

# Memo

To: Les Purves, Neil Smith

From: Karen Crews

Date: 17 January 2020

Subject: Desktop Review – Biological values update work for Parker Range Iron Ore Project

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Dear Les, Neil,

This memo provides a summary of the desktop review undertaken for Mineral Resources Limited (MRL) Parker Range Iron Ore Project (PRIOP; the Project) by Phoenix Environmental Sciences (Phoenix).

## 1 BACKGROUND AND SCOPE

The Project received State environmental approval in April 2012 (Ministerial Statement 892) and Commonwealth environmental approval in November 2011 (EPBC 2010/5435) but did not proceed to construction phase. Mineral Resources Ltd recently acquired the Project from the original proponent, Cazaly Resources and is progressing its development.

Botanica Consulting undertook several flora and vegetation surveys for the Project from 2007 to 2011 (Botanica Consulting 2010, 2012). Terrestrial fauna surveys were conducted by Keith Lindbeck and Associates from 2008 to 2010 (KLA 2008, 2009a, 2010e), the Malleefowl Preservation Group (Malleefowl Preservation Group 2011a, b), Specialised Zoological (Specialised Zoological 2008) and Wilcox and Davis (Wilcox & Davis 2008). The resulting information was largely collated into the Public Environmental Review document (PER) for the Project prepared by Keith Lindbeck and Associates (KLA 2010c).

State and Commonwealth ministerial conditions for the Project include several provisions for the management and monitoring of flora, vegetation and fauna values. Due to the age of the baseline survey data, update to the known significant flora, vegetation and fauna values for the Project was warranted. Accordingly, Phoenix was commissioned by MRL in October 2019 to conduct a desktop review to update this information.

MRL requested Phoenix to undertake a review of the biological values identified in the PER and supporting baseline studies against current conservation listings at the State and Commonwealth levels. The scope of the review was confined to the key environmental factors Flora and Vegetation, and Terrestrial Fauna.

The purpose of the review was to identify any changes to the conservation status of significant species or ecological communities which may occur or have been recorded in the project area and which may require environmental management consideration. The review focussed on Threatened and Priority Flora, Threatened and Priority Ecological Communities (TECs and PECs), and Threatened and Priority Fauna (collectively referred to in this report as the target values).

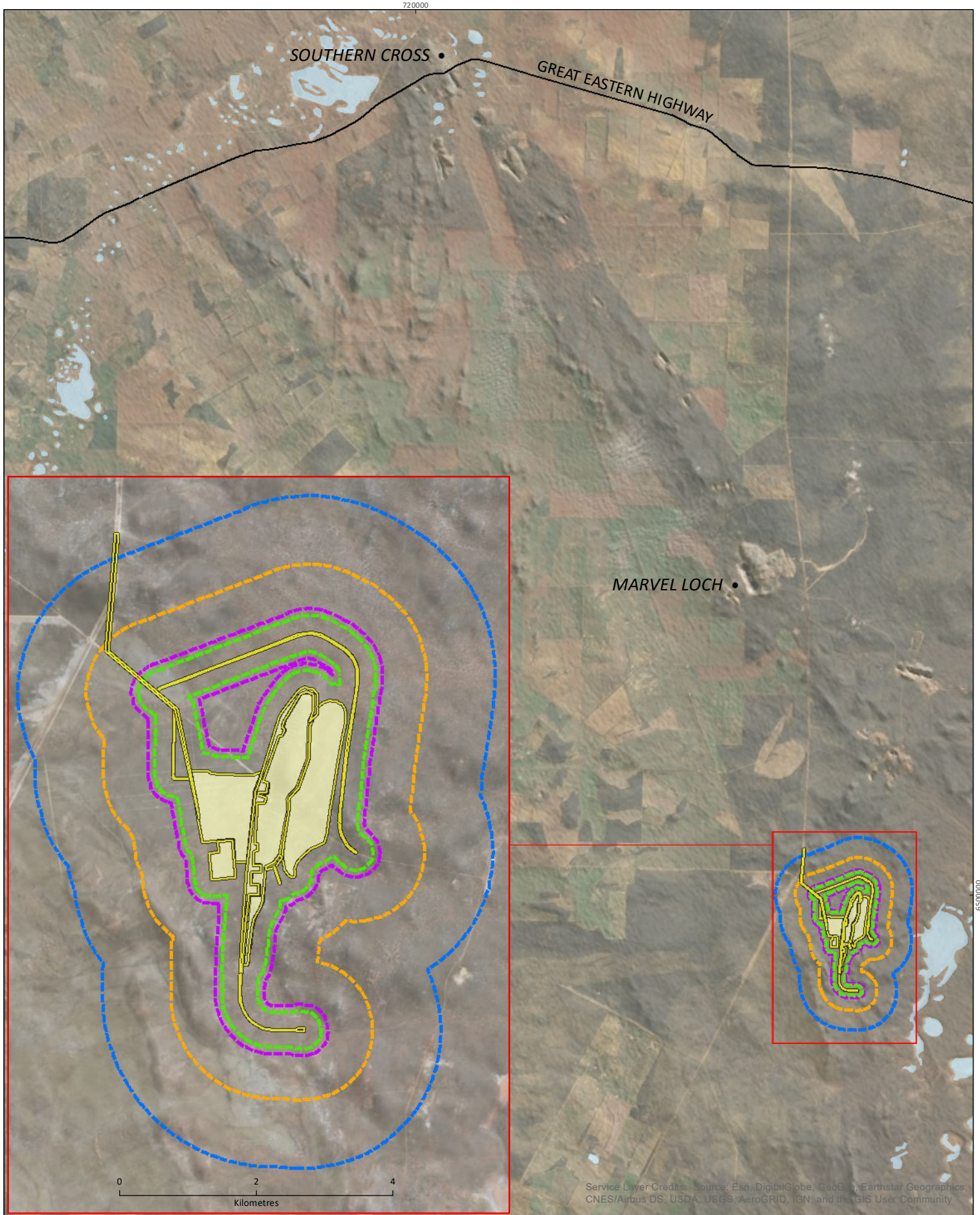
The study area for the review of flora and vegetation comprised the PRIOP project area (project area) with an associated 250 m buffer for Priority flora, and a 350 m buffer for Threatened flora (Figure 1-1). The study area for fauna values comprised the project area, with a 2 km buffer applied for Malleefowl records as monitoring of Malleefowl mounds will be undertaken for the Project within the 2 km buffer area. The 1 km buffer for monitoring of Malleefowl as required by condition 8-5 of MS 892 and EPBC 2010/5435.

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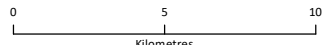
The scope of work included:






- searches of the DBCA Threatened and Priority Flora, Fauna and Ecological databases, and WA Museum SRE databases
- review and update where necessary the conservation status of significant species and vegetation identified for the Project from previous assessments
- identify all records of significant species and vegetation within or in close proximity to the project area from the database searches not reported in the previous surveys
- for significant flora species, identify the total known records and population size to enable revised impact calculation. Note that additional data on significant flora populations will be collected in the field surveys to inform the impact calculations
- for any new significant species identified in the desktop assessment that were not identified in the initial baseline studies, assess likelihood of occurrence based on vegetation types and fauna habitats present
- provide recommendations of any additional work required in relation to conservation significant species, including but not limited to, *Chamelaucium* sp. Parker Range and *Aganippe castellum*
- identify introduced flora recorded for the project area.



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Mineral Resources Ltd Parker Range Iron Ore Project	
Project No	1297-1298
Date	17-Jan-20
Drawn by	AJ
Map author	GW
	
	
1:250,000 (at A4)	GDA94 MGA zone 50

-  Project area
-  250 m Buffer
-  350 m Buffer
-  1000 m Buffer
-  2000 m Buffer

**Figure 1**  
**The PRIOP project area and associated buffers**



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## 2 METHODS

The primary source report utilised for the review was KLA (2010c) as this summarises the key biological values identified for the Project. Where necessary, the following supporting technical survey reports were also consulted:

- Flora and vegetation of the Parker Range region, Western Australia (Botanica Consulting 2010)
- Targeted search of the Priority 1 Flora species *Chamelaucium* sp. Parker Range (Botanica Consulting 2012)
- Parker Range Iron Ore project Mt Caudan deposit: Public environmental review (KLA 2010c)
- Bat call identification from near Southern Cross, WA (Specialised Zoological 2008)
- St Barbara Southern Cross: Nevorina area. A fauna assessment (Wilcox & Davis 2008)
- Mt Caudan-Parker Range Iron Ore Project: spring fauna survey (KLA 2008)
- Mt Caudan-Parker Range Iron Ore Project: fauna assessment (KLA 2009a)
- Parker Range Iron Ore Project - Rainmaker: fauna assessment addendum (KLA 2009b)
- Parker Range Iron Ore Project. Fauna assessment (KLA 2010e)
- Parker Range Iron Ore Project Malleefowl Management Plan (KLA 2010a)
- Parker Range Iron Ore Project Malleefowl Surveys (KLA 2010b)
- Targeted survey for Western Rosella at Mt Caudan within the Parker Range region (KLA 2011)
- Report on the status of 50 Malleefowl sites at Parker Range for Cazaly Resources on November 7 and 8, 2011 (Malleefowl Preservation Group 2011a)
- A search for Malleefowl at Parker Range, 5th - 9th September, 2011 (Malleefowl Preservation Group 2011b).

Data on the target values, including records and likelihood of occurrence assessments was collated from these reports. The collated data was then reviewed against the current database outputs to:

- identify any changes to conservation status for species/communities listed in this report
- determine if any new species/communities of conservation significance were returned in the current database searches; where this occurred a likelihood of occurrence assessment was undertaken for these.

The following database searches were undertaken via request to the Department of Biodiversity, Conservation and Attractions (DBCA):

- DBCA Threatened and Priority Flora database and WA Herbarium Specimen database for Threatened and Priority Flora – 40 km buffer of project area, with emphasis on records within the flora study areas
- DBCA Threatened and Priority Ecological Communities database – 40 km buffer of project area
- DBCA Threatened and Priority Fauna database – 40 km buffer of project area with emphasis on records within the fauna study area.



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An additional database search for EPBC Protected Matters database was also completed for this review, search extent confined to a 2 km buffer of the project area.

## 3 RESULTS

Since the Project was approved, the functions of the State *Wildlife Conservation Act 1950* (WC Act) have been replaced by the *Biodiversity Conservation Act 2016* (BC Act) which came into full effect on 1 January 2019. Species previously listed as Threatened (scheduled species) under the WC Act are now protected under the BC Act.

### 3.1 FLORA

The initial desktop assessment conducted for the Project PER (KLA 2010c) identified a total of 25 significant flora that may occur within the project area (Table 3-1). Review of conservation status identified that *Microseris scapigera* (P3) has been determined not to occur in Western Australia (Table 3-2) and *Euryomyrtus leptospermoides* is no longer listed as significant flora. An additional significant species, *Chamelaucium* sp. Parker Range (P1), was identified to occur within the project area (Botanica Consulting 2012).

Database searches conducted for the current desktop assessment identified a record for *Rinzia torquata* (P3) (Figure 3-1) that was not previously reported within the project area (Botanica Consulting 2010, 2012; KLA 2010c). Review of the current conservation status and nomenclature of these species determined several other changes to conservation status and one change in nomenclature (Table 3-2). *Rinzia torquata* was the only additional significant species identified through the current database searches within 5 km of the project area and 250 m buffer. Subsequently, the solitary record for *R. torquata* within the project area (Figure 3-1) is the only additional record of a significant species to those previously reported (Botanica Consulting 2010; KLA 2010c).

Consolidation of available spatial data for the project, the updated database searches and review of flora and vegetation survey reports identified 25 significant species (Table 3-1) from desktop assessments and surveys that may potentially occur within the project area. Of these, 21 occur within or in close proximity (<5 km) to the 250 m buffer (Table 3-3; Figure 3-1). Notably, there was no spatial data available for the previous surveys for *Chamelaucium* sp. Parker Range (Botanica Consulting 2012).

Numbers of records of significant species recorded within 5 km of the flora buffers and population sizes (where available) are summarised in Table 3-4. There was no population size recorded for the *Rinzia torquata* database record that occurred in the project area. Population data for *Chamelaucium* sp. Parker Range reported previously (Botanica Consulting 2012) required further survey for clarification of local and regional impacts to the species (EPA 2011).

**Table 3-1 Consolidated significant flora records**

Species	Conservation status	Source of record
<i>Isopogon robustus</i>	Threatened (CR BC Act and EPBC Act)	KLA (2010c)
<i>Chamelaucium</i> sp. Parker Range	P1	Botanica Consulting (2012)
<i>Drummondita wilsonii</i>	P1	KLA (2010c)
<i>Goodenia heatheriana</i>	P1	KLA (2010c)
<i>Leucopogon validus</i>	P1	KLA (2010c)

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Species	Conservation status	Source of record
<i>Melaleuca grieviana</i>	P1	KLA (2010c)
<i>Millotia newbeyi</i>	P1	KLA (2010c)
<i>Lepidosperma</i> sp. Parker Range	P1	KLA (2010c)
<i>Lepidosperma</i> sp. Mt Caudan	P1	KLA (2010c)
<i>Rinzia medifila</i>	P1	KLA (2010c)
<i>Eutaxia lasiocalyx</i>	P2	KLA (2010c)
<i>Lepidium merrallii</i>	P2	KLA (2010c)
<i>Acacia concolorans</i>	P2	KLA (2010c)
<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	KLA (2010c)
<i>Baeckea grandibracteata</i> subsp. Parker Range	P3	KLA (2010c)
<i>Cryptandra crispula</i>	P3	KLA (2010c)
<i>Grevillea fulgens</i>	P3	KLA (2010c)
<i>Hakea pendens</i>	P3	KLA (2010c)
<i>Lepidium genistoides</i>	P3	KLA (2010c)
<i>Lepidosperma ferricola</i>	P3	KLA (2010c)
<i>Rinzia torquata</i>	P3	DBCA (2019a)
<i>Verticordia mitodes</i>	P3	KLA (2010c)
<i>Verticordia stenopetala</i>	P3	KLA (2010c)
<i>Calamphoreus inflatus</i>	P4	KLA (2010c)
<i>Banksia shanklandiorum</i>	P4	KLA (2010c)

**Table 3-2 Changes in conservation status and/or nomenclature for desktop records of significant flora for the PRIOP project area**

Species and status 2010	Current nomenclature and conservation status
<i>Euryomyrtus ciliata</i> (P1)	<i>Rinzia medifila</i> (P1)
<i>Lepidosperma ferricola</i> (P1)	<i>Lepidosperma ferricola</i> (P3)
<i>Baeckea grandibracteata</i> subsp. Parker Range (P1)	<i>Baeckea grandibracteata</i> subsp. Parker Range (P3)
<i>Lepidium genistoides</i> (P2)	<i>Lepidium genistoides</i> (P3)
<i>Hakea pendens</i> (P2)	<i>Hakea pendens</i> (P3)
<i>Microseris scapigera</i> (P3)	This is an excluded name, this taxon does not occur in Western Australia
<i>Euryomyrtus leptospermoides</i> (P3)	<i>Euryomyrtus leptospermoides</i> unthreatened

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**Table 3-3 Significant species recorded within the project area, flora buffers and within 5 km of the buffers**

Species	Conservation status	Occurrence
<i>Isopogon robustus</i>	Threatened (CR)	Occurs within 350 m buffer
<i>Rinzia medifila</i>	P1	Occurs within 5 km of 250 m buffer
<i>Goodenia heatheriana</i>	P1	Occurs within 5 km of 250 m buffer
<i>Leucopogon validus</i>	P1	Occurs within 250 m buffer
<i>Millotia newbeyi</i>	P1	Occurs within 5 km of 250 m buffer
<i>Lepidosperma</i> sp. Parker Range	P1	Occurs within project area and 250 m buffer
<i>Lepidosperma</i> sp. Mt Caudan	P1	Occurs within project area and 250 m buffer
<i>Chamelaucium</i> sp. Parker Range	P1	Occurs within project area and 250 m buffer
<i>Eutaxia lasiocalyx</i>	P2	Occurs within 250 m buffer
<i>Lepidium merrallii</i>	P2	Occurs within 5 km of 250 m buffer
<i>Acacia concolorans</i>	P2	Occurs within project area and 250 m buffer
<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	Occurs within 5 km of 250 m buffer
<i>Baeckea grandibracteata</i> subsp. Parker Range	P3	Occurs within project area and 250 m buffer
<i>Cryptandra crispula</i>	P3	Occurs within project area and 250 m buffer
<i>Grevillea fulgens</i>	P3	Occurs within 5 km of 250 m buffer
<i>Hakea pendens</i>	P3	Occurs within project area and 250 m buffer
<i>Lepidosperma ferricola</i>	P3	Occurs within project area and 250 m buffer
<i>Rinzia torquata</i>	P3	Occurs within project area and 250 m buffer
<i>Verticordia mitodes</i>	P3	Occurs within project area and 250 m buffer
<i>Verticordia stenopetala</i>	P3	Occurs within 5 km of 250 m buffer
<i>Banksia shanklandiorum</i>	P4	Occurs within project area and 250 m buffer

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**Table 3-4 Number of records of significant species and population sizes (where available) for species that occur within 5 km of the project buffer area, within the project area buffer and within the project area**

Species	No. total FloraBase records	No. total Botanica records	No. total database records	No. Botanica records in project area	No. database records in project area	No. Botanica records in buffer	No. database records in buffer	Recorded population sizes outside of project area <sup>1</sup> (source of data)	Population sizes in project area
<i>Acacia concolorans</i>	18	88	29	68	6	85	11	9,361 (KLA 2010c)	120 (KLA 2010c)
<i>Baeckea grandibracteata</i> subsp. Parker Range	13	49	10	14	6	46	7	136 (KLA 2010c)	22 (KLA 2010c)
<i>Banksia shanklandiorum</i>	36	110	0	90	0	107	0	698,122 (KLA 2010c)	7,293 (KLA 2010c)
<i>Chamelaucium</i> sp. Parker Range <sup>4</sup>	11	6	8	2	5	3	4	14,487 <sup>3</sup> (Botanica Consulting 2012)	3,039 <sup>3</sup> (Botanica Consulting 2012)
<i>Cryptandra crispula</i>	14	14	2	2	0	12	0	43 (KLA 2010c), 1, 2-5, 20, 12, occasional, abundant (DBCA 2019a)	3 (KLA 2010c)
<i>Eutaxia lasiocalyx</i>	5	0	4	0	0	0	0	5, moderately frequent (DBCA 2019a)	0
<i>Goodenia heatheriana</i>	9	0	7	0	0	0	0	>50, 100, locally common (DBCA 2019a)	0
<i>Grevillea fulgens</i>	39	0	1	0	0	0	0	>800, >100, isolated, common, abundant (DBCA 2019a)	0
<i>Hakea pendens</i>	23	1088	89	140	2	160	6	4,974 <sup>2</sup> (KLA 2010c)	630 (KLA 2010c)
<i>Isopogon robustus</i>	5	1442	21	0	0	65	1	1,226 (KLA 2010c)	0 (KLA 2010c)
<i>Lepidosperma ferricola</i>	34	1	4	1	0	1	0	>136, 330, 10, 100, 6-20, 100's, >300 (DBCA 2019a)	0



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Species	No. total FloraBase records	No. total Botanica records	No. total Database records	No. Botanica records in project area	No. Database records in project area	No. Botanica records in project area buffer	No. Database records in project area buffer	Recorded population sizes outside of project area <sup>1</sup> (source of data)	Population sizes in project area and buffer
<i>Lepidosperma</i> sp. Parker Range	6	73	2	3	2	3	2	13,503 (KLA 2010c)	219 (KLA 2010c)
<i>Leucopogon validus</i>	6	0	14	0	0	0	0	Locally common (DBCA 2019a)	0
<i>Millotia newbeyi</i>	5	0	5	0	0	0	0	21-50 plants, very common (DBCA 2019a)	0
<i>Rinzia medifila</i>	3	0	2	0	0	0	0	NA (DBCA 2019a)	0
<i>Rinzia torquata</i>	18	0	1	0	1	0	1	Isolated, locally common (DBCA 2019a)	0
<i>Verticordia mitodes</i>	24	0	9	0	1	0	1	6-20, 1, (DBCA 2019a)	0
<i>Verticordia multiflora</i> subsp. <i>solox</i>	29	1	19	0	0	1	2	20, >500, frequent (DBCA 2019a)	0
<i>Verticordia stenopetala</i>	23	0	10	0	0	0	0	2-5, scattered, uncommon, moderately frequent (DBCA 2019a)	0

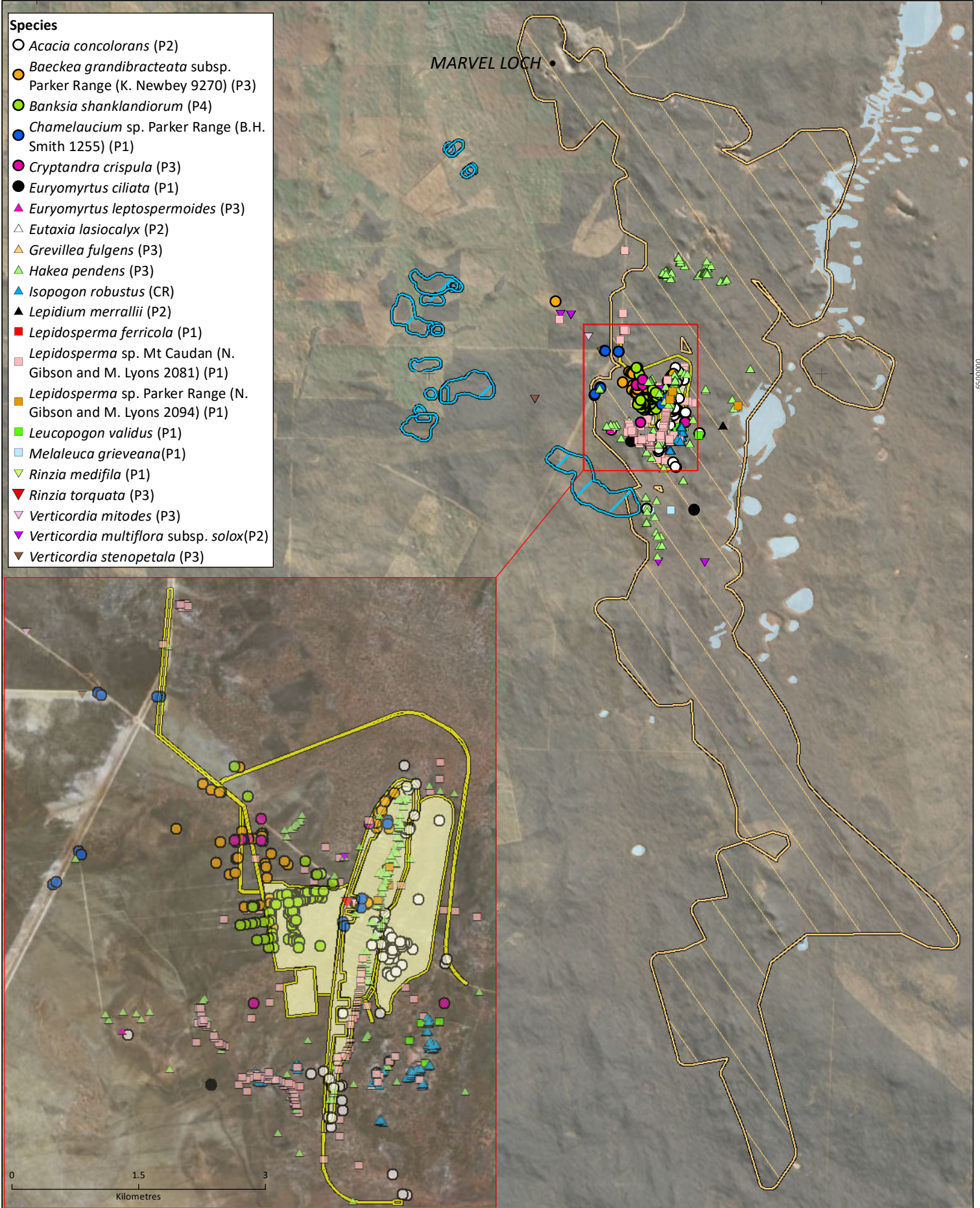
1 – Population sizes from records or comments of populations sizes are provided for FloraBase (DBCA 2019b) records.

2 – Population sizes for numerous records of this species are unknown (KLA 2010c), the number provided therefore represents the known number of plants from a ‘sub-set’ of populations of the species.

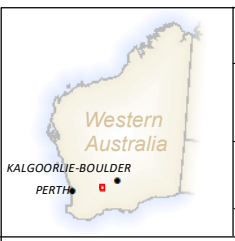
3 – Numbers will be updated following current seasonal survey.


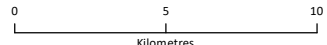
4 – Numbers for Botanica records are based on visual inspection of figures in the technical report (Botanica Consulting 2010) as no spatial data for the Botanica surveys for this species was available.




- Species**
- *Acacia concolorans* (P2)
  - *Baeckea grandibracteata* subsp. Parker Range (K. Newbey 9270) (P3)
  - *Banksia shanklandiorum* (P4)
  - *Chamelaucium* sp. Parker Range (B.H. Smith 1255) (P1)
  - *Cryptandra crispula* (P3)
  - *Euryomyrtus ciliata* (P1)
  - ▲ *Euryomyrtus leptospermoides* (P3)
  - △ *Eutaxia lasiocalyx* (P2)
  - ▲ *Grevillea fulgens* (P3)
  - ▲ *Hakea pendens* (P3)
  - ▲ *Isopogon robustus* (CR)
  - ▲ *Lepidium merrallii* (P2)
  - *Lepidosperma ferricola* (P1)
  - *Lepidosperma* sp. Mt Caudan (N. Gibson and M. Lyons 2081) (P1)
  - *Lepidosperma* sp. Parker Range (N. Gibson and M. Lyons 2094) (P1)
  - *Leucopogon validus* (P1)
  - *Melaleuca grieviana* (P1)
  - ▼ *Rinzia medifila* (P1)
  - ▼ *Rinzia torquata* (P3)
  - ▼ *Verticordia mitodes* (P3)
  - ▼ *Verticordia multiflora* subsp. *solox* (P2)
  - ▼ *Verticordia stenopetala* (P3)



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Kilometres



Mineral Resources Ltd Parker Range Iron Ore Project	
Project No	1297-1298
Date	17-Jan-20
Drawn by	AJ
Map author	GW
	
	
1:250,000 (at A4) GDA 1994 MGA Zone 50	

-  Project area
- TEC/PEC, WA cons. status, Cwth cons.**
-  Eucalypt woodlands of the Western Australian Wheatbelt, Priority 3, Critically Endangered
-  Plant assemblages of the Parker Range System, Vulnerable,

**Figure 2**  
Records of significant flora and vegetation



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## 3.2 THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES

The entire project area and flora buffer areas lie within the Priority Ecological Community (PEC 3) “Plant assemblages of the Parker Range System” (Figure 3-1), as was previously reported for the Project (KLA 2010c).

The database searches also identified occurrences of the EPBC Act listed Threatened Ecological Community (TEC) “Eucalypt Woodlands of the Western Australian Wheatbelt” to the west and south of the Project (Figure 3-1). The TEC does not occur within the project area or the flora buffers. The Eucalypt Woodlands of the Western Australian Wheatbelt was listed under the EPBC Act in December 2015, after Commonwealth approval of the Project.

## 3.3 WEEDS

A desktop assessment (Botanica Consulting 2011b) determined that records of 14 weeds occurred within a 10 km radius of the Project (Table 3-5). This included two Declared Pests, *\*Chrysanthemoides monilifera* and *\*Moraea miniata*. *\*Chrysanthemoides monilifera* is also listed as a Weed of National Significance (WoNS) (DoEE 2019).

The recent interrogation of the NatureMap database (DBCA 2019c) identified records for eight weed species within a 20 km radius of the Project, none of which were a Declared Pest or WoNS, and included two species not identified in the previous desktop assessment (Table 3-5). The combined results from the two assessments indicate potential for at least 16 weed species to occur in the Project.

No weed species were previously recorded in the weed monitoring quadrats or in any of the vegetation health monitoring quadrats (Botanica Consulting 2011a, b). Four weed species, *\*Bromus rubens*, *\*Lysimachia arvensis*, *\*Sonchus oleraceus* and *\*Ursinia anthemoides* have been recorded within the Project (Botanica Consulting 2010; KLA 2010c). All four species were recorded in a single vegetation type mapped for the Project, mallee woodland/*Allocasuarina* shrubland on laterite ridge. *\*Lysimachia arvensis* was also recorded in mixed *Eucalyptus* woodland.

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**Table 3-5 List of weeds recorded within a 20km radius of the Mt Caudan deposit (DBCA 2019c)**

Species			Source	
Family	Genus	Species	Botanica Consulting 2011b	NatureMap 2019
Asteraceae	<i>Arctotheca</i>	<i>calendula</i>	*	
Asteraceae	<i>Centaurea</i>	<i>melitensis</i>		*
Asteraceae	<i>Chrysanthemoides</i>	<i>monilifera</i>	*	
Asteraceae	<i>Hypochaeris</i>	<i>glabra</i>	*	*
Asteraceae	<i>Sonchus</i>	<i>oleraceus</i>	*	*
Asteraceae	<i>Ursinia</i>	<i>anthemoides</i>	*	*
Brassicaceae	<i>Carrichtera</i>	<i>annua</i>	*	
Fabaceae	<i>Medicago</i>	<i>minima</i>		*
Iridaceae	<i>Moraea</i>	<i>miniata</i>	*	
Poaceae	<i>Aira</i>	<i>cupaniana</i>	*	*
Poaceae	<i>Bromus</i>	<i>rubens</i>	*	
Poaceae	<i>Cenchrus</i>	<i>ciliaris</i>	*	
Poaceae	<i>Pentameris</i>	<i>airoides</i>	*	*
Poaceae	<i>Vulpia</i>	<i>bromoides</i>	*	
Poaceae	<i>Vulpia</i>	<i>myuros</i>	*	
Primulaceae	<i>Lysimachia</i>	<i>arvensis</i>	*	*

## 3.4 TERRESTRIAL FAUNA

### 3.4.1 Vertebrate fauna

The initial desktop assessment conducted for the Project PER (KLA 2010c) identified 20 significant vertebrate fauna that could potentially occur in the project area; of these three were recorded, two were considered to have medium potential for occurrence and the remainder low potential (Table 3-6). An additional significant species not identified in the initial desktop, Western Rosella (inland form (previously 'Mallee')) *Platycercus icterotis xanthogenys*, was recorded in the baseline surveys (Table 3-6).

There has been a change in conservation status since the time of the Project PER. Ten of the significant species considered in the Project PER (KLA 2010c) have been delisted and no longer hold a conservation status (Table 3-6), including two species that were recorded in the baseline surveys (KLA 2010e); White-browed Babbler (western wheatbelt) *Pomatostomus superciliosus ashbyi* and Crested Bellbird (southern) *Oreoica gutturalis gutturalis*. The Western Rosella (inland form) has been downgraded from Vulnerable under the WC Act to Priority 4. The fourth significant species recorded in the baseline surveys, Malleefowl *Leipoa ocellata* has not changed in conservation status (Vulnerable under the EPBC Act and BC Act).



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Six new significant species were identified in the current desktop review, all from the EPBC Act Protected Matters database search: Night Parrot *Pezoporus occidentalis*, Curlew Sandpiper *Calidris ferruginea*, Grey Wagtail *Motacilla cinerea*, Common Sandpiper *Actitis hypoleucos*, Sharp-tailed Sandpiper *Calidris acuminata* and Pectoral Sandpiper *Calidris melanotos*. Based on a review of habitats present in the project area and/or known distributions, these additional species were all considered unlikely to occur in the project area (Table 3-6).

In 2011, forty-nine Malleefowl mounds were recorded within the project area and 1 km buffer (Figure 3-2), of which 20 of these were deemed to be significant and monitored either annually or at 5 year intervals (Malleefowl Preservation Group 2011b):

- 20 were classified as not showing signs of use but requiring annual or 5 yearly monitoring
- 30 were classified as 'old, insignificant or recorded in error'.

Additional secondary evidence of Malleefowl tracks was also recorded during 2011, within this area. No additional records of Malleefowl mounds were identified in the current database searches within the project area, 1 km buffer or 2 km buffer.

Unidentified calls of a long-eared bat *Nyctophilus* spp. was recorded in the project area in 2008 and 2009. It is typically difficult to identify this to species level. Recorded calls may be of the lesser long-eared bat *Nyctophilus geoffroyi* (not conservation significant) or the central long-eared bat *Nyctophilus major tor* (central form) which is listed as Priority 4. *Nyctophilus major tor* may possibly occur in the project area.

Western Quoll *Dasyurus geoffroyi* was assessed as low likelihood of occurrence in 2010 PER (KLA 2010c); however, this species was recently recorded by Phoenix for the PRIOP haul road baseline surveys. Further, based on a review of vegetation types and habitats mapped for the project area, potential habitat is present for this species. Taking these factors into account, we consider there to be potential for Western Quoll to occur in the project area. Records from the recent survey of the haul road were in a range of habitat types, including open *Eucalyptus* woodland over tall *Melaleuca* shrubs, *Eucalyptus* woodland over laterite ridges/breakaways and mallee heath/mixed shrubland. Therefore, we consider it possible for Western Quolls to occur in all of the woodland vegetation types identified in the PER (Cazaly Resources Limited 2010) as present in the project area:

- Mallee Heath
- Open Mallee Woodland
- *Eucalyptus salmonophloia* Woodland
- *Eucalyptus salubris* (Gimlet) Woodland
- Mallee woodland/*Allocasuarina* shrubland over Laterite Ridge
- Mixed *Eucalyptus* Woodland
- *Eucalyptus transcontinentalis* woodland
- Acacia sp. narrow phyllode/ *Melaleuca eleuterostachya* shrubland

Regarding the remaining vegetation type identified for the project area (Cazaly Resources Limited 2010), Burnt Mallee/*Allocasuarina* shrubland, Western Quoll rarely occur in recently burnt habitat but as substantial regeneration may have occurred since the time of the fire, this may also provide potential habitat for the species.



# Memo

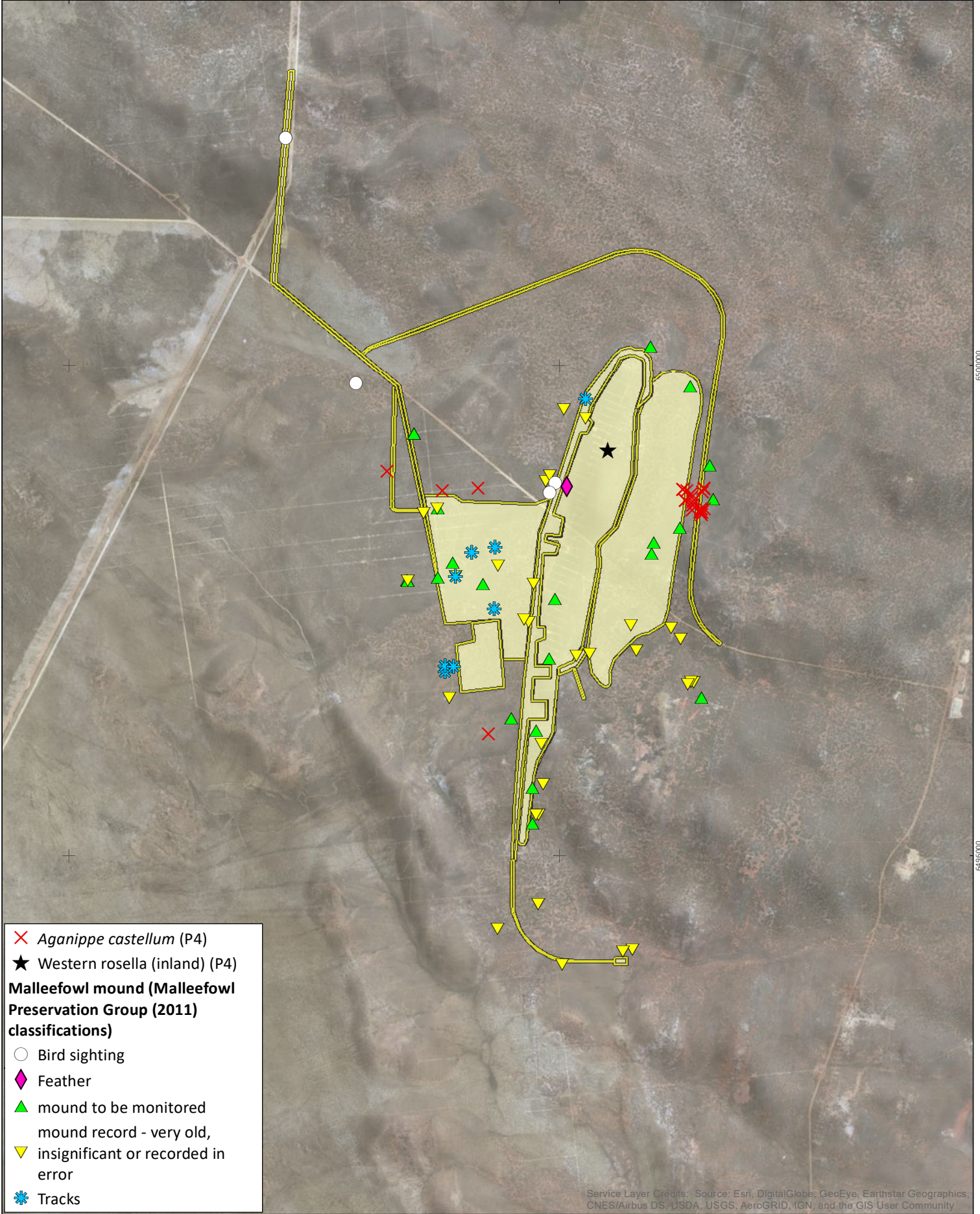
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## 3.4.2 Invertebrate fauna

The initial desktop assessment conducted for the Project PER (KLA 2010c) identified three significant invertebrate fauna – one Threatened and two Priority species – that could potentially occur in the project area (Table 3-6). No additional Threatened or Priority invertebrates were returned in the current desktop review.

Short-range endemic invertebrate (SRE) surveys conducted for the Project (KLA 2010d) identified just one species of significance for the Project, Tree-stem Trapdoor Spider *Aganippe castellum*, the single Threatened species identified in the initial desktop assessment. *Aganippe castellum* has since been downgraded to Priority 4. Targeted surveys (KLA 2010d) recorded the species within and in close proximity to the project area; just one burrow is located in the project area (Figure 3-2). This survey established the preference of *A. castellum* for a specific vegetation type, *Eucalyptus capillosa* subsp. *polyclada* woodland.

The (revised) proponent commitment for this species (Cazaly Resources 2011) is to “implement clearing controls to avoid (where possible) all known *Aganippe castellum* (Tree-stem Trapdoor Spider) for the management of this species during mine development, operations, closure and rehabilitation (Cazaly Resources 2011)”.



- ✕ *Aganippe castellum* (P4)
- ★ Western rosella (inland) (P4)
- Malleefowl mound (Malleefowl Preservation Group (2011) classifications)**
- Bird sighting
- ◆ Feather
- ▲ mound to be monitored
- ▼ mound record - very old, insignificant or recorded in error
- ✱ Tracks

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Mineral Resources Ltd Parker Range Iron Ore Project	
Project No	1297-1298
Date	17-Jan-20
Drawn by	AJ
Map author	KC
1:40,000 (at A4)      GDA 1994 MGA Zone 50	

- Project area
- Malleefowl monitoring area (1,000 m)
- Malleefowl monitoring area (2,000 m)

**Figure 3**  
**Records of significant fauna**



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Table 3-6 Significant fauna review

Name	Considered in PER 2010?	LOO <sup>1</sup> 2010	Status 2010	Current status	Comments / LOO <sup>1</sup> for new species
<i>Daphnia jollyi</i> Aquatic invertebrate	Y	Low	P1	P3	
<i>Parartemia contracta</i> Aquatic invertebrate	Y	Low	P1	P1	
<i>Aganippe castellum</i> Tree-stem Trapdoor Spider	Y	High (recorded)	S1 (WC Act)	P4	Proponent commitment to avoid impacts to this species where possible. Preference for <i>Eucalyptus capillosa</i> subsp. <i>polyclada</i> woodland
<i>Morelia spilota imbricata</i> Carpet Python	Y	Low	S4 (WC Act)	none	
<i>Paraplocephilus atriceps</i> Lake Cronin Snake	Y	Low	P3	P3	
<i>Dasyurus geoffroii</i> Western Quoll	Y	Low *see comments	VU (EPBC Act); S1 (WC Act)	VU (EPBC, BC Act)	Assessed as low likelihood of occurrence in 2010 PER; however, recently recorded by Phoenix for the PRIOP haul road baseline surveys and the woodlands and shrublands of the project area may provide potential habitat. Should be considered in the environmental management measures for the Project.
<i>Phascogale calura</i> Red-tailed Phascogale	Y	Low	EN (EPBC Act)	EN (EPBC Act); CD (BC Act)	
<i>Notamacropus irma</i> (previously <i>Macropus irma</i> ) Western Brush Wallaby	Y	Low	P4	P4	
<i>Nyctophilus major tor</i> (previously <i>N. timoriensis</i> ) Central Long-eared Bat	Y	Low *see comments	P4	P3	An unidentified call of a long-eared bat <i>Nyctophilus</i> spp. was recorded in the project area in 2008 and 2009 by Specialised Zoological 2008, KLA 2010d. Calls of <i>Nyctophilus</i> spp. were identified at six out of eight trapping sites with calls also recorded at a further three trapping sites. It is typically difficult to

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Name	Considered in PER 2010?	LOO <sup>1</sup> 2010	Status 2010	Current status	Comments / LOO <sup>1</sup> for new species
					identify this to species level. Recorded calls may be of the lesser long-eared bat <i>Nyctophilus geoffroyi</i> or the central long-eared bat <i>Nyctophilus major tor</i> (central form). The Priority subspecies can possibly occur in the project area and may need consideration in the environmental management measures for the Project.
<i>Leipoa ocellata</i> Malleefowl	Y	High (recorded)	VU (EPBC Act); S1 (WC Act)	VU (EPBC Act; BC Act)	Ministerial conditions in place requiring management of this species.
<i>Ardea alba</i> Great Egret	Y	Low	Mig. (EPBC Act)	none	
<i>Ardea ibis</i> Cattle Egret	Y	Low	Mig. (EPBC Act)	none	
<i>Burhinus grallarius</i> Bush Stone-curlew	Y	Low	P4	none	
<i>Calyptorhynchus latirostris</i> Carnaby's Cockatoo	Y	Low	EN (EPBC Act); S1 (WC Act)	EN (EPBC Act, BC Act)	
<i>Calyptorhynchus sp.</i> White- tailed Black Cockatoo	Y	Low	S1 (WC Act)	EN (EPBC Act, BC Act)	Assume this refers to <i>Calyptorhynchus latirostris</i> Carnaby's Cockatoo as project area is well outside range of the other white-tailed black cockatoo species, Baudin's Cockatoo <i>Calyptorhynchus baudinii</i>
<i>Cacatua leadbeateri</i> Major Mitchell's Cockatoo	Y	Low	S4	none	
<i>Ninox connivens connivens</i> Barking Owl (southwest pop.)	Y	Low	P2	P3	
<i>Apus pacificus</i> Fork-tailed Swift	Y	Low	Mig. (EPBC Act)	Mig. (EPBC; BC Act)	

# Memo

Name	Considered in PER 2010?	LOO <sup>1</sup> 2010	Status 2010	Current status	Comments / LOO <sup>1</sup> for new species
<i>Merops ornatus</i> Rainbow Bee-eater	Y	Medium	Mig. (EPBC Act)	none	
<i>Hylacola cauta whitlocki</i> Shy Heathwren	Y	Medium	P4	none	
<i>Acanthiza iredalei iredalei</i> Slender-billed Thornbill (western)	Y	Low	VU (EPBC Act)	none	
<i>Pomatostomus superciliosus ashbyi</i> White-browed Babbler (western wheatbelt)	Y	High (recorded)	P4 (EPBC Act)	none	Condition 8-1 of MS 892 requires the avoidance, or, where avoidance is not possible, minimisation of loss of this species. Proponent commitment to avoid clearing within 20 m of White-browed Babbler nests.
<i>Oreoica gutturalis gutturalis</i> Crested Bellbird (southern)	Y	High (recorded)	P4 (EPBC Act)	none	
<i>Platycercus icterotis xanthogenys</i> Western Rosella (inland) (previous name Western Rosella (Mallee))	Y	Recorded	VU (WC Act)	P4	<p>The Western Rosella <i>Platycercus icterotis xanthogenys</i> was previously recorded in the project area in very low numbers (one in 2009 and two in 2011) when it was listed as a Vulnerable species under the WC Act. Targeted surveys for the Western Rosella were undertaken in 2011 specifically for breeding hollows which identified 681 hollows within 137.7 ha of habitat surveyed. Extrapolated to woodlands within the project area containing suitable hollow-bearing tree species (i.e. <i>Eucalyptus salmonophloia</i> woodland, <i>E. salubris</i> woodland, mixed <i>Eucalyptus</i> woodland, <i>E. salmonophloia</i>/<i>E. salubris</i> woodland and <i>E. salubris</i> woodland over <i>Melaleuca pauperiflora</i>), 1,222 potential hollows were estimated to be present.</p> <p>Whilst the certainty of the Western Rosella records as the Priority sub species is unknown this sub species can possibly occur in the above woodlands of the project area. However, KLA (2011) identified that the total number of hectares proposed for disturbance represented only 3% of Salmon Gum / Gimlet Woodland within the Parker Range PEC and less than 1% of the</p>



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Name	Considered in PER 2010?	LOO <sup>1</sup> 2010	Status 2010	Current status	Comments / LOO <sup>1</sup> for new species
					<p>remaining communities within the PEC that support potential Western Rosella breeding hollows.</p> <p>Condition 8-1 of MS 892 requires the avoidance, or, where avoidance is not possible, minimisation of loss of this species.</p>
<i>Pezoporus occidentalis</i> Night Parrot	N	n/a	n/a	EN (EPBC Act); CR (BC Act)	<p>The Night Parrot was returned in the EPBC Act Protected Matters database search with the category “species or species habitat may occur within area”. No records of the species were returned in the NatureMap or DBCA Threatened and Priority Fauna database searches.</p> <p>The Night Parrot appears to favour areas of dense vegetation comprising old-growth (often &gt; 50 years unburnt) spinifex (<i>Triodia</i> spp.) especially hummocks that are ring-forming for roosting and nesting. These may be in expanses or isolated patches and may be associated with dense chenopod shrubs (DPaW 2017). Foraging habitats are likely to include various native grasses and herbs and may or may not contain shrubs or low trees (DPaW 2017).</p> <p>The mapped distribution of potential habitat has been revised following the recent discovery of Night Parrots in Western Australia. The project area is located on the outer boundary of the ‘medium priority area for survey’ in DPaW (2017), which suggests the project area location is of marginal for potential occurrence.</p> <p>Based on a review of vegetation types recorded during the baseline surveys for the Project (Botanica Consulting 2010), roosting/nesting habitat is unlikely to be present in the project area.</p>
<i>Calidris ferruginea</i> Curlew Sandpiper	N	n/a	n/a	CR, Mig. (EPBC Act), CR (BC Act)	<p>Returned in the EPBC Act Protected Matters database search with the category “species or species habitat may occur within area”. Curlew Sandpiper is primarily a coastal and inland wetland shorebird species and unlikely to occur in the project area due to absence of suitable habitat.</p>

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Name	Considered in PER 2010?	LOO <sup>1</sup> 2010	Status 2010	Current status	Comments / LOO <sup>1</sup> for new species
<i>Motacilla cinerea</i> Grey Wagtail	N	n/a	n/a	Mig. (EPBC Act; BC Act)	Returned in the EPBC Act Protected Matters database search with the category "species or species habitat may occur within area". Grey Wagtail is a rare vagrant, summer visitor mostly to northern WA (Nov-April) and is unlikely to occur in the project area.
<i>Actitis hypoleucos</i> Common Sandpiper	N	n/a	n/a	Mig. (EPBC Act; BC Act)	Returned in the EPBC Act Protected Matters database search with the category "species or species habitat may occur within area". Common Sandpiper is primarily a coastal and inland wetland shorebird species. It is unlikely to occur in the project area due to absence of suitable habitat.
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	N	n/a	n/a	Mig. (EPBC Act; BC Act)	Returned in the EPBC Act Protected Matters database search with the category "species or species habitat may occur within area". Sharp-tailed Sandpiper is primarily a coastal and inland wetland shorebird species. It is unlikely to occur due to absence of suitable habitat.
<i>Calidris melanotos</i> Pectoral Sandpiper	N	n/a	n/a	Mig. (EPBC Act; BC Act)	Returned in the EPBC Act Protected Matters database search with the category "species or species habitat may occur within area". Pectoral Sandpiper is primarily a coastal and inland wetland shorebird species. It is unlikely to occur due to absence of suitable habitat.

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## 4 DISCUSSION

### 4.1 FLORA

The desktop assessment identified one additional significant flora record within the project area that was not previously documented in the PER for the Project, *Rinzia torquata* P3. Since the time of the PER there has been delisting of two of the Priority flora reported and a change in conservation status of four other species all being listed at a lower level of significance.

Subsequently, as Ministerial conditions applied to PRIOP previously required monitoring of populations of the Threatened *Isopogon robustus*, Priority 1 *Chamelaucium* sp. Parker Range and Priority 1 *Lepidosperma* sp. Mt Caudan and the current desktop assessment has identified no new records for any Threatened or Priority 1 flora within the project area or flora buffers, it is considered unlikely that monitoring requirements for any additional significant flora will be required.

The required further survey to provide clarification of local and regional impacts to *Chamelaucium* sp. Parker Range is to be conducted in spring 2019, with the results to be presented in a separate technical report.

No additional significant vegetation or change to significant vegetation has occurred to that reported previously and subsequently it is considered unlikely that any additional monitoring requirements for significant vegetation will be required.

A total of four weed species have been recorded in the project area none of which are a Declared Pest of Weed of National Significance.

### 4.2 FAUNA

The desktop assessment for fauna identified two additional significant fauna species that may occur in the project area to those considered to have medium or high potential to occur in the PER, Western Quoll (VU) and Central Long-eared Bat (P3). Current ministerial conditions relating to fauna are mainly focussed on Malleefowl (VU), including the requirement for a Malleefowl Management Plan (MMP). However, proponent commitments or conditions also exist for minimising impacts to the Tree-stem Trapdoor Spider (P4), Western Rosella (inland form) (P4) and White-browed Babbler (no longer conservation significant), all of which were recorded in the project area.

In consideration of these potential values for the project area and proponent commitments, it is recommended that the MMP is expanded in scope to a significant species management plan that includes, but may not be limited to, management provisions for the following species:

- Malleefowl
- Western Quoll
- Central Long-eared Bat
- Western Rosella (inland form)
- Tree-stem Trapdoor Spider (P4).

Inclusion of the White-browed Babbler in the significant species management plan may not be necessary as the species is no longer conservation significant, although it is still recommended that clearing within 20 m of known nests be avoided where possible.

# Memo

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At the advice of the Malleefowl Recovery Team (Liz Kington, NMRT WA Coordinator), all previously recorded mound locations should be re-checked prior to ground disturbance to establish a current baseline mound dataset. This includes the mounds classified as 'old, insignificant or erroneous' as due to the age of the records.

Yours Sincerely,

Karen Crews

[karen.crews@phoenixenv.com.au](mailto:karen.crews@phoenixenv.com.au), 08 6323 5410

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# Memo

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## Appendix 1 Database search results

**DBCA TEC/PEC Database results**

OCC_UNIQUE	COM_ID	COM_NAME	STATE_CATG	COMM_CATG	S_ID_COUNT	FIRST_S_ID	LAST_S_ID	BUFFER	OCC_CONFID	BDY_ID	ORIG_FID
77049	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld59228		200	No	74635	92254
77050	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld59229		200	No	74636	92255
77047	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld59226		200	No	74633	92252
77048	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld59227		200	No	74634	92253
90883	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld73062		200	No	88469	1E+05
80815	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld62994		200	No	78401	96020
86236	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld68415		200	No	83822	1E+05
427	Parker Range System	Plant assemblages of the Parker Range System	Vulnerable		1	Parker01		500	No	192	2621
5345	Parker Range System	Plant assemblages of the Parker Range System	Vulnerable		1	Parker03		500	No	3021	2622
93342	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld75521		200	No	90928	1E+05
93343	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld75522		200	No	90929	1E+05
86237	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld68416		200	No	83823	1E+05
90882	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld73061		200	No	88468	1E+05
85159	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld67338		200	No	82745	1E+05
86235	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld68414		200	No	83821	1E+05
81691	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld63870		200	No	79277	96896
81692	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld63871		200	No	79278	96897
77464	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld59643		200	No	75050	92669
78019	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld60198		200	No	75605	93224
77462	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld59641		200	No	75048	92667

77463	Wheatbelt Woodlands	Eucalypt woodlands of the Western Australian Wheatbelt	Priority 3	Critically Endangered	1	WhtWld59642		200	No	75049	92668
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DBCFA Threatened Fauna Database results

YEAR	SOURCE_ID	SOURCE	CERTAINTY	METHOD	TYPE	COUNT	LOCALITY	SITE	ACCURACY_M	GDA_LONG	GDA_LAT	NAME_ID	FAMILY	GENUS	SPECIES	SUBSPECIES	KINGDOM	X	Y
2017	21391	FAUNASURVEY_WLS	Certain		Opportunistic sighting (scats)	1	Mt Holland	Jilbadji Nature Reserve	10	119.6948505	-31.9390259	24092	Dasyuridae	Dasyurus	geoffroii		Animalia	742175.33	6499253.4
2009	18077	TFAUNA	Certain	Opportunistic sighting	Day sighting	6	Skeleton Rock		1000	119.5080176	-31.9416536	0					Animalia	742175.33	6499253.4
2009	16680	TFAUNA	Certain	Opportunistic sighting	Secondary sign	0	Skeleton Rock		50	119.5077962	-31.9409005	0					Animalia	742175.33	6499253.4
2017	21433	FAUNASURVEY_WLS	Certain		Transect search	1	Mt Holland	MM-44 mound attempt, not used for nesting	10	119.7165665	-31.9636493	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
2017	21390	FAUNASURVEY_WLS	Certain		Opportunistic sighting (scats)	1	Mt Holland	Jilbadji Nature Reserve	10	119.7165662	-31.9636403	24092	Dasyuridae	Dasyurus	geoffroii		Animalia	742175.33	6499253.4
2009	18078	TFAUNA	Certain	Opportunistic sighting	Day sighting	2	Skeleton Rock		1000	119.5181252	-31.9829993	0					Animalia	742175.33	6499253.4
2017	2911	FAUNASURVEY_WLS	Certain		Camera trap record	1	Mt Holland	Regional Survey Cam W02-5	10	119.7181521	-31.966933	24092	Dasyuridae	Dasyurus	geoffroii		Animalia	742175.33	6499253.4
2007	ARACH:96041	WAM_ARACHNIDS	WAM Vouchered	Collection	Specimen	1	MARVEL LOCH	MARVEL LOCH	50	119.5686	-31.5517	33902	Idiopidae	Aganippe	castellum		Animalia	742175.33	6499253.4
2007	urn:lsid:taxonomy.org.au:ARACH:96041	WAM_ARACHNIDS							50	119.568611	-31.551667	33902	Idiopidae	Aganippe	castellum		Animalia	742175.33	6499253.4
1989	650	TFAUNA	Certain	Opportunistic sighting	Dead	1	Ghooli		1000	119.4514646	-31.2487318	0					Animalia	742175.33	6499253.4



2012	96757	TFAUNA	Certain	Opportunistic sighting		2	Marvel Loch		1000	119.5275784	-31.5750913	0					Animalia	742175.33	6499253.4
1998	79702	TFAUNA	Certain	Opportunistic sighting	Dead	1	MARVEL LOCH		1000	119.486191	-31.5576681	0					Animalia	742175.33	6499253.4
1978	91529	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	MARVEL LOCH		10000	119.583333	-31.583333	0					Animalia	742175.33	6499253.4
1978	45580 7	BIRDATLAS1	Moderately Certain	Observational	Sighting	1	MARVEL LOCH	MARVEL LOCH	18000	119.5848	-31.5821	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
2012	96756	TFAUNA	Certain	Opportunistic sighting		1	Marvel Loch		1000	119.5269305	-31.5916709	0					Animalia	742175.33	6499253.4
1996	89757	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	Marvel Loch		10000	119.52	-31.59	0					Animalia	742175.33	6499253.4
2008	16265	TFAUNA	Certain	Opportunistic sighting	Day sighting	1	Marvel Loch		500	119.5348962	-31.6099645	0					Animalia	742175.33	6499253.4
2014	1367277 7	BIRDATA						Cave Hill new 1	100	119.53417	-31.60972	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
2007	18796	TFAUNA	Not sure	Opportunistic sighting	Day sighting		South Yilgarn		10000	119.3507974	-31.7344028	0					Animalia	742175.33	6499253.4
1999	90358	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	2	PARKER RANGE		500	119.7545444	-31.6540556	0					Animalia	742175.33	6499253.4
2007	12667	TFAUNA	Certain	Opportunistic sighting	Dead	1	Jilbadgi NR		10000	119.6445044	-31.8237005	0					Animalia	742175.33	6499253.4

2008	18795	TFAUNA	Certain	Opportunistic sighting	Day sighting		South Yilgarn		1000	119.3507974	-31.7344028	0					Animalia	742175.33	6499253.4
2011	481026	FAUNASURVEY	Certain	Survey	Unknown	1	SKELETON ROCK	GOLDFIELDS, British Hill	3000	119.6118	-31.8472	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
2016	1238896	FAUNASURVEY	Certain	Survey	Unknown	1	PARKER RANGE	Jilbadji Nature Reserve, Cheritons Find	100	119.6518	-31.8242	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
2007	5015410 7	BIRDATLAS2	Moderately Certain	Observational	Sighting	1	DULYALBIN	Frog Rock	100	119.2345	-31.4973	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
2007	122947	AP_WHEATBELT INVERTS						Frog Rock	30	119.2325	-31.496944	33942	Daphniidae	Daphnia	jollyi		Animalia	742175.33	6499253.4
1980	91312 7	BIRDATLAS1	Moderately Certain	Observational	Sighting	1	MARVEL LOCH	MARVEL LOCH	1E+05	119.5015	-31.4987	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
1997	6184	TFAUNA	Certain	Survey	Caught or trapped		Frog Rock Nature Reserve		1000	119.2292354	-31.4973531	0					Animalia	742175.33	6499253.4
1965	91296	TFAUNA	Moderately certain	Historical (written)	Secondary sign	0	GHOOLI		10000	119.5833	-31.5	0					Animalia	742175.33	6499253.4
2001	151573 7	BIRDATLAS2	Moderately Certain	Observational	Sighting	1	MARVEL LOCH	Frog Rock Reserve	500	119.2515	-31.4987	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
1980	91780	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	MARVEL LOCH		50000	119.5	-31.5	0					Animalia	742175.33	6499253.4
1965	91297	TFAUNA	Moderately certain	Historical (written)	Secondary sign	0	GHOOLI		10000	119.5833	-31.5	0					Animalia	742175.33	6499253.4
1999	91389	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	2	MOUNT PALMER		1000	119.6656194	-31.51945	0					Animalia	742175.33	6499253.4
2001	90792	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	FROG ROCK NATURE RESERVE		500	119.25	-31.5	0					Animalia	742175.33	6499253.4

2001	90485	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	MARVEL LOCH		1000	119.559142	-31.5310353	0					Animalia	742175.33	6499253.4
2018	93073	TFAUNA	Moderately certain	Opportunistic sighting	Day sighting	1	Mount Palmer		1000	119.6755	-31.5298	0					Animalia	742175.33	6499253.4
2001	90486	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	MARVEL LOCH		1000	119.5539734	-31.5363654	0					Animalia	742175.33	6499253.4
2004	89840	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	2	MARVEL LOCH		1000	119.5520333	-31.5347167	0					Animalia	742175.33	6499253.4
2002	91137	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	2	MARVEL LOCH		1000	119.4833333	-31.55	0					Animalia	742175.33	6499253.4
2002	90729	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	MARVEL LOCH		500	119.5235	-31.5428333	0					Animalia	742175.33	6499253.4
0	REPT:R5764	WAM_REPTILES	WAM Voucher d	Collection	Specimen	1	GHOOLI	YELLOWDINE	50000	119.65	-31.3	25236	Boidae	Aspidites	ramsayi (southwest subpop.)		Animalia	742175.33	6499253.4
0	REPT:R5713	WAM_REPTILES	WAM Voucher d	Collection	Specimen	1	GHOOLI	GHOOLI	50000	119.45	-31.25	25236	Boidae	Aspidites	ramsayi (southwest subpop.)		Animalia	742175.33	6499253.4
0	urn:lsid:taxonomy.org.au:MAMM:M414	WAM_MAMMALS							10000	119.65	-31.3	24146	Myrmecobiidae	Myrmecobius	fasciatus		Animalia	742175.33	6499253.4
0	REPT:R5072	WAM_REPTILES	WAM Voucher d	Collection	Specimen	1	GHOOLI	YELLOWDINE	50000	119.65	-31.3	25236	Boidae	Aspidites	ramsayi (southwest subpop.)		Animalia	742175.33	6499253.4
2007	14827	TFAUNA	Certain	Opportunistic sighting	Day sighting	1	Southern Cross/Marvel Loch		10000	119.4240004	-31.415004	0					Animalia	742175.33	6499253.4
0	MAMM:M414	WAM_MAMMALS	WAM Voucher d	Collection	Specimen	1	GHOOLI	GHOOLI	10000	119.65	-31.3	24146	Myrmecobiidae	Myrmecobius	fasciatus		Animalia	742175.33	6499253.4

1992	6335	TFAUNA	Certain	Survey	Caught or trapped		Strawberry Rocks		1000	119.2931315	-31.4543023	0					Animalia	742175.33	6499253.4
2002	90263	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	2	GHOOLI		1000	119.5333333	-31.45	0					Animalia	742175.33	6499253.4
0	urn:lsid:taxonomy.org.au:MAMM:M536	WAM_MAMMALS							10000	119.483333	-31.466667	24168	Thylacomyidae	Macrotis	lagotis		Animalia	742175.33	6499253.4
1990	6140	TFAUNA	Certain	Survey	Caught or trapped		Jilbadgie Rocks		1000	119.2277814	-31.4555555	0					Animalia	742175.33	6499253.4
0	MAMM:M536	WAM_MAMMALS	WAM Voucher d	Collection	Specimen	1	MARVEL LOCH	MARVEL LOCH	10000	119.4833	-31.4667	24168	Peramelidae	Macrotis	lagotis		Animalia	742175.33	6499253.4
0	REPT:R4602	WAM_REPTILES	WAM Voucher d	Collection	Specimen	1	MARVEL LOCH	MARVEL LOCH	50000	119.4833	-31.4667	25236	Boidae	Aspidites	ramsayi (southwest subpop.)		Animalia	742175.33	6499253.4
2003	420151 7	BIRDATLAS2	Moderately Certain	Observational	Sighting	1	DULYALBIN	Southern Cross Sth Road	100	119.2328	-31.4935	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
2005	91441	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	MARVEL LOCH		1000	119.5158333	-31.4766667	0					Animalia	742175.33	6499253.4
1997	6327	SAPINVERT	Moderately Certain	Survey	Unknown	1	DULYALBIN	DULYALBIN	0	119.2325	-31.4969	33942	Daphniidae	Daphnia	jollyi		Animalia	742175.33	6499253.4
2007	96642	TFAUNA	Certain	Opportunistic sighting		1	Yilgarn		10000	119.6398985	-31.4950023	0					Animalia	742175.33	6499253.4

2017	2953	FAUNASURVEY_WLS	Certain		Opportunistic observation	3	Mt Holland	Jilbadgi Nature Reserve	50	119.6950778	-31.9124014	48022	Macropodidae	Notamacropus	irma		Animalia	742175.33	6499253.4
2007	96613	TFAUNA	Certain	Opportunistic sighting		1	Yilgarn		1000	119.3711	-31.8587	0					Animalia	742175.33	6499253.4
2017	21017	FAUNASURVEY_WLS	Certain		Camera trap record	1	Mt Holland	Cam W04-6	10	119.6954351	-31.9192111	48022	Macropodidae	Notamacropus	irma		Animalia	742175.33	6499253.4
1904	24507	TFAUNA	Moderately certain	Historical (written)	Caught or trapped	1	Parker Range		10000	119.7818739	-31.9170556	0					Animalia	742175.33	6499253.4
2000	133643 7	BIRDATLAS2	Moderately Certain	Observational	Sighting	1	SOUTH YILGARN	Hyden - Marvel Loch Road	5000	119.3015	-31.9321	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4
1999	1578	TFAUNA	Moderately certain	Opportunistic sighting	Day sighting	2	Jilbadji NR		1000	119.666836	-31.9257643	0					Animalia	742175.33	6499253.4
2017	21050	FAUNASURVEY_WLS	Certain		Camera trap record	1	Mt Holland	Cam W20-6	10	119.6904196	-31.935035	24092	Dasyuridae	Dasyurus	geoffroii		Animalia	742175.33	6499253.4
2001	90898	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	SOUTH YILGARN		1000	119.3	-31.93333	0					Animalia	742175.33	6499253.4
2017	2958	FAUNASURVEY_WLS	Certain		Opportunistic observation of active mound	1	Mt Holland	Jilbadgi Nature Reserve MM-18 active mound	10	119.694819	-31.9390356	24557	Megapodiidae	Leipoa	ocellata		Animalia	742175.33	6499253.4



DPBC Threatened and Priority Flora Database results

TPFL

PopId	Nameid	Taxon	ConsStatus	PopNumber	SubPopCode	Location	Gda94Lat	Gda94Long	CountDate	Method	MatureCount	LiveTotal	InFlower	HabNotes
90061	12442	Verticordia mitodes	P3	7		N verge of Parker Range Rd, ca. 1.7km SE of Forrestania - Southern Cross Rd. Shire of Yilgarn.	-31.593472	119.50953	9/12/2008	ESTMT	5	5	Y	Shrubland. Grevillea paradoxa, Verticordia eriocephala, V. chrysantha, V. pritzelii.
90062	12445	Verticordia multiflora subsp. solox	P2	1		Verge of Forrestania - Southern Cross Rd, 8.8km S of Mount Caudan. Shire of Yilgarn.	-31.696111	119.57497	8/10/1981		0	0	Y	Plants growing sparsely tucked under other plants, mostly Myrtaceae.
104726	31798	Leucopogon validus	P1	1	B	UCL, Parker Range. Parker Range Rd, ca. 4km SE from Emu Fence Rd then ca. 0.5km S, on slopes of breakaway complex.	-31.634	119.56203	2/08/2003	ESTMT	2716	2716	Y	Open shrubland/heath, Melaleuca sp., Eucalyptus sp.
96736	48264	Rinzia medifila	P1	2		UCL, ca. 3km SW of Mount Caudan, Parker Range, ca. 50km SE of Southern Cross. (Plot KOOK07). Shire of Yilgarn.	-31.64125	119.53386	17/10/1994		0	0	N	Open woodland over open heath.
95582	25898	Isopogon robustus	CR	4		Parker Range System, approx 19km SE of Marvel Loch, 47 km S of Southern Cross and 114km NE of Hyden. [1.2km SE of Pop 3, 2.38 km S Parker Range Rd, 2.6 km W Marvel Lock-Forrestania Rd.]	-31.644667	119.55497	15/07/2010	ACT_I ND	66	66	N	Allocasuarina acutivalvis, Grevillea paradoxa, Melaleuca cordata, Euc. capillosa. Condition excellent.
104725	31798	Leucopogon validus	P1	1	A	Water Reserve (R 13208), Parker Range. Parker Range Rd, ca. 4km SE from Emu Fence Rd then ca. 0.5km S, on slopes of breakaway complex.	-31.638444	119.56036	2/08/2003	ESTMT	2716	2716	Y	Open shrubland/heath, Melaleuca sp., Eucalyptus sp.
95580	25898	Isopogon robustus	CR	2		Parker Range System, approx 19km SE of Marvel Loch, 47 km S of Southern Cross and 114km NE of Hyden. [On & around exploration trackline. 2.35km SW of Parker Range Rd & 3.2 km SE of Emu Fence Rd. AoO ~100m to W, N, S of coord. Some outliers 150m ENE.]	-31.64025	119.53956	24/06/2010	ACT_I ND	496	496	Y	Allocasuarina acutivalvis, Grevillea paradoxa, Melaleuca cordata. Condition excellent. Bare upper storey.
95581	25898	Isopogon robustus	CR	3		Parker Range System, approx 19km SE of Marvel Loch, 47 km S of Southern Cross and 114km NE of Hyden. [500m E of Pop 2. 2km SW of Parker Range Rd, 39 km E of Emu Fence, 3.7km W of Marvel Loch-Forrestania Rd. Small patch between several gridlines.]	-31.639056	119.5445	15/07/2010	ACT_I ND	77	77	N	Allocasuarina acutivalvis, Grevillea paradoxa, Melaleuca cordata, Euc. capillosa. Condition excellent.
100955	12232	Hakea pendens	P3	6	E	UCL. 19km S of Marvel Loch. E of Emu Fence Rd. W of Marvel Loch Forrestania Rd [Burbidge Rd, S of Parker Range Rd].	-31.633639	119.52267	7/09/2006		0	0	N	

1009 56	12232	Hakea pendens	P3	6	F	UCL. 19km S of Marvel Loch. E of Emu Fence Rd. W of Marvel Loch Forrestania Rd [Burbidge Rd, S of Parker Range Rd].	-31.634028	119.52047	7/09/2006		0	0	N	
1009 53	12232	Hakea pendens	P3	6	C	UCL. 19km S of Marvel Loch. E of Emu Fence Rd. W of Marvel Loch Forrestania Rd [Burbidge Rd]. Ca. 1.58km S along Emu Point Rd from Parker Range Rd, then left onto old drill line & continue S for 2.25km, then left on track for ca. 500m.	-31.634389	119.525	9/12/2008		0	0	N	Dom sp: Acacia sp., Gastrolobium sp. & Scaevola sp.
1009 54	12232	Hakea pendens	P3	6	D	UCL. 19km S of Marvel Loch. E of Emu Fence Rd. W of Marvel Loch Forrestania Rd [Burbidge Rd]. Ca. 1.58km S along Emu Point Rd from Parker Range Rd, then left onto old drill line & continue S for 2.25km, then left on track for ca. 500m.	-31.633861	119.52436	9/12/2008		0	0	N	Dom sp: Acacia sp., Gastrolobium sp. & Scaevola sp.
1009 51	12232	Hakea pendens	P3	6	A	UCL. Parker Range, ca. 2km SW of Mt Caudan. Herbarium Record Only.	-31.634567	119.52091	16/10/1994		0	0	N	
1009 52	12232	Hakea pendens	P3	6	B	UCL. 19km S of Marvel Loch. E of Emu Fence Rd. W of Marvel Loch Forrestania Rd [Burbidge Rd]. Ca. 1.58km S along Emu Point Rd from Parker Range Rd, then left onto old drill line & continue S for 2.25km, then left on track for ca. 500m.	-31.633611	119.52594	9/12/2008		0	0	N	Dom sp: Acacia sp., Gastrolobium sp. & Scaevola sp.
8988 0	12232	Hakea pendens	P3	4		UCL. Parker Range, ca. 4.3 km ENE of Mt Caudan. Herbarium Record Only.	-31.60651	119.59702	14/10/1994		0	0	N	
8988 1	12232	Hakea pendens	P3	5		UCL. Hakea pendens Parker Range, ca. 1.3 km NW of Mt Caudan. Herbarium Record Only.	-31.614566	119.54258	14/10/1994		0	0	N	
9530 6	20741	Eutaxia lasiocalyx	P2	1		UCL, Parker Range, ca. 2.1km S of Mount Caudan. (Plot park05). Shire of Yilgarn.	-31.640944	119.55369	16/09/1994		0	0	N	Open woodland over Scrub, over Dwarf Scrub C.
8987 9	12232	Hakea pendens	P3	3		UCL. Parker Range, ca. 4.3 km SSE of Mt. Caudan (near Thirteen Mine). Herbarium Record Only.	-31.658455	119.5623	17/10/1994		0	0	N	In woodland on ridge line. Low woodland A over open low scrub A over open dwarf scrub C.
9247 6	14618	Acacia concolorans	P2	6		Parker Range. Ca. 5.9km SSW of Mt. Caudan. Woodland on E slopes of knoll. (Plot kook03).	-31.672056	119.54314	17/10/1994		0	0	N	
9583 8	31153	Baeckea grandibractea subsp. Parker Range (K. Newbey 9270)	P3	1		UCL. Opposite gravel pit, at base of Mount Caudan, Parker Range. [Ca. 18km SSE of Marvel Loch]. Shire of Yilgarn.	-31.621222	119.55231	15/10/1994		0	0	N	Callitris - E. burracoppinensis - E. oleosa woodland over mixed heath
9247 2	14618	Acacia concolorans	P2	2		Parker Range. Ca. 2.3km SSW of Mt. Caudan. (Plot park07).	-31.639833	119.54619	16/10/1994		0	0	N	

9247 3	14618	Acacia concolorans	P2	3		R 10552 (unnamed). Parker Range, ca. 500m SW of Tank. 50.5km SE of Southern Cross.	-31.636667	119.57056	20/06/1990		0	12	N	Eucalyptus open forest and mallee over Tea Tree Melaleuca sp.
9247 1	14618	Acacia concolorans	P2	1		Parker Range. Ca. 1.8km E of Emu Fence Road.	-31.636111	119.52331	15/12/2005		0	0	N	Tall shrubland with mallees and mixed shrubs.
1045 63	25898	Isopogon robustus	CR	1	G	Parker Range, S off Parker Range Rd. Head ~2.3km WNW from Marvel Loch - Forrestania Rd then take signposted `Water Tank` track SSW to low concrete walls in shallow gully, proceeding SE to breakaway complex. [Description is for 1A; 1G is ~520m to SSW]	-31.6395	119.55892	22/10/2008		0	0	N	Very open low shrubland. Borya sphaerocephala, Callitris columellaris, Alyxia buxifolia, Leucopogon validu
1045 64	25898	Isopogon robustus	CR	1	H	Parker Range, S off Parker Range Rd. 2.3km WNW from Marvel Loch - Forrestania Rd then take signposted `Water Tank` track SSW to low concrete walls in shallow gully, proceeding SE to breakaway complex. [Description is for 1A; 1H is ~620m to S].	-31.640694	119.56017	22/10/2008		0	0	N	Very open low shrubland. Borya sphaerocephala, Callitris columellaris, Alyxia buxifolia, Leucopogon validu
1045 61	25898	Isopogon robustus	CR	1	E	Parker Range, S off Parker Range Rd. Head ~2.3km WNW from Marvel Loch - Forrestania Rd then take signposted `Water Tank` track SSW to low concrete walls in shallow gully, proceeding SE to breakaway complex. [Description is for 1A; 1E is ~180m to SSE]	-31.636528	119.56117	22/10/2008		0	0	N	Very open low shrubland. Borya sphaerocephala, Callitris columellaris, Alyxia buxifolia, Leucopogon validu
1045 62	25898	Isopogon robustus	CR	1	F	Parker Range, S off Parker Range Rd. Head ~2.3km WNW from Marvel Loch - Forrestania Rd then take signposted `Water Tank` track SSW to low concrete walls in shallow gully, proceeding SE to breakaway complex. [Description is for 1A; 1F is ~400m to S]	-31.638639	119.56094	22/10/2008		0	0	N	Very open low shrubland. Borya sphaerocephala, Callitris columellaris, Alyxia buxifolia, Leucopogon validu
1045 59	25898	Isopogon robustus	CR	1	C	Parker Range, S off Parker Range Rd. Head ~2.3km WNW from Marvel Loch - Forrestania Rd then take signposted `Water Tank` track SSW to low concrete walls in shallow gully, proceeding SE to breakaway complex. [Description is for 1A; 1C is ~140m to N.]	-31.633833	119.56089	22/10/2008		0	0	N	Very open low shrubland. Borya sphaerocephala, Callitris columellaris, Alyxia buxifolia, Leucopogon validu
1045 60	25898	Isopogon robustus	CR	1	D	Parker Range, S off Parker Range Rd. Head ~2.3km WNW from Marvel Loch - Forrestania Rd then take signposted `Water Tank` track SSW to low concrete walls in shallow gully, proceeding SE to breakaway	-31.636528	119.56078	22/10/2008		0	0	N	Very open low shrubland. Borya sphaerocephala, Callitris columellaris, Alyxia buxifolia, Leucopogon validu

						complex. [Description is for 1A; 1D is ~160m to S.]								
1045 57	25898	Isopogon robustus	CR	1	A	Parker Range, S off Parker Range Rd. Head ~2.3km WNW from Marvel Loch - Forrestania Rd then take signposted 'Water Tank' track SSW to low concrete walls in shallow gully, proceeding SE to breakaway complex. Subpop 1A=original Pop 1 location.	-31.635028	119.56031	22/10/2008	ACT_I ND	362	362	Y	Very open low shrubland. Borya sphaerocephala, Callitris columellaris, Alyxia buxifolia, Leucopogon validu
1045 58	25898	Isopogon robustus	CR	1	B	Parker Range, S off Parker Range Rd. Head ~2.3km WNW from Marvel Loch - Forrestania Rd then take signposted 'Water Tank' track SSW to low concrete walls in shallow gully, proceeding SE to breakaway complex. [Description is for 1A; 1B is ~110m to N.]	-31.634	119.56069	22/10/2008		0	0	N	Very open low shrubland. Borya sphaerocephala, Callitris columellaris, Alyxia buxifolia, Leucopogon validu
8987 4	12232	Hakea pendens	P3	23		UCL. Burbidge area, S of Marvel Loch. W of Marvel Loch Forrestania Rd [Burbidge Rd, N of Parker Range Rd].	-31.555833	119.55694	8/02/2007		0	0	N	
8987 8	12232	Hakea pendens	P3	28		UCL. 19km S of Marvel Loch. E of Emu Fence Rd. W of Marvel Loch Forrestania Rd [Burbidge Rd, S of Parker Range Rd].	-31.639722	119.52861	6/09/2006		0	0	N	
1009 43	12232	Hakea pendens	P3	21	C	UCL. Burbidge area, S of Marvel Loch. W of Marvel Loch Forrestania Rd [Burbidge Rd, N of Parker Range Rd].	-31.559722	119.57139	10/02/2007		0	0	N	
8987 3	12232	Hakea pendens	P3	22		UCL. Burbidge area, S of Marvel Loch. W of Marvel Loch Forrestania Rd [Burbidge Rd, N of Parker Range Rd].	-31.559722	119.56056	8/02/2007		0	0	N	
1009 41	12232	Hakea pendens	P3	21	A	UCL. Burbidge area, S of Marvel Loch. W of Marvel Loch Forrestania Rd [Burbidge Rd, N of Parker Range Rd]. S Flying Pig.	-31.562778	119.57194	7/02/2007		0	0	N	
1009 42	12232	Hakea pendens	P3	21	B	UCL. Burbidge area, S of Marvel Loch. W of Marvel Loch Forrestania Rd [Burbidge Rd, N of Parker Range Rd]. S Flying Pig.	-31.564167	119.56778	7/02/2007		0	0	N	
8986 8	12232	Hakea pendens	P3	11		UCL. Mount Caudan, S and E faces at the summit.	-31.620556	119.5875	10/01/2002		0	37	N	
8986 9	12232	Hakea pendens	P3	13		UCL. Parker Range. Ca. 2.7km SSW of Mt. Caudan, 5m N, in shrubland on ridge top. (Plot park06).	-31.642333	119.54369	16/10/1994		0	0	N	

WA Herb

Name id	Taxon	Cons_Code	Plant_Desc	Site	Vegetation	Frequency	Latitude_f	Longitude_	Date
0	Acacia concolorans	P2					-31.63666	119.57056	
0	Acacia concolorans	P2					-31.63333	119.55	
0	Acacia concolorans	P2					-31.63333	119.55	
0	Acacia concolorans	P2					-31.67206	119.54313	
0	Acacia concolorans	P2					-31.63666	119.57056	
0	Acacia concolorans	P2					-31.63333	119.55	
0	Acacia concolorans	P2					-31.63984	119.54619	
0	Acacia concolorans	P2					-31.63666	119.57056	
14618	Acacia concolorans	P2	Prostrate shrub to 1 m across and 30-40 cm tall. Thickened short pungent pointed angular 5-sided phyllodes, which are more or less viscid.		Eucalyptus open forest and mallee over tea tree low woodland (to 3-4 m). Exocarpus aphyllus present.		-31.636667	119.57056	20/06/1990
14618	Acacia concolorans	P2		Red-brown sandy loam with ironstone gravel, on a gentle south-eastern lower slope.	Eucalyptus transcidentalis Low Forest A, over Melaleuca pauperiflora ssp fastigata Thicket, over Microcybe multiflora Dwarf Scrub C.		-31.639844	119.54619	16/10/1994
14618	Acacia concolorans	P2	Prostrate shrub to 1 m across and 30 - 40 cm tall. Thickened, short, pungent- pointed terete/angular phyllodes.		Eucalyptus open forest and mallee over Tea Tree Melaleuca sp.		-31.636667	119.57056	20/06/1990
14618	Acacia concolorans	P2	Prostrate shrub to 1 m across and 30-40 cm tall. Thickened, short, pungent- pointed terete/angular phyllodes.		Eucalyptus open forest and mallee over Tea Tree, Melaleuca sp.		-31.636667	119.57056	20/06/1990
14618	Acacia concolorans	P2	Harsh, intricate, multistemmed shrub 0.1 - 0.2 m tall, stems and branchlets green (sometimes tinged purplish). Phyllodes decreasing in size towards ends of branchlets, sometimes deciduous at some nodes, patent, colour as on branchlets, thickened, the upp	Slightly rock red-crown loam at base of a low laterite hill.	In Eucalyptus woodland with Acacia erinacea, A. hemiteles, Melaleuca, scaevola and Santalum.		-31.633333	119.55	6/08/1983
14618	Acacia concolorans	P2					-31.639569	119.54775	28/09/2015

14618	Acacia concolorans	P2	Sprawling shrub.	In loam.	In Eucalyptus woodland.		-31.633333	119.55	30/07/1969
14618	Acacia concolorans	P2		slightly rocky red-brown loam base of a low laterite hill	woodland Eucalyptus with Acacia erinacea, A. hemiteles, Melaleuca, Scaevola and Santalum		-31.633333	119.55	6/08/1983
14618	Acacia concolorans	P2		Orange sandy loam, with ironstone gravel and cobbles, on a steep eastern mid slope.	Eucalyptus salubris, E. salmonophloia Low Woodland A, over Melaleuca pauperiflora subsp. fastigiata ms gold Heath A, over Acacia erinacea, Scaevola spinescens Dwarf Scrub D.		-31.672067	119.54313	17/10/1994
0	Baeckea grandibracteata subsp. Parker Range (K. Newbey 9270)	P3					-31.62123	119.5523	
31153	Baeckea grandibracteata subsp. Parker Range (K. Newbey 9270)	P3	Spreading shrub, 40 cm high x 60 cm wide. Flowers pale pink.	Mid slopes. Dry yellow sand over laterite.	Open Eucalypt woodland over open shrubs. With Allocasuarina corniculata, Acacia assimilis, Melaleuca cordata.	occasional.	-31.5775	119.49167	15/11/2011
31153	Baeckea grandibracteata subsp. Parker Range (K. Newbey 9270)	P3		Sandplain.	Callitris - Eucalyptus burracopinensis - E. oleosa woodland over mixed heath.		-31.621233	119.5523	15/10/1994
31153	Baeckea grandibracteata subsp. Parker Range (K. Newbey 9270)	P3	Shrub 70 cm tall.	South westerly facing moderate midslope of a hill. Yellow sand over lateritic gravel.	Acacia, Eucalyptus mallee high shrubland to open scrub over Leptospermum, Thryptomene kochii high shrubland over Euryomyrtus maidenii low open shrubland. Associated species: Chamelaucium, Verticordia, Homalocalyx, Melaleuca aff. cordata, Baeckea sp. Merr		-31.62145	119.55133	3/12/2008
31153	Baeckea grandibracteata subsp. Parker Range (K. Newbey 9270)	P3	Shrub 85 cm tall, straggly with 5 stems from near base (single stem at base). Bark grey, thinly fibrous, stems twisted.	South westerly facing moderate midslope of a hill. Yellow sand over lateritic gravel.	Acacia, Eucalyptus mallee high shrubland to open scrub over Leptospermum, Thryptomene kochii high shrubland over Euryomyrtus maidenii low open shrubland. Associated species: Chamelaucium, Verticordia, Homalocalyx, Melaleuca aff. cordata, Baeckea sp. Merr		-31.62155	119.55147	3/12/2008
31153	Baeckea grandibracteata subsp. Parker Range (K. Newbey 9270)	P3	Shrub 85 cm tall, straggly single base. Bark grey, thinly fibrous, stems twisted.	South westerly facing moderate midslope of a hill. Yellow sand over lateritic gravel.	Acacia, Eucalyptus mallee high shrubland to open scrub over Leptospermum, Thryptomene kochii high shrubland over Euryomyrtus maidenii low open shrubland. Associated species: Chamelaucium,		-31.621467	119.55127	3/12/2008



					Verticordia, Homalocalyx, Melaleuca aff. cordata, Baeckea sp. Merr				
3834 1	Chamelaucium sp. Parker Range (B.H. Smith 1255)	P1	Shrub 4 ft high, 4 ft diameter. Flowers pink.	Iron ore.	Calothamnus, Casuarina, Acacia, mallee.	moderate frequenc y.	-31.616667	119.516 67	14/11/1989
3834 1	Chamelaucium sp. Parker Range (B.H. Smith 1255)	P1		Orange sandy loam over massive laterite with gravel and cobbles, on a gentle western upland.	Allocasuarina acutivalvis Scrub, over Allocasuarina acutivalvis, Melaleuca cordata Heath B.		-31.612622	119.555 08	15/10/1994
3834 1	Chamelaucium sp. Parker Range (B.H. Smith 1255)	P1	Erect compact shrub 1 m high. Flowers pink.	Ironstone hills. Red laterite.	Woodland of Dampiera wellsiana, Hemigenia sp. and Glischocaryon sp.		-31.623611	119.549 72	5/12/1996
3834 1	Chamelaucium sp. Parker Range (B.H. Smith 1255)	P1	Compact shrub to 40 cm x 40 cm. Plants single stemmed at ground level but branching close to base. Flowers deep pink.	Midslopes. Dry yellow gravelly sand over laterite.	Disturbed heath. Acacia yorkkrakensis, Thryptomene kochii, Boronia ternata, Glischrocaryon angustifolium.	locally common but largely restricted to disturbed areas. One plant seen in adjacent undisturb ed bush.	-31.6	119.526 39	14/11/2011
3834 1	Chamelaucium sp. Parker Range (B.H. Smith 1255)	P1	Erect shrub to 60 cm high x 40 cm wide. Flowers deep pink.	Mid slopes. Dry yellow sand over laterite.	Mixed heath (mostly 2-3 m). With Grevillea pterosperma, Melaleuca hamata, Hakea multilineata, Melaleuca calyptrata.	3 plants.	-31.599722	119.518 61	15/11/2011
3834 1	Chamelaucium sp. Parker Range (B.H. Smith 1255)	P1		Sandplain.	Callitris - Eucalyptus burracoppinensis - E. oleosa woodland over mixed heath.		-31.621233	119.552 3	15/10/1994
3834 1	Chamelaucium sp. Parker Range (B.H. Smith 1255)	P1	Spreading shrub 1.7 m high x 2 m wide. Flowers deep pink.	Upland. Dry, yellow gravelly sand over laterite.	Disturbed heath. Persoonia saundersiana, Isopogon scabriusculus, Adenanthos argyreus, Grevillea paradoxa.	locally common.	-31.621667	119.551 94	14/11/2011
3834 1	Chamelaucium sp. Parker Range (B.H. Smith 1255)	P1	Erect shrub 60 cm high x 60 cm wide. Flowers deep pink.	Mid slope. Dry, yellow sand over laterite.	Mixed heath. Grevillea pterosperma, Melaleuca hamata, Beaufortia interstans, Persoonia coriacea.	6 plants.	-31.620278	119.513 61	14/11/2011
0	Euryomyrtus ciliata	P1					-31.67194	119.568 61	

0	<i>Euryomyrtus leptospermoides</i>	P3					-31.61666	119.549 72	
0	<i>Eutaxia lasiocalyx</i>	P2					-31.64095	119.553 69	
2074 1	<i>Eutaxia lasiocalyx</i>	P2		Red sandy loam with laterite and quartz gravel, on a gentle western lower slope.	<i>Eucalyptus salmonophloia</i> , <i>E. salubris</i> Open Woodland over <i>Melaleuca pauperiflora</i> Scrub over <i>Microcybe multiflora</i> Dwarf Scrub C.		-31.640955	119.553 69	16/09/1994
0	<i>Grevillea fulgens</i>	P3					-31.63305	119.583 06	
0	<i>Hakea pendens</i>	P3					-31.62055	119.554 17	
0	<i>Hakea pendens</i>	P3					-31.61666	119.549 72	
0	<i>Hakea pendens</i>	P3					-31.65845	119.562 3	
0	<i>Hakea pendens</i>	P3					-31.64234	119.543 69	
0	<i>Hakea pendens</i>	P3					-31.61456	119.542 58	
0	<i>Hakea pendens</i>	P3					-31.60651	119.597 02	
0	<i>Hakea pendens</i>	P3					-31.61666	119.516 67	
0	<i>Hakea pendens</i>	P3					-31.63456	119.520 91	
0	<i>Hakea pendens</i>	P3					-31.61666	119.549 72	
0	<i>Hakea pendens</i>	P3					-31.64833	119.545	
1223 2	<i>Hakea pendens</i>	P3	Shrub to 3 m.	Flat, yellow gravelly soil, laterite at depth.	<i>Allocasuarina</i> shrubland.		-31.634567	119.520 91	16/10/1994
1223 2	<i>Hakea pendens</i>	P3		Orange-brown sandy loam, over massive laterite with gravel and cobbels, on a gentle northern upland.	<i>Eucalyptus capillosa</i> ssp <i>polyclada</i> Open Low Woodland B, over <i>Allocasuarina acutivalvis</i> Scrub, over <i>Callitris glaucophylla</i> , <i>A. sp.</i> Low Scrub A, over <i>Melaleuca cardiophylla</i> Low Heath C, over <i>Hibbertia rostellata</i> Dwarf Scrub D.		-31.642344	119.543 69	16/10/1994
1223 2	<i>Hakea pendens</i>	P3	Spreading, mid-dense, perennial, woody shrub 1.9-2.7 m x 2.5-3.1 m. Leaves dull medium green.	Well drained, stony loam. Well-exposed, stony ridge.	Mixed scrub (Muir, 1977).	frequent.	-31.616667	119.516 67	14/09/1981
1223 2	<i>Hakea pendens</i>	P3		Brown sandy loam, over massive ironstone, on a	<i>Eucalyptus capillosa</i> subsp. <i>polyclada</i> Low Woodland A, over <i>Allocasuarina acutivalvis</i> , <i>Hakea pendens</i> , <i>Alyxia buxifolia</i> Open Low		-31.658455	119.562 3	17/10/1994

				gentle east north-eastern min slope.	Scrub A, over Hibbertia rostellata Open Dwarf Scrub C.				
1223 2	Hakea pendens	P3	S-M-2/3 perennial woody shrub, 1.9-2.7 x 2.5-3.1 m.	Moderately exposed stony ridge, well drained stony loam.			-31.616667	119.549 72	14/09/1981
1223 2	Hakea pendens	P3		Hilltop and slopes (southern and eastern). Red sandy loam.	Shrubland.		-31.620556	119.554 17	10/01/2002
1223 2	Hakea pendens	P3	Erect shrub 3 m high.	Rocky hillside. Red/brown clay loam.	Scrub.	frequent.	-31.616667	119.549 72	/12/1994
1223 2	Hakea pendens	P3	Tall erect shrub, 2 - 3 m, flowers white age pink, in full flower.	On slopes of small ironstone hills. Red sandy clay over ironstone.			-31.648333	119.545	27/08/1984
1223 2	Hakea pendens	P3		Skeletal soils on laterite.	Eucalyptus livida woodland over Allocasuarina acutivalvis scrub.		-31.614566	119.542 58	14/10/1994
1223 2	Hakea pendens	P3		Orange gravelly skeletal soils.	Salmon gum woodland over Melaleuca pauperiflora shrubland.		-31.60651	119.597 02	14/10/1994
0	Isopogon robustus	CR					-31.64069	119.553 86	
0	Isopogon robustus	CR					-31.63383	119.560 72	
0	Isopogon robustus	CR					-31.64095	119.554 8	
0	Isopogon robustus	CR					-31.64095	119.554 8	
2589 8	Isopogon robustus	CR	Mid tall shrub. Firm cylindrical spike for phyllode.	Breakaway, stony slope.		common.	-31.63422	119.560 43	3/12/2016
2589 8	Isopogon robustus	CR	Open shrub, 1.5 m x 1 m. Flowers pink, perianth hairy.	Decomposing laterite shelf. Grey skeletal sandy-loam over laterite. Gentle, SSW-facing slope, exposed laterite ca 90% cover.	Very open shrubland. Callitris glaucophylla - Melaleuca uncinata.	common locally.	-31.640955	119.554 8	16/10/1994
2589 8	Isopogon robustus	CR	Small erect shrub, 1.5 m high x 2 m wide.	Ridge. Dry dark red exposed laterite.	Open shrubland on edge of woodland. Associated species: Callitris, Acrotriche patula.	locally frequent (120 total plants).	-31.640694	119.553 86	14/12/2001
2589 8	Isopogon robustus	CR	Erect shrub to 1.5 m.	Ridgeline. Rocky red loam.	Associated vegetation: Alyxia buxifolia, Hakea pendens, Leucopogon sp. Parker Range (F.H. & M.P. Mollemans 2860), Melaleuca sp.	100+	-31.633833	119.560 72	1/11/2006
2589 8	Isopogon robustus	CR	Shrub 1.5 m high. Flowers pink.	Decomposing laterite shelf. Grey skeletal sandy-loam over laterite. Gentle SSW-	Very Open Shrubland. Callitris glaucophylla - Melaleuca uncinata.	locally common.	-31.640955	119.554 8	10/09/1996

				facing slope, exposed laterite ca 90%.						
0	Lepidium merrallii	P2						-31.63305	119.583 06	
3031	Lepidium merrallii	P2						-31.633056	119.583 06	//1890
3047 5	Lepidosperma sp. Mt Caudan (N. Gibson & M. Lyons 2081)	P1		Gentle eastern slope.	Eucalypt woodland			-31.641233	119.544 8	13/10/1994
3047 5	Lepidosperma sp. Mt Caudan (N. Gibson & M. Lyons 2081)	P1		Brown sandy loam, with ironstone gravel, on a gentle south-eastern mid slope.	Eucalyptus capillosa ssp polyclada Low Forest A, over Melaleuca uncinata Open Low Scrub A, over Phebalium tuberulosum Low Heath C.			-31.638733	119.559 8	16/09/1994
3047 5	Lepidosperma sp. Mt Caudan (N. Gibson & M. Lyons 2081)	P1		Skeletal grey sandy loam, over masive ironstone with ironstone gravel and cobbels, on a gentle south south- western upland.	Callitris glaucophylla Open Scrub, over Melaleuca uncinata Open Low Scrub A, over M. uncinata, Micromyrtus racemosa Open Dwarf Scrub C, over Borya constricta Open Dwarf Scrub D.			-31.640955	119.554 8	16/09/1994
3047 5	Lepidosperma sp. Mt Caudan (N. Gibson & M. Lyons 2081)	P1		Orange-brown sandy loam, over massive laterite with gravel and cobbles, on a gentle northern upland.	Eucalyptus capillosa subsp. polyclada Open Low Woodland B, over Allocasuarina acutivalvis Scrub, over Callitris glaucophylla, A. sp. Low Scrub A, over Melaleuca cardiophylla Low Heath C, over Hibbertia rostellata Dwarf Scrub D.			-31.642344	119.543 69	16/09/1994
0	Lepidosperma sp. Parker Range (N. Gibson & M. Lyons 2094)	P1						-31.61956	119.555 35	
3043 8	Lepidosperma sp. Parker Range (N. Gibson & M. Lyons 2094)	P1		Dark brown loam over massive laterite with gravel and cobbels, on a gentle north north-eastern mid slope.	Eucalyptus longicornis Low Forest A, over E. sheathiana Very Open Shrub Mallee, over Westringia cephalantha Open Dwarf Scrub C.			-31.619566	119.555 35	15/10/1994
0	Leucopogon validus	P1						-31.63845	119.560 35	
0	Leucopogon validus	P1						-31.63401	119.562 02	
0	Leucopogon validus	P1						-31.63956	119.555 08	
0	Leucopogon validus	P1						-31.63611	119.558 33	

0	Leucopogon validus	P1					-31.63416	119.559 72	
0	Leucopogon validus	P1					-31.6375	119.57	
3179 8	Leucopogon validus	P1	Shrub to about 50-60 cm tall.	On breakaway slope of mesa. Orange brown clay more or less sand soil with ironstone cobbles, pebbles and gravel.	Sparse vegetation cover, Acrotriche patula.		-31.636111	119.558 33	31/08/1990
3179 8	Leucopogon validus	P1	Shrub to 80-90 cm tall.	Area of vertically dipping claystone on lower section of rise leading down to the valley.	In shrubland of open nature.	dominant	-31.6375	119.57	20/06/1990
3179 8	Leucopogon validus	P1	Erect open shrub. Height: to 1.2 m and width: 1.2 m. Plants lignotuberous.	Landform: low ironstone range. Soil surface: dry, rocky. Soil colour: brown. Soil type: sandy loam. Underlying geology: ironstone.	Very Open Heath. Characteristic species: Isopogon robustus, Melaleuca hamata.	locally common.	-31.639566	119.555 08	2/08/2003
3179 8	Leucopogon validus	P1	Spreading shrub. Height: to 1.2 m and width: 1 m. Plants lignotuberous.	Landform: low ironstone range. Soil surface: dry rocky. Soil colour: brown sandy loam. Underlying geology: ironstone.	Open Heath. Characteristic species: Melaleuca leiocarpa, Hakea pendens, Callitris canescens.	locally common.	-31.638455	119.560 36	2/08/2003
3179 8	Leucopogon validus	P1	Small shrub to ca 1 m.	W-facing breakaway slope. Brown/orange sandy clay with sandstone outcrops over sandstone.	Open shrubland. Associated species: Acrotriche patula, Hakea pendens, Melaleuca sp., Eucalyptus sp.		-31.634167	119.559 72	10/01/2002
3179 8	Leucopogon validus	P1	Spreading shrub. Height: 100 cm and width: 100 cm. Plants lignotuberous.	Landform: low ironstone range. Soil surface: dry rocky. Soil colour: brown. Soil type: sandy loam. Underlying geology: ironstone.	Open heath. Characteristic species: Melaleuca leiocarpa, Hakea pendens, Hibbertia eatoniae.	locally common.	-31.634011	119.562 02	2/08/2003
1945 0	Melaleuca grieviana	P1		Red sandy loam, with ironstone gravel, on a flat lower slope.	Eucalyptus salmonophloia Low Forest A, over Melaleuca urceolaris, M. acuminata, Acacia ?enervia Dense Heath A.		-31.672344	119.555 91	17/10/1994
1945 0	Melaleuca grieviana	P1		Orange sandy loam, with ironstone gravel, on a flat lower slope.	Eucalyptus transcontinentalis Open Low Woodland A, over E. sheathiana Very Open Shrub Mallee, over Melaleuca uncinata, M. pauperiflora Thicket, over Daviesia argillaceae, Acacia camptoclada, Phebalium filifolium Dwarf Scrub C.		-31.673178	119.545 08	17/10/1994
4826 4	Rinzia medifila	P1	Small shrub to 1 m. Young fruit, hypanthium and calyx lobes reddish.	On gentle E slope of orange - brown sandy loam with 70% greenstone cobbles on	In Eucalyptus salubris, E. transcontinentalis open woodland over Melaleuca pauperiflora, Beyeria breviflora Open Heath.		-31.671944	119.568 61	17/10/1994

				surface (2-30 cm), 70% litter cover.					
4826 6	Rinzia torquata	P3	Shrub 1.4 m tall and 1.5 across, stems spreading then erect, few, but with many leafy branchlets. Bark grey to brown, thinly fibrous.	SW-facing, moderate midslope on the S side of a hill. Yellow sand over lateritic gravel.	Acacia, Eucalyptus mallee high shrubland/open scrub over Leptospermum, Thryptomene kochii high shrubland over Euryomyrtus maidenii low open shrubland. Associated species: Chamelaucium, Verticordia, Homalocalyx, Melaleuca aff. cordata. Baeckea sp. Merredi		-31.621467	119.551 27	2/12/2008
0	Verticordia mitodes	P3					-31.58333	119.494 44	
1244 2	Verticordia mitodes	P3	Perennial, erect open shrub 0.4 m high x 0.5 m wide. Flowers pink.	Plain, road verge. Dry yellow sand.	Medium shrubland. Allocasuarina spinosissima, Melaleuca cordata, Acacia rossei, Eucalyptus burracoppinensis, Grevillea paradoxa, Verticordia sp.	6-20 plants.	-31.593444	119.509 53	9/12/2008
1244 2	Verticordia mitodes	P3	Shrub 80 cm tall with dark pink flowers. Bark grey to brown, thinly fibrous.	S-westerly facing moderate midslope on the S side of a hill. Yellow sand over laterite gravel.	Acacia, Eucalyptus mallee high shrubland to open scrub over Leptospermum, Thryptomene kochii high shrubland over Euryomyrtus maidenii low open shrubland. Associated species: Chamelaucium, Verticordia, Homalocalyx, Melaleuca aff. cordata, Baeckea sp. Merr		-31.621467	119.551 27	3/12/2008
1244 2	Verticordia mitodes	P3	Shrub 15 - 30 cm x to 40 cm. Flowers deep pink.	Yellow sand.	With V. eriocephala V. renneiana, V. chrysantha, V. pritzelii.		-31.583333	119.494 44	24/11/1981
0	Verticordia multiflora subsp. solox	P2					-31.58333	119.5	
0	Verticordia multiflora subsp. solox	P2					-31.58333	119.5	
0	Verticordia multiflora subsp. solox	P2					-31.58333	119.5	
0	Verticordia multiflora subsp. solox	P2					-31.58333	119.494 44	
0	Verticordia multiflora subsp. solox	P2					-31.69611	119.55	
0	Verticordia multiflora subsp. solox	P2					-31.61666	119.549 72	

0	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2					-31.58333	119.5	
12445	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	Shrub 2 ft high; 1.5 ft diameter.	Yellow sand.	Casuarina, Acacia, Melaleuca scrub.	moderately frequent.	-31.583333	119.5	14/11/1986
12445	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	40 cm high x 30 cm wide. Flowers bright yellow.	Yellowish sand over shallow granite.			-31.616667	119.54972	2/11/1987
12445	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	Shrub 45 cm x 45 cm. Flowers bright citrus-yellow.	Yellow sandy loam and gravel.	With Acacia spp., Melaleuca uncinata Leptospermum sp., Baeckea spp., Thelymitra sargentii, V. chrysantha, V. helmsii in bud.		-31.583333	119.5	22/10/1984
12445	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	Shrub to 40 cm x to 30 cm, sparse plants. Flowers bright yellow, on later specimen, early collection only in bud.	Yellowish sand in association with shallow granite.	Plants growing sparsely tucked under other plants, mostly Myrtaceae, also growing in association with V. roei but these were only in bud 8th October.		-31.696111	119.55	8/10/1981
12445	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	Shrub 30 cm x 40 cm. Flowers bright yellow.	Yellow sand.			-31.583333	119.49444	24/11/1981
12445	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	Shrub 70 cm with several irregular stems; bracteoles red-brown at base; flowers bright yellow, sweetly scented, with nectar; anthers golden-brown.	In yellow sandy loam with gravel.	In tall shrubland.		-31.583333	119.5	22/10/1984
12445	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2	Shrub to 70 cm, flowers bright yellow, sweetly scented.	Yellow sandy loam with some gravel.	In Melaleuca - Acacia tall shrubland.		-31.583333	119.5	22/10/1984
0	<i>Verticordia stenopetala</i>	P3					-31.6225	119.48167	
0	<i>Verticordia stenopetala</i>	P3					-31.6	119.51667	
6121	<i>Verticordia stenopetala</i>	P3	Shrub to 30 cm, slender. Flowers rose-pink.	Gravelly yellow sand.	With V. eriocephala, V. insignis.		-31.6225	119.48167	3/11/1981
6121	<i>Verticordia stenopetala</i>	P3	Shrub. 2 ft high, 2 ft diameter. Flowers pink.	Yellow sand.	Casuarine, mallee, Melaleuca thicket.	moderately frequent.	-31.6	119.51667	14/11/1986





# 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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 30/10/19 14:32:17

[Summary](#)

[Details](#)

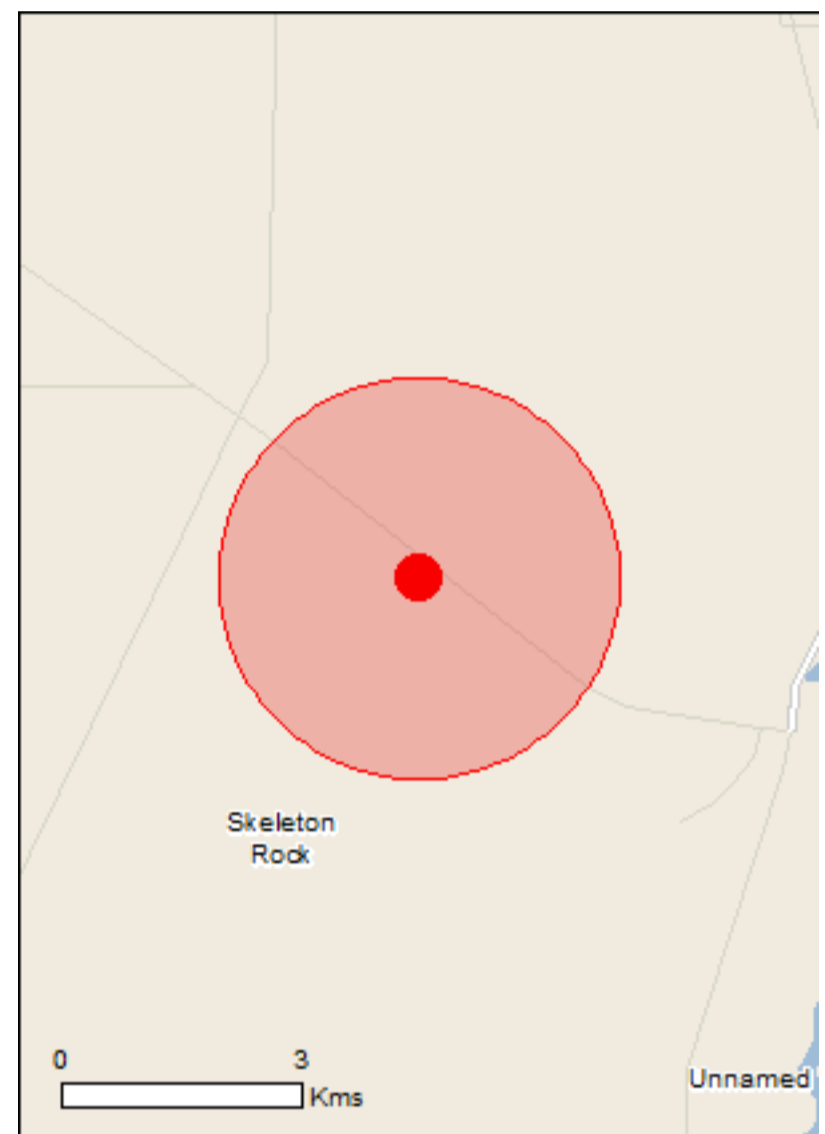
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 2.5Km



# Summary

## Matters of National Environmental Significance

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

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	1
<a href="#">Listed Threatened Species:</a>	8
<a href="#">Listed Migratory Species:</a>	6

## Other Matters Protected by the EPBC Act

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

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

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

<a href="#">Commonwealth Land:</a>	None
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	10
<a href="#">Whales and Other Cetaceans:</a>	None
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	None
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	10
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

### Listed Threatened Ecological Communities

[\[ Resource Information \]](#)

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

Name	Status	Type of Presence
<a href="#">Eucalypt Woodlands of the Western Australian Wheatbelt</a>	Critically Endangered	Community may occur within area

### Listed Threatened Species

[\[ Resource Information \]](#)

Name	Status	Type of Presence
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#### Birds

<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
---------------------------------------------------------------	-----------------------	--------------------------------------------------

<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat known to occur within area
-----------------------------------------------------	------------	-------------------------------------------------------

<a href="#">Pezoporus occidentalis</a> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
----------------------------------------------------------------	------------	--------------------------------------------------

#### Mammals

<a href="#">Dasyurus geoffroii</a> Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat may occur within area
---------------------------------------------------------------------	------------	--------------------------------------------------

#### Plants

<a href="#">Dasymalla axillaris</a> Native Foxglove [38829]	Critically Endangered	Species or species habitat may occur within area
----------------------------------------------------------------	-----------------------	--------------------------------------------------

<a href="#">Isopogon robustus</a> Robust Coneflower [82646]	Critically Endangered	Species or species habitat known to occur within area
----------------------------------------------------------------	-----------------------	-------------------------------------------------------

<a href="#">Roycea pycnophylloides</a> Saltmat [21161]	Endangered	Species or species habitat may occur within area
-----------------------------------------------------------	------------	--------------------------------------------------

<a href="#">Symonanthus bancroftii</a> Bancrofts Symonanthus [12837]	Endangered	Species or species habitat may occur within area
-------------------------------------------------------------------------	------------	--------------------------------------------------

### Listed Migratory Species

[\[ Resource Information \]](#)

\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
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#### Migratory Marine Birds

<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur
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Name	Threatened	Type of Presence within area
<b>Migratory Terrestrial Species</b>		
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area

## Other Matters Protected by the EPBC Act

Listed Marine Species		[ <a href="#">Resource Information</a> ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Birds</b>		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Chrysococcyx osculans</a> Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species

Name	Threatened	Type of Presence
		habitat may occur within area

## Extra Information

### Invasive Species [\[ Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
<b>Birds</b>		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
<b>Mammals</b>		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
<b>Plants</b>		
Carrichtera annua Ward's Weed [9511]		Species or species habitat likely to occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within

Name	Status	Type of Presence area
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# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

# Coordinates

-31.61839 119.54393



# Acknowledgements

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

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

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

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