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WESTERN AUSTRALIA

Clearing Assessment Report – CPS 818

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Western Australia.*

Great Eastern Highway Upgrade
Ghooli Stage 2

May 2022

EOS Number: 1041

Contents

1	PURPOSE	3
2	SCOPE	3
2.1	Proposal Scope	3
2.2	Assessment Report Scope	3
2.3	Alternatives to Clearing.....	6
2.4	Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts	6
2.5	Approved Policies and Planning Instruments	8
3	SUMMARY OF SURVEYS	9
3.1	Biological Survey	9
3.1.1	Summary of GHD (2017) Biological Survey.....	9
3.1.2	Summary of Botanica (2021) Flora and Fauna assessment	11
4	VEGETATION DETAILS	12
4.1.1	Proposal Site Vegetation Description	12
4.1.2	Vegetation Units and Condition	13
5	ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES	15
6	ADDITIONAL ACTIONS REQUIRED	28
7	STAKEHOLDER CONSULTATION	30
8	VEGETATION MANAGEMENT	30
9	REFERENCES	31
10	APPENDICES	32
	Appendix 1: Desktop Searches	33

Amendments

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	GHD Environmental Scientist	Rev A	December 2021
Reviewer:	GHD Senior Environmental Scientist GHD Senior Environmental Scientist	Rev A	December 2021
Reviewer:	Main Roads Senior Environment Officer Main Roads Principal Environment Officer	Rev A	April 2021
Author:	GHD Environmental Scientist	Rev 0	May 2022
Reviewer:	GHD Senior Environmental Scientist GHD Senior Environmental Scientist	Rev 0	May 2022

1 PURPOSE

The purpose of this Clearing Assessment Report (CAR) is to provide a report detailing the assessment of native vegetation clearing that is proposed to be undertaken using the Statewide Clearing Permit CPS 818 issued to Main Roads Western Australia (Main Roads).

Main Roads Western Australia (Main Roads) Goldfields Esperance Region is proposing to upgrade an approximate 11 km section of the Great Eastern Highway (GEH) from Straight Line Kilometre (SLK) 367.32 – 378.38 (the Proposal). The Proposal is at concept stage only and the full extent of ground disturbance at this point in time is unknown. Therefore, this document assesses the environmental impact of clearing up to 7.52 hectare (ha) of native vegetation within a 37.23 ha Development Envelope (DE). It is anticipated the actual impacts of the Proposal will be significantly less once final design is determined.

The CAR outlines the key activities associated with the Proposal, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the Proposal using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

2 SCOPE

2.1 Proposal Scope

Proposal Name: Great Eastern Highway Upgrade Ghooli Stage 2.

Proposal Purpose / Components: The Proposal will involve the upgrade of GEH between SLK 367.32 – 378.38. The upgrade is required as the road is currently in poor condition and is a potential safety hazard. The Proposal comprises the following components:

- Shoulder widening and sealing between SLK 367.32-378.38
- Widening formation to 11 metre (m) with 11 m seal (two x 3.5 m traffic lanes, two x 2 m sealed shoulders)
- Realignment and reconstruction of existing pavement
- Removal of some crests and dips by cutting crests and filling up the depressions on this section of highway
- Removal and replacement of culverts, fixing table drains to meet drainage requirements
- Upgrade of intersections to meet restricted access vehicle (RAV) requirements
- Tying into intersections, private property access, and all rest areas/parking bays within the DE.

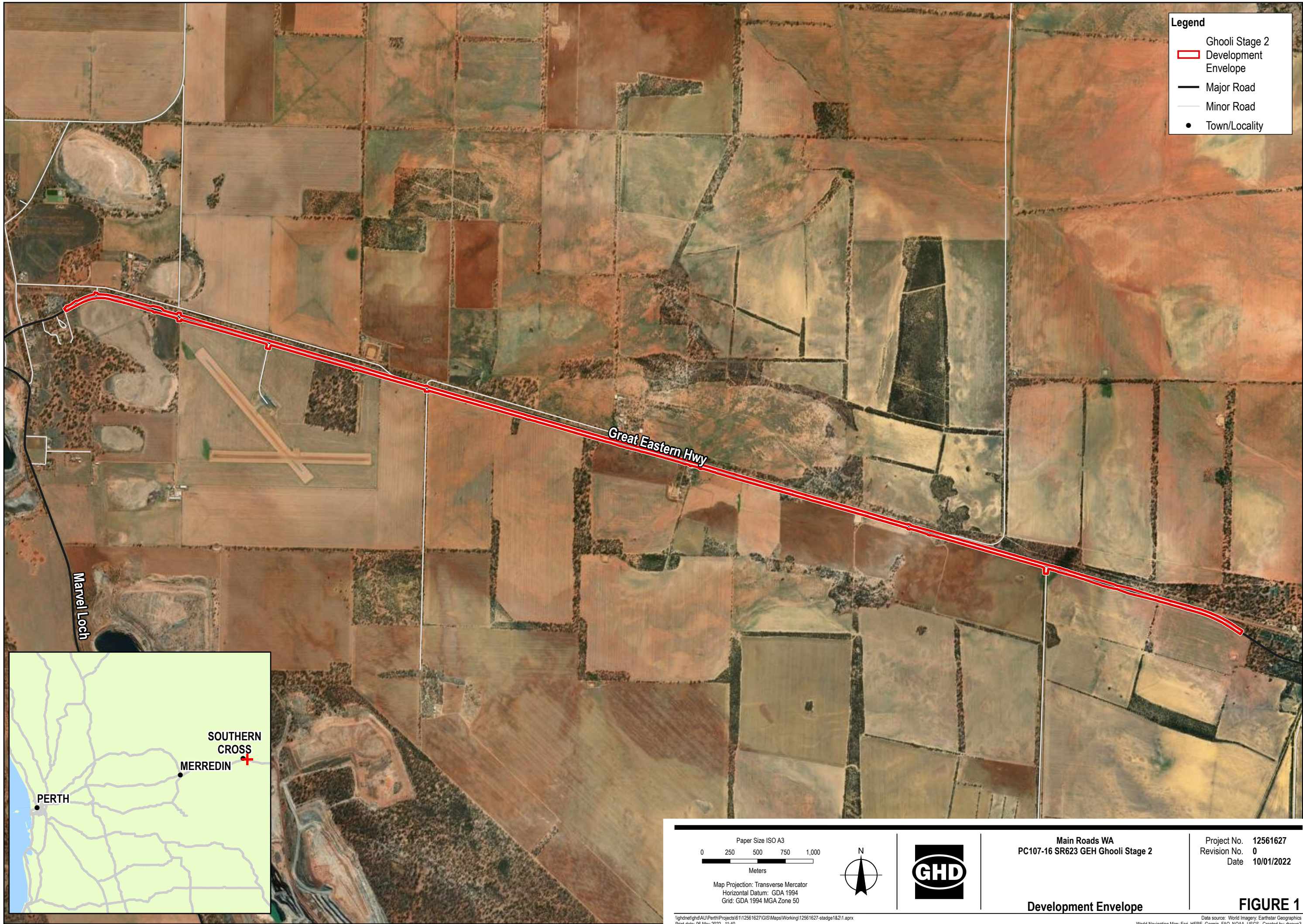
The proposed clearing undertaking using CPS 818 is: Up to 7.52 ha of native vegetation is required to be cleared within the DE.

The proposed temporary clearing undertaking using CPS 818 is: Nil.

Proposal Location(s): GEH between SLK 367.32-378.38, within the Shire of Yilgarn, Western Australia, as shown in Figure 1. The Proposal is located in the Goldfields Esperance Region between Southern Cross and Ghooli.

2.2 Assessment Report Scope

The desktop assessment area, see Figure 2, is confined to a local area of a 10 km radius surrounding the DE and represents the area used for desktop searches.





2.3 Alternatives to Clearing

The Proposal is at concept stage only and while the maximum area of native vegetation clearing is 7.52 ha, the footprint of this clearing area within the DE has not been finalised. It is anticipated the actual impacts of the GEH upgrade will be significantly less once final design is determined.

The Proposal has been designed to reduce clearing to the minimum extent necessary to enable construction while achieving the safety outcomes. The historically narrow road surface in this area requires widened to allow safety improvements to be implemented, so every endeavour has been made to minimise land take. Barriers and kerbing are not appropriate in this area due to the high cost and low safety improvements.

Laydown areas, temporary access tracks, construction storage, and storage/stockpile locations will be contained within the DE to avoid or minimise any unnecessary clearing of vegetation.

2.4 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

The design and management measures implemented to avoid and minimise the clearing impacts by the Proposal are provided in Table 1.

Table 1. Measures undertaken to Avoid, Minimise, Reduce and Manage the Proposal Clearing Impacts

Design or Management Measure	Discussion and Justification
Steepen batter slopes	The design has sought to reduce earthworks as much as possible and to minimise earthworks (fill height/cut depth). The majority of the battering for road improvement has been restricted to existing cleared areas.
Installation of safety barriers	Clearing of vegetation and ground disturbance has been maintained within the existing disturbance footprint as much as possible. Safety barriers were not applicable to the design.
Alignment to one side of existing road	The DE extends west to east along the GEH, and the DE follows the existing road. As the DE currently comprises thin strips of vegetation adjacent to the existing highway, aligning the road to one side of the existing road, may result in more significant impacts than clearing a smaller amount on either side of the road. Consideration will be given through the detailed design stage to minimise clearing.
Alternative alignment to follow existing road (or) to preferentially locate within pasture or a degraded areas	The Proposal follows the existing road and is comprised of thin strips of vegetation adjacent to the existing highway. Impact to adjacent native vegetation and environmental aspects have been minimised by the current design to remain mostly within the road reserve (with minor areas intersecting Freehold land).
Installation of kerbing	Kerbing is not appropriate in this instance and location, where the shoulder is used as an emergency stopping area.
Simplification of design to reduce number of lanes and/or complexity of intersections	The design has been simplified as much as practicable to minimise impacts to the environment.
Preferential use of existing cleared areas for access tracks, construction storage and stockpiling	Temporary access tracks, construction storage, and storage/stockpile locations have been contained within the DE, and within previously cleared areas as much as possible.
Drainage modification	The Proposal will improve drainage by replacing existing culverts to cater for the widened formation. Table drains will also be improved to accommodate potentially larger drainage run-off due to the wider sealed area. The location of any additional drainage will minimise vegetation clearing as much as possible.

2.5 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the *Environmental Protection Act 1994* (EP Act) and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act, Main Roads has also had regard to the below instruments.

Other Legislation of relevance for assessment of clearing and planning/other matters

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914* (RIWI Act)
- *Aboriginal Heritage Act 1972* (WA).

Other Relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia 2011)
- A guide to the assessment of applications to clear native vegetation (DWER October 2021)
- Procedure: Native vegetation clearing permits (DWER October 2021)
- Environmental Offsets Guidelines (DWER 2021)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities
- Approved Recovery Plans for threatened species
- EPBC Act Referral guidelines for the three threatened black cockatoo species
- Strategic advice – EPA.

3 SUMMARY OF SURVEYS

3.1 Biological Survey

GHD Pty Ltd (GHD) conducted a biological assessment of the DE and immediate surrounding area in August and September 2015, and September 2016 (GHD 2017). The GHD (2017) survey covered an area of 330.11 ha, which included 37.15 ha of the 37.23 ha DE.

Botanica Consulting (Botanica) conducted a flora and fauna assessment of the DE and surrounding area from 5 October 2020 to 8 October 2020. The Botanica survey updated the vegetation condition mapping from the GHD (2017) assessment and included targeted searches for Threatened and Priority flora, and opportunistic sampling for Threatened fauna. The Botanica (2021) survey covered an area of 587 ha, which included 22.07 ha of the 37.23 ha DE.

In total, the GHD (2017) and the Botanica (2021) surveys cover 37.15 ha of the 37.23 ha DE. The remaining 0.08 ha has been extrapolated utilising the vegetation types and condition described in the Botanica (2021) and GHD (2017) surveys and an interrogation of aerial imagery. These extrapolated areas have not been subjected to surveys for significant flora or fauna species.

The extrapolated area includes:

- 'Scattered natives over weedy grasses and herbs' – 0.03 ha
- 'Non-native species' – 0.02 ha
- 'Cleared areas' – 0.03 ha.

Section 3.1.1 and 3.1.2 provides a summary of the surveys undertaken for the Proposal.

3.1.1 Summary of GHD (2017) Biological Survey

The 330.11 ha survey area comprised of 238.06 ha from the 2015 survey and 92.05 ha from the 2016 survey. The survey mapped ten vegetation types and three modified vegetation types. All vegetation types were well represented in areas adjacent to the survey area (in central and eastern sections of the survey area) as well as in the local and broader areas. Vegetation condition was variable throughout the survey area and was correlated to the vegetation type. Areas rated as Degraded and Completely Degraded aligned with modified vegetation types, particularly along road edges and pipelines. Within the DE for the Proposal, three vegetation types and three modified type (two native and one non-native) are mapped. Parts of the DE are cleared and contain no vegetation.

One vegetation type was mapped by GHD (2017) as 'Scattered natives over weedy grasses and herbs' (5.18 ha). This report has applied a conservative approach and classified this vegetation type as native and included it within the total native vegetation extent (7.52 ha), however, only a proportion of the vegetation type comprises native species. In addition, GHD (2017) mapped a vegetation type as 'Native revegetation and regrowth' (1.46 ha). Given this vegetation type comprises native regrowth, it has been included within the total native vegetation extent (7.52 ha). However, the entirety of this area does not appear to comprise native vegetation, with intermittent areas of sparse vegetation and regrowth.

None of the vegetation types recorded during the GHD survey represented any Commonwealth or State-listed Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs).

221 flora taxa (including subspecies and varieties) representing 49 families and 129 genera were recorded from the GHD survey area during the field survey. This comprised 208 native taxa and 13 introduced taxa. The 13 introduced taxa are considered environmental weeds with the exception of **Echium plantagineum* (Paterson's Curse), which is listed as a Declared Pest. **Echium plantagineum* was not recorded in the DE for the Proposal, with the nearest record of the taxa being approximately 500 m east of the DE.

Three significant flora were recorded within the GHD survey area:

- *Leucopogon* sp. Yellowdine (M. Hislop & F. Hort MH 3194) (Priority 2)
- *Acacia filifolia* (Priority 3)
- *Acacia desertorum* var. *nudipes* (Priority 3).

No observations of these Priority species were recorded within the DE for the Proposal, with the nearest records being approximately 1.9 km south-east. Given the proximity of these records, these species are considered to possibly occur within the DE. A likelihood of occurrence assessment identified no additional taxa as likely to occur, seven taxa as possibly occurring, and the remaining 16 taxa as unlikely to occur within the GHD survey area.

The GHD survey identified four main fauna habitat types within the GHD survey area, which broadly aligned with the vegetation types mapped within the survey area. These habitats include:

- *Allocasuarina* and *Acacia* shrubland
- Mixed native shrubland
- Native revegetation and regrowth
- Eucalyptus woodland.

An additional vegetation type, 'Scattered native species' was recorded during the GHD (2017) survey, however, was not identified as fauna habitat. This habitat contains various Eucalypt species that are expected to provide habitat to species, particularly birds and bats, and as such, this vegetation type has also been classified as fauna habitat for the purpose of this assessment.

Within the DE for the Proposal, '*Allocasuarina* and *Acacia* shrubland', 'Native revegetation and regrowth', 'Eucalyptus woodland' and 'Scattered native species' habitats are present. The 'Non-native species' modified vegetation type is dominated by agricultural cropping species, **Eragrostis curvula*, **Avena barbata*, **Raphanus raphanistrum* and **Arctotheca calendula*. This modified habitat type was not considered to be of any value for fauna.

The fauna habitats of the GHD survey area are part of an extensive roadside reserve that extends for the majority of the length of the GEH (approximately 215 km) between Southern Cross and Kalgoorlie. The habitat within both sides of the road reserve provides locally important temporary refuge for some fauna species. As reported during the GHD survey, the road reserve was often used by a variety of native birds and mammals as a 'stepping stone' when crossing from one side of the road to the other.

GHD (2017) concluded the fauna habitat types recorded within the survey area are not considered to be exclusive to the survey area when aligned with the vegetation types and broad vegetation associations and landforms. The habitats are considered to be well represented at a local and regional scale, when compared to the extent of the corresponding native vegetation types.

Fifty-two fauna species were recorded during the field survey within the GHD survey area and the adjoining areas. This total included 33 native birds, eight native and three introduced mammals,

and eight native reptiles. Although not all 52 species were recorded within the GHD survey area, all species recorded during the survey have been previously recorded within the GHD survey area.

No significant fauna species were recorded during the GHD survey, however six significant fauna species are considered likely to occur or likely to utilise the habitats within the GHD survey area.

3.1.2 Summary of Botanica (2021) Flora and Fauna assessment

Botanica Consulting (Botanica) conducted a flora and fauna assessment of the DE and surrounding area from 5 to 8 October 2020 (Botanica 2021). The Botanica survey re-assessed the vegetation condition mapping from the GHD (2017) assessment and included targeted searches for Threatened and Priority flora, and opportunistic sampling for Threatened fauna. The Botanica (2021) survey covered an area of 587 ha, which included 22.07 ha of the 37.23 ha DE.

Botanica (2021) identified seven Priority flora species within the Botanica (2021) survey area, including:

- *Verticordia stenopetala* (Priority 3)
- *Stylidium choreanthum* (Priority 3).
- *Acacia desertorum* var. *nudipes* (Priority 3)
- *Acacia filifolia* (Priority 3)
- *Banksia lullfitzii* (Priority 3)
- *Leucopogon* sp. Yellowdine (M. Hislop & F. Hort MH 3194) (Priority 2)
- *Verticordia dasystylis* subsp. *dasystylis* (Priority 2).

No observations of these species were recorded within the DE, however given the proximity of these records to the DE, they are considered to possibly occur. Within the Botanica survey area, an additional two Priority flora (*Goodenia heatheriana* (Priority 1) and *Rinzia fimbriolata* (Priority 1)) were considered 'possible' to occur and four Priority flora were considered 'unlikely' to occur, based on a likelihood of occurrence assessment completed by Botanica (2021).

No significant fauna species were recorded during the Botanica (2021) survey, including no records of Malleefowl mounds.

4 VEGETATION DETAILS

4.1.1 Proposal Site Vegetation Description

The DE is located within the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) bioregion and Southern Cross (COO02) subregion. There are three pre-European vegetation associations within the DE. The vegetation associations and their extents are presented within Table 2 and 3.

Table 2. Summary of DE's Mapped Pre-European Vegetation Associations

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 1413 described as Shrublands; <i>acacia</i> , <i>casuarina</i> and <i>melaleuca</i> thicket.	Clearing of up to 7.52 ha of native vegetation for the upgrade along the GEH.	Excellent to Degraded (GHD 2017, Botanica 2021)	Vegetation description and condition determined from the GHD (2017) and Botanica (2021) surveys and aerial imagery.
Vegetation Association 1068 described as Medium woodland; salmon gum, morrel, gimlet and <i>Eucalyptus sheathiana</i> .			
Vegetation Association 141 described as Medium woodland; York gum, salmon gum and gimlet.			

Table 3. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 1413	Statewide Western Australia	1,679,916	1,286,855	76.60	17.25
	IBRA Bioregion Coolgardie	1,061,212	1,042,554	98.24	18.50
	IBRA Sub-region Southern Cross	953,238	934,826	98.07	19.76
	Local Government Authority Shire of Yilgarn	538,791	395,458	73.40	26.24
Veg Assoc No. 1068	Statewide Western Australia	268,900	142,088	52.84	11.80
	IBRA Bioregion Coolgardie	193,988	104,804	54.03	13.51
	IBRA Sub-region Southern Cross	193,988	104,804	54.03	13.51
	Local Government Authority Shire of Yilgarn	268,900	142,088	52.84	11.80
Veg Assoc No. 141	Statewide Western Australia	1,158,760	960,756	82.91	42.50
	IBRA Bioregion Coolgardie	883,086	858,525	97.22	47.39
	IBRA Sub-region Southern Cross	883,086	858,525	97.22	47.39
	Local Government Authority Shire of Yilgarn	711,450	690,599	97.07	40.96

4.1.2 Vegetation Units and Condition

Native vegetation types mapped within the DE are presented in Table 4, with a total of 7.52 ha mapped as native vegetation. This included 5.18 ha mapped as 'Scattered natives over weedy grasses and herbs'. This modified vegetation type was considered native throughout this report, to ensure a conservative approach was undertaken regarding the amount of native vegetation clearing required for the Proposal. In addition, GHD (2017) mapped a vegetation type as 'Native revegetation and regrowth' (1.46 ha). Given this vegetation type comprises of native regrowth, it has been included within the total native vegetation extent (7.52 ha). However, the entirety of this vegetation type does not appear to comprise native vegetation, with intermittent areas of sparse vegetation and regrowth.

In total, the GHD (2017) and the Botanica (2021) surveys cover 37.15 ha of the 37.23 ha DE. The remaining 0.08 ha has been extrapolated utilising the vegetation types and condition described in the Botanica (2021) and GHD (2017) surveys and an interrogation of aerial imagery. These extrapolated areas have not been subjected to surveys for significant flora or fauna species.

The extrapolated area includes:

- 'Scattered natives over weedy grasses and herbs' – 0.03 ha
- 'Non-native species' – 0.02 ha
- 'Cleared areas' – 0.03 ha.

These extrapolated areas have been included in the total area of native vegetation detailed in Table 4.

Native vegetation within the DE is in a variable condition, largely due to the presence of the existing GEH. The native vegetation condition ranged from 'Excellent' to 'Degraded-Completely Degraded'. The majority of the native vegetation within the DE was in a 'Degraded' or worse condition (88.3%).

Table 4. Native vegetation types within the DE

Code	Native Vegetation Description	Extent (ha) within DE	Condition (GHD 2017, Botanica 2021)
<i>Eucalyptus longicornis</i> open forest (VA01)	<i>Eucalyptus longicornis</i> open forest over <i>Melaleuca depauperata</i> tall open shrubland over <i>Daviesia benthamii</i> subsp. <i>acanthoclona</i> , <i>Eremophila scoparia</i> , <i>E. ionantha</i> mid sparse shrubland over <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Olearia muelleri</i> low sparse shrubland over <i>Austrostipa elegantissima</i> isolated tussock grasses and <i>Zygophyllum glaucum</i> isolated herbs.	0.48	Excellent: 0.48 ha
<i>Eucalyptus sheathiana</i> open woodland (VA02)	<i>Eucalyptus salubris</i> woodland with ± <i>E. salmonophloia</i> trees over <i>Santalum acuminatum</i> low isolated trees with <i>Melaleuca sheathiana</i> tall open shrubland over <i>Daviesia benthamii</i> subsp. <i>acanthoclona</i> , <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> , <i>E. scoparia</i> mid-sparse shrubland over <i>Olearia muelleri</i> , <i>Maireana villosa</i> , <i>Atriplex vesicaria</i> low open shrubland over <i>Austrostipa elegantissima</i> isolated tussock grasses.	0.34	Excellent: 0.16 ha Very Good: 0.04 ha Good: 0.14 ha
<i>Allocasuarina</i> and <i>Acacia</i>	<i>Callitris preissii</i> , <i>Acacia yorkkrakinensis</i> subsp. <i>acrita</i> , <i>A. resinimarginea</i> , <i>Hakea</i> spp. tall open shrubland with	0.06	Very Good: 0.06 ha

Code	Native Vegetation Description	Extent (ha) within DE	Condition (GHD 2017, Botanica 2021)
Shrubland (VA03)	<i>Eucalyptus?rigidula</i> , <i>E. horistes</i> low isolated mallees over <i>Allocasuarina corniculata</i> , <i>A. campestris</i> , <i>Acacia beauverdiana</i> , <i>Melaleuca ?atroviridis</i> mid- shrubland over <i>Thryptomene kochii</i> , <i>Micromyrtus obovata</i> , <i>Phebalium filifolium</i> , <i>Euryomyrtus maidenii</i> , <i>Beyeria sulcata</i> var. <i>sulcata</i> low open shrubland over ± <i>Triodia rigidissima</i> isolated hummock grasses.		
Scattered natives over weedy grasses and herbs (MA01)	Scattered native species including <i>Eucalyptus salmonophloia</i> , <i>E. transcontinentalis</i> , <i>E. capillosa</i> subsp. <i>capillosa</i> , <i>E. oleosa</i> subsp. <i>oleosa</i> over <i>Senna artemisioides</i> subsp. <i>filifolia</i> , <i>Eremophila ionantha</i> , <i>Acacia hemiteles</i> , <i>A. erinacea</i> , <i>Solanum lasiophyllum</i> over weedy grasses and herbs including <i>*Eragrostis curvula</i> , <i>*Avena barbata</i> , <i>*Raphanus raphanistrum</i> , <i>*Arctotheca calendula</i> .	5.18	Degraded: 5.18 ha
Native revegetation and regrowth (MA03)	Previously cleared areas that have been ripped and revegetated. Age of revegetation varies. Largely includes species present in adjacent vegetation associations.	1.46	Degraded: 0.07 ha Degraded-Completely Degraded: 1.39
Total native vegetation within the DE		7.52	

The DE comprises 7.52 ha of native vegetation in variable condition, plus 7.40 ha of non-native vegetation ('Non-native species') and 22.31 ha of cleared areas. Disturbances impacting the DE, and affecting the condition throughout the DE, include edge effects from the existing GEH, clearing, weed infestation, vehicle tracks and historic clearing. Areas of the DE completely devoid of vegetation including roads, tracks or clearing associated with the GEH were categorised as 'Cleared' and not assessed for vegetation condition. Vegetation condition rating and extents for the entire DE are listed in Table 5 below.

Table 5. Vegetation Condition (GHD 2017,)

Condition	Extent in DE (ha)	% of DE
Excellent	0.65	1.7
Very Good	0.10	0.3
Good	0.14	0.4
Degraded	5.24	14.1
Degraded-Completely Degraded	1.39	3.7
Total	7.52	20.2
Non-native vegetation	7.40	19.9
Cleared	22.31	59.9
Total	37.23	100

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the Proposal's proposed clearing is likely to have a significant impact on the environment, the Proposal was assessed against the Ten Clearing Principles (EP Act, Schedule 5).

Each principle has been assessed in accordance with Department of Water and Environmental Regulation's (DWER's) 'Guideline: Native vegetation clearing referrals' and other relevant CPS Decision Reports prepared by DWER.

The proposed clearing is not likely to be at variance with the Ten Clearing Principles.

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Proposed clearing is not likely to be at variance to this Principle
Comment <u>Vegetation and flora</u> The DE comprises 7.52 ha of native vegetation ranging from 'Excellent' to 'Degraded-Completely Degraded' condition, with 8.4% of the native vegetation within the DE assessed as 'Excellent' and 88.3% of the native vegetation mapped as 'Degraded' or worse (GHD 2017, Botanica 2021). In total, the GHD (2017) and the Botanica (2021) surveys cover 37.15 ha of the 37.23 ha DE. The remaining 0.08 ha has been extrapolated utilising the vegetation types and condition described in the Botanica (2021) and GHD (2017) surveys and an interrogation of aerial imagery. These extrapolated areas have not been subjected to surveys for significant flora or fauna species. The dominant vegetation type across the DE consisted of 'Scattered natives over weedy grasses and herbs', followed by 'Native revegetation / regrowth'. The native vegetation proposed to be cleared for the Proposal is well represented locally and regionally. A search of the Department of Biodiversity, Conservation and Attractions (DBCA) TEC/PEC database did not identify any PECs within the desktop assessment area, however one TEC (and its buffer) was identified. This TEC is the Eucalypt Woodlands of the Western Australian Wheatbelt TEC (EPBC: Critically Endangered, DBCA: Priority 3). The GHD (2017) survey confirmed the vegetation types mapped within the DE are not considered representative of any Federal or State listed TECs or PECs. The DE is outside of the Avon Wheatbelt bioregion where the Eucalypt Woodlands of the Western Australian Wheatbelt TEC is typically found. The <i>NatureMap</i> database search identified the presence/potential presence of 427 flora taxa within the desktop assessment area. The GHD (2017) survey recorded the presence of 221 flora taxa (including subspecies and varieties) representing 49 families and 129 genera within the GHD survey area. This comprised 208 native taxa and 13 introduced taxa. A total of 31 threatened and priority flora species were identified from desktop searches (Protected Matters Search Tool [PMST], DBCA, <i>NatureMap</i>, Western Australian Herbarium [WAHERB]) as present/potentially present within the desktop assessment area. No threatened or priority flora listed under EPBC Act, BC Act or by the DBCA were recorded within the DE (GHD 2017, Botanica 2021). A likelihood of occurrence assessment identified nine flora taxa as 'Possible to occur' within the DE (adapted from Botanica 2021), including: • <i>Verticordia stenopetala</i> (Priority 3) • <i>Stylidium choreanthum</i> (Priority 3). • <i>Acacia desertorum</i> var. <i>nudipes</i> (Priority 3)

- *Acacia filifolia* (Priority 3)
- *Banksia lullfitzii* (Priority 3)
- *Leucopogon* sp. Yellowdine (M. Hislop & F. Hort MH 3194) (Priority 2)
- *Verticordia dasystylis* subsp. *dasystylis* (Priority 2).
- *Goodenia heatheriana* (Priority 1)
- *Rinzia fimbriolata* (Priority 1)

It should be noted that between the two surveys completed for the DE (GHD 2017, Botanica 2021), there is 0.28 ha of unsurveyed areas that could potentially comprise significant flora individuals.

Verticordia stenopetala (Priority 3), *Stylidium choreanthum* (Priority 3), *Acacia desertorum* var. *nudipes* (Priority 3), *Acacia filifolia* (Priority 3), *Banksia lullfitzii* (Priority 3), *Leucopogon* sp. Yellowdine (M. Hislop & F. Hort MH 3194) (Priority 2) and *Verticordia dasystylis* subsp. *dasystylis* (Priority 2) were all recorded within the wider survey area by GHD (2017) and/or Botanica (2021) and, if present within the DE, would likely have been recorded. There are numerous DBCA records of these species surrounding the DE and these species are considered locally common. The Proposal is not expected to significantly impact on any of these species.

Both *Goodenia heatheriana* (Priority 1) and *Rinzia fimbriolata* (Priority 1) were considered to possibly occur within the DE, based on a likelihood of occurrence assessment completed by Botanica (2021). These species can be cryptic and suitable habitat does exist within the DE. *Goodenia heatheriana* was surveyed by GHD (2017) and Botanica (2021) during the optimal flowering period, however presence of annual taxa was limited during Botanica (2021) survey. A search of *FloraBase* shows that there are nine records of the species within the Southern Cross region, with records describing the species as 'locally common'. *Rinzia fimbriolata* was surveyed by GHD (2017) during the optimal flowering period however, additional surveys conducted by Botanica (2021) occurred following optimal flowering period. A search of *FloraBase* shows that there are three records of the species within the vicinity of Southern Cross, with these records describing the species as rare. The closest DBCA record of *Rinzia fimbriolata* to the DE is approximately 7.5 km to the north-west. Given the minimal amount of native vegetation clearing required and that this vegetation is well represented within the surrounding area, and that both *Goodenia heatheriana* and *Rinzia fimbriolata* were not recorded within the GHD (2017) and Botanica (2021) survey, it is considered unlikely that the Proposal will significantly impact upon these species.

Fauna habitat

Four native vegetation fauna habitat types were recorded within the DE during the biological survey (GHD 2017), which broadly aligns with the native vegetation associations mapped within the DE. These habitat types include:

- 'Allocasuarina and Acacia shrubland'
- 'Eucalyptus woodland'
- 'Scattered native species'
- 'Native revegetation and regrowth'.

The dominant fauna habitat type within the DE was the 'Scattered native species'. The fauna habitats of the DE are part of an extensive roadside reserve that extends for the majority of the length of the GEH (approximately 215 km) between Southern Cross and Kalgoorlie. The habitat within both sides of the road reserve provides locally important temporary refuge. GHD (2017) noted the road reserve habitat was often used by a variety of native birds and mammals as a 'stepping stone' when crossing from one side of the road to the other. The clearing of native vegetation required for the Proposal will occur within a narrow linear section of the road corridor vegetation, impacting only a small portion of this road reserve habitat. Clearing required for the Proposal will not clear the entirety of this refuge habitat, and habitat will still exist either side of the highway for use by native birds and mammals crossing the road. As the fauna habitats surrounding the DE are already fragmented by the presence of the existing highway, clearing required for the Proposal is not expected to have additional significant impacts on this ecological linkage.

Fauna

The *NatureMap* database search identified the presence/potential presence of 191 fauna species within the desktop assessment area. The GHD (2017) survey recorded the presence of 52 fauna species, including 33 native birds, eight native and three introduced mammals and eight native reptiles.

Desktop searches (PMST, DBCA, *NatureMap*) identified the presence/potential presence of 12 significant fauna taxa within the desktop assessment area. No significant fauna species were recorded during the field surveys (GHD 2017, Botanica 2021). A likelihood of occurrence assessment (GHD 2017) identified six species of significance as likely to occur or utilise the habitats within the DE and these are discussed further under Principle (b).

Environmentally Sensitive Areas

The DE is not located within an Environmentally Sensitive Area (ESA). The nearest ESA is located approximately 15.41 km east of the DE.

Conservation Estates

The DE is not located within, or adjacent to, a reserve and/or a conservation area. The DE is also not located within or adjacent to any DBCA managed lands or reserves.

Whilst the Proposal will result in the loss of up to 7.52 ha native vegetation, the vegetation within the DE is well represented locally and regionally and does not comprise a high level of biological diversity. The Proposal involves clearing from within a narrow linear section of road corridor vegetation that has been historically disturbed from road construction and maintenance activities, and extensively exposed to edge effects.

Proposed clearing is not likely to be at variance to this Principle.

Methodology

GHD (2017)

Botanica (2021)

DAWE (2021)

DBCA (2021)

EPA (2016)

GIS Database:

- Threatened and Priority Ecological Communities
- Threatened and Priority Flora (WA Herbarium and TPFL)
- Threatened and Priority Fauna
- DBCA Legislated Lands and Waters
- DWER Clearing Regulations - Environmentally Sensitive Areas.

(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.

Proposed clearing is not likely to be at variance to this Principle

Comment

The DE comprises 7.52 ha of native vegetation which is suitable fauna habitat. In total, the GHD (2017) and the Botanica (2021) surveys cover 37.15 ha of the 37.23 ha DE. The remaining 0.08 ha has been extrapolated utilising the vegetation types and condition described in the Botanica (2021) and GHD (2017) surveys and an interrogation of aerial imagery. These extrapolated areas have not been subjected to surveys and could potentially comprise significant fauna species.

Fauna habitat

Four native vegetation fauna habitat types were recorded within the DE during the biological survey (GHD 2017), which broadly aligns with the native vegetation associations mapped within the DE. These habitats include:

- 'Allocasuarina and Acacia shrubland' - 0.06 ha
- 'Eucalyptus woodland' – 0.82 ha
- 'Scattered native species' – 5.18 ha
- 'Native revegetation and regrowth' – 1.46 ha.

The 'Allocasuarina and Acacia shrubland' habitat is considered to be of moderate to high value habitat for fauna. This habitat is part of a mostly continuous corridor of remnant vegetation extending through the DE and provides potential hunting/foraging and breeding opportunities for the Woma, Western Rosella and Central Long-eared Bat. The habitat within the DE also provides occasional foraging and dispersal habitat for the Malleefowl and Chuditch, because it is part of a much larger contiguous area of remnant vegetation.

The 'Eucalyptus woodland' habitat is considered to be of moderate to high value habitat for fauna. This habitat is part of a continuous corridor of remnant vegetation extending beyond the DE and provides potential hunting/foraging and breeding opportunities for the Woma, Western Rosella and Central Long-eared Bat. There are limited breeding opportunities (e.g. large logs with hollow openings > 20 cm were uncommon) for the Chuditch. The habitat also provides occasional foraging, dispersal and refuge habitat for the Malleefowl.

The 'Native revegetation and regrowth' habitat is considered to be of moderate to high value habitat for fauna. The habitat consists of a mixture of mature planted native Eucalypts and native shrubs (some endemic to the area) and mature native regrowth shrubland. The habitat provides similar habitat characteristics and values as the Eucalyptus open woodland habitat type. The 'Native revegetation and regrowth' habitat is part of a continuous corridor of remnant vegetation extending beyond the DE and provides potential hunting/foraging opportunities for the Western Rosella and Central Long-eared Bat, and is part of a corridor that may facilitate movement/dispersal of the Chuditch. The habitat also provides occasional dispersal and refuge habitat for the Malleefowl.

The dominant fauna habitat type within DE was the 'Scattered native species'. The GHD (2017) survey did not identify this habitat as fauna habitat, however, it contains various Eucalypt species that are expected to provide habitat to species, particularly birds and bats. This habitat is considered to be of negligible to low value habitat for fauna.

The fauna habitats of the DE are part of an extensive roadside reserve that extends for the majority of the length of the GEH (approximately 215 km) between Southern Cross and Kalgoorlie. The habitat within both sides of the road reserve provides locally important temporary refuge. GHD (2017) noted the road reserve habitat was often used by a variety of native birds and mammals as a 'stepping stone' when crossing from one side of the road to the other. The clearing required for the Proposal will increase the road width from approximately 20 m to approximately 35 m. Following the clearing required for the Proposal, an approximate width of 50 m of remnant vegetation will be retained to the north of the highway. While there is already limited remnant vegetation to the south of the highway, there are patches that will be retained, allowing fauna species to use these areas as road crossings. The clearing of native vegetation required for the Proposal will occur within a narrow linear section of the road corridor vegetation, impacting only a small portion of this road reserve habitat. Clearing required for the Proposal will not clear the entirety of this refuge habitat, and habitat will still exist either side of the highway for use by native birds and mammals crossing the road. As the fauna habitats surrounding the DE are already fragmented by the presence of the existing highway, clearing required for the Proposal is not expected to have additional significant impacts on this ecological linkage.

Desktop searches (PMST, DBCA, NatureMap) identified the presence/potential presence of 12 significant fauna taxa within the desktop assessment area. No significant fauna species were recorded during the field

survey (GHD 2017). A likelihood of occurrence assessment (GHD 2017) identified six species of significance as likely to occur or utilise the habitats within the DE. These species include:

- Malleefowl, *Leipoa ocellata* (EPBC Act: Vulnerable, BC Act: Vulnerable)
- Chuditch, *Dasyurus geoffroii* (EPBC Act: Vulnerable, BC Act: Vulnerable)
- Woma, *Aspidites ramsayi* (southwest subpop.) (Priority 1)
- Western Rosella (inland sp), *Platycercus icterotis xanthogenys* (Priority 4)
- Central Long-eared Bat, *Nyctophilus major tor* (Priority 4)
- Masked Owl (SW ssp), *Tyto novaehollandiae novaehollandiae* (Priority 4).

Malleefowl

The field survey did not record any individuals of the Malleefowl within the DE (GHD 2017), however there are six DBCA records of the species within a 10 km radius of the DE. The nearest Malleefowl DBCA record to the DE is approximately 50 m to the north. This observation was recorded on 29 March 2010. All six DBCA records of the species within a 10 km radius are historical, with the most recent record being in October 2017. The DE is part of the area of occupancy of the species, however it is unknown if it forms part of an area occupied by or is part of an important population (GHD 2017). The 'Allocasuarina and Acacia shrubland', the 'Eucalyptus woodland' and the 'Native revegetation and regrowth' habitats provide occasional foraging/dispersal/refuge habitat for the Malleefowl and these habitats are part of an area of contiguous vegetation. The Malleefowl may use the vegetation within the DE, particularly sections west of the Ghooli locality as part of its larger home range for foraging and/or for local movements along and across the GEH and during the dispersal period for sub-adult birds. The DE comprises 2.34 ha of potentially suitable (moderate to high value) foraging/dispersal/refuge habitat for the Malleefowl. The 'Scattered native species' habitat type is considered to provide negligible to low value habitat for the Malleefowl.

Chuditch

The field survey did not record any individuals of the Chuditch within the DE (GHD 2017), however there are four DBCA records of the species within a 10 km radius of the DE. The nearest Chuditch DBCA record to the DE is approximately 1.4 km to the north. This observation was recorded on 28 June 1989. All four DBCA records of the species within a 10 km radius are historical, with the most recent record being in June 1989. The DE is part of the area of occupancy for the species, however it is unknown if it forms part of an area occupied by or is part of an important population (GHD 2017). Hunting habitat is present throughout the DE, particularly to the west (GHD 2017). Potentially suitable breeding habitat is present which is largely confined to the 'Eucalypt woodland' habitat, in particular the Eucalypt woodlands with larger trees and fallen hollow logs of suitable diameter, which were uncommon during the GHD (2017) survey. The 'Allocasuarina and Acacia shrubland' habitat provides occasional foraging and dispersal habitat for the Chuditch and the 'Native revegetation and regrowth' habitat is part of a corridor that may facilitate movement/dispersal of the species. Habitat within the DE is mostly contiguous vegetation and is part of a broader corridor for movement. The habitats of the DE may form part of an individual's home range. The DE comprises 2.34 ha of potentially suitable (moderate to high value) habitat for the Chuditch, which comprises of 0.82 ha of breeding habitat and 1.52 ha of foraging/dispersal habitat. The 'Scattered native species' habitat type is considered to provide negligible to low value habitat for the Chuditch.

Woma

The field survey did not record any individuals of the Woma within the DE (GHD 2017), however there are two DBCA records of the species within a 10 km radius of the DE. The nearest Woma DBCA record to the DE is approximately 380 m to the north, however, the date of this observation has not been recorded. The Woma may breed and hunt within all habitats within the DE apart from the 'Native revegetation and regrowth' habitat, particularly in areas with good ground cover, animal burrows and within 'Eucalypt woodland'. Animal burrows were commonly recorded (mostly goanna and other reptiles) during the GHD (2017) survey. The DE comprises 0.88 ha of potentially suitable (moderate to high value) foraging/dispersal/breeding habitat for the Woma. The 'Scattered native species' habitat type is considered to provide negligible to low value habitat for the Woma.

Western Rosella (inland ssp)

The field survey did not record any individuals of the Western Rosella within the DE (GHD 2017). Potentially suitable foraging habitat and potentially suitable breeding habitat (e.g. Eucalypt woodland/trees with hollows) is present throughout the DE. The '*Allocasuarina* and *Acacia* shrubland' and 'Eucalyptus woodland' habitats within the DE provide potential hunting/foraging and breeding opportunities for the Western Rosella, and the 'Native revegetation and regrowth' habitat provides suitable hunting/foraging opportunities. The DE comprises 2.34 ha of potentially suitable (moderate to high value) habitat for the Western Rosella. The 'Scattered native species' habitat type is considered to provide negligible to low value habitat for the Rosella.

Central Long-eared Bat

The field survey did not record any individuals of the Central Long-eared Bat within the DE (GHD 2017). Potentially suitable hunting habitat and potentially suitable breeding and roosting habitat (i.e. Eucalypt woodlands with hollow-bearing trees and crevices) is present throughout the DE. The '*Allocasuarina* and *Acacia* shrubland' and 'Eucalyptus woodland' habitats within the DE provide potential hunting/foraging and breeding opportunities for the Central Long-eared Bat, and the 'Native revegetation and regrowth' habitat provides suitable hunting/foraging opportunities. The DE comprises 2.34 ha of potentially suitable (moderate to high value) habitat for the Central Long-eared Bat. The 'Scattered native species' habitat type is considered to provide negligible to low value habitat for the Rosella.

Masked Owl

The field survey did not record any individuals of the Masked Owl within the DE (GHD 2017). Potentially suitable foraging and breeding habitat is present throughout DE. The species is likely to require tall Eucalypt woodlands, particularly woodlands with trees with large hollows (i.e. hollows probably > 20 cm diameter) for breeding and nesting which are mostly restricted to the 'Eucalypt woodland' habitats around the Ghooli locality and west of the Ghooli locality in the DE. Habitat within the survey area is mostly contiguous vegetation and is part of a broader corridor for movement. The DE comprises 0.82 ha of potentially suitable foraging/dispersal habitat for the Masked Owl.

The '*Allocasuarina* and *Acacia* shrubland' and 'Eucalyptus woodland' habitats within the DE contains potentially suitable hunting/foraging and breeding habitat for the Woma, Western Rosella and Central Long-eared Bat. The 'Native revegetation and regrowth' habitats also provides potentially suitable hunting/foraging habitat for the Western Rosella and Central Long-eared Bat. The '*Allocasuarina* and *Acacia* shrubland' habitat provides occasional foraging and dispersal habitat for the Malleefowl and Chuditch, while the 'Eucalyptus woodland' habitat provides limited breeding opportunities for the Chuditch, occasional foraging, dispersal and refuge habitat for the Malleefowl and potential breeding and nesting habitat for the Masked Owl. The 'Native revegetation and regrowth' habitat may facilitate movement/dispersal of the Chuditch and provides occasional dispersal and refuge habitat for the Malleefowl.

Overall, the Proposal will require clearing of up to 2.34 ha of potentially suitable (moderate to high value) foraging/dispersal/refuge habitat for the Malleefowl. The Proposal will require the clearing of up to 2.34 ha suitable habitat for the Chuditch (1.52 foraging and 0.82 ha breeding) and up to 0.88 ha of foraging/dispersal/breeding habitat for the Woma. The DE comprises 2.34 ha potentially suitable habitat for the Western Rosella and Central Long-eared Bat and 0.82 ha habitat that could support the Masked Owl.

The fauna habitat types recorded within the DE are not exclusive to the DE and are well represented at a local and regional scale. Therefore, the clearing required for the Proposal represents only a small portion of the habitat available to these species within the vicinity. Significant fauna species may infrequently visit the DE, however would unlikely be reliant on any of the habitat that occurs within the DE. Given the thin, linear nature of the clearing required for the Proposal, and the proximity of the Proposal to the existing road, it is considered unlikely that the DE represents key habitat for any significant fauna species.

The proposed clearing is not likely to be at variance to this Principle.

Methodology

GHD (2017)

Botanica (2021)

DAWE (2021)

DBCA (2021)

GIS Database:

- Threatened and Priority Fauna.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.
Proposal is not at variance to this Principle**Comment**

No threatened flora were identified within the DE by GHD (2017) or Botanica (2021) and none are considered likely to occur.

The proposed clearing is not at variance to this Principle.

Methodology

GHD (2017)

Botanica (2021)

DAWE (2021)

DBCA (2021)

GIS Database:

- Threatened and Priority Flora (WA Herbarium and TPFL).

(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.
Proposed clearing is not at variance to this Principle**Comment**

A search of DBCA's TEC/PEC database and the EPBC Act PMST identified one TEC (and/or its buffer) within the desktop assessment area. This TEC is the Eucalypt Woodlands of the Western Australian Wheatbelt TEC (EPBC: Critically Endangered, DBCA: Priority 3).

The GHD (2017) survey confirmed that the vegetation types mapped within the DE are not considered representative of any Federal or State listed TECs. The DE is outside of the Avon Wheatbelt bioregion where Eucalypt Woodlands of the Western Australian Wheatbelt TEC is typically found.

The proposed clearing is not at variance to this Principle.

Methodology

GHD (2017)

DAWE (2021)

GIS Database:

- Threatened and Priority Ecological Communities.

(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.**Proposed clearing is not at variance to this Principle****Comment**

The DE comprises 7.52 ha of native vegetation ranging from 'Excellent' to 'Degraded-Completely Degraded' condition, with 8.4% of the native vegetation within the DE assessed as 'Excellent' and 88.3% of the native vegetation mapped as 'Degraded' or worse (GHD 2017, Botanica 2021).

The DE is not located within a "constrained" area. Vegetation Associations 1413, 1068 and 141 have over 30% pre-European vegetation remaining within the State, IBRA region and sub-region, and LGA levels. The clearing of native vegetation for the Proposal will not significantly reduce the mapped extent or percent remaining for any of the Vegetation Associations identified within the DE.

The Proposal comprises an upgrade of a section of the existing GEH area which is already highly disturbed. The vegetation within the DE is well represented locally and regionally and is not considered significant as a remnant of native vegetation.

Summary of DE's Mapped Pre-European Vegetation Associations

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 1413 described as Shrublands; acacia, casuarina and melaleuca thicket.	Clearing of up to 7.52 ha of native vegetation for the upgrade along the GEH.	Excellent to Degraded (GHD 2017)	Vegetation description and condition determined from the GHD (2017) survey and aerial imagery.
Vegetation Association 1068 described as Medium woodland; salmon gum, morrel, gimlet & <i>Eucalyptus sheathiana</i> .			
Vegetation Association 141 described as Medium woodland; York gum, salmon gum & gimlet.			

Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 1413	Statewide Western Australia	1,679,916	1,286,855	76.60	17.25
	IBRA Bioregion Coolgardie	1,061,212	1,042,554	98.24	18.50
	IBRA Sub-region	953,238	934,826	98.07	19.76

Veg Assoc No. 1068	Southern Cross				
	Local Government Authority Shire of Yilgarn	538,791	395,458	73.40	26.24
	Statewide Western Australia	268,900	142,088	52.84	11.80
	IBRA Bioregion Coolgardie	193,988	104,804	54.03	13.51
	IBRA Sub-region Southern Cross	193,988	104,804	54.03	13.51
Veg Assoc No. 141	Local Government Authority Shire of Yilgarn	268,900	142,088	52.84	11.80
	Statewide Western Australia	1,158,760	960,756	82.91	42.50
	IBRA Bioregion Coolgardie	883,086	858,525	97.22	47.39
	IBRA Sub-region Southern Cross	883,086	858,525	97.22	47.39
	Local Government Authority Shire of Yilgarn	711,450	690,599	97.07	40.96

The proposed clearing is not at variance to this Principle.

Methodology

GHD (2017)

Botanica (2021)

Beard (1975)

GoWA (2021)

GIS Database:

- Aerial Imagery
- DPIRD Remnant Vegetation
- Pre-European Vegetation.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is not at variance to this Principle
Comment No rivers or major streamlines intersect the DE. The nearest significant stream runs north to south through Southern Cross town, approximately 500 m west of the DE. No vegetation communities within the DE have values associated with wetland or dampland vegetation. No riparian vegetation was recorded during the field survey (GHD 2017). A search of the PMST did not identify any Wetlands of International Importance (i.e. RAMSAR wetlands) or Nationally Important Wetlands within the DE. No significant surface water features are present within the DE and the Proposal will not result in clearing of vegetation growing in, or in association with, a watercourse or wetland. The Proposal is not at variance to this Principle. Methodology GHD (2017) Botanica (2021) GIS Database: • Aerial Imagery • Directory of Important Wetlands • RAMSAR Wetlands • Hydrography, Linear.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Proposed clearing is not likely to be at variance to this Principle
Comment The DE is located within the Southern Cross Zone of the Kalgoorlie Soil-landscape Province. This zone is characterised by undulating plains and uplands (with some salt lakes and low hills) on deeply weathered mantle, colluvium and alluvium over greenstone and granitic rocks of the Yilgarn Craton (Tille 2006). The underlying bedrock geology within the DE is characterised as A-SDB-mg (Metagranite; commonly foliated; includes granodiorite to monzogranite) (GoWA 2021). The DE intersects three soil-landscape systems (GoWA 2021): • 261Bd – Buladagie System ◦ Gently undulating upland plains and subdued rises in the Eastern Zone of Ancient Drainage. 'Fresh' red rocky loams, yellow sands and sandy earths and shallow duplexes • 261Gt – Garratt System ◦ Lower slopes and footslopes adjacent to salt lakes in the eaten Zone of Ancient Drainage. Loamy earth (mostly calcareous), hard cracking clay and alkaline shallow duplex • 261Ld – Lake Deborah System ◦ Broad valley floor dominated by salt lakes with minor dunes, north-east of Southern Cross. Salt lake soils and calcareous loamy earths. Within the DE, there are also 8 soil types (based on best available mapping, GoWA 2021):

- 261Ld_1 – Calcareous loamy earth. This soil type is located within the west portion of the DE.
- 261Bd_1 – Yellow/brown deep sandy duplex. This soil type is located within the east portion of the DE.
- 261Ld_1sl – Salt lake soil. This soil type is located within the west portion of the DE
- 261Gt_1Qc – Calcareous loamy earth. This soil type is located within the centre of the DE.
- 261Bd_2 – Yellow/brown deep sandy duplex. This soil type is located within the east portion of the DE.
- 261Bd_3ge – Grey shallow sandy duplex. This soil type is located within the centre of the DE.
- 261Bd_3u – Duplex sandy gravel. This soil type is located within the centre of the DE.
- 261Gt_1Qa – Calcareous loamy earth. This soil type is located within the west portion of the DE.

The Proposal is unlikely to alter drainage or hydrological regimes within the vicinity of the DE. Surface water management measures will be implemented as part of the Proposal design to maintain drainage and existing flow lines consistent with the existing GEH.

The majority of the DE is mapped as having a moderate risk of wind erosion, however, the north-east section is mapped as having a low risk of wind erosion. In addition, the majority of the Proposal is mapped as having a low risk of surface and subsurface acidity and water erosion risk. The Proposal will implement management measures to reduce the risk of soil erosion and degradation.

The Proposal is at concept stage only and the final extent of ground disturbance is anticipated to be less than assessed within this report. Given the linear nature of the clearing and that the majority of the GEH upgrade works will be sealed upon completion, the proposed clearing is not likely to lead to an appreciable increase in land degradation, through erosion and sedimentation, to surrounding areas.

Standard erosion and dust management control measures will be implemented during construction to reduce the incidence of wind erosion.

Therefore, the proposed clearing is not likely to be at variance to this Principle.

Methodology

GHD (2017)

Botanica (2021)

GIS Database:

- Soil Systems
- Bedrock Geology
- Soil landscape land quality – Wind Erosion Risk
- Soil landscape land quality – Water Erosion Risk
- Soil landscape land quality – Surface Acidity
- Soil landscape land quality – Subsurface Acidity.

(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.

Proposed clearing is not at variance to this Principle

Comment

The DE is not located within any conservation reserves or DBCA managed lands. The nearest DBCA managed land is the Southern Cross Golf Club, which is located approximately 5 km north of the DE.

No impact to conservation reserves or DBCA managed lands will occur as a result of the Proposal.

The proposed clearing is not at variance to this Principle.

Methodology

DBCA shapefiles
EPA (2016)
GHD (2017)

(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.

Proposed clearing is not likely to be at variance to this Principle

Comment

The DE is located within the Goldfields groundwater area which is proclaimed under the RIWI Act.

The DE is not located within any Public Drinking Water Source Areas (PDWSAs). The Proposal is unlikely to involve dewatering, drawing water from an existing bore or surface water body or installation of a new or alteration of an existing water bore.

The DE is not located within a surface water area proclaimed under the RIWI Act, nor does it intersect any watercourses. A significant stream runs north to south through the Southern Cross town, approximately 500 m west of the DE. The potential for contamination of this surface water feature to occur during clearing for the Proposal due to the accidental release of hazardous materials, runoff and from contaminated sediments or dust is negligible.

A search of the EPBC Act PMST did not identify any Wetlands of International Importance (i.e., RAMSAR wetlands) within the DE. No Nationally Important Wetlands are located within or in the vicinity of the DE.

No vegetation communities within the DE have values associated with wetland or dampland vegetation. No riparian vegetation was recorded during the field survey (GHD 2017).

Clearing associated with the Proposal is unlikely to cause deterioration in the quality of surface and/or underground water.

The Proposal is not likely to be at variance to this Principle.

Methodology

GHD (2017)

DAWE (2021)

GIS Database:

- Public Drinking Water Source Areas
- RIWI Act, Surface Water Areas and Irrigation Districts
- RIWI Act, Groundwater Areas
- Directory of Important Wetlands
- RAMSAR Wetlands
- Hydrography, Linear

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Proposed clearing is not likely to be at variance to this Principle

Comment

The DE is mapped as having a low risk of flooding and water erosion (GoWA 2021). The majority of the DE is also mapped as having a low waterlogging risk, however, a north-east portion of the DE is mapped as having a high risk of waterlogging.

Surface water management measures will be implemented as part of Proposal design to maintain existing drainage in the area and to avoid impact to adjacent native vegetation through waterlogging.

Road runoff and storm water will be managed via the Construction Environment Management Plan (CEMP) with the objective of maintaining local hydrological regimes through enabling infiltration close to the point of collection.

Given that the proposed clearing constitutes removal of linear strips of vegetation adjacent to the existing road, it is unlikely that the clearing will result in any changes to the local incidence or intensity of flooding.

The proposed clearing is not likely to be at variance to this Principle.

Methodology

GHD (2017)

GIS Database:

- Soil landscape land quality - Flood Risk
- Soil landscape land quality - Water Erosion Risk
- Soil landscape land quality - Waterlogging Risk.

6 ADDITIONAL ACTIONS REQUIRED

Table 5 summarises what further pre-clearing impact assessment and vegetation management is required in accordance with CPS 818.

Table 5. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles. Where the clearing is at variance or may be at variance to Clearing Principle (f) and no other Clearing Principle, and the area of the proposed clearing is less than 0.5 hectares in size and the Clearing Principle (f) impacts only relate to: (i) a minor non-perennial watercourse(s); (ii) a wetland(s) classed as a multiple use management category wetland(s); and/or (iii) a wetland that is not a defined wetland; the preparation of an Assessment Report, as required by condition 6(e), is not required.	No	No further action required.
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding.	No	No further action required.
3. The Proposal involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
4 a. Proposal is within Region that: - Has rainfall greater than 400mm and - Is South of the 26th parallel and - Works are in 'Other than dry conditions' and - Works have potential for uninfested areas to be impacted	No	Proceed with standard Vehicle and Plant management actions from PEMRs and Vehicle and Plant Hygiene Checklists.

Impact of Clearing	Yes/No or NA	<i>Further Action Required</i>
4b. Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions?	No	No further action required.
5. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback	No	No further action required.
6. The vegetation within the area to be cleared and/or the surrounding vegetation in a good or better condition and weeds likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition	No	No further action required.

7 STAKEHOLDER CONSULTATION

No stakeholder consultation has been undertaken for this Proposal. As the Proposal design further develops, Main Roads will undertake stakeholder consultation as necessary.

8 VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. A CEMP will be developed which will detail standard environmental management actions to avoid or minimise impact to environmental and heritage aspects.

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10 APPENDICES

Appendix	Title
Appendix 1	Database searches

Appendix 1: Desktop Searches



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: 22-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](#).

World Heritage Properties:	None
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	12
Listed Migratory Species:	6

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	4
Commonwealth Heritage Places:	None
Listed Marine Species:	10
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places			[Resource Information]
Name	State	Legal Status	Buffer Status
Historic			
Goldfields Water Supply Scheme, Western Australia	WA	Listed place	In feature area

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
Eucalypt Woodlands of the Western Australian Wheatbelt	Critically Endangered	Community likely to occur within area	In buffer area only

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			
Calidris ferruginea Curlew Sandpiper [856]	Critically 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
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area	In feature area
PLANT			
Dasymalla axillaris Native Foxglove [38829]	Critically Endangered	Species or species habitat may occur within area	In feature area
Daviesia microcarpa Norseman Pea [56766]	Endangered	Species or species habitat known to occur within area	In feature area
Eremophila resinosa Resinous Eremophila [11735]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Eremophila viscida Varnish Bush [2394]	Endangered	Species or species habitat likely to occur within area	In feature area
Gastrolobium graniticum Granite Poison [14872]	Endangered	Species or species habitat may occur within area	In buffer area only
Ricinocarpos brevis [82879]	Endangered	Species or species habitat may occur within area	In buffer area only
Roycea pycnophylloides Saltmat [21161]	Endangered	Species or species habitat may occur within area	In buffer area only
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
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Actitis hypoleucos Common Sandpiper [59309]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]		Species or species habitat may occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature 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	Buffer Status
Unknown		
Commonwealth Land - [51405]	WA	In feature area
Commonwealth Land - [51729]	WA	In buffer area only
Commonwealth Land - [52179]	WA	In buffer area only
Commonwealth Land - [51057]	WA	In feature area

Listed Marine Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine 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
Thinornis cucullatus as Thinornis rubricollis Hooded Dotterel, Hooded Plover [87735]		Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Unnamed WA25801	Nature Reserve	WA	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Goldfields Water Supply Scheme Project	2019/8547	Controlled Action	Post-Approval	In feature area
Nava-1 Cable System	2001/510	Controlled Action	Completed	In feature area
Parker Range Mt Caudan Iron Ore Haul Road Proposal	2021/8955	Controlled Action	Assessment Approach	In buffer area only
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	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 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](#)
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- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
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- [-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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NatureMap Species Report

Created By Guest user on 07/12/2021

Current Names Only Yes

Core Datasets Only Yes

Method 'By Line'

Vertices 31° 13' 45" S, 119° 20' 17" E 31° 13' 42" S, 119° 20' 22" E 31° 13' 42" S, 119° 20' 23" E 31° 13'

Group By 41" S, 119° 20' 26" E 31° 13' 41" S, 119° 20' 27" E 31° 13' 41" S, 119° 20' 29" E 31° 13' 41" S, 119° 20' 31" E 31° 15' 06" S, 119° 26' 48" E 31° 15' 07" S, 119° 26' 51" E 31° 15' 12" S, 119° 27' 00" E
Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	560	1558
Other specially protected fauna	1	1
Priority 1	5	5
Priority 2	1	1
Priority 3	10	38
Priority 4	1	1
Protected under international agreement	1	1
Rare or likely to become extinct	4	18
TOTAL	583	1623

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Rare or likely to become extinct				
1.	24092 <i>Dasyurus geoffroii</i> (Chuditch, Western Quoll)		T	
2.	12327 <i>Daviesia microcarpa</i>		T	
3.	11294 <i>Eucalyptus crucis</i> subsp. <i>crucis</i> (Silver Mallee)		T	
4.	24557 <i>Leipoa ocellata</i> (Malleefowl)		T	
Protected under international agreement				
5.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
Other specially protected fauna				
6.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
Priority 1				
7.	13514 <i>Eucalyptus myriadena</i> subsp. <i>parviflora</i>		P1	
8.	19349 <i>Goodenia heatheriana</i>		P1	
9.	36059 <i>Leucopogon</i> sp. <i>Yellowdine</i> (M. Hislop & F. Hort MH 3194)		P1	
10.	48265 <i>Rinzia fimbriolata</i> (Wheatbelt Rinzia)		P1	
11.	48629 <i>Verticordia</i> sp. <i>Koolyanobbing</i> (B.H. Smith 1457)		P1	
Priority 2				
12.	20645 <i>Lissanthe scabra</i>		P2	
Priority 3				
13.	14048 <i>Acacia ancistrophylla</i> var. <i>perarcuata</i>		P3	
14.	14068 <i>Acacia cylindrica</i>		P3	
15.	14069 <i>Acacia desertorum</i> var. <i>nudipes</i>		P3	
16.	3337 <i>Acacia filifolia</i>		P3	
17.	14076 <i>Acacia formidabilis</i>		P3	
18.	12232 <i>Hakea pendens</i>		P3	
19.	12704 <i>Prostanthera nanophylla</i>		P3	
20.	7701 <i>Stylidium choreanthum</i> (Dancing Triggerplant)		P3	
21.	12442 <i>Verticordia mitodes</i>		P3	
22.	6121 <i>Verticordia stenopetala</i>		P3	
Priority 4				
23.	33902 <i>Aganippe castellum</i> (Tree-stem Trapdoor Spider)		P4	
Non-conservation taxon				
24.	3200 <i>Acacia acuminata</i> (Jam, Mangard)			
25.	3218 <i>Acacia anfractuosa</i>			
26.	15467 <i>Acacia assimilis</i> subsp. <i>assimilis</i>			
27.	3236 <i>Acacia beauverdiana</i> (Pukkat)			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
28.	16117	<i>Acacia consanguinea</i>			
29.	3269	<i>Acacia coolgardiensis</i> (<i>Spinifex Wattle</i>)			
30.	16169	<i>Acacia deficiens</i>			
31.	16119	<i>Acacia dissona</i> var. <i>dissona</i>			
32.	16168	<i>Acacia enervia</i> subsp. <i>enervia</i>			
33.	12257	<i>Acacia enervia</i> subsp. <i>explicata</i>			
34.	3324	<i>Acacia erinacea</i>			
35.	15282	<i>Acacia gibbosa</i>			
36.	3366	<i>Acacia hemiteles</i>			
37.	15285	<i>Acacia heteroneura</i> var. <i>jutsonii</i>			
38.	3378	<i>Acacia inaequiloba</i>			
39.	3389	<i>Acacia intricata</i>			
40.	3393	<i>Acacia jennerae</i>			
41.	3426	<i>Acacia longispinea</i>			
42.	3440	<i>Acacia merrallii</i>			
43.	3451	<i>Acacia multispicata</i>			
44.	3452	<i>Acacia murrayana</i> (<i>Sandplain Wattle</i>)			
45.	15290	<i>Acacia neurophylla</i> subsp. <i>erugata</i>			
46.	15479	<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>			
47.	3463	<i>Acacia nyssophylla</i>			
48.	3495	<i>Acacia prainii</i> (<i>Prain's Wattle</i>)			
49.	3513	<i>Acacia resinimarginea</i>			
50.	3524	<i>Acacia rossei</i>			
51.	15484	<i>Acacia sphacelata</i> subsp. <i>sphacelata</i>			
52.	3555	<i>Acacia steedmanii</i>			
53.	23525	<i>Acacia steedmanii</i> subsp. <i>steedmanii</i>			
54.	3577	<i>Acacia tetragonophylla</i> (<i>Kurara, Wakalpuka</i>)			
55.	15292	<i>Acacia yorkakinensis</i> subsp. <i>acrita</i>			
56.	24559	<i>Acanthagenys rufogularis</i> (<i>Spiny-cheeked Honeyeater</i>)			
57.	24260	<i>Acanthiza apicalis</i> (<i>Broad-tailed Thornbill, Inland Thornbill</i>)			
58.	24261	<i>Acanthiza chrysorrhoa</i> (<i>Yellow-rumped Thornbill</i>)			
59.	24265	<i>Acanthiza uropygialis</i> (<i>Chestnut-rumped Thornbill</i>)			
60.	25536	<i>Accipiter fasciatus</i> (<i>Brown Goshawk</i>)			
61.	24282	<i>Accipiter fasciatus</i> subsp. <i>fasciatus</i> (<i>Brown Goshawk</i>)			
62.	7817	<i>Actinoble uliginosum</i> (<i>Flannel Cudweed</i>)			
63.	6208	<i>Actinotus superbus</i>			
64.	1770	<i>Adenanthos argyreus</i> (<i>Little Woollybush</i>)			
65.	48513	<i>Aizoon pubescens</i>	Y		
66.	1720	<i>Allocasuarina acutivalvis</i>			
67.	1722	<i>Allocasuarina corniculata</i>			
68.	12655	<i>Allocasuarina spinosissima</i>			
69.	6565	<i>Alyxia buxifolia</i> (<i>Dysentery Bush</i>)			
70.	38755	<i>Amanita ochroterrea</i>			
71.		<i>Aname mainae</i>			
72.		<i>Aname tepperi</i>			
73.	24312	<i>Anas gracilis</i> (<i>Grey Teal</i>)			
74.	24316	<i>Anas superciliosa</i> (<i>Pacific Black Duck</i>)			
75.	40903	<i>Androcalva aphrix</i>			
76.	7836	<i>Angianthus tomentosus</i> (<i>Camel-grass</i>)			
77.	24561	<i>Anthochaera carunculata</i> (<i>Red Wattlebird</i>)			
78.		<i>Antichiropus</i> sp.			
79.	17963	<i>Aotus tietkensii</i>			
80.	25528	<i>Aphelocephala leucopsis</i> (<i>Southern Whiteface</i>)			
81.	24266	<i>Aphelocephala leucopsis</i> subsp. <i>castaneiventris</i> (<i>Southern Whiteface</i>)			
82.	24285	<i>Aquila audax</i> (<i>Wedge-tailed Eagle</i>)			
83.	25566	<i>Artamus cinereus</i> (<i>Black-faced Woodswallow</i>)			
84.	1364	<i>Asphodelus fistulosus</i> (<i>Onion Weed</i>)	Y		
85.	25236	<i>Aspidites ramsayi</i> (<i>Woma</i>)			
86.	7846	<i>Asteridea athrioides</i>			
87.	6336	<i>Astroloma serratifolium</i> (<i>Kondrung</i>)			
88.	20726	<i>Astus subroseus</i>			
89.		<i>Atelomastix bamfordi</i>			
90.	11435	<i>Atriplex acutibractea</i> subsp. <i>acutibractea</i>			
91.	11489	<i>Atriplex acutibractea</i> subsp. <i>karoniensis</i>			
92.	2453	<i>Atriplex codonocarpa</i> (<i>Flat-topped Saltbush</i>)			
93.	2455	<i>Atriplex eardleyae</i>			
94.	2459	<i>Atriplex holocarpa</i> (<i>Pop Saltbush</i>)			
95.	2461	<i>Atriplex hymenotheca</i>			
96.	12042	<i>Atriplex lindleyi</i> subsp. <i>inflata</i>			
97.	11516	<i>Atriplex nummularia</i> subsp. <i>spathulata</i> (<i>Old Man Saltbush</i>)			

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98.	11525	<i>Atriplex paludosa</i> subsp. <i>baudinii</i>			
99.	2472	<i>Atriplex pumilio</i>			
100.	11791	<i>Atriplex quadrivalvata</i> var. <i>quadrivalvata</i>			
101.	2476	<i>Atriplex semilunaris</i> (Annual Saltbush)			
102.	2479	<i>Atriplex stipitata</i> (Mallee Saltbush)			
103.	2480	<i>Atriplex suberecta</i>			
104.	2481	<i>Atriplex vesicaria</i> (Bladder Saltbush)			
105.	43941	<i>Austroparmelina subarida</i>			
106.	17246	<i>Austrostipa nitida</i>			
107.	24318	<i>Aythya australis</i> (Hardhead)			
108.		<i>Backobourkia heroine</i>			
109.	5344	<i>Baeckea elderiana</i>			
110.	5349	<i>Baeckea grandibracteata</i>			
111.	5375	<i>Balaustion pulcherrimum</i> (Native Pomegranate)			
112.	1801	<i>Banksia audax</i>			
113.	1815	<i>Banksia elderiana</i> (Swordfish Banksia)			
114.		<i>Barnardius zonarius</i>			
115.	46826	<i>Beaufortia puberula</i> (Hairy-leaved Beaufortia)			
116.	7852	<i>Bellida graminea</i> (Rosy Bellida)			
117.	34257	<i>Beyeria sulcata</i> var. <i>sulcata</i>			
118.	7856	<i>Blennospora drummondii</i>			
119.		<i>Boletus</i> sp.			
120.	4409	<i>Boronia coerulescens</i>			
121.	11498	<i>Boronia coerulescens</i> subsp. <i>spicata</i>			
122.	11201	<i>Boronia ternata</i> var. <i>ternata</i>			
123.	1267	<i>Borya constricta</i>			
124.	30234	<i>Bossiaea barbarae</i>			
125.	10915	<i>Brachychiton populneus</i> (Kurrajong)	Y		
126.	19437	<i>Brachysola coerulea</i>			
127.	25716	<i>Cacatua sanguinea</i> (Little Corella)			
128.	42307	<i>Cacomantis pallidus</i> (Pallid Cuckoo)			
129.	19219	<i>Caladenia mesocera</i>			
130.	15374	<i>Caladenia pachychila</i>			
131.	1614	<i>Caladenia roei</i> (Ant Orchid)			
132.	18594	<i>Caladenia</i> sp. Muddarning Hill (S.D. Hopper 4013)			
133.	92	<i>Callitris canescens</i>			
134.	96	<i>Callitris preissii</i> (Rottneist Island Pine, Maro)			
135.	5408	<i>Calothamnus gilesii</i>			
136.	25717	<i>Calyptorhynchus banksii</i> (Red-tailed Black-Cockatoo)			
137.	5465	<i>Calyptrix leschenaultii</i>			
138.	5466	<i>Calyptrix merrelliana</i>			
139.	5476	<i>Calyptrix sapphirina</i>			
140.	11211	<i>Cassytha glabella</i> forma <i>dispar</i>			
141.	258	<i>Cenchrus ciliaris</i> (Buffel Grass)	Y		
142.	7922	<i>Cephalopterum drummondii</i> (Pompom Head)			
143.		<i>Cercophonius michaelsoni</i>			
144.	24186	<i>Chalinolobus gouldii</i> (Gould's Wattled Bat)			
145.	1215	<i>Chamaexeros fimbriata</i>			
146.	35640	<i>Chamaelaucium pauciflorum</i> subsp. <i>Perenjori</i> (B.J. Conn 2181)			
147.	42180	<i>Chamaelaucium</i> sp. <i>Bendering</i> (T.J. Alford 110)			
148.	37	<i>Cheilanthes lasiophylla</i> (Woolly Cloak Fern)			
149.	3168	<i>Cheiranthra filifolia</i>			
150.	24321	<i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
151.	47909	<i>Cheramoeca leucosterna</i> (White-backed Swallow)			
152.		<i>Chroicocephalus novaehollandiae</i>			
153.	24289	<i>Circus assimilis</i> (Spotted Harrier)			
154.	24774	<i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
155.	25675	<i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
156.	24613	<i>Colluricincla harmonica</i> subsp. <i>rufiventris</i> (Grey Shrike-thrush)			
157.	4553	<i>Comesperma drummondii</i> (Drummond's Milkwort)			
158.	4561	<i>Comesperma scoparium</i> (Broom Milkwort)			
159.	4566	<i>Comesperma volubile</i> (Love Creeper)			
160.	1861	<i>Conospermum brownii</i> (Blue-eyed Smokebush)			
161.	1868	<i>Conospermum distichum</i>			
162.	1882	<i>Conospermum stoechadis</i> (Common Smokebush)			
163.	1424	<i>Conostylis bealiana</i>			
164.	25568	<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
165.		<i>Cormocephalus turneri</i>			
166.	25592	<i>Corvus coronoides</i> (Australian Raven)			
167.	24420	<i>Cracticus nigrogularis</i> (Pied Butcherbird)			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
168.	25595	<i>Cracticus tibicen</i> (Australian Magpie)			
169.	25596	<i>Cracticus torquatus</i> (Grey Butcherbird)			
170.	24918	<i>Crenadactylus ocellatus</i> subsp. <i>ocellatus</i> (Clawless Gecko)			
171.	32342	<i>Crossidium geheebii</i>			
172.	9076	<i>Cryptandra myriantha</i>			
173.	24871	<i>Ctenophorus cristatus</i> (Bicycle Dragon)			
174.	24874	<i>Ctenophorus isolepis</i> subsp. <i>citrinus</i> (Yellowy Military Dragon)			
175.	24883	<i>Ctenophorus ornatus</i> (Ornate Crevice-Dragon)			
176.	24889	<i>Ctenophorus scutulatus</i> (Lozenge-marked Dragon)			
177.	15400	<i>Cyanicula amplexans</i>			
178.	6747	<i>Cyanostegia angustifolia</i> (Tinsel-flower)			
179.	6751	<i>Cyanostegia microphylla</i> (Tinsel Flower)			
180.	7449	<i>Dampiera juncea</i> (Rush-like Dampiera)			
181.	7454	<i>Dampiera linearis</i> (Common Dampiera)			
182.	7456	<i>Dampiera luteiflora</i> (Yellow Dampiera)			
183.	7475	<i>Dampiera spicigera</i> (Spiked Dampiera)			
184.	7477	<i>Dampiera stenostachya</i> (Narrow-spiked Dampiera)			
185.	13158	<i>Dampiera tenuicaulis</i> var. <i>curvula</i>			
186.	7483	<i>Dampiera tomentosa</i> (Felted Dampiera)			
187.	25673	<i>Daphoenositta chrysoptera</i> (Varied Sittella)			
188.	41026	<i>Dasymalla teckiana</i>			
189.	41025	<i>Dasymalla terminalis</i> (Native Foxglove)			
190.	8977	<i>Daviesia aphylla</i>			
191.	3802	<i>Daviesia croniniana</i>			
192.	3813	<i>Daviesia grahamii</i>			
193.	16581	<i>Daviesia intricata</i> subsp. <i>xiphophylla</i>			
194.	11964	<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>			
195.	2498	<i>Didymanthus roei</i>			
196.	32346	<i>Didymodon torquatus</i>			
197.	24929	<i>Diplodactylus granariensis</i> subsp. <i>granariensis</i>			
198.	27720	<i>Diploschistes hensseniae</i>			
199.	27725	<i>Diploschistes thunbergianus</i>			
200.	11681	<i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>			
201.	2499	<i>Dissocarpus paradoxus</i> (Curious Saltbush)			
202.	7960	<i>Dithyrostegia amplexicaulis</i>			
203.	10858	<i>Diuris picta</i>			
204.	4753	<i>Dodonaea amblyophylla</i>			
205.	4760	<i>Dodonaea divaricata</i>			
206.	12034	<i>Dodonaea microzyga</i> var. <i>acrolobata</i>			
207.	4775	<i>Dodonaea pinifolia</i>			
208.	11247	<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>			
209.	24470	<i>Dromaius novaehollandiae</i> (Emu)			
210.	3088	<i>Drosera andersoniana</i> (Sturdy Sundew)			
211.	3098	<i>Drosera glanduligera</i> (Pimpernel Sundew)			
212.	49090	<i>Drosera</i> sp. <i>Branched styles</i> (S.C. Coffey 193)			
213.	4459	<i>Drummondita hassellii</i>			
214.	24650	<i>Drymodes brunneopygia</i> (Southern Scrub-robin)			
215.	6966	<i>Duboisia hopwoodii</i> (Pituri, Kundugu)			
216.		<i>Egretta novaehollandiae</i>			
217.	12064	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i> (Barrier Saltbush)			
218.		<i>Eolophus roseicapillus</i>			
219.	24567	<i>Epthianura albifrons</i> (White-fronted Chat)			
220.	13807	<i>Eremophila caperata</i>			
221.	7189	<i>Eremophila clarkei</i> (Turpentine Bush)			
222.	14895	<i>Eremophila decipiens</i> subsp. <i>decipiens</i>			
223.	7200	<i>Eremophila drummondii</i>			
224.	17175	<i>Eremophila glabra</i> subsp. <i>albicans</i>			
225.	7219	<i>Eremophila granitica</i> (Thin-leaved Poverty Bush)			
226.	15112	<i>Eremophila interstans</i> subsp. <i>interstans</i>			
227.	7226	<i>Eremophila ionantha</i> (Violet-flowered Eremophila)			
228.	7242	<i>Eremophila miniata</i> (Kopi Poverty Bush)			
229.	18570	<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>			
230.	7267	<i>Eremophila scoparia</i> (Broom Bush)			
231.	3869	<i>Erichsenia uncinata</i>			
232.	20718	<i>Ericksonella saccharata</i>			
233.	2514	<i>Eriochiton sclerolaenoides</i> (Woolly Bindii)			
234.	14377	<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>			
235.		<i>Ethmostigmus rubripes</i>			
236.	19508	<i>Eucalyptus calycogona</i> subsp. <i>calycogona</i>			
237.	14300	<i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> (Mirret)			

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238.	5607	<i>Eucalyptus corrugata</i> (Rough-fruited Mallee)			
239.	5649	<i>Eucalyptus foecunda</i> (Narrow-leaved Red Mallee)			
240.	15670	<i>Eucalyptus kochii</i> subsp. <i>plenissima</i>			
241.	15682	<i>Eucalyptus leptophylla</i> (Narrow-leaved Red Mallee)			
242.	13056	<i>Eucalyptus leptopoda</i> subsp. <i>subluta</i>			
243.	5701	<i>Eucalyptus longicornis</i> (Red Morrel, Moril)			
244.	13037	<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i>			
245.	5711	<i>Eucalyptus melanoxydon</i> (Black Morrel)			
246.	19323	<i>Eucalyptus moderata</i>			
247.	5717	<i>Eucalyptus myriadena</i>			
248.	13513	<i>Eucalyptus myriadena</i> subsp. <i>myriadena</i>			
249.	13524	<i>Eucalyptus olivina</i>			
250.	5745	<i>Eucalyptus pileata</i> (Capped Mallee)			
251.	5747	<i>Eucalyptus platycorys</i> (Boorabbin Mallee)			
252.	5761	<i>Eucalyptus rigidula</i> (Stiff-leaved Mallee)			
253.	12693	<i>Eucalyptus salicola</i> (Salt Gum)			
254.	5767	<i>Eucalyptus salubris</i> (Gimlet)			
255.	5772	<i>Eucalyptus sheathiana</i> (Ribbon-barked Gum)			
256.	13027	<i>Eucalyptus tenera</i>			
257.	34775	<i>Eucalyptus vittata</i>			
258.	16722	<i>Euryomyrtus maidenii</i>			
259.	19292	<i>Eutaxia lasiophylla</i>			
260.	10977	<i>Exocarpos aphyllus</i> (Leafless Ballart)			
261.	25621	<i>Falco berigora</i> (Brown Falcon)			
262.	25622	<i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
263.	25623	<i>Falco longipennis</i> (Australian Hobby)			
264.	5205	<i>Frankenia irregularis</i>			
265.	5209	<i>Frankenia pauciflora</i> (Seaheath)			
266.	5212	<i>Frankenia setosa</i> (Bristly Frankenia)			
267.	25727	<i>Fulica atra</i> (Eurasian Coot)			
268.	3900	<i>Gastrolobium floribundum</i> (Wodjil Poison)			
269.		<i>Geastrum</i> sp.			
270.	24959	<i>Gehyra variegata</i>			
271.	6144	<i>Glischrocaryon flavescens</i>			
272.	47962	<i>Glyciphila melanops</i> (Tawny-crowned Honeyeater)			
273.	10777	<i>Gompholobium gompholobioides</i>			
274.	3959	<i>Gompholobium viscidulum</i>			
275.	7504	<i>Goodenia dyeri</i>			
276.	7506	<i>Goodenia elderi</i>			
277.	12523	<i>Goodenia helmsii</i>			
278.	7517	<i>Goodenia incana</i> (Hoary Goodenia)			
279.	7527	<i>Goodenia mimuloides</i>			
280.	7565	<i>Goodenia xanthosperma</i> (Yellow-seeded Goodenia)			
281.	24443	<i>Grallina cyanoleuca</i> (Magpie-lark)			
282.	1946	<i>Grevillea acacioides</i>			
283.	1971	<i>Grevillea cagiana</i> (Red Toothbrushes)			
284.	8830	<i>Grevillea ceratocarpa</i>			
285.	13453	<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>			
286.	2002	<i>Grevillea eryngioides</i> (Curly Grevillea)			
287.	8832	<i>Grevillea excelsior</i> (Flame Grevillea)			
288.	19314	<i>Grevillea hookeriana</i> subsp. <i>apiculoba</i>			
289.	2047	<i>Grevillea nematophylla</i>			
290.	2057	<i>Grevillea paradoxa</i> (Bottlebrush Grevillea)			
291.	2077	<i>Grevillea pterosperma</i>			
292.	15766	<i>Grevillea shuttleworthiana</i> subsp. <i>obovata</i>			
293.	2104	<i>Grevillea teretifolia</i> (Round Leaf Grevillea)			
294.	1465	<i>Haemodorum discolor</i>			
295.	2157	<i>Hakea erecta</i>			
296.	2163	<i>Hakea francisiana</i> (Emu Tree)			
297.	2181	<i>Hakea meisneriana</i>			
298.	2182	<i>Hakea minyma</i>			
299.	2184	<i>Hakea multilineata</i> (Grass Leaf Hakea)			
300.	2195	<i>Hakea platysperma</i> (Cricket Ball Hakea)			
301.	17556	<i>Hakea recurva</i> subsp. <i>arida</i>			
302.	6684	<i>Halgania andromedifolia</i>			
303.	6691	<i>Halgania integerima</i>			
304.	24297	<i>Hamirostra melanosternon</i> (Black-breasted Buzzard)			
305.	6843	<i>Hemigenia brachyphylla</i>			
306.	6776	<i>Hemiphora elderi</i> (Red Velvet)			
307.	24961	<i>Heteronotia binoei</i> (Bynoe's Gecko)			

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308.	19692	<i>Hibbertia ancistrophylla</i>			
309.	5115	<i>Hibbertia conspicua</i> (Leafless Hibbertia)			
310.	5122	<i>Hibbertia eatoniae</i>			
311.	19779	<i>Hibbertia glomerosa</i> var. <i>glomerosa</i>			
312.	5165	<i>Hibbertia rostellata</i>			
313.	15863	<i>Hibbertia stowardii</i>			
314.	47965	<i>Hieraaetus morphnoides</i> (Little Eagle)			
315.	25734	<i>Himantopus himantopus</i> (Black-winged Stilt)			
316.	24491	<i>Hirundo neoxena</i> (Welcome Swallow)			
317.		<i>Hoggicosa forresti</i>			
318.		<i>Hoggicosa storri</i>			
319.	5813	<i>Homalocalyx pulcherrimus</i>			
320.	5815	<i>Homalocalyx thryptomenoides</i>			
321.	448	<i>Hordeum glaucum</i> (Northern Barley Grass)	Y		
322.	12007	<i>Hybanthus floribundus</i> subsp. <i>floribundus</i>			
323.	8086	<i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
324.		<i>Isometroides vescus</i>			
325.	16812	<i>Isopogon scabriusculus</i> subsp. <i>pubifloris</i>			
326.	14436	<i>Isopogon scabriusculus</i> subsp. <i>stenophyllus</i>			
327.	45299	<i>Jackelisia elixii</i>			
328.	14779	<i>Jacksonia arida</i>			
329.	4021	<i>Jacksonia nematoclada</i>			
330.	20709	<i>Jacksonia ramulosa</i>			
331.	1178	<i>Juncus bufonius</i> (Toad Rush)	Y		
332.	4043	<i>Kennedia prorepens</i>			
333.	29046	<i>Lactuca serriola</i> forma <i>serriola</i>	Y		
334.	13284	<i>Lawrencella rosea</i>			
335.	4957	<i>Lawrencia repens</i>			
336.	1306	<i>Laxmannia paleacea</i>			
337.	7569	<i>Lechenaultia brevifolia</i>			
338.	27825	<i>Lecidea ochroleuca</i>			
339.	3018	<i>Lepidium africanum</i> (Rubble Peppergrass)	Y		
340.	41647	<i>Lepidosperma sanguinolentum</i>			
341.	2352	<i>Leptomeria preissiana</i>			
342.	5852	<i>Leptospermum nitens</i>			
343.	5855	<i>Leptospermum roei</i>			
344.	25137	<i>Lerista gerrardii</i>			
345.	6401	<i>Leucopogon hamulosus</i>			
346.	41770	<i>Leucopogon</i> sp. Boorabbin (K.R. Newbey 8374)			
347.	25659	<i>Lichenostomus leucotis</i> (White-eared Honeyeater)			
348.	25661	<i>Lichmera indistincta</i> (Brown Honeyeater)			
349.	6488	<i>Limonium lobatum</i>	Y		
350.	6489	<i>Limonium sinuatum</i> (Perennial Sea Lavender)	Y		
351.		<i>Lophochroa leadbeateri</i>			
352.	4061	<i>Lotus cruentus</i> (Redflower Lotus)			
353.		<i>Lycosa godeffroyi</i>			
354.	2396	<i>Lysiana casuarinae</i>			
355.	36375	<i>Lysimachia arvensis</i> (Pimpernel)	Y		
356.	34736	<i>Lysinema pentapetalum</i>			
357.	2533	<i>Maireana amoena</i>			
358.	2537	<i>Maireana brevifolia</i> (Small Leaf Bluebush)			
359.	2544	<i>Maireana georgei</i> (Satiny Bluebush)			
360.	2568	<i>Maireana trichoptera</i> (Downy Bluebush)			
361.	24326	<i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
362.	5864	<i>Malleostemon peltiger</i>			
363.	5865	<i>Malleostemon roseus</i>			
364.	5866	<i>Malleostemon tuberculatus</i>			
365.	25652	<i>Malurus leucopterus</i> (White-winged Fairy-wren)			
366.	24551	<i>Malurus pulcherrimus</i> (Blue-breasted Fairy-wren)			
367.	4961	<i>Malva parviflora</i> (Marshmallow)	Y		
368.	24583	<i>Manorina flavigula</i> (Yellow-throated Miner)			
369.	19421	<i>Marianthus bicolor</i> (Painted Marianthus)			
370.		<i>Masasteron piankai</i>			
371.	4077	<i>Medicago minima</i> (Small Burr Medic)	Y		
372.	4078	<i>Medicago orbicularis</i> (Button Medic)	Y		Y
373.	19380	<i>Melaleuca calyptroides</i>			
374.	5896	<i>Melaleuca cordata</i>			
375.	19486	<i>Melaleuca hamata</i>			
376.	5917	<i>Melaleuca hamulosa</i>			
377.	5925	<i>Melaleuca lateriflora</i> (Gorada)			

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378.	5929	<i>Melaleuca leiocarpa</i>			
379.	15663	<i>Melaleuca pauperiflora</i> subsp. <i>fastigiata</i>			
380.	20289	<i>Melaleuca vinnula</i>			
381.	20287	<i>Melaleuca zeteticorum</i>			
382.	25663	<i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
383.	25184	<i>Menetia greyii</i>			
384.	24598	<i>Merops ornatus</i> (Rainbow Bee-eater)			
385.	2813	<i>Mesembryanthemum crystallinum</i> (Iceplant)	Y		
386.	2814	<i>Mesembryanthemum nodiflorum</i> (Slender Iceplant)	Y		
387.	6891	<i>Microcorys ericifolia</i>			
388.	17402	<i>Microcorys</i> sp. <i>stellate</i> (A. Strid 21885)			
389.	24654	<i>Microeca fascinans</i> subsp. <i>assimilis</i> (Jacky Winter)			
390.	9187	<i>Micromyrtus erichsenii</i>			
391.	14344	<i>Millotia tenuifolia</i> var. <i>tenuifolia</i> (Soft Millotia)			
392.	4099	<i>Mirbelia seorsifolia</i>			
393.	4104	<i>Mirbelia trichocalyx</i>			
394.	24904	<i>Moloch horridus</i> (Thorny Devil)			
395.	490	<i>Monachather paradoxus</i>			
396.	19587	<i>Monotaxis grandiflora</i> var. <i>obtusifolia</i>			
397.	19177	<i>Moraea setifolia</i>	Y		
398.	25421	<i>Neobatrachus alipes</i> (White-footed Trilling Frog)			
399.	25425	<i>Neobatrachus kunapalari</i> (Kunapalari Frog)			
400.		<i>Nicodamus mainae</i>			
401.	6974	<i>Nicotiana glauca</i> (Tree Tobacco)	Y		
402.	24742	<i>Nymphicus hollandicus</i> (Cockatiel)			
403.	24407	<i>Ocyphaps lophotes</i> (Crested Pigeon)			
404.		<i>Oecobius navus</i>			
405.	8134	<i>Olearia exiguiifolia</i> (Small-leaved Daisy Bush)			
406.	8136	<i>Olearia homolepis</i>			
407.	8140	<i>Olearia muelleri</i> (Goldfields Daisy)			
408.	8141	<i>Olearia muricata</i> (Rough-leaved Daisy Bush)			
409.	8145	<i>Olearia pimeleoides</i> (Pimelea Daisybush, Burrobunga)			
410.	46207	<i>Opuntia tomentosa</i>	Y		
411.	24618	<i>Oreoica gutturalis</i> (Crested Bellbird)			
412.	46253	<i>Orianthera tortuosa</i>			
413.	12646	<i>Ozothamnus occidentalis</i>			
414.	24619	<i>Pachycephala inornata</i> (Gilbert's Whistler)			
415.	25680	<i>Pachycephala rufiventris</i> (Rufous Whistler)			
416.	25682	<i>Pardalotus striatus</i> (Striated Pardalote)			
417.	40424	<i>Pentameris airoides</i> subsp. <i>airoides</i>	Y		
418.	2259	<i>Persoonia coriacea</i> (Leathery-leaf Persoonia)			
419.	2274	<i>Persoonia saundersiana</i>			
420.	3674	<i>Petalostylis cassioides</i>			
421.	48061	<i>Petrochelidon nigricans</i> (Tree Martin)			
422.	24659	<i>Petroica goodenovii</i> (Red-capped Robin)			
423.	14446	<i>Petrophile arcuata</i>			
424.	14445	<i>Petrophile merrallii</i>			
425.	2308	<i>Petrophile seminuda</i>			
426.	24409	<i>Phaps chalcoptera</i> (Common Bronzewing)			
427.	4500	<i>Phebalium filifolium</i> (Slender Phebalium)			
428.	4501	<i>Phebalium lepidotum</i>			
429.	16556	<i>Phebalium megaphyllum</i>			
430.	4504	<i>Phebalium tuberosum</i>			
431.	18539	<i>Philothea brucei</i>			
432.	18537	<i>Philothea brucei</i> subsp. <i>brucei</i>			
433.	18519	<i>Philothea coccinea</i>			
434.	18385	<i>Philothea deserti</i> subsp. <i>deserti</i>			
435.	18506	<i>Philothea tomentella</i>			
436.	5229	<i>Pimelea aeruginosa</i>			
437.	5231	<i>Pimelea angustifolia</i> (Narrow-leaved Pimelea)			
438.	11227	<i>Pimelea brevifolia</i> subsp. <i>modesta</i>			
439.	11402	<i>Pimelea imbricata</i> var. <i>piligera</i>			
440.	11185	<i>Pimelea microcephala</i> subsp. <i>microcephala</i>			
441.	12104	<i>Pimelea spiculigera</i> var. <i>thesioides</i>			
442.	11910	<i>Pimelea suaveolens</i> subsp. <i>flava</i>			
443.	5268	<i>Pimelea sulphurea</i> (Yellow Banjine)			
444.		<i>Pisolithus</i> sp.			
445.	19744	<i>Pittosporum angustifolium</i>			
446.	6812	<i>Pityrodia lepidota</i>			
447.	24751	<i>Platycercus zonarius</i> subsp. <i>zonarius</i> (Port Lincoln Parrot)			

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
448.	6255	<i>Platysace juncea</i>			
449.	14999	<i>Platysace trachymenioides</i>			
450.	571	<i>Poa annua</i> (Winter Grass)	Y		
451.	8173	<i>Podolepis capillaris</i> (Wiry Podolepis)			
452.	8182	<i>Pododthea angustifolia</i> (Sticky Longheads)			
453.	8184	<i>Pododthea gnaphalioides</i> (Golden Long-heads)			
454.	24907	<i>Pogona minor</i> subsp. <i>minor</i> (Dwarf Bearded Dragon)			
455.	8187	<i>Pogonolepis muelleriana</i>			
456.	24681	<i>Polioccephalus poliocephalus</i> (Hoary-headed Grebe)			
457.	25722	<i>Polytelis anthopeplus</i> (Regent Parrot)			
458.	24683	<i>Pomatostomus superciliosus</i> (White-browed Babbler)			
459.	34013	<i>Pomatostomus superciliosus</i> subsp. <i>ashbyi</i> (White-browed Babbler (western wheatbelt))			
460.	16688	<i>Prasophyllum gracile</i>			
461.	6912	<i>Prostanthera campbellii</i>			
462.	6916	<i>Prostanthera grylloana</i>			
463.	6923	<i>Prostanthera semiteres</i>			
464.	12120	<i>Prostanthera semiteres</i> subsp. <i>semiteres</i>			
465.	4725	<i>Psammomoya choretroides</i>			
466.	42416	<i>Pseudonaja mengdeni</i> (Western Brown Snake)			
467.	25263	<i>Pseudonaja modesta</i> (Ringed Brown Snake)			
468.	25434	<i>Pseudophryne occidentalis</i> (Western Toadlet)			
469.	27999	<i>Psora crystallifera</i>			
470.	28000	<i>Psora decipiens</i>			
471.	45353	<i>Pterostylis macrosecales</i>			
472.	1689	<i>Pterostylis mutica</i> (Midget Greenhood)			
473.	10778	<i>Pterostylis picta</i>			
474.	1693	<i>Pterostylis recurva</i> (Jug Orchid)			
475.	1696	<i>Pterostylis sargentii</i> (Frog Greenhood)			
476.	18657	<i>Pterostylis</i> sp. <i>inland</i> (A.C. Beaglehole 11880)			
477.	10897	<i>Pterostylis spathulata</i>			
478.	2707	<i>Ptilotus carlsonii</i>			
479.	2721	<i>Ptilotus exaltatus</i> (Tall Mulla Mulla)			
480.	2729	<i>Ptilotus grandiflorus</i>			
481.	2732	<i>Ptilotus holosericeus</i>			
482.	2747	<i>Ptilotus obovatus</i> (Cotton Bush)			
483.	2760	<i>Ptilotus spathulatus</i>			
484.	42344	<i>Purnella albifrons</i> (White-fronted Honeyeater)			
485.	24278	<i>Pyrrholaemus brunneus</i> (Redthroat)			
486.	4964	<i>Radyera farragei</i> (Knobby Hibiscus)			
487.	24776	<i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
488.	48096	<i>Rhipidura albiscapa</i> (Grey Fantail)			
489.	25614	<i>Rhipidura leucophrys</i> (Willie Wagtail)			
490.	13241	<i>Rhodanthe chlorocephala</i> subsp. <i>rosea</i>			
491.	13294	<i>Rhodanthe laevis</i>			
492.	13249	<i>Rhodanthe oppositifolia</i> subsp. <i>oppositifolia</i>			
493.	13252	<i>Rhodanthe pygmaea</i>			
494.	13253	<i>Rhodanthe rubella</i>			
495.	11151	<i>Rostraria pumila</i>	Y		
496.	2587	<i>Roycea divaricata</i>			
497.	40425	<i>Rytidosperma caespitosum</i>			
498.	40427	<i>Rytidosperma setaceum</i>			
499.	30434	<i>Salsola australis</i>			
500.	2356	<i>Santalum acuminatum</i> (Quandong, Warnga)			
501.	7639	<i>Scaevola restiacea</i>			
502.	8200	<i>Schoenia cassiniana</i> (Schoenia)			
503.	993	<i>Schoenus hexandrus</i>			
504.	2609	<i>Sclerolaena diacantha</i> (Grey Copperburr)			
505.	17645	<i>Senna artemisioides</i>			
506.	12276	<i>Senna artemisioides</i> subsp. <i>filifolia</i>			
507.	25266	<i>Simoselaps bertholdi</i> (Jan's Banded Snake)			
508.	3072	<i>Sisymbrium orientale</i> (Indian Hedge Mustard)	Y		
509.	3073	<i>Sisymbrium runcinatum</i>	Y		
510.	30948	<i>Smicrornis brevirostris</i> (Weebill)			
511.	7022	<i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
512.	8231	<i>Sonchus oleraceus</i> (Common Sowthistle)	Y		
513.	4735	<i>Stackhousia scoparia</i>			
514.	3076	<i>Stenopetalum filifolium</i>			
515.	25597	<i>Strepera versicolor</i> (Grey Currawong)			
516.	25590	<i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
517.	7685	<i>Stylidium arenicola</i>			
518.	7714	<i>Stylidium dielsianum</i> (Tangle Triggerplant)			
519.	7751	<i>Stylidium limbatum</i> (Fringed-leaved Triggerplant)			
520.	7774	<i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
521.	7810	<i>Stylidium yilgarnense</i> (Yilgarn Triggerplant)			
522.		<i>Supunna funerea</i>			
523.	43203	<i>Surreya diandra</i>			
524.	15534	<i>Synaphea spinulosa</i> subsp. <i>major</i>			
525.		<i>Synsphyronus dorotheae</i>			
526.	25705	<i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
527.	24331	<i>Tadorna tadornoides</i> (Australian Shelduck, Mountain Duck)			
528.	30870	<i>Taeniopygia guttata</i> (Zebra Finch)			
529.		<i>Tasmanicosa leuckartii</i>			
530.	31492	<i>Tecticornia disarticulata</i>			
531.	33236	<i>Tecticornia halocnemoides</i> (Shrubby Samphire)			
532.	33319	<i>Tecticornia indica</i> subsp. <i>bidens</i>			
533.	31551	<i>Tecticornia moniliformis</i>			
534.	31674	<i>Tecticornia peltata</i>			
535.	33297	<i>Tecticornia pergranulata</i> subsp. <i>pergranulata</i> (Blackseed Samphire)			
536.	31618	<i>Tecticornia pruinosa</i>			
537.	33218	<i>Tecticornia pterygosperma</i> subsp. <i>pterygosperma</i>			
538.	33216	<i>Tecticornia</i> sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)			
539.	31600	<i>Tecticornia tenuis</i>			
540.	31717	<i>Tecticornia undulata</i>			
541.	35840	<i>Templetonia ceracea</i>			
542.	4257	<i>Templetonia smithiana</i>			
543.	42065	<i>Tetrapora tenuiramea</i>			
544.	4530	<i>Tetradlea foliolata</i>			
545.	19396	<i>Teucrium</i> sp. Norseman (T.E.H. Aplin 1851)			
546.	13298	<i>Thiseltonia gracillima</i>			
547.	6058	<i>Thryptomene kochii</i>			
548.	1338	<i>Thysanotus manglesianus</i> (Fringed Lily)			
549.	25203	<i>Tiliqua occipitalis</i> (Western Bluetongue)			
550.	678	<i>Tragus australianus</i> (Small Burrgrass)			
551.	48141	<i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
552.	1363	<i>Tricoryne tenella</i>			
553.	15509	<i>Trifolium tomentosum</i> var. <i>tomentosum</i>	Y		
554.	17881	<i>Triodia desertorum</i>			
555.	17874	<i>Triodia rigidissima</i>			
556.	4737	<i>Tripterococcus brunonis</i> (Winged Stackhousia)			
557.	98	<i>Typha domingensis</i> (Bulrush, Djandjid)			
558.	24983	<i>Underwoodisaurus milii</i> (Barking Gecko)			
559.		<i>Urodacus armatus</i>			
560.		<i>Urodacus hoplurus</i>			
561.	9008	<i>Urodon dasyphyllus</i> (Mop Bushpea)			
562.		<i>Uromycladium tepperianum</i>			
563.	7658	<i>Velleia discophora</i> (Cabbage Poison)			
564.	38061	<i>Verreauxia dyeri</i> (Hairy Verreauxia)			
565.	6071	<i>Verticordia brachypoda</i>			
566.	6073	<i>Verticordia chrysantha</i>			
567.	12422	<i>Verticordia eriocephala</i> (Common Cauliflower)			
568.	6087	<i>Verticordia helmsii</i>			
569.	12432	<i>Verticordia inclusa</i>			
570.	36801	<i>Verticordia mitchelliana</i> subsp. <i>implexior</i>			
571.	6109	<i>Verticordia picta</i> (Painted Featherflower)			
572.	6113	<i>Verticordia pritzelii</i> (Pritzel's Featherflower)			
573.	15267	<i>Verticordia roei</i> subsp. <i>roei</i>			
574.	24206	<i>Vespadelus regulus</i> (Southern Forest Bat)			
575.	8266	<i>Vittadinia gracilis</i>			
576.	8268	<i>Vittadinia humerata</i>			
577.	13331	<i>Waitzia acuminata</i> var. <i>acuminata</i>			
578.	46093	<i>Waitzia fitzgonii</i>			
579.	6938	<i>Westringia cephalantha</i>			
580.	9247	<i>Westringia rigida</i> (Stiff Westringia)			
581.	44936	<i>Xanthoparmelia torulosa</i>			
582.	1248	<i>Xerolirion divaricata</i> (Basil's Asparagus)			
583.	25765	<i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

Conservation Codes

T - Rare or likely to become extinct

Name	ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
X - Presumed extinct					
IA - Protected under international agreement					
S - Other specially protected fauna					
1 - Priority 1					
2 - Priority 2					
3 - Priority 3					
4 - Priority 4					
5 - Priority 5					

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.