Apr – June, Sep – Jan	Sand with gravel, laterite, granite. Hill slopes.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Millotia tenuifolia var. *laevis*	P2		Sep – Oct	Granite or laterite soils.		Y	May occur. There is only one disjunct record from 1927 in proximity to the Survey Area, from similar habitat. The disturbed nature of the Survey Area may not reduce the likelihood of this No species occurring, with M tenuifolia var. tenuifolia noted to be a disturbance opportunist	Possible, marginal habitat present within the Survey Area.	No
Netrostylis sp. Blackwood River (A.R. Annels 3043)	P3		April/May	Swampy areas, dark peaty clay loam.		Y	Unlikely, suitable habitat not present within the No Survey Area.	Possible, marginal habitat present within the Survey Area.	No
Olearia strigosa	P3		Dec or Jan – May	Sandy loam. Open forest.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Ornduffia submersa	P4		Aug – Nov	Aquatic herb, floating in water. In freshwater 0.05-0.6 m deep. Pools, lakes, swamps, winter-wet depressions, claypans.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
Petrophile latericola	T	EN	Nov	Red lateritic clay. Winter-wet flats		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Pimelea ciliata subsp. *longituba*	P3		Oct – Dec	Grey sand over clay, loam.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Senecio serratiformis subsp. *serratiformis*	P1		Aug	Sand, limestone. Coastal dunes.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Stylidium leeuwinense	P4		Feb – May	Grey to black peaty sand. Winter-wet habitats and depressions. Shrubland, heath, sedgeland or low woodland.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Stylidium lowrieanum	P3		Oct – Nov	Sand or sandy loam over limestone. Eucalypt or Agonis woodland, forest, scrub.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Stylidium striatum	P4		Sep – Dec	Brown or yellow sandy clay with laterite. Slopes and flats		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Synaphea decumbens	P3		Sept – Oct	Sand over laterite.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Tetratheca parvifolia	P3		Oct	Red gravelly soil with laterite or granite. Corymbia calophylla - Eucalyptus marginata forest		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No

Taxon	Status (WA)	Status (EPBC)	Flowering Period (WA Herbarium, 1998-)	Habitat (WA Herbarium, 1998-)	Nearest Known Location (km)*	Identifiable During Survey Period**	Pre-survey Likelihood Assessment		Likelihood of Further Occurrence
							Gifford Road / Keenan Street	Armstrong Reserve	
Thelymitra variegata	T		Aug – Oct	Brown clay loam or sand, in clearings amongst low shrubs, rushes and grass tussocks in freely draining deep sandy soil		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Thysanotus glaucus	P4		Oct – Dec, Jan – Mar	White, grey or yellow sand, sandy gravel.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Tripterococcus sp. Brachylobus (A.S. George 14234)	P4		Nov – Dec	Plains, winter damp flats with grey sand or clay		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Verticordia lehmannii	P4		Jan, Apr – Jun or Aug, Dec	Sandy clay. Winter-wet flats.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Verticordia plumosa var. *ananeotes*	T	EN	Nov – Dec	Sandy loam. Seasonally inundated plains.		Y	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No
Wurmbea calcicola	T	EN	Jun	Loam. Coastal limestone cliffs.		P	Unlikely, suitable habitat not present within the Survey Area.	Unlikely, suitable habitat not present within the Survey Area.	No

*Nearest known location for records returned by the DBCA WA Herbarium specimen and Threatened and Priority Flora (TPFL) database interrogation (DBCA, 2025d)

**Y = Yes, N = No, P = Potentially

Appendix F Threatened Fauna Evaluation Matrix

Table D.1 provides an evaluation of the presence of habitat and the likelihood of occurrence for conservation significant (target) fauna species within the Survey Area. The potential to be impacted depends on the nature of the impacts proposed, habitat utilised by the target species and the likelihood of occurrence. The presence of habitat is broken into four categories:

- **Present - core:** Potential or known habitat present within the Survey Area. Consists of "habitat critical to the survival of a species" which refers to core areas that are necessary for activities such as foraging, breeding, roosting, or dispersal, necessary for the long-term maintenance of the species to maintain genetic diversity and long-term evolutionary development (DoE, 2013) or habitat types recognised in Recovery Plans or guidelines.
- **Present - supporting:** Likely to provide dispersal, transitory or supporting habitat that may support core / critical habitat areas, such as small areas of lesser quality habitat where an animal has a large home range.
- **Marginal:** Habitat present is not typical but may be suitable, or habitat is typical, but condition and microhabitat requirements of species are not present.
- **Absent:** No potential or known habitat is present within the project area.

There are four categories for likelihood of occurrence:

- **Present:** Species was recorded during the field investigations.
- **Possible:** Suitable habitat present and the species could occur in the Survey Area based on the proximity of nearest records.
- **Unlikely:** Species known or predicted within the locality. Suitable habitat may be present in the Survey Area, but the proximity of nearest records suggests it is unlikely to occur.
- **Nil:** Species known or predicted to occur within the locality but no suitable habitat within the Survey Area.

Some fauna have been excluded as they are not relevant to the proposal or would not be impacted:

- Marine (e.g. seals, dolphins, whales, penguins).
- Marine migratory species (e.g. Albatrosses) or where breeding is in the northern hemisphere, e.g. marine shorebirds and waders, e.g. Hooded plover, Crested tern, Grey wagtail. Other migratory wetland species have also been omitted.
- Species considered regionally extinct or misidentified or outside of the animals known distribution (e.g. Malleefowl, Bilby, Numbat and Woylie).

Conservation status is as per the (federal) EPBC Act and (WA) DBCA Parks and Wildlife Service's Threatened and Priority Fauna List last updated in January 2025. Refer to Appendix B for Conservation Codes.

Table D.1 Evaluation of the presence of habitat and the likelihood of occurrence for conservation fauna significant species within the Survey Area

CLASS	FAMILY	*Genus species*	Vernacular	Status WA	Status Federal	Requirements	Presence of habitat	Likelihood of occurrence
AVES	ANATIDAE	*Oxyura australis*	Blue-billed Duck	P4		Deep, densely vegetated freshwater lakes, swamps when breeding; winters on more open waters (Morcombe, 2011).	Absent	Nil
	APODIDAE	*Apus pacificus*	Fork-tailed Swift	MI	MI	Aerial taxa, over open country, sometimes forests and cities (Pizzey & Knight, 2007). Usually in flocks, sometimes with Tree Martins and Masked Woodswallows (Johnstone & Storr, 1998)	Absent	Nil
	ARDEIDAE	*Botaurus poiciloptilus*	Australasian Bittern	EN	EN	The Australasian Bittern occurs in terrestrial freshwater wetlands and, rarely, estuarine habitats. In the south-west it is found in beds of tall rush mixed with, or near, short fine sedge or open pools. The species also occurs around swamps, lakes, pools, rivers and channels fringed with lignum (*Muehlenbeckia* sp.), canegrass (*Eragrostis* sp.) or other dense vegetation. The species occasionally ventures into areas of open water or onto banks. In the SW WA, it is confined to a relatively small number of regularly occupied locations. These locations probably number less than 70, including: less than five north of Perth; less than 10 in the greater Perth metropolitan area; less than 10 south to Busselton; less than 10 in the Lake Muir district; less than 10 from Augusta to Walpole; less than 10 around Albany; and less than 10 around Esperance and Cape Arid. Most of these sites are discrete basin/sumpland wetlands with local catchments, and many depend on the surface expression of groundwater (SPRAT, n.d.).	Absent	Nil
	CACATUIDAE	*Calyptorhynchus banksii* subsp. *naso*	Forest Red-tailed Black Cockatoo	VU	VU	The Forest Red-tailed Black Cockatoo inhabits the dense Jarrah, Karri and Marri forests receiving more than 600 mm rainfall annually (SPRAT, n.d.). The FRTBC occurs within the same habitat as the Baudin's Cockatoo. FRTBC nest in Jarrah, Karri, Marri and Wandoo favouring large top entry hollows with entrances ranging over 12 cm in diameter and hollow depth one to five metres) (Johnstone et al., 2011; SEWPaC, 2012). It breeds between February to December (with a peak between October and December, also a peak in some years in April–May) probably every two years (Johnson and Kirkby, Undated). The species predominately feeds on seeds from Marri and Jarrah fruits and Blackbutt, Albany Blackbutt, Forest Sheoak, Snottygobble and the non-indigenous native Spotted Gum and Cape Lilac within its home range of about 116-187 ha (SPRAT, n.d.).	Present - supporting	Possible
		Zanda baudinii	Baudin's Cockatoo	EN	EN	Baudin's Cockatoo is mainly found in eucalypt forests, especially Jarrah-Marri Forest, Karri Forest, and less frequently in woodlands of Wandoo, Blackbutt, Flooded Gum Yate, partly cleared farmlands and urban areas including roadside trees and house gardens. This cockatoo forages at all levels of the forest from the canopy to the	Present - supporting	Possible

CLASS	FAMILY	*Genus species*	Vernacular	Status WA	Status Federal	Requirements	Presence of habitat	Likelihood of occurrence
						ground, often feeding in the understorey on proteaceous trees and shrubs, especially Banksia, and in orchards both in trees and on dropped or fallen fruit on the ground (Johnstone et al., 2011). Preferred roosts are in areas with a dense canopy close to permanent sources of water (SPRAT, n.d.). The range of the species during the non-breeding season (breeds in August though to late December) may be determined by the distribution of Marri, and that nesting might be confined to areas in which Karri occurs (SPRAT, n.d.). It is known to nest in hollows of Eucalypts usually at some height (Pizzey & Knight, 2007), often 30-50m above ground (Jupp, 2000). Tree hollows usually have an entrance of 30-40cm, >30cm deep and are mostly vertical (Johnstone et al., 2011; SPRAT, n.d.).		
		Zanda latirostris	Carnaby's Cockatoo	EN	EN	This species is a postnuptial nomad, moving west after breeding. Carnaby's Cockatoo mainly occurs in or near eucalypt woodlands, especially those dominated by Wandoo or Salmon Gum, and sometimes reported in forests of Marri, Jarrah, Karri and Tuart. Nesting hollows may be located anywhere from 2 m to >10 m from ground, mainly in the Wheatbelt (Cale, 2003; SPRAT, n.d.; WA Museum, 2010). It is known to forage in native shrubland, kwongan heathland and woodland dominated by proteaceous plant species such as Banksia spp. (including Dryandra spp.), Hakea spp. and Grevillea spp. Forages in pine plantations, eucalypt woodland and forest that contains foraging species. Also individual trees and small stands of these species (SEWPaC, 2012). Breeding occurs mainly from early July to mid-December. Breeding success is largely dependent on suitable feeding habitat adjacent to the nest site to provide the necessary food for the survival of the chick, for example adjacent pine forest or remnant vegetation (Johnstone et al., 2011).	Present - supporting	Possible
	FALCONIDAE	*Falco hypoleucos*	Grey Falcon	VU	VU	Frequents timbered lowland plains, particularly *Acacia* shrublands that are crossed by tree-lined water courses (Garnett et al., 2011; Ley & Tynan, 2016; Schoenjahn, 2013, 2018; Watson, 2011). Has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter (P. Olsen & Olsen, 1986; Schoenjahn, 2018).	Absent	Nil
		Falco peregrinus	Peregrine Falcon	OS		Peregrine Falcons occur in woodland, plains, gorges, wetlands but tend to breed either in stick-nests in trees or nest on cliff ledges. It appears that hollows and large abandoned nests of other birds may be used where cliff ledges are limited. Breeds Aug-Dec. Where good habitat occurs, and the density of Peregrine Falcons is	Absent	Unlikely

CLASS	FAMILY	*Genus species*	Vernacular	Status WA	Status Federal	Requirements	Presence of habitat	Likelihood of occurrence
						high, active nests may occur within 2.5km of each other. The diet of the Peregrine Falcon includes wood duck, pigeons and doves, galahs, rosellas and cockatoo, starlings and larks (J. Olsen et al., 2006).		
	MEGAPODIIDAE	*Leipoa ocellata*	Malleefowl	VU	VU	It is mostly located to the south and west of a line extending from Cape Farquhar, which lies north of Carnarvon, to the Eyre Bird Observatory in the south-east of Western Australia. Occurs in semi-arid and arid zones of temperate Australia, where it occupies shrublands and low woodlands that are dominated by mallee vegetation. It also occurs in other habitat types including eucalypt or native pine Callitris woodlands, acacia shrublands, Broombush (Melaleuca uncinata) vegetation or coastal heathlands. The breeding habitat of the Malleefowl, within its home range, is characterised by light soil and abundant leaf litter (DEC, 2010).	Absent	Nil
	MOTACILLIDAE	*Motacilla cinerea*	Grey Wagtail	MI	MI	"This species inhabits fast-flowing mountain streams and rivers with riffles and exposed rocks or shoals, often in forested areas. It is also found in more lowland watercourses, even canals, where there are artificial waterfalls, weirs, millraces or lock gates. Outside of the breeding season it occupies a wider variety of habitats, including farmyards, sewage farms, forest tracks, tea estates and even town centres (Tyler, 2016)." ~(BirdLife International, 2025).	Absent	Nil
	PANDIONIDAE	*Pandion haliaetus*	Osprey	MI	MI	Generally coastal species that feeds on fish. Nests in large trees or on islands, pilons etc (Pizzey & Knight, 2007).	Absent	Nil
	PSITTACULIDAE	*Neophema petrophila*	Rock Parrot	P4		Frequents sea shores and islands in the SW of WA. Does not venture far from coastal shores (Neville, 2018)	Absent	Nil
	STRIGIDAE	*Ninox connivens connivens*	Barking owl (southwest subpopulation)	P3		Occurs in forest, woodlands, dense scrub, foothills, river red gums and other large trees near water courses penetrating open country. Nests in large hollows (Pizzey and Knight 2007). A late winter breeder with most eggs laid July to September, the young are fledged in about 35 days.	Absent	Nil
	THRESKIORNITHIDAE	*Plegadis falcinellus*	Glossy Ibis	MI	MI	Freshwater wetlands, irrigated areas; margins of dams, floodplains, brackish and saline wetlands, mudflats, suburban areas (Pizzey & Knight, 2007).	Absent	Nil
	TYTONIDAE	*Tyto novaehollandiae novaehollandiae*	Masked Owl (southwest)	P3		Inhabits forests, open woodlands and farmlands with large trees, including timber watercourses paperbark woodlands. Widespread but very sparse, they breed any time of the year when conditions are favourable with a nesting period of about three months (Pizzey & Knight, 2007).	Absent	Nil

CLASS	FAMILY	*Genus species*	Vernacular	Status WA	Status Federal	Requirements	Presence of habitat	Likelihood of occurrence
BIVALVIA	HYRIIDAE	*Westralunio carteri*	Carter's freshwater mussel	VU	VU	Patchily distributed in sandy/muddy sediments of freshwater lakes, rivers and streams with greatest densities associated with woody debris and overhanging riparian vegetation near stream banks and edges of lakes/dams (DAWE, 2017). Adults mostly sessile, but do move through sediments with a muscular foot, creating visual tracks; Juveniles much more mobile, moving in a similar fashion as a caterpillar (DAWE, 2017). When in burrowed, filter-feeding position, siphons extended, mantle and siphons have a mottled red/black appearance; inhalant siphon lined with papillae (DAWE, 2017).	Absent	Nil
FISH	ACTINOPTERYGII	*Nannatherina balstoni*	Balston's pygmy perch	VU	VU	Known from a small area of coastal peat flats in south-western Western Australia that extends from Margaret River to Two Peoples Bay. Two additional populations have recently been found to the north of this area in the Collie River and the Moore River (Morgan et al., 1998). In winter and spring Balston's Pygmy Perch is typically found among inundated riparian vegetation where it presumably feeds and spawns. In summer, Balston's Pygmy Perch has been found to be moderately abundant in pools and creeks that often dry up, such as those found between Windy Harbour and Walpole (Morgan et al., 1998).	Absent	Nil
GASTROPODA	ASSIMINEIDAE	*Austroassiminea letha*	Cape Leeuwin freshwater snail	VU		Known from six sites between Cape Leeuwin in the south to Cape Naturaliste in the north, though was once more widely spread throughout the Leeuwin-Naturaliste Ridge (Burbidge, 2004; Solem et al., 1982). Found in seepage films or splash zones alongside small freshwater streams and springs draining from limestone near the coast (Burbidge, 2004). Grows up to 5.4 mm, considered a short-range endemic as it is confined to small areas of discontinuous habitat and has poor powers of dispersal (Harvey, 2002; Solem et al., 1982).	Absent	Nil
MALACOSTRACA	PARASTACIDAE	*Engaewa pseudoreducta*	Margaret River burrowing crayfish	CR	CR	The Margaret River Burrowing Crayfish is endemic to south-west WA and occurs in two subpopulations, Treeton and Payne Road (Burnham, 2012) (Burnham, 2014). At Treeton, it occurs in and adjoining State Forest No. 62 (Burnham 2014), in swampy headwaters of a tributary of the Margaret River, Osmington. It is known from two sites in the area with individuals collected in 2003 and 2007 (Burnham et al. 2012). At Payne Road, the species occurs in Carbunup River catchment (south-east of Dunsborough).	Absent	Nil

CLASS	FAMILY	*Genus species*	Vernacular	Status WA	Status Federal	Requirements	Presence of habitat	Likelihood of occurrence
		Engaewa reducta	Dunsborough burrowing crayfish	EN	CR	The Dunsborough Burrowing Crayfish uses a variety of habitats that provide moist sandy/loamy soils and an accessible water table. These include vegetated seepages, swamp plains and swampy headwaters of streams (CALM 2008) (Burnham, 2012).	Absent	Nil
MAMMALIA	DASYURIDAE	*Dasyurus geoffroii*	Chuditch	VU	VU	Quolls may occupy a range of habitats including forest, woodland and desert, though in the SW they are largely restricted to Jarrah forest or scattered through the southern and eastern wheat belt (DEC, 2010). Current records indicated that this only represents approximately 5% of their former range. Habitat critical to Western Quoll are large areas of undisturbed habitat which a sufficient variety of key food and other resources such as large hollow logs, burrows or small caves at ground level for denning. To be suitable as den sites, logs must have a diameter of at least 30 cm but usually greater than 50 cm, a hollow diameter of 7–20 cm and generally 1m long (Orell & Morris, 1994). Annually, an adult female Chuditch will utilise an estimated average of 66 logs and 110 burrows within her home range. A large amount of den sites is required for both sexes. They occupy relatively large home ranges, with males utilizing over 15 km2 and females, 3-4 km^2 (Orell & Morris, 1994). Two local records from 1 km and 6 km east (DBCA, 2025).	Absent	Nil
		Phascogale tapoatafa wambenger	Brush-tailed Phascogale	CD		This arboreal species is found in a variety of forest types. Ideal habitat for this species consists of dry sclerophyll forest and open woodland (Jarrah, Marri, and mixed Jarrah Karri) that contain hollow bearing trees and sparse ground cover. Their many nesting sites include hollow tree limbs, rotten stumps and even birds' nests. Lactating females prefer a large tree cavity with a small entrance with a nest made of bark, feathers and fur. A female's home range covers 20 to 70 hectares, a male's home range overlaps females and increases during breeding season. It is predominantly carnivorous, foraging on arthropods, invertebrates, small vertebrates and nectar (Strahan, 1995).	Present - supporting	Possible
	MACROPODIDAE	*Notamacropus irma*	Western Brush Wallaby	P4		Optimum habitat for the Western Brush Wallaby includes open Jarrah forest or woodland and seasonally wet flats with low grasses and scrubby thickets, but also areas of mallee and heathland. Common dietary flora includes *Carpobrotus edulis*, *Cynodon dactylon* and *Nuytsia floribunda* (DEC, 2010). Needs large areas of habitat.	Absent	Nil
		Setonix brachyurus	Quokka	VU	VU	The understorey structure of the habitats currently used by Quokka consist of dense, low vegetation that provides refuge from predation (Hayward, 2002). The mainland habitats include dense riparian	Absent	Nil

CLASS	FAMILY	*Genus species*	Vernacular	Status WA	Status Federal	Requirements	Presence of habitat	Likelihood of occurrence
						vegetation (Hayward et al., 2005), but additionally (from SPRAT (n.d.)) • heath and shrubland, • Swamp Peppermint (*Taxandria linearifolia*) dominated swamps in Jarrah forest, • swampy shrublands, • swordgrass-dominated understorey, • regrowth areas of the Karri forest, • Bullich swamp forest, • Paperbark (*Melaleuca* spp.) swamp. A low density of near-surface fuel, a complex vegetation structure and a varied fire-age mosaic best predict the probability of occupancy of quokka in the southern forest (DEC, 2013).		
	MURIDAE	*Hydromys chrysogaster*	Water Rat	P4		The Rakali is usually found in permanent fresh or brackish water but can be found in marine environments. Fresh water habitats include swamps, lakes, dams even urban drainage swamps. Typically forages close to the shoreline, restricting its movements to shallow water (up to 2 m in depth) (CSIRO, 2004).	Absent	Nil
	PERAMELIDAE	*Isoodon fusciventer*	Quenda	P4		Bandicoot habitat consists of dense scrubby, often swampy vegetation with a dense cover up to one metre high particularly near watercourses/wetlands. It often feeds in adjacent forest (Jarrah and Wandoo) and woodlands that are burnt on a regular basis. Nests can be concealed next to or under old logs, shrubs or piles of debris and are made up of ground litter piled up over a shallow depression providing internal chambers. Home ranges vary with population density and range from 5-8.6 ha for males and 1-6 ha for females (DEC, 2010). Feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogeous fungi. Their searches for food often create distinctive conical holes in the soil (DBCA, n.d.). Diggings observed.	Present – supporting (Armstrong)	Possible
	PSEUDOCHEIRIDAE	*Pseudocheirus occidentalis*	Western Ringtail Possum	CR	CR	In dense, coastal Peppermint forest, home ranges are about 0.5 hectares to 1.5 ha and in eucalypt forests about 2.5 ha. In the northern jarrah forests, home ranges are larger and have been recorded to at least 5.6 ha. Peppermint leaves form the basis of the WRP diet in coastal areas (between 79-100% based on a study of WRP near Busselton by Jones et al. (1994), but when unavailable, the dominant myrtaceous species are preferred. In the inland forest, Jarrah and Marri the main food source. Garden plant varieties are also exploited in urban areas. WRP use a range of nest and shelter sites to avoid predators and exposure to the weather. Dreys are constructed in the canopy if hollows are not	Present – supporting	Present

CLASS	FAMILY	*Genus species*	Vernacular	Status WA	Status Federal	Requirements	Presence of habitat	Likelihood of occurrence
						available. Adequate nest and shelter sites are necessary components of good quality habitat (Jones et al., 1994; Shedley & Williams, 2014).		
	VESPERTILIONIDAE	*Falsistrellus mackenziei*	Western Falsistrelle	P4	-	It occurs in wet sclerophyll forest dominated by Karri (*Eucalyptus diversicolor*), and in the high rainfall zones of the Jarrah (*E. marginata*) and Tuart (*E. gomphocephala*) forests. It has also been recorded in mixed Tuart-Jarrah tall woodlands on the adjacent coastal plain. Marri (*E. calophylla*), Sheoak (*Allocasuarina heugeliana*) and Peppermint (*Agonis flexuosa*) trees are often co-dominant at its collection localities. This species roosts in tree hollows (Australian Museum, 2020) in colonies of 5 to 30 bats. The species feed on flying insects between below the forest canopy. No local records. Nearest record over 4 km to the east (DBCA, 2025).	Marginal	Unlikely
REPTILIA	SCINCIDAE	*Ctenotus ora*	Coastal Plains Skink	P3	-	*Ctenotus ora* is a species of medium sized (6 cm) skink with a restricted range within the southern Swan Coastal Plain and Cape Naturaliste area, as far north as Pinjarra and south as far as Yallingup (Kay & Keogh, 2012) and Dunsborough (Ecoscape, 2012). It has previously been recorded within Armstrong Reserve in areas with sandy substrates and low vegetation (including heath) in open Eucalyptus/Corymbia woodland over Banksia in the sandy coastal plain and coastal dunes (Kay & Keogh, 2012). Ctenotus species are diurnal, terrestrial lizards that rely on solar radiation to maintain activity and therefore favour habitats that provide regular opportunities for basking and rapid movement between sun-exposed areas and shelter (Greer, 1989). As a result, their distribution is closely linked to environments that allow sufficient ground-level sunlight. Suitable habitat is typically characterised by relatively open vegetation structure, often with areas of bare soil or rock (Greer 1989). Distribution is likely to within densely vegetated landscapes is patchy and largely confined to edges, tracks, rocky outcrops or other naturally open microhabitats (Ecoscape, 2012).	Present – supporting (Armstrong)	Possible

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Appendix G Black Cockatoo Foraging Quality Scoring Tool

Scoring system for the assessment of foraging value of vegetation for black cockatoos

Acknowledgements: The following methodology is derived and adapted from the methodology of Bamford Consulting Ecologists (BCE), June 2020.

The Federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) requires a calculation of a score out of 10 for assessing black cockatoo foraging habitat to align with the application of the federal Offset Assessment Guide (offsets guide). The offset guide accompanies the EPBC Act environmental offsets policy and has been developed to give effect to the policy's requirements, utilising a balance sheet approach to quantify impacts and offsets.

The foraging value score provides a numerical score that reflects the significance of vegetation as foraging habitat for black cockatoos, and this score provides the information needed by the DCCEEW 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 (2020) scoring system uses the three components above from the federal offsets guide 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 (Table 1); plus
- **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.
- **Score.** 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.

Site condition. Vegetation composition, condition and structure scoring

Table 1

Site Score	Description of Vegetation Values		
	Carnaby's cockatoo	Baudin's cockatoo	Forest Red-tailed Black Cockatoo
0	**No foraging value.** • Dead trees. • Plant species that are not known to be fed on. • Water bodies (e.g. salt lakes, dams, rivers); • Bare ground, mown or pasture grass. • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).	**No foraging value.** • Dead trees. • Plant species that are not known to be fed on. • Water bodies (e.g. dams, rivers). • Bare ground, mown or pasture grass. • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).	**No foraging value.** • Dead trees. • Plant species that are not known to be fed on. • Water bodies (e.g. dams, rivers). • Bare ground, mown or pasture grass. • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).
1	**Nil to Low foraging value.** • 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).	**Nil 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.	**Nil 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.
2	**Low foraging value.** • 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. • Primary feed species that are isolated or disease affected. • Some secondary foraging species that are not frequently fed on or are not considered a sustaining resource, • Vegetation in a Completely Degraded or Degraded condition or relatively small areas relative to other higher quality surrounding habitat. • Examples include dieback (e.g. *Phytophthora* spp.) affected Jarrah or *Banksia* or severe canker	**Low foraging value.** • Woodland with scattered specimens of known food plants (e.g. Marri and Jarrah) 1-5% projected foliage cover. • Urban areas with scattered foraging trees. • Some secondary foraging species that are not frequently fed on or are not considered a sustaining resource, • Vegetation in a Completely Degraded or Degraded condition or relatively small areas relative to other higher quality surrounding habitat. • Examples include dieback (e.g. *Phytophthora* spp.) affected Jarrah or *Banksia* or severe canker (*Quambalaria coyrecup*) affected Marri or very sparse primary or secondary feed species.	**Low foraging value.** • 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*. • Some secondary foraging species that are not frequently fed on or are not considered a sustaining resource. • Vegetation in a Completely Degraded or Degraded condition or relatively small areas relative to other higher quality surrounding habitat. • Examples include dieback (e.g. *Phytophthora* spp.) affected Jarrah or *Banksia* or severe canker (*Quambalaria*

Site Score	Description of Vegetation Values		
	Carnaby's cockatoo	Baudin's cockatoo	Forest Red-tailed Black Cockatoo
	(*Quambalaria coyrecup*) affected Marri or very sparse primary or secondary feed 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.		*coyrecup*) affected Marri or very sparse primary or secondary feed species.
3	**Low to Moderate foraging value.** • 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.** • 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.** • 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).
4	**Moderate foraging value.** • 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. • Primary feed species (e.g., Hakea, Jarrah, Marri or pine trees) present but patchy or as paddock trees, • Habitat dominated by secondary feed species - vegetation communities with very few primary feed species present. • Native vegetation where few primary or secondary feed species are present in Degraded or Good condition.	**Moderate foraging value.** • 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). • Primary feed species (e.g., Hakea, Jarrah, Marri or pine trees) present but patchy or as paddock trees, • Habitat dominated by secondary feed species - vegetation communities with very few primary feed species present. • Native vegetation where few primary or secondary feed species are present in Degraded or Good condition.	**Moderate foraging value.** • 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. • Primary feed species (e.g., Hakea, Jarrah, Marri or pine trees) present but patchy or as paddock trees, • Habitat dominated by secondary feed species - vegetation communities with very few primary feed species present. • Native vegetation where few primary or secondary feed species are present in Degraded or Good condition.

Site Score	Description of Vegetation Values		
	Carnaby's cockatoo	**Baudin's cockatoo**	**Forest Red-tailed Black Cockatoo**
5	**Moderate to High foraging value.** • 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. • Eucalypt Woodland/Forest with Marri 40- 60% projected foliage cover. • Pine plantations with trees more than 10 years old (but see pine note below in moderation section).	**Moderate to High foraging value.** • 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.** • 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.
6	**High foraging value.** • 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). Eucalypt Woodland/Forest with Marri 40- 60% projected foliage cover. • Primary feed species e.g. *Hakea*, Jarrah, Marri or pine trees dominant as patches, or components of a larger patch.	**High foraging value.** • 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). • Primary feed species e.g. *Hakea*, Jarrah, or Marri dominant as paddock trees, patches, or components of a larger patch.	**High foraging value.** • 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). • Primary feed species e.g. *Hakea*, Jarrah, or Marri dominant patches, or components of a larger patch.

Structure and condition per EPA (2016).

Site context

Table 2

Site Context Score	Site as a percentage of the existing native vegetation suitable for foraging within the DSA (10 km)	
	Local breeding known/likely	Local breeding unlikely (foraging habitat only)
3	> 5%	> 10%
2	1 - 5%	5 - 10%
1	0.1 - 1%	1 - 5%
0	< 0.1%	< 1%

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.

Table 2 provides a guide to site context scoring. The maximum score for site context is 3, being a function of presence/absence of nearby breeding and the distribution of foraging habitat across the landscape. Note that Desktop Study Area (DSA) is defines the 'Local area' within a 10 km [1]radius of the centre point of the Survey Area.

Table 2 provides weighting for known (or suspected) nearby breeding and for the proportion of foraging habitat in the site against available foraging habitat within 10 km (within the DSA). Some adjustments may be needed. For example, a small area of foraging habitat (e.g. 0.5% of such habitat within 10 km) 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.

Stocking rate (species density) (derived from BCE (2020))

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 highly mobile black cockatoos. Assignation of the species density score (0 or 1) is based upon the 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.

[1] Note BCE use 15 km.

Score

Moderation of scores for the calculation of a value out of 10. The calculation out of 10 requires the *Site condition* score (out of 6) to be combined with the scores given for *Site context* and *Stocking rate*.

BCE (2020) notes: 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 (>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 **Site condition**	Assessed as per **Site context**
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.

Appendix H Black Cockatoo Foraging Assessment Results

H.1 Foraging Plants within the Survey Area

Species	Common name	Habit	Baudin's cockatoo	Carnaby's cockatoo	FRTBC	Reference
Agonis flexuosa	Peppermint Tree	Tree		Secondary		(Groom, 2011; Valentine & Stock, 2008)
Banksia littoralis	Swamp banksia	Tree	Secondary	Primary	Banksia littoralis	(Birds Australia, n.d.; DoEE, 2017; Groom, 2011; Johnstone et al., 2010a, 2010b, 2010c; Johnstone & Storr, 1998; Saunders, 1979; Valentine & Stock, 2008)
Corymbia calophylla	Marri	Tree	Primary	Primary	Primary	(DoEE, 2017; Johnstone et al., 2010a, 2010b, 2010c, 2017; Johnstone & Kirkby, 1999, 2008; Johnstone & Storr, 1998; Saunders, 1979; SEWPaC, 2012; Valentine & Stock, 2008)
Hakea lissocarpha	Honeybush	Medium or small shrub	Secondary	Primary		(Birds Australia, n.d.; Groom, 2011; Johnstone et al., 2010a, 2010b; Saunders, 1979; Valentine & Stock, 2008)
Hakea prostrata	Harsh hakea	Tall to medium shrub	Secondary	Primary		(Birds Australia, n.d.; Groom, 2011; Johnstone et al., 2010a, 2010b; Saunders, 1979; Valentine & Stock, 2008)
Hakea varia	Variable-leaved hakea	Tall shrub	Secondary	Primary		(Birds Australia, n.d.; Groom, 2011; Saunders, 1979; Valentine & Stock, 2008)
Jacksonia furcellata	Grey stinkwood	Medium or small shrub		Secondary		(Groom, 2011)
Xanthorrhoea preissii	Grass tree	Shrub	Secondary	Primary		(Groom, 2011; Johnstone et al., 2010b, 2010a; Valentine & Stock, 2008)

*Indicates flora taxa that are introduced/alien to the area.

References (Appendix H.1):

Birds Australia. (n.d.). *Native plant species used by Carnaby's Black-Cockatoos*.

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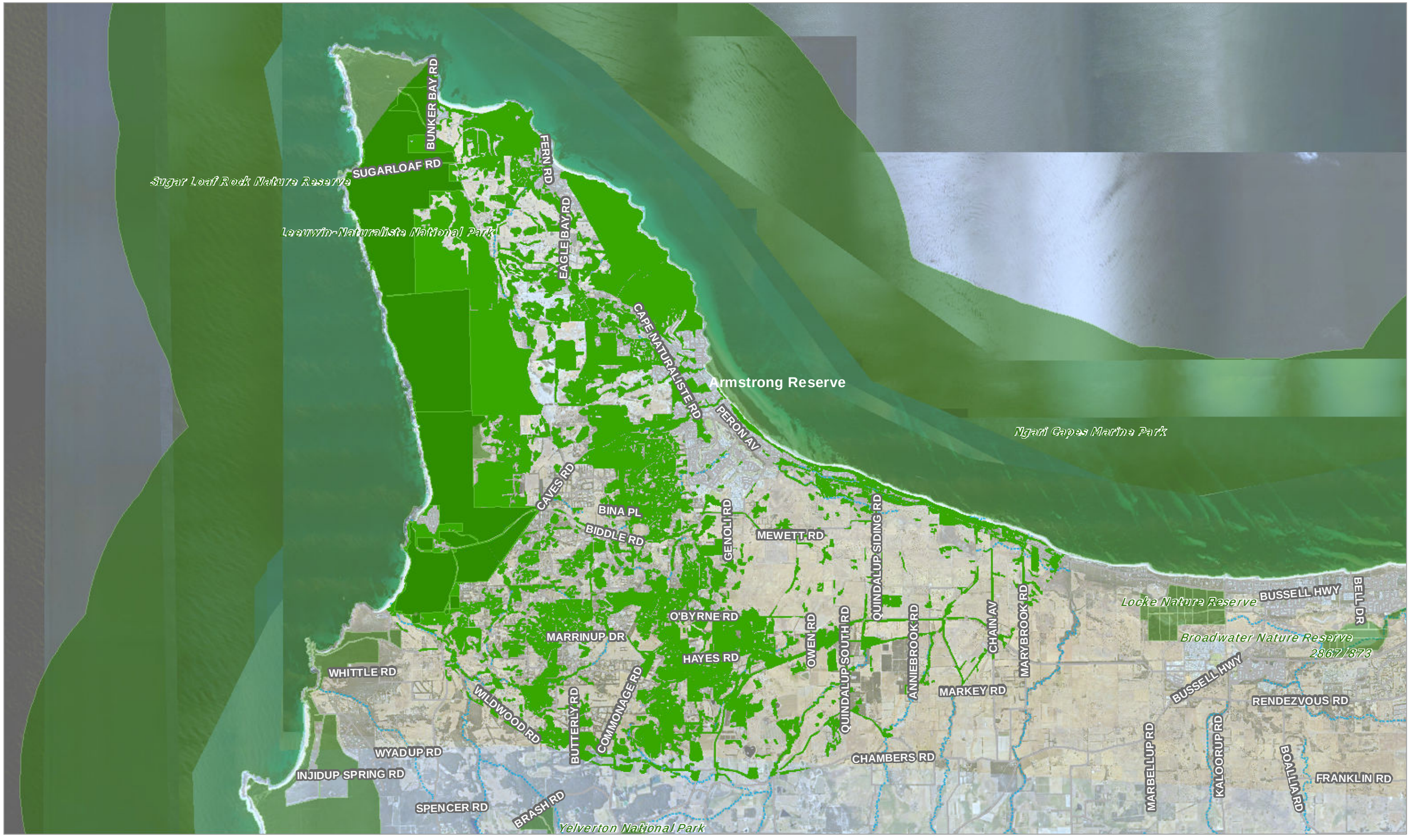
H.2 Foraging Habitat Available within the DSA

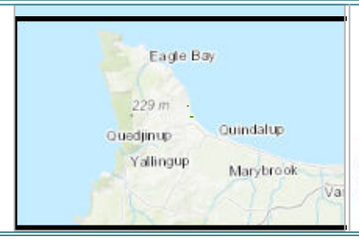


Appendix H.2 Potential Foraging Habitat Available within the DSA

GIFFORD ROAD (0.51 – 0.56, 1.69 – 1.70 SLK), DUNSBOROUGH

Ref: SW767
Date: 22/12/2025

- Survey Area
- DBCA managed land
- Native vegetation within the DSA
- Road
- Major watercourse
- Minor drainage line



A3 @ 1:90000

0 0.5 1 2 km

N

SW Environmental
www.swenvironmental.com.au

Appendix I Protected Matters Search Tool Results

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: 09-Dec-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:	5
Listed Threatened Species:	68
Listed Migratory Species:	49

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:	70
Whales and Other Cetaceans:	13
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:	2
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	11
Key Ecological Features (Marine):	None
Biologically Important Areas:	8
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	Buffer Status
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area	In feature area
Clay Pans of the Swan Coastal Plain	Critically Endangered	Community likely to occur within area	In feature area
Empodisma peatlands of southwestern Australia	Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community may occur within area	In feature 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	Buffer Status
BIRD			
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
Zanda baudinii listed as Calyptorhynchus baudinii Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area	In feature area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area
CRUSTACEAN			
Engaewa pseudoreducta Margaret River Burrowing Crayfish [82674]	Critically Endangered	Species or species habitat may occur within area	In feature area
Engaewa reducta Dunsborough Burrowing Crayfish [82675]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
FISH			
Nannatherina balstoni Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
[Dasyurus geoffroii](#) Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Breeding known to occur within area	In feature area
[Neophoca cinerea](#) Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In feature area
[Pseudocheirus occidentalis](#) Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Breeding known to occur within area	In feature area
PLANT			
[Banksia mimica](#) Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area	In buffer area only
[Banksia squarrosa subsp. argillacea](#) Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat may occur within area	In feature area
[Brachyscias verecundus](#) Ironstone Brachyscias [81321]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Caladenia busselliana](#) Bussell's Spider-orchid [24369]	Endangered	Species or species habitat likely to occur within area	In feature area
[Caladenia caesarea subsp. maritima](#) Cape Spider-orchid [64856]	Endangered	Species or species habitat known to occur within area	In feature area
[Caladenia excelsa](#) Giant Spider-orchid [56717]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat known to occur within area	In feature area
Caladenia viridescens Dunsborough Spider-orchid [56776]	Endangered	Species or species habitat known to occur within area	In feature area
Chamelaucium sp. S coastal plain (R.D.Royce 4872) Royce's Waxflower [87814]	Vulnerable	Species or species habitat may occur within area	In feature area
Diuris micrantha Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Drakaea elastica Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat may occur within area	In feature area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eucalyptus x phylacis Meelup Mallee [87817]	Endangered	Species or species habitat known to occur within area	In feature area
Gastrolobium argyrotrichum Metricup Pea [89145]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
Gastrolobium papilio Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area	In feature area
Lambertia echinata subsp. occidentalis Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat may occur within area	In feature area
Petrophile latericola Laterite Petrophile [64532]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Wurmbea calcicola](#) Naturaliste Nancy [64691]	Endangered	Species or species habitat may occur within area	In buffer area only
REPTILE			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
SHARK			
[Carcharias taurus (west coast population)](#) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Galeorhinus galeus](#) School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
[Pristis pristis](#) Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area	In feature area
[Rhincodon typus](#) Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Sphyrna lewini](#) Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
[Ardenna carneipes](#) Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	In feature area
[Ardenna grisea](#) Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In feature area
[Diomedea amsterdamensis](#) Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area
[Diomedea dabbenena](#) Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
[Diomedea epomophora](#) Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
[Diomedea exulans](#) Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
[Diomedea sanfordi](#) Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
[Hydroprogne caspia](#) Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Onychoprion anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Marine Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In feature area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In feature area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat likely to occur within area	In feature area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In feature area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Congregation or aggregation known to occur within area	In feature area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In feature area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In feature area
Pristis pristis Largetooth Sawfish, Freshwater Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Endangered	Species or species habitat may occur within area	In feature area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	In feature area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat may occur within area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In feature area
Larus pacificus Pacific Gull [811]		Foraging, feeding or related behaviour may occur within area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Phaethon rubricauda Red-tailed Tropicbird [994]		Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat likely to occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Fish			
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Campichthys galei](#) Gale's Pipefish [66191]		Species or species habitat may occur within area	In feature area
[Heraldia nocturna](#) Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In feature area
[Hippocampus angustus](#) Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area	In feature area
[Hippocampus breviceps](#) Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In feature area
[Hippocampus subelongatus](#) West Australian Seahorse [66722]		Species or species habitat may occur within area	In feature area
[Histiogamphelus cristatus](#) Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In feature area
[Lissocampus caudalis](#) Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In feature area
[Lissocampus fatiloquus](#) Prophet's Pipefish [66250]		Species or species habitat may occur within area	In feature area
[Lissocampus runa](#) Javelin Pipefish [66251]		Species or species habitat may occur within area	In feature area
[Maroubra perserrata](#) Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In feature area
[Mitotichthys meraculus](#) Western Crested Pipefish [66259]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area	In feature area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area	In feature area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In feature area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In feature area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	In feature area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In feature area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In feature area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In feature area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In feature area
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In feature area
Vanacampus poecilolaemus Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In feature area
Mammal			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Arctocephalus forsteri](#) Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In feature area
[Neophoca cinerea](#) Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In feature area
Reptile			
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In feature area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
[Balaenoptera acutorostrata](#) Minke Whale [33]		Species or species habitat may occur within area	In feature area
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In feature area
[Caperea marginata](#) Pygmy Right Whale [39]		Species or species habitat may occur within area	In feature area

Current Scientific Name	Status	Type of Presence	Buffer Status
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In feature area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In feature area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Congregation or aggregation known to occur within area	In feature area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In feature area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In feature area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In feature area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Leeuwin-Naturaliste	National Park	WA	In buffer area only
Ngari Capes	Marine Park	WA	In feature area

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	Buffer Status
South-West Forest Region of Western Australia	Western Australia	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Lots 123,124& Pt Loc 170 Geographe Bay Road	2005/2317		Completed	In buffer area only
Controlled action				
Capecare, urban and commercial new development, Aged Care - Naturaliste Terrace, Dunsborough, WA	2006/2834	Controlled Action	Post-Approval	In feature area
Development of Lot 9018 Martingale Road and Lot 377 Clinker Drive, Dunsborough, WA	2018/8278	Controlled Action	Further Information Request	In feature area
Shark Hazard Mitigation Drum Line Program, WA	2014/7174	Controlled Action	Completed	In feature area
Not controlled action				
Cape Naturaliste Road Shared Pathway, Dunsborough, WA	2018/8282	Not Controlled Action	Completed	In feature area
Caves Road and Cape Naturaliste Road Intersection Upgrade	2012/6395	Not Controlled Action	Completed	In feature area
Caves Road widening project between Dunsborough and Yallingup(20.3 -24.6 SLK), WA	2015/7475	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Lot 200 Caves Road Tourist Accommodation	2020/8775	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Biologically Important Areas			[Resource Information]
Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Ardenna pacifica Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur	In buffer area only
Larus pacificus Pacific Gull [811]	Foraging (in high numbers)	Former Range	In buffer area only
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur	In buffer area only
Puffinus assimilis tunneyi Little Shearwater [59363]	Foraging (in high numbers)	Known to occur	In buffer area only
Whales			
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur	In feature area
Eubalaena australis Southern Right Whale [40]	Migration		In feature area
Eubalaena australis Southern Right Whale [40]	Reproduction		In feature area
Megaptera novaeangliae Humpback Whale [38]	Migration (south)	Known to occur	In feature area

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.

Appendix J Vascular Flora Taxa Recorded During Survey

Family	*Taxon*	Status	Location	
			Armstrong Reserve	Keenan Street
Araceae	**Zantedeschia aethiopica*	Declared Pest		X
Asparagaceae	*Thysanotus* sp. [*thyrsoideus*]			X
Cyperaceae	*Lepidosperma squamatum*			X
Dilleniaceae	*Hibbertia cuneiformis*			X
	Hibbertia cunninghamii			X
	Hibbertia hypericoides			X
	Hibbertia hypericoides		X	
Fabaceae	**Lotus* sp.			X
	Acacia pulchella		X	X
	Acacia saligna		X	
	Bossiaea linophylla			X
	Chorizema cordatum		X	
	Hardenbergia comptoniana			X
	Jacksonia furcellata		X	X
	Viminaria juncea		X	
Gentianaceae	**Centaurium tenuiflorum*		X	
	Centaurium erythraea		X	
Goodeniaceae	*Dampiera alata*		X	
	Scaevola calliptera		X	
Iridaceae	*Patersonia occidentalis*		X	
Myrtaceae	**Gaudium laevigatum*			X
	Agonis flexuosa		X	X
	Corymbia calophylla		X	X
	Eucalyptus rudis subsp. *cratyantha*		X	
	Melaleuca rhaphiophylla		X	
Phyllanthaceae	*Phyllanthus calycinus*			X
Pittosporaceae	*Billardiera fusiformis*			X
Plantaginaceae	**Plantago lanceolata*			X
Poaceae	**Avena* sp.		X	X
	Tetrarrhena laevis		X	
Proteaceae	*Banksia littoralis*		X	

Family	*Taxon*	Status	Location	
			Armstrong Reserve	Keenan Street
	Hakea lissocarpha		X	
	Hakea prostrata		X	
	Hakea varia		X	
Restionaceae	*Hypolaena pubescens*		X	
Santalaceae	*Exocarpos odoratus*		X	
Xanthorrhoeaceae	*Xanthorrhoea preissii*		X	X

Note: Species prefixed with * indicate that the taxon is introduced to the area found.