

Thursday, 25 August 2022

*Our Ref: A22.004-RPT-FVSR\_O\_FINAL*

Blokk Property Australia  
PO BOX 137 Mt Lawley  
WA 6929

ATTENTION: Darren Blowes

**SUBJECT: KARRIDALE WEST ROADSIDE BIOLOGICAL SURVEY**

Western Environmental Approvals Pty Ltd (WEPL) presents the following letter report in relation to biological surveys undertaken to support a clearing permit application for road works as a part of the Karridale West development.

**Project Background**

WEPL understands that clearing of a small footprint (up to 0.67 ha of vegetation clearing) is required to allow the construction of turning lanes and minor road widening of Bussell Highway associated with construction of an access road for the Karridale West development.

**Scope of Work**

WEPL undertook biological surveys of the site in February 2022 in order to inform an assessment of potential impacts to flora, fauna and other environmental values. The survey was designed to focus on determining if suitable habitat for conservation significant species and communities may be present. The scope of work comprised the following:

- A desktop assessment of publicly available data for threatened species, communities and other significant environmental values
- A habitat assessment for black cockatoos, identifying if any trees meeting Commonwealth guidelines (DAWE, 2022a) (the Guidelines) as potentially suitable for nesting are present, and considering areas of foraging and roosting habitat
- A habitat assessment, targeted scat search and spotlighting for western ringtail possum
- Mapping of vegetation condition, vegetation types and fauna habitat types present
- Assessment of flora species present and habitat for priority and threatened flora species
- An assessment of potential impacts and assessment of proposed clearing against the Environmental Protection Authority (EPA) 10 Clearing Principles

## Methodology

The survey was undertaken by WEPL senior ecologist Andrew Fry (Flora Licence FB62000002-2) during the day and evening of 1 February 2022. Andrew has 10 years of experience undertaking flora and fauna surveys in the southwest bioregion. The survey area followed road reserve cadastral boundary and included works area provided in road layout plan KC01254.000-Clearing Strings-Model plus a buffer area north and south along road reserve (See Figure 1). All survey areas were accessible and no constraints to planned survey were present.

Flora and vegetation assessment was undertaken considering guidance provided in the EPA 2016 *Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment* for Reconnaissance level flora and vegetation surveys. Due to the completely degraded condition of the survey area this level of assessment was considered suitable.

The fauna habitat assessment was undertaken considering guidance provided in the EPA 2020 *Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment* for Basic level habitat assessments and targeted surveys.

The western ringtail possum targeted survey was undertaken considering Department of Sustainability, Environment, Water, Population and Communities 2011 *Survey guidelines for Australia's threatened mammals* and comprised daytime drey (nest) and scat searches and night-time spotlighting. Due to the small size the entirety of the survey area was able to be scat/drey searched and spotlighted during the survey.

Habitat assessment for black cockatoo breeding trees, foraging and roosting habitat was undertaken as per the Commonwealth guidelines current at the time of survey (DSEWPaC, 2012 and DotEE, 2017). Post survey and during the preparation of this report updated Commonwealth guidance was released (DAWE, 2022a). This report has been prepared to comply with the current 2022 Guidelines. For this report black cockatoos refers to Baudin's black cockatoo (*Zanda baudinii*), Carnaby's black cockatoo (*Zanda latirostris*) and the forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*). In addition to the definitions for known, suitable or potential nesting trees as defined under the Commonwealth guidelines, a scoring system based on that developed by Dr Mike Bamford was applied to class potential nesting trees. See Table 1 below.

**Table 1 Black Cockatoo Breeding Tree Class**

Class	Description of Tree and Hollows/Activity	DAWE, 2022a Breeding Habitat Classification
1	Active nest observed; adult (or immature) bird seen entering or emerging from hollow, eggs present.	Known nesting tree
2	Hollow of suitable size and angle visible with chew marks around entrance attributed to black cockatoo species.	
3	Potentially suitable hollow visible but no chew marks present; or potentially suitable hollow present (as suggested by structure of tree, such as large, vertical trunk broken off at a height of >10m).	Suitable nesting tree
4	Tree with hollows or broken branches that might contain hollows, but hollows or potential hollows are not of a suitable size, or are aligned or obstructed so as to prevent access	Potential nesting tree

Class	Description of Tree and Hollows/Activity	DAWE, 2022a Breeding Habitat Classification
5	Tree lacking large hollows or broken branches that might have large hollows; a tree with more or less intact branches and a spreading crown.	Potential nesting tree

## Limitations and Exclusions

Due to the timing of the survey in mid-summer, a targeted threatened flora survey in line with EPA technical guidance for impact assessment was not undertaken, as it is outside of the flowering/ growth period for most species. Due to the highly degraded nature of the site and the lack of suitable habitat, it is not considered likely that this comprises a significant limitation.

## Results

### Desktop Assessment

The desktop assessment of public datasets identified that:

- The survey area is not mapped as an Environmentally Sensitive Area under the clearing regulations (DWER, 2021).
- No wetlands or drainage lines were identified as intersecting the survey area as per DBCA Geomorphic Wetlands, Augusta to Walpole dataset (DBCA-017).
- DBCA public datasets (DBCA, 2021; DBCA, 2022) indicates that no previous records for threatened or priority flora and ecological communities are present within or immediately adjacent to the survey area.
- DBCA datasets (DBCA, 2020) indicates that records for threatened, and priority fauna are present <500m from the survey area. Black cockatoo species and western ringtail possums were identified as the most likely conservation significant species to be present in the area.
- A search using the Department of Agriculture Water and the Environment (DAWE) Protected Matters Search Tool was undertaken for *Environmental Protection and Biodiversity Conservation* (EPBC) Act protected matters. See Appendix 2 for search result (DAWE, 2022b). Potentially suitable habitat was expected to be present for Baudin's black cockatoo, Carnaby's black cockatoo, forest red-tailed black cockatoo and western ringtail possum. No other EPBC Act protected matters were identified as occurring or likely to occur.

## Flora and Vegetation

Flora and vegetation were assessed at three relevés and during traverses of the survey area. All vegetation is in completely degraded condition, as per EPA 2016 southwest condition scale. Previous clearing, grazing and weed invasion has resulted in vegetation present being typical of grazed road verges or windbreaks in paddocks, with fragmented patches of remnant and regrowth overstory species over an open ground stratum of introduced grass. The species present are a mixture of those native to the region and planted species from other areas. Two broad vegetation types were identified. These were classified based on dominant overstory species present. Vegetation types are shown in Figure 2 and described below, with extents summarised in Table 2.

**Peppermint over weedy grassland** - Upper stratum of scattered *Agonis flexuosa* with a mixture of planted *Eucalyptus* sp. not naturally occurring in the region and *\*Pinus* sp. Mid stratum of *\*Acacia iteaphylla*, *\*Acacia longifolia*, *Acacia cyclops*, *Paraserianthes lophantha* and planted *Calothamnus* sp. Ground stratum of *\*Cenchrus clandestinus*, *\*Cynodon dactylon*, *\*Avena barbata* and other pasture grasses. All areas are in completely degraded condition. See site images 1 to 4.

**Marri over weedy grassland** - Upper stratum of *Corymbia calophylla* with mid stratum of sparse *Agonis flexuosa*, *\*Acacia iteaphylla* and *\*Acacia longifolia*. Ground stratum with areas of bare ground and *\*Avena barbata*, *\*Briza maxima* and *\*Cenchrus clandestinus*. All areas are in completely degraded condition. See site images 5 to 6.

No vegetation types were identified as being consistent with a threatened or priority ecological community. Considering the completely degraded condition, dense understory of weedy grass species and paucity of native flora, it is not considered likely that the vegetation provides suitable habitat for threatened and priority flora.

**Table 2 Vegetation Type and Condition Extents**

Vegetation Type	Condition	Area ha	% of Survey Area
Marri over weedy grassland	Completely degraded	0.123	18.39
Peppermint over weedy grassland	Completely degraded	0.546	81.61
<b>Total</b>		<b>0.669</b>	<b>100</b>





**Photo:1**

Description: Assessment point 1 image

Details: Peppermint over weedy grassland vegetation type



**Photo:2**

Description: Site image

Details: Peppermint over weedy grassland vegetation type





**Photo:3**

Description: Site Image

Details: Peppermint over weedy grassland vegetation type



**Photo:4**

Description: Assessment point 3 image

Details: Peppermint over weedy grassland vegetation type





Photo: 5
Description:site image
Details:Marri over weedy grassland veg type



Photo: 6
Description:Assessment point 2 image
Details: Marri over weedy grassland veg type

## Fauna

The fauna habitat assessment identified two habitat types as being present. The extent of these aligns with the vegetation types “Peppermint over weedy grassland” and “Marri over weedy grassland”, shown in Figure 2 and summarised in Table 2.

The habitat present was assessed as being low quality for ground dwelling species due to the highly degraded nature of the habitat and the high level of habitat fragmentation. The habitat comprises a narrow strip, generally less than 10m wide, occurring between the road and adjacent firebreaks, fence lines and paddocks. The understory is open and lacks microhabitats such as old fallen logs, dense shrubs or rocks that typically provide shelter for a range of ground dwelling species. The trees provide some habitat value for birds and arboreal species. Key conservation significant species are discussed in more detail below.

### Black Cockatoos

The conservation status of the black cockatoo species is summarised in Table 3 below.

**Table 3 Black Cockatoo Conservation Status**

Scientific Name	Common Name	WA Status ( <i>Biodiversity Conservation Act</i> (BC Act))	Commonwealth Status ( <i>EPBC Act</i> )
<i>Calyptorhynchus banksii naso</i>	forest red-tailed black cockatoo	VU	VU
<i>Zanda baudinii</i>	Baudin's cockatoo	EN	EN
<i>Zanda latirostris</i>	Carnaby's cockatoo	EN	EN

The survey recorded seven trees which are classed as potential breeding trees under Commonwealth Guidelines (DAWE, 2022). See Figure 2 for locations and Appendix A for images and descriptions. A hollow assessment of these and all other trees present did not identify any known nesting trees or suitable nesting trees containing a suitable nest hollow, as per classification scale in Table 1. Habitat type “Marri over weedy grassland” is characterised by a stand of Marri trees, which are an important foraging species for all three species of black cockatoos (DAWE, 2022). Occasional foraging species (*Pinus* and *Eucalyptus* sp. with very occasional Marri) occur at low abundance in the “Peppermint over weedy grassland” habitat type. Some foraging evidence from chewed Marri tree nuts by forest red-tailed black cockatoo was recorded. This foraging evidence indicates that the trees are used as occasional foraging habitat, however the volumes of foraging evidence recorded was limited. No evidence of roosting behaviour was recorded and no tall trees in proximity to riparian environments (preferred roosting habitat) were identified.

### Western Ringtail Possum

The western ringtail possum is listed as critically endangered under both the West Australian BC Act and the Commonwealth EPBC Act. The spotlighting survey, scat and drey search did not identify any western ringtail possum within the survey area. An adult with sub adult at heel was observed approximately 50m outside the survey area in adjacent garden vegetation, indicating the species is present within the broader area (See Figure 2 for location). Intensive scat and drey searches were undertaken within the survey area with no evidence recorded. Dense grass cover limited the ability to search for scats in open areas, but locations where



scats are retained such as branch joints and at the base of trees were targeted. The absence of scats and dreys recorded during the survey may indicate that the species is not frequently using the habitat for foraging or refuge.

The habitat type “Peppermint over weedy grassland” provides some habitat values for the species. The majority of native trees/ shrubs present in the habitat type are peppermint (*Agonis flexuosa*) which comprise a key foraging species and its presence is considered an indicator of habitat for the species (DPaW, 2017). Due to factors discussed below, this habitat is considered to provide supporting habitat for the species rather than comprising an area of core habitat, which is essential for maintenance of a local population. As per Commonwealth Matters of National Environmental Significance - Significant Impact Guidelines “core” habitat is defined as that critical to the survival of the species and considered to contain denning/ breeding sites, primary foraging areas and refuge from drought, fire and other stresses (DotE, 2013). Supporting habitat is defined as that which is used for occasional foraging and dispersing/ connective habitat.

The quality of habitat, although containing the key foraging species peppermint, is considered to be reduced to a classification as supporting habitat rather than core habitat due to:

- Frequent gaps in canopy along the roadside strip, with open areas and driveways creating an environment of clumps of trees separated by open ground. The *Western Ringtail Possum Recovery Plan* identifies that “Habitat critical to survival comprises long unburnt mature remnant peppermint woodlands with high canopy continuity (DBCA, 2017)”.
- Many of the peppermint trees and shrubs present having been subject to pruning or being sapling size, again limiting areas with dense connective canopy and reducing the potential for refuge in sufficiently sheltered locations
- The narrow nature of the habitat between the highway and adjacent firebreaks/ paddocks leading to a high level of light and noise disturbance from Bussell Highway
- Separation/ fragmentation of the habitat from any large areas of intact habitat by paddocks, roads and houses

## Conclusions and Recommendations

WEPL understands that clearing of up to 0.669 ha of vegetation within the clearing permit application area is proposed. The clearing footprint comprises 0.123 ha of “Marri over weedy grassland” vegetation/ fauna habitat type and 0.546 ha of “Peppermint over weedy grassland” vegetation/ fauna habitat type. These extents represent the maximum potential clearing footprint and actual clearing impact may be significantly lower.

Key conclusions and assessment of potential impacts are as follows:

- Vegetation is in completely degraded condition with previous clearing, grazing and weed invasion having resulted in vegetation present being typical of grazed road verges or windbreaks.
- No vegetation types were identified as being consistent with a threatened or priority ecological community.
- Due to the degraded condition, dense understory of weedy grass species and recorded paucity of native flora, it is not considered likely that the vegetation provides suitable habitat for threatened and priority flora. As the survey was undertaken in summer outside the flowering/ growth period, a targeted threatened flora survey in line with EPA technical guidance for impact assessment could not be undertaken. Although undertaken outside of the flowering/ growth period, no flora suspected of representing a threatened and priority flora species was identified.
- The 0.669 ha of vegetation provides some foraging habitat values for black cockatoo species, in particular the 0.123 ha of habitat type “Marri over weedy grassland”. The DAWE, 2022 guidance advises that loss of <1ha of foraging habitat is unlikely to require referral to the Commonwealth under the EPBC Act.
- 7 trees were identified as potential breeding trees (Marri/ Eucalypt with a DBH >50cm) under the DAWE, 2022 Guideline classification system. No known or suitable nesting trees which contain a suitable nesting hollow are present. Under the DAWE, 2022 Guideline referral thresholds “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”. Due to the small number of potential breeding trees impacted and the absence of suitable nesting hollows, clearing of these trees is not considered likely to comprise an impact to a significant area of habitat for the species. Liaison with DAWE to better understand potential referral requirements under the new Guidelines may be undertaken by a proponent via a pre referral meeting with the Commonwealth.
- Habitat type “Peppermint over weedy grassland” provides supporting habitat for western ringtail possum. Potential impacts are limited to clearing of up to 0.546 ha with an estimated 30-35 small peppermint trees and shrubs removed. Due to the small extent of potential impacts and the reduced quality of habitat present, the proposed clearing is not considered likely to comprise an impact to a significant area of habitat for the species and is considered unlikely to form grounds for a EPBC

referral. Residual risk of impacts to western ringtail possum during clearing may be mitigated by clearing procedures that consider the potential presence of the species.

## Assessment Against 10 Clearing Principles

An assessment of potential clearing impacts against the EPA 10 Clearing Principles was undertaken. Potential clearing was assessed as being unlikely to be at variance with any of the Clearing Principles, see Table 4 below.

**Table 4 Assessment Against 10 Clearing Principles**

Principle	Assessment	Outcome
(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	All vegetation is in completely degraded condition with very low recorded native species diversity. Given the history of disturbances within the survey area due to clearing, grazing, altered fire regimes and edge effects, the survey area is not considered to comprise a greater diversity than similar areas either locally or at a bioregional scale.	Clearing is unlikely to be at variance to this principle.
(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a significant habitat for fauna indigenous to Western Australia.	The clearing footprint contains 0.123 ha of habitat with foraging species for black cockatoo species and 0.546 ha of supporting habitat for western ringtail possums. Habitat quality overall was assessed as being low due to the highly degraded nature of the habitat and the high level of habitat fragmentation. The total 0.669 ha of habitat present is not considered to comprise an area of significant habitat for fauna.	Clearing is unlikely to be at variance to this principle.
(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of rare flora.	Desktop assessment of public DBCA database identified no rare flora as being previously recorded in the survey area. Due to the degraded condition, dense understory of weedy grass species and recorded paucity of native flora, it is not considered likely that the vegetation provides suitable habitat for threatened and priority flora.	Clearing is unlikely to be at variance to this principle.
(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.	Desktop assessment of public DBCA database did not identify any threatened or priority ecological communities as likely occurring. Field survey did not identify any threatened or priority ecological communities as occurring.	Clearing is unlikely to be at variance to this principle.
(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	<p>As all vegetation is in completely degraded condition and total potential clearing footprint is up to only 0.669 ha of vegetation, the vegetation is not considered to comprise a significant remnant.</p> <p>Under the Vegetation Complexes - South West forest region of Western Australia (DBCA-047) dataset, the survey area intersects the following vegetation complexes:</p> <p>SW Forest Sub Region</p>	Clearing is unlikely to be at variance to this principle.



Principle	Assessment	Outcome
	C1 Cowaramup- 34.46 % pre-European extent remaining CW1 Cowaramup 28.08 % pre-European extent remaining	
(f) Native vegetation should not be cleared if it is growing in, or in association with an environment associated with a watercourse or wetland.	There are no watercourses or wetlands intersecting the survey area.	Clearing is unlikely to be at variance to this principle.
(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	Given the lack of drainage lines, sandy soil material and flat topography of the site, potential clearing is not likely to cause appreciable land degradation either from erosion, changes to soil properties, or likely to have an impact on adjacent vegetation.	Clearing is unlikely to be at variance to this principle.
(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	The survey area does not intersect with or occur adjacent to any DBCA legislated lands or conservation areas. .	Clearing is unlikely to be at variance to this principle.
(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	There are no regionally significant wetlands or watercourses with permanent water within the survey area. The survey area does not intersect any major watercourses or drainage lines. Clearing in the survey area is unlikely to change the hydrology of the area.	Clearing is unlikely to be at variance to this principle.
(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause or exacerbate the incidence or intensity of flooding.	Due to the sandy soils and flat topography of the survey area it is not expected that clearing works would have a significant impact on the natural surface and groundwater processes. The survey area also does not intersect any major watercourses or drainage lines. Potential clearing is not likely to cause or exacerbate the incidence or intensity of flooding.	Clearing is unlikely to be at variance to this principle.

This report should be read in conjunction with the Schedule - Statement of Limitations. Should you have any queries regarding the above, please contact the undersigned on (08) 6162 8980.

Yours sincerely,  
Western Environmental Approvals Pty Ltd



Andrew Fry  
Senior Environmental Scientist

## **SCHEDULE Statement of Limitation**

# **Statement of Limitations**

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### **Scope of Services**

This environmental report ("this report") has been prepared for the sole benefit and exclusive use of the Client for the purpose for which it was prepared in accordance with the agreement between the Client and WEPL ("the Agreement"). However, in addressing the requirements of the Contaminated Sites Act 2003, an Accredited Contaminated Sites Auditor may be engaged by the Client to undertake review of this report, prior to its submission to the DWER. The report shall be made available and can be relied upon for the purposes of the Contaminated Sites Act.

WEPL disclaims any and all liability with respect to any use of or reliance upon this report for any other purpose whatsoever.

In particular, it should be noted that this report is based on a scope of services defined by the Client, and is limited by budgetary and time constraints, the information supplied by the Client (and its agents) and, in some circumstances, access and/or site disturbance constraints.

The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structures referred to in this report, or the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

### **Reliance on Data**

In preparing this report, WEPL has relied on data, surveys, analyses, designs, plans and other information provided by the Client (or its agents), other individuals and organisations ("the data").

Except as otherwise stated in this report, WEPL has not verified the accuracy or completeness of the data. WEPL does not represent or warrant that the data is true or accurate, and disclaims any and all responsibility or liability with respect to the use of the data.

To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data.

WEPL does not accept any responsibility or liability for any incorrect or inaccurate conclusions should any data be incorrect, inaccurate or incomplete or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WEPL.

The conclusions must also be considered in light of the agreed scope of services (including any constraints or limitation therein) and the methods used to carry out those services, both of which are as stated or referred to in this report.

### **Environmental Conclusions**

In accordance with the scope of services, WEPL has conducted environmental field monitoring and/or testing in the preparation of this report. The nature and extent of monitoring and/or testing conducted is described in this report.

On all sites, varying degrees of non-uniformity of vertical and horizontal conditions in media (soil, water, air, waste or other media as described in the report) are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of media conditions encountered. The conclusions are based on the data and the environmental field monitoring and/or testing actually undertaken, and are therefore merely indicative of the environmental condition of the site at the time of preparing this report, including the presence or otherwise of contaminants or emissions. It should be recognised that site conditions, including the extent and concentration of contaminants, can change.

Within the limitations imposed by the scope of services, the monitoring, testing, sampling and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. To the maximum extent permitted by law, no other warranty, express or implied, is made.

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Other parties should not rely on this report or the accuracy or completeness of any conclusions contained in this report, and should make their own enquiries and obtain independent advice in relation to such matters.

If an Auditor is engaged by the Client to undertake review of this report, it shall be made available subject to the terms and conditions of the agreement between the Client and WEPL and the caveats in this statement.

### **Other Limitations**

This report is intended to be read in its entirety, and sections or parts of this report should therefore not be read and relied on out of context.

WEPL will not be liable to update or revise this report to take into account any events or circumstances or facts becoming apparent after the date of this report.

## REFERENCES

Department of Agriculture Water and Energy (DAWE), (2022a). Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black- cockatoo. Department of Agriculture, Water and the Environment, Canberra

Department of Agriculture Water and Energy (DAWE), (2022b). Protected Matters Search Tool. Available from <https://www.awe.gov.au/environment/epbc/protected-matters-search-tool>

Department of Biodiversity, Conservation and Attractions (DBCA), (2020). Threatened and Priority Fauna (DBCA-037) Accessed on 28 January 2022 from <https://catalogue.data.wa.gov.au/dataset/threatened-and-priority-fauna>

Department of Biodiversity, Conservation and Attractions (DBCA), (2021). Threatened Ecological Communities (DBCA-038) Accessed on 28 January 2022 from <https://catalogue.data.wa.gov.au/dataset/threatened-ecological-communities>

Department of Biodiversity, Conservation and Attractions (DBCA), (2022). Threatened and Priority Flora (DBCA-036) Accessed on 28 January 2022 from <https://catalogue.data.wa.gov.au/dataset/threatened-and-priority-flora>

Department of the Environment (DotE), (2013) Matters of National Environmental Significance- Significant Impact Guidelines 1.1 *Environment Protection and Biodiversity Conservation Act 1999*. Canberra, Australia.

Department of Parks and Wildlife (DPaW), (2017). Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan. Wildlife Management Program No. 58. Department of Parks and Wildlife, Perth, WA.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPac) 2011. Survey guidelines for Australia's threatened mammals: Guidelines for detecting mammals listed as threatened under the EPBC Act.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPac) 2012, EPBC Act referral guidelines for three threatened black cockatoo species, Canberra, Australia, Department of Sustainability, Environment, Water, Population and Communities.

Department of the Environment and Energy (DotEE) 2017, Revised draft referral guidelines for three threatened black cockatoo species., retrieved October 2020, from <http://www.environment.gov.au/epbc/pmst/index.html>.

Department of Water and Environmental Regulation (DWER), (2021). Clearing Regulations – Environmentally Sensitive Areas (DWER-046) Accessed on 17 January 2022 from <https://catalogue.data.wa.gov.au/dataset/bush-forever-areas-2000-dop-071>

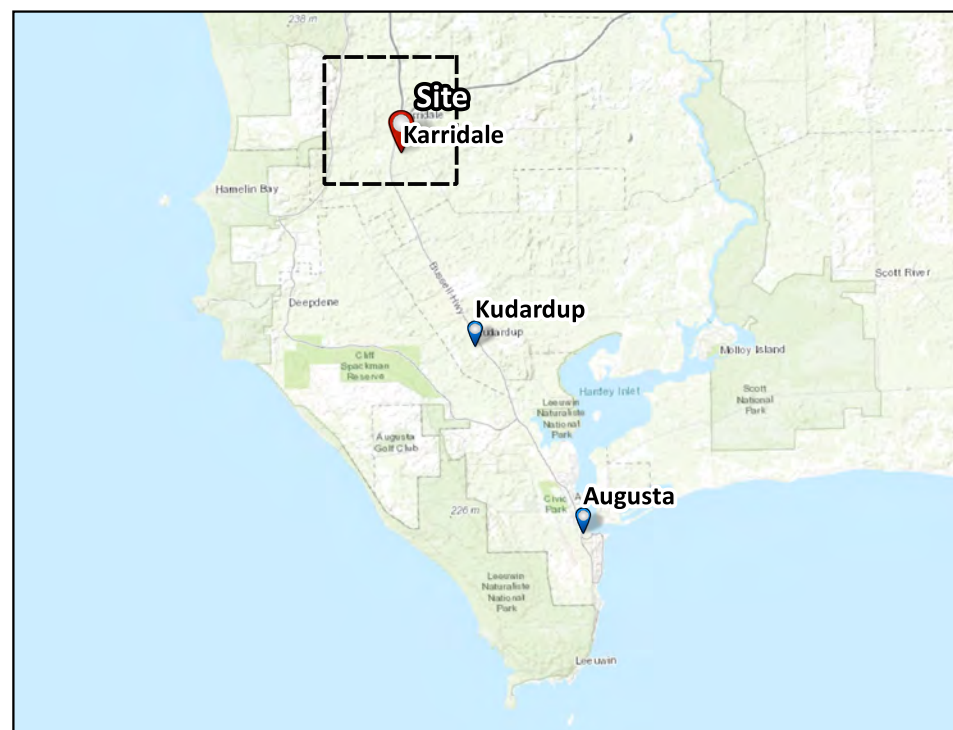
Environmental Protection Authority (EPA) 2016 Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Available at <https://www.epa.wa.gov.au/policies-guidance/technical-guidance-flora-and-vegetation-surveys-environmental-impact-assessment>.




Environmental Protection Authority (EPA) 2020 Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment. Available at <https://www.epa.wa.gov.au/policies-guidance/technical-guidance-terrestrial-vertebrate-fauna-surveys-environmental-impact>.









### Figure 1: Site Location

		PROJECT/REPORT NAME Biological Survey West Karridale Roadside	
SCALE 1:2,000		SHEET SIZE A3 COLOUR	
CLIENT Blok Property Australia			
COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50		PROJECT NUMBER A22.004	VERSION 0
DATA SOURCE LANDGATE AERIAL IMAGERY 08/2021		DRAWN BY / REVIEWED BY AC / AF	DATE 24/8/2022

**Legend**


 Site Boundary

 Cadastre Address (LGATE-002)

No	Description	Drawn	Approved	Date
A	Original issue	AC	AF	24/8/2022

NOTES:

Cadastral boundary (LGATE-002). Base map ESRI Topo. Townsites (LGATE-248).



WESTERN ENVIRONMENTAL





Figure 2: Survey Results

010203040m

N

SCALE  
1:1,500

SHEET SIZE  
A3 COLOUR

COORDINATE REFERENCE SYSTEM  
GDA2020 / MGA zone 50

DATA SOURCE  
LANDGATE AERIAL IMAGERY 08/2021

PROJECT/REPORT NAME  
Biological Survey  
West Karridale Roadside

CLIENT  
Blok Property Australia

PROJECT NUMBER  
A22.004

VERSION  
0

DRAWN BY / REVIEWED BY  
AC / AF

DATE  
24/8/2022

**Legend**

Site Boundary

Cadastre Address (LGATE-002)

**Vegetation Unit**

Marri over weedy grassland

Peppermint over weedy grassland

Black Cockatoo Trees

**2A Sample Sites**

Assessment point 1

Assessment Point 2

Assessment Point 3

**Fauna Observations**

Calyptorhynchus banksii naso

Pseudocheirus occidentalis

Survey Tracklog

No	Description	Drawn	Approved	Date
A	Original issue	AC	AF	24/8/2022

NOTES:  
Cadastre boundary (LGATE-002)

WESTERN  
ENVIRONMENTAL

Western Environmental Pty Ltd  
08 6244 2310 | enquiries@westernv.com.au  
Level 3/25 Prowse St, West Perth WA 6005  
westernv.com.au

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Figure 3: Clearing Permit Application Area

0

10

20

30

40 m

N

SCALE

1:1,500

SHEET SIZE

A3 COLOUR

COORDINATE REFERENCE SYSTEM

GDA2020 / MGA zone 50

DATA SOURCE

LANDGATE AERIAL IMAGERY 08/2021

PROJECT/REPORT NAME

Biological Survey  
West Karridale Roadside

CLIENT

Blokk Property Australia

PROJECT NUMBER

A22.004

VERSION

0

DRAWN BY / REVIEWED BY

AC / AF

DATE

24/8/2022

Legend

Site Boundary

Clearing Permit Application Area

Cadastral Address (LGATE-002)

No	Description	Drawn	Approved	Date
A	Original issue	AC	AF	24/8/2022

NOTES:  
Cadastral boundary (LGATE-002)

WESTERN  
ENVIRONMENTAL

Western Environmental Pty Ltd  
08 6244 2310 | enquiries@westernv.com.au  
Level 3/25 Prowse St, West Perth WA 6005  
westernv.com.au



APPENDIX A      Black Cockatoo Tree Survey Results

Tree	Comments	Latitude	Longitude
T1 -Eucalyptus sp. (Blackbutt x ?)	Class 5- No suitable nesting hollows	-34.19885367	115.1003208
T2 -Marri	Class 5- No suitable nesting hollows	-34.19768194	115.1006055
T3 -Marri	Class 5- No suitable nesting hollows	-34.19745253	115.100658
T4 -Marri	Class 5- No suitable nesting hollows	-34.19737626	115.1006626
T5 -Marri	Class 5- No suitable nesting hollows	-34.19733024	115.1006952
T6 -Marri	Class 5- No suitable nesting hollows	-34.19729577	115.1007031
T7 -Marri	Class 5- No suitable nesting hollows	-34.19938264	115.0999701



Photo: T1
Description: T1
Details: Eucalyptus sp. (Blackbutt x ?)





Photo: T2
Description: T2
Details: Marri



Photo: T3
Description: T3
Details: Marri



Photo:T4
Description:T4
Details:Marri



Photo: T5 and T6
Description: T5 right, T6 left
Details:Marri





Photo: T7
Description:T7
Details:Marri





# 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: 06-Apr-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



# Summary

## Matters of National Environment Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	None
<a href="#">Listed Threatened Species:</a>	20
<a href="#">Listed Migratory Species:</a>	8

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Lands:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	11
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	1
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">EPBC Act Referrals:</a>	4
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	None
<a href="#">Bioregional Assessments:</a>	None
<a href="#">Geological and Bioregional Assessments:</a>	None

# Details

## Matters of National Environmental Significance

Listed Threatened Species

[ Resource Information ]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.  
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calyptorhynchus banksii naso</a> Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
<a href="#">Zanda baudinii listed as Calyptorhynchus baudinii</a> Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
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[Zanda latirostris listed as Calyptorhynchus latirostris](#)

Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat likely to occur within area
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FROG

[Geocrinia alba](#)

White-bellied Frog, Creek Frog [26181]	Critically Endangered	Species or species habitat may occur within area
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MAMMAL

[Dasyurus geoffroii](#)

Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
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[Pseudocheirus occidentalis](#)

Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat known to occur within area
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[Setonix brachyurus](#)

Quokka [229]	Vulnerable	Species or species habitat likely to occur within area
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OTHER

[Westralunio carteri](#)

Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat likely to occur within area
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PLANT

[Banksia nivea subsp. uliginosa](#)

Swamp Honeypot [82766]	Endangered	Species or species habitat may occur within area
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[Banksia squarrosa subsp. argillacea](#)

Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat may occur within area
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[Caladenia hoffmanii](#)

Hoffman's Spider-orchid [56719]	Endangered	Species or species habitat may occur within area
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[Drakaea micrantha](#)

Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area
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Scientific Name	Threatened Category	Presence Text
<a href="#">Gastrolobium papilio</a> Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area
<a href="#">Lambertia echinata subsp. occidentalis</a> Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat may occur within area

Listed Migratory Species

[ Resource Information ]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Migratory Wetlands Species

<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands

[ Resource Information ]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State
Unknown	
Commonwealth Land - [51482]	WA

Listed Marine Species

[ Resource Information ]

Scientific Name	Threatened Category	Presence Text
Bird		

[Actitis hypoleucos](#)

Common Sandpiper [59309]

Species or species habitat may occur within area

[Apus pacificus](#)

Fork-tailed Swift [678]

Species or species habitat likely to occur within area overfly marine area

[Bubulcus ibis as Ardea ibis](#)

Cattle Egret [66521]

Species or species habitat may occur within area overfly marine area

[Calidris acuminata](#)

Sharp-tailed Sandpiper [874]

Species or species habitat may occur within area

[Calidris canutus](#)

Red Knot, Knot [855]

Endangered

Species or species habitat may occur within area overfly marine area

[Calidris ferruginea](#)

Curlew Sandpiper [856]

Critically Endangered

Species or species habitat may occur within area overfly marine area

[Calidris melanotos](#)

Pectoral Sandpiper [858]

Species or species habitat may occur within area overfly marine area



Scientific Name	Threatened Category	Presence Text
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

### Extra Information

State and Territory Reserves			[ <a href="#">Resource Information</a> ]
Protected Area Name	Reserve Type	State	
NTWA Bushland covenant (0155)	Conservation Covenant	WA	

Regional Forest Agreements		[ <a href="#">Resource Information</a> ]
Note that all areas with completed RFAs have been included.		
RFA Name		State
<a href="#">South West WA RFA</a>		Western Australia

EPBC Act Referrals				[ <a href="#">Resource Information</a> ]
Title of referral	Reference	Referral Outcome	Assessment Status	
Not controlled action				
<a href="#">Geo-science Investigations</a>	2005/2069	Not Controlled Action	Completed	
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed	
<a href="#">INDIGO Central Submarine Telecommunications Cable</a>	2017/8127	Not Controlled Action	Completed	
Not controlled action (particular manner)				
<a href="#">INDIGO Marine Cable Route Survey (INDIGO)</a>	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	



# Caveat

## 1 PURPOSE

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

The report contains the mapped locations of:

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

## 2 DISCLAIMER

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

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

## 3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

## 4 LIMITATIONS

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

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

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

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

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

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

# Acknowledgements

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

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

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

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

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