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WESTERN AUSTRALIA

Clearing Assessment Report – CPS 818

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Bussell Highway Intersection
Upgrades

April 2022

EOS # 1936

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Attachments

Attachment 1	Environmental Site Investigation Report for a Clearing Desktop Report – Bussell Highway Intersection Upgrades (Main Roads, 2022)
Attachment 2	Reconnaissance and Targeted Flora and Vegetation Supplementary Survey Bussell Highway and Ruabon Road Intersection (Ecoedge, 2022)
Attachment 3	Targeted Black Cockatoo and Western Ringtail Possum Habitat Assessment: Intersection Upgrades (SW Environmental Pty Ltd, 2022)

Amendments

Report Compilation & Review	Position	Document Revision	Date
Author:	Environment Officer Main Roads Western Australia	Draft v1.3	7/04/2022
Reviewer:	Senior Environment Officer	Rev 0	18/05/2022

1 SUMMARY

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).

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

Bussell Highway is the main link between Perth, Bunbury and the Busselton – Margaret River area, supporting the tourism, forestry and agricultural industries in the region. It is also an important commuter link for residents who live in the Busselton or Margaret River area and work in the Bunbury or Perth Metropolitan areas.

Of the 46 kilometre (km) portion of the highway between Bunbury and Busselton, 28.15 km is dual carriageway in both directions with the remaining section, located between Capel and the Sabina River east of Busselton, comprising a two-lane single carriageway with passing lanes. This section of the highway is notorious for being congested, especially during school holidays and weekends.

In conjunction with the approved duplication of Bussell Highway, works are required at three intersections, the start and end points of the Bussell Highway Duplication Stage 2 and at a parking bay, to facilitate tie in to the works already approved under CPS 9168/1 and EPBC 2020/8800.

The Proposal will result in the following residual impacts:

- Clearing of up to 0.6 ha of native vegetation spread across 10 different areas
- Clearing up to 0.6 ha of Black Cockatoo foraging habitat.
- Removal of up to 10 suitable diameter at breast height trees.
- Clearing up to 0.6 ha of Western Ringtail Possum habitat.

2 PURPOSE

The purpose of this Report is to provide information detailing the assessment of native vegetation clearing that is proposed to be undertaken for the Intersection Upgrades Proposal (the Proposal).

The Report outlines the key activities associated with the Proposal, the existing environment and an assessment of native vegetation clearing. This assessment has been prepared to support Main Roads clearing application and provides an evaluation of the vegetation clearing impacts associated with the project using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

3 SCOPE

3.1 Project Scope

Project Name: Bussell Highway – Intersection Upgrades

Project Purpose / Components:

Bussell Highway is the main link between Perth, Bunbury, and the Busselton – Margaret River area, supporting the tourism, forestry, and agricultural industries in the region. It is also an important commuter link for residents who live in the Busselton or Margaret River area and work in the Bunbury or Perth Metropolitan areas.

To provide dual carriageway access along the entire 46 km portion of the highway between Bunbury and Busselton, Main Roads Western Australia (Main Roads) is constructing a second carriageway along the existing two-lane single carriageway section (the Bussell Highway Duplication Stage 2).

Stage 2 has been the subject of numerous biological surveys including Flora, Fauna and Dieback studies. These studies assist in gaining context of the environmental values in the locality of the Proposal and have been used to assist in the assessment of the Proposal.

Stage 2 was approved via the granting of a Native Vegetation Clearing Permit (CPS 9168/1) under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (WA) (EPCNV Regs.) and via an approval issued under section 134(1A) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) (referral 2020/8800). Construction works on Stage 2 commenced in August 2021.

The above approvals progressed for Stage 2, ahead of design completion. Due to approvals boundaries being finalised early in the design, the final design extends outside of the approval boundaries in several locations, primarily to facilitate tie in works to three intersections and the start and end points of the Bussell Highway Duplication Stage 2. These additional areas are the subject of this Clearing Assessment Report and approval for their construction are being sought under CPS818/15 (the Project).

The maximum extent of potential disturbance is 2.5 hectares (ha) (the Project Development Envelope (DE)). The Clearing Area within the Project DE was determined by overlaying the current road design with areas that could be considered as containing native vegetation. Within the proposed Clearing Area, a total of 0.6 ha of vegetation is proposed to be cleared.

The proposed clearing undertaking using CPS 818 is : 0.6 ha

The proposed temporary clearing undertaking using CPS 818 is: 0 ha

Project Location(s): The Project area is situated at various locations along the Bussell Hwy between 31.15 Straight Line Kilometres (SLK) to 44.0 SLK, and on the intersecting roads as outlined above. The proposed works occur within the Shire of Capel and the City of Busselton, approximately 200 km south of Perth, as shown in **Figure 1**.

Start (31.15 SLK)
Latitude: 115.519
Longitude: -33.591

End (44.0 SLK)
Latitude: 115.412
Longitude: -33.657

The Project DE consists of 10 separate development areas. These are displayed in **Figure 2** and **Figure 3**.

3.2 Assessment Report Scope

The location and boundaries of the study area (five km radius) for the Project are shown in **Figure 4**.

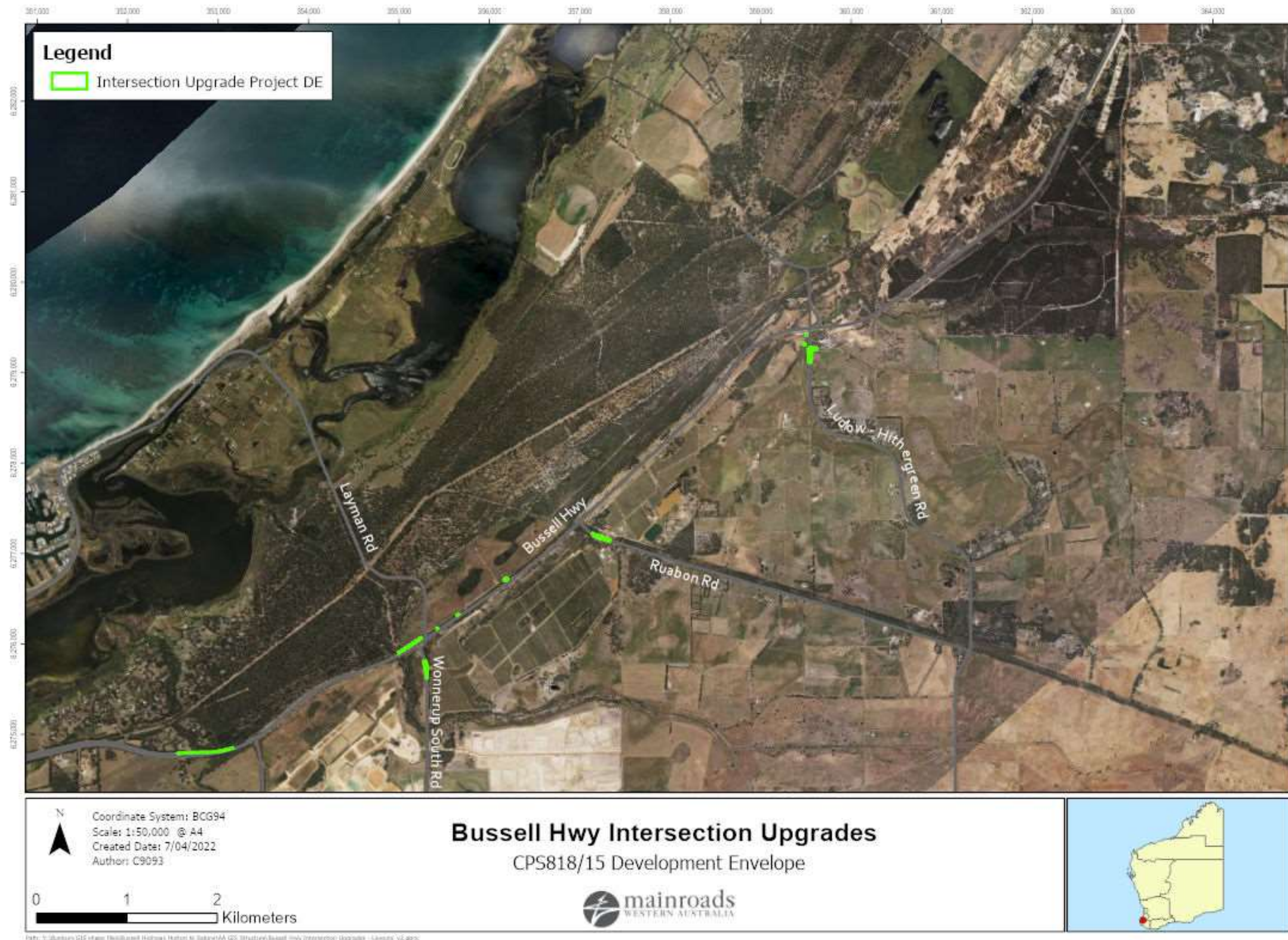


Figure 1. Project Development Envelope

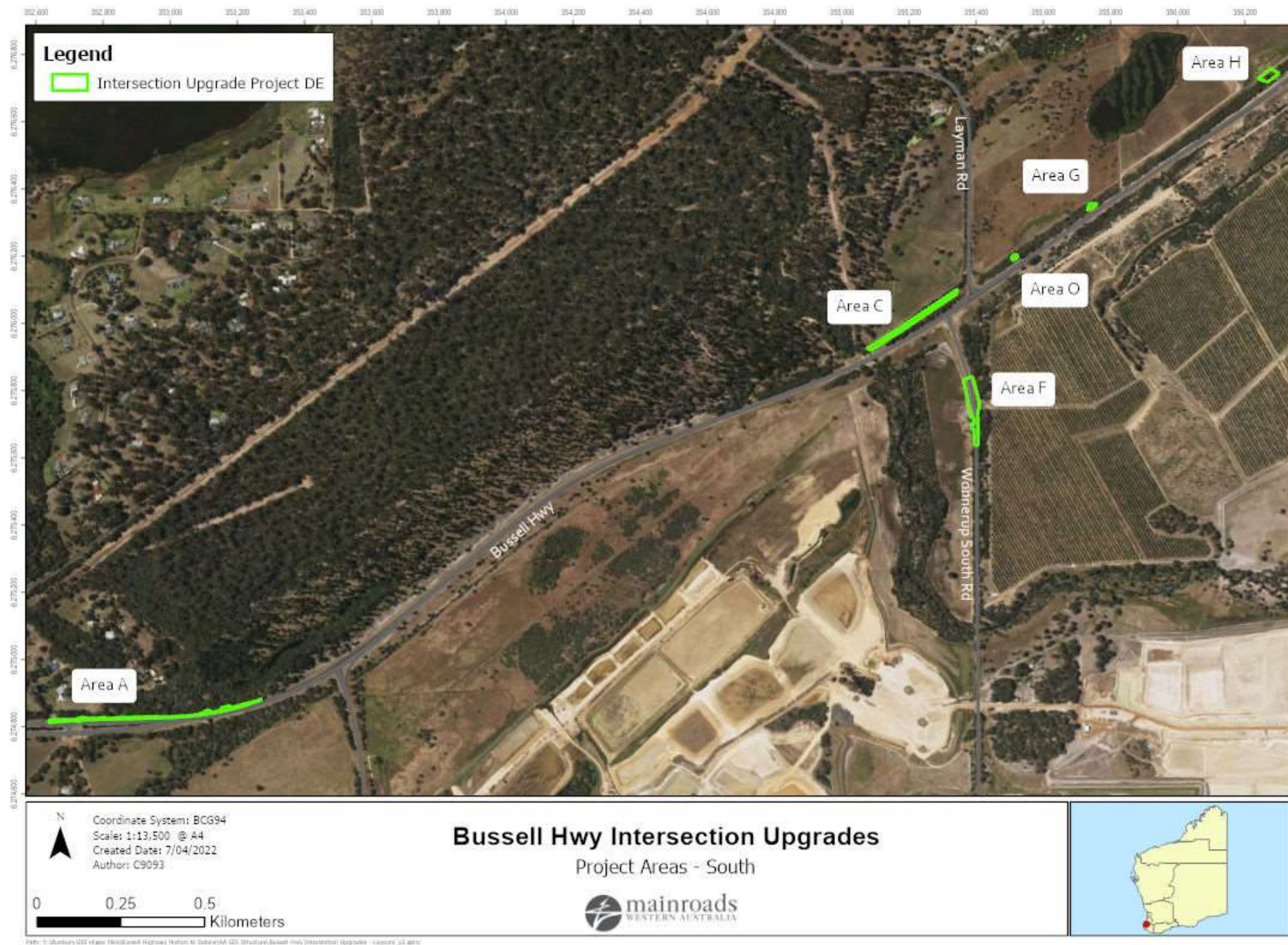


Figure 2: Project Areas - South

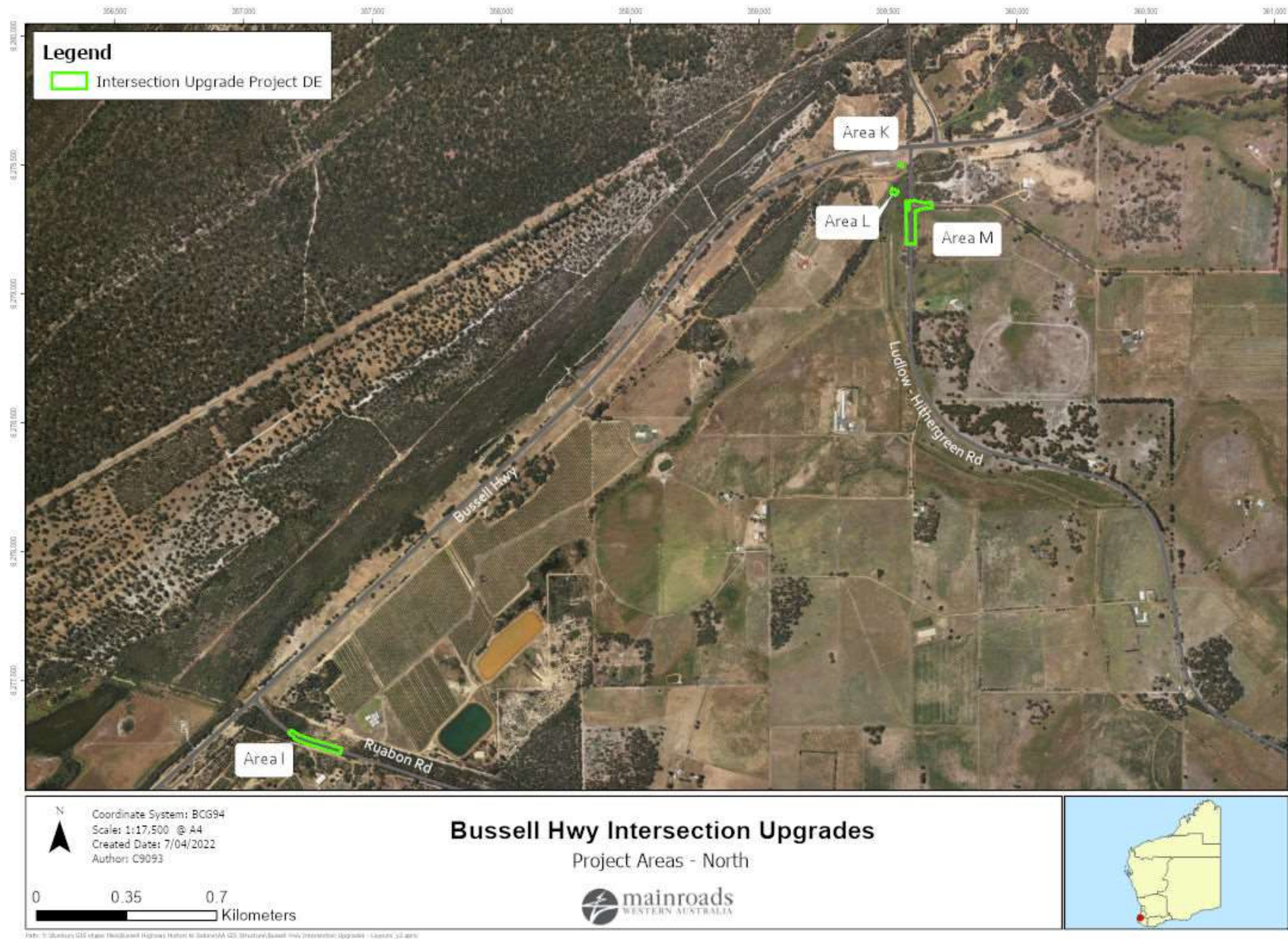


Figure 3: Project Areas - North

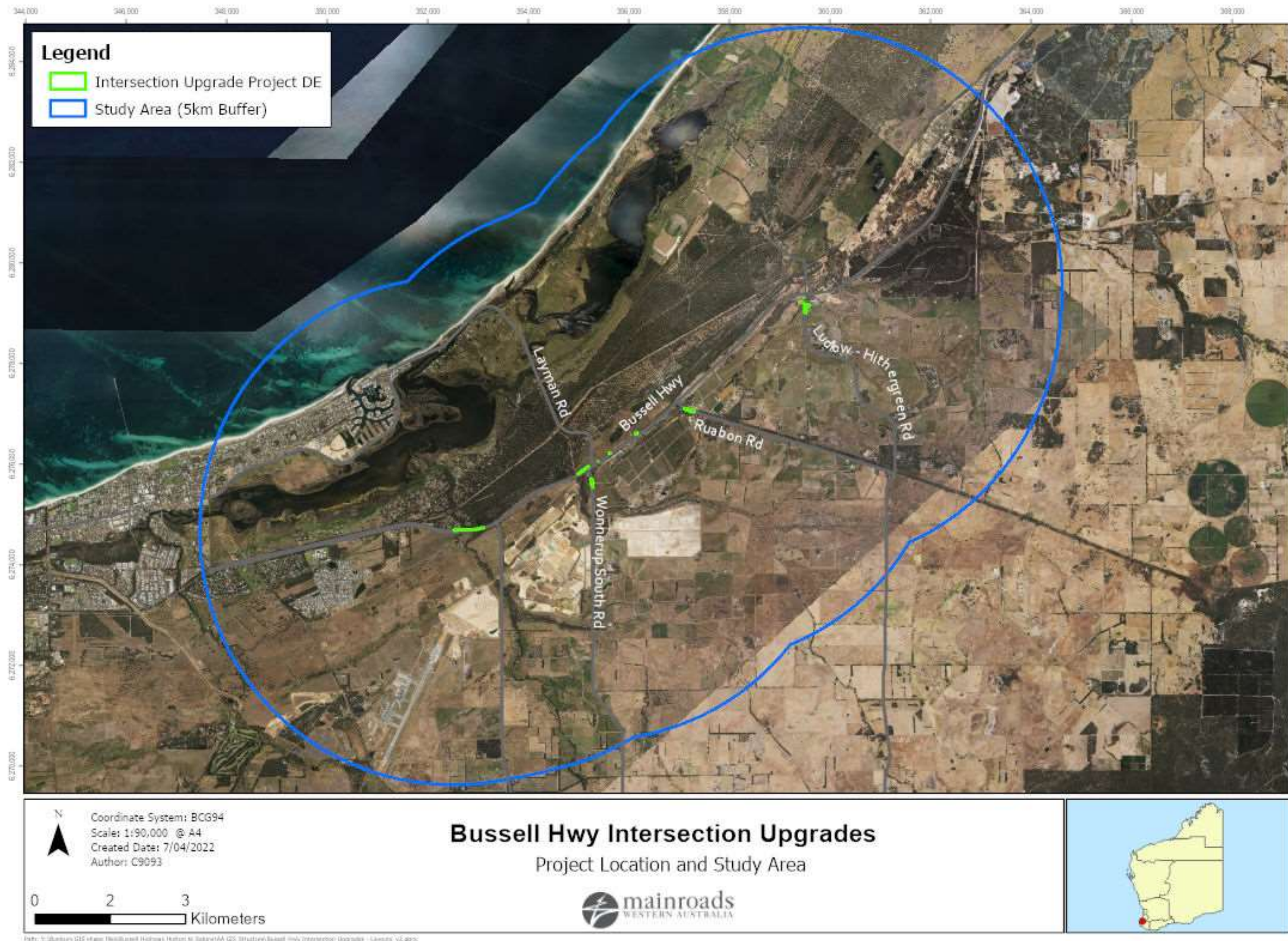


Figure 4: Project Location and Study Area

3.3 Alternatives to clearing

No feasible alternatives that don't involve clearing have been identified for the Proposal. Upgrades to side road intersections and tie in points with Bussell Highway are required for safe development and operation.

Within the Project DE, clearing has been minimised as much as possible, as detailed below.

3.4 Measures to Avoid, Minimise, Reduce and Manage Project Clearing Impacts

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

Due to design uncertainty, a proposed Clearing Area has been identified within a Project DE to enable design modification within the approval area to adjust to on ground constraints. The clearing line will be walked by a Main Roads Environmental Officer and a Project Manager to discuss further potential to reduce clearing and avoid significant vegetation wherever possible.

Specific key measures that have been incorporated into the design to avoid or reduce potential impacts are:

- refinement of the works footprint to minimise the extent of clearing required;
- exclusion of all areas of riparian vegetation from the Project DE;
- exclusion of all trees containing hollows from the DE;
- modification of the road design to avoid large trees which may provide potential black cockatoo foraging habitat wherever possible;
- installation of safety barriers and steepening batter slopes to minimise clearing;
- reworking drainage design to minimise clearing; and
- reducing buffers on earthworks to minimise clearing.

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

Design or Management Measure	Discussion and Justification
Steepen batter slopes	Main Roads intends to steepen batters or reduce drainage slopes where possible to minimise the clearing required. Due to the traffic volumes, vehicle type and posted speeds, batters cannot be changed significantly along the full length of the Project DE.
Installation of safety barriers	Safety barriers are proposed to be installed in the vicinity of the Sabina River. The installation of safety barriers has allowed the steepening of batter slopes to be implemented, avoiding the requirement for clearing of the Abba vegetation complex in this area.
Simplification of design to reduce number of lanes and/or complexity of intersections	<p>During Proposal planning, multiple design concepts were considered. Key selection criteria used in the assessment included the amount of vegetation clearing/habitat loss, amount of fill material required, and compliance with design standards. The chosen option minimises impacts to native vegetation and habitat whilst still maintaining necessary safety standards and efficient resource use.</p> <p>The design and resulting proposed Clearing Area were refined in order to avoid WRP habitat and habitat for Black Cockatoos where possible. This has involved steepening batters and drainage slopes where possible.</p> <p>The intersection upgrade scope of works cannot be further simplified whilst retaining the necessary safety benefits. The upgrade of the highway to a dual carriageway is required in order to accommodate the current traffic volume and predicted future volumes, and to reduce the frequency, density and severity of traffic accidents that occur along this section of the highway. The works the subject of this Proposal are necessary for the safe function of intersections with the Bussell Highway.</p>
Preferential use of existing cleared areas for access tracks, construction storage and stockpiling	Storage and stockpiling of materials will occur within the road reserve or on nearby cleared land. Similarly, the Project site office and associated infrastructure will be located within the road reserve or on nearby cleared land. No temporary clearing for the site office, materials storage, side tracks, stockpiles, turn around bays etc. will be undertaken as part of Proposal activities.
Drainage modification	The Proposal requires the upgrade of intersections and tie in points associated with the Bussell Hwy. The Proposal will maintain the existing drainage regime through standard engineering design with no change to water flows. Proposal design incorporates table drains and flat-bottomed swale drains to facilitate infiltration of surface water runoff at source.

Design or Management Measure	Discussion and Justification
	Drainage for the Proposal will be managed through standard engineering design to ensure no change to local drainage water flows to either the watercourses or low-lying areas, or to the vegetation these features support.

3.5 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the 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 (see Section 1.3), 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* (WA)
- *Aboriginal Heritage Act 1972* (WA)
- *Town Planning and Development Act 1928* (WA)

Environmental Protection Policies

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992;
- Environmental Protection (Western Swamp Tortoise Habitat) Policy 2011

Other Relevant policies and guidance documents:

- A guide to the assessment of applications to clear native vegetation (DEC, December 2014)
- Procedure: Native vegetation clearing permits (DWER, October 2019)
- 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

4 SUMMARY OF SURVEYS

4.1 Site Investigation

A preliminary site investigation was undertaken over two dates, 21 December 2021 and 3 February 2021, by a Main Roads Environmental Officer (EO), a Main Roads Environmental Contractor (EC) and a Main Roads Project Manager (Main Roads, 2022). The Main Roads EO and EC have a combined 20 years of experience in conducting environmental assessment of Western Australian vegetation. The site investigation has been provided as **Attachment 1**.

4.1.1 Summary of Site Investigation

The inspected areas generally consisted of small patches of degraded vegetation, in many cases within the existing road maintenance zone. The majority of vegetation was assessed as being in 'Completely Degraded' to 'Degraded' condition, with only six areas assessed as containing some vegetation assessed as 'Good' in accordance with the Vegetation Condition Scale presented in EPA (2016) (**Table 2**). Weeds were present in all the inspected areas, with introduced grass and herb species comprising the ground cover to the exclusion of native species in the majority of locations. It should be noted that the areas assessed as being in 'Good' condition displayed extensive weed species incursion, dominating the ground cover layer in most locations.

Table 2: Project Area Condition Ratings

Project Area	Condition rating
A	Good, Completely Degraded
C	Completely Degraded
F	Good
G	Good
H	Degraded
I	Good, Degraded
K	Completely Degraded
L	Completely Degraded
M	Good, Degraded, Completely Degraded
O	Good

Vegetation structure varied within the inspected areas, ranging from open introduced grasslands, to Low woodlands of *Corymbia calophylla* and *Agonis flexuosa*.

Areas of remnant vegetation were compared to descriptions of TECs/ PECs identified by desktop searches as potentially occurring within the Project DE. No areas within the Project DE matched the descriptions of TECs/ PECs.

Landforms comprised generally flat areas adjacent to roads. No granite outcrops, limestone or steep topography was present. Some areas were intersected by constructed roadside drainage features. These drainage features contained little native vegetation as they have been historically maintained to aid in water transmission away from road infrastructure. They tended to be dominated by introduced grass and herb species to the exclusion of native vegetation.

The Sabina River intersects Area A at the location of the existing Bussell Highway Bridge. Vegetation within the proposed clearing area at this location is sparse and limited to introduced weed species, providing little habitat value.

Five mature trees with a diameter breast height (DBH) of greater than 50 cm were recorded within the proposed Clearing Area. All areas except Area K contained at least some vegetation which may be suitable as WRP habitat. Potential Black Cockatoo Habitat was observed in Areas: A, F, H, I and M. A fauna habitat assessment was recommended for these areas, the results of which are outlined in **Section 4.3**.

4.2 Spring Vegetation Survey

Ecoedge Environmental Services (Ecoedge) was engaged by Main Roads in October 2021 to undertake a supplementary reconnaissance flora and vegetation survey of 0.819 ha of vegetation within the road reserve of Ruabon Road near the intersection with Bussell Highway, City of Busselton (the 'vegetation survey area') (Ecoedge, 2022). This survey, in part, covered Area I of the current Project DE. The resultant report has been provided as **Attachment 2**.

4.2.1 Summary of Spring Vegetation Survey

Ninety-eight species of vascular flora were identified within the survey area, of which twenty-four (24%) were introduced taxa. The most numerous plant family was Fabaceae, with nineteen species, of which fifteen species were native.

No flora listed as Threatened under the EPBC Act or the BC Act were found within the survey area, however, six individuals of one priority flora species, *Verticordia attenuata* (P3), were found. This species is locally abundant with over 22,300 plants recorded (outside the Project DE) in targeted searches of the surrounding locality (Ecoedge, 2022).

Two vegetation units were identified within the Project DE, these units were not considered representative of Priority or Threatened Ecological Communities.

4.3 Fauna Habitat Assessment

In order to identify habitat value (both breeding and foraging) of the Project DE for Black Cockatoo species and WRP habitat values, Main Roads commissioned SW Environmental to conduct a targeted Black Cockatoo and WRP Habitat Assessment over an 8.32 ha area comprised of 15 locations, including the entirety of the 2.5 ha Project DE (the 'Fauna Survey Area') (SW Environmental Pty Ltd, 2022). The resultant report has been provided as **Attachment 3**.

4.3.1 Summary of Fauna Habitat Assessment

The purpose of the assessment was to determine the number of habitat trees with hollows suitable for use by all three Black Cockatoo species, along with the quality of foraging habitat and potential to contain roost sites, and additionally to determine the presence or absence of WRP habitat within the Project DE.

Based on known habitat requirements of WRP and Black Cockatoos approximately:

- 0.6 ha of the Project DE was considered to be suitable WRP habitat; and
- 0.6 ha of the Project DE was considered to be suitable quality Black Cockatoo foraging habitat.

A total of 10 suitable DBH trees were identified within the Project DE. No trees with hollows are located within the Project DE.

Nocturnal surveys were carried out on 14th and 16th February 2022 by SW Environmental. The survey targeted areas comprising shrub and tree vegetation. Target fauna for the purposes of nocturnal work included

- Brush-tailed Phascogale (*Phascogale tapoatafa*) (BTP)
- Common Brushtail Possum (*Trichosurus vulpecula*) (CBP)
- Western Ringtail Possum (*Pseudocheirus occidentalis*) (WRP)

Within the Project DE, the nocturnal surveys identified a total of seven possums over both nights and no Phascogales. The total includes two CBP and five WRP. No BTP were observed either night.

A breakdown of each night is provided below:

- 14th February: one CBP and three WRP,
- 16th February: one CBP and two WRP.

4.4 Additional studies

The Stage 2 project area has been the subject of numerous biological surveys including Flora, Fauna and Dieback studies covering a large area in the locality of the Project DE (but not the current DE). These studies assist in gaining context of the environmental values in the locality of the current Proposal and have been used to assist in the assessment of the Proposal. These studies supported the assessment of clearing associated Native Vegetation Clearing Permit (CPS 9168/1) for the Stage 2 project area and have informed the assessment of the current Proposal. These studies are also referred to in **Section 6**.

Flora

- Detailed and Targeted flora and vegetation surveys undertaken by Ecoedge in 2013, 2014, 2016 and 2018 (Ecoedge, 2014; 2017; 2019).
- Three further surveys to map occurrences of Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs) as well as previously unsurveyed areas (Ecoedge, 2020a) (Ecoedge, 2020b) (Ecoedge, 2020c).

Fauna

- Two Fauna Field surveys that identified the presence of habitat for Western Ringtailed Possum (WRP) and Black Cockatoos were conducted by 360 Environmental in 2016 (360 Environmental, 2016a) (360 Environmental, 2016b).
- A follow up Level 1 fauna survey and targeted WRP and Black Cockatoo habitat survey was undertaken by 360 Environmental in 2017. This survey covered approximately 80 ha survey area (360 Environmental, 2017).
- In 2018, targeted WRP and Black Cockatoos fauna surveys were undertaken, covering an area of 72.4 ha (Harewood, 2018)
- A further survey for WRP was conducted by Biota Environmental Sciences (Biota) in 2020 that covered 175 ha, which generally extended 50 m each side of the centreline of the existing Bussell Highway and side roads within the Stage 2 area (Biota, 2020)
- An additional fauna survey was undertaken in November 2020 (Main Roads, 2020) to ensure all key vegetated areas within the proposed Stage 2 area were surveyed.

Dieback

- A Phytophthora Dieback survey was undertaken in 2016 (Glevan Consulting, 2016). The 72.6 ha survey area covered portions of the existing Bussell Highway road reserve and additional land at side road intersections.
- Great Southern Biologic conducted a further survey in 2020 over a 135.4 ha survey area that covered the existing Bussell Highway road reserve and additional land at side road intersections (Great Southern Biologic, 2020).

5 VEGETATION DETAILS

5.1.1 Project Site Vegetation Description

Vegetation within the proposed Clearing Area ranges from open introduced grasslands, to Low woodlands of *Corymbia calophylla* and *Agonis flexuosa*. Vegetation comprises roadside remnant vegetation, the majority of which (55%) is in a 'Completely Degraded' or 'Degraded' condition, however five areas, were in 'Good' condition (45%). It should be noted that the areas assessed as being in 'Good' condition displayed extensive weed species incursion dominating the ground cover.

Table 3 and **Table 4** provide details of the Pre-European Vegetation Associations with the project area and the remaining extents of these associations. Intersections of the mapped vegetation associations and the Project DE are illustrated in **Figure 5 (Appendix A)**.

Although the below vegetation associations have been mapped as occurring within the Project DE, the majority of vegetation encountered in the site investigation comprised degraded and highly altered ecosystems.

For a full description of the existing vegetation, refer to the Site Inspection Report (Main Roads, 2022), **Attachment 1**.

Table 3 Summary of proposed Clearing Area mapped Pre-European Vegetation Associations

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition ¹
<i>Vegetation Association 949 described as Low woodland; banksia</i> (Government of Western Australia, 2018a)	Clearing of up to 0.22 ha for intersection upgrades and tie in works.	Good to Degraded
<i>Vegetation Association 990 described as Low forest: peppermint (Agonis flexuosa)</i> (Government of Western Australia, 2018a)	Clearing of up to 0.12 ha for intersection upgrades and tie in works.	Good
<i>Vegetation Association 1000 Mosaic: Medium forest; jarrah-marri / Low woodland; banksia / Low forest; tea tree (Melaleuca Spp.)</i> (Government of Western Australia, 2018a)	Clearing of up to 0.06 ha for intersection upgrades and tie in works.	Good to Completely Degraded
<i>Vegetation Association 1136 described as Medium woodland; marri with some jarrah, wandoo, river gum and casuarina</i> (Government of Western Australia, 2018a)	Clearing of up to 0.20 ha for intersection upgrades and tie in works.	Good to Completely Degraded

Table 4. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 949	State-wide	218,193.94	123,104.02	56.42	31.52
	IBRA Bioregion <i>Swan Coastal Plain</i>	209,983.26	120,287.93	57.28	32.31
	IBRA Sub-region <i>Perth</i>	184,475.82	104,128.96	56.45	33.30
	Local Government Authority <i>City of Busselton</i>	2,688.98	417.58	15.53	0.01

¹ Vegetation description and condition determined from Main Roads site visit on 21 December 2021 and aerial imagery.

	Local Government Authority <i>Shire of Capel</i>	26.16	8.94	34.18	9.31
Veg Assoc No 990	State-wide	18,691.48	14,417.65	77.13	56.39
	IBRA Bioregion <i>Swan Coastal Plain</i>	1,951.76	319.75	16.38	1.89
	IBRA Sub-region <i>Perth</i>	1,951.76	319.75	16.38	1.89
	Local Government Authority <i>City of Busselton</i>	4,225.41	1,176.78	27.85	5.04
	Local Government Authority <i>Shire of Capel</i>	279.98	27.29	9.75	-
Veg Assoc No 1000	State-wide	99,835.86	27,768.84	27.81	5.19
	IBRA Bioregion <i>Swan Coastal Plain</i>	94,175.31	24,869.20	26.41	5.06
	IBRA Sub-region <i>Perth</i>	94,175.31	24,869.20	26.41	5.06
	Local Government Authority <i>City of Busselton</i>	12,034.21	4,244.00	35.27	6.84
	Local Government Authority <i>Shire of Capel</i>	15,173.76	3,189.87	21.02	1.53
Veg Assoc No 1136	State-wide	48,124.57	3,345.51	6.95	0.27
	IBRA Bioregion <i>Swan Coastal Plain</i>	48,118.01	3,341.18	6.94	0.85
	IBRA Sub-region <i>Perth</i>	48,118.01	3,341.18	6.94	0.27
	Local Government Authority <i>City of Busselton</i>	38,946.49	2,640.77	6.78	0.21
	Local Government Authority <i>Shire of Capel</i>	9,178.08	704.73	7.68	0.51

5.1.2 Vegetation Complexes and Representation

Swan Coastal Plain and Southwest (Perth, Peel and Warren), vegetation has been mapped at a finer scale than Beard's map series of the State. **Table 5** presents the Vegetation complexes intersecting the Project DE. This information is illustrated in **Figure 6 (Appendix A)**.

Table 5. Vegetation Complexes within the Project Area (Government of Western Australia, 2018b)

Veg Complex	Pre-European Extent (ha)	2017 Vegetation Extent	% Remaining
Abba Complex	50,892.78	3,326.20	6.54
Southern River Complex	58,781.48	10,828.04	18.42
Karrakatta Complex-Central and South	53,080.99	12,465.24	23.48
Yoongarillup Complex	27,977.93	9,946.39	35.55
Cokelup Complex	3,010.98	315.75	10.49

The extent and condition of each complex within the proposed Clearing Area is shown in **Table 6**.

Table 6 Extent of Vegetation Complex within the proposed Clearing Area

Pre-European Vegetation Complex	Clearing Description	Vegetation Condition ²
<p>Abba Complex –</p> <p>A mixture of open forest of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus marginata</i> (Jarrah) - Banksia species and woodland of <i>Corymbia calophylla</i> (Marri) with minor occurrences of <i>Corymbia haematoxylon</i> (Mountain Marri). Woodland of <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca</i> species along creeks and on flood plains.</p>	Clearing of up to 0.17 ha for intersection upgrades and tie in works.	<p>Good – 0.03 ha</p> <p>Degraded – 0.04 ha</p> <p>Completely Degraded – 0.10 ha</p>
<p>Southern River Complex –</p> <p>Open woodland of <i>Corymbia calophylla</i> (Marri) - <i>Eucalyptus marginata</i> (Jarrah) - Banksia species with fringing woodland of <i>Eucalyptus rudis</i> (Flooded Gum) - <i>Melaleuca raphiophylla</i> (Swamp Paperbark) along creek beds.</p>	Clearing of up to 0.14 ha for intersection upgrades and tie in works.	<p>Good – 0.08 ha</p> <p>Degraded – 0.06 ha</p> <p>Completely Degraded – 0.01 ha</p>
<p>Karrakatta Complex-Central and South –</p> <p>Predominantly open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri) and woodland of <i>Eucalyptus marginata</i> (Jarrah) - Banksia species. <i>Agonis flexuosa</i> (Peppermint) is co-dominant south of the Capel River.</p>	Clearing of up to 0.09 ha for intersection upgrades and tie in works.	<p>Good – 0.09 ha</p>
<p>Yoongarillup Complex –</p> <p>Woodland to tall woodland of <i>Eucalyptus gomphocephala</i> (Tuart) with <i>Agonis flexuosa</i> in the second storey. Less consistently an open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri). South of Bunbury is characterized by <i>Eucalyptus rudis</i> (Flooded Gum)-<i>Melaleuca</i> species open forests.</p>	Clearing of up to 0.06 ha for intersection upgrades and tie in works.	<p>Good – 0.05 ha</p> <p>Completely Degraded – 0.01 ha</p>

² Vegetation description and condition determined from Main Roads site visit on 21 December 2021 and aerial imagery in accordance with (Environmental Protection Authority, 2016).

<p>Cokelup Complex –</p> <p>Closed-scrub/woodland of <i>Melaleuca</i> species over sedges and annually renewed herbs on inundated clay flats. Fringing open forest of <i>Eucalyptus rudis</i>, <i>Corymbia calophylla</i>, <i>Banksia littoralis</i>, <i>E. gomphocephala</i>.</p>	<p>Clearing of up to 0.14 ha for intersection upgrades and tie in works.</p>	<p>Good – 0.02 ha</p> <p>Degraded – 0.07 ha</p> <p>Completely Degraded – 0.05 ha</p>
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6 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

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

Each principle has been assessed in accordance with DWER's 'A Guide to the Assessment of Applications to Clear Native Vegetation' and other relevant CPS Decision Reports prepared by DWER.

Figures referred to within this section have been presented as **Appendix A**.

The proposed clearing is not likely to be at variance with the 10 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
<p>Comment</p> <p>The Project DE generally consists of 10 small patches of generally degraded vegetation, in many cases within the existing road maintenance zone. The majority of vegetation was assessed as being in 'Completely Degraded' to 'Degraded' condition, with only six areas assessed as containing some vegetation assessed as 'Good' in accordance with the Vegetation Condition Scale presented in (EPA, 2016). Weeds were present in all of the inspected areas, with introduced grass and herb species comprising the ground cover to the exclusion of native species in the majority of locations. It should be noted that the areas assessed as being in 'Good' condition displayed extensive weed species incursion, dominating the ground cover layer in most locations (Main Roads, 2022).</p> <p>As outlined in Section 3.1, the locality has been the subject of extensive flora and vegetation surveys undertaken over multiple years, including vegetation mapping, targeted priority species searches and TEC/PEC assessments. This information is valuable in developing an understanding of the regional context of the areas proposed to be cleared within the Proposal, which has not been fully surveyed. Targeted surveys were undertaken of the Ruabon Road section of the Project DE (Area I in Figure 3) by Ecoedge (2022) and are discussed further below.</p> <p>Within the total flora survey area of the surrounding locality (Ecoedge Stage 2 Survey Area) of approximately 74.7 ha, Ecoedge recorded 281 plant taxa of which 66 were naturalised or planted species (Ecoedge, 2019). Ecoedge did not identify any flora taxa declared as Threatened under the BC Act (formerly referred to as 'Rare Flora' under the <i>Wildlife Conservation Act 1950</i> WA).</p> <p>Five priority listed flora species were recorded within the 74.7 ha Ecoedge Stage 2 Survey Area, directly adjacent to the 2.5 ha Project DE: <i>Acacia flagelliformis</i> (P4), <i>Eucalyptus rudis</i> subsp. <i>cratyantha</i> (P4), <i>Synaphea petiolaris</i> subsp. <i>simplex</i> (P3), <i>S. hians</i> (P3) and <i>Verticordia attenuata</i> (P3) (Ecoedge, 2020b).</p> <p>Ecoedge (Ecoedge, 2020b) conducted analysis of known incidences of threatened or Priority Flora occurring within 5 km of the Ecoedge Stage 2 Survey Area from DBCA databases and a NatureMap search (the Study Area, Figure 4). The Study Area is congruent to a 5km radius of the Project DE. Nomenclature and conservation status were checked and updated based on current Western Australian listings generated from a NatureMap search conducted as part of this CAR process (Appendix B). Taxa listed under the EPBC Act (based on results of the PMST query) were also considered in the preparation of the priority flora taxa list. Eighty conservation significant flora were identified within the Study Area. Of these, 25 were regarded as likely to occur, based on their occurrence within similar soil types within one km of the Ecoedge Stage 2 Survey Area.</p> <p>Further analysis of likelihood of occurrence within the Project DE of the above 25 identified species was conducted based on the vegetation descriptions determined by the environmental site investigation (Main Roads, 2022) Attachment 1 and the known habitat preference of the species. Of the 25 species identified as likely to occur by Ecoedge (Ecoedge, 2020b), the majority had a habitat preference for seasonally</p>

inundated flats, clay pan, winter wet areas or swampy areas. The proposed clearing area of the activities associated with the Project comprises predominantly raised roadside vegetation. Where constructed drainage occurred, such as roadside ditches, these areas were generally infested with introduced species to the exclusion of native species (Main Roads, 2022).

Table 7 presents the analysis of species identified by Ecoedge (Ecoedge, 2020b), and a revised likelihood of occurrence based on proximity of known collections to the Project DE and occurrence of suitable habitat within the Project DE's proposed Clearing Area. Likelihood of occurrence of all identified species was further reduced by the generally degraded nature of the proposed Clearing Area, the highly visible location of the roadside vegetation supporting previous identification, and the very small proposed clearing area (0.6ha).

Five species were assessed as possible to occur within the current DE: *Cardamine paucijuga* (P2), *Lasiopetalum membranaceum* (P3), *Synaphea hians* (P3), *Verticordia attenuata* (P3) and *Eucalyptus rudis* subsp. *cratyantha* (P4).

Targeted surveys by Ecoedge (2022) recorded six individuals of *Verticordia attenuata* (P3) in Area I of the DE.

Table 7: Likelihood of Threatened and Priority Flora Occurrence - adapted from (Ecoedge, 2020b)

SPECIES	CONS STATUS	DESCRIPTION AND HABITAT	(Ecoedge, 2020b) LIKELIHOOD	PROPOSED CLEARING AREA - LIKELIHOOD
<i>Verticordia plumosa</i> var. <i>ananeotes</i>	T (EN)	Erect, sparsely branched shrub, 0.3-0.5 m high. Fl. pink-purple/white. Sandy loam. Seasonally inundated plains.	Likely	Unlikely
<i>Verticordia plumosa</i> var. <i>vassensis</i>	T (EN)	Shrub, 0.3–1 m high. Fl. pink. White/grey sand. Winter-wet flats.	Likely	Unlikely
<i>Banksia squarrosa</i> subsp. <i>argillacea</i>	T (VU)	Erect, open, non-lignotuberous shrub, 1.2–4 m high. Fl. yellow, Jun–Nov. White/grey sand, gravelly clay or loam. Winter-wet flats, clay flats.	Likely	Unlikely
<i>Chamelaucium</i> sp. S Coastal Plain (R.D. Royce 4872)	T (VU)	Winter-wet areas, loams and ironstone.	Likely	Unlikely
<i>Grevillea elongata</i>	T (VU)	Shrub, 1.5-2 m high. Fl. white-cream. Gravelly clay, sandy clay, sand. Road verges, swamps, creek banks.	Likely	Unlikely
<i>Cardamine paucijuga</i>	P2	Slender erect annual, herb, to 0.4 m high. Fl. white. In moist to dry habitats.	Likely	Possible
<i>Montia australasica</i>	P2	Terrestrial or aquatic perennial herb, rooting from leaf nodes, terrestrial plants densely tufted and carpeting, aquatics loose and open. Fl. White - pale pink. Wet soil in permanent or winter wet swamps or aquatic in slow moving watercourses.	Likely	Unlikely
<i>Synaphea petiolaris</i> subsp. <i>simplex</i>	P3	Tufted shrub, 0.1–0.6 m high. Fl. yellow. Sandy soils. Flats, winter-wet areas.	Recorded	Unlikely
<i>Chamaescilla gibsonii</i>	P3	Clumped tuberous, herb. Fl. blue. Clay to sandy clay. Winter-wet flats, shallow water-filled claypans.	Likely	Unlikely
<i>Eryngium</i> sp. <i>Ferox</i> (G.J. Keighery 16034)	P3	Erect, open tuberous, herb, 0.1–0.3 m high. Fl. green. Grey to brown loamy to sandy clay, brown cracking clay. Winter-wet flats, swamps, dried claypans, ridges.	Likely	Unlikely
<i>Grevillea brachystylis</i> subsp. <i>brachystylis</i>	P3	Much-branched, prostrate or decumbent, non-lignotuberous shrub, 0.2- 0.5 m high,	Likely	Unlikely

		to 3 m wide. Fl. red. Black sand, sandy clay. Swampy situations.		
<i>Isopogon formosus</i> subsp. <i>dasylepis</i>	P3	Low, bushy or slender, upright, non-lignotuberous shrub, 0.2–2 m high. Fl. pink, purple, red. Sand, sandy clay, gravelly sandy soils over laterite. Often swampy areas.	Likely	Unlikely
<i>Jacksonia gracillima</i>	P3	Decumbent shrub - 20 cm high and 50 cm wide. Flowers standard orange yellow; eye yellow with red halo; wings/keel red. Seasonally damp shrublands and woodlands, on sandy loams or clay loams	Likely	Unlikely
<i>Lasiopetalum membranaceum</i>	P3	Multi-stemmed shrub, 0.2-1 m high. Fl. pink, blue, purple. Sand over limestone.	Likely	Possible
<i>Schoenus benthamii</i>	P3	Tufted perennial, grass-like or herb (sedge), 0.15-0.45 m high. Fl. brown. White, grey sand, sandy clay. Winter-wet flats, swamps.	Likely	Unlikely
<i>Stylidium paludicola</i>	P3	Reed-like perennial, herb, 0.35-1 m high, Leaves tufted, linear or subulate or narrowly oblanceolate, 0.5-4 cm long, 0.5-1.5 mm wide, apex acute, margin entire, glabrous. Scape mostly glabrous, inflorescence axis glandular. Inflorescence racemose. Fl. pink. Peaty sand over clay. Winter wet habitats. Marri and Melaleuca woodland, Melaleuca shrubland.	Likely	Unlikely
<i>Synaphea hians</i>	P3	Prostrate or decumbent shrub, 0.15-0.6 m high, to 1 m wide. Fl. Yellow. Sandy soils. Rises.	Recorded	Possible
<i>Verticordia attenuata</i>	P3	Shrub, 0.4–1 m high. Fl. pink. White or grey sand. Winter-wet depressions	Recorded	Recorded
<i>Acacia flagelliformis</i>	P4	Rush-like, erect or sprawling shrub, 0.3-0.75(-1.6) m high. Fl. yellow. Sandy soils. Winter-wet areas.	Recorded	Unlikely
<i>Aponogeton hexatepalus</i>	P4	Rhizomatous or cormous, aquatic perennial, herb, leaves floating. Fl. green, white. Mud. Freshwater: ponds, rivers, claypans.	Likely	Unlikely
<i>Eucalyptus rudis</i> subsp. <i>cratyantha</i>	P4	Tree, 5-20 m high, bark rough, box-type. Fl. white. Loam. Flats, hillsides.	Recorded	Possible
<i>Microtis quadrata</i>	P4	Slender erect annual herb, 0.3 - 0.8 m high, up to 100 yellowish-green flowers 2.5 - 3mm across. Clay based coastal flats.	Likely	Unlikely
<i>Ornduffia submersa</i>	P4	Tuberous emergent aquatic perennial dwarf shrub, height to 35 cm; flowers white; leaves floating on surface of water. Clay-based ponds and swamps (semi-aquatic)	Likely	Unlikely
<i>Schoenus natans</i>	P4	Aquatic annual, grass-like or herb (sedge), 0.3 m high. Fl. brown. Winter wet depressions.	Likely	Unlikely

<i>Stylidium longitubum</i>	P4	Erect annual (ephemeral), herb, 0.05-0.12 m high. Fl. Pink. Sandy clay, clay. Seasonal wetlands.	Likely	Unlikely
<i>Tripterococcus</i> sp. <i>Brachylobus</i> (A.S. George 14234)	P4	Perennial, herb, to 1 m high. Fl. yellow/yellow-green. Grey sand, red clay, laterite, often moist. Unlikely-lying flats.	Likely	Unlikely

Two species were assessed as possible to occur within the Project DE that were not located within the Ecoedge Stage 2 Survey Area: *Cardamine paucijuga* (P2) and *Lasiopetalum membranaceum* (P3).

The Western Australian Herbarium Database of Western Australian Flora 'Florabase' (DBCA, 2022c) was accessed to determine the known range of *Cardamine paucijuga* (P2) and assess the potential impact to the conservations status of the species by the implementation of the Project. Within WA, this species is known from few locations over a varied and spatially distant range (**Plate 1**). This species is also known in the other Australian states of New South Wales (NSW), Queensland, Victoria and Tasmania.

Within NSW its distribution and occurrence is listed as "*Widespread in moist sites on rich soils; the most common of native species*" (National Herbarium of NSW, 2022). Its preferred habitat is described by the National Herbarium of NSW (2022) as "*In a range of habitats near permanent or seasonal wet areas.*" From this description, the habitat preference appears to be toward wetter areas, whereas the Florabase description of habitat preference states "*In moist to dry habitats.*" (DBCA, 2022c). It is based on this broader habitat preference that the species was assessed as being 'possible' to occur within the Project DE (**Table 7**). When accounting for its habitat preference known from national collections, the likelihood of occurrence within the Project DE is reduced.

The national occurrence of this species, and the spatially distant range of the species within WA, reduce the likelihood of any potential impacts to the species from Project implementation causing affect to its conservation status. Furthermore, the small proposed disturbance area of up to 0.6 ha is unlikely to affect habitat upon which the conservation of the species is reliant.

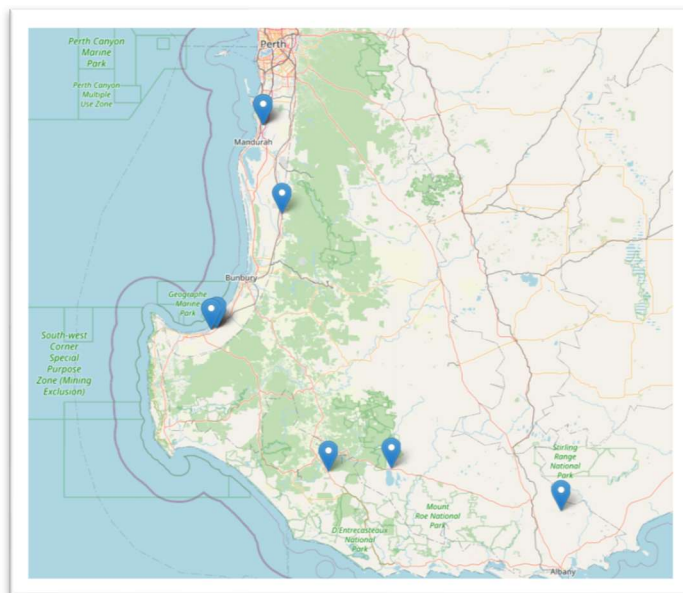


Plate 1: Known locations of *Cardamine paucijuga* (P2) (DBCA, 2022c)

Lasiopetalum membranaceum (P3) is a low growing shrub of the Malvaceae family which is known from collections across a range of over 250 km, from the City of Wanneroo in the North to the Shire of Nannup in the South (DBCA, 2022c) (**Plate 2**). Potential impacts to the species from Project implementation are unlikely to affect the conservation status due to the large range of the species. Furthermore, the small proposed disturbance area of up to 0.6 ha is unlikely to affect habitat upon which the conservation of the species is reliant.

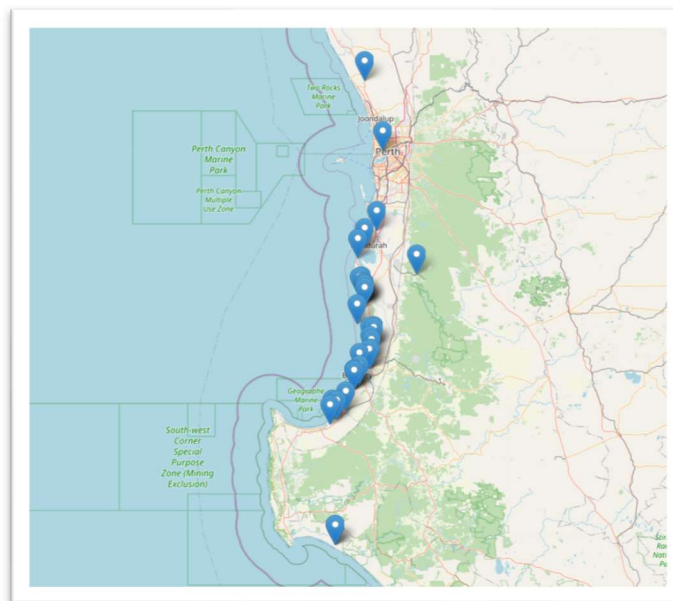


Plate 2: Known locations of *Lasiopetalum membranaceum* (P3) (DBCA, 2022c)

Two species located in the adjacent Ecoedge Stage 2 Survey Area were assessed as possible to occur within the Project DE: *Synaphea hians* (P3) and *Eucalyptus rudis* subsp. *cratyantha* (P4).

Analysis of spatial occurrence of *Synaphea hians* (P3) reveals that the recorded incidences of this species were approximately 3,200 m north east of the Project DE. This species is known from many records throughout the South-west botanical province on both the Swan Coastal Plain and in Jarrah forest (**Plate 3**) (DBCA, 2022c). Potential impacts to the species from Project implementation are unlikely to affect the conservation status due to the large range of the species. Furthermore, the small proposed disturbance area of up to 0.6 ha is unlikely to affect habitat upon which the conservation of the species is reliant.

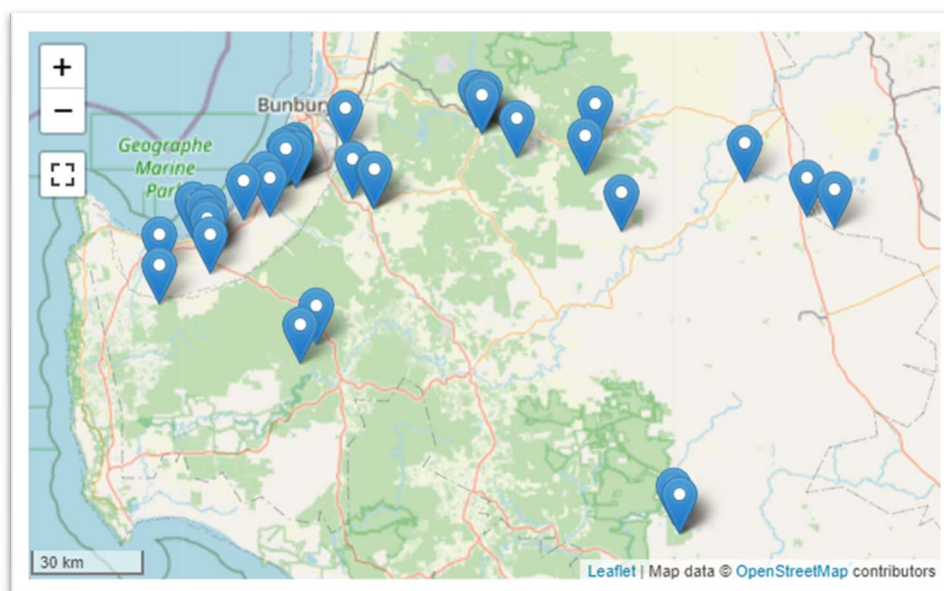


Plate 3: Known locations of *Synaphea hians* (P3) (DBCA, 2022c)

Eucalyptus rudis subsp. *cratyantha* (P4) is a large tree growing to a height of 5- 20 m (DBCA, 2022c). This species is not cryptic and is easily recognisable. No individuals of this species were noted in the Project DE during the site investigation (Main Roads, 2022). The distribution of the species is relatively widespread with occurrences noted in the local government areas of Bunbury, Busselton, Collie, Harvey, Murray and Serpentine-Jarrahdale (**Plate 4**) (DBCA, 2022c). Potential impacts to the species from Project implementation are unlikely to affect the conservation status due to the large range of the species. Furthermore, the small

proposed disturbance area of up to 0.6 ha is unlikely to affect habitat upon which the conservation of the species is reliant.

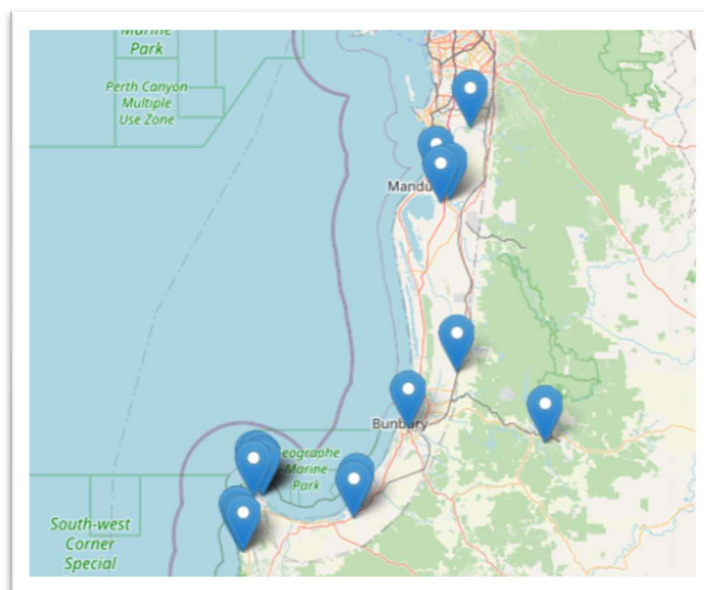


Plate 4: Known locations of *Eucalyptus rudis* subsp. *cratyantha* (P4) (DBCA, 2022c)

In 2021 Main Roads appointed Ecoedge to conduct a targeted survey for *Verticordia attenuata* within a 5 km radius of the Stage 2 Project Area to get a better appreciation of the quantity and its distribution of this species within the locality (Ecoedge, 2021). The survey resulted in a significant increase in the known population of the species. Prior to survey there were approximately 6,400 plants recorded within this area, the survey resulted in an additional 15,900 recorded plant observations. These were recorded both on private property (4,600 individuals) and within the Coolilup State Forest (11,300 individuals) (Ecoedge, 2022). Due to time limitations, it was estimated that only approximately 20% of the potential habitat areas were investigated, so it is suggested that there are many more unrecorded plants, especially within the Capel Wetlands' section of the Coolilup State Forest (Ecoedge, 2022).

The targeted survey showed that many of the plants favoured historic mine site rehabilitation and open woodland areas which comprise of a mix of planted and natural regrowth, in a mixed sandy loam with some lateritic gravel (Ecoedge, 2021). The location of individuals during the Ruabon Rd survey within areas which had been historically disturbed and comprise regrowth vegetation is consistent with these observations (Ecoedge, 2022). The survey recorded six individuals of *Verticordia attenuata* with Area I of the current Project DE.

Due to the local abundance of this species, a potential impact to six individuals of a Priority three flora taxa is considered insignificant.

One Priority species is known to occur within the Project DE, with four Priority flora species being assessed as possibly occurring within the Project DE. Based on the likelihood assessment and given the degraded nature of the Project DE, it is considered unlikely that any of the four Priority flora species occur within the Project DE.

As outlined in **Section 3.1**, the locality and areas adjacent to the current Project DE, has been the subject of extensive fauna surveys undertaken over multiple years including a vertebrate fauna survey (360 Environmental, 2017) and targeted WRP and Black Cockatoo habitat surveys (360 Environmental, 2016a) (360 Environmental, 2016b) (Harewood, 2018) (Biota, 2020) and (Main Roads, 2020).

EIA completed by 360 Environmental (360 Environmental, 2016b) for Stage 2 included an analysis of the then Department of Parks and Wildlife (now DBCA) Threatened Fauna Database, and the PMST.

A total of 264 fauna species were identified as having a possibility of occurring within a 10 km radius of the Stage 2 Project area, which is congruent with a 10km radius of the Project DE. Marine, wetland and coastal species were discounted from the search, given the Project DE does not contain preferred habitat for these species. A likelihood of occurrence assessment was undertaken for each fauna species identified from the

desktop searches. This assessment was based on the habitat requirements of each species, the availability of suitable habitat, and records of the species in the area (noting that some species will now have become locally or regionally extinct e.g., the Numbat).

Table 8 has been adapted from 360 Environmental (360 Environmental, 2016b), with conservation status updated based on current Western Australian listings under the BC Act and Commonwealth listings under the EPBC Act. With the aforementioned species removed, a total of eight conservation significant species (including Priority species) were assessed as potentially occurring in the Stage 2 Project Area. Of these eight conservation significant species, three species were recorded during fauna surveys of the adjacent Stage 2 Project Area (WRP, Carnaby's Cockatoo, Southern Brush-tailed Phascogale), two species were considered 'Likely' to occur, one species was considered 'Possible' and two species were considered 'Unlikely' to occur within the Stage 2 DE (**Table 8**) (360 Environmental, 2016a) (360 Environmental, 2017) (Harewood, 2018). Further assessment was conducted on likelihood of occurrence within the Project DE, with consideration to habitat type, known records in the locality, the generally degraded condition of vegetation and the small area of proposed disturbance.

Table 8: Conservation significant fauna potentially occurring in the Stage 2 Project DE- adapted from (360 Environmental, 2016b)

SPECIES	BC ACT 2016 STATUS (WA)*	EPBCA 1999 STATUS	LIKELIHOOD IN STAGE 2 PROJECT AREA	LIKELIHOOD IN PROJECT DE
Birds				
Peregrine Falcon (<i>Falco peregrinus</i>)	OS	-	Unlikely	Unlikely
Forest Red-tailed Black-Cockatoo (<i>Calyptorhynchus banksii naso</i>)	VU	VU	Likely	Likely
Baudin's Black Cockatoo (<i>Calyptorhynchus baudinii</i>)	EN	EN	Likely	Likely
Carnaby's Black Cockatoo (<i>Calyptorhynchus latirostris</i>)	EN	EN	Recorded	Likely
Mammals				
Southern Brush-tailed Phascogale (<i>Phascogale tapoatafa</i>)	CD	-	Recorded	Likely
Western Ringtail Possum (<i>Pseudocheirus occidentalis</i>)	CR	CR	Recorded	Likely
Water Rat (<i>Hydromys chrysogaster</i>)	P4	-	Possible	Unlikely
Western Mouse (<i>Pseudomys occidentalis</i>)	P4	-	Unlikely	Unlikely

*CR – Critically Endangered

EN – Endangered Species

VU – Vulnerable species

CD – Species of special conservation interest

OS – Other specially Protected Fauna

P4 – Priority 4

360 Environmental (360 Environmental, 2017) recorded two broad fauna habitat types within the Stage 2 Fauna Survey of the adjacent locality:

- Remnant Vegetation: comprising Marri, Tuart and Flooded Gum over a mid-storey that varied along the length of the Stage 2 area and included *Acacia* sp., *Banksia* sp., Christmas Tree, Peppermint, Spearwood, *Jacksonia* sp., *Melaleuca* sp., and *Xanthorrhoea* sp., over a relatively sparse understorey of mixed herbs and grasses. There were also some small sections that consisted almost entirely of large old Peppermints with no midstorey species and a weedy grass understorey; and
- Regrowth vegetation: comprising a mix of many species and with a similar broad composition to the Remnant Vegetation habitat in some sections.

Fauna habitat value within the Project DE was initially assessed during the site investigation (Main Roads, 2022) and aligned with the broad habitat types as outlined by 360 Environmental (360 Environmental, 2017).

Where potential habitat for conservation significant species such as Black Cockatoo or WRP was identified, a further assessment by a qualified fauna specialist was commissioned (SW Environmental Pty Ltd, 2022).

In summary:

- 0.6 ha of native vegetation in the Project DE was considered to be suitable WRP habitat;
- 0.6 ha of the Project DE (contained within the 0.88 ha above) was considered to be suitable quality Black Cockatoo foraging habitat.
- A total of 10 suitable DBH trees were identified within the Project DE.
- No trees with hollows are located within the Project DE.
- A nocturnal survey conducted over two nights identified within the Project DE a total of seven possums over both nights and no Phascogales. The total includes two CBP and five WRP and no Phascogales.

Within a local and regional context, the removal of up to 0.6 ha of foraging habitat for Black Cockatoos is unlikely to have a significant impact to the persistence of the species. As depicted in **Figure 7**, extensive areas of native vegetation are contained within DBCA managed land and other large areas of intact vegetation exist within the Project locality. The removal of up to 0.6 ha of foraging habitat for Black Cockatoo species, adjacent to busy roads and in comparably poorer condition than the proximal DBCA managed lands, is not likely to have a significant indirect impact on any populations of Black Cockatoo or more broadly, the persistence of the species. Given there are no known roosts and no suitable breeding trees that are proposed for removal within the Project DE, project activities are also unlikely to have a direct impact on any individuals.

Potential impacts to WRP from the clearing of suitable habitat with the DE have been considered. Potential direct impacts to the species may include:

- mortality from vehicle strike or clearing when possums are present in dreys, hollows or other refuge sites;
- clearing of habitat; or
- disturbing the home range of individuals.

Indirect impacts to WRP from the implementation of the Project may include:

- incremental loss of fauna habitat (fragmentation, barrier effects, introduction or spread of disease, and edge effects); or
- decline in habitat quality.

A WRP Management Plan has been developed to prevent impacts to the species (Main Roads, 2021). This Management Plan will be implemented for the areas the subject of the Project. The approach to WRP management during the clearing operations is focused on pre-clearing surveys, WRP monitoring during clearing works, timing of clearing (to minimise the risk of mortality to immature juvenile animals), sensitive clearing practises and staged clearing operations to encourage WRP to move into adjacent habitat beyond the clearing area.

WRP management during clearing operations will be through:

- Natural dispersal - where animals will be encouraged by managed (staged and directional) clearing to move into adjacent habitat abutting, or in close proximity to, where the animal is present.
- Assisted dispersal – where animals will be moved to nearby WRP refuge sites where suitable habitat is not available abutting, or in close proximity to, where the animal occurs. The refuge sites are located within land managed by the DBCA and have been identified by officers from its Bunbury office.

The timing of the clearing is planned to avoid clearing during the period when most breeding females have unweaned young animals, typically September and October. This approach has been planned to minimise the risk of mortality to immature juvenile animals.

No WRP mortalities are considered likely to result during construction of the Project.

The removal of up to 0.6 ha of habitat for WRP, adjacent to busy roads and in comparably poorer condition than the proximal DBCA managed lands, is not likely to have a significant indirect impact on any populations of WRP or more broadly, the persistence of the species.

The final species identified within **Table 8** with some possibility of occurrence is the Water Rat (P4).

The DBCA threatened fauna database returned just two records of the Water Rat. This species is notoriously cryptic and not often detected during wildlife surveys. The Sabina River intersects the Project DE, however, is unlikely to contain suitable habitat for this species at this location. As evidenced from the site investigation (Main Roads, 2022), the area of the Sabina River which intersects the Project DE is open and lacks suitable riparian habitat to act as shelter for this species. The culverts and roadside drainage that will be impacted by the works are minor and ephemeral. Given the lack of known records within the study area and the lack of suitable habitat within the Project DE, the species is considered unlikely to occur within the Project DE, and there is unlikely to be a direct or indirect impact on individuals or reduction in suitable habitat resulting from the works.

An analysis of pre-European vegetation associations within the Project DE was conducted using the Beard Vegetation Association dataset as digitised by Shepard et al, (2002). **Table 4** outlines the vegetation associations located within the Project DE, their remaining extent and representation within DBCA managed estate. This information is illustrated in **Figure 5**. Four Beard vegetation associations occur within the Project DE: these are Associations 949, 990, 1000 and 1136. Vegetation Associations 949 and 990 exceed the 30% commonwealth retention target (at the State level) and are well represented in the DBCA conservation estate. The remaining Associations, in particular Association 1136, fall short of the threshold. Association 1136 has less than 10% of its vegetation remaining (Ecoedge, 2020b).

Although the above vegetation associations have been mapped as occurring within the Project DE, the majority of vegetation encountered in the site investigation comprised degraded and highly altered ecosystems (Main Roads, 2022). Clearing along the edge of an already cleared roadside boundary is unlikely to significantly alter the habitat or ecosystem diversity of the remnant vegetation. Furthermore, the measures implemented to avoid clearing include: the change of design to avoid mature trees wherever possible, reduction of earthworks footprint, and removing edge buffers. These measures serve to maintain ecosystem value whilst enabling safe road construction.

Desktop assessment identified the following four TECs/PECs with buffers (previous or predicted occurrence buffered) over the survey area (**Figure 8**):

- 'Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain' (TEC/ Priority 3 PEC) (Tuart Woodland TEC/PEC).
- 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' (TEC/Priority 3 PEC) (Banksia Woodland TEC/PEC).
- '*Eucalyptus cornuta*, *Agonis flexuosa* and *Eucalyptus decipiens* forest on deep yellow-brown siliceous sands over limestone' (NA/Priority 1 PEC) (Busselton Yate community).
- SCP08: Herb rich shrublands in clay pans (TEC/PEC) (Claypan TEC).

Following the field assessment of vegetation associated with Stage 2 in November and December 2020, Ecoedge identified three patches considered to be occurrences of Tuart Woodland TEC/PEC. **These patches do not occur within the Project DE.** Although Banksia species were found within the study area there were no areas that were over 2 ha, or in better than degraded condition. It was therefore determined no Banksia Woodland TEC/PEC was present in the survey area (Ecoedge, 2020b).

Prior to the site investigation, the above information was reviewed to enable a preliminary assessment of vegetation within the Project DE. All areas of the Project DE were able to be determined as not representing PECs or TECs (Main Roads, 2022).

The spring survey conducted by Ecoedge (2020b) included an assessment of the occurrences of PECs/ TECs. Vegetation within the Project DE was determined to not represent PECs or TECs.

A small portion of the vegetation within the Project DE directly forms part of an identified regional ecological linkage. Clearing of vegetation within close proximity to these areas will likely have a localised impact on

mapped ecological linkages but it suggests that this will not be significant given the small scale of clearing along the edge of an already cleared road boundary (Ecoedge, 2020b). The proposed Clearing Area in this location based on the current road design is only 0.1ha. The clearing of this small patch of degraded roadside vegetation within five metres of the cleared road maintenance zone, will have a negligible effect on the function of the greater than 160m wide area of remnant vegetation serving as an ecological linkage in the locality.

Outcome

The Project DE comprises 10 small sections within a narrow strip of largely disturbed vegetation adjacent to an existing dual-lane highway and intersecting roads. The impact will be diffuse and restricted to the edge of the existing road. Indirect impacts of the Proposal to vegetation and flora values can be readily managed through the implementation of standard construction and hygiene clearing protocols to be included in the contractor's CEMP for the Proposal. These will ensure that potential impacts of the Proposal to vegetation and flora are minimised and controlled to an acceptable level.

Biodiversity values within the native vegetation to be cleared for the Proposal are well represented within the surrounding area, including the nearby Tuart Forest National Park and Ludlow State Forest (refer to **Figure 7**).

In relation to flora and fauna taxa of conservation significance assessed with some possibility of occurrence, each of these have broader distributions well beyond the small, proposed Clearing Area of 0.6 ha spread over 10 different areas. The impact of the Proposal is not expected to result in a significant detrimental impact to the abundance, diversity, geographic distribution or productivity of flora or fauna at a species or ecosystem level.

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

Methodology

Biological Survey (Ecoedge, 2020b). (Ecoedge, 2021) (Ecoedge, 2022) (360 Environmental, 2016a) (360 Environmental, 2016b) (360 Environmental, 2017) (Harewood, 2018) (Biota, 2020) and (Main Roads, 2020)
 DBCA shapefiles (Shepard et al, 2002) (DBCA, 2022d)
 PMST (DAWE, 2022a).
 Environmental Protection Authority (EPA, 2016).
 FloraBase (DBCA, 2022c)
 Main Roads Site Inspection (Main Roads, 2022)
 Main Roads GIS Shapefiles
 National Herbarium of New South Wales (National Herbarium of NSW, 2022).
 NatureMap (Accessed December 2021)

(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

As outlined in **Section 3.1**, the locality has been the subject of extensive fauna surveys undertaken over multiple years including a vertebrate fauna survey (360 Environmental, 2017) and targeted WRP and Black Cockatoo habitat surveys (360 Environmental, 2016a; 360 Environmental, 2016b; Harewood, 2018; Biota, 2020; Main Roads, 2020 and SW Environmental, 2022).

EIA completed by 360 Environmental (360 Environmental, 2016b) for Stage 2 included an analysis of the then Department of Parks and Wildlife (now DBCA) Threatened Fauna Database, and the PMST.

A total of 264 fauna species were identified as having a possibility of occurring within a 10 km radius of the Stage 2 Project area, which is congruent with a 10km radius of the Project DE. Marine, wetland and coastal species were discounted from the search, given the Project DE does not contain preferred habitat for these species. A likelihood of occurrence assessment was undertaken for each fauna species identified from the

desktop searches. This assessment was based on the habitat requirements of each species, the availability of suitable habitat, and records of the species in the area (noting that some species will now have become locally or regionally extinct e.g., the Numbat).

Table 8 has been adapted from 360 Environmental (360 Environmental, 2016b), with conservation status updated based on current Western Australian listings under the BC Act and Commonwealth listings under the EPBC Act. With the aforementioned species removed, a total of eight conservation significant species (including Priority species) could potentially occur in the Stage 2 Project Area. Of these eight conservation significant species, three species were recorded during Stage 2 fauna surveys (WRP, Carnaby's Cockatoo, Southern Brush-tailed Possum), two species were considered 'Likely' to occur, one species was considered 'Possible' and two species were considered 'Unlikely' to occur within the Stage 2 DE (**Table 8**) (360 Environmental, 2016a) (360 Environmental, 2017), (Harewood, 2018). Further assessment was conducted on likelihood of occurrence within the Project DE, with consideration to habitat type, known records in the locality, the generally degraded condition of vegetation and the small area of proposed disturbance.

360 Environmental (360 Environmental, 2017) recorded two broad fauna habitat types within the Stage 2 Fauna Survey of the adjacent locality:

- Remnant Vegetation: comprising Marri, Tuart and Flooded Gum over a mid-storey that varied along the length of the Stage 2 area and included *Acacia* sp., *Banksia* sp., Christmas Tree, Peppermint, Spearwood, *Jacksonia* sp., *Melaleuca* sp., and *Xanthorrhoea* sp., over a relatively sparse understorey of mixed herbs and grasses. There were also some small sections that consisted almost entirely of large old Peppermints with no midstorey species and a weedy grass understorey; and
- Regrowth vegetation: comprising a mix of many species and with a similar broad composition to the Remnant Vegetation habitat in some sections.

Fauna habitat value within the Project DE was initially assessed during the site investigation and aligned with the broad habitat types as outlined by 360 Environmental (360 Environmental, 2017). Where potential habitat for conservation significant species such as Black Cockatoo or WRP was identified, a further assessment by a qualified fauna specialist was commissioned (SW Environmental Pty Ltd, 2022).

In summary:

- 0.6 ha of the Project DE was considered to be suitable WRP habitat;
- 0.6 ha of the Project DE (contained within the 0.6 ha above) was considered to be suitable quality Black Cockatoo foraging habitat.
- A total of 10 suitable DBH trees were identified within the Project DE.
- No trees with hollows are located within the Project DE.
- A nocturnal survey conducted over two nights identified within the Project DE a total of seven possums over both nights and no Phascogales. The total includes two CBP and five WRP and no Phascogales.

Within a local and regional context, the removal of up to 0.6 ha of foraging habitat for Black Cockatoos is unlikely to have a significant impact to the persistence of the species. As depicted in **Figure 7**, there are extensive quantities of native vegetation contained within DBCA managed land and other large masses of intact vegetation within the study area. The removal of up to 0.6 ha of foraging habitat for Black Cockatoo species, adjacent to busy roads and in comparably poorer condition than the proximal DBCA managed lands, is not likely to have a significant indirect impact on any populations of Black Cockatoo or more broadly, the persistence of the species. Given there are no known roosts and no suitable breeding trees that are proposed for removal within the Project DE, project activities are also unlikely to have a direct impact on any individuals.

Potential impacts to WRP from the clearing of suitable habitat with the DE have been considered. Potential direct impacts to the species may include:

- mortality from vehicle strike or clearing when possums are present in dreys, hollows or other refuge sites;
- clearing of habitat; or

- disturbing the home range of individuals.

Indirect impacts to WRP from the implementation of the Project may include:

- incremental loss of fauna habitat (fragmentation, barrier effects, introduction or spread of disease, and edge effects); or
- decline in habitat quality.

A WRP Management Plan has been developed to prevent impacts to the species (Main Roads, 2021). This Management Plan will be implemented for the areas the subject of the Project. The approach to WRP management during the clearing operations is focused on pre-clearing surveys, WRP monitoring during clearing works, timing of clearing (to minimise the risk of mortality to immature juvenile animals), sensitive clearing practises and staged clearing operations to encourage WRP to move into adjacent habitat beyond the clearing area.

WRP management during clearing operations will be through:

- Natural dispersal - where animals will be encouraged by managed (staged and directional) clearing to move into adjacent habitat abutting, or in close proximity to, where the animal is present.
- Assisted dispersal – where animals will be moved to nearby WRP refuge sites where suitable habitat is not available abutting, or in close proximity to, where the animal occurs. The refuge sites are located within land managed by the DBCA and have been identified by officers from its Bunbury office.

The timing of the clearing is planned to avoid clearing during the period when most breeding females have unweaned young animals, typically September and October. This approach has been planned to minimise the risk of mortality to immature juvenile animals.

No WRP mortalities are considered likely to result during construction of the Project.

The removal of up to 0.6 ha (spread over 10 different areas) of habitat for WRP, adjacent to busy roads and in comparably poorer condition than the proximal DBCA managed lands, is not likely to have a significant indirect impact on any populations of WRP or more broadly, the persistence of the species.

The final species identified within **Table 8** with some possibility of occurrence within the Stage 2 Project Area is the Water Rat (P4).

The DBCA threatened fauna database returned just two records of the Water Rat. This species is notoriously cryptic and not often detected during wildlife surveys. The Sabina River intersects the Project DE, however, is unlikely to contain suitable habitat for this species at this location. As evidenced from the site investigation (Main Roads, 2022), the area of the Sabina River which intersects the Project DE is open and lacks suitable riparian habitat to act as shelter for this species. The culverts and roadside drainage that will be impacted by the works are minor and ephemeral. Given the lack of known records within the study area and the lack of suitable habitat within the Project DE, the species is considered unlikely to occur within the Project DE, and there is unlikely to be a direct or indirect impact on individuals or reduction in suitable habitat resulting from the works.

The DAWE PMST was utilised to generate a report of listed fauna and the resultant output refined to those MNES that may occur within a 5 km radius of the Project DE ('the PMST search area') (DAWE, 2022a). The existing environment, nature and extent of impact or potential impact to the following MNES were assessed with regard to the Project.

The PMST Report generated a list of species that may occur within the PMST search area (**Appendix C**). The below list presents: 11 avian species, two aquatic species and two mammal species. Marine species have been omitted as there is no suitable habitat within the Project DE.

Fauna - Avian Species

Table 9 presents a likelihood of occurrence of each of the avian fauna species identified by the PMST as potentially occurring within the Project DE based on habitat preference (DAWE, 2022a). Only two species were assessed as having a probability of occurring, the Forest Red-tailed Black Cockatoo, and the Baudin's Black Cockatoo. As outlined above, no impacts are anticipated to these species.

Table 9: EPBC Act listed avian species and likelihood of occurrence within Project DE.

SPECIES	HABITAT DESCRIPTION	LIKELIHOOD OF OCCURRENCE
Australasian Bittern	Wetlands (DAWE, 2022b)	Unlikely
Red Knot, Knot	Intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours. They rarely use inland lakes or swamps (DAWE, 2022b).	Unlikely
Curlew Sandpiper	Intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons. Less often around ephemeral and permanent lakes, dams, waterholes and bore drains (DAWE, 2022b).	Unlikely
Forest Red-tailed Black-Cockatoo, Karrak	Dense jarrah, karri and marri forests receiving more than 600 mm average rainfall annually. Also, more open agricultural areas and in the Perth metropolitan area (DAWE, 2022b).	Very Likely
Greater Sand Plover, Large Sand Plover	Almost entirely coastal, inhabiting littoral and estuarine habitats. Sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks (DAWE, 2022b).	Unlikely
Northern Royal Albatross	Marine, pelagic and aerial. Its habitat includes subantarctic, subtropical, and occasionally Antarctic waters (DAWE, 2022b).	Unlikely
Grey Falcon	Arid and semi-arid Australia, including the Murray-Darling Basin, Eyre Basin, central Australia and Western Australia. Where annual rainfall is less than 500 mm (Threatened Species Scientific Committee, 2020)	Unlikely
Eastern Curlew, Far Eastern Curlew	Sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass (DoE, 2015a)	Unlikely
Fairy Prion (southern)	Marine species which breeds on subantarctic islands outside of Australia (DAWE, 2022b)	Unlikely
Australian Fairy Tern	Nests on sheltered sandy beaches, spits and banks; Variety of habitats including offshore, estuarine or lake islands, wetlands and mainland coastline (DAWE, 2022b).	Unlikely
Baudin's Black-Cockatoo, Long-billed Black-cockatoo	Eucalypt forests, especially jarrah, marri and karri forest. Less frequently in partly cleared farmlands and urban areas (DAWE, 2022b).	Very Likely

Fauna – Aquatic Species

Balston's Pygmy Perch is known from a small area of coastal peat flats in south-western Western Australia that extends from Margaret River to Two Peoples Bay. The species is found among inundated riparian vegetation associated with slow-flowing, low salinity, acidic and tannin-stained waters, and complex instream habitat (DAWE, 2022b). The Sabina River intersects the Project DE, however, is unlikely to contain suitable habitat for this species at this location. As evidenced from the site investigation (Main Roads, 2022), the area of the Sabina River which intersects the Project DE is open and lacks suitable riparian habitat to act as shelter for this species. The culverts and roadside drainage that will be impacted by the works are minor and ephemeral, and not peaty, nor tannin stained. Given the lack of known records within the study area and the lack of suitable habitat within the Project DE, there is unlikely to be a direct or indirect impact on individuals or reduction in suitable habitat resulting from the works.

Carter's Freshwater Mussel prefers to inhabit flowing riverine/ creek line habitats that do not completely dry out in summer months. The Sabina River intersects the Project DE, however, is non-perennial, drying into a series of pools through the summer. Given the lack of known records within the region and the lack of suitable habitat within the Project DE, there is unlikely to be a direct or indirect impact on individuals or reduction in habitat resulting from the proposed works.

Fauna - Mammal Species

Chuditch are largely restricted to the south-west of Western Australia, with small numbers in the goldfields, wheatbelt and south coast region. The species largely inhabits in Jarrah forests and woodlands, mallee shrublands and heathlands (DEC, 2012). Survival requirements of individuals of the species include adequate den and refuge sites (earth borrows or horizontal hollow logs) and a sufficient quantity of prey which include small mammals, large invertebrates, and reptiles (DEC, 2012).

The Chuditch is highly mobile and unlikely to reside in the road drainage and shoulder, except for short periods of time whilst dispersing throughout the landscape. Given the already highly modified nature of the Project DE, the survival requirements of the species (refuge and adequate prey) are not present within the Project DE. The proposed works are therefore not likely to have a significant direct nor indirect impact on the Chuditch.

Western ringtail possum (WRP) were also identified through the PMST search. Potential impacts to WRP are addressed in previous section.

Fauna- Migratory Species

Of the 12 Migratory species identified by the PMST as potentially occurring within the study area, three species (Red Knot, Greater Sand Plover and Eastern Curlew) were also listed as Threatened Avian Fauna. All three species were assessed as unlikely to occur within the proposed Clearing Area due to habitat preference **Table 9**.

Table 10 presents an assessment of the likelihood of occurrence within the Project DE of each of the remaining migratory fauna species identified by the PMST, based on habitat preference and the small, proposed Clearing Area (0.6ha). One species, the Fork-tailed Swift was considered 'Possible' to occur within the Project DE as an occasional visitor, however no impacts are anticipated.

Table 10: EPBC Act listed migratory species and likelihood of occurrence.

SPECIES	HABITAT DESCRIPTION	LIKELIHOOD OF OCCURRENCE	ASSESSMENT OF IMPACT
Fork-tailed Swift	Widespread in coastal and subcoastal areas between Augusta and Carnarvon, including some on nearshore and offshore islands. Mostly occur over inland plains but sometimes above foothills or in coastal areas. They inhabit dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh (DAWE, 2022b).	Possible	Widespread across a variety of habitats, these species may occur with the Project DE as an occasional visitor. A highly mobile avian species able to readily egress from impact areas, this species is unlikely to be directly impacted by the proposed development. The potential for indirect impacts associated with the works are low given the minor clearing associated with the works (0.6 ha) and the species' expansive ranges. No impacts are anticipated on this species.
Grey Wagtail	Creeks, rivers and waterfalls, tidal flats (DoE, 2015b)	Unlikely	These species utilise a wide variety of habitat types, however, primarily prefer coastal areas. There is potential for these species to visit the Sabina River where it intersects the Project DE, however, the habitat quality in this location is low (Main Roads, 2022), it is a very small area (>0.01ha) and there is abundant areas of more preferable habitat within the PMST Study Area, namely the Vasse Wonnerup
Common Sandpiper	Wide range of coastal wetlands and some inland wetlands. Estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. (DAWE, 2022b).	Unlikely	

Sharp-tailed Sandpiper	Muddy edges of shallow fresh or brackish wetlands: Lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland (DAWE, 2022).	Unlikely	System and the coastline (Figure 9). The highly mobile nature of these avian species makes any direct impacts unlikely.
Curlew Sandpiper	Intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains (DAWE, 2022).	Unlikely	
Pectoral Sandpiper	Shallow fresh to saline wetlands, coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands (DAWE, 2022).	Unlikely	
Osprey	Littoral and coastal habitats and terrestrial wetlands. They require extensive areas of open fresh, brackish or saline water for foraging (DAWE, 2022).	Unlikely	Due to lack of preferred habitat within the Project DE, no impacts are anticipated on these species.
Common Greenshank, Greenshank	Inland wetlands and sheltered coastal habitats of varying salinity. It occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass (DAWE, 2022).	Unlikely	

Outcome

Fauna habitat within the Project DE comprises multiple (0.6 ha spread across 10 different areas) small, generally narrow strips of largely disturbed vegetation adjacent to an existing dual-lane highway and intersecting roads. The clearing impact will be diffuse and restricted to the edge of the existing road. The habitat to be cleared is a mixture of remnant, non-native and regrowth vegetation interspersed with larger portions of cleared land. It is structurally simple and does not provide a diverse range of fauna habitat. The vegetation to be cleared is not considered to be a significant habitat for fauna.

Fauna habitats present within the proposed Clearing Area are well represented in the surrounding area, for example, the nearby Tuart Forest National Park and Ludlow State Forest (**Figure 7**). Habitat within the Project DE is relatively consistent in its diversity, structure and composition and is not considered to be key habitat for any listed fauna taxa. Better quality food sources for Black Cockatoos are present within these nearby areas, comprising both native vegetation and pine plantation (in the Coolilup State Forest), and it is highly unlikely that Black Cockatoos are reliant on foraging habitat within the Project DE.

Similarly, there is a substantial amount of high quality WRP habitat surrounding the Project DE that is known to support WRP in high densities (Shedley, 2014).

Each of the fauna taxa of listed conservation significance recorded within the proposed Clearing Area have broad distributions beyond the Project DE.

Where possible, revegetation following construction of the proposal will be undertaken to reinstate fauna habitat values impacted by clearing. The clearing impact will be short to medium term until the revegetation is established.

In the context of the large tracts of remnant vegetation in the vicinity of the Project DE, the impact of the Proposal to 0.6 ha of habitat used by these taxa within the proposed Clearing Area is unlikely to result in a significant detrimental impact to the abundance, diversity, geographic distribution and productivity of these taxa at a species or ecosystem level.

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

Methodology

Biological Survey (360 Environmental, 2016a) (360 Environmental, 2016b) (360 Environmental, 2017), (Harewood, 2018), (Biota, 2020) and (Main Roads, 2020). (SW Environmental Pty Ltd, 2022).

DBCA Shapefiles

DBCA website

Main Roads Site Inspection (Main Roads, 2022)

PMST (DAWE, 2022a)

Species Profile and Threats Database (DAWE, 2022b)

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Proposal is not likely to be at variance to this Principle

Comment

Ecoedge (Ecoedge, 2020b) conducted analysis of known incidences of threatened or Priority Flora occurring within 5 km of the Stage 2 Flora Survey area from DBCA databases and a NatureMap search. This area is congruent to a 5km radius of the Project DE. Nomenclature and conservation status were checked and updated based on current Western Australian listings generated from a NatureMap search conducted as part of this CAR process (**Appendix A**). Taxa listed under the EPBC Act (based on results of the PMST query) were also considered in the preparation of the priority flora taxa list. **Table 11** presents the analysis of species identified by (Ecoedge, 2020b), and a revised likelihood of occurrence based on proximity of known collections to the Project DE, and occurrence of suitable habitat within the Project area's proposed clearing area. No Threatened Flora Species were assessed as likely to occur.

The majority of the Project DE is a highly disturbed environment, with sections of the vegetation present having been previously cleared for road construction or agricultural purposes. Only small sections of vegetation in 'Good' condition occur.

An assessment of potential impacts on flora species identified by the PMST as potentially occurring within the Project DE has been presented in **Table 11**. Of the below 16 listed flora species, two species were considered 'Possible' to occur based on habitat availability within the Project DE. The likelihood of occurrence of these two species was further reduced by the degraded and weed infested nature of the Project area (Main Roads, 2022). No significant impacts to Flora species identified by the PMST are anticipated.

Table 11: EPBC Act listed flora species, likelihood of occurrence and assessment of impact

SPECIES	EPBCA STATUS	DESCRIPTION AND HABITAT	LIKELIHOOD OF OCCURRENCE (HABITAT PREFERENCE)	ASSESSMENT OF IMPACT
<i>Banksia nivea</i> subsp. <i>uliginosa</i>	Endangered	Shrubs, 0.5-1.5 m high. Orange clay loam over laterite and sandy areas within winter-wet southern ironstones (DAWE, 2022b)	Unlikely	Due to the species favouring winter wet areas on southern ironstones (DAWE, 2022b) and the lack of this habitat within the proposed clearing area as determined by the site investigation (Main Roads, 2022), it is unlikely that the species will be present and therefore no impact to this species is anticipated.
<i>Banksia squarrosa</i> subsp. <i>argillacea</i>	Vulnerable	Erect, open, non-lignotuberous shrub, 1.2–4 m high. Fl. yellow, Jun–Nov. White/grey sand, gravelly clay or loam. Winter-wet flats, clay flats (DAWE, 2022b).	Unlikely	Due to the species favouring winter wet flats and clay flats (DAWE, 2022b), and the lack of this habitat within the proposed clearing area as determined by the site investigation (Main Roads, 2022), it is unlikely that the species will be present and therefore no impact to this species is anticipated.
<i>Brachyscias verecundus</i>	Critically Endangered	Annual (or ephemeral) herb, growing to 12-22 mm high. Endemic to the TEC the 'Shrublands on Southern Swan Coastal Plain Ironstones' (DAWE, 2022b)	Unlikely	This species is endemic to the TEC 'Shrublands on Southern Swan Coastal Plain Ironstones' (DAWE, 2022b). As this TEC was not present within the Project Area, it is unlikely that the species will be present and therefore no impact to this species is anticipated.
<i>Caladenia busselliana</i>	Endangered	Tuberous, perennial, herb, 0.2-0.3 m high. Fl. green & yellow & cream, Sep to Oct. Sandy loam. Winter-wet swamps (DBCA, 2022c).	Unlikely	Due to the species favouring winter wet swamps (DBCA, 2022c) and the lack of this habitat within the proposed clearing area as determined by the site investigation (Main Roads, 2022), it is unlikely that the species will be present and therefore no impact to this species is anticipated.
<i>Caladenia huegelii</i>	Endangered	Tuberous, perennial, herb, 0.25-0.6 m high. Fl. green & cream & red, Sep to Oct. Grey or brown sand,	Possible	<i>Caladenia huegelii</i> occurs in areas of mixed woodland of jarrah, <i>Banksia</i> sp. with scattered sheoak and marri ranging in distribution from just north of Perth to the Busselton area. Throughout its range the species tends to favour areas of dense undergrowth (DEC, 2009). This species is reliant on a symbiotic

		clay loam (DBCA, 2022c).		<p>association with a mycorrhizal fungus for seed germination and a nutrient supply throughout its life cycle, and a thynnid wasp species for pollination (DEC, 2009).</p> <p>The degradation of habitat by weed incursion, and the collapse of important ecological relationships with the mycorrhizal fungus and wasp pollinator leading to poor survival and recruitment is recognised as key threat to this species (DEC, 2009). The likelihood of occurrence of this species within the proposed clearing area is reduced due to the degraded nature of the areas of remnant vegetation (Main Roads, 2022), and the small Proposed Clearing Area (0.6 ha).</p> <p>This species is therefore considered unlikely to occur and no impact on this species is anticipated.</p>
<i>Chamelaucium</i> sp. S coastal plain (R.D.Royce 4872)	Vulnerable	Intricately branched, spreading shrub up to 120 cm tall. Winter-wet sandy clay sites (Brown et al, 1998). The distribution of this species is associated with the TEC "Shrublands on southern Swan Coastal Plain Ironstones" (DoE, 2014)	Unlikely	Due to the species favouring winter winter-wet sandy clay sites (Brown et al, 1998), and the lack of this habitat within the proposed clearing area as determined by the site investigation (Main Roads, 2022), it is unlikely that the species will be present and therefore no impact to this species is anticipated.
<i>Diuris drummondii</i>	Vulnerable	Terrestrial, tuberous, perennial orchid that grows up to 105 cm tall (Brown et al, 1998). Low-lying depressions in peaty and sandy clay swamps (DAWE, 2022b)	Unlikely	Due to the species favouring low-lying depressions in peaty and sandy clay swamps (DAWE, 2022b), and the lack of this habitat within the proposed clearing area as determined by the site investigation (Main Roads, 2022), it is unlikely that the species will be present and therefore no impact to this species is anticipated.
<i>Diuris micrantha</i>	Vulnerable	Tuberous, perennial, herb, 0.3-0.6 m high. Fl. yellow & brown, Sep to Oct. Brown	Unlikely	The species favours winter wet swamps in shallow water (DBCA, 2022c). This habitat is not located within the proposed clearing area as determined by the site investigation (Main Roads, 2022).

		loamy clay. Winter-wet swamps, in shallow water (DBCA, 2022c).		Furthermore, known distribution of this species is outside of a 20 km radius of the Project (DBCA, 2022c). It is therefore unlikely that the species will be present and no impact to this species is anticipated.
<i>Drakaea elastica</i>	Endangered	Tuberous, perennial, herb, 0.12-0.3 m high. Fl. red & green & yellow, Oct to Nov. White or grey sand. Low-lying situations adjoining winter-wet swamps (DBCA, 2022c).	Unlikely	Due to the species favouring low lying situations adjoining winter wet swamps (DBCA, 2022c) and the lack of this habitat within the proposed clearing area as determined by the site investigation (Main Roads, 2022), it is unlikely that the species will be present and therefore no impact to this species is anticipated.
<i>Drakaea micrantha</i>	Vulnerable	Tuberous, perennial, herb, 0.15-0.3 m high. Fl. red & yellow, Sep to Oct. White-grey sand (DBCA, 2022c).	Possible	This species is known from 32 small, scattered populations from Perth to Albany, with secure populations in Frankland National Park (DAWE, 2022b). Known populations of this species are located in excess of 20km from the Project (DBCA, 2022c). The approved conservation advice for this species suggest that it is probably vulnerable to displacement by weed species (DEWHA, 2008a). The weed infested nature of the proposed impact areas as evidence by the site investigation reduces the likelihood of occurrence of this species (Main Roads, 2022). This species is therefore considered unlikely to occur and no impact on this species is anticipated.
<i>Gastrolobium papilio</i>	Endangered	Tangled, clumped shrub, to 1.5 m high. Fl. cream-red, Oct to Dec. Sandy clay over ironstone and laterite. Flat plains (DBCA, 2022c).	Unlikely	Due to this species' habitat preference of sandy clay over ironstone and laterite (DBCA, 2022c), it is unlikely to be present on the land systems comprised of deposited sands forming the swan coastal plain upon which the Project is located.
<i>Lambertia echinata</i> subsp. <i>occidentalis</i>	Endangered	Prickly, much-branched, non-lignotuberous shrub, to 3 m high. Fl. yellow, Feb or Apr or Dec. White sandy soils over laterite, orange/brown-red clay over	Unlikely	This species displays preferred habitat of winter wet sites, in areas of clay over ironstone (DBCA, 2022c) and is known from populations at the base of the Whicher Range (DAWE, 2022b). The Swan Coastal Plain Survey (Gibson, 1994) which covered large areas in the Busselton region where this subspecies might be expected, no other plants were located until 2002 when a subpopulation was discovered (DAWE, 2022b). The Project occurs on

		ironstone. Flats to foothills, winter-wet sites (DBCA, 2022c).		deposited sands of the Swan coastal Plain and does not contain the ironstone substrate favoured by the species. The lack of winter wet sites within the Project area further reduces the likelihood of occurrence.
<i>Petrophile latericola</i>	Endangered	Multi-stemmed shrub, 0.4-1.5 m high. Fl. yellow, Nov. Red lateritic clay. Winter-wet flats. (DBCA, 2022c).	Unlikely	This species inhabits tall and low heath on winter-wet flats of red sandy-clay over ironstone (Brown et al, 1998) (Gibson, 1994). These habitat types were not located within the proposed clearing area (Main Roads, 2022) and it is therefore unlikely that this species will be impacted by implementation of the Project.
<i>Synaphea</i> sp. Fairbridge Farm (D. Papenfus 696)	Critically Endangered	Is known from Dense, clumped shrub, to 0.3 m high, to 0.4 m wide. Fl. yellow, Oct. Sandy with lateritic pebbles. Near winter-wet flats, in low woodland with weedy grasses (DBCA, 2022c).	Unlikely	The closest known record of this species is located more than 37 km to the North-east of Project area (DBCA, 2022c). It is known from five subpopulations south of Perth from Serpentine to Dardanup (a range of approximately 120 km north to south) (DAWE, 2022b). Suitable habitat for this species does occur, however, this species is endemic to the Pinjarra Plain of Western Australia (CALM, 2007), it is therefore unlikely that the species occurs within the Project area.
<i>Verticordia densiflora</i> var. <i>pedunculata</i>	Endangered	Erect to spreading shrub, 0.3-0.6 m high. Fl. pink/pink-white, Dec or Jan. Grey/yellow sand, sandy loam. Winter-wet low-lying areas (DBCA, 2022c).	Unlikely	This species grows on light yellow or grey sands in low-lying, winter-wet areas (DAWE, 2022b). As evidenced by the site investigation (Main Roads, 2022), the proposed clearing area is lacking this habitat. Constructed drainage which does occur within the project area is part of the existing road networks maintenance zone, infested with weed species and lacks native vegetation. For these reasons it is unlikely that this species will be present in the Project area.
<i>Verticordia plumosa</i> var. <i>vassensis</i>	Endangered	Shrub, 0.3-1 m high. Fl. pink, Sep to Dec or Jan to Feb. White/grey sand. Winter-wet flats (DBCA, 2022c).	Unlikely	This species is known from 13 locations near Busselton. Its distribution is severely fragmented and very restricted, with known subpopulations occurring over a large geographic range in isolated pockets of remnant vegetation (DEWHA, 2008b). Due to the lack preferred habitat within the proposed clearing area (Main Roads, 2022), it is unlikely that this species will be impacted by Project implementation.

Outcome

The Proposal will not result in any impact to Threatened flora taxa and is therefore not at variance to Principle.

Methodology

Biological Survey (Ecoedge, 2020b)
 DBCA shapefiles
 EPA (2016)
 Florabase (DBCA, 2022c)
 Main Roads Site Inspection (Main Roads, 2022).
 Species Profile and Threats Database (DAWE, 2022b)

(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 and PEC database and the DAWE PMST determined that seven state listed PECs and six state listed TECs occur within a five km radius of the Project DE. Six of these communities are also listed as federal TEC (**Figure 8**) (DBCA, 2022d) (DAWE, 2022a).

Of the listed communities, four were recorded with buffers over the Survey Area (**Figure 8**) and formed the focus of the targeted TEC and PEC search conducted by (Ecoedge, 2020b). These are:

- 'Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain' (TEC/ Priority 3 PEC) (Tuart Woodland TEC/PEC).
- 'Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region' (TEC/Priority 3 PEC) (Banksia Woodland TEC/PEC).
- '*Eucalyptus cornuta*, *Agonis flexuosa* and *Eucalyptus decipiens* forest on deep yellow-brown siliceous sands over limestone' (NA/Priority 1 PEC) (Busselton Yate community).
- SCP08: Herb rich shrublands in clay pans (TEC/PEC) (Claypan TEC).
- SCP08: Herb rich shrublands in clay pans (TEC/PEC) (Claypan TEC).

Following the field assessment of vegetation associated with Stage 2 in November and December 2020, Ecoedge determined that three patches were considered to be occurrences of Tuart Woodland TEC/PEC.

These patches do not occur within the Project DE. Although Banksia species were found within the study area there were no areas that were of considerable size, over 2 ha, or in better than degraded condition and therefore it was determined no Banksia Woodland TEC/PEC was present in the survey area (Ecoedge, 2020b).

Prior to the site investigation, the above information was reviewed to enable a preliminary assessment of vegetation within the Project DE. All areas of the Project DE were able to be determined as not representing PECs or TECs (Main Roads, 2022).

Outcome

Clearing of native vegetation is not at variance with this Clearing Principle.

Methodology

Biological Survey (Ecoedge, 2020b)
 DBCA shapefiles
 PMST (DAWE, 2022a)
 Priority ecological communities list (DBCA, 2022d)
 Main Roads Site Inspection (Main Roads, 2022).

(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 likely to be at variance to this Principle

Comment

The Project DE is situated on the Swan Coastal Plain, which is recognised as having been highly or extensively cleared. Up to 0.6 ha of native vegetation spread over 10 different areas in varying condition is required to be cleared for the Proposal.

As part of the assessment of the Proposal clearing against this Principle, the guidance of (Commonwealth of Australia, 2001) which identifies a target to prevent the clearing of native vegetation that has an extent 30% or less of its original extent (i.e. pre-1750), is used. It should be noted that much of the Project DE comprises existing cleared land and areas of introduced non-native vegetation. As such, while this vegetation is mapped as the vegetation associations and complexes detailed below, they do not represent these associations or complexes, and the impact implied in the following tables is not a true representation of the type or significance of the vegetation in these areas.

Vegetation Associations

An analysis of pre-European vegetation associations within the Project DE was conducted using the Beard Vegetation Association dataset as digitised by (Shepard et al, 2002) **Table 12** outlines the vegetation associations located within the Project DE, their remaining extent and representation within DBCA managed estate. Vegetation Associations 990 and 949 are well represented with 77.13% and 56.42% of their pre-European extent remaining. The remaining Associations, in particular Association 1136, fall short of the threshold. Association 1136 has less than 10% of its vegetation remaining (Ecoedge, 2020b). Although the above vegetation associations have been mapped as occurring within the Project DE, the majority of vegetation encountered in the site investigation comprised degraded and highly altered ecosystems (Main Roads, 2022).

Table 12: Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 949	State-wide	218,193.94	123,104.02	56.42	31.52
	IBRA Bioregion <i>Swan Coastal Plain</i>	209,983.26	120,287.93	57.28	32.31
	IBRA Sub-region <i>Perth</i>	184,475.82	104,128.96	56.45	33.30
	Local Government Authority <i>City of Busselton</i>	2,688.98	417.58	15.53	0.01
	Local Government Authority <i>Shire of Capel</i>	26.16	8.94	34.18	9.31
Veg Assoc No 990	State-wide	18,691.48	14,417.65	77.13	56.39
	IBRA Bioregion <i>Swan Coastal Plain</i>	1,951.76	319.75	16.38	1.89
	IBRA Sub-region <i>Perth</i>	1,951.76	319.75	16.38	1.89
	Local Government Authority <i>City of Busselton</i>	4,225.41	1,176.78	27.85	5.04
	Local Government Authority	279.98	27.29	9.75	-

	<i>Shire of Capel</i>				
Veg Assoc No 1000	State-wide	99,835.86	27,768.84	27.81	5.19
	IBRA Bioregion <i>Swan Coastal Plain</i>	94,175.31	24,869.20	26.41	5.06
	IBRA Sub-region <i>Perth</i>	94,175.31	24,869.20	26.41	5.06
	Local Government Authority <i>City of Busselton</i>	12,034.21	4,244.00	35.27	6.84
	Local Government Authority <i>Shire of Capel</i>	15,173.76	3,189.87	21.02	1.53
Veg Assoc No 1136	State-wide	48,124.57	3,345.51	6.95	0.27
	IBRA Bioregion <i>Swan Coastal Plain</i>	85,526.48	31,697.72	37.06	18.99
	IBRA Sub-region <i>Perth</i>	48,118.01	3,341.18	6.94	0.27
	Local Government Authority <i>City of Busselton</i>	38,946.49	2,640.77	6.78	0.21
	Local Government Authority <i>Shire of Capel</i>	9,178.08	704.73	7.68	0.51

Vegetation complexes

Swan Coastal Plain and Southwest (Perth, Peel and Warren), vegetation has been mapped at a finer scale than Beard's map series of the State. This more detailed mapping of the vegetation complexes has been utilised for analysis of pre-European extent.

Five vegetation complexes as mapped by (Webb et al, 2016) (based on the mapping of (Hedde, 1980)) occur within the proposed Clearing Area: the Abba, Cokelup, Karrakatta Complex – Central and South, Southern River and Yoongarillup Complexes.

Only the Yoongarillup Vegetation complex has greater than 30% of its pre-European extent remaining. The remainder of the vegetation association fall below the 30% target. However, of these, only the Abba Vegetation Complex does not meet the 10% retention target which is applied to constrained areas within the Swan Coastal Plain in the Perth and Peel region (**Table 13**).

Table 13. Vegetation Complexes (Hedde/Mattiske) within the Project Area (Government of Western Australia, 2018b)

Hedde/Mattiske Veg Complex	Pre-European Extent (ha)	2017 Vegetation Extent (ha)	% Remaining
Abba Complex	50,892.78	3,326.20	6.54
Southern River Complex	58,781.48	10,828.04	18.42
Karrakatta Complex-Central and South	53,080.99	12,465.24	23.48
Yoongarillup Complex	27,977.93	9,946.39	35.55
Cokelup Complex	3,010.98	315.75	10.49

The extent and condition of each vegetation complex within the proposed Clearing Area is outlined in **Table 14**.

The majority of the vegetation within the proposed Clearing Area (55%) comprises Degraded or Completely Degraded vegetation, with only 45% assessed in 'Good' condition. It should be noted that the areas assessed as being in 'Good' condition displayed extensive weed species incursion dominating the ground cover.

Table 14 Extent of Vegetation Complex and condition within the proposed Clearing Area

Pre-European Vegetation Complex	Clearing Description	Vegetation Condition ³
Abba Complex	Clearing of up to 0.17 ha for intersection upgrades and tie in works.	Good – 0.03 ha Degraded – 0.04 ha Completely Degraded – 0.10 ha
Southern River Complex	Clearing of up to 0.14 ha for intersection upgrades and tie in works.	Good – 0.08 ha Degraded – 0.06 ha Completely Degraded – 0.01 ha
Karrakatta Complex- Central and South	Clearing of up to 0.09 ha for intersection upgrades and tie in works.	Good – 0.09 ha
Yoongarillup Complex	Clearing of up to 0.06 ha for intersection upgrades and tie in works.	Good – 0.05 ha Completely Degraded – 0.01 ha
Cokelup Complex	Clearing of up to 0.14 ha for intersection upgrades and tie in works.	Good – 0.02 ha Degraded – 0.07 ha Completely Degraded – 0.05 ha

The Abba Vegetation Complex has in total 0.17 ha mapped within the proposed Clearing Area. Of this 0.10 ha have been classified as 'Completely Degraded'. A further 0.04 ha of the mapped extent of the Abba Vegetation Complex within the proposed Clearing Area is in 'Degraded' condition. Only 0.03 ha of the mapped extent of this Abba vegetation complex was assessed as being in 'Good' condition by the site investigation (Main Roads, 2022). Analysis of historic aerial imagery reveals that much of this area of roadside vegetation was previously cleared for roadside drainage works and comprises regrowth vegetation. A small patch of approximately 0.01 ha appears to have not been previously cleared and may be considered a remnant.

The Southern River Vegetation Complex has 0.14 ha mapped within the proposed Clearing Area, with 50% or 0.07 ha in 'Degraded' to 'Completely Degraded' condition (Main Roads, 2022). Analysis of historic aerial imagery reveals that the vegetation assessed in 'Good' condition has been historically cleared, and thus comprises regrowth as opposed to remnant vegetation.

The Karrakatta – Central and South Vegetation Complex is mapped within a single location within the proposed Clearing Area, within the road reserve along the existing alignment of the Bussell Hwy and adjacent to the Ludlow State Forest. Although mapped as in good condition, analysis of aerial imagery displays large areas of cleared ground beneath the canopy, and the site investigation noted the understory dominated by introduced species (Main Roads, 2022). Although the aerial imagery displays a dense canopy, no suitable DBH trees were noted in the proposed Clearing Area by the targeted fauna survey (SW

³ Vegetation description and condition determined from Main Roads site visit on 21 December 2021 and aerial imagery in accordance with (Environmental Protection Authority, 2016).

Environmental Pty Ltd, 2022). The small proposed clearing area (0.09 ha) and the large area of local representation in DBCA managed land immediately adjacent (**Figure 6**), results in the proposed clearing within this Vegetation Complex not being significant.

Of the 0.14 ha of the Cokelup Vegetation Complex mapped within the proposed Clearing Area, 86% is in 'Completely Degraded' or 'Degraded Condition'. Only 0.02 ha in a single location was assessed as being in 'Good' condition (Main Roads, 2022). Analysis of aerial imagery reveals that this area has been historically cleared and thus represents regrowth rather than remnant vegetation. This 0.02 ha exists within a continuous band of roadside vegetation comprising approximately 5.4 ha, and thus is not considered to be a significant remnant.

A small portion of the vegetation within the Project DE directly forms part of an identified regional ecological linkage. Clearing of vegetation within close proximity to these areas will likely have a localised impact on mapped ecological linkages but it suggests that this will not be significant given the small scale of clearing along the edge of an already cleared road boundary (Ecoedge, 2020b). The proposed clearing area in this area based on the current road design is only 0.1ha and the clearing of this small patch of degraded roadside vegetation within five metres of the cleared road maintenance zone, will have a negligible effect on the function of the greater than 160m wide area of remnant vegetation serving as an ecological linkage in the locality.

Outcome

Several vegetation complexes mapped within the proposed Clearing Area do not have extensive proportions of their pre-European extent remaining. Much of the landscape surrounding the Project DE has been historically cleared, however, several large tracts of DBCA managed lands in the vicinity contain significant local representation of the mapped vegetation complexes.

Based on the very small size (0.6 ha of native vegetation spread across 10 different areas) and generally degraded condition of the vegetation within the proposed Clearing Area, and that the proposed Clearing Area is unlikely to contain conservation significant flora or ecological communities, contain a high level of biodiversity, or comprise of significant habitat for indigenous fauna, vegetation within the Proposed Clearing Area is not considered a significant remnant within an extensively cleared landscape.

Clearing along the edge of an already cleared roadside boundary is unlikely to significantly alter the habitat or ecosystem diversity of the remnant vegetation. Furthermore, the measures implemented to avoid clearing include: the change of design to avoid mature trees wherever possible, reduction of earthworks footprint, and removing edge buffers. These measures serve to maintain ecosystem value whilst enabling safe road construction.

The clearing of native vegetation is not likely to be at variance with this Clearing Principle.

Methodology

Aerial photography

Biological Survey (Ecoedge, 2020b) (SW Environmental Pty Ltd, 2022)

(Commonwealth of Australia, 2001)

(Environmental Protection Authority, 2016)

(Government of Western Australia, 2018b)

(Hedde, 1980)

Main Roads Site Inspection (Main Roads, 2022).

(Shepard et al, 2002)

(Webb et al, 2016)

(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

The works require the removal of up to 0.6 ha of roadside vegetation within a 2.5 ha Project DE. The clearing will occur adjacent to the Bussell Hwy and intersecting roads to facilitate tie in works and reinstatement of existing roadside drainage. No vegetation growing in association with a watercourse or wetland will be cleared under CPS818.

The Sabina River intersects the Project DE, however, as evidenced from the site investigation (Main Roads, 2022), the area of the Sabina River which intersects the Project DE is open and lacks riparian vegetation.

A search of ArcGIS shapefiles (DBCA, 2022b) indicates the geomorphic wetland 'Multiple use wetland UFI 15809 – Palusplain (Seasonally Waterlogged)' occurs at two locations within the Project DE (**Figure 9**):

- in the vicinity of the Layman Rd/ Wonerup South Rd intersection with Bussell Hwy; and
- the Ludlow – Hithergreen Rd intersection with Bussell Hwy.

The objective for Multiple Use wetlands is to 'use, develop and manage wetlands in the context of water, town and environmental planning' (Hill et al, 1996).

Multiple use wetlands are wetlands with few remaining important attributes and functions, development and management should be considered in the context of ecologically sustainable development and best management practice (Water and Rivers Commission, 2001). Noting the purpose of the application is for road upgrades in an established and existing road, it is unlikely the impacts associated with the works will further diminish any important attributes and functions of this large multiple use wetland system. It is also noted that a large amount of the mapped wetland has been cleared.

Although these areas have been mapped as geomorphic wetlands, during the site investigation the areas within the Project DE were observed as being roadside verges, often raised from the surrounding landscape. Pre-existing artificial constructed drainage features, such as roadside drains, for transmission of seasonal waterflow have been developed. Flora species in these areas did not represent riparian or wetland vegetation (Main Roads, 2022). Proposed works in these areas aim to enhance the flow of surface water away from road infrastructure. No adverse impacts are anticipated to these areas.

Outcome

Given works will not require the removal of vegetation growing in association with a watercourse or wetland, the clearing of native vegetation is not at variance with this Clearing Principle.

Methodology

DWER and DBCA shapefiles (DBCA, 2022b)
(Environmental Protection Authority, 2016)
(Hill et al, 1996).
Main Roads Site Inspection (Main Roads, 2022)
(Water and Rivers Commission, 2001)

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

Proposed clearing is not at variance to this Principle

Comment

The works require the removal of up to 0.6 ha of roadside vegetation within a 2.5 ha Project DE. The clearing will occur adjacent to the Bussell Hwy and intersecting roads to facilitate tie in works and reinstatement of existing roadside drainage. The proposed works are minor in nature and adjacent to a highly modified road corridor.

The proposed clearing will not lead to the exposure of large tracts of land to degradation pressure. Land that is cleared for the Proposal will not be exposed to wind and water erosion processes for an extended duration, therefore impacts from potential susceptibility to these is expected to be minor if it occurs at all. Post-clearing, these areas will be covered by a hard-stand of bitumen (road surface), gravels (batters) or revegetation (verge), which will prevent any potential for long-term land degradation impacts.

Dieback (*Phytophthora cinnamomi*) is considered to potentially occur in native vegetation that occurs in an area that receives annual rainfall greater than 400 mm and is south of the 26th parallel of latitude. Native vegetation within the Project envelope meets these criteria and should therefore be considered to potentially contain Dieback.

Dieback surveys have occurred throughout the Stage 2 area, in the vicinity of and partially overlapping the Project DE (Great Southern Biologic, 2020). **Figure 10** and **Figure 11** display the location of the dieback study areas in relation to the Project DE. During the desktop assessment and preliminary field visits conducted by (Great Southern Biologic, 2020), it was identified that most of the dieback study area consisted of cleared land or remnant vegetation in a degraded state. These areas were excluded from survey as they cannot be assessed due to the lack of disease indicator species required for disease diagnosis and/or a significant history of site disturbance.

Disease occurrence surveys were undertaken in all assessable vegetation within the (Great Southern Biologic, 2020) study area. The surveys identified two infested areas, both influencing vegetation on both sides of the current highway. The infested areas cover approximately 2.3 ha. A single uninfested area of vegetation was also identified and this occurs adjacent to infested vegetation that is on the Bussell Highway and Ruabon Road intersection. This area is only 0.3 ha and is considered to be unprotectable from future disease spread. All other areas of assessable vegetation were determined to be uninterpretable due to a lack of susceptible species.

Following the determination of disease hygiene categories, all uninterpretable or uninfested vegetation was assessed for protectability, using the DBCA Protectable Areas criteria. No assessable vegetation has been classified as protectable (Great Southern Biologic, 2020).

Some areas within the Project DE have not been the subject of dieback survey, however, are situated adjacent to dieback surveyed areas. Where these areas contain native vegetation, they comprise highly disturbed, thin strips of roadside vegetation, located between the existing road and cleared farmland. Advice from the dieback survey indicates that remaining areas should be treated as 'Unmappable' (areas that are sufficiently disturbed so that *P. cinnamomi* occurrence mapping is not possible at the time of inspection or 'Uninterpretable' (dieback unknown).

Management measures will need to be implemented to avoid the potential introduction or spread of Dieback within uninfested and uninterpretable areas. These measures may include:

- ensuring machinery is clean-on-entry to site;
- avoid movement of soil in wet conditions;
- ensure no material (such as fill and mulch) potentially containing dieback is brought to site; and
- limit movement of soil from uninterpretable areas to uninfested areas.

Management measures for Dieback will be included in the Project specific CEMP.

Due to the short-term nature of the vegetation clearing, and the subsequent hard- or soft-scaping treatment of the land area, the clearing of native vegetation by the Proposal is not expected to result in appreciable land degradation.

Outcome

The clearing of native vegetation is not at variance with this clearing principle.

Methodology

(EPA, 2016).

(Great Southern Biologic, 2020)

Main Roads Site Inspection (Main Roads, 2022).

(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

A search of the DAWE PMST and DBCA Managed Lands database determined that the Project DE does not intersect any National Parks, nature reserves or Bush Forever Sites (DAWE, 2022a) (DBCA, 2022a). Three conservation areas occur within two kilometres of the Project DE including Ludlow State Forest, Tuart Forest National Park, and Coolilup State Forest (DBCA, 2022a).

The Proposal will not result in any breakages of existing linkages between remnant vegetation and the Ludlow State Forest or the Tuart Forest National Park conservation areas.

The Ramsar-listed Vasse-Wonnerup wetland system is also located approximately 700 m west of the Project DE at its nearest point (the Tuart Forest National Park component), with the wetlands themselves approximately 1.5 km separation distance at the nearest point (Ecoedge, 2019). The clearing associated with the proposal comprises intersection upgrades which, due to their small area (0.6 ha spread across 10 different areas) on the edge of already cleared areas and separation (from the wetlands) are unlikely to have any impact to the Vasse-Wonnerup wetland system.

The Project DE intersects the Sabina River at the location of the existing Sabina River Bridge. Proposed works are limited in this area to armouring of the river channel downstream of the bridge. No impacts on the volume or quality of stream flow are anticipated and therefore no impacts are anticipated on the Vasse-Wonnerup wetland system from the proposed works.

Drainage for the Proposal will be managed through standard engineering design to ensure no change to local drainage water flows to watercourses that feed the Vasse-Wonnerup system.

Outcome

The clearing of native vegetation is not at variance with this clearing principle.

Methodology

DBCA shapefiles (DBCA, 2022a)

(Ecoedge, 2019)

PMST (DAWE, 2022a)

(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 at variance to this Principle

Comment

The works require the removal of up to 0.6 ha of roadside vegetation within a 2.5 ha Project DE. The clearing will occur adjacent to the Bussell Hwy and intersecting roads to facilitate tie in works and reinstatement of existing roadside drainage. None of the vegetation proposed for removal under CPS818, is growing in association with a watercourse. Surface water quality is unlikely to be negatively impacted by the removal of up to 0.6 ha of vegetation growing in the road verge.

The works will result in additional seal to the road shoulder, improving existing roadside drains and are therefore likely to reduce sedimentation that could potentially occur due to runoff from rainfall events.

Additional proposed activities consist of reworking previously constructed drainage channels to improve transmission of surface water away from road infrastructure.

A search of ArcGIS shapefiles/ the DWER database confirms that the proposed works intersect the Sabina River at the location of the existing Sabina River Bridge. Proposed works are limited in this area to armouring of the river channel downstream of the bridge, and no impacts on the volume or quality of stream flow are anticipated.

The Project DE falls within the Geographie Catchment Management Area (*Water Resources Legislation Amendment Act 2007*) and the proclaimed Busselton-Capel Groundwater Area (*Rights in Water and Irrigation Act 1914* (RIWI Act)).

The Project DE is not within a Proclaimed Surface Water Area (RIWI Act), Public Drinking Water Source Area (*Country Areas Water Supply Act 1947* (CAWS Act)) or Clearing Control Catchment (CAWS Act).

Groundwater

Groundwater salinity is considered to be marginally brackish varying between 500 to 1000 mg/L (360 Environmental, 2016b). Clearing will be localised and of a small scale and is not expected to exacerbate salinization of groundwater.

The removal of up to 0.6 ha of native vegetation (spread over 10 different areas) is unlikely to impact groundwater levels or quality. Furthermore, the works are not likely to intercept groundwater levels as they will not exceed 0.5 m below current ground level.

Surface Water

Rainfall events have the potential to mobilise spilled or leaked contaminants such as hydrocarbons and mobilise loose topsoil and sand disturbed during construction. The contamination of surface or underground water will be prevented through the best practice storage of hazardous materials and bunding of hydrocarbon storage and re-fuelling areas to prevent contaminated runoff. Mobilisation of suspended solids during frequent rainfall events will be managed via the implementation of best management practice techniques including:

- Incorporation of stormwater management measures into road design such as temporary detention storages, drop structures and rock lined/pitched drainage channels; and
- Implementation of temporary drainage infrastructure during construction to promote sediment fall out and prevent erosion.

No impacts to surface or groundwater are expected to result from the use of hazardous substances during construction of the Proposal.

Outcome

The short-term nature of the vegetation clearing, subsequent hard or soft-scaping treatment of the land area, and implementation of the proposed drainage measures will minimise any potential deterioration in the quality of surface or underground water resulting from Proposal implementation.

The clearing of native vegetation is not at variance with this clearing principle.

Methodology

(360 Environmental, 2016b)

Main Roads Site Inspection (Main Roads, 2022)

DWER and DBCA shapefiles

(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 at variance to this Principle
<p>Comment</p> <p>Average annual rainfall for the period 1986-2019 in the vicinity of the Project DE is 660 mm (Bureau of Meteorology Australia, 2022).</p> <p>The works require the removal of up to 0.6 ha of roadside vegetation (spread over 10 different areas) within a 2.5 ha Project DE.</p> <p>The clearing will occur adjacent to an existing road corridor to facilitate the tie in works in addition to the reinstatement of existing roadside drainage. Given the small, intermittent patches of clearing proposed within a largely vegetated local landscape, clearing is unlikely to exacerbate the incidence or intensity of flooding.</p> <p>The Proposal will maintain the existing drainage regime through standard engineering design with no change to water flows. Proposal design incorporates table drains and flat-bottomed swale drains to facilitate infiltration of surface water runoff at source.</p> <p>Flooding rarely occurs along the existing Bussell Highway and with the implementation of the proposed road design and drainage measures is equally unlikely to occur post-construction. The Project DE is not considered to be susceptible to flooding, therefore the proposed clearing is not likely to cause, or exacerbate, the incidence or intensity of flooding.</p> <p><u>Outcome</u></p> <p>The clearing of native vegetation is not at variance with this clearing principle.</p>
<p>Methodology</p> <p>(Bureau of Meteorology Australia, 2022).</p> <p>Main Roads Site Inspection (Main Roads, 2022)</p>

7 ADDITIONAL ACTIONS REQUIRED

Table 15 summarises what further pre-clearing impact assessment and vegetation management is required in accordance with CPS 818.

Table 15 Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
<p>1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.</p> <p>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:</p> <ul style="list-style-type: none"> (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; <p>the preparation of an Assessment Report, as required by condition 6(e), is not required.</p>	No	No further action required.
<p>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.</p>	No	No further action required.
<p>3. The project involves clearing for temporary works (as defined by CPS 818).</p>	No	No further action required.
<p>4 a. Project is within Region that:</p> <ul style="list-style-type: none"> - 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 	Yes	<p>Proceed with standard Vehicle and Plant management actions from Principle Environmental Management Requirements (PEMRs) and Vehicle and Plant Hygiene Checklists.</p> <p>PEMRs are presented as Appendix D</p>
<p>4b. Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions?</p>	No	No further action required.
<p>5. Main Roads has been notified by DWER or an environmental specialist</p>	No	No further action required.

Impact of Clearing	Yes/No or NA	Further Action Required
that the area to be cleared is susceptible to a pathogen other than dieback		
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.

8 STAKEHOLDER CONSULTATION

The CAR has determined in accordance with CPS 818/15 Condition 8 that stakeholder consultation is not warranted for the proposal.

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10 APPENDICES

Appendix	Title
Appendix A	Figures
Appendix B	NatureMap Database Search – December 2021
Appendix C	DAWE Protected Matters Database Search
Appendix D	Principal Environmental Management Requirements (PEMR's)

Appendix A: Figures

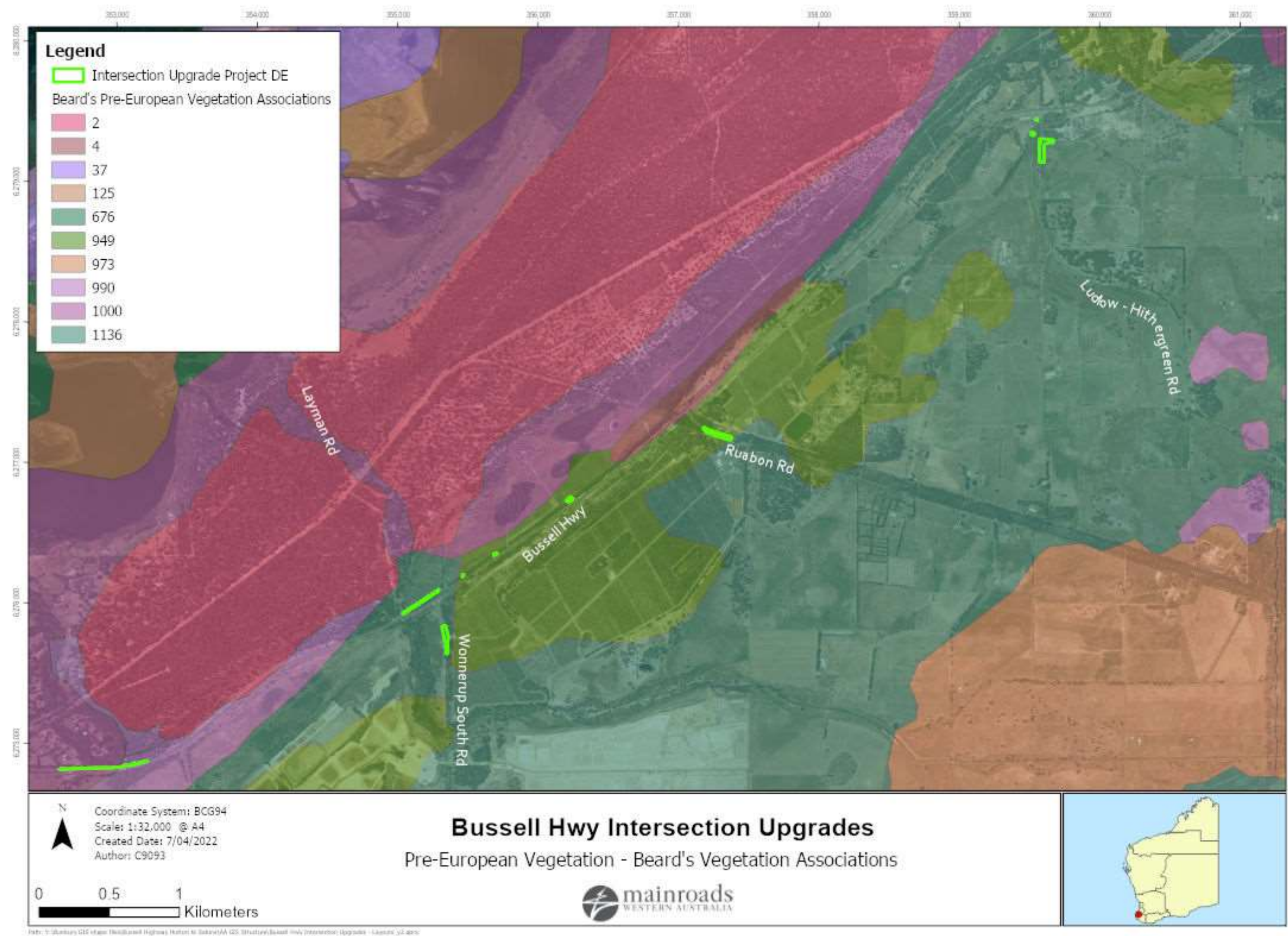


Figure 5. Pre- European Vegetation – Beard Vegetation Associations

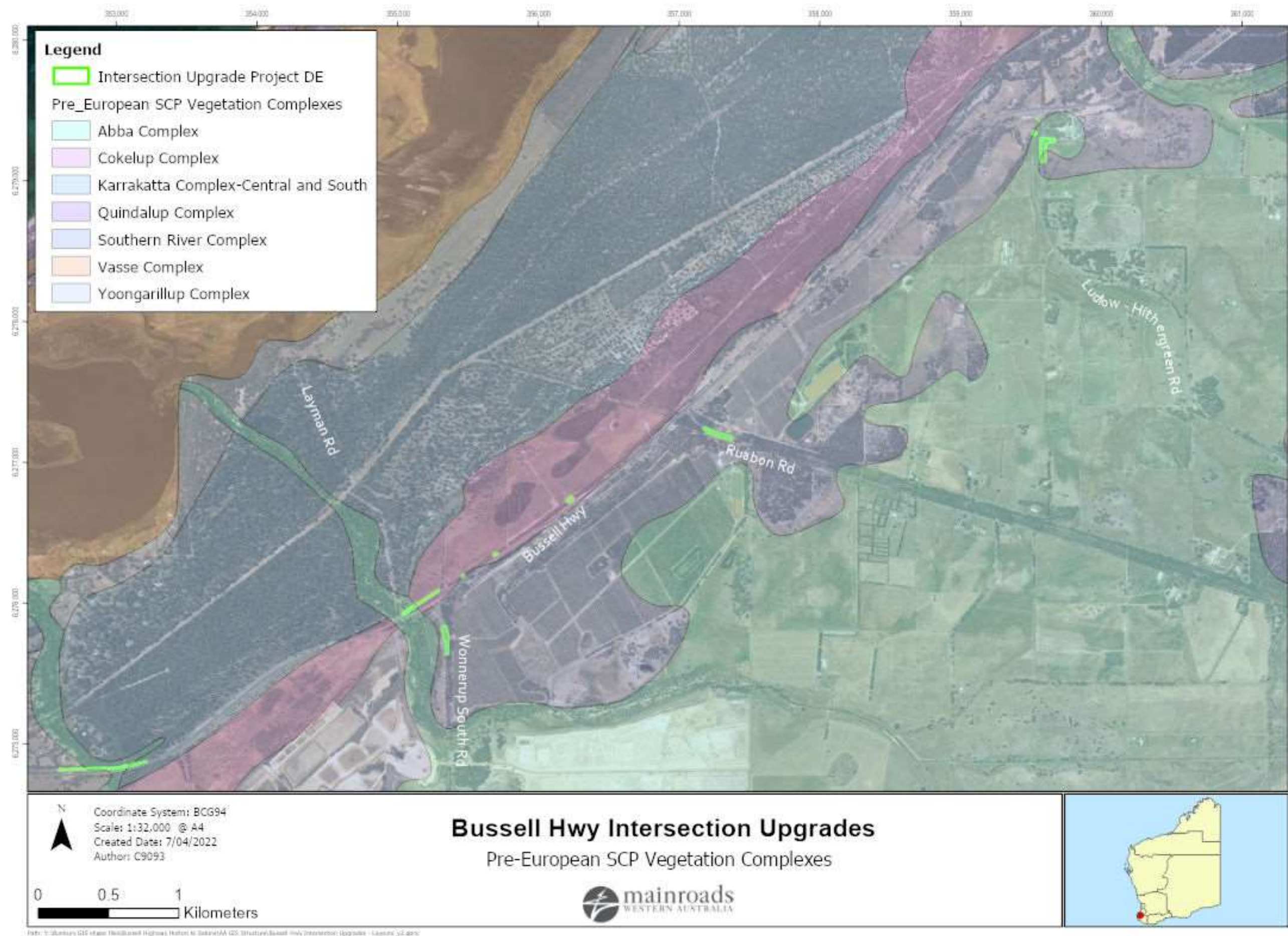


Figure 6. Pre-European Vegetation - Vegetation Complexes

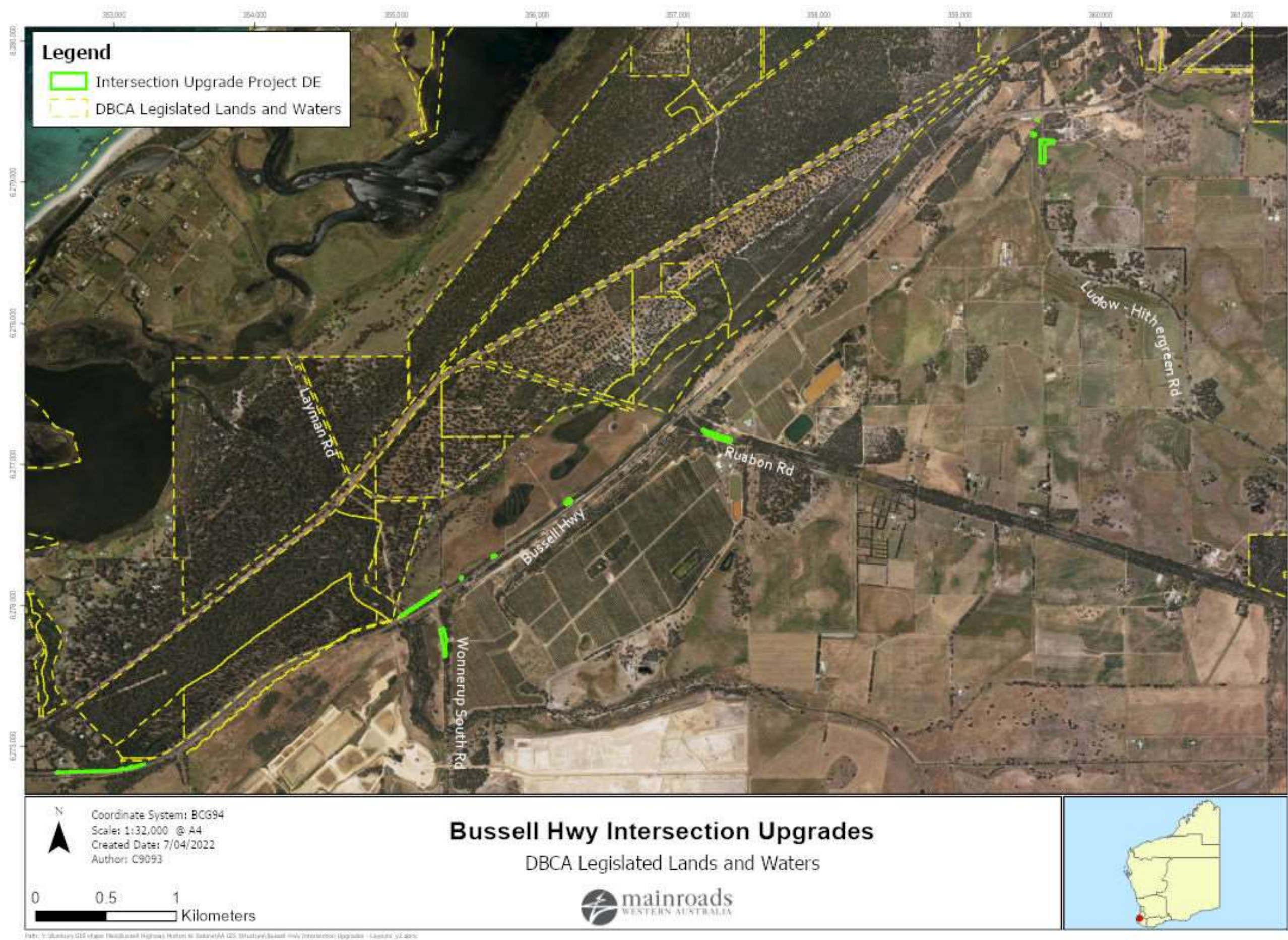


Figure 7. DBCA Legislated Lands and Waters

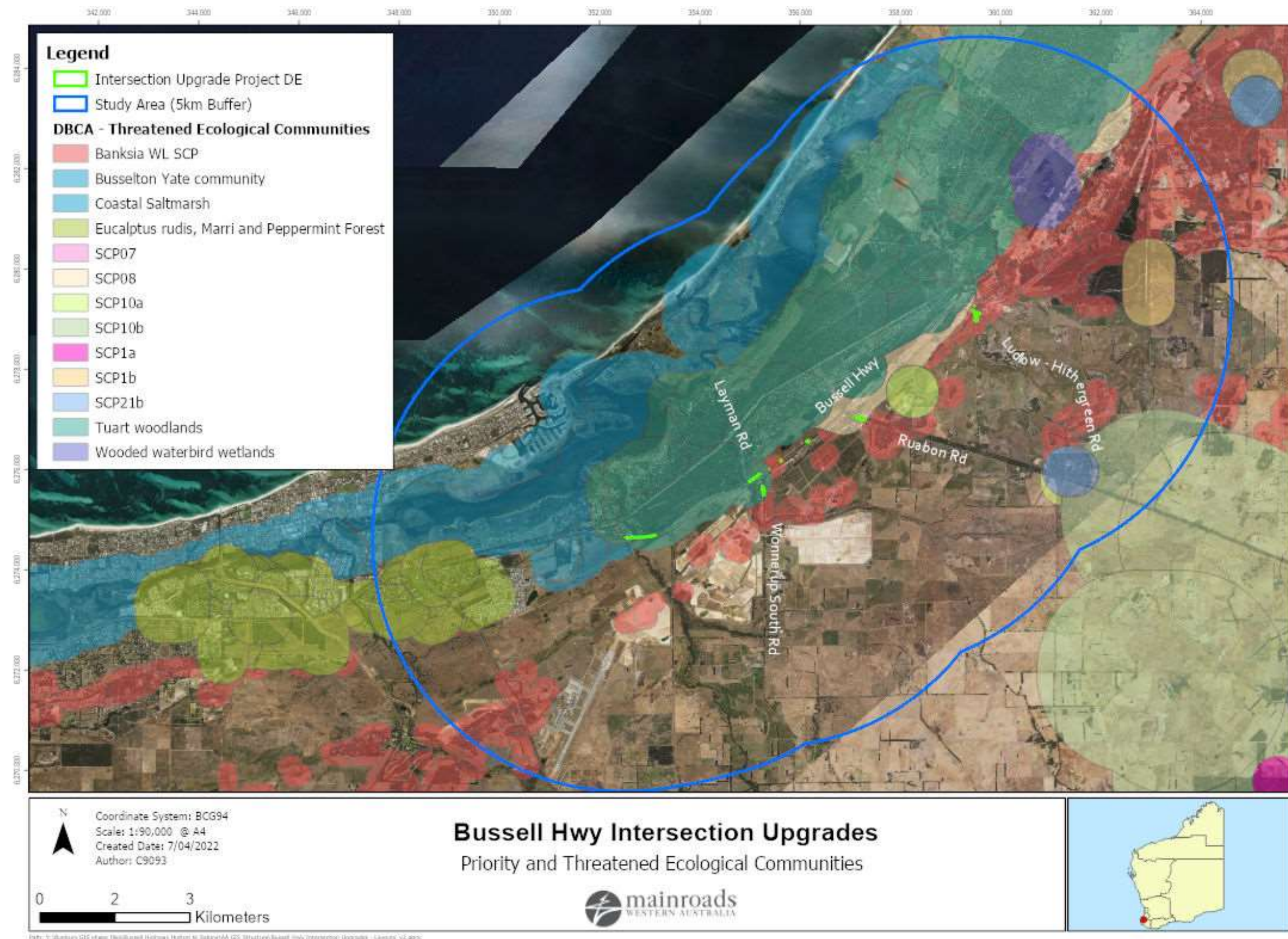


Figure 8. Threatened and Priority Ecological Buffered Communities

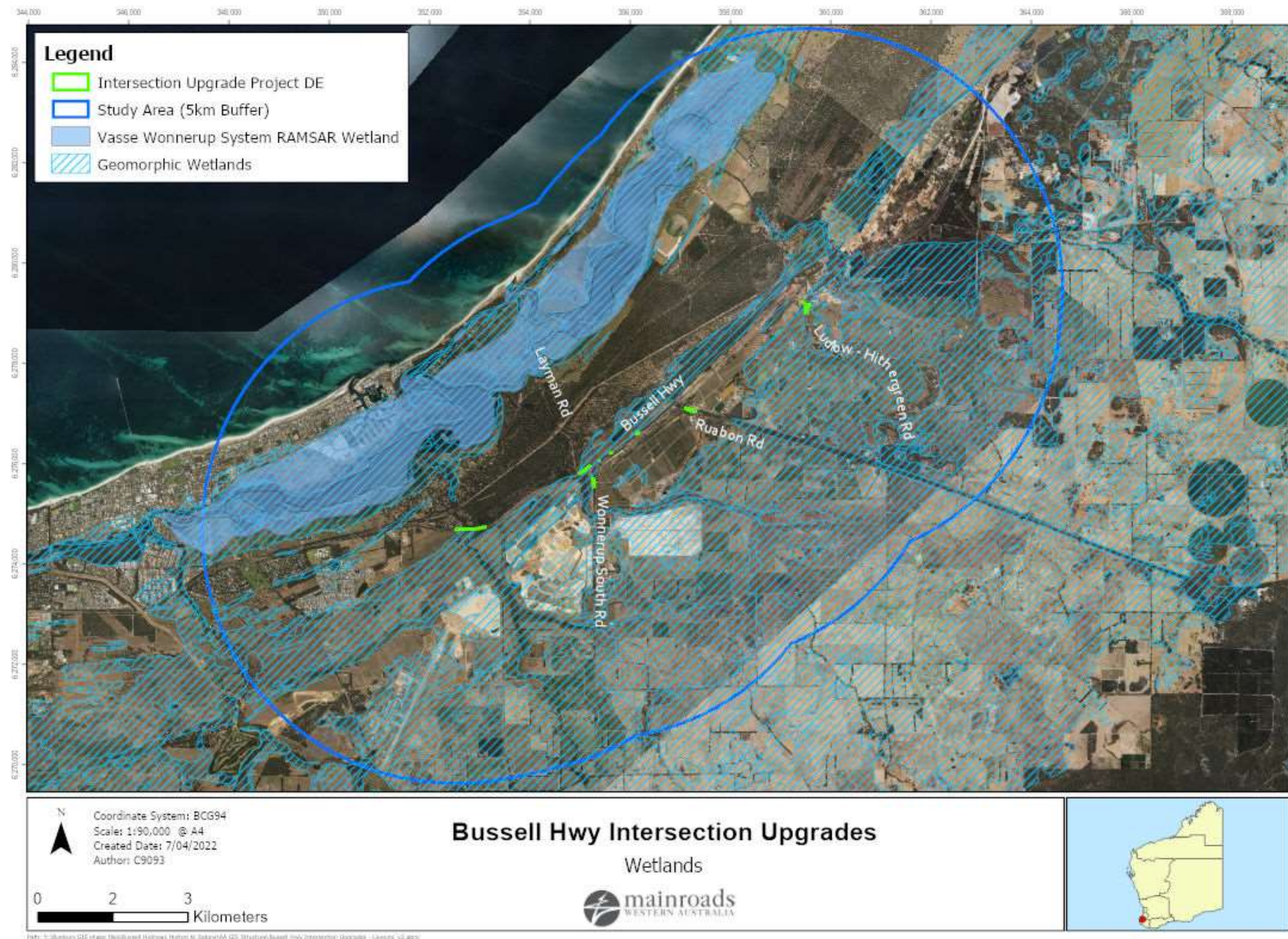


Figure 9. Wetlands

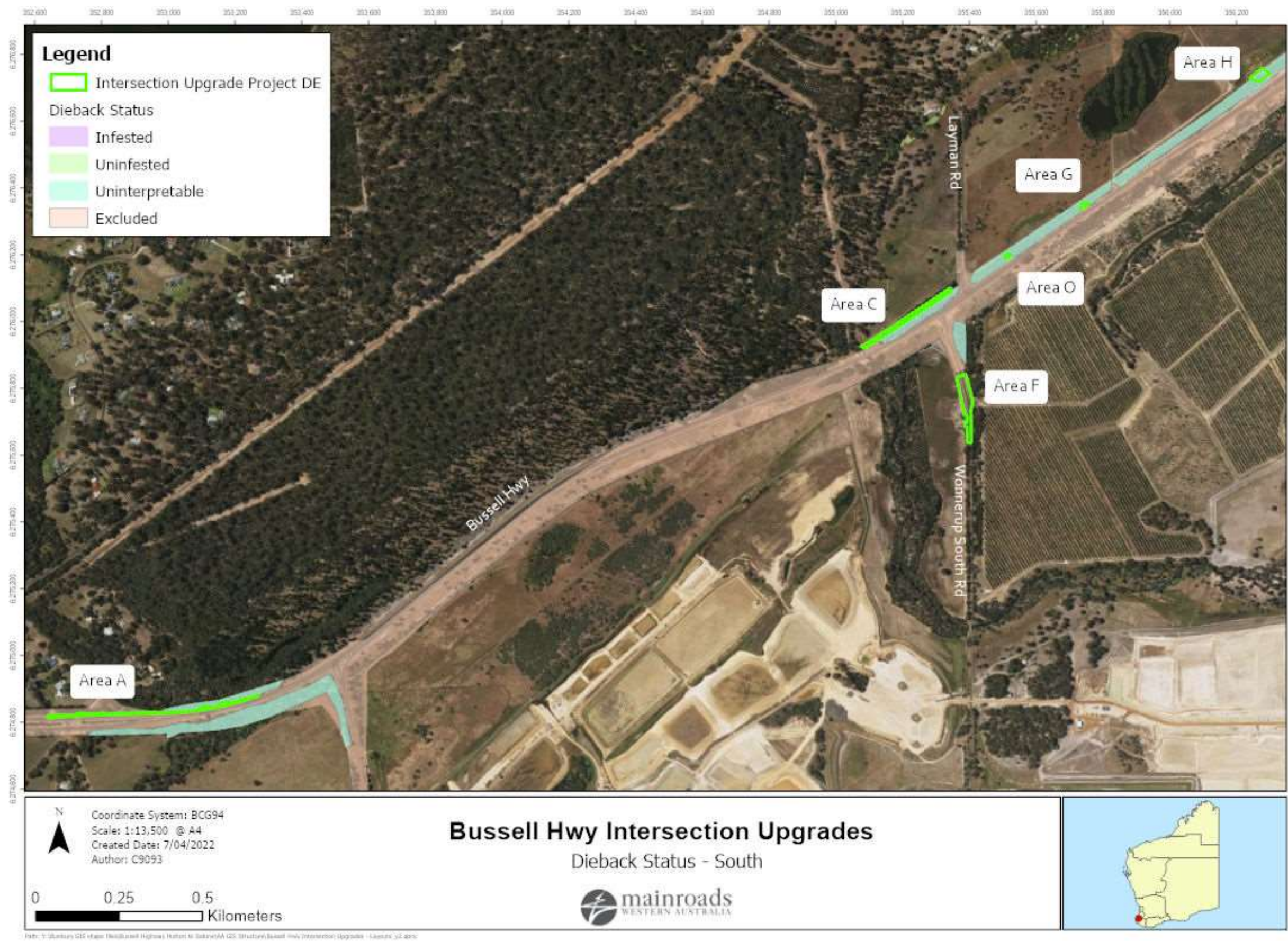


Figure 10. Dieback Status South

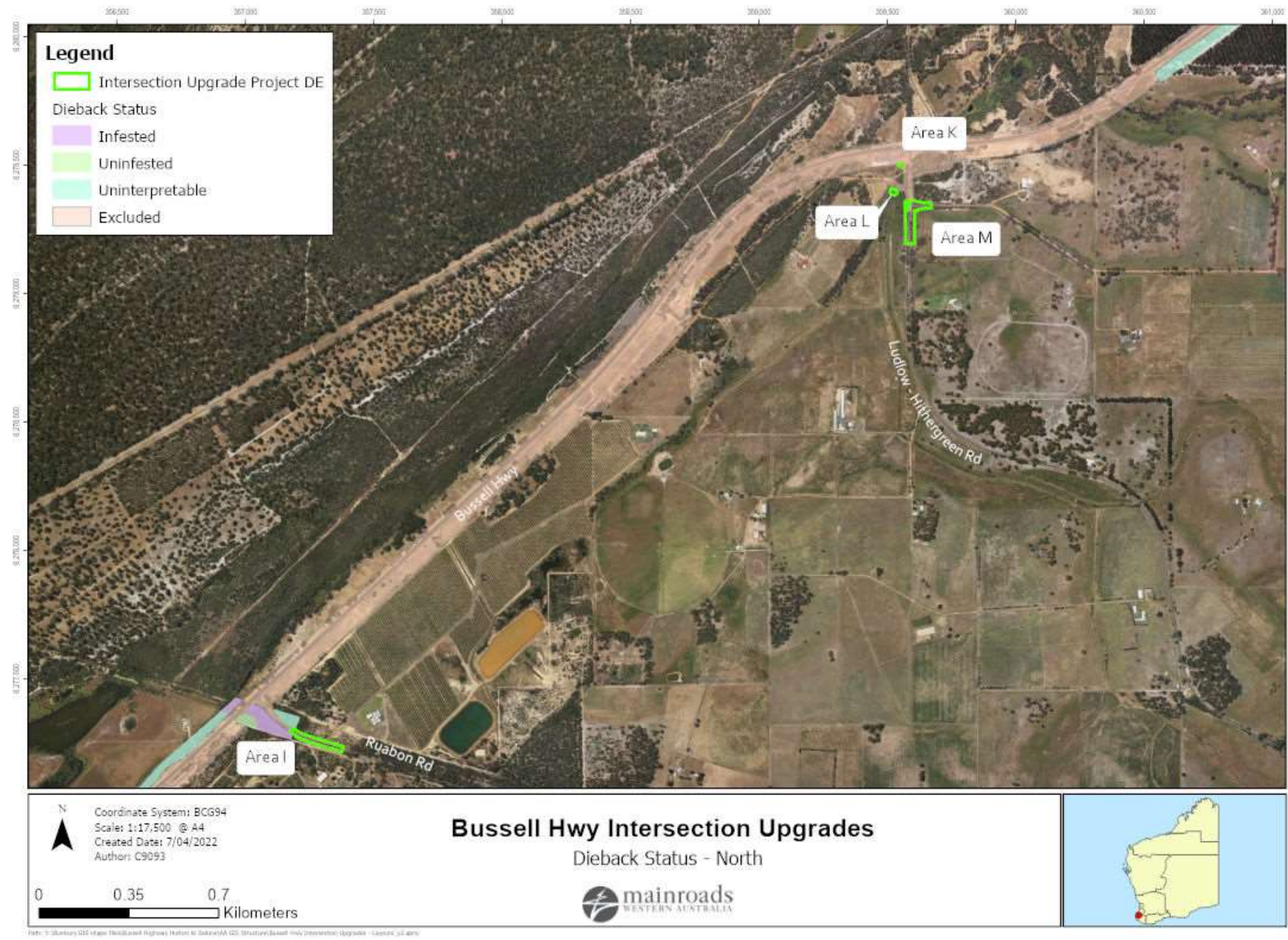


Figure 11. Dieback Status North

Appendix B: NatureMap Database Search – December 2021



NatureMap Species Report

Created By Guest user on 10/12/2021

Current Names Only Yes

Core Datasets Only Yes

Method 'By Line'

Vertices 33° 39' 23" S, 115° 24' 29" E 33° 35' 09" S, 115° 33' 03" E

Group By Conservation Status

Conservation Status	Species	Records
Non-conservation taxon	1204	12143
Other specially protected fauna	3	28
Priority 1	4	5
Priority 2	7	22
Priority 3	29	151
Priority 4	24	164
Protected under international agreement	18	348
Rare or likely to become extinct	30	1158
TOTAL	1319	14019

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Rare or likely to become extinct				
1.	32204 <i>Banksia nivea</i> subsp. <i>uliginosa</i>		T	
2.	32046 <i>Banksia squarrosa</i> subsp. <i>argillacea</i>		T	
3.	24345 <i>Brotia polioptilus</i> (Australasian Bittern)		T	
4.	1596 <i>Caladenia huegelii</i> (Grand Spider Orchid)		T	
5.	1213 <i>Calectasia cyanea</i> (Blue Tinsel Lily)		T	
6.	24784 <i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
7.	24790 <i>Calidris tenuirostris</i> (Great Knot)		T	
8.	24731 <i>Calyptrorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black Cockatoo)		T	
9.	24733 <i>Calyptrorhynchus baudinii</i> (Baudin's Cockatoo, White-tailed Long-billed Black Cockatoo)		T	
10.	24734 <i>Calyptrorhynchus latirostris</i> (Carnaby's Cockatoo, White-tailed Short-billed Black Cockatoo)		T	
11.	48400 <i>Calyptrorhynchus</i> sp. (white-tailed black cockatoo)		T	
12.	25335 <i>Caretta caretta</i> (Loggerhead Turtle)		T	
13.	43980 <i>Chamaeleon</i> sp. S coastal plain (R.D. Royce 4572)		T	
14.	25575 <i>Charadrius leschenaultii</i> (Greater Sand Plover)		T	
15.	25336 <i>Chelonia mydas</i> (Green Turtle)		T	
16.	34765 <i>Darwinia whiterensis</i>		T	
17.	24092 <i>Dasyurus geoffroyi</i> (Quoll, Western Quoll)		T	
18.	25618 <i>Diomedea exulans</i> (Wandering Albatross)		T	
19.	10796 <i>Diuris drummondii</i> (Tail Donkey Orchid)		T	
20.	1639 <i>Drakaea elastica</i> (Glossy-leaved Hammer Orchid)		T	
21.	14526 <i>Grevillea elongata</i>		T	
22.	24168 <i>Macrotis lagotis</i> (Bilby, Dalglyte, Nini)		T	
23.	14085 <i>Petrophile latericola</i>		T	
24.	24166 <i>Pseudochelonus occidentalis</i> (Western Ringtail Possum, ngwayir)		T	
25.	24145 <i>Setonix brachyurus</i> (Quokka)		T	
26.	1033 <i>Tetraria australensis</i>		T	
27.	12412 <i>Verticordia densiflora</i> var. <i>pedunculata</i>		T	
28.	12448 <i>Verticordia plumosa</i> var. <i>ananeotes</i>		T	
29.	12453 <i>Verticordia plumosa</i> var. <i>vassensis</i>		T	
30.	34113 <i>Westralunio carteri</i> (Carter's Freshwater Mussel)		T	
Protected under international agreement				
31.	41323 <i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
32.	24779 <i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
33.	24780 <i>Calidris alba</i> (Sanderling)		IA	
34.	24786 <i>Calidris melanotos</i> (Pectoral Sandpiper)		IA	
35.	24788 <i>Calidris ruficollis</i> (Red-necked Stint)		IA	
36.	24789 <i>Calidris subminuta</i> (Long-toed Stint)		IA	
37.	48587 <i>Hydroprogne caspia</i> (Caspan Tern)		IA	
38.	25741 <i>Limosa limosa</i> (Black-tailed Godwit)		IA	

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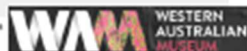


Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
39.	24690 <i>Macronectes giganteus</i> (Southern Giant Petrel)		IA	
40.	48591 <i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
41.	24843 <i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
42.	24382 <i>Pluvialis fulva</i> (Pacific Golden Plover)		IA	
43.	24383 <i>Pluvialis squatarola</i> (Grey Plover)		IA	
44.	48597 <i>Thalasseus bergii</i> (Crested Tern)		IA	
45.	24806 <i>Tringa glareola</i> (Wood Sandpiper)		IA	
46.	24808 <i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
47.	24809 <i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
48.	41351 <i>Xenus cinereus</i> (Terek Sandpiper)		IA	
Other specially protected fauna				
49.	25624 <i>Falco peregrinus</i> (Peregrine Falcon)		S	
50.	25508 <i>Phascogale tapoatafa</i> (Brush-tailed Phascogale)		S	
51.	48070 <i>Phascogale tapoatafa</i> subsp. <i>wambengeri</i> (South-western Brush-tailed Phascogale, Wambenger)		S	
Priority 1				
52.	48762 <i>Acacia</i> sp. <i>Binningup</i> (G. Cockerton et al. WB 37704)		P1	
53.	18102 <i>Andersonia ferricola</i>		P1	
54.	14535 <i>Bolboschoenus medianus</i>		P1	Y
55.	20666 <i>Stachystemon</i> sp. <i>Keysbrook</i> (R. Archer 17/11/99)		P1	
Priority 2				
56.	3237 <i>Acacia benthamii</i>		P2	
57.	4586 <i>Amperea micrantha</i>		P2	
58.	3006 <i>Cardamine pauciflora</i>		P2	
59.	29492 <i>Leucopogon</i> sp. <i>Bussellton</i> (D. Cooper 243)		P2	
60.	2874 <i>Montia australasica</i>		P2	
61.	999 <i>Schoenus liliaceus</i>		P2	
62.	1717 <i>Thelymitra variegata</i> (Queen of Sheba)		P2	
Priority 3				
63.	43201 <i>Adelphacme minima</i>		P3	
64.	7829 <i>Angianthus drummondii</i>		P3	
65.	20026 <i>Blennospora doliformis</i>		P3	
66.	16313 <i>Boronia anceps</i>		P3	
67.	17804 <i>Boronia tetragona</i>		P3	
68.	19338 <i>Chamaecilla gibsonii</i>		P3	
69.	17686 <i>Chordiflex gracilior</i>		P3	
70.	41803 <i>Eryngium</i> sp. <i>Ferox</i> (G.J. Kelghery 16034)		P3	
71.	41810 <i>Eryngium</i> sp. <i>Subdecumbens</i> (G.J. Kelghery 5390)		P3	
72.	34030 <i>Geothia australis</i> (Pouched Lamprey)		P3	
73.	14011 <i>Grevillea brachystylis</i> subsp. <i>brachystylis</i>		P3	
74.	12219 <i>Grevillea bronwenae</i>		P3	
75.	2190 <i>Halea olfieldii</i>		P3	
76.	16522 <i>Isopogon formosus</i> subsp. <i>dasyplepis</i>		P3	
77.	20462 <i>Jacksonia gracillima</i>		P3	
78.	5038 <i>Laslopetalum membranaceum</i>		P3	
79.	25147 <i>Lerista lineata</i> (Perth Slider, Lined Skink)		P3	
80.	13779 <i>Loxocarya magna</i>		P3	
81.	33638 <i>Meloneites tenuifolia</i>		P3	
82.	6193 <i>Myrtophyllum echinatum</i>		P3	
83.	4179 <i>Pultenaea pinifolia</i>		P3	
84.	974 <i>Schoenus benthamii</i>		P3	
85.	1008 <i>Schoenus pennisetis</i>		P3	
86.	25800 <i>Stylidium paludicola</i>		P3	
87.	16769 <i>Synaphea hians</i>		P3	
88.	16862 <i>Synaphea petiolaris</i> subsp. <i>simplex</i>		P3	
89.	4538 <i>Tetradlea parvifolia</i>		P3	
90.	24855 <i>Tyto novaehollandiae</i> subsp. <i>novaehollandiae</i> (Masked Owl (southwest))		P3	
91.	12392 <i>Verticordia attenuata</i>		P3	
Priority 4				
92.	3339 <i>Acacia flagelliformis</i>		P4	
93.	3537 <i>Acacia semitrullata</i>		P4	
94.	141 <i>Aponogeton hexatepalus</i> (Stalked Water Ribbons)		P4	
95.	17107 <i>Banksia meisneri</i> subsp. <i>ascendens</i> (Scott River Banksia)		P4	
96.	13862 <i>Caladenia speciosa</i>		P4	
97.	35796 <i>Calothamnus quadrifidus</i> subsp. <i>teretifolius</i>		P4	
98.	35657 <i>Chamaeleidum</i> sp. <i>Yongantup</i> (G.J. Kelghery 3636)		P4	
99.	13512 <i>Eucalyptus rudis</i> subsp. <i>cratyantha</i>		P4	

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Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
100.	24189 <i>Falsistrellus mackenziei</i> (Western False Pipitrelle, Western Falsistrelle)		P4	
101.	1945 <i>Franklandia tritristata</i> (Lanoline Bush)		P4	
102.	24215 <i>Hydromys chrysogaster</i> (Water-rat, Rakali)		P4	
103.	48588 <i>Isodon fusciventer</i> (Quenda, southwestern brown bandicoot)		P4	
104.	33742 <i>Microtis quadrata</i>		P4	
105.	48022 <i>Notamacropus irma</i> (Western Brush Wallaby)		P4	
106.	36200 <i>Ondatra submersa</i>		P4	
107.	24328 <i>Oxyura australis</i> (Blue-billed Duck)		P4	
108.	24240 <i>Pseudomys occidentalis</i> (Western Mouse)		P4	
109.	1003 <i>Schoenus natus</i> (Floating Bog-rush)		P4	
110.	7756 <i>Stylidium longitubum</i> (Jumping Jacks)		P4	
111.	7803 <i>Stylidium striatum</i> (Fan-leaved Triggerplant)		P4	
112.	48135 <i>Thlinomis rubricollis</i> (Hooded Plover, Hooded Dotterel)		P4	
113.	1334 <i>Thysanotus glaucus</i>		P4	
114.	44444 <i>Tripterococcus</i> sp. <i>brachylobus</i> (A.S. George 14234)		P4	
115.	14714 <i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>		P4	

Non-conservation taxon

116.	15466 <i>Acacia applanata</i>			
117.	3262 <i>Acacia cochlearis</i> (Rigid Wattle)			
118.	3282 <i>Acacia cyclops</i> (Coastal Wattle)			
119.	3331 <i>Acacia extensa</i> (Wiry Wattle)			
120.	3374 <i>Acacia huegellii</i>			
121.	3383 <i>Acacia incurva</i>			
122.	3424 <i>Acacia litorea</i>			
123.	3448 <i>Acacia mooreana</i>			
124.	3482 <i>Acacia paradoxa</i> (Kangaroo Thorn)	Y		
125.	3502 <i>Acacia pulchella</i> (Prickly Moses)			
126.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
127.	15483 <i>Acacia pulchella</i> var. <i>pulchella</i>			
128.	3504 <i>Acacia pycnantha</i> (Golden Wattle)	Y		
129.	3527 <i>Acacia saligna</i> (Orange Wattle, Kudjong)			
130.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
131.	30036 <i>Acacia saligna</i> subsp. <i>stolonifera</i>			
132.	3557 <i>Acacia stenoptera</i> (Narrow Winged Wattle)			
133.	3602 <i>Acacia wilsoniana</i> (Grass Wattle)			
134.	3184 <i>Acaena echinata</i> (Sheep's Bunt)			
135.	24260 <i>Acanthiza apicalis</i> (Broad-tailed Thornbill, Inland Thornbill)			
136.	24261 <i>Acanthiza chrysorrhoa</i> (Yellow-rumped Thornbill)			
137.	24262 <i>Acanthiza inornata</i> (Western Thornbill)			
138.	24560 <i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
139.	<i>Acanthorhynchus</i> sp.			
140.	25535 <i>Accipiter cirrocephalus</i> (Collared Sparrowhawk)			
141.	25536 <i>Accipiter fasciatus</i> (Brown Goshawk)			
142.	42368 <i>Acrisophila trilineatus</i> (Western Three-lined Skink)			
143.	25755 <i>Acrocephalus australis</i> (Australian Reed Warbler)			
144.	26444 <i>Acrocoronum ciliolatum</i>			
145.	5315 <i>Adinodum cunninghamii</i> (Albany Daisy)			
146.	1790 <i>Adenanthos melsneri</i>			
147.	1791 <i>Adenanthos obovatus</i> (Basket Flower)			
148.	28281 <i>Adenanthos</i> sp. <i>Whitcher Range</i> (G.J. Kelghery 9736)			
149.	<i>Aeschylus</i> sp.			
150.	<i>Agaricus</i> sp.			
151.	5316 <i>Agonis flexuosa</i> (Peppermint, Woni)			
152.	17202 <i>Agonis flexuosa</i> var. <i>flexuosa</i>			
153.	182 <i>Agrostis stolonifera</i> (Creeping Bent)	Y		
154.	23474 <i>Agrostocrinum hirsutum</i>			
155.	1261 <i>Agrostocrinum scabrum</i> (Blue Grass Lily)			
156.	184 <i>Aira caryophylla</i> (Silvery Halgrass)	Y		
157.	43820 <i>Albica flaccida</i>	Y		
158.	1732 <i>Allocasuarina humilis</i> (Dwarf Sheoak)			
159.	190 <i>Alopecurus myosuroides</i> (Slender Foxtail)	Y		
160.	2648 <i>Alternanthera denticulata</i> (Lesser Joyweed)			
161.	6565 <i>Alyxia buxifolia</i> (Dysentery Bush)			
162.	38754 <i>Amanita conicobulbosa</i>			
163.	38757 <i>Amanita xanthocephala</i>			
164.	2655 <i>Amaranthus albus</i> (Tumbleweed)	Y		
165.	6209 <i>Ammi majus</i> (Bishop's Weed)	Y		
166.	4584 <i>Amperea conferta</i>			
167.	13101 <i>Amperea simulans</i>			

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	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
168.	13380	<i>Amphibromus nervosus</i>			
169.	197	<i>Amphipogon debilis</i>			
170.	200	<i>Amphipogon turbinatus</i>			
171.		<i>Anane leppertii</i>			
172.	1060	<i>Anarthria laevis</i>			
173.	1062	<i>Anarthria prolifera</i>			
174.	24310	<i>Anas castanea</i> (Chestnut Teal)			
175.	24312	<i>Anas gracilis</i> (Grey Teal)			
176.	24313	<i>Anas platyrhynchos</i> (Mallard)			
177.	24315	<i>Anas rhynchotis</i> (Australasian Shoveler)			
178.	24316	<i>Anas superciliosa</i> (Pacific Black Duck)			
179.		<i>Ancylodae</i> sp.			
180.	6306	<i>Andersonia caerulea</i> (Foxtail)			
181.	25844	<i>Andersonia caerulea</i> subsp. <i>caerulea</i>			
182.	6312	<i>Andersonia involucrata</i>			
183.	6317	<i>Andersonia micrantha</i>			
184.		<i>Angianthus aff. drummondii</i> "sth small grey" scps (BUKANG 013)			
185.	7833	<i>Angianthus preissianus</i>			
186.	47414	<i>Anhinga novaehollandiae</i> (Australasian Darter)			
187.	1407	<i>Anigozanthos flavidus</i> (Tall Kangaroo Paw)			
188.	1409	<i>Anigozanthos humilis</i> (Catspaw)			
189.	11434	<i>Anigozanthos humilis</i> subsp. <i>humilis</i>			
190.	1411	<i>Anigozanthos manglesi</i> (Mangles Kangaroo Paw, Kurubarang)			
191.	1416	<i>Anigozanthos viridis</i> (Green Kangaroo Paw, Kurubarang)			
192.	11566	<i>Anigozanthos viridis</i> subsp. <i>viridis</i>			
193.	44629	<i>Anillos australis</i>			
194.	6949	<i>Anthocercis litorea</i> (Yellow Tailflower)			
195.	24561	<i>Anthochaera carunculata</i> (Red Wattlebird)			
196.	24562	<i>Anthochaera lunulata</i> (Western Little Wattlebird)			
197.	12724	<i>Anthodium junceiforme</i>			
198.	202	<i>Anthoxanthum odoratum</i> (Sweet Vernal Grass)	Y		
199.	19987	<i>Anthriscus caucalis</i>	Y		Y
200.	3688	<i>Aotus gracilima</i>			
201.	1117	<i>Aphelia cyperoides</i>			
202.	1118	<i>Aphelia drummondii</i>			
203.	12040	<i>Apium prostratum</i> subsp. <i>prostratum</i> var. <i>prostratum</i> (Sea Celery)			
204.		<i>Apogon rueppellii</i>			
205.	24990	<i>Aprasia pulchella</i> (Granite Worm-lizard)			
206.	24285	<i>Aquila audax</i> (Wedge-tailed Eagle)			
207.		<i>Arachnura higginsii</i>			
208.		<i>Araneus cyphoxis</i>			
209.		<i>Araneus eburniventris</i>			
210.		<i>Araneus recherchensis</i>			
211.		<i>Araneus senicaudatus</i>			
212.	7838	<i>Arctotheca calendula</i> (Cape Weed, African Marigold)	Y		
213.	46393	<i>Arctotheca calendula</i> x <i>populifolia</i>	Y		
214.	25558	<i>Ardea ibis</i> (Cattle Egret)			
215.	25559	<i>Ardea intermedia</i> (Intermediate Egret)			
216.	41324	<i>Ardea modesta</i> (great egret, white egret)			
217.	24341	<i>Ardea pacifica</i> (White-necked Heron)			
218.		<i>Argiope protensa</i>			
219.		<i>Argiope trifasciata</i>			
220.	210	<i>Aristida holathera</i>			
221.		<i>Arkyz alticephala</i>			
222.		<i>Arkyz walckenaeri</i>			
223.		<i>Amillaria luteobubalina</i>			
224.	25566	<i>Artamus chierus</i> (Black-faced Woodswallow)			
225.	24353	<i>Artamus cyanopterus</i> (Dusky Woodswallow)			
226.	28288	<i>Artemisia arborescens</i> (Silver Wormwood)	Y		
227.		<i>Artemisia flavimana</i>			
228.		<i>Aseraggodes haackeanus</i>			
229.	8779	<i>Asparagus asparagoides</i> (Bridal Creeper)	Y		
230.		<i>Astareta aff. fascicularis sthst</i>			
231.	20350	<i>Astareta affinis</i> (West-coast Astareta)			
232.	20249	<i>Astareta leptophylla</i> (River-bank Astareta)			
233.	20283	<i>Astareta scoparia</i> (Common Astareta)			
234.	42801	<i>Astareta zephyra</i>			
235.	7851	<i>Asteridea pulverulenta</i> (Common Bristle Daisy)			
236.		<i>Athernosoma</i> sp.			
237.	2462	<i>Atriplex hypoleuca</i>			

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238.	<i>Austrocanthia minax</i>			
239.	<i>Austrochthonius strigosus</i>			Y
240.	42108 <i>Austroparmelia labrosa</i>			
241.	17233 <i>Austrostipa campylachne</i>			
242.	17234 <i>Austrostipa compressa</i>			
243.	17240 <i>Austrostipa flavescentis</i>			
244.	17253 <i>Austrostipa semibarbata</i>			
245.	37421 <i>Austrostipa</i> sp. Marchagee (B.R. Maslin 1407)			
246.	233 <i>Avena barbata</i> (Bearded Oat)	Y		
247.	234 <i>Avena fatua</i> (Wild Oat)	Y		
248.	24318 <i>Aythya australis</i> (Hardhead)			
249.	<i>Baclobourkia brownii</i>			
250.	<i>Badumna insignis</i>			
251.	<i>Baetidae</i> sp.			
252.	<i>Balanit volucris</i>			
253.	1800 <i>Banksia attenuata</i> (Slender Banksia, Flax)			
254.	32676 <i>Banksia biternax</i>			
255.	32580 <i>Banksia dallanneyi</i> subsp. <i>dallanneyi</i> var. <i>dallanneyi</i>			
256.	1819 <i>Banksia grandis</i> (Bull Banksia, Pulgarta)			
257.	1822 <i>Banksia ilicifolia</i> (Holly-leaved Banksia)			
258.	1830 <i>Banksia littoralis</i> (Swamp Banksia, Pungara)			
259.	32202 <i>Banksia nivea</i> (Honey-pot Dryandra, Pungara)			
260.	<i>Barnardius zonarius</i>			
261.	741 <i>Baumea articulata</i> (Jointed Rush)			
262.	745 <i>Baumea preissii</i>			
263.	748 <i>Baumea vaginatis</i> (Sheath Twigrush)			
264.	5392 <i>Beaufortia sparsa</i> (Swamp Bottlebrush)			
265.	5393 <i>Beaufortia squarrosa</i> (Sand Beaufortia, Sand Bottlebrush, Puna)			
266.	7046 <i>Bellardia trixago</i> (Bellardia)	Y		
267.	48868 <i>Bellardia viscosa</i>	Y		
268.	25798 <i>Bellardia fusiformis</i> (Australian Bluebell)			
269.	24319 <i>Bizura lobata</i> (Musk Duck)			
270.	749 <i>Bolboschoenus caldwellii</i> (Marsh Club-rush)			
271.	<i>Bolletus</i> sp.			
272.	4413 <i>Boronia crenulata</i> (Aniseed Boronia)			
273.	17653 <i>Boronia crenulata</i> subsp. <i>pubescens</i>			
274.	4417 <i>Boronia dichotoma</i>			
275.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
276.	4441 <i>Boronia spathulata</i> (Boronia)			
277.	24251 <i>Bos taurus</i> (European Cattle)	Y		
278.	48782 <i>Bossiaea angustifolia</i>			
279.	3710 <i>Bossiaea eriocarpa</i> (Common Brown Pea)			
280.	3718 <i>Bossiaea rufa</i>			
281.	<i>Bostockia porosa</i>			
282.	10915 <i>Brachychiton populneus</i> (Kurrajong)	Y		
283.	6341 <i>Brachycoma preissii</i> (Globe Heath)			
284.	7867 <i>Brachyscome bellidifolia</i>			
285.	7878 <i>Brachyscome iberidifolia</i>			
286.	244 <i>Briza maxima</i> (Blowfly Grass)	Y		
287.	245 <i>Briza minor</i> (Silvery Grass)	Y		
288.	247 <i>Bromus arenarius</i> (Sand Brome)			
289.	248 <i>Bromus catharticus</i> (Prairie Grass)	Y		
290.	249 <i>Bromus diandrus</i> (Great Brome)	Y		
291.	250 <i>Bromus hordeaceus</i> (Soft Brome)	Y		
292.	1384 <i>Burchardia monantha</i>			
293.	1385 <i>Burchardia multiflora</i> (Dwarf Burchardia)			
294.	25714 <i>Cacatua pastinator</i> (Western Long-billed Corella)			
295.	25715 <i>Cacatua roseicapilla</i> (Galah)			
296.	25716 <i>Cacatua sanguinea</i> (Little Corella)			
297.	25598 <i>Cacomantis flabelliformis</i> (Fan-tailed Cuckoo)			
298.	42307 <i>Cacomantis pallidus</i> (Pallid Cuckoo)			
299.	<i>Caenidae</i> sp.			
300.	1276 <i>Caesia micrantha</i> (Pale Grass Lily)			
301.	1277 <i>Caesia occidentalis</i>			
302.	15332 <i>Caladenia attingens</i> subsp. <i>attingens</i>			
303.	15335 <i>Caladenia brownii</i>			
304.	15579 <i>Caladenia chapmani</i>			
305.	1581 <i>Caladenia corynephora</i>			
306.	1592 <i>Caladenia flava</i> (Cowslip Orchid)			
307.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			



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308.	15352	<i>Caladenia georgei</i>			
309.	15354	<i>Caladenia hirta</i> subsp. <i>hirta</i>			
310.	1559	<i>Caladenia latifolia</i> (Pink Fairy Orchid)			
311.	1601	<i>Caladenia lobata</i> (Butterfly Orchid)			
312.	1603	<i>Caladenia longiclavata</i> (Clubbed Spider Orchid)			
313.	15369	<i>Caladenia lorea</i>			
314.	15372	<i>Caladenia nana</i> subsp. <i>unita</i>			
315.	15503	<i>Caladenia paludosa</i>			
316.	15379	<i>Caladenia serotina</i>			
317.	2854	<i>Calandrinia granulifera</i> (Pygmy Purslane)			
318.	2856	<i>Calandrinia liniflora</i> (Parakeelya)			
319.	19309	<i>Calceolaria namagana</i>			
320.	34942	<i>Callitriche brutia</i> subsp. <i>brutia</i>	Y		
321.	26534	<i>Calophycus dorrifer</i>			
322.	5415	<i>Calothamnus lateralis</i>			
323.	5426	<i>Calothamnus quadrifidus</i> (One-sided Bottlebrush, Knowqard)			
324.	5429	<i>Calothamnus sanguineus</i> (Silky-leaved Blood flower, Pindak)			
325.	16493	<i>Calycopseus oligandrus</i>			
326.	25717	<i>Calyptrornis banksii</i> (Red-tailed Black-Cockatoo)			
327.	5458	<i>Calystrix flavescens</i> (Summer Starflower)			
328.	5460	<i>Calystrix fraseri</i> (Pink Summer Calystrix)			
329.	5465	<i>Calystrix leschenaultii</i>			
330.	27642	<i>Candelaria antenaria</i>			
331.	27644	<i>Candelaria xanthostigma</i>			
332.		<i>Carassius auratus</i>			
333.	3005	<i>Cardamine hirsuta</i> (Common Bittercress)	Y		
334.	7909	<i>Carduus pycnocephalus</i> (Slender Thistle)	Y		
335.	754	<i>Carex divisa</i> (Divided Sedge)	Y		
336.	756	<i>Carex inversa</i> (Knob Sedge)			
337.	43241	<i>Carex thecata</i>			
338.	1162	<i>Cartonema phylloides</i>			
339.	2952	<i>Cassytha glabella</i> (Tangled Dodder Laurel)			
340.	2957	<i>Cassytha racemosa</i> (Dodder Laurel)			
341.	13685	<i>Catapodium rigidum</i> (Rigid Rescue)	Y		
342.	26574	<i>Caulerpa scalpelliformis</i>			
343.	760	<i>Caulis dioica</i>			
344.		<i>Celidaceae</i> sp.			
345.	7916	<i>Centaurea melitensis</i> (Maltese Cockspur, Malta Thistle)	Y		
346.	6539	<i>Centaurea erythraea</i> (Common Centaury)	Y		
347.	6542	<i>Centaurea tenuiflorum</i>	Y		
348.	7918	<i>Centropeda cunninghamii</i> (Common Sneezewood, Gukwonderuk, Old Man Weed)			
349.	1121	<i>Centrolepis aristata</i> (Pointed Centrolepis)			
350.	1125	<i>Centrolepis drummondiana</i>			
351.	1129	<i>Centrolepis glabra</i> (Smooth Centrolepis)			
352.	1134	<i>Centrolepis polygama</i> (Wry Centrolepis)			
353.	43666	<i>Centrolepis</i> sp. <i>Capel</i> (G.J. Kelghery 16786)			Y
354.		<i>Ceratopogonidae</i> sp.			
355.	24086	<i>Cercartetus concinnus</i> (Western Pygmy-possum, Mundarda)			
356.		<i>Cercophorus sulcatus</i>			
357.	1065	<i>Chaetanthes leptocarpoides</i>			
358.	1280	<i>Chamaecilla corymbosa</i> (Blue Squill)			
359.	26616	<i>Chamaecilla affinis</i>			
360.	24377	<i>Charadrius ruficapillus</i> (Red-capped Plover)			
361.	1513	<i>Chasmanthe floribunda</i> (African Cornflag)	Y		
362.	31	<i>Chellanthus austroaustroafricana</i>			
363.	24321	<i>Chenonetta jubata</i> (Australian Wood Duck, Wood Duck)			
364.	2490	<i>Chenopodium glaucum</i> (Glaucous Goosefoot)	Y		
365.	2491	<i>Chenopodium macrocarpum</i>	Y		
366.		<i>Cherax destructor</i>			
367.		<i>Cherax preissii</i>			
368.		<i>Cherax quinquecarinatus</i>			
369.		<i>Chironominae</i> sp.			
370.	267	<i>Chloris gayana</i> (Rhodes Grass)	Y		
371.	13112	<i>Chorizema aciculare</i> subsp. <i>aciculare</i>			
372.	13111	<i>Chorizema aciculare</i> subsp. <i>laxum</i>			
373.	3754	<i>Chorizema diversifolium</i>			
374.	3757	<i>Chorizema glycinifolium</i>			
375.	12765	<i>Chorizema nanum</i>			
376.	3761	<i>Chorizema rhombum</i>			
377.	14586	<i>Chorizema spatulatum</i>			

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378.	24980	<i>Christinus marmoratus</i> (Marbled Gecko)			
379.		<i>Chroicocephalus novaehollandiae</i>			
380.	24431	<i>Chrysococcyx basalis</i> (Horsfield's Bronze Cuckoo)			
381.	25601	<i>Chrysococcyx lucidus</i> (Shining Bronze Cuckoo)			
382.		<i>Chrysomelidae</i> sp.			
383.	27662	<i>Chrysomitris candelaris</i>			
384.	6543	<i>Cicendia filiformis</i> (Slender Cicendia)	Y		
385.		<i>Circus aeruginosus</i>			Y
386.	24288	<i>Circus approximans</i> (Swamp Harrier)			
387.	24289	<i>Circus assimilis</i> (Spotted Harrier)			
388.	7937	<i>Cirsium vulgare</i> (Spear Thistle, Scotch Thistle)	Y		
389.	48391	<i>Cladophora dalmatica</i>			
390.	24774	<i>Cladonchus leucocephalus</i> (Banded Salt)			
391.	26662	<i>Cladostephus spongiosus</i>			
392.		<i>Clynitis severus</i>			
393.		<i>Coenagrionidae</i> sp.			
394.	44593	<i>Colsonema pulchellum</i>	Y		
395.	27706	<i>Coloma leucocarpum</i>			
396.	27707	<i>Coloma subconveniens</i>			
397.	25675	<i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
398.	24399	<i>Columba livia</i> (Domestic Pigeon)	Y		
399.	4550	<i>Comesperma calymega</i> (Blue-spike Milkwort)			
400.	4564	<i>Comesperma virgatum</i> (Milkwort)			
401.	4566	<i>Comesperma volubile</i> (Love Creeper)			
402.	15607	<i>Conospermum acerosum</i> subsp. <i>acerosum</i>			
403.	16875	<i>Conospermum caeruleum</i> subsp. <i>debile</i>			
404.	15609	<i>Conospermum caeruleum</i> subsp. <i>marginatum</i>			
405.	1863	<i>Conospermum capitatum</i>			
406.	16853	<i>Conospermum capitatum</i> subsp. <i>glabratum</i>			
407.	16850	<i>Conospermum flexuosum</i> subsp. <i>laevigatum</i>			
408.	1883	<i>Conospermum teretifolium</i> (Spider Smokebush)			
409.	6348	<i>Conostephium pendulum</i> (Pearl Flower)			
410.	1418	<i>Conostylis aculeata</i> (Prickly Conostylis)			
411.	11826	<i>Conostylis aculeata</i> subsp. <i>aculeata</i>			
412.	12109	<i>Conostylis aculeata</i> subsp. <i>preissii</i>			
413.	1438	<i>Conostylis laxiflora</i>			
414.	1453	<i>Conostylis serrulata</i>			
415.	1454	<i>Conostylis setigera</i> (Bristly Cottonhead)			
416.	11597	<i>Conostylis setigera</i> subsp. <i>setigera</i>			
417.	20074	<i>Coryza sumatrensis</i>	Y		
418.	25568	<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
419.		<i>Cordulidae</i> sp.			
420.		<i>Cortidae</i> sp.			
421.	2891	<i>Cornigloia littoralis</i> (Strapwort)	Y		
422.	25592	<i>Corvus coronoides</i> (Australian Raven)			
423.	12945	<i>Corybas recurvus</i>			
424.	17104	<i>Corymbia calophylla</i> (Mant)			
425.		<i>Coryphaena hippurus</i>			
426.	7943	<i>Cotula australis</i> (Common Cotula)			
427.	7945	<i>Cotula coronopifolia</i> (Waterbuttons)	Y		
428.	7947	<i>Cotula turbinata</i> (Funnel Weed)	Y		
429.	24671	<i>Coturnix pectoralis</i> (Stubble Quail)			
430.	25595	<i>Cracticus tibicen</i> (Australian Magpie)			
431.	25596	<i>Cracticus torquatus</i> (Grey Butcherbird)			
432.	13354	<i>Crassedia variabilis</i>			
433.	48979	<i>Crassa secundata</i>			
434.	11221	<i>Crassula alata</i> var. <i>alata</i>	Y		
435.	17701	<i>Crassula closiana</i>			
436.	3137	<i>Crassula colorata</i> (Dense Stonecrop)			
437.	11349	<i>Crassula decumbens</i> var. <i>decumbens</i>			
438.	3140	<i>Crassula glomerata</i>	Y		
439.	3142	<i>Crassula natans</i>	Y		
440.	15706	<i>Crassula natans</i> var. <i>minus</i>	Y		
441.	11345	<i>Crassula thunbergiana</i> subsp. <i>thunbergiana</i>	Y		
442.	25399	<i>Critia glauca</i> (Clinging Frog)			
443.	25400	<i>Critia insignifera</i> (Squeezing Froglet)			
444.		<i>Cristiceps australis</i>			
445.	4451	<i>Crocea angustifolia</i> (Crowea)			
446.	13484	<i>Cryptandra arbutiflora</i> var. <i>tubulosa</i>			
447.	30893	<i>Cryptoblepharus buchananii</i>			

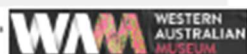
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Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
448.	25020 <i>Cryptolephus piaglocephalus</i>			
449.	25047 <i>Otenotus impar</i>			
450.	25049 <i>Otenotus labillardieri</i>			
451.	<i>Culicidae sp.</i>			
452.	26712 <i>Curdlea obesa</i>			
453.	768 <i>Cyathochaeta avenacea</i>			
454.	769 <i>Cyathochaeta clandestina</i>			
455.	17618 <i>Cyathochaeta equitans</i>			
456.	<i>Cydios trilobata</i>			
457.	40661 <i>Cynogonon lineare</i>			
458.	24322 <i>Cygnus atratus</i> (Black Swan)			
459.	285 <i>Cynosurus echinatus</i> (Rough Dogtail)	Y		
460.	783 <i>Cyperus congestus</i> (Dense Flat-sedge)	Y		
461.	815 <i>Cyperus tenuis</i> (Tiny Flatsedge)	Y		
462.	<i>Cyrtophora pamasia</i>			
463.	10916 <i>Cyrtostylis huegellii</i>			
464.	17692 <i>Cyrtopodium leptocarpoides</i>			
465.	30901 <i>Dacelo novaezealandiae</i> (Laughing Kookaburra)	Y		
466.	287 <i>Dactylis glomerata</i> (Cockfoot)	Y		
467.	7428 <i>Dampiera coronata</i> (Wedge-leaved Dampiera)			
468.	7454 <i>Dampiera linearis</i> (Common Dampiera)			
469.	7462 <i>Dampiera pedunculata</i>			
470.	7484 <i>Dampiera tripartita</i> (Angled-stem Dampiera)			
471.	25673 <i>Daphnopsis chrysotera</i> (Varied Sittella)			
472.	5519 <i>Darwinia oederoides</i>			
473.	1218 <i>Dasypogon bromeliifolius</i> (Pineapple Bush)			
474.	1219 <i>Dasypogon hookeri</i> (Pineapple Bush)			
475.	6218 <i>Daucus glochidiatus</i> (Australian Carrot)			
476.	19747 <i>Daviesia decurrens</i> subsp. <i>decurrens</i>			
477.	3832 <i>Daviesia physodes</i>			
478.	3834 <i>Daviesia polyphylla</i>			
479.	3835 <i>Daviesia preissii</i>			
480.	38785 <i>Descomyces angustisporus</i>			
481.	46362 <i>Desmodium latiflorum</i>			
482.	299 <i>Deyeuxia quadrifida</i> (Reed Bentgrass)			
483.	25607 <i>Dicaeum hirsutissimum</i> (Mistlebird)			
484.	1287 <i>Dichopogon capillipes</i>			
485.	1289 <i>Dichopogon preissii</i>			
486.	311 <i>Digitaria ciliaris</i> (Summer Grass)	Y		
487.	3866 <i>Dilwynia uncinata</i> (Silly Parrot Pea)			
488.	4454 <i>Diplolaena dampieri</i> (Southern Diplolaena)			
489.	19649 <i>Disa bracteata</i>	Y		
490.	7054 <i>Dischisma arenarium</i>	Y		
491.	7055 <i>Dischisma capitatum</i> (Woolly-headed Dischisma)	Y		
492.	7961 <i>Ditrichia graveolens</i> (Stinkwort)	Y		
493.	42231 <i>Diuris decrematis</i>			
494.	10938 <i>Diuris filifolia</i> (Cat's Face Orchid)			
495.	44140 <i>Diuris jonesii</i>			
496.	1640 <i>Drakaea glyptodon</i> (King-in-his-carriage)			
497.	48751 <i>Drosera drummondii</i>			
498.	3095 <i>Drosera erythrorhiza</i> (Red Ink Sundew)			
499.	48747 <i>Drosera geniculata</i>			
500.	3097 <i>Drosera gigantea</i> (Giant Sundew)			
501.	48769 <i>Drosera indurata</i>			
502.	3106 <i>Drosera macrantha</i> (Bridal Rainbow)			
503.	3108 <i>Drosera marchantii</i>			
504.	3109 <i>Drosera menziesii</i> (Pink Rainbow)			
505.	8911 <i>Drosera rosulata</i>			
506.	<i>Drosera sp.</i>			
507.	49090 <i>Drosera sp.</i> Branched styles (S.C. Coffey 193)			
508.	3131 <i>Drosera stolonifera</i> (Leafy Sundew)			
509.	33500 <i>Dysphania ambrosioides</i> (Mexican Tea)	Y		
510.	11368 <i>Dysphania glomerata</i> subsp. <i>glomerata</i>			
511.	33517 <i>Dysphania multifida</i> (Scented Goosefoot)	Y		
512.	33480 <i>Dysphania pumilio</i> (Clammy Goosefoot)			
513.	<i>Dydschidae sp.</i>			
514.	<i>Echenis naucrates</i>			
515.	<i>Economidia sp.</i>			
516.	<i>Edelia vittata</i>			
517.	25096 <i>Egernia kingii</i> (King's Skink)			

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518.	25100	<i>Egernia napoleonis</i>			
519.		<i>Egretta garzetta</i>			
520.		<i>Egretta novaehollandiae</i>			
521.		<i>Elanus axillaris</i>			
522.	25250	<i>Elapognathus coronatus</i> (Crowned Snake)			
523.	5187	<i>Elatine gratioloides</i> (Waterwort)			
524.	822	<i>Eleocharis acuta</i> (Common Spikerush)			
525.	47937	<i>Elseyornis melanops</i> (Black-fronted Dotterel)			
526.	1643	<i>Elythranthera brunonis</i> (Purple Enamel Orchid)			
527.		<i>Eolophus roseicapillus</i>			
528.	24651	<i>Eopsaltria australis</i> subsp. <i>griseogularis</i> (Western Yellow Robin)			
529.	24652	<i>Eopsaltria georgiana</i> (White-breasted Robin)			
530.	6131	<i>Epilobium billardiereanum</i> (Glabrous Willow Herb)			
531.	11756	<i>Epilobium billardiereanum</i> subsp. <i>cinereum</i> (Variable Willow Herb)			
532.	11992	<i>Epilobium billardiereanum</i> subsp. <i>intermedium</i>			
533.	6133	<i>Epilobium hirtigerum</i> (Hairy Willow Herb)			
534.	24567	<i>Ephialura albigularis</i> (White-fronted Chat)			
535.	374	<i>Eragrostis cilianensis</i> (Stinggrass)	Y		
536.	379	<i>Eragrostis elongata</i> (Clustered Lovegrass)			
537.	14104	<i>Eremaea pauciflora</i> var. <i>pauciflora</i>			
538.	1646	<i>Eriochilus dilatatus</i> (White Bunny Orchid)			
539.	15410	<i>Eriochilus dilatatus</i> subsp. <i>dilatatus</i>			
540.	15412	<i>Eriochilus dilatatus</i> subsp. <i>multiflorus</i>			
541.		<i>Eriophora blacicarpa</i>			
542.		<i>Eriophora pustulosa</i>			
543.	4333	<i>Erodium cicutarium</i> (Common Storksbill)	Y		
544.	6219	<i>Eryngium pinnatifidum</i> (Blue Devil)			
545.	15446	<i>Eryngium pinnatifidum</i> subsp. <i>pinnatifidum</i>			
546.	24379	<i>Erythronium cinctus</i> (Red-kneed Dotterel)			
547.	5605	<i>Eucalyptus cornuta</i> (Yate, Yeld)			
548.	5625	<i>Eucalyptus diversicolor</i> (Kant)			
549.	18216	<i>Eucalyptus globulus</i>	Y		
550.	5659	<i>Eucalyptus gomphocephala</i> (Tuart, Dwart)			
551.	5708	<i>Eucalyptus marginata</i> (Jarrah, Djara)			
552.	13547	<i>Eucalyptus marginata</i> subsp. <i>marginata</i> (Jarrah)			
553.	5763	<i>Eucalyptus rudis</i> (Flooded Gum, Kulurda)			
554.	13511	<i>Eucalyptus rudis</i> subsp. <i>rudis</i>			
555.	3872	<i>Euchloa linearis</i> (Swamp Pea)			
556.	15137	<i>Euchloa sphaerica</i>			
557.	4638	<i>Euphorbia pepus</i> (Petty Spurge)	Y		
558.	3880	<i>Eutaxia virgata</i>			
559.	835	<i>Eviandra pauciflora</i>			
560.	10907	<i>Exocarpos odoratus</i> (Scented Ballart)			
561.	10765	<i>Exocarpos sparteus</i> (Broom Ballart, Djuk)			
562.	25621	<i>Falco berigora</i> (Brown Falcon)			
563.	25622	<i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
564.	24472	<i>Falco cenchroides</i> subsp. <i>cenchrus</i> (Australian Kestrel, Nankeen Kestrel)			
565.	25623	<i>Falco longipennis</i> (Australian Hobby)			
566.	11445	<i>Femaria crispata</i> subsp. <i>crispata</i>	Y		
567.	1747	<i>Ficus carica</i> (Common Fig)	Y		
568.	27748	<i>Flavoparmelia rudecta</i>			
569.	18392	<i>Freesia alba</i> x <i>leichenii</i>	Y		
570.	25727	<i>Fulica atra</i> (Eurasian Coot)			
571.	2969	<i>Fumaria capreolata</i> (Whiteflower Fumitory)	Y		
572.	34028	<i>Galaxias occidentalis</i> (Western Minnow)			
573.	25729	<i>Gallinula tenebrosa</i> (Dusky Moorhen)			
574.	25730	<i>Gallinula philippensis</i> (Buff-banded Rail)			
575.		<i>Gambusia affinis</i>			
576.	20247	<i>Gamochaeta calviceps</i>	Y		
577.	20475	<i>Gastrolobium capitatum</i>			
578.	19190	<i>Gastrolobium cuneatum</i>			
579.	20473	<i>Gastrolobium ebracteolatum</i>			
580.	20512	<i>Gastrolobium praemorsum</i>			
581.	42314	<i>Gavicalis virens</i> (Singing Honeyeater)			
582.		<i>Geastrum</i> sp.			
583.		<i>Gelastocoroides</i> sp.			
584.		<i>Geogarypus taylori</i>			
585.	4337	<i>Geranium dissectum</i> (Cutleaf Cranesbill)	Y		
586.	25530	<i>Gerygone fusca</i> (Western Gerygone)			
587.	26854	<i>Gigartina disticha</i>			



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588.	1523 <i>Gladiolus tristis</i> (Largeflower Gladiolus)	Y		
589.	1524 <i>Gladiolus undulatus</i> (Wild Gladiolus)	Y		
590.	17043 <i>Glyceria declinata</i>	Y		
591.	7991 <i>Gnephosis drummondii</i>			
592.	<i>Gnephosis tenuissima</i> - <i>drummondii</i> complex			
593.	<i>Gomphidae</i> sp.			
594.	3948 <i>Gomphobolus capitatum</i>			
595.	3950 <i>Gomphobolus knightianus</i>			
596.	3951 <i>Gomphobolus marginatus</i>			
597.	3954 <i>Gomphobolus polymorphus</i>			
598.	11083 <i>Gomphobolus scabrum</i>			
599.	3957 <i>Gomphobolus tomentosus</i> (Hairy Yellow Pea)			
600.	8614 <i>Goodenia claytoniacea</i>			
601.	29362 <i>Goodenia coerules</i>			
602.	12551 <i>Goodenia micrantha</i>			
603.	7538 <i>Goodenia pulchella</i>			
604.	19284 <i>Goodenia pulchella</i> subsp. <i>Coastal Plain B</i> (L.W. Sage 2330)			
605.	24443 <i>Grallina cyanoleuca</i> (Magpie-lark)			
606.	7394 <i>Grammatotheca bergiana</i>	Y		
607.	37500 <i>Grammatotheca bergiana</i> var. <i>bergiana</i>	Y		
608.	24056 <i>Grampus griseus</i> (Risso's Dolphin)			
609.	14282 <i>Gratiola pubescens</i>			
610.	1967 <i>Grevillea brachystylis</i> (Short-styled Grevillea)			
611.	1992 <i>Grevillea diversifolia</i> (Variable-leaved Grevillea)			
612.	2037 <i>Grevillea manglesioides</i>			
613.	13427 <i>Grevillea manglesioides</i> subsp. <i>manglesioides</i>			
614.	2066 <i>Grevillea pilulifera</i> (Woolly-flowered Grevillea)			
615.	12824 <i>Grevillea vestita</i> subsp. <i>vestita</i>			
616.	26886 <i>Griffithsia legeri</i>			
617.	<i>Gripopterygidae</i> sp.			
618.	<i>Gymnapistes marmoratus</i>			
619.	<i>Gyrinidae</i> sp.			
620.	49124 <i>Gyrogonus occidentalis</i>			
621.	24487 <i>Haematopus longirostris</i> (Pied Oystercatcher)			
622.	1465 <i>Haemodorum discolor</i>			
623.	1468 <i>Haemodorum laxum</i>			
624.	1472 <i>Haemodorum simplex</i>			
625.	1474 <i>Haemodorum sparsiflorum</i>			
626.	1475 <i>Haemodorum spicatum</i> (Mardja)			
627.	438 <i>Halimolobos cylindrica</i> (Common Barberry)	Y		
628.	2137 <i>Halesia ceratophylla</i> (Horned Leaf Halesia)			
629.	2175 <i>Halesia lissocarpa</i> (Honey Bush)			
630.	2179 <i>Halesia marginata</i>			
631.	2197 <i>Halesia prostrata</i> (Harsh Halesia)			
632.	2203 <i>Halesia ruscifolia</i> (Candle Halesia)			
633.	2212 <i>Halesia sulcata</i> (Furrowed Halesia)			
634.	2216 <i>Halesia varia</i> (Variable-leaved Halesia)			
635.	24293 <i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
636.	24295 <i>Haliastur sphenurus</i> (Whistling Kite)			
637.	47213 <i>Hallmeda versatilis</i>			
638.	3961 <i>Hardenbergia comptoniana</i> (Native Wisteria)			
639.	25410 <i>Heleophorus eyrei</i> (Moaning Frog)			
640.	3016 <i>Helophila pusilla</i>	Y		
641.	<i>Helix munitabunda</i>			
642.	439 <i>Hemarthra uncinata</i> (Matgrass)			
643.	11451 <i>Hemarthra uncinata</i> var. <i>uncinata</i>			
644.	6839 <i>Hemlandia pungens</i> (Snakebush)			
645.	<i>Hemicortulidae</i> sp.			
646.	30919 <i>Hemiergis gracilipes</i> (skink)			
647.	25475 <i>Hemiergis peronii</i>			
648.	25118 <i>Hemiergis peronii</i> subsp. <i>tristactyla</i>			
649.	25119 <i>Hemiergis quadrilineata</i>			
650.	41020 <i>Hemiphysalis bancrofti</i> (Woolly Dragon)			
651.	<i>Heteroclinus</i> sp.			
652.	<i>Heurodes tumulus</i>			
653.	5112 <i>Hibbertia aurea</i>			
654.	5117 <i>Hibbertia cuneiformis</i> (Cutleaf Hibbertia)			
655.	20051 <i>Hibbertia diamesogenos</i>			
656.	5125 <i>Hibbertia ferruginea</i>			
657.	5135 <i>Hibbertia hypericoides</i> (Yellow Buttercups)			

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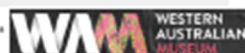
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658.	45534	<i>Hibbertia hypericoides</i> subsp. <i>hypericoides</i>			
659.	20032	<i>Hibbertia pulchra</i> var. <i>pulchra</i>			
660.	5162	<i>Hibbertia racemosa</i> (Stalked Guinea Flower)			
661.	5172	<i>Hibbertia stellaris</i> (Orange Star)			
662.	5173	<i>Hibbertia subvaginata</i>			
663.	5176	<i>Hibbertia vaginata</i>			
664.	47965	<i>Hieraeetus morphnoides</i> (Little Eagle)			
665.	25734	<i>Himantopus himantopus</i> (Black-winged Stilt)			
666.	24491	<i>Hirundo neoxena</i> (Welcome Swallow)			
667.	1294	<i>Hodgsoniella junciformis</i>			
668.	444	<i>Holcus lanatus</i> (Yorkshire Fog)	Y		
669.	6222	<i>Homaloscladum homalocarum</i>			
670.	450	<i>Hordeum marinum</i>	Y		
671.	26946	<i>Hormophysa cuneiformis</i>			
672.	3966	<i>Hovea pungens</i> (Devil's Pins, Puyenak)			
673.	3967	<i>Hovea stricta</i>			
674.	3968	<i>Hovea trisperma</i> (Common Hovea)			
675.	12859	<i>Hovea trisperma</i> var. <i>trisperma</i>			
676.	12741	<i>Hyalosperma cotula</i>			
677.	12717	<i>Hyalosperma pusillum</i>			
678.	12737	<i>Hyalosperma simplex</i>			
679.	16759	<i>Hyalosperma simplex</i> subsp. <i>simplex</i>			
680.	5216	<i>Hybanthus calycinus</i> (Wild Violet)			
681.	5221	<i>Hybanthus floribundus</i>			
682.		<i>Hydraenidae</i> sp.			
683.		<i>Hydrobiolidae</i> sp.			
684.	6226	<i>Hydrocotyle callicarpa</i> (Small Pennywort)			
685.		<i>Hydrophilidae</i> sp.			
686.	43384	<i>Hydrophis platurus</i> (Yellow-bellied Seasnake)			
687.		<i>Hydrophilidae</i> sp.			
688.	5817	<i>Hypocalymma angustifolium</i> (White Myrtle, Kudjil)			
689.	35070	<i>Hypocalymma angustifolium</i> subsp. <i>Swan Coastal Plain</i> (G.J. Keighery 16777)			
690.	5819	<i>Hypocalymma ericifolium</i>			
691.	5825	<i>Hypocalymma robustum</i> (Swan River Myrtle)			
692.	8086	<i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
693.	9352	<i>Hypochaeris radicata</i> (Flat Weed, Catsear)	Y		
694.	16835	<i>Hypolaena caespitosa</i>			
695.	1070	<i>Hypolaena exsulca</i>			
696.	17841	<i>Hypolaena pubescens</i>			
697.		<i>Hyrtidae</i> sp.			
698.	44926	<i>Ileodictyon gracile</i>			
699.	48529	<i>Inocybe isabellina</i>			
700.	1380	<i>Iphelon uniflorum</i>	Y		
701.	11	<i>Isoetes drummondii</i> (Gullwort)			
702.	910	<i>Isolepis cernua</i> (Nodding Club-rush)			
703.	20199	<i>Isolepis cernua</i> var. <i>cernua</i>			
704.	20198	<i>Isolepis fluitans</i> var. <i>fluitans</i>			
705.	917	<i>Isolepis marginata</i> (Coarse Club-rush)			
706.	919	<i>Isolepis olafeldiana</i>			
707.	921	<i>Isolepis producta</i>			
708.	924	<i>Isolepis stellata</i> (Star Club-rush)			
709.		<i>Isopeda leishmannii</i>			
710.		<i>Isopedaella cana</i>			
711.	7396	<i>Isotoma hypocraetiformis</i> (Woodbridge Poison)			
712.	7398	<i>Isotoma pusilla</i> (Small Isotome)			
713.	7399	<i>Isotoma scapigera</i> (Long-scaped Isotome)			
714.	19700	<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>			
715.	1532	<i>Ixia maculata</i> (Yellow Ixia)	Y		
716.	1534	<i>Ixia polystachya</i> (Variable Ixia)	Y		
717.	8092	<i>Ixiolaena viscosa</i> (Sticky Ixiolaena)			
718.	4012	<i>Jacksonia furcellata</i> (Grey Sinkerwood)			
719.	4017	<i>Jacksonia homida</i>			
720.	4018	<i>Jacksonia lehmannii</i>			
721.	1295	<i>Johnsonia acaulis</i>			
722.	1297	<i>Johnsonia lupulina</i> (Hooded Lily)			
723.	1177	<i>Juncus articulatus</i> (Jointed Rush)	Y		
724.	1178	<i>Juncus bufonius</i> (Toad Rush)	Y		
725.	1179	<i>Juncus caespitosus</i> (Grassy Rush)			
726.	1180	<i>Juncus capitatus</i> (Capitate Rush)	Y		
727.	1184	<i>Juncus holoschoenus</i> (Jointleaf Rush)			

	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
728.	20668	<i>Juncus hybridus</i>	Y		
729.	11922	<i>Juncus kraussii</i> subsp. <i>australis</i>			
730.	1186	<i>Juncus microcephalus</i>	Y		
731.	1188	<i>Juncus pallidus</i> (Pale Rush)			
732.	1190	<i>Juncus planifolius</i> (Broadleaf Rush)			
733.	1195	<i>Juncus subsecundus</i> (Finger Rush)			
734.	4036	<i>Kennedia ciliata</i>			
735.	4037	<i>Kennedia coccinea</i> (Coral Vine)			
736.	4044	<i>Kennedia prostrata</i> (Scarlet Runner)			
737.	7068	<i>Kickxia spuria</i> (Roundleaf Toadflax)	Y		
738.	1221	<i>Kingia australis</i> (Kingia, Pūnaki)			
739.	5832	<i>Kunzea ericifolia</i> (Spearwood, Pondi)			
740.	15498	<i>Kunzea glabrescens</i> (Spearwood)			
741.	5835	<i>Kunzea micrantha</i>			
742.	17461	<i>Kunzea micrantha</i> subsp. <i>micrantha</i>			
743.	5841	<i>Kunzea recurva</i>			
744.	14776	<i>Kunzea rostrata</i>			
745.	38800	<i>Labyrinthomyces varius</i>			
746.	20019	<i>Lachnagrostis filiformis</i>			
747.	19955	<i>Lachnagrostis plebeia</i>			
748.	18585	<i>Lagenophora huegellii</i>			
749.	24367	<i>Lalage tricolor</i> (White-winged Tiller)			
750.		<i>Lampona cylindrata</i>			
751.		<i>Lampona punctigera</i>			
752.	25638	<i>Larus pacificus</i> (Pacific Gull)			
753.		<i>Lathrodictus hasseltii</i>			
754.	27001	<i>Laurencia filiformis</i>			
755.	27009	<i>Laurencia tasmanica</i>			
756.	38323	<i>Lavandula stoechas</i> subsp. <i>stoechas</i>	Y		
757.	1302	<i>Laxmannia jamesii</i> (James' Paperily)			
758.	1304	<i>Laxmannia minor</i>			
759.	11464	<i>Laxmannia sessiliflora</i> subsp. <i>australis</i>			
760.	7568	<i>Lechenautia biloba</i> (Blue Leschenautia)			
761.	7572	<i>Lechenautia expansa</i>			
762.	7574	<i>Lechenautia floribunda</i> (Free-flowering Leschenautia)			
763.	1051	<i>Lemna dispersa</i> (Duckweed)			
764.	6880	<i>Leonotis leonurus</i> (Lion's Ear)	Y		
765.	925	<i>Lepidosperma angustatum</i>			
766.	933	<i>Lepidosperma gladiatum</i> (Coast Sword-sedge, Kerbin)			
767.	937	<i>Lepidosperma longitudinale</i> (Pithy Sword-sedge)			
768.	1653	<i>Leporella fimbriata</i> (Hare Orchid)			
769.	1078	<i>Leptocarpus coarctatus</i>			
770.	46375	<i>Leptocarpus decipiens</i>			
771.	46382	<i>Leptocarpus royeri</i>			
772.	1080	<i>Leptocarpus scarlosus</i>			
773.	46377	<i>Leptocarpus scoparius</i>			
774.	1082	<i>Leptocarpus tenax</i> (Slender Twine Rush)			
775.	46379	<i>Leptocarpus thysananthus</i>			
776.	46374	<i>Leptocarpus trifidus</i>			
777.	15418	<i>Leptoceras menziesii</i>			
778.		<i>Leptoceras sp.</i>			
779.	27840	<i>Leptogium menziesii</i>			
780.		<i>Leptophlebidae sp.</i>			
781.	5850	<i>Leptospermum laevigatum</i> (Coast Teatree)	Y		
782.	1085	<i>Lepyrodia glauca</i>			
783.	1090	<i>Lepyrodia muiri</i>			
784.	25131	<i>Lerista distinguenda</i>			
785.	25133	<i>Lerista elegans</i>			
786.	19821	<i>Lessertia frutescens</i>	Y		
787.		<i>Lestidae sp.</i>			
788.	6360	<i>Leucopogon australis</i> (Spilled Beard-heath)			
789.	6374	<i>Leucopogon conostephioides</i>			
790.	6375	<i>Leucopogon cordatus</i>			
791.	6396	<i>Leucopogon glabellus</i>			
792.	41260	<i>Leucopogon microcarpus</i>			
793.	6425	<i>Leucopogon oxycedrus</i>			
794.	6427	<i>Leucopogon parviflorus</i> (Coast Beard-heath)			
795.	6434	<i>Leucopogon polymorphus</i>			
796.	6436	<i>Leucopogon propinquus</i>			
797.	6439	<i>Leucopogon pulchellus</i> (Beard-heath)			

Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
798.	7676 <i>Levenhookia pusilla</i> (Midget Styliswort)			
799.	49103 <i>Levenhookia</i> sp. <i>Whitcher Range</i> (J.A. Wege 2000)			
800.	25005 <i>Lilals burtonis</i>			
801.	<i>Libellulidae</i> sp.			
802.	25661 <i>Lichmera indistincta</i> (Brown Honeyeater)			
803.	25415 <i>Limnodynastes dorsalis</i> (Western Banjo Frog)			
804.	7075 <i>Liharia maroccana</i>	Y		
805.	59 <i>Lindsaea linearis</i> (Screw Fern)			
806.	4362 <i>Linum marginale</i> (Wild Flax)			
807.	36179 <i>Liparophyllum villofolium</i>			
808.	25378 <i>Litoria adelaidensis</i> (Slender Tree Frog)			
809.	25388 <i>Litoria moorei</i> (Motorbike Frog)			
810.	9289 <i>Lobelia anceps</i> (Angled Lobelia)			
811.	7403 <i>Lobelia heterophylla</i> (Wing-seeded Lobelia)			
812.	7406 <i>Lobelia rhombifolia</i> (Tufted Lobelia)			
813.	7407 <i>Lobelia rhytidisperma</i> (Wrinkled-seeded Lobelia)			
814.	7408 <i>Lobelia tenuior</i> (Slender Lobelia)			
815.	9356 <i>Logfia gallica</i>	Y		
816.	478 <i>Lolium rigidum</i> (Wimmera Ryegrass)	Y		
817.	1223 <i>Lomandra caespitosa</i> (Tufted Mat Rush)			
818.	1228 <i>Lomandra hermaphrodita</i>			
819.	1234 <i>Lomandra nigricans</i>			
820.	1239 <i>Lomandra preissii</i>			
821.	1240 <i>Lomandra purpurea</i> (Purple Mat Rush)			
822.	1243 <i>Lomandra sericea</i> (Silky Mat Rush)			
823.	1244 <i>Lomandra sonderi</i>			
824.	1246 <i>Lomandra suaveolens</i>			
825.	<i>Lophoclinium laura</i>			
826.	4059 <i>Lotus angustissimus</i> (Narrowleaf Trefoil)	Y		
827.	8564 <i>Lotus subuliflorus</i>	Y		
828.	4065 <i>Lupinus angustifolius</i> (Narrowleaf Lupin)	Y		
829.	4067 <i>Lupinus luteus</i> (Yellow Lupin)	Y		
830.	1198 <i>Luzula meridionalis</i> (Field Woodrush)			
831.	1097 <i>Lyginia barbata</i>			
832.	18049 <i>Lyginia imberbis</i>			
833.	1656 <i>Lyperanthus serratus</i> (Rattle Beak Orchid)			
834.	6456 <i>Lysinema ciliatum</i> (Curry Flower)			
835.	34736 <i>Lysinema pentapetalum</i>			
836.	5281 <i>Lythrum hyssopifolia</i> (Lesser Loosestrife)	Y		
837.	2838 <i>Macarthuria apetala</i>			
838.	49002 <i>Macrolepiota gasteroides</i>			
839.	49003 <i>Macrolepiota turbinata</i>			
840.	24132 <i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
841.	24326 <i>Malacothymus membranaceus</i> (Pink-eared Duck)			
842.	25654 <i>Malurus splendens</i> (Splendid Fairy-wren)			
843.	36522 <i>Malva pseudolavatera</i>	Y		
844.	<i>Maratus pavonis</i>			
845.	74 <i>Marsilea drummondii</i> (Common Nardoo)			
846.	<i>Marsilea</i> sp.			
847.	25758 <i>Megalurus gramineus</i> (Little Grassbird)			
848.	<i>Megapodagrionidae</i> sp.			
849.	37580 <i>Melaleuca acutifolia</i>			
850.	5900 <i>Melaleuca cuticularis</i> (Saltwater Paperbark)			
851.	5921 <i>Melaleuca incana</i> (Grey Honey-myrtle)			
852.	13273 <i>Melaleuca incana</i> subsp. <i>incana</i>			
853.	5922 <i>Melaleuca lanceolata</i> (Rottnest Teatree, Moonah)			
854.	5926 <i>Melaleuca latifolia</i> (Robin Redbreast Bush)			
855.	20297 <i>Melaleuca osullivanii</i>			
856.	18394 <i>Melaleuca parviceps</i>			
857.	5946 <i>Melaleuca pauciflora</i>			
858.	5952 <i>Melaleuca preissiana</i> (Moonah)			
859.	5959 <i>Melaleuca raphiophylla</i> (Swamp Paperbark)			
860.	5978 <i>Melaleuca teretifolia</i> (Banbar)			
861.	5980 <i>Melaleuca thymoides</i>			
862.	5984 <i>Melaleuca uncinata</i> (Broom Bush, Kwidland)			
863.	5987 <i>Melaleuca viminea</i> (Mohan)			
864.	13280 <i>Melaleuca viminea</i> subsp. <i>viminea</i>			
865.	17682 <i>Melanostachya ustulata</i>			
866.	4085 <i>Melilotus indicus</i>	Y		
867.	19827 <i>Melilotus sticticus</i>	Y		

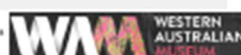
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	Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
868.	25184	<i>Menella greyii</i>			
869.	6883	<i>Mentha pulegium</i> (Pennyroyal)	Y		
870.	24598	<i>Microps ornatus</i> (Rainbow Bee-eater)			
871.	956	<i>Mesomelaena stygia</i>			
872.	11473	<i>Mesomelaena stygia</i> subsp. <i>stygia</i>			
873.	957	<i>Mesomelaena tetragona</i> (Semaphore Sedge)			
874.	47235	<i>Mesophelia labyrinthica</i>			
875.	24076	<i>Mesoplodon bowdoini</i> (Andrew's Beaked Whale)			
876.	24078	<i>Mesoplodon grayi</i> (Gray's Beaked Whale)			
877.	27070	<i>Metamastophora flabellata</i>			
878.		<i>Microcarbo melanoleucos</i>			
879.	485	<i>Microlaena stipoides</i> (Weeping Grass)			
880.	10954	<i>Microtis media</i> (Tall Mignonette Orchid)			
881.	15419	<i>Microtis media</i> subsp. <i>media</i>			
882.	4090	<i>Mitella dilatata</i> (Holy-leaved Mitella)			
883.		<i>Missulena granulosa</i>			
884.		<i>Missulena occatoria</i>			
885.		<i>Mitulodon tarantulinus</i>			
886.	7410	<i>Monopsis debilis</i>	Y		
887.	37440	<i>Monopsis debilis</i> var. <i>depressa</i>	Y		
888.	4666	<i>Monotaxis occidentalis</i>			
889.	19179	<i>Moraea flaccida</i> (One-leaf Cape Tulip)	Y		
890.	19178	<i>Moraea lewisiae</i>	Y		
891.	19180	<i>Moraea miniata</i> (Two-leaf Cape Tulip)	Y		
892.	25240	<i>Morrellia spilota</i> subsp. <i>imbricata</i> (Carpet Python)			
893.	25191	<i>Morrellia lineocellata</i>			
894.	2412	<i>Muehlenbeckia adpressa</i> (Climbing Lignum)			
895.	24223	<i>Mus musculus</i> (House Mouse)	Y		
896.	25610	<i>Myiagra inquieta</i> (Restless Flycatcher)			
897.	7291	<i>Myoporum insulare</i> (Blueberry Tree, boobialla)			
898.	8117	<i>Myiocephalus heliophyllos</i>			
899.	27091	<i>Myriodesma semulatum</i>			
900.		<i>Nannoperca vittata</i>			
901.	6464	<i>Neodhamia pumilio</i>			
902.	24738	<i>Neophema elegans</i> (Elegant Parrot)			
903.	24739	<i>Neophema petrophila</i> (Rock Parrot)			
904.		<i>Nephila edulis</i>			
905.	492	<i>Neurachne alopecuroides</i> (Foxtail Mulga Grass)			
906.	25252	<i>Notechis scutatus</i> (Tiger Snake)			
907.		<i>Notonectidae</i> sp.			
908.	25564	<i>Nycticorax caledonicus</i> (Rufous Night Heron)			
909.		<i>Ocristona pameliae</i>			
910.	24407	<i>Ocyphaps lophotes</i> (Crested Pigeon)			
911.	11937	<i>Olea europaea</i> subsp. <i>europaea</i>	Y		
912.	8150	<i>Olearia strigosa</i> (Bristly Daisy Bush)			
913.		<i>Oligochaeta</i> sp.			
914.	7348	<i>Oplismenus hispidula</i> (Hispid Scribweed)			
915.	46204	<i>Opuntia dejecta</i>	Y		
916.	29275	<i>Opuntia engelmannii</i>	Y		
917.		<i>Oranthera curvis</i>			
918.	46316	<i>Oranthera serpyllifolia</i> subsp. <i>angustifolia</i>			
919.	36177	<i>Ondatra albiflora</i>			
920.	36181	<i>Ondatra pinnatifolia</i>			
921.	4113	<i>Ornithopus compressus</i> (Yellow Serradella)	Y		
922.	4114	<i>Ornithopus pinnatus</i> (Slender Serradella)	Y		
923.		<i>Orthocladinae</i> sp.			
924.	24085	<i>Oryctolagus cuniculus</i> (Rabbit)	Y		
925.	27107	<i>Osmundaria prolifera</i>			
926.	17756	<i>Osteospermum ecklonis</i>	Y		
927.	30375	<i>Oxalis exilis</i>			
928.	4352	<i>Oxalis glabra</i>	Y		
929.	4356	<i>Oxalis pes-caprae</i> (Sourrob)	Y		
930.	4358	<i>Oxalis purpurea</i> (Largeflower Wood Sorrel)	Y		
931.	25680	<i>Pachycephala rufiventris</i> (Rufous Whistler)			
932.		<i>Pachycephala</i> sp.			Y
933.	24692	<i>Pachyptila belcheri</i> (Slender-billed Ptilin)			
934.	24693	<i>Pachyptila desolata</i> (Antarctic Ptilin)			
935.		<i>Palaeomonidae</i> sp.			
936.	27890	<i>Pannaria obscura</i>			
937.	23500	<i>Paracalea hortorum</i>			

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938.	1667 <i>Paracaleana nigrita</i> (Flying Duck Orchid)			
939.	<i>Parastaciole</i> sp.			
940.	25255 <i>Parasuta nigriceps</i>			
941.	25681 <i>Pardalotus punctatus</i> (Spotted Pardalote)			
942.	25682 <i>Pardalotus striatus</i> (Striated Pardalote)			
943.	24630 <i>Pardalotus striatus</i> subsp. <i>westraliensis</i> (Striated Pardalote)			
944.	27923 <i>Parmotrema cooperi</i>			
945.	1546 <i>Paterosia juncea</i> (Rush Leaved Paterosia)			
946.	1550 <i>Paterosia occidentalis</i> (Purple Flag, Koma)			
947.	30472 <i>Paterosia occidentalis</i> var. <i>occidentalis</i>			
948.	11550 <i>Paterosia umbrosa</i> var. <i>xanthina</i> (Yellow Flags)			
949.	43762 <i>Pauridia occidentalis</i> var. <i>quadriloba</i>			
950.	43782 <i>Pauridia vaginata</i> var. <i>vaginata</i>			
951.	4343 <i>Pelargonium capitatum</i> (Rose Pelargonium)	Y		
952.	4346 <i>Pelargonium littorale</i>			
953.	24648 <i>Pelecanus conspicillatus</i> (Australian Pelican)			
954.	40424 <i>Pentameris alroides</i> subsp. <i>alroides</i>	Y		
955.	6006 <i>Pericalymma ellipticum</i> (Swamp Teatree)			
956.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			
957.	16478 <i>Pericalymma ellipticum</i> var. <i>floridum</i>			
958.	15501 <i>Pericalymma spongioleale</i>			
959.	13911 <i>Persicaria decipiens</i>			
960.	11052 <i>Persicaria prostrata</i>			
961.	2267 <i>Persoonia longifolia</i> (Snottygobble)			
962.	2273 <i>Persoonia saccata</i> (Snottygobble)			
963.	<i>Pertitidae</i> sp.			
964.	48061 <i>Petrochelidon nigriceps</i> (Tree Martin)			
965.	48066 <i>Petroica boodang</i> (Scarlet Robin)			
966.	2299 <i>Petrophile linearis</i> (Pile Mops)			
967.	2309 <i>Petrophile serrulata</i>			
968.	17765 <i>Petrophile squamata</i> subsp. <i>squamata</i>			
969.	19825 <i>Petrorhagia dubia</i>	Y		
970.	49073 <i>Peziza austrogeaster</i>			
971.	25697 <i>Phalacrocorax carbo</i> (Great Cormorant)			
972.	24667 <i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
973.	25699 <i>Phalacrocorax varius</i> (Pied Cormorant)			
974.	552 <i>Phalaris paradoxa</i> (Paradoxa Grass)	Y		
975.	24409 <i>Phaps chalcoptera</i> (Common Bronzewing)			
976.	20460 <i>Pheladenia deformis</i>			
977.	18529 <i>Phyllothea spicata</i> (Pepper and Salt)			
978.	1172 <i>Phylidorea drummondii</i>			
979.	1173 <i>Phylidorea pygmaea</i> (Butterfly Flowers)			
980.	1478 <i>Phlebocarya ciliata</i>			
981.	<i>Pholista communis</i>			
982.	48071 <i>Phylidonyris niger</i> (White-cheeked Honeyeater)			
983.	24596 <i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
984.	16177 <i>Phyllanthus paradoxus</i>			
985.	4675 <i>Phyllanthus calycinus</i> (False Boronia)			
986.	<i>Phytophthora cinnamomi</i>			
987.	5231 <i>Pimelea angustifolia</i> (Narrow-leaved Pimelea)			
988.	5232 <i>Pimelea argentea</i> (Silvery Leaved Pimelea)			
989.	5249 <i>Pimelea hispida</i> (Bristly Pimelea)			
990.	11404 <i>Pimelea imbricata</i> var. <i>major</i>			
991.	5252 <i>Pimelea lanata</i>			
992.	5259 <i>Pimelea preissii</i>			
993.	18117 <i>Pimelea rosea</i> subsp. <i>rosea</i>			
994.	48975 <i>Ptilothus microcarpus</i>			
995.	<i>Ptilothus</i> sp.			
996.	18352 <i>Pithecarpa pulchella</i> var. <i>melanostigma</i>			
997.	<i>Planorbidae</i> sp.			
998.	7299 <i>Plantago debilis</i>			
999.	7301 <i>Plantago exilis</i>			
1000.	7303 <i>Plantago lanceolata</i> (Ribwort Plantain)	Y		
1001.	24841 <i>Platalea flavipes</i> (Yellow-billed Spoonbill)			
1002.	24842 <i>Platalea regia</i> (Royal Spoonbill)			
1003.	25720 <i>Platycercus kereoti</i> (Western Rosella)			
1004.	24745 <i>Platycercus kereoti</i> subsp. <i>kereoti</i> (Western Rosella)			
1005.	24747 <i>Platycercus spurium</i> (Red-capped Parrot)			
1006.	25721 <i>Platycercus zonarius</i> (Australian Ringneck, Ring-necked Parrot)			
1007.	24750 <i>Platycercus zonarius</i> subsp. <i>semitorquatus</i> (Twenty-eight Parrot)			

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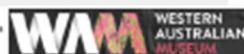


Name ID	Species Name	Naturalised	Conservation Code	Endemic To Query Area
1008.	6249 <i>Platysace compressa</i> (Tapeworm Plant)			
1009.	11160 <i>Platysace haplocladia</i>			
1010.	4524 <i>Platytheca galloides</i>			
1011.	38824 <i>Pleurotus australis</i>			
1012.	27155 <i>Plocamium cartilagineum</i>			
1013.	577 <i>Poa poliformis</i> (Coastal Poa)			
1014.	25703 <i>Podargus strigoides</i> (Tawny Frogmouth)			
1015.	24679 <i>Podargus strigoides</i> subsp. <i>brachypterus</i> (Tawny Frogmouth)			
1016.	25704 <i>Podiceps cristatus</i> (Great Crested Grebe)			
1017.	8175 <i>Podiceps gracilis</i> (Slender Podiceps)			
1018.	8182 <i>Podtheca angustifolia</i> (Sticky Longheads)			
1019.	8183 <i>Podtheca chrysantha</i> (Yellow Podtheca)			
1020.	8188 <i>Pogonolepis stricta</i>			
1021.	24681 <i>Poliocephalus poliocephalus</i> (Hoary-headed Grebe)			
1022.	2416 <i>Polygonum arenarium</i> (Sand Wireweed)	Y		
1023.	582 <i>Polypogon monspeliensis</i> (Annual Beardgrass)	Y		
1024.	583 <i>Polypogon tenellus</i>			
1025.	25722 <i>Polytelis anthopeplus</i> (Regent Parrot)			
1026.	27184 <i>Porphyra lucasi</i>			
1027.	25731 <i>Porphyrio porphyrio</i> (Purple Swamphen)			
1028.	24769 <i>Porzana fluminea</i> (Australian Spotted Crane)			
1029.	25732 <i>Porzana pusilla</i> (Ballon's Crane)			
1030.	24771 <i>Porzana tabuensis</i> (Spotless Crane)			
1031.	110 <i>Potamogeton drummondii</i>			
1032.	15424 <i>Praecoxanthus aphyllus</i>			
1033.	1670 <i>Prasophyllum drummondii</i> (Swamp Leek Orchid)			
1034.	1674 <i>Prasophyllum giganteum</i> (Bronze Leek Orchid)			
1035.	1676 <i>Prasophyllum hians</i> (Yawning Leek Orchid)			
1036.	1677 <i>Prasophyllum macrostachyum</i> (Laughing Leek Orchid)			
1037.	1680 <i>Prasophyllum parvifolium</i> (Autumn Leek Orchid)			
1038.	10853 <i>Prasophyllum plumiforme</i>			
1039.	44084 <i>Prasophyllum</i> sp. early (G. Brockman G.B. 1626)			
1040.	<i>Protoneuridae</i> sp.			
1041.	<i>Psathyrella candolleana</i>			
1042.	8189 <i>Pseudognaphalium luteoalbum</i> (Jersey Cudweed)			
1043.	<i>Pseudogobius olorum</i>			
1044.	25511 <i>Pseudonaja affinis</i> (Dugite)			
1045.	25259 <i>Pseudonaja affinis</i> subsp. <i>affinis</i> (Dugite)			
1046.	25433 <i>Pseudophryne guentheri</i> (Crawling Toadlet)			
1047.	24703 <i>Pterodroma lessonae</i> (White-headed Petrel)			
1048.	25710 <i>Pterodroma macroptera</i> (Great-winged Petrel)			
1049.	<i>Pterostylis</i> aff. <i>nana</i>			
1050.	44527 <i>Pterostylis erubescens</i>			
1051.	44723 <i>Pterostylis glebosa</i>			
1052.	11118 <i>Pterostylis pyramidalis</i> (Snail Orchid)			
1053.	1694 <i>Pterostylis rogersii</i> (Curled-tongue Shell Orchid)			
1054.	48683 <i>Pterostylis serotina</i>			
1055.	<i>Pterostylis</i> sp.			
1056.	49034 <i>Pterostylis</i> sp. Bloated snail orchid (W. Jackson B.J. 456)			
1057.	10998 <i>Pterostylis turbosa</i> (Bird Orchid)			
1058.	1698 <i>Pterostylis vittata</i> (Banded Greenhood)			
1059.	2751 <i>Ptilotus polystachyus</i> (Prince of Wales Feather)			
1060.	2759 <i>Ptilotus sericostachyus</i>			
1061.	15856 <i>Ptilotus sericostachyus</i> subsp. <i>sericostachyus</i>			
1062.	591 <i>Puccinellia ciliata</i> (Puccinellia)	Y		
1063.	20195 <i>Pultenaea brachytrypis</i>			
1064.	4172 <i>Pultenaea ericifolia</i>			
1065.	4181 <i>Pultenaea reticulata</i>			
1066.	<i>Purpurecephalus spurius</i>			
1067.	48835 <i>Pycnoporus coccineus</i>			
1068.	16367 <i>Pyrochloa nigricans</i> (Red beaks, Elephants ears)			
1069.	8195 <i>Quinella uniliei</i>			
1070.	32480 <i>Racopilum cuspidigerum</i> var. <i>convolutaceum</i>			
1071.	2932 <i>Ranunculus colonorum</i> (Common Buttercup)			
1072.	2933 <i>Ranunculus muricatus</i> (Sharp Buttercup)	Y		
1073.	24245 <i>Rattus rattus</i> (Black Rat)	Y		
1074.	<i>Raveniella peckorum</i>			
1075.	24776 <i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
1076.	6012 <i>Regella ciliata</i>			
1077.	2578 <i>Rhagodia baccata</i> (Berry Saltbush)			

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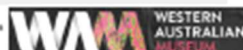
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1078.	11341 <i>Rhagodia baccata</i> subsp. <i>baccata</i>			
1079.	48096 <i>Rhizidura albiscapa</i> (Grey Fantail)			
1080.	25614 <i>Rhizidura leucophrys</i> (White Wagtail)			
1081.	15035 <i>Rhodanthe corymbosa</i>			
1082.	13301 <i>Rhodanthe floribunda</i>			
1083.	13312 <i>Rhodanthe pyrethrum</i>			
1084.	27222 <i>Rhodophyllis volans</i>			
1085.	28050 <i>Rhodina conradii</i>			
1086.	14924 <i>Romulea rosea</i> var. <i>communis</i>	Y		
1087.	2429 <i>Rumex acetosella</i> (Sorrel)	Y		
1088.	11541 <i>Rumex dumosus</i> var. <i>dumosus</i>			
1089.	46434 <i>Rumex hypogaeus</i>	Y		
1090.	2440 <i>Rumex pulcher</i> (Fiddle Dock)	Y		
1091.	20171 <i>Rumex pulcher</i> subsp. <i>woodsii</i>	Y		
1092.	48704 <i>Russula longispora</i>			
1093.	40426 <i>Rydiosperma occidentale</i>			
1094.	40430 <i>Rydiosperma pilosum</i>			
1095.	40427 <i>Rydiosperma setaceum</i>			
1096.	48430 <i>Sailcomia quinqueflora</i>			
1097.	6483 <i>Samolus juncea</i>			
1098.	29911 <i>Samolus</i> sp. <i>Clay Flats</i> (G.J. & B.J. Kelghery 716)			
1099.	7602 <i>Scaevola calliptera</i>			
1100.	7619 <i>Scaevola lanceolata</i> (Long-leaved Scaevola)			
1101.	7634 <i>Scaevola phlebopetala</i> (Velvet Fanflower)			
1102.	41660 <i>Schenkia australis</i>			
1103.	6263 <i>Schoenolaena juncea</i>			
1104.	48356 <i>Schoenoplectus tabernaemontani</i>			
1105.	973 <i>Schoenus asperocarpus</i> (Poison Sedge)			
1106.	975 <i>Schoenus bifidus</i>			
1107.	978 <i>Schoenus brevifolius</i>			
1108.	984 <i>Schoenus curvifolius</i>			
1109.	985 <i>Schoenus discifer</i>			
1110.	986 <i>Schoenus efilatus</i>			
1111.	987 <i>Schoenus elegans</i>			
1112.	992 <i>Schoenus grandiflorus</i> (Large Flowered Bogrush)			
1113.	1006 <i>Schoenus odontocarpus</i>			
1114.	17614 <i>Schoenus plumosus</i>			
1115.	1011 <i>Schoenus rigens</i>			
1116.	1013 <i>Schoenus sculptus</i> (Glimmer Bogrush)			
1117.	1017 <i>Schoenus subulbosus</i>			
1118.	16252 <i>Schoenus subflavus</i> subsp. <i>subflavus</i>			
1119.	1020 <i>Schoenus subulbosus</i>			
1120.	1021 <i>Schoenus subulbosus</i>			
1121.	1023 <i>Schoenus tenellus</i>			
1122.	1026 <i>Schoenus unispiculatus</i>			
1123.	<i>Scleroderma albidum</i>			
1124.	<i>Scleroderma cepa</i>			
1125.	8203 <i>Senecio diascidies</i>			
1126.	20663 <i>Senecio multifidus</i> subsp. <i>multicaulis</i>			
1127.	8217 <i>Senecio quadridentatus</i>			
1128.	25534 <i>Sericornis frontalis</i> (White-browed Scrubwren)			
1129.	24279 <i>Sericornis frontalis</i> subsp. <i>maculatus</i> (White-browed Scrubwren)			
1130.	609 <i>Setaria palmifolia</i> (Palm Grass)	Y		
1131.	19453 <i>Setaria parviflora</i>	Y		
1132.	7362 <i>Sherardia arvensis</i> (Field Medick)	Y		
1133.	11803 <i>Silene gallica</i> var. <i>quinquevulnera</i>	Y		
1134.	8225 <i>Siloxenus humifusus</i> (Procumbent Siloxenus)			
1135.	8226 <i>Siloxenus pygmaeus</i>			
1136.	<i>Simulidae</i> sp.			
1137.	<i>Siphonanthus cephalotes</i>			
1138.	<i>Siphonanthus radiatus</i>			
1139.	3072 <i>Stizymbrium orientale</i> (Indian Hedge Mustard)	Y		
1140.	30948 <i>Smicromis brevirostris</i> (Weebill)			
1141.	6988 <i>Solanum americanum</i> (Glossy Nightshade)	Y		
1142.	7013 <i>Solanum hoplopetalum</i> (Thorny Solanum)			
1143.	7018 <i>Solanum lasiophyllum</i> (Flannel Bush, Mindjulu)			
1144.	7022 <i>Solanum nigrum</i> (Black Berry Nightshade)	Y		
1145.	7037 <i>Solanum symonii</i>			
1146.	10920 <i>Solva sessilis</i> (Jojo, Onchunga Weed)	Y		
1147.	8230 <i>Sonchus asper</i> (Rough Sowthistle)	Y		

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Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
1148.	9367 <i>Sonchus hydrophilus</i> (Native Sowthistle)			
1149.	1312 <i>Sowerbaea laxiflora</i> (Purple Tassels)			
1150.	1558 <i>Sparaxis bulbifera</i>	Y		
1151.	2912 <i>Spergula anensis</i> (Corn Spurry)	Y		
1152.	4206 <i>Sphaerolobium macranthum</i>			
1153.	4207 <i>Sphaerolobium medium</i>			
1154.	31931 <i>Sphenotoma capitata</i>			
1155.	31952 <i>Sphenotoma gracilis</i> (Swamp Paper-heath)			
1156.	624 <i>Spinifex hirsutus</i> (Hairy Spinifex)			
1157.	625 <i>Spinifex longifolius</i> (Beach Spinifex)			
1158.	45118 <i>Sporobolus schoenoides</i>	Y		
1159.	4828 <i>Spyridium globulosum</i> (Basket Bush)			
1160.	20537 <i>Stachystemon virgatus</i>			
1161.	9069 <i>Stackhousia huegellii</i>			
1162.	4733 <i>Stackhousia monogyna</i>			
1163.	3080 <i>Stenopetalum robustum</i>			
1164.	24329 <i>Stictonetta naevosa</i> (Freckled Duck)			
1165.	<i>Stigmatopora argus</i>			
1166.	25655 <i>Stipiturus malachurus</i> (Southern Emu-wren)			
1167.	2316 <i>Stringia latifolia</i> (Blueboy)			
1168.	2320 <i>Strangia stenocarpoides</i>			
1169.	25597 <i>Strepera versicolor</i> (Grey Currawong)			
1170.	25590 <i>Streptopelia senegalensis</i> (Laughing Turtle-Dove)	Y		
1171.	44492 <i>Stuckenia pectinata</i>			
1172.	7684 <i>Stylidium amoenum</i> (Lovely Triggerplant)			
1173.	30278 <i>Stylidium androsaceum</i>			
1174.	39880 <i>Stylidium angustifolium</i> subsp. <i>glaucofolium</i>			
1175.	7693 <i>Stylidium brunonianum</i> (Pink Fountain Triggerplant)			
1176.	7694 <i>Stylidium bulbiferum</i> (Circus Triggerplant)			
1177.	7696 <i>Stylidium calcaratum</i> (Book Triggerplant)			
1178.	7699 <i>Stylidium carnosum</i> (Fleshy-leaved Triggerplant)			
1179.	7708 <i>Stylidium crassifolium</i> (Thick-leaved Triggerplant)			
1180.	7713 <i>Stylidium dichotomum</i> (Pins-and-needles)			
1181.	7717 <i>Stylidium divaricatum</i> (Daddy-long-legs)			
1182.	7719 <i>Stylidium ecome</i> (Foot Triggerplant)			
1183.	7734 <i>Stylidium guttatum</i> (Dotted Triggerplant)			
1184.	7742 <i>Stylidium inundatum</i> (Hundreds and Thousands)			
1185.	7745 <i>Stylidium junceum</i> (Reed Triggerplant)			
1186.	19248 <i>Stylidium megacarpum</i>			
1187.	25829 <i>Stylidium neurophyllum</i> (Coastal Plain Triggerplant)			
1188.	7768 <i>Stylidium obtusatum</i> (Pinatone Triggerplant)			
1189.	7773 <i>Stylidium petiolare</i> (Horn Triggerplant)			
1190.	7774 <i>Stylidium piliferum</i> (Common Butterfly Triggerplant)			
1191.	7785 <i>Stylidium repens</i> (Matted Triggerplant)			
1192.	7796 <i>Stylidium scandens</i> (Climbing Triggerplant)			
1193.	7798 <i>Stylidium schoenoides</i> (Cow Kicks)			
1194.	7806 <i>Stylidium utricularioides</i> (Pink Fan Triggerplant)			
1195.	7808 <i>Stylidium violaceum</i> (Violet Triggerplant)			
1196.	1260 <i>Stypandra glauca</i> (Blind Grass)			
1197.	2639 <i>Suaeda australis</i> (Seablite)			
1198.	25902 <i>Symphoricarum squamatum</i> (Bushy Starwort)	Y		
1199.	15529 <i>Synaphea floribunda</i>			
1200.	2323 <i>Synaphea gracillima</i>			
1201.	2324 <i>Synaphea petiolaris</i> (Synaphea)			
1202.	16863 <i>Synaphea petiolaris</i> subsp. <i>triloba</i>			
1203.	15535 <i>Synaphea whitcherensis</i>			
1204.	<i>Tabanidae</i> sp.			
1205.	25705 <i>Tachybaptus novaehollandiae</i> (Australasian Grebe, Black-throated Grebe)			
1206.	24331 <i>Tadorna tadomoides</i> (Australian Shelduck, Mountain Duck)			
1207.	<i>Tamopsis distinguenda</i>			
1208.	<i>Tamopsis perthensis</i>			
1209.	<i>Tanypodinae</i> sp.			
1210.	24167 <i>Tarsipes rostratus</i> (Honey Possum, Noolbenger)			
1211.	<i>Tasmanicosa leuckardi</i>			
1212.	20135 <i>Taxandria linearifolia</i>			
1213.	33319 <i>Tecticornis indica</i> subsp. <i>bidens</i>			
1214.	28065 <i>Telioschistes chrysophthalmus</i>			
1215.	<i>Tetragonia demissa</i>			
1216.	1034 <i>Tetraria capillaris</i> (Hair Sedge)			
1217.	1036 <i>Tetraria octandra</i>			

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1218.	4535 <i>Tetradlea hirsuta</i> (Black Eyed Susan)			
1219.	48341 <i>Tetradlea hirsuta</i> subsp. <i>viminea</i>			
1220.	4544 <i>Tetradlea setigera</i>			
1221.	27327 <i>Thamnochloa dichotoma</i>			
1222.	<i>Thelipora terrestris</i>			
1223.	<i>Thelymitra</i> aff. <i>pauciflora</i>			
1224.	<i>Thelymitra</i> aff. <i>pauciflora</i> ssp.			
1225.	1701 <i>Thelymitra antennifera</i> (Vanilla Orchid)			
1226.	1705 <i>Thelymitra crinita</i> (Blue Lady Orchid)			
1227.	1707 <i>Thelymitra flexuosa</i> (Twisted Sun Orchid)			
1228.	11053 <i>Thelymitra macrophylla</i>			
1229.	1710 <i>Thelymitra mucida</i> (Plum Orchid)			
1230.	20731 <i>Thelymitra vulgaris</i>			
1231.	5084 <i>Thomasia grandiflora</i> (Large Flowered Thomasia)			
1232.	24845 <i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
1233.	32486 <i>Thulium sparsum</i> var. <i>hastatum</i>			
1234.	<i>Thunus maccoyi</i>			
1235.	28071 <i>Thysanotus scutellatus</i>			
1236.	1319 <i>Thysanotus arenarius</i>			
1237.	1339 <i>Thysanotus multiflorus</i> (Many-flowered Fringe Lily)			
1238.	1343 <i>Thysanotus patersonii</i>			
1239.	1351 <i>Thysanotus spartacus</i>			
1240.	1357 <i>Thysanotus thysoides</i>			
1241.	25519 <i>Tiliqua rugosa</i>			
1242.	<i>Tiplididae</i> sp.			
1243.	25549 <i>Todiramphus sanctus</i> (Sacred Kingfisher)			
1244.	19041 <i>Trachymene coerulea</i> subsp. <i>coerulea</i>			
1245.	6280 <i>Trachymene pilosa</i> (Native Parsnip)			
1246.	1481 <i>Tribonanthes australis</i> (Southern Tumidin)			
1247.	1482 <i>Tribonanthes brachypetala</i> (Nodding Tumidin)			
1248.	1485 <i>Tribonanthes violacea</i> (Violet Tumidin)			
1249.	48141 <i>Tribonyx ventralis</i> (Black-tailed Native-hen)			
1250.	8251 <i>Trichocline spatulata</i> (Native Gierbera)			
1251.	25521 <i>Trichosurus vulpecula</i> (Common Brushtail Possum)			
1252.	24158 <i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (Common Brushtail Possum)			
1253.	1361 <i>Tricornis elatior</i> (Yellow Autumn Lily)			
1254.	1038 <i>Tricostularia neesii</i>			
1255.	17763 <i>Trifolium campestre</i> var. <i>campestre</i> (Hop Clover)	Y		
1256.	17758 <i>Trifolium hybridum</i> var. <i>hybridum</i>	Y		
1257.	4302 <i>Trifolium ligusticum</i> (Ligurian Clover)	Y		
1258.	4304 <i>Trifolium ornithogoloides</i> (Birdsfoot Fenugreek)	Y		
1259.	14738 <i>Trifolium resupinatum</i> var. <i>resupinatum</i>	Y		
1260.	33676 <i>Triglochin calceolae</i>			
1261.	147 <i>Triglochin mucronata</i>			
1262.	148 <i>Triglochin muelleri</i>			
1263.	18587 <i>Triglochin nana</i>			
1264.	151 <i>Triglochin striata</i>			
1265.	4737 <i>Tripterococcus brunonis</i> (Winged Stackhousea)			
1266.	11665 <i>Trymalium ledifolium</i> var. <i>ledifolium</i>			
1267.	38846 <i>Tubaria semulata</i>			
1268.	48147 <i>Turnix varius</i> (Painted Button-quail)			
1269.	24069 <i>Tursiops truncatus</i> (Bottlenose Dolphin)			
1270.	24852 <i>Tyto alba</i> subsp. <i>delicatula</i> (Barn Owl)			
1271.	<i>Urodacus novaehollandiae</i>			
1272.	8255 <i>Ursinia anthemoides</i> (Ursinia)	Y		
1273.	38388 <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Y		
1274.	1767 <i>Urtica urens</i> (Small Nettle)	Y		
1275.	7138 <i>Utricularia inaequalis</i>			
1276.	7145 <i>Utricularia menziesii</i> (Redcoats)			
1277.	7148 <i>Utricularia multifida</i>			
1278.	7157 <i>Utricularia violacea</i> (Violet Bladderwort)			
1279.	25577 <i>Vanellus miles</i> (Masked Lapwing)			
1280.	24386 <i>Vanellus tricolor</i> (Banded Lapwing)			
1281.	25218 <i>Varanus gouldi</i> (Bungarra or Sand Monitor)			
1282.	25225 <i>Varanus rosenbergi</i> (Heath Monitor)			
1283.	7665 <i>Veilleia trinitatis</i>			
1284.	8257 <i>Vellereophyton dealbatum</i> (White Cudweed)	Y		
1285.	<i>Venatrix pullastra</i>			
1286.	11690 <i>Verbascum thapsus</i> subsp. <i>thapsus</i>	Y		
1287.	19511 <i>Verbena officinalis</i>	Y		



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1288.	12411 <i>Verticordia densiflora</i> var. <i>cespitosa</i>			
1289.	15432 <i>Verticordia densiflora</i> var. <i>densiflora</i>			
1290.	6107 <i>Verticordia pennigera</i>			
1291.	6110 <i>Verticordia plumosa</i> (Plumed Featherflower)			
1292.	16935 <i>Verticordia plumosa</i> var. <i>ananeotes</i> x <i>vassensis</i>			Y
1293.	24206 <i>Vespertilio regulus</i> (Southern Forest Bat)			
1294.	4319 <i>Vicia benghalensis</i> (Purple Vetch)	Y		
1295.	4322 <i>Vicia sativa</i> (Common Vetch)	Y		
1296.	11474 <i>Vicia sativa</i> subsp. <i>nigra</i>	Y		
1297.	4325 <i>Viminaria juncea</i> (Swishbush, Kowda)			
1298.	6575 <i>Vinca major</i> (Blue Periwinkle)	Y		
1299.	24040 <i>Vulpes vulpes</i> (Red Fox)	Y		
1300.	724 <i>Vulpia myuros</i> (Rat's Tail Rescue)	Y		
1301.	33101 <i>Vulpia myuros</i> forma <i>myuros</i>	Y		
1302.	1486 <i>Wachendorfia paniculata</i>	Y		
1303.	7388 <i>Wahlenbergia multicaulis</i>			
1304.	7389 <i>Wahlenbergia preissii</i>			
1305.	8282 <i>Waltzia suaveolens</i> (Fragrant Waltzia)			
1306.	1556 <i>Watsonia marginata</i>	Y		
1307.	18118 <i>Watsonia meriana</i> var. <i>meriana</i>	Y		
1308.	12072 <i>Wumbea dioica</i> subsp. <i>alba</i>			
1309.	1401 <i>Wumbea pygmaea</i>			
1310.	1403 <i>Wumbea tenella</i> (Eight Nancy)			
1311.	44996 <i>Xanthoria coomae</i>			
1312.	1251 <i>Xanthorrhoea brunonis</i>			
1313.	1256 <i>Xanthorrhoea preissii</i> (Grass tree, Palga)			
1314.	6285 <i>Xanthosia ciliata</i>			
1315.	6289 <i>Xanthosia huegelii</i>			
1316.	1151 <i>Xyris laxiflora</i>			
1317.	16992 <i>Yucca aloifolia</i>	Y		
1318.	<i>Zachria flavicoma</i>			
1319.	25765 <i>Zosterops lateralis</i> (Grey-breasted White-eye, Silvereye)			

Conservation Codes

- 1 - Rare or likely to become extinct
- 2 - Presumed extinct
- 3A - Protected under international agreement
- 3 - Other specially protected fauna
- 4 - Priority 1
- 5 - Priority 2
- 6 - Priority 3
- 7 - Priority 4
- 8 - Priority 5

¹ For NatureMap's purposes, species tagged 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.



Appendix C: DAWE Protected Matters Database Search



Australian Government
Department of Agriculture,
Water and the Environment

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: 10-Dec-2021

[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 significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar):	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	70
Listed Migratory Species:	48

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:	3
Commonwealth Heritage Places:	None
Listed Marine Species:	74
Whales and Other Cetaceans:	13
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	10
Regional Forest Agreements:	None
Nationally Important Wetlands:	2
EPBC Act Referrals:	35
Key Ecological Features (Marine):	None
Biologically Important Areas:	8
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [\[Resource Information \]](#)

Ramsar Site Name	Proximity	Buffer Status
Vasse-wonnerup system	Within Ramsar site	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
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area	In feature area
Clay Pans of the Swan Coastal Plain	Critically Endangered	Community likely to occur within area	In feature area
Shrublands on southern Swan Coastal Plain ironstones	Endangered	Community likely to occur within area	In buffer area only
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [\[Resource Information \]](#)

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

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Botaurus poeciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Halobaena caerulea Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Limosa lapponica menzbieri</u> Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only
<u>Macronectes giganteus</u> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Macronectes halli</u> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Numenius madagascariensis</u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<u>Pachyptila turtur subantarctica</u> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Pezoporus occidentalis</u> Night Parrot [59350]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Phoebastria fusca</u> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Pterodroma mollis</u> Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Stemula nereis nereis</u> Australian Fairy Tern [82950]	Vulnerable	Breeding likely to occur within area	In feature area
<u>Thalassarche carteri</u> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<u>Thalassarche cauta</u> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Thalassarche impavida</u> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Thalassarche melanophris</u> Black-browed Albatross [64472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Thalassarche steadi</u> White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<u>Zanda baudinii listed as Calyptorhynchus baudinii</u> Baudin's Black-Cockatoo, Long-billed Black-cockatoo [87736]	Endangered	Breeding known to occur within area	In feature area
<u>Zanda latirostris listed as Calyptorhynchus latirostris</u> Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area
FISH			
<u>Nannatherina balstoni</u> Balston's Pygmy Perch [66698]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Thunnus maccoyii</u> Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
MAMMAL			
<u>Balaenoptera musculus</u> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<u>Dasyurus geoffroyi</u> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Eubalaena australis</u> Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
<u>Megaptera novaeangliae</u> Humpback Whale [38]	Vulnerable	Congregation or aggregation known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Neophoca cinerea</u> Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Pseudocheirus occidentalis</u> Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Breeding known to occur within area	In feature area
OTHER			
<u>Westralunio carteri</u> Carter's Freshwater Mussel, Freshwater Mussel [86266]	Vulnerable	Species or species habitat known to occur within area	In feature area
PLANT			
<u>Banksia nivea subsp. uliginosa</u> Swamp Honey-pot [82766]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Banksia squarrosa subsp. argillacea</u> Whicher Range Dryandra [82769]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Brachyscias verecundus</u> Ironstone Brachyscias [81321]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<u>Caladenia busselliana</u> Bussell's Spider-orchid [24369]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Caladenia huegelii</u> King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Caladenia procera</u> Carbunup King Spider Orchid [68679]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
<u>Chamelaucium sp. S coastal plain (R.D.Royce 4872)</u> Royce's Waxflower [87814]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Darwinia whicherensis</u> Abba Bell [83193]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Daviesia elongata subsp. elongata</u> Long-leaved Daviesia [64883]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Diuris drummondii</u> Tall Donkey Orchid [4365]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Diuris micrantha</u> Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Drakaea elastica</u> Glossy-leaved Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Drakaea micrantha</u> Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Gastrolobium papilio</u> Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area	In feature area
<u>Grevillea elongata</u> Ironstone Grevillea [64578]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<u>Grevillea maccutcheonii</u> McCutcheon's Grevillea [64522]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<u>Lambertia echinata subsp. occidentalis</u> Western Prickly Honeysuckle [64528]	Endangered	Species or species habitat likely to occur within area	In feature area
<u>Petrophile latericola</u> Laterite Petrophile [64532]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Synaphea sp. Fairbridge Farm (D. Papenfus 696)</u> Selena's Synaphea [82881]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Synaphea stenoloba</u> Dwellingup Synaphea [66311]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<u>Tetraria australiensis</u> Southern Tetraria [10137]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Verticordia densiflora var. pedunculata</u> Long-stalked Featherflower [55689]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Verticordia plumosa var. ananeotes</u> Tufted Plumed Featherflower [23871]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Verticordia plumosa var. vassensis</u> Vasse Featherflower [55804]	Endangered	Species or species habitat known to occur within area	In feature area
REPTILE			
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<u>Chelonia mydas</u> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
<u>Natator depressus</u> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
SHARK			
<u>Carcharias taurus (west coast population)</u> Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to 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
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	In feature area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Hydroprogne caspia</u> Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
<u>Macronectes giganteus</u> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Macronectes halli</u> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Onychoprion anaethetus</u> Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<u>Phoebastria fusca</u> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Thalassarche carteri</u> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<u>Thalassarche cauta</u> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<u>Thalassarche impavida</u> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Thalassarche melanophrys</u> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Thalassarche steadi</u> White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Migratory Marine Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Balaenoptera edeni</u> Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
<u>Balaenoptera musculus</u> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<u>Caperea marginata</u> Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
<u>Carcharhinus longimanus</u> Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
<u>Carcharodon carcharias</u> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<u>Chelonia mydas</u> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
<u>Eubalaena australis</u> as <u>Balaena glacialis australis</u> Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
<u>Lagenorhynchus obscurus</u> Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
<u>Megaptera novaeangliae</u> Humpback Whale [38]	Vulnerable	Congregation or aggregation known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Terrestrial Species			
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area	In buffer area only

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 - [50269]	WA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [50395]	WA	In buffer area only
Commonwealth Land - [50394]	WA	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous tenuirostris melanops Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea dabbenena Tristan Albatross [66471]	Endangered	Species or species habitat may occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Haliaeetus leucogaster</u> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
<u>Halobaena caerulea</u> Blue Petrel [1059]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Himantopus himantopus</u> Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area overfly marine area	In buffer area only
<u>Hydroprogne caspia</u> as <u>Sterna caspia</u> Caspian Tern [808]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
<u>Limosa lapponica</u> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
<u>Macronectes giganteus</u> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Macronectes halli</u> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Merops ornatus</u> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
<u>Motacilla cinerea</u> Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
<u>Numenius madagascariensis</u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Onychoprion anaethetus as Sterna anaethetus</u> Bridled Tern [82845]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<u>Pachyptila turtur</u> Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
<u>Pandion haliaetus</u> Osprey [952]		Breeding known to occur within area	In feature area
<u>Phoebastria fusca</u> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Pterodroma mollis</u> Soft-plumaged Petrel [1036]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Puffinus assimilis</u> Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area	In buffer area only
<u>Recurvirostra novaehollandiae</u> Red-necked Avocet [871]		Species or species habitat known to occur within area overfly marine area	In buffer area only
<u>Stercorarius skua as Catharacta skua</u> Great Skua [823]		Species or species habitat may occur within area	In buffer area only
<u>Thalassarche carteri</u> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<u>Thalassarche cauta</u> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<u>Thalassarche impavida</u> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Thalassarche melanophrys</u> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Thalassarche steadi</u> White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<u>Thinornis cucullatus as Thinornis rubricollis</u> Hooded Dotterel, Hooded Plover [87735]		Species or species habitat known to occur within area overfly marine area	In buffer area only
<u>Tringa glareola</u> Wood Sandpiper [829]		Species or species habitat known to occur within area overfly marine area	In buffer area only
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
<u>Tringa stagnatilis</u> Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Fish			
<u>Acentronura australe</u> Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area	In buffer area only
<u>Campichthys galei</u> Gale's Pipefish [66191]		Species or species habitat may occur within area	In buffer area only
<u>Heraldia nocturna</u> Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
<u>Hippocampus angustus</u> Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Hippocampus breviceps</u> Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
<u>Hippocampus subelongatus</u> West Australian Seahorse [66722]		Species or species habitat may occur within area	In buffer area only
<u>Histiogamphelus cristatus</u> Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243]		Species or species habitat may occur within area	In buffer area only
<u>Lissocampus caudalis</u> Australian Smooth Pipefish, Smooth Pipefish [66249]		Species or species habitat may occur within area	In buffer area only
<u>Lissocampus fatiloquus</u> Prophet's Pipefish [66250]		Species or species habitat may occur within area	In buffer area only
<u>Lissocampus runa</u> Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
<u>Maroubra perserrata</u> Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
<u>Mitotichthys meraculus</u> Western Crested Pipefish [66259]		Species or species habitat may occur within area	In buffer area only
<u>Nannocampus subosseus</u> Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area	In buffer area only
<u>Phycodurus eques</u> Leafy Seadragon [66267]		Species or species habitat may occur within area	In buffer area only
<u>Phyllopteryx taeniolatus</u> Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Pugnaso curtirostris</u> Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area	In buffer area only
<u>Solegnathus lettiensis</u> Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	In buffer area only
<u>Stigmatopora argus</u> Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
<u>Stigmatopora nigra</u> Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
<u>Urocampus carinirostris</u> Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
<u>Vanacampus margaritifer</u> Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
<u>Vanacampus phillipi</u> Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
<u>Vanacampus poecilolaemus</u> Longsnout Pipefish, Australian Longsnout Pipefish, Long-snouted Pipefish [66285]		Species or species habitat may occur within area	In buffer area only
Mammal			
<u>Arctocephalus forsteri</u> Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
<u>Neophoca cinerea</u> Australian Sea-lion, Australian Sea Lion [22]	Endangered	Species or species habitat may occur within area	In buffer area only
Reptile			
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Breeding known to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
<u>Lagenorhynchus obscurus</u> Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
<u>Megaptera novaeangliae</u> Humpback Whale [38]	Vulnerable	Congregation or aggregation known to occur within area	In buffer area only
<u>Orcinus orca</u> Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
<u>Stenella attenuata</u> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
<u>Tursiops aduncus</u> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
<u>Tursiops truncatus s. str.</u> Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Capel	Nature Reserve	WA	In buffer area only
Ngari Capes	Marine Park	WA	In buffer area only
NTWA Bushland covenant (0175)	Conservation Covenant	WA	In buffer area only
Ruabon Townsite	Nature Reserve	WA	In buffer area only
Sabina	Nature Reserve	WA	In feature area
Tuart Forest	National Park	WA	In feature area
Unnamed WA41568	Nature Reserve	WA	In buffer area only
Unnamed WA44838	Nature Reserve	WA	In buffer area only
Unnamed WA50190	Nature Reserve	WA	In buffer area only
Unnamed WA50270	5(1)(h) Reserve	WA	In buffer area only

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
McCarleys Swamp (Ludlow Swamp)	WA	In buffer area only
Vasse-Wonnerup Wetland System	WA	In buffer area only

EPBC Act Referrals					[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Controlled action					
Aerial Application of Lavicide to Vasse-Wonnerup Wetlands	2010/5593	Controlled Action	Post-Approval	In buffer area only	
Bussell Highway - Capel to Hutton Section, WA	2015/7626	Controlled Action	Post-Approval	In feature area	
Bussell Highway Duplication Hutton to Sabina	2020/8800	Controlled Action	Post-Approval	In feature area	
Residential/Industrial subdivision, Lot 18, Vasse Highway, Shire of Busselton	2006/3208	Controlled Action	Post-Approval	In buffer area only	
Residential Development	2007/3463	Controlled Action	Post-Approval	In buffer area only	
Residential development Lot 71 Spurr St, Capel, WA	2019/8441	Controlled Action	Assessment Approach	In buffer area only	
Residential subdivision, Lot 501 Vasse Hwy, Yalyalup, WA	2018/8244	Controlled Action	Post-Approval	In buffer area only	
South Capel Remediation Project, WA	2018/8250	Controlled Action	Post-Approval	In feature area	
Upgrade of Ford Road	2005/2113	Controlled Action	Completed	In buffer area only	
Vasse Diversion Drain Upgrade	2017/7932	Controlled Action	Post-Approval	In buffer area only	
Wonnerup North Mineral Sands Project, Busselton, WA	2014/7205	Controlled Action	Post-Approval	In feature area	
Wonnerup South Mineral Sands Project, Yalyalup, WA	2014/7135	Controlled Action	Post-Approval	In feature area	
Wonnerup Titanium Mineral Mining Project	2010/5403	Controlled Action	Post-Approval	In feature area	
Yalyalup Mineral Sands Project, WA	2017/8094	Controlled Action	Post-Approval	In buffer area only	
Yarragadee Water Supply Development	2005/2073	Controlled Action	Completed	In feature area	
Not controlled action					

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Aerial application of mosquito larvicides to Vasse Wonnerup Wetlands, WA	2016/7780	Not Controlled Action	Completed	In feature area
Busselton-Margaret River Regional Airport Development Project, WA	2016/7675	Not Controlled Action	Completed	In buffer area only
Horizontal drilling from Lot 35 Ballarat Rd under Wonnerup Inlet	2004/1354	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthm two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Larvaciding of potential mosquito breeding wetlands	2006/2601	Not Controlled Action	Completed	In buffer area only
Replacement Floodgates	2003/1010	Not Controlled Action	Completed	In buffer area only
Rezoning of Lot 31, 80-lot Residential Subdivision	2008/4680	Not Controlled Action	Completed	In buffer area only
Titanium Mining	2001/340	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Aerial Application of Larvicide	2010/5490	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Aerial Mosquito Spraying Vasse-Wonnerup System	2005/1952	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Country Road Estate - Final Stage Development	2006/3095	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Waterloo to Busselton 132kV Transmission Line	2002/816	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Widening of Ludlow North Road Between Peppermint Grove Road and Mallokup Road	2009/5242	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
Manner)				

Referral decision

Harvesting of Pinus Radiata Plantation	2010/5414	Referral Decision	Completed	In feature area
Residential development, Lot 71 Spurr Street, Capel, WA	2017/8128	Referral Decision	Completed	In buffer area only
Residential Subdivision, Location 871 Goodwood Rd and Lot 1181 Hawley Rd, Capel	2008/4090	Referral Decision	Completed	In buffer area only
Residential subdivision and development	2007/3711	Referral Decision	Completed	In buffer area only
Riverbank and Country Road Estates Lot 43 Bussell Highway	2005/2367	Referral Decision	Completed	In buffer area only

Biologically Important Areas

Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			

Ardeanna pacifica Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur	In buffer area only
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur	In buffer area only
Puffinus assimilis tunneyi Little Shearwater [59363]	Foraging (in high numbers)	Known to occur	In buffer area only

Whales

Balaenoptera musculus breviceuda Pygmy Blue Whale [81317]	Distribution	Known to occur	In buffer area only
Balaenoptera musculus breviceuda Pygmy Blue Whale [81317]	Migration	Known to occur	In buffer area only
Eubalaena australis Southern Right Whale [40]	Calving buffer	Known to occur	In buffer area only
Eubalaena australis Southern Right Whale [40]	Seasonal calving habitat	Known to occur	In buffer area only

Scientific Name	Behaviour	Presence	Buffer Status
Megaptera novaeangliae Humpback Whale [38]	Migration (south)	Known to occur	In buffer area only

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Appendix D: Principal Environmental Management Requirements (PEMR's)

Table 1: Clearing PEMR

STANDARD MANAGEMENT ACTIONS

STANDARD MANAGEMENT REQUIREMENTS
<p>PRE WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must prepare, implement and maintain processes to ensure that the movement of all vehicles, plant and machinery does not occur outside of the Limits of Vegetation Clearing. This must include all turnaround areas. 2. The Contractor must minimise vegetation clearing and the area of disturbance on ground by utilising existing cleared area where possible.
<p>DURING WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must report any damage to vegetation beyond the Limits of Vegetation Clearing as an Environment Incident. 2. The Contractor must ensure Movements are confined to the Limits of Vegetation Clearing during the works 3. The Contractor must undertake the clearing in accordance with the Fauna PEMR.
<p>POST WORKS</p> <ol style="list-style-type: none"> 1. NIL

Table 2: Dieback PEMR**STANDARD MANAGEMENT ACTIONS**

STANDARD MANAGEMENT REQUIREMENTS
<p>PRE WORKS</p> <ol style="list-style-type: none"> 1. Contractor's Pre-starts must detail the requirements from the DMP/HMP, where relevant, dieback management areas and the requirements of each area, maps of infested and uninfested locations, and hygiene requirements 2. Where relevant a copy of the DMP/HMP must be onsite. This plan will include maps of management areas and obligatory control actions 3. Prescribe where vehicles, machinery and plant are going to be stored/parked during the works. 4. Use the Plant, Vehicle and Equipment Hygiene Checklist or equivalent Hygiene form to check that all machinery and vehicles are clean on entry (i.e. free of soil and vegetation).
<p>DURING WORKS</p> <ol style="list-style-type: none"> 1. If required, locations of dieback infested or dieback free areas and hygiene control locations marked on site in accordance with contract HMP or DMP. 2. Hygiene works to be undertaken as per the HMP or DMP, where required. 3. Restrict movement of machines and other vehicles to the Limits of Vegetation Clearing. 4. Ensure no known weed affected soil, mulch, fill or other material is brought into the Limits of Vegetation Clearing. 5. Ensure cleared materials are stockpiled or disposed at waste at the locations approved by the Superintendent.
<p>POST WORKS</p> <ol style="list-style-type: none"> 1. Record that the project was undertaken in dry soil conditions (unless an approved DMP authorises otherwise). 2. Use the Plant, Vehicle and Equipment Hygiene Checklist to check that all machinery and vehicles are clean on exit (i.e. free of soil and vegetation).

Table 3: Fauna

<p>PRE WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must ensure that fauna management requirements are communicated to the crew undertaking the clearing works during the induction and pre-start meeting. 2. Where active nests, burrows or dens are identified, works must not proceed until the Contractor obtains the Superintendents approval of the management of active nests, burrows or dens adheres to the Superintendents advice.
<p>DURING WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must undertake the clearing in the following manner to allow fauna to move out of the clearing area; <ol style="list-style-type: none"> i. Prior to the clearing activities commencing, use machinery to tap large trees with habitat hollows to encourage any animals evacuate. ii. Undertake the clearing in one direction and towards areas of native vegetation to allow the animals to escape to adjacent habitat. 2. The Contractor must ensure that all onsite personnel undertake visual monitoring and are vigilant to the presence of fauna. Any sightings of fauna, including injury or fatality, must be reported as an Environmental Incident. 3. The Contractor must ensure that; <ol style="list-style-type: none"> i. No pets, traps or firearms are brought into the project area. ii. Fauna are not fed iii. Fauna are not intentionally harmed or killed iv. Fauna that venture into the work area are encouraged to leave in a manner that does not harm the animal or operator (loud noise, slowly approaching in a vehicle etc.) 4. The Contractor must ensure that in the event that sick, injured or orphaned native wildlife are located on the project site, the WILDCARE Helpline ((08) 9474 9055) will be contacted for assistance. The Contractor must maintain records of any animal taken to a wildlife carer.
<p>POST WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must provide any records of fauna impact to the Superintendent.

Table 4: Machinery and Vehicle Management

<p>PRE WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must ensure that all areas associated with the storage, parking, servicing, wash down and refuelling of all vehicles, plant and machinery is located within the Limits of Clearing and approved by the Superintendent. 2. The Contractor must ensure that all vehicles, machinery and plant are clean on entry (i.e. free of all soil and vegetation material) and comply with the requirements of 204.B.32. 3. The Contractor must ensure that vehicle servicing and refuelling will be undertaken at designated areas approved by the Superintendent. 4. The Contractor must ensure that all staff suitably qualified and competent to undertake works, especially refuelling activities.
<p>DURING WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must maintain records of checking all vehicles, machinery and plant are clean on entry.
<p>POST WORKS</p> <ol style="list-style-type: none"> 1. NIL

Table 5: Mulch and Topsoil Management

<p>PRE WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must ensure that the movement of soil and vegetation is only undertaken in dry conditions unless otherwise approved and / or directed by the Superintendent. 2. The Contractor must ensure that poor quality topsoil and mulched vegetation does not contaminate the good quality topsoil and vegetation.
<p>DURING WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must ensure that all machinery used in the removal of weed-infested topsoil must be cleaned down before and between operations to prevent the introduction and spread of weeds. 2. The Contractor must ensure the movement of large equipment over topsoil materials is avoided to minimise compaction. 3. The Contractor must ensure that Dieback and weed infected topsoil and mulch vegetation must be handled separately to minimise the risk of spreading dieback and weed species across the site and stockpiles. 4. The Contractor must ensure that stockpiling operations must occur in a manner to ensure that the properties of the topsoil are not degraded and the topsoil made unsuitable for use in revegetation.
<p>POST WORKS</p> <ol style="list-style-type: none"> 1. NIL

Table 6: Pegging and Flagging

<p>PRE WORKS</p> <ol style="list-style-type: none">1. Pegging must be done in accordance with the requirements detailed in Specification 301.2. The Contractor must clearly communicate, either at the pre-start meeting or equivalent, to the crew undertaking the clearing works, through clear maps and other additional means, what the Pegging represents.
<p>DURING WORKS</p> <ol style="list-style-type: none">1. The Contractor must peg the Limits of Clearing by PINK flagging tape.2. The Contractor peg/demarcate vegetation proposed to be retained is demarcated by WHITE flagging tape.3. The Contractor must ensure that the vegetation demarcated with PINK and WHITE flagging tape is consistent with the approved clearing areas.
<p>POST WORKS</p> <ol style="list-style-type: none">1. The Contractor remove and dispose of appropriately any demarcation, pegging or flagging once project works are completed.

Table 7: Weed Management

<p>PRE WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must remove or kill any weeds growing in project area that are likely to spread and result in environmental harm to adjacent areas of native vegetation that are in good or better condition. 2. The Contractor must develop, implement and maintain procedures to identify and control declared and invasive weed species within the Contract areas, to the satisfaction of the Superintendent. 3. The Contractor must prepare a weed control program, for nominated weed species for control and disposal, to the satisfaction of the Superintendent. 4. The Contractor must undertake weed management in Stockpiles as directed by the Superintendent.
<p>DURING WORKS</p> <ol style="list-style-type: none"> 1. The Contractor must implement the weed control procedures and management plan and record and manage records of its implementation. 2. The Contractor must treat nominated weed infestations as many times as necessary to control and eradicate the weed species in accordance with the approved weed control program 3. The contractor must ensure that no known weed, pest or diseased affected soil, mulch, fill or other material is brought into the Site.
<p>POST WORKS</p> <ol style="list-style-type: none"> 1. The relevant Vegetation Maintenance Record Sheets available at: https://www.mainroads.wa.gov.au/BuildingRoads/Contracting/Pages/ReportingForms.aspx must be completed and sent to the Superintendent.